

Documents

From: Robin Dittmann <dittm005@umn.edu>
To: palmer@fresh-energy.org
Cc: Alexandra Klass <aklass@umn.edu>
Sent: January 11, 2019 2:38:38 PM CST
Received: January 11, 2019 2:38:54 PM CST
Attachments: Fresh Energy Climat Change.pdf

Dear Ellen,

I have attached the signed agreement and W-9 form.

Best regards,

Robin

1. Fresh Energy Climat Change.pdf

Type: application/pdf
Size: 304 KB (311,646 bytes)

CONTRACT FOR SERVICES

This Agreement is entered into between Fresh Energy, 408 St Peter Street, Suite 220, St. Paul, MN 55102, and Regents of University of Minnesota through its Law School, 229 19th Avenue South Minneapolis, MN 55455 (hereinafter Contractor).

The terms of the Agreement are as follows:

1. SERVICES TO BE PROVIDED

The Contractor will provide Climate change legal research.

2. TERMS OF CONTRACT

Once signed by the Contractor and Fresh Energy, this Agreement will become effective January 1, 2019 and will remain in effect until March 1, 2019.

3. COMPENSATION AND TERMS OF PAYMENT

A. Cost of Services: \$3,000

B. Terms of Payment: Payment will be made within 30 days of receiving signed contract and W9 from the Contractor, emailed to info@fresh-energy.org.

C. Check Payable to: University of Minnesota Foundation

D. Check Mailed to:
University of Minnesota Law School
Attn: Robin Dittmann
229 19th Avenue South
Minneapolis, MN 55455

4. TERMINATION OF CONTRACT

A. Fresh Energy and the Contractor shall both have the right to terminate this Contract at any time for any reason by submitting written notice of the intention to do so to the other party at least thirty days prior to the specified effective date of such termination. If terminated upon action of the Contractor, funds shall be transferred back to Fresh Energy in a manner pro-rated to the expenditures to date. In addition, Fresh Energy shall have the right to terminate on thirty days written notice in the event that Contractor performance hereunder is substantially unsatisfactory or if the Contractor has violated any of the covenants, agreements, or stipulations contained herein.

7. GOVERNING LAW

This Agreement shall be governed by and construed in accordance with the laws of the State of Minnesota.

In witness whereof, the Parties have set their hands and each warrants that he/she is empowered to execute this Agreement and accept the Terms and Conditions as attached.

Robin Dittmann
Robin Dittmann

Ellen Palmer, Fresh Energy

Chief Finance Officer
Title

Chief Operations and Finance Officer
Title

1/10/2019
Date

Date

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

▶ Go to www.irs.gov/FormW9 for instructions and the latest information.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

Regents of the University of Minnesota

2 Business name/disregarded entity name, if different from above

University of Minnesota

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.

Individual/sole proprietor or single-member LLC C Corporation S Corporation Partnership Trust/estate

Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

Other (see Instructions) ▶ **State Government**

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) 3

Exemption from FATCA reporting code (if any) C

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

c/o University Tax Management Office, 2221 University Ave SE, Ste 100

6 City, state, and ZIP code

Minneapolis, MN 55414

7 List account number(s) here (optional)

Requester's name and address (optional)

Print or type.
See Specific Instructions on page 3.

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number									

or

Employer identification number									
4	1	-	6	0	0	7	5	1	3

Part II Certification

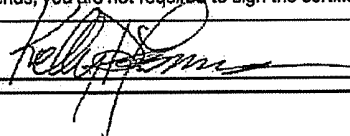
Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here

Signature of U.S. person ▶



Date ▶ **January 2, 2019**

Vendors:

Please note that the University's above address is used for tax purposes only. It is not a remit-to-address.

For all correspondence, including payments, please contact directly the U of M Department that you are working with.

U of M Department:

Please complete the following by filling in your department information before sending this form to the vendor.

U of M Department University of Minnesota Law School

Contact Name and Phone Robin Dittmann 612 626 9277

Mailing/Email Address dittm005@umn.edu

RE: Documents

From: Ellen Palmer <palmer@fresh-energy.org>
To: Robin Dittmann <dittm005@umn.edu>
Cc: Alexandra Klass <aklass@umn.edu>, Michael Noble <Noble@fresh-energy.org>
Sent: January 14, 2019 3:06:39 PM CST
Received: January 14, 2019 3:06:43 PM CST
Attachments: FE Contract_RegentsUofMLawSchool_executed.pdf

Robin,

Please find the executed contract attached. I'll process it for payment. Glad to be working with you,

[Ellen Palmer](#)

Chief Operations and Finance Officer

Fresh Energy

Phone 651 294 7142

www.fresh-energy.org | twitter.com/freshenergy

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From: Robin Dittmann <dittm005@umn.edu>
Sent: Friday, January 11, 2019 2:39 PM
To: Ellen Palmer <palmer@fresh-energy.org>
Cc: Alexandra Klass <aklass@umn.edu>
Subject: Documents

Dear Ellen,

I have attached the signed agreement and W-9 form.

Best regards,

Robin

1. FE Contract_RegentsUofMLawSchool_executed.pdf

Type: application/pdf
Size: 236 KB (242,529 bytes)

CONTRACT FOR SERVICES

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B. Terms of Payment: Payment will be made within 30 days of receiving signed contract and W9 from the Contractor, emailed to info@fresh-energy.org.

C. Check Payable to: University of Minnesota Foundation

D. Check Mailed to:
University of Minnesota Law School
Attn: Robin Dittmann
229 19th Avenue South
Minneapolis, MN 55455

4. TERMINATION OF CONTRACT

A. Fresh Energy and the Contractor shall both have the right to terminate this Contract at any time for any reason by submitting written notice of the intention to do so to the other party at least thirty days prior to the specified effective date of such termination. If terminated upon action of the Contractor, funds shall be transferred back to Fresh Energy in a manner pro-rated to the expenditures to date. In addition, Fresh Energy shall have the right to terminate on thirty days written notice in the event that Contractor performance hereunder is substantially unsatisfactory or if the Contractor has violated any of the covenants, agreements, or stipulations contained herein.

- B. In the event of the termination of this Agreement prior to normal completion, all finished or unfinished documents, data, studies, surveys, drawings, maps, photographs, and reports prepared by the Contractor in carrying out the work tasks hereunder shall be delivered to Fresh Energy subject to the terms and conditions of Section 7 of this Agreement.
- C. Notwithstanding the above, the Contractor shall not be relieved of the liability for damages sustained by Fresh Energy by virtue of any breach of Contract.

5. LIABILITY AND INDEMNIFICATION

- A. The Contractor represents that the services to be provided under this Agreement are reasonable in scope and that the Contractor has the experience and ability to provide the services.
- B. The Contractor shall indemnify, defend, and hold harmless Fresh Energy and its officers, directors, employees and agents from and against any and all claims, damages, loss, injuries, and expenses (including attorney's fees and damages for death, personal injury, and property damage) which Fresh Energy may incur as a result of any act or omission by the Contractor in providing services under this Agreement.

6. RELATIONSHIP OF PARTIES

The Contractor will provide services as an independent contractor under this Agreement. Neither the Contractor nor any of its employees or agents shall be considered employees of Fresh Energy for any purpose, and neither shall the Contractor be eligible for any compensation or benefits which Fresh Energy may provide to its employees from time to time. The Contractor shall be solely responsible for all employment and other taxes applicable to providing service hereunder, and Fresh Energy will not withhold any taxes or contributions from the compensation payable to the Contractor under this Agreement. If any governmental authority (federal, state, or other) claims that Fresh Energy owes taxes or contributions which allegedly should have been withheld or made, then, to the extent permitted by law, the Contractor shall pay Fresh Energy the amounts claimed to be due, plus reasonable attorneys' fees and any other costs which Fresh Energy may incur in defending such claim, whether or not a lawsuit is commenced.

7. GOVERNING LAW

This Agreement shall be governed by and construed in accordance with the laws of the State of Minnesota.

In witness whereof, the Parties have set their hands and each warrants that he/she is empowered to execute this Agreement and accept the Terms and Conditions as attached.

Robin Dittmann
Robin Dittmann

Ellen Palmer
Ellen Palmer, Fresh Energy

Chief Finance Officer
Title

Chief Operations and Finance Officer
Title

1/10/2019
Date

1/14/19
Date

Re: Article Draft -- Regulating the Energy "Free Riders"

From: Alexandra Klass <aklass@umn.edu>
To: Allen Gleckner <gleckner@fresh-energy.org>
Sent: January 15, 2019 7:02:49 PM CST
Attachments: Regulating the Free Riders Draft 1 14 2019.docx

If you haven't started reading the article yet, here's the new and improved version.

Best,

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Wed, Jan 9, 2019 at 12:18 PM Alexandra Klass <aklass@umn.edu> wrote:
Thank you!

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Wed, Jan 9, 2019 at 12:17 PM Allen Gleckner <gleckner@fresh-energy.org> wrote:

Hi Alex – I'd be glad to! Thanks for thinking of me.

[Allen Gleckner](#)

Director, Energy Markets

Fresh Energy

Phone 651 726 7570; 612 554 3291 (mobile)

www.fresh-energy.org | twitter.com/freshenergy

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From: Alexandra Klass <aklass@umn.edu>
Sent: Wednesday, January 9, 2019 11:27 AM
To: Allen Gleckner <gleckner@fresh-energy.org>
Subject: Article Draft -- Regulating the Energy "Free Riders"

Dear Allen -- Happy new year! I hope all is well. I was hoping you might have time to read an early draft of a new article that discusses free riding arguments in state public utility commission proceedings involving energy efficiency, distributed solar, and EV charging. It is very rough, and I would love your comments/suggestions to make it better!

Best,

Alex

Alexandra B. Klass

Distinguished McKnight University Professor
University of Minnesota Law School

229-19th Avenue South

Minneapolis, MN 55455

aklass@umn.edu

Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

1. Regulating the Free Riders Draft 1 14 2019.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 201 KB (206,667 bytes)

REGULATING THE ENERGY “FREE RIDERS”

Alexandra B. Klass*

This Article explores “free rider” arguments in energy policy. It focuses on how state public utility commissions have addressed free rider arguments in three different types of contemporary ratemaking proceedings: ratepayer funded energy efficiency programs; utility compensation for customer-generated rooftop solar energy; and utility investments in electric vehicle (“EV”) charging infrastructure. In doing so, this Article considers the impacts of the “free riding” label on policymaking in each area, and considers the weight policymakers should give to free rider concerns. It claims that regulators should consider both the present and future benefits of the program in question, particularly for programs designed to bring about major energy transition shifts. In other words, if the goal of the program is to build infrastructure required to shift to cleaner energy resources or reduce overall energy demand, program evaluators should consider future program beneficiaries in addition to current program beneficiaries. Moreover, regulators should use a range of tools to develop appropriate metrics to determine cost-effectiveness of programs supporting both distributed solar energy and EV charging investments, building on work done over the past decades in the energy efficiency context. Finally, this Article suggests that regulators can and should use the precautionary principle in developing these programs. Use of the precautionary principle is justified due to the potential for significant harm associated with continued reliance on fossil fuels in the energy sector and the potential for significant benefits to utility customers and the public resulting from a long term energy transition.

I. INTRODUCTION

As state regulators, electric utilities, and other interested parties attempt to develop programs to encourage a range of beneficial consumer behavior with regard to energy use, critics often are quick to argue that the beneficiaries of these programs are “free riders.”¹ In its simplest terms, free riding is the receipt of a public good

* Distinguished McKnight University Professor, University of Minnesota Law School. Scott Dewey, Connie Lenz, and Hudson Peters provided excellent research assistance.

¹ See, e.g., Charles E. Bayless, *Piggybacking on the Grid*, PUB. UTILS. FORT. (July 2015), <https://perma.cc/SH9U-KJTD> (comparing rooftop solar to “Piggyback Air,” a mythical airline that works by attaching its engineless planes to the roofs of its competitors’ aircraft); Prosper Org, *Ice Cream for Fairness*, YOUTUBE (Oct. 21, 2013), https://www.youtube.com/watch?reload=9&v=zJ8tToIeQ_U (electric utility-funded television advertisement suggesting that utility net metering programs are akin to a man bringing his own ice cream to an ice cream truck to take advantage of the free toppings provided with the ice cream sold at the truck, thus causing the owner to raise prices on ice cream for everyone else); Herman K. Trabish, *NV Energy CEO: Solar has Gotten a ‘Free Ride’ on the Grid*, GTM, (Aug. 19, 2013).

REGULATING THE ENERGY “FREE RIDERS”

without paying for its associated costs.² This Article will examine the use of free riding arguments in contemporary energy regulation. In particular, it will examine how state public utility commissions address arguments regarding free riding in three specific contexts: ratepayer funded energy efficiency programs; electric utility compensation for customer generated rooftop solar energy (also referred to as “net metering”); and electric utility investments in electric vehicle (“EV”) charging infrastructure.

This Article claims that regulators should exercise caution in evaluating free riding arguments. In particular, regulators should always consider which parties are making free riding arguments, what their motivations might be, and consider a full range of costs and benefits associated with the policy under consideration before reaching a conclusion that free riding is occurring, that an unreasonable shift of costs between customer classes is taking place, or that the policy fails to meet a statutory requirement that it be “just and reasonable.”³

Equally important, regulators need to be cognizant of the information asymmetries that permeate the utility regulatory proceedings involving claims of free riding. In many of the proceedings, “hard” data on program costs and benefits either is not available or is developed by the electric utility in question, at least at the start of the program. In the face of incomplete information, who should bear the burden of proving that a program such as energy efficiency, rooftop solar, or EV charging provides system-wide benefits and extent of those benefits? What if present-day benefits are modest but long-term benefits have the potential to be significant and measurable? These are important questions regulatory commissions are forced to answer in the early stages of customer-funded utility programs and labels of free riding or cross subsidies can limit or stall programs with potentially significant future system-wide benefits if the burden of providing information is misplaced.

The regulatory applications explored in this Article—energy efficiency programs, utility compensation for customer-generated rooftop solar energy, and utility investment in EV charging infrastructure—were chosen for two primary reasons. First each application involves the development of a state policy governing electric

² Garrett Cullity, *Moral Free Riding*, 24 PHIL. & PUB. AFF., 3, 7 (1995) (“a free rider is someone whose failure to pay for nonrival goods . . . makes her conduct unfair.”).

³ Most state statutes governing public utilities require that utility rates and charges be “just and reasonable” and that state public utility commissions ensure that rates are just and reasonable through the rate regulation process. See JIM LAZAR, *ELECTRICITY REGULATION IN THE US: A GUIDE* 49-61 (2d ed. 2016); Ari Peskoe, *Unjust, Unreasonable, and Unduly Discriminatory: Electric Utility Rates and the Campaign Against Rooftop Solar*, 11 Tex. J. Oil, Gas & Energy L. 101 & n.77 (2016) (citing state statutes).

REGULATING THE ENERGY “FREE RIDERS”

utilities within a regulated monopoly system.⁴ This means that for each policy, the state public utility commission requires the electric utility to implement a program that will be paid for by all utility customers (also known as “ratepayers”) but that may not provide identical benefits to all customers. This understandably leads to arguments by the utilities, various customer classes, or other interested parties that one group of customers is “free riding” off of the program to the detriment of other groups of customers or that there is a “cross-subsidy”—the idea that one group of customers (e.g., EV drivers, rooftop solar owners) is being subsidized by another group of customers and such a result is “unfair” or does not result in “just and reasonable” rates.⁵

Second, these applications provide helpful case studies because electric utilities as a group have taken different positions with regard to their support or opposition to the program in question. With regard to energy efficiency, in the early stages of these programs in the 1980s, utilities often opposed such programs because they would reduce utility revenues due to lost electricity sales. However, as state legislatures and public utility commissions developed programs to “decouple” utility revenues from energy sales, and to otherwise compensate utilities for implementing energy efficiency programs, utility opposition declined and free riding concerns became more a function of measuring the cost-effectiveness of particular program designs rather than opposition to energy efficiency programs in general.⁶

As for rooftop solar, utilities have attempted to impose significant limits on state “net metering” programs that require utilities to compensate electricity customers for the energy their solar panels produce at retail electricity rates.⁷ Such required purchases reduce utility revenues by reducing the amount of electric energy net metering customers purchase from the utility. In opposing net metering policies, utilities often raise free riding arguments—namely, that customers with solar panels

⁴ For a discussion of how the states regulate electric and gas utilities as regulated monopolies through the state public utility ratemaking process, see, e.g. LINCOLN L. DAVIES ET AL., *ENERGY LAW AND POLICY* Ch. 4 (West Academic Publishing 2d ed. 2018); Alexandra B. Klass, *Public Utilities and Transportation Electrification*, 104 IOWA L. REV. 545, 567-69 (2019) (discussing basic of electric utility ratemaking); Melissa Whited, *The Ratemaking Process* (Synapse Energy Economics, July 2017), <http://www.synapse-energy.com/sites/default/files/Ratemaking-Fundamentals-FactSheet.pdf> (summarizing the fundamentals of utility ratemaking and rate design).

⁵ See *infra* note ___ and accompanying text (discussing electric utility laws and ratemaking procedures).

⁶ See *infra* notes ___ - ___ and accompanying text.

⁷ See *infra* notes ___ - ___ and accompanying text.

REGULATING THE ENERGY “FREE RIDERS”

are paying less than their “fair share” of the costs to support the electric grid.⁸ Because solar panel owners pay less for electricity each month but still use the electric grid when the sun is not shining, utilities argue that the costs of supporting the grid are unfairly shifted to non-solar customers, who are often less affluent. The extent of this “cross-subsidy” is a matter of significant controversy in state legislatures and state public utility commissions.

With regard to utility investment in EV charging infrastructure, utilities generally support these policies as they create an investment opportunity to build new infrastructure for which they can recover not only their costs but also a rate of return. As a result, in this context it is the oil companies, not electric utilities, who stand to lose from program adoption and have raised free riding arguments in regulatory proceedings.⁹ They contend that requiring all utility customers to pay for such utility investments to support transportation electrification is an unfair “cross subsidy” between EV owners and non-EV owners, despite a growing body of evidence that greater use of EVs will, at least in the future, benefit all utility customers through overall reductions in electricity rates due to more efficient use of electric grid resources.¹⁰

Notably, environmental groups generally support all three types of policies as they all potentially lead to reduced reliance on fossil fuels to generate electricity. Likewise, consumer advocacy groups often oppose all three policies because they can lead to higher (or at least disproportionate) costs on lower income customers in the short term. Thus, utilities in some cases invoke free riding and cross subsidy arguments on behalf of certain customer classes and in some cases do not, mostly depending on whether the utility itself stands to benefit financially from the policy.

These differences in the free riding and cross subsidy arguments in each of applications allows for greater insights into the evaluation of free riding arguments. They also provide a window into the motivations of the regulated utilities and third parties making the free riding and cross-subsidy arguments in the first place. Moreover, it is important to recognize that the identification and evaluation of free riders is a longstanding and well-recognized metric used in evaluating the cost-effectiveness of utility-funded energy efficiency programs. In the rooftop solar and

⁸ See, e.g., Hiroko Tabuchi, *Rooftop Solar Dims Under Pressure from Utility Lobbyists*, N.Y. TIMES, July 8, 2017 (“Utilities argue that net metering, in place in over 40 states, turns many homeowners into free riders on the grid, giving them an unfair advantage over customers who do not want or cannot afford solar panels. The utilities say that means fewer ratepayers cover the huge costs of traditional power generation.”).

⁹ See *infra* notes ___ - ___ and accompanying text.

¹⁰ *Id.*

EV charging contexts, however, opponents of those programs have used the concept of free riding to attack the programs themselves rather than as metric for program improvement. This Article urges regulators to borrow from the cost-effectiveness metrics developed in the energy efficiency context, including the role of free riders, and adapt them for use in the rooftop solar and EV charging contexts.

Part II sets forth various definitions of free riding from multiple academic disciplines. It then surveys some common free riding arguments in both legal scholarship and case law outside the energy policy field. This review shows that both scholars and courts use the concept free riding to encompass two different concerns to be addressed through law and regulation: (1) the inefficiency and ineffectiveness of policies that would subsidize desired conduct that would have occurred even without the subsidy and (2) the “unfairness” of certain groups receiving a greater benefit from programs and investments paid for by everyone, resulting in a “cross subsidy” and rates that are “unjust and unreasonable” under applicable law.¹¹

Part III turns to regulatory and judicial treatment of free riding arguments in energy law and policy. After exploring how federal regulators and courts have responded to free rider concerns in energy policy in the past, this Part evaluates more closely the use of free riding and cross subsidy arguments in the three contemporary state public utility ratemaking challenges described above: (1) ratepayer funded energy efficiency programs; (2) utility compensation for customer-generated rooftop solar energy; and (3) utility investment in EV charging infrastructure. In each case, state public utility regulators must evaluate free riding arguments and determine how much weight to give them in setting policies to govern these programs. In each situation, regulator decision-making is complicated by rapid technological developments, uncertainties regarding program impacts, concerns associated with future environmental harms such as climate change, and limited ability to assess program effectiveness now for benefits that may not accrue until years into the future.

Part IV claims that regulators should consider both the present and future costs and benefits of the program in question when evaluating free riding arguments. In other words, if a goal of the program is to build infrastructure for a long-term policy goal, such as a shift to cleaner energy resources or reducing overall energy demand, program evaluators should consider future program beneficiaries in addition to current program beneficiaries. This has already been recognized to some extent for energy efficiency policies, where utilities and regulators realize that reduced energy

¹¹ See *supra* note __ (discussing state legislative mandates that utility rates be “just and reasonable”); *infra* note __ (same).

demand means that utilities need not invest in new energy generation plants, including fossil fuel plants, in order to meet customer demand in the future. With a few exceptions,¹² the debate in the energy efficiency realm has shifted away from whether utilities should implement energy efficiency programs at all and instead focuses on developing appropriate evaluation, measurement, and verification metrics to design programs that are cost-effective and incentivize behavior that would not occur in the absence of the program.

This shift has not yet occurred in the context of utility compensation for rooftop solar or utility investment in EV charging infrastructure. In both cases, opponents of those programs—electric utilities in the case of rooftop solar and oil companies in the case of EV charging—are relying on free riding and cross subsidy arguments to question the very existence of the policy in question and focusing on alleged unfair cost shifts with regard to different classes of current customers. Supporters of both types of programs are marshaling evidence to rebut arguments that an unreasonable cost shift among customer classes will occur, with mixed success.

In the face of incomplete information that exists at the start of a new program with the potential for significant public benefits, regulators should be cautious in concluding that free riding or cross subsidy concerns should defeat the project in question.¹³ Instead, in those circumstances, it may be more reasonable to use free riding and cross subsidy concerns to place limits on subsidies for particular investments, such as rebates for residential or commercial EV charging stations, but to allow investments in longer term grid improvements that may benefit all utility customers in the long run. Doing so would be consistent with the precautionary principle, which is applicable in this context due to the significant risks associated

¹² For exceptions to this general statement, *see infra* notes ___ - ___ and accompanying text (discussing legislative rollbacks of energy efficiency programs).

¹³ Scholars have raised a similar concern in recent years in the context of utility arguments regarding “fairness” and cross subsidies in the context of rooftop solar compensation. *See, e.g.*, Shelley Welton, *Clean Electrification*, 88 U. COLO. L. REV. 571, 605 (2017) (“The fact that utilities so frequently filter their protectionist concerns through discussions of equity . . . serves to underscore its importance in electricity law; utilities make these arguments because they are aware that regulators care about the equities of clean energy policies.”); Ari Peskoe, *Unjust, Unreasonable, and Unduly Discriminatory: Electric Utility Rates and the Campaign Against Rooftop Solar*, 11 TEX. J. OIL, GAS & ENERGY L. 101, 108-09 (2016) (contending that the utility “focus on supposed cost shifts among individual ratepayers is self-serving, and that [public utility commissions] have routinely allowed or ignored potential cross-subsidization among individual ratepayers, particularly when subsidies benefit the utility system.”); Troy Rule, *Solar Energy, Utilities, and Fairness*, 6 SAN DIEGO J. CLIMATE & ENERGY L. 115 (2014-15) (cataloguing different fairness and cross-subsidy arguments utilities make in the context of rooftop solar compensation).

REGULATING THE ENERGY “FREE RIDERS”

with continued reliance on fossil fuels in the energy sector and the potential significant long-term benefits to utility customers and the public associated with energy transition. Moreover, this approach allows regulators and electric utilities to build on metrics already used in the energy efficiency context to develop appropriate programs in the rooftop solar and EV charging infrastructure contexts.

II. FREE RIDING DEFINITIONS AND APPLICATIONS

The concept of free riding originates in moral philosophy, and arguably dates back to Plato’s Republic.¹⁴ In moral philosophy, free riding hinges on the unfairness of the receipt of a benefit without paying its associated costs.¹⁵ In defining “fairness,” John Rawls states:

a person is [morally] required to do his part as defined by the rules of an institution when two conditions are met: first, the institution is just (or fair), that is, it satisfies the two principles of justice; and second, one has voluntarily accepted the benefits of the arrangement or taken advantage of the opportunities it offers to further one’s interests.¹⁶

In economics, free riding is a broadly defined principle that concerns the receipt of unpaid-for benefits.¹⁷ Concerns over free riding often focus on “public goods.”¹⁸

¹⁴ *The Free Rider Problem*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (May 21, 2003), <https://plato.stanford.edu/entries/free-rider/> (citing PLATO, THE REPUBLIC bk. 2, 360b–c (C.D.C. Reeve, trans., Hackett, 2004)) (noting Glaucon’s argument to disobey the law when one cannot be caught). *See also* Hossein Haeri & M. Sawi Kawaja, *The Trouble With Free Riders*, PUB. UTIL. FORTNIGHTLY 34 (Mar. 2012) (discussing origins of the concept of free riding dating back to Plato’s Republic; 18th and 19th century political philosophers, including Hume and Mill; and later Paul Samuelson and Mancur Olson in the 1950s and 1960s).

¹⁵ Garrett Cullity, *Moral Free Riding*, 24 PHIL. & PUB. AFF., 3, 7 (1995) (“a free rider is someone whose failure to pay for nonrival goods under conditions C makes her conduct unfair.”).

¹⁶ JOHN RAWLS, A THEORY OF JUSTICE 111–12 (1971). Rawls’ two principles of justice mandate (1) equal access to universal basic liberties and (2) social and economic inequalities are arranged to the benefit of the least well-off. *Id.* at 26.

¹⁷ DONALD RUTHERFORD, *Free Rider*, in ROUTLEDGE DICTIONARY OF ECON. 233 (1995) (“An individual who does not pay for the goods or services he or she consumes.”). *See also* JAMES R. KEARL, PRINCIPLES OF ECONOMICS 441 (1993) (“Free riding occurs when a person benefits from or uses a valuable good or service without having to pay for it.”).

¹⁸ Definitions of a “public good” vary, but in general a public good is defined as one that is available to everyone if anyone has access (jointness in supply), no one can be excluded from its use without excessive cost (nonexcludability), use by one person doesn’t diminish the amount available for consumption by others (jointness in consumption), enjoyment by

In other words, markets and regulation should be designed to prevent a party (the “free rider”) from receiving the benefit of a public good without contributing to its cost.¹⁹ Classic public goods include national defense, street lighting, and environmental protection.²⁰ Economists and regulators attempt to design markets and regulations to avoid free riding to ensure sufficient investment in public goods and avoid overconsumption of public goods.

Free riding arguments appear across a broad range of contexts, from the auto industry, to voting, to international trade negotiations, or to any area where someone contends that unpaid-for benefits have been accrued.²¹ In his classic 1965 work *The Logic of Collective Action: Public Goods and the Theory of Groups*, Mancur Olson Jr. brought the economic theory of free riding into the public policy realm, with his application of the concept to the social science issue of collective action.²² Though he didn’t explicitly refer to free riding, Olson described the collective action problem that individuals are more likely to free ride as group size increases.²³ Because individuals are able to derive most, if not all, of the benefits of a public good regardless of their individual contributions, and because the comparative value of any individual contribution decreases as group size increases, it is rational for individuals to free ride off the contributions of other group members.

one person of the good does not diminish the benefits available to others (nonrivalness), no one can avoid using the good if anyone does (compulsoriness), everyone receives the same amount of the good (equality), and each user of the good consumes its total output (indivisibility). See Cullity, *supra* note 15, at 2; see also William Nordhaus, *Climate Clubs: Overcoming Free-riding in International Climate Policy*, 105 AM. ECON. REV. 1339, 1339 (2015).

¹⁹ Cullity, *supra* note 15, at 3–4; R. HARDIN, COLLECTIVE ACTION 17 (1982); D. MUELLER, PUBLIC CHOICE 14 (1954); Paul A. Samuelson, *The Pure Theory of Public Expenditure*, 36 REV. ECON. & STATISTICS 387 (1954).

²⁰ Thomas W. Merrill, *The Economics of Public Use*, 72 CORNELL L. REV. 61, 73, n.45 (2006).

²¹ Compare Ellen Sewell & Charles Bodkin, *The Internet’s Impact on Competition, Free Riding and the Future of Sales Service in Retail Automobile Markets*, 35 EASTERN ECON. J. 96, (2009) (discussing ability of online car dealers to free ride on physical services of brick-and-mortar dealers), with Rodney D. Ludema & Anna Maria Mayda, *Do Countries Free Ride on MFN?*, 77 J. INT’L ECON. 137 (2009) (discussing ability of countries to free ride on efforts of other countries’ negotiations in international trade deals); Björn Tyrefors Hinnerich, *Do Merging Local Governments Free Ride on Their Counterparts When Facing Boundary Reform?*, 93 J. Pub. Econ. 721 (2009) (applying economic free riding analysis to politics).

²² MANCUR OLSON JR., THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS 14 (1965).

²³ Olson, *supra* note 22, at 35; see also Vincent Anesi, *Moral Hazard and Free Riding in Collective Action*, 32 SOC. CHOICE & WELFARE 197, 197–98 (2009).

Equally important for social science scholarship of free riding was Anthony Downs’ 1957 book *An Economic Theory of Democracy*, which applied free riding concepts to democratic voting habits.²⁴ Downs found that once voting has at least some costs associated with it, it is individually rational for some people to not vote because they can still derive the benefits of their preferred policies being implemented without incurring those voting costs. Thus, social science tends to rely on a game theoretical approach, and recontextualizes free riding from the perspective of the free rider.²⁵

Considerations of free riding in the environmental protection context can be traced back to Garrett Hardin’s 1968 article *The Tragedy of the Commons*.²⁶ Hardin’s work stems from the social science model of free riding, as it focuses on the selfish following of one’s own interests to inefficient results. In categorizing the environment as a public good, he observed that it is individually rational for environmental polluters to not incur the costs of preventing pollution because they are greater than any damage suffered as an individual user of the environment. Other scholars have built on Hardin’s work to suggest either allocating property rights in resources, enacting regulations prohibiting resource destruction, or a combination of both approaches as a solution to this dilemma.²⁷ At the same time, however, the traditional articulation of free riding—obtaining a public good without sharing the costs—is also a focus of evaluating environmental policies such as waste reduction programs and climate policy.²⁸ As a result, both of these articulations of free riding can be found in the environmental policy context.

²⁴ ANTHONY DOWNS, AN ECONOMIC THEORY OF DEMOCRACY 260–74 (1957). Downs described why there is individual incentive not to vote despite the presumed benefits. Downs’ book predates the game theoretical analysis of free riding, and instead uses an economic-style definition.

²⁵ Cullity, *supra* note 15, at 4.

²⁶ Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968) (considering the collective action problem of joint public use of the environment and concluding that there is incentive for each individual to exploit it because the amount of benefit received outweighs the aggregate cost incurred).

²⁷ See, e.g., ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTIONS 1-3 (2003 ed.); William W. Buzbee, *Recognizing the Regulatory Commons: A Theory of Regulatory Gaps*, 89 IOWA L. REV. 1 (2003) (discussing scholarship in the area); Carol Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1 (1991) (same).

²⁸ See, e.g., Magali Delmas & Arturo Keller, *Free Riding in Voluntary Environmental Programs: The Case of the U.S. EPA WasteWise Program*, 38 POL. SCI. 91, 91 (2005) (“Free riding occurs when one firm benefits from the actions of another without sharing the costs.”); Nordhaus, *supra* note **Error! Bookmark not defined.**, at 1339 (“Free-riding occurs when a party receives the benefits of a public good without contributing to the costs.”).

Notably, questions of “fairness” often arise in conjunction with free riding arguments. In the legal academy, what role “fairness” should play in developing legal policy remains highly contested, as illustrated by the work of Professors Steven Shavell, Louis Kaplow, and other scholars.²⁹ The merits of this debate are beyond the scope of this Article but serve as an important backdrop to the discussion that follows, namely, how advocates in energy utility proceedings use both free riding and fairness arguments to promote their interests and particularly how advocates use free riding arguments as a proxy for fairness arguments, and vice versa.

III. FREE RIDING DEBATES IN CONTEMPORARY ENERGY POLICY

Free riding arguments are often raised in the context of energy law and policy proceedings, where regulators routinely determine who will bear the costs and benefits of energy investments, rates, and charges. This occurs in “ratemaking” proceedings before the Federal Energy Regulatory Commission (“FERC”) and state public utility commissions as well as in court proceedings reviewing federal and state regulatory decisions.³⁰ These decisions use free riding arguments in the various forms discussed in Part II, although often in a far broader sense than the classic economics definition focused on public goods. They include the situation where advocates in a proceeding involving a utility subsidy program argue that participants in the program are being paid for actions or conduct they would have engaged in anyway without the subsidy, thus rendering the program inefficient or “unjust and unreasonable” under governing law. They also include arguments over cross-subsidies—that a group of industry actors or customer classes are obtaining excess benefits from costs shared by all industry actors or customer classes and correspondingly, some industry

²⁹ See, e.g. LOUIS KAPLOW & STEVEN SHAVELL, *FAIRNESS VERSUS WELFARE* (Harv. U. Press 2002) (arguing that “notions of fairness like corrective justice should receive no independent weight in the assessment of legal rules” and that, instead, a “welfare-based normative approach” should be used exclusively instead); Louis Kaplow & Steven Shavell, *Fairness v. Welfare*, 114 HARV. L. REV. 961 (2001) (same); *FAIRNESS IN LAW AND ECONOMICS* (Lee Anne Fennell & Richard H. McAdams, eds., Edward Elgar Pub. 2013); Troy A. Rule, *Solar Energy, Utilities, and Fairness*, 6 SAN DIEGO J. OF CLIMATE & ENERGY L. 115 (2014-15) (relying on Kaplow and Shavell to argue that claims of “fairness” to oppose compensation for rooftop solar energy should be viewed with skepticism and discussing the role of fairness in legal policy more broadly).

³⁰ See, e.g., Melissa Whited, *The Ratemaking Process* (Synapse Energy Economics, July 2017) (summarizing the fundamentals of utility ratemaking and rate design); LINCOLN L. DAVIES ET AL., *ENERGY LAW AND POLICY*, Ch. 4 (West Academic Publishing, 2d ed. 2018) (discussing federal and state ratemaking processes and judicial review of same); REG. ASSISTANCE PROJECT, *REVENUE REGULATION AND DECOUPLING: A GUIDE TO THEORY AND APPLICATION* 3-8 (Nov. 2016) (describing traditional rate regulation).

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actors or customer classes are overpaying or underpaying for the benefits they receive.

For instance, in the context of FERC proceedings, parties—often investor-owned electric utilities—argue for or against a change in FERC policy on the grounds that it permits or even encourage free riding. As an example, in 2011, in Order 1000, FERC imposed new regional transmission planning requirements and cost allocation rules on utilities.³¹ In response, some utilities argued that other utilities and their customers were free riding by not paying a proportional amount of the associated costs associated with new electric transmission lines covered by the Order and that the new lines would be benefit some utility customers more than others.³² Those utilities criticizing the rule argued that FERC must follow the “cost-causation principle,” a requirement derived from the Federal Power Act’s mandate that rates be “just and reasonable.” The utilities argued that the cost-causation principle requires that FERC can only approve rates that charge consumers roughly proportionally to the benefits they receive.³³

As one federal court put it, the “cost causation principle targets something called the ‘free rider problem,’ which FERC acknowledged that it sought to ‘address through its cost allocation reforms’ in Order No. 1000.”³⁴ Although the facial challenges to FERC Order 1000 were not successful, both the Order itself, in which FERC referenced free riding issues, as well as the court decisions evaluating Order

³¹ Order No. 1000-A, ¶ 578, 77 Fed. Reg. at 32,274 (defining “free riders” as “entities who are being subsidized by those who pay the costs of the benefits that free riders receive for nothing” and that in the electric transmission line context, free riders “do not bear cost responsibility for benefits that they receive in their use of the transmission grid. . . .” *Id.* at ¶ 576, 77 Fed. Reg. at 32,273; *El Paso Elec. Co. v. FERC*, 832 F.3d 495, 499 (5th Cir. 2016). *See also* Herman K. Trabish, *Has FERC’s Landmark Transmission Planning Effort Made Transmission Harder to Build?*, UTILITY DIVE, July 17, 2018 (discussing Order 1000).

³² *See* Order No. 1000-A, 139 FERC 61,132, ¶ 498, 77 Fed. Reg. at 32,274 (May 17, 2012).

³³ *See* *Ill. Commerce Comm’n v. F.E.R.C.*, 576 F.3d 470, 476 (7th Cir. 2009) (quoting *KN Energy, Inc. v. FERC*, 968 F.2d 1295, 1300 (D.C.Cir.1992)) (“FERC is not authorized to approve a pricing scheme that requires a group of utilities to pay for facilities from which its members derive no benefits, or benefits that are trivial in relation to the costs sought to be shifted to its members. [A]ll approved rates [must] reflect to some degree the costs actually caused by the customer who must pay them.”).

³⁴ *El Paso Elec. Co. v. FERC*, 832 F.3d 495 (5th Cir. 2016) (quoting Order No. 1000-A ¶ 562, 77 Fed. Reg. at 32,271).

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1000, recognized the potential for free riding in federal transmission planning and cost allocation.³⁵

Utilities have also raised free riding arguments in context of who should pay for upgrades to existing transmission lines.³⁶ There, utilities have argued that individuals might be forced to subsidize the upgrades of others by paying the cost while others also derive the benefits.³⁷ Free riding arguments have also arisen in a compliance context, when utilities are punished for previous illegal behavior by having to disgorge past profits.³⁸ There, utilities complained that a company that would receive the refunds was a free rider because it had not pursued a complaint against them when others had.³⁹ Lastly, free riding arguments can arise in transmission rate cases for individual utilities.⁴⁰ Utilities have argued that customers can free ride by misrepresenting their actual energy demand because charges are calculated on an annual basis using a snapshot of demand at a single point in time.⁴¹ Utilities worry that customers can intentionally lower demand for that short time to derive unjust benefits for the whole year.

At the state level, public utility commissions and public service commissions frequently address free riding arguments in the context of commissions setting rates for electric, gas, and telecommunications utilities. For example, in the early 2000s, telecommunications companies in Illinois and Michigan argued that their competitors were free riding on their phone infrastructure when the competitors used that infrastructure to offer local call pricing for longer distance calls.⁴² For electric and gas utilities, most state statutes direct utility commission to ensure that utility rates, charges, and programs are “just and reasonable.”⁴³ Thus, free riding arguments associated with one class of ratepayers cross subsidizing another class of ratepayers is an argument that a particular rate, program, or charge is unjust and unreasonable or, in a broader sense “unfair.”⁴⁴

³⁵ See, e.g., *South Carolina Pub. Serv. Auth. v. FERC*, 762 F.3d 41 (D.C. Cir. 2014) (upholding challenges to FERC Order 1000); *supra* note __ (discussing Order 1000 and references to free riding).

³⁶ See, e.g., *Sw. Power Pool, Inc.*, 163 FERC ¶ 61092 (May 4, 2018).

³⁷ See *id.* at ¶ 22.

³⁸ See, e.g., *San Diego Gas & Elec. Co.*, 163 FERC ¶ 61080 (May 3, 2018).

³⁹ *Id.* at ¶ 34. FERC declared this a non-issue and sided with the company.

⁴⁰ See, e.g., *PJM Interconnection, L.L.C.*, 162 FERC ¶ 61136 (Feb. 16, 2018).

⁴¹ *Id.* at ¶ 2.

⁴² *In Re Focal Comm. Corp.*, 00-0027, 2001 WL 902639 (Ill. C.C.) (May 8, 2001); *In Re Coast to Coast Telecom, Inc.*, U-12382, 2000 WL 1409759 (Mich. P.S.C.) (Aug. 17, 2000).

⁴³ See *supra* note __, and accompanying text (discussing state statutes).

⁴⁴ See, e.g., *Peskoe*, *supra* note __ at 123 (discussing state court decisions reviewing public utility commission rate design issues surrounding cost shifts between customer classes and

When it comes to utility-funded energy efficiency programs, the question is often whether utilities or government actors are subsidizing conduct, such as residential or commercial customer energy efficiency investments (e.g., weatherproofing, energy efficient light bulbs, energy efficient boilers), that would have been undertaken even absent the subsidy.⁴⁵ The idea is that if conduct that would have otherwise occurred is being subsidized, the program causes an unreasonable cost shift among different customer classes. This is because all utility customers pay the utility for administering the program (at a rate determined by the state utility commission), those customers who would have invested in energy efficiency even absent the program are receiving a subsidy paid for by others, and thus those investments shouldn’t “count” as program benefits because they would have occurred anyway. Because of these concerns, which most energy efficiency experts characterize as free riding, government regulators, utilities, and industry experts have created a range of metrics and conducted empirical studies to evaluate the cost-effectiveness of these programs and determine the level of free riding.⁴⁶

In other energy-related contexts, such as utility compensation for customer-generated rooftop solar and utility investments in EV charging infrastructure, free riding is described somewhat differently. In these cases, rather than labeling behavior

concluding that most courts defer to commissions so long as such allocation in rate design is reasonable).

⁴⁵ See, e.g., Marie-Laure Nauleau, *Free-Riding on Tax Credits for Home Insulation in France: An Econometric Assessment Using Panel Data*, 46 ENERGY ECON. 78, 79 (2014) (“free-ridership, which is defined as behavior occurring when the agents targeted by the policy take the incentives but would have made the investment anyway.”) (internal quotations omitted); Nicholas Rivers & Leslie Shiell, *Free Riding on Energy Efficiency Subsidies: The Case for Natural Gas Furnaces in Canada* Abstract (Univ. of Ottawa, Working Paper No. 1404E, 2015) (“We assess the extent to which subsidies for home energy efficiency improvements in Canada have been paid to households that would have undertaken the improvements anyway—the so-called free rider rate”); Kenneth E. Train, *Estimation of Net Savings From Energy-Conservation Programs*, 19 ENERGY 423, 424 (1994) (“The customers who implemented measures under a program even though they would have installed the measures without the program (for example, customers who received rebates for measures that they would have installed anyway) are called “free riders.”).

⁴⁶ See Matthew Collins & John Curtis, *Willingness-to-Pay and Free-Riding in a National Energy Efficiency Retrofit Grand Scheme: A Revealed Preference Approach* 7 (ESRI, Working Paper No. 551, 2016), <http://www.esri.ie/pubs/WP551.pdf> (using empirical definition of “comparison of the total cost of the completed retrofit, the cost to the household of the retrofit following the award of grant aid, and the total willingness-to-pay of each household for that retrofit.”); Peter Grösche & Colin Vance, *Willingness-to-Pay for Energy Conservation and Free-Ridership on Subsidization: Evidence from Germany*, 30 ENERGY J. 135 (2009); Nauleau, *supra* note __; Rivers & Shiell, *supra* note __.

that would have occurred even in the absence of a program subsidy as free riding, the claim centers more directly on a certain class of utility customers paying “less than their fair share” for a benefit provided by the utility. For instance, rooftop solar owners are labeled as free riders because they pay less in utility bills than customers without rooftop solar—because solar owners receive bill credits for the solar energy they generate—but solar owners still use the electric grid when the sun is not shining.⁴⁷ Likewise, if all utility customers pay for the utility to install EV charging stations within the utility’s service territory, but only some customers own EVs and benefit from the charging station, then non-EV owners are subsidizing EV owners and EV owners are free riders. These alleged cost shifts between customer classes are often targeted as unfair and, as a legal matter, “unjust and unreasonable.”

Of course, in all three instances, if the public benefits to all utility customers associated with the energy efficiency upgrades, rooftop solar energy generation, or use of EVs is above some determined threshold, the claims of free riding are neutralized. The difficulty, though is determining the nature and amount of the benefits these programs provide on both a near-term basis and a long-term basis. How interested parties, experts, and state utility commissions evaluate these issues is the topic of the remainder of this Article.

A. Energy Efficiency Programs

Energy efficiency is a means of reducing energy consumption by using less energy to attain the same output.⁴⁸ Energy efficiency is divided into three broad categories—(1) buildings (reducing electricity and space heating needs in buildings through new appliances, technologies, increased insulation, and the like); (2) transportation (increasing the efficiency of vehicles and vehicle fuels); and (3) industrial energy use. In the United States, energy use has become significantly more efficient over the past few decades, allowing energy consumption to remain flat even in the face of economic growth.⁴⁹ Programs to improve energy efficiency include vehicle fuel economy standards and appliance efficiency standards at the federal

⁴⁷ See Tabuchi, *supra* note __ (discussing utility claims of free riding in context of rooftop solar).

⁴⁸ Although “energy efficiency” is often used interchangeably with “energy conservation,” they are different concepts. Energy efficiency involves “accomplishing an objective—such as heating a room to a certain temperature—while using less energy” while energy conservation involves changing behavior to use less energy such as turning down the thermostat in the winter. NAT’L ACADEMY OF SCIENCES, ET AL., REAL PROSPECTS FOR ENERGY EFFICIENCY IN THE UNITED STATES 21 n.1 (Nat’l Academies Press 2010).

⁴⁹ LINCOLN L. DAVIES ET AL., ENERGY LAW AND POLICY 137-38 (West Academic Press, 2d ed. 2018).

level, as well as a range of local and state policies to promote energy efficiency in buildings and appliances through mandates and tax incentives.⁵⁰

Energy efficiency in residential and commercial buildings is particularly significant as it represents a low cost opportunity to reduce U.S. energy usage as well as the associated greenhouse gas (“GHG”) emissions. In 2017, the electric power sector consumed 38% of total U.S. energy, the residential and commercial sector consumed 11%, the transportation sector consumed 29%, and the industrial sector consumed 22%.⁵¹ With regard to greenhouse gas (“GHG”) emissions, in 2016, the transportation sector and electric power sector both represented 28% of U.S. emissions, with the commercial/residential sector representing 11%, industry 22%, and agriculture 9%.⁵² Notably, in 2017, residential and commercial buildings, which require energy for electricity and for space heating, consumed approximately 40% of U.S. energy and represented approximately the same percentage of U.S. CO₂ emissions.⁵³ In large urban centers such as New York City and Chicago, buildings constitute over 70% of energy use.⁵⁴

Thus, to the extent the United States can reduce energy use in residential and commercial buildings through energy efficiency, there will be significant cost savings and environmental benefits.⁵⁵ Indeed, experts show that, when treated as an energy resource (i.e., as an equivalent to generating power), energy efficiency is the third

⁵⁰ *Id.*

⁵¹ U.S. Energy Info. Admin., U.S. Energy Facts, Explained, https://www.eia.gov/energyexplained/?page=us_energy_home.

⁵² U.S. EPA, Source of Greenhouse Gas Emissions, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

⁵³ U.S. Energy Info. Admin., How Much Energy is Consumed in U.S. Residential and Commercial Buildings? (last updated May 3, 2018), <https://www.eia.gov/tools/faqs/faq.php?id=86&t=1>; Alliance to Save Energy, *Overview*, <https://www.ase.org/initiatives/buildings> (“Buildings—offices, homes, and stores—use 40% of our energy and 70% of our electricity. Buildings also emit over one-third of U.S. greenhouse gas emissions, which is more than any other sector of the economy.”). *See also* U.S. Green Building Council, Benefits of Green Buildings (updated May 2018), <https://www.usgbc.org/articles/green-building-facts> (U.S. buildings account for 40% of U.S. CO₂ emissions, more than the transportation and industrial sectors).

⁵⁴ Iain Campbell & Coben Calhoun, *Old Buildings are U.S. Cities’ Biggest Sustainability Challenge*, HARV. BUS. REVIEW (Jan. 21, 2016).

⁵⁵ *See, e.g.*, Alexandra B. Klass & Elizabeth J. Wilson, *Remaking Energy: The Critical Role of Energy Consumption Data*, 104 CAL. L. REV. 1095, 1098-99 (2016) (citing statistics from McKinsey & Co. estimating that “investing \$520 billion in nontransportation energy efficiency by 2020 could generate energy savings worth \$1.2 trillion, reduce end-use energy demand by 23 percent compared to current projection, and eliminate over 1.1 gigatons of

largest U.S. energy resources (behind coal and natural gas and in front of nuclear energy) and is also the lowest cost resource.⁵⁶ As a result of these potential savings and other benefits, there has been a significant emphasis on policymaking at the state level to support energy efficiency programs in general and utility funded energy efficiency programs in particular.

1. *Utility-funded energy efficiency programs*

Since the 1980s, utilities have offered energy efficiency programs to customers either voluntarily or as a result of state mandates. Today, such programs exist in one form or another in all 50 states and the District of Columbia and include “financial incentives, such as rebates and loans; technical services, such as audits, retrofits, and training for architects, engineers, and building owners; behavioral strategies; and educational campaigns about the benefits of energy efficiency improvements.”⁵⁷ States spent nearly \$8 billion on energy efficiency programs in the utility sector in 2017, paid for by utility customers through their monthly electric and gas bills.⁵⁸ According to the American Council for an Energy-Efficiency Economy (“ACEEE”),

greenhouse gas emissions annually.”) (citing MCKINSEY & CO., UNLOCKING ENERGY EFFICIENCY IN THE U.S. ECONOMY iii (July 2009)).

⁵⁶ AMERICAN COUNCIL FOR AN ENERGY-EFFICIENCY ECONOMY, THE GREATEST ENERGY STORY YOU HAVEN’T HEARD: HOW INVESTING IN ENERGY EFFICIENCY CHANGED THE US POWER SECTOR AND GAVE US A TOOL TO TACKLE CLIMATE CHANGE 5-6 (Oct. 2016), <https://aceee.org/sites/default/files/publications/researchreports/u1604.pdf>; Annie Gilleo, *New Data, Same Results—Saving Energy is Still Cheaper than Making Energy*, ACEEE, Dec. 1, 2017, <https://aceee.org/blog/2017/12/new-data-same-results-saving-energy> (showing cost comparisons of energy efficiency with other energy resources).

⁵⁷ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD vi (Oct. 2018). *See also* Joseph Eto, THE PAST, PRESENT, AND FUTURE OF U.S. UTILITY DEMAND-SIDE MANAGEMENT PROGRAMS 2 (Lawrence Berkeley Nat’l Lab., Dec. 1996) (detailing different types of utility-funded energy efficiency programs, such as: “(1) general information to increase customer awareness of energy use and of opportunities to save energy; (2) technical information, including energy audits, which identify specific recommendations for improvements in energy use; (3) financial assistance in the form of loans or direct payments to lower the first cost of energy-efficient technologies; (4) direct or free installation of energy-efficient technologies; (5) performance contracting, in which a third party contracts with both the utility and a customer and guarantees energy performance”).

⁵⁸ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD vi (Oct. 2018). *See also* SEE ACTION GUIDE FOR STATES: EVALUATION, MEASUREMENT, AND VERIFICATION FRAMEWORKS—GUIDANCE FOR ENERGY EFFICIENCY PORTFOLIOS FUNDED BY UTILITY CUSTOMERS 10 (Jan. 2018) (describing utility-funded energy efficiency programs).

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these programs resulted in over 27 million megawatt hours of electricity saved in 2017.

The U.S. EPA describes the benefits of energy efficiency in the context of electric and gas utility programs as including environmental benefits, such as lowering GHG emissions and decreasing water use; economic benefits associated with reduced energy costs and boosting the local economy; utility system benefits by lowering baseload and peak energy demand and reducing the need for new generation plants and transmission lines; and risk management through diversifying utility resource portfolios.⁵⁹

As Michael Vandenberg and Jim Rossi have noted, the utility is a critical player in efforts to reduce electricity demand through energy efficiency measures:

[T]he distribution utility serves as an intermediary and gatekeeper between the consumer and the electric grid. A utility that has incentives to reduce household or other demand for electricity can play its information, service, and access roles in ways that will induce widespread uptake of efficiency and conservation measures. A utility that does not can discourage widespread uptake of these measures and can do so in a variety of nontransparent ways, whether by increasing consumers’ transaction costs (e.g., by requiring numerous or slow approvals for household solar photovoltaic installation, by understaffing key positions necessary for promotion of efficiency and conservation programs, and by imposing stringent requirements on grid access), or by limiting the extent or efficacy of information provided to consumers (e.g., by not making prompt, in-home energy use feedback easily available).⁶⁰

For decades, policymakers have attempted to design programs to align the interests of electric utilities with the goals of energy efficiency. Because utility revenues were historically tied to volumetric sales of electricity, energy efficiency programs resulted in reduced utility revenues.⁶¹ Not surprisingly then, in the early

⁵⁹ U.S. EPA, Energy Resources for State and Local Governments, <https://www.epa.gov/statelocalenergy/state-energy-efficiency-benefits-and-opportunities>.

⁶⁰ Michael P. Vandenberg & Jim Rossi, *Good for You, Bad for Us: The Financial Disincentive for Net Demand Reduction*, 65 VAND. L. REV. 1527, 1544-45 (2012).

⁶¹ American Council for an Energy Efficient Economy, *Incentivizing Utility-Led Energy Efficiency Programs*, <https://aceee.org/sector/state-policy/toolkit/utility-programs> (“it is widely recognized that spending on energy efficiency programs has a detrimental effect on utility revenues, by reducing sales of the utility’s core product, electricity or gas. The

days of energy efficiency programs, utilities argued against such programs on grounds they led to free riding and unfair cross subsidies among customer classes.⁶² State legislatures and public utility commissions have put in place a variety of mechanisms to minimize or eliminate the adverse financial impact on utilities from energy efficiency programs. The most common mechanisms are: (1) allowing the utility to recover from ratepayers the direct costs of energy efficiency programs; (2) lost margin recovery or “decoupling” programs that ensure that “[a]ctual utility earnings are . . . brought in line with earnings authorized by the governing body, removing—or at least mitigating—the utility’s disincentive to invest in energy efficiency programs due to reduced sales”; and (3) performance incentives that allow the utility to earn a return on investments in energy efficiency, similar to the return on investment it earns for earned for building a power plant or transmission infrastructure.⁶³

In general, these programs have succeeded in reducing utility opposition to energy efficiency programs, leaving arguments about free riding, evaluation of program performance metrics, and the like to a range of economists and other experts.⁶⁴ That does not mean free riding arguments are absent from energy

reasoning is straightforward: while a utility’s variable costs change in proportion to sales volume, fixed costs associated with distribution and customer service do not. Therefore, a reduction in sales due to efficiency improvements leads to a reduction in revenue that is larger than the costs avoided. This net lost revenue affects the utility’s balance sheet, reducing the return to its investors and providing a strong incentive for utilities not to invest in programs that help their customers use energy more efficiently.”). *See also* Vandenberg & Rossi, *supra* note __, at 1546 (“To the extent the dominant approach to utility rate structures favors volumetric rates, utilities are encouraged to offer low per-unit rates while increasing their total sales. This allows them to recoup the business costs associated with their capital investments in base load power and transmission, and to increase net revenues over the long term.”); Will Nissen & Samantha Williams, *The Link Between Decoupling and Success in Utility-Led Energy Efficiency*, 29 *ELECTRICITY J.* 59, 62 (2016) (discussing benefits of decoupling and noting that as of January 2016, 15 states had implemented electricity decoupling with proposals pending in eight additional states).

⁶² *See, e.g.*, Peskoe, *supra* note __, at 181 (“In the 1970s and 1980s, it was the [utilities] that raised concerns about intra-class subsidization. The ‘paradox of conservation’ was that ratepayer-subsidized programs to reduce consumption — in contrast to earlier subsidies designed to increase [utility] sales—could harm non-participating consumers by raising overall rates.”).

efficiency policy debates. On the contrary, they are front and center. The difference, however, is that it is not generally the utility making the free riding argument.⁶⁵

2. *Free riding as a metric for determining cost effectiveness of energy efficiency programs*

According to the U.S. Department of Energy, “[f]ree-ridership issues are by no means peculiar to energy efficiency; they arise in many policy areas, whenever economic agents are paid an incentive to do what they might have done anyway.”⁶⁶ The reason free-ridership is important in this context is to ensure that the utility makes “prudent use of energy efficiency dollars.”⁶⁷ In other words:

If program dollars are spent on people who would have taken the actions anyway, without program support, then those people are free riders, and those dollars were perhaps misspent. Evaluators are tasked with studying how much of a program’s resources were spent

⁶³ American Council for an Energy-Efficient Economy, *supra* note __. See also American Council for an Energy-Efficient Economy, *Lost Margin Recovery*, <https://aceee.org/sector/state-policy/toolkit/utility-programs/lost-margin-recovery> (describing decoupling programs); REG. ASSISTANCE PROJECT, *supra* note __, at 8-13 (same).

⁶⁴ See *infra* note __ and accompanying text. See also Martin Kushler, et al., *Aligning Utility Interests with Energy Efficiency Objectives: A Review of Recent Efforts at Decoupling and Performance Incentives*, Report No. U061 (ACEEE, Oct. 2006) (concluding that state regulatory approaches to overcoming utility disincentives to promote energy efficiency such as decoupling and performance incentives are effective in the states in which they are used); Eto, *supra* note __, at 10 (These new ratemaking procedures were instrumental in stimulating aggressive utility pursuit of DSM energy-efficiency programs. The success of these new regulatory approaches has often been cited as a key factor in changing utilities’ perception of their role, from providing an energy commodity to one of providing energy services.”).

⁶⁵ This is not to say that utilities have become strong supporters of energy efficiency programs. Indeed, as Professors Vandenbergh and Rossi have stated, “so long as volumetric pricing and guaranteed cost recovery through regulated rates leads utilities to view efficiency

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on free riders, and what the program savings were, net of free riders. . . .⁶⁸

Or, as stated by one energy expert:

One of the most vexing problems surrounding the issues of free-ridership is definitional. To the economic purist, the textbook definition of free-ridership is a person who consumes a good without paying for it. For a variety of reasons, the working definition of free-ridership as it pertains to public benefits and utility energy-efficiency programs is significantly different. In this case, a free rider is someone who would install an energy-efficiency measure without any program incentives because of the return on investment of the measure, but receives a financial incentive or rebate anyway. This definition has been adopted by utilities, program directors, and regulatory bodies that are currently discussing energy-efficiency programs.⁶⁹

and conservation as revenue erosion, they will have incentives to create an appearance of demand reduction (e.g., to maintain reputation, satisfy regulators’ demands, etc.), but under the existing approach neither utilities nor customers can be expected to be firmly committed to reducing the aggregate usage of electricity.” Vandenberg & Rossi, *supra* note __, at 1548. *See also* Peskoe, *supra* note __, at 153 (detailing arguments of the Edison Electric Institute, the trade association for investor-owned utilities, that decoupling efforts remain insufficient to address the “transformative threats” to the utility industry model and that energy efficiency programs continue to act as “cross subsidies” between those customers who directly benefit from energy efficiency programs and those who do not).

⁶⁶ U.S. DEP’T OF ENERGY, SEE ACTION, ENERGY EFFICIENCY PROGRAM IMPACT EVALUATION GUIDE, CH. 5, DETERMINING NET ENERGY SAVINGS 5-8 (Dec. 2012), https://www4.eere.energy.gov/seeaction/system/files/documents/emv_ee_program_impact_guide_0.pdf.

⁶⁷ *Id.*

⁶⁸ *Id.* *See also* CARL BLUMSTEIN, CENTER FOR STUDY OF ENERGY MARKETS, PROGRAM EVALUATION AND INCENTIVES FOR ADMINISTRATORS OF ENERGY-EFFICIENCY PROGRAMS: CAN EVALUATION SOLVE THE PRINCIPAL/AGENT PROBLEM? 5 (Oct. 2010) (“It is not desirable to reward IOUs for the energy savings of free riders for two reasons: (1) the payments are unearned and (2) payments for free-rider savings would bias IOU programs in favor of programs in which consumers already had a strong predilection to participate.”); U.S. EPA, MODEL ENERGY EFFICIENCY PROGRAM IMPACT EVALUATION GUIDE 5-1-5-3 (Nov. 2007) (defining free ridership, spillover effects, and other factors to consider to differentiate gross savings and net savings from energy efficiency programs).

⁶⁹ Stephen Heins, *Energy Efficiency and the Specter of Free-Ridership*, 2006 ACEEE Summer Study on Energy Efficiency in Buildings 12-64 (2006), https://www.eceee.org/library/conference_proceedings/ACEEE_buildings/2006/Panel_12/p12_8/.

Thus, there is a long history in the energy realm of using the concept of free riding not only in its traditional economic sense but also to include cross subsidy concerns.

Energy efficiency experts have developed specific tests to evaluate the cost-effectiveness of utility-funded energy efficiency programs. The most common ones are: (1) Total Resource Cost Test, (“TRC”) which compares benefits to society as a whole (avoided supply-side cost benefits, additional resource savings benefits) with cost to participants of installing the measure plus cost of program administration; (2) Societal Cost Test (“SCT”), which is similar to the TRC except that it “explicitly quantifies externality benefits such as pollutant emissions not represented in market prices and other non-energy benefits (e.g., improved health/productivity)”;

(3) Program Administrator Cost Test (“PACT”) (also known as the Utility Cost Test (“UCT”), which compares the utility’s avoided costs benefits with program expenditures (both the incentives and the administrative costs); (4) Participant Cost Test (“PCT”), which compares “participant benefits (incentives plus bill savings with participant costs (incremental or capital cost, installation O&M, etc.)”;

and (5) Ratepayer Impact Measure Test (“RIM”), which “compares the utility’s avoided cost benefits with the cost of administering energy efficiency programs plus lost revenue from reductions in customer energy consumption.”⁷⁰

According to the U.S. EPA, “there is no single best test for evaluating the cost-effectiveness of energy-efficiency.”⁷¹ Many states use multiple tests to evaluate cost-effectiveness of energy efficiency programs for a more comprehensive approach as each test “provides different information about the impacts of energy efficiency programs from distinct vantage points in the energy system.” The EPA states:

The most common primary measurement of energy efficiency cost-effectiveness is the TRC, followed closely by the SCT. A positive TRC result indicates that the program will produce a net reduction in energy costs in the utility service territory over the lifetime of the program. The distributional tests (PCT, PACT, and RIM) are then used to indicate how different stakeholders are affected. Historically, reliance on the RIM test has limited energy efficiency investment, as it is the most restrictive of the five cost-effectiveness tests.⁷²

⁷⁰ ENERGY EFFICIENCY GUIDEBOOK FOR PUBLIC POWER COMMUNITIES 30 (Oct. 2009), <https://www.seventhwave.org/sites/default/files/guidebook.pdf>.

⁷¹ U.S. EPA, UNDERSTANDING COST-EFFECTIVENESS OF ENERGY EFFICIENCY PROGRAMS, BEST PRACTICES, TECHNICAL METHODS, AND EMERGING ISSUES FOR POLICYMAKERS, ES-1-2 (Nov. 2008).

⁷² *Id.* See also ENERGY EFFICIENCY GUIDEBOOK FOR PUBLIC POWER COMMUNITIES, *supra* note __, at 30; Elizabeth Daykin, et al., The Cadmus Group, *Whose Perspective? The*

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Many states require utilities to collect data and provide analysis from more than one test to determine cost effectiveness of energy efficiency programs.⁷³

Across all these tests, energy efficiency programs are generally evaluated for cost-effectiveness to account for both free riders and “spillovers,” with spillovers defined as “additional reductions in energy consumption or demand that are due to program influences beyond those directly associated with program participation.”⁷⁴ According to the U.S. Environmental Protection Agency (“EPA”) this is done through evaluating the “net-to-gross ratio” (“NTG ratio”) across all program tests, which “deducts energy savings that would have been achieved without the efficiency program (e.g., ‘free-riders’) and increases savings for any ‘spillover’ effect that occurs as an indirect result of the program.”⁷⁵

In its evaluation of cost-effectiveness metrics, the National Renewable Energy Laboratory recognizes three different types of free riders in the context of energy efficiency programs: (1) total free riders (who would have invested in the program measure or practice even in the absence of the program); (2) partial free riders (who would have implemented a lesser amount or lower level of efficiency than that provided by the program); and (3) deferred free riders (who would have

Impact of the Utility Cost Test, Association of Energy Services National Conference (2012) (discussing different cost-effectiveness tests); NATIONAL EFFICIENCY SCREENING PROJECT, NAT’L STANDARD PRACTICE MANUAL, FOR ASSESSING COST-EFFECTIVENESS OF ENERGY EFFICIENCY RESOURCES, Edition 1, Executive Summary (Spring 2017), https://nationalefficiencyscreening.org/wp-content/uploads/2017/05/NSPM_Exec_Summary_5-17-17.pdf (explaining cost-effectiveness tests).

⁷³ See Nat’l Standard Practice Manual, Database of State Efficiency Screening Practices, <https://nationalefficiencyscreening.org/state-database-dsesp/> (showing tests used in all 50 states). See also SEE ACTION, *supra* note __ (describing frameworks and best practices for defining evaluation, measurement, and verification for utility-funded energy efficiency programs)

⁷⁴ Nat’l Renewable Energy Lab., Estimating Net Savings: Common Practices, Ch. 17, at 3 (Sept. 2014), <https://www.energy.gov/sites/prod/files/2015/01/f19/UMPChapter17-Estimating-Net-Savings.pdf>. Experts also attempt to evaluate the “rebound effect” associated with energy efficiency programs, which refers to changes in consumer behavior to increase the use of energy such as raising the thermostat in the winter, using more air conditioning in the summer, driving more often or longer distances because of technical improvements in energy efficiency that result in lower energy costs to consumers. Although

implemented the measure or practice sometime after the program timeframe).⁷⁶ Likewise, with regard to spillovers, there are different types of spillovers that result in benefits that should not be attributed to the program under review, including additional program-induced actions at the project site, energy efficiency measures program participants take at project sites not enrolled in the program, and energy efficiency actions taken by non-program participants that were influenced by the program.⁷⁷ Of course, identifying the impact of both free riders and spillovers is extremely difficult, and there is a large body of literature discussing various methods to obtain this information through surveys and other data collection methods that is beyond the scope of this Article.⁷⁸

3. *Criticisms of energy efficiency programs and state legislative action*

As stated above, virtually all evaluations of utility-funded energy efficiency programs attempt to evaluate the role of free riders and spillovers in determining the cost-effectiveness of the program. Debates over the cost-effectiveness of energy efficiency programs will undoubtedly continue and experts will continue to refine the methodological approaches to evaluating free riders. Moreover, in recent years, some state legislatures have increased utility funded energy efficiency programs while others have scaled them back.

experts agree that the direct rebound effect is real, there are significant debates over its magnitude. *See, e.g.*, HOWARD GELLER & SOPHIE ATTALI, THE EXPERIENCE WITH ENERGY EFFICIENCY POLICIES AND PROGRAMMES IN IEA COUNTRIES: LEARNING FROM THE CRITICS 5 (Int’l Energy Agency Aug. 2005) (explaining rebound effect in energy efficiency and summarizing studies); U.S. EPA, MODEL ENERGY EFFICIENCY PROGRAM IMPACT EVALUATION GUIDE 5-2 (Nov. 2007) (“Rebound is a change in energy-using behavior that increases the level of service and results from an energy efficient action.”).

⁷⁵ U.S. EPA, *supra* note __, AT ES-3. *See also* AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD 18 (Oct. 2018) (“Net savings are those attributable to the program, typically estimated by subtracting savings from free riders (program participants who would have implemented or installed the measures without the incentive, or with a lesser incentive), and adding in estimates of savings from free riders (nonparticipants who implemented or installed the measure due to the program.”).

⁷⁶ Nat’l Renewable Energy Lab., *supra* note __ at 3. *See also* William P. Saxonis, *Free Ridership and Spillover: A Regulatory Dilemma*, 2007 Energy Program Evaluation Conference, Chicago at p. 533 (2007) (reviewing studies and literature on evaluating free ridership and spillovers and reviewing data in New York on same).

⁷⁷ *Id.* at 4. *See also* CARL BLUMSTEIN, CENTER FOR STUDY OF ENERGY MARKETS, PROGRAM EVALUATION AND INCENTIVES FOR ADMINISTRATORS OF ENERGY-EFFICIENCY PROGRAMS: CAN EVALUATION SOLVE THE PRINCIPAL/AGENT PROBLEM? 5 (Oct. 2010) (“‘Spillover’ is the other side of the free rider issue. Spillover occurs when the effects of an energy-efficiency program spill over to affect other behavior. Examples of spillover would be a consumer taking action as the result of an energy-efficiency program

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For instance in Illinois, in 2016, the legislature enacted the Future Energy Jobs Act which contained, among other provisions, significant additional funding for utility-sponsored energy efficiency programs, including the ability of utilities to earn a rate of return on investments in energy efficiency programs.⁷⁹ Other states have also strengthened utility funded energy efficiency programs, with total spending in those programs approaching \$8 billion in 2017 nationwide, up from approximately \$4 billion in 2010.⁸⁰ According to the American Council for an Energy-Efficient Economy (“ACEEE”), “[e]nergy efficiency remains the nation’s third-largest electricity resource, employing 2.25 million Americans and typically providing the lowest-cost way to meet customers’ energy needs.”⁸¹

Other states, however, have used free riding concerns to scale back existing energy efficiency programs. For instance, in 2018, the Iowa legislature significantly scaled back what had been a long-term and robust energy efficiency program, primarily on grounds that it was too expensive and resulted in unfair cost shifts. As detailed by ACEEE, the law imposed a new spending cap on efficiency programs; removed efficiency program requirements on municipal utilities and electric cooperatives; and allowed customers “to opt-out of paying for efficiency programs that fail to satisfy the ratepayer impact [measurement] (“RIM”) test, a cost-effectiveness measure rejected by most states as inequitable.”⁸² During the legislative debates over the law, one senator criticized the fact that customers pay for these

but not receiving any of the incentives offered by the program (non-participant spillover) or a program participant stimulated to pursue additional energy saving actions that are not subsidized by the program (participant spillover).”).

⁷⁸ See, e.g., PWP, INC., CURRENT METHODS IN FREE RIDERSHIP AND SPILLOVER POLICY AND ESTIMATION (Feb. 2017), https://www.energytrust.org/wp-content/uploads/2017/07/FR_Spillover_170206.pdf; SEE ACTION, SEE ACTION GUIDE FOR THE STATES: EVALUATION, MEASUREMENT, AND VERIFICATION FRAMEWORKS—GUIDANCE FOR ENERGY EFFICIENCY PORTFOLIOS FUNDED BY UTILITY CUSTOMERS (Jan. 2018), https://www4.eere.energy.gov/seeaction/system/files/documents/EMV-Framework_Jan2018.pdf; Berkeley Lab, Electricity, Policy, and Markets Group, Utility Customer-Funded Programs <https://emp.lbl.gov/projects/utility-customer-funded> (“The EMP Group tracks and analyzes trends in utility ratepayer-funded energy efficiency programs and enabling policies, and provides technical and policy support to regional authorities, state regulatory commissions, and program administrators by analyzing current practices and projected future spending and savings for efficiency programs.”); American Council for an Energy-Efficient Economy (“ACEEE”), Energy Efficiency Programs, <https://aceee.org/portal/programs> (discussing founding of ACEEE in 1980, during the early period of energy efficiency programs, to provide research and policy development for utility energy efficiency); U.S. Dep’t of Energy, Office of Energy Efficiency and Renewable Energy, <https://www.energy.gov/eere/slsc/evaluation-measurement-and-verification-energy-data> (discussing the importance of evaluation, measurement, and verification (EM&V) data to “inform recommendations for improvements in [energy efficiency] program performance.”); U.S. DEP’T OF ENERGY, SEE ACTION, *supra* note __, Ch. 5

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programs but the amounts aren’t shown as a separate line item on utility bills and that “if you don’t take advantage of the program, guess what, you’re paying in and somebody else gets it.”⁸³ The law passed despite opponents of the bill who focused their arguments on the total savings to all customers and citing “\$400 million a year in net savings to customers” associated with energy efficiency programs.⁸⁴

In addition to legislative program cutbacks, scholars continue to question the scale of overall benefits of utility-sponsored energy efficiency programs. As early as the 1990s, Professors Paul Joskow and Donald Marron argued that data from utility companies did not bear out the grand claims of overall cost savings from utility-funded energy efficiency programs because of the failure to account for free riding.⁸⁵ These criticisms led to significant changes in the measurement and evaluation of the effectiveness of energy efficiency programs to address these and other concerns and to ensure the cost-effectiveness of such programs.⁸⁶ More recently, in 2016, Professor Arik Levinson has argued that despite forty years of experience with energy efficiency programs, program benefits continue to be overstated, particularly in the context of state energy building codes.⁸⁷

(defining free riding, spillovers, net savings in context of determining cost-effectiveness of utility-funded energy efficiency programs).

⁷⁹ See Commonwealth Edison Press Release, *New Energy Efficiency Benefits Coming to Illinois Consumers*, June 28, 2017; Future Energy Jobs Act, *About*, <https://www.futureenergyjobsact.com/about>; Kari Lyderson, *Q&A: Going Beyond Decoupling to Drive Utility Investments in Energy Efficiency*, MIDWEST ENERGY NEWS, Sept. 18, 2017, (discussing ability of utility to place energy efficiency investments in rate base and earn rate of return in Illinois as well as several other states, including Maryland and Utah).

⁸⁰ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, *THE 2018 ENERGY EFFICIENCY SCORECARD 24* (Oct. 2018).

⁸¹ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, *THE 2018 ENERGY EFFICIENCY SCORECARD vi* (Oct. 2018); AM. COUNCIL FOR AN ENERGY-EFFICIENCY ECONOMY, *THE GREATEST ENERGY STORY YOU HAVEN’T HEARD*, *supra* note __, at 5-6.

Nevertheless, because of decades with experience with energy efficiency programs, and a general recognition that energy efficiency programs can provide benefits for all ratepayers when designed properly, the debate has shifted toward how to identify free riders to improve the cost-effectiveness of programs rather than using free riding concerns as a reason to not have a program in the first place.

The same cannot be said for solar net metering programs and utility investment in EV charging infrastructure. Utility subsidies for these programs are subject to significant debate, with the role of free riders, “fairness” and cross subsidies at the center of arguments over whether these programs should exist at all. The next Sections turn to these issues.

B. Net Metering: Utility Compensation for Customer-Generated Rooftop Solar Energy

One of the most frequent, contemporary uses of free riding arguments in energy policy involves utility compensation for customer-generated rooftop solar energy, also referred to as “distributed generation,” “distributed energy,” or “distributed solar.”⁸⁸ Beginning as early as the 1980s, states adopted policies requiring electric utilities to compensate rooftop solar panel owners for the electricity generated by the solar panels that is sent back to the grid in order to incentivize the adoption of rooftop solar.⁸⁹ Such policies are often referred to as “net metering” or “net energy

⁸² AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD x, 15, 44 (Oct. 2018).

⁸³ Testimony of Iowa Sen. Breitbach, Senate Proceedings of March 6, 2018, timestamp 9:15:30–9:18:00, <http://www.legis.state.ia.us/dashboard?view=video&chamber=S&clip=s20180306203727440&dt=2018-03-06>.

⁸⁴ Testimony of Iowa Sen. Bolkcom, Senate Proceedings of March 6, 2018, timestamp 9:18:00–9:21:00, <http://www.legis.state.ia.us/dashboard?view=video&chamber=S&clip=s20180306203727440&dt=2018-03-06>.

⁸⁵ Paul L. Joskow & Donald B. Marron, *What Does a Negawatt Really Cost? Evidence from Utility Conservation Programs*, 13 ENERGY J. 41 (1992); Paul L. Joskow & Donald B. Marron, *What Does a Negawatt Really Cost?, Further Thoughts and Evidence*, 6 ELECTRICITY J. 14 (1993) (responding to criticisms of earlier paper). *But see* Eto, *supra* note __, at 11-12 (finding more savings attributable to energy efficiency programs that reported by Joskow & Marron but acknowledging not all utilities were effective at running such programs).

⁸⁶ *See, e.g.*, Geller & Attali, *supra* note __ at 18-19 (discussing program design to account for free rider and spillover effects as a result of criticisms by Joskow, Marron, and others).

metering” because the electricity meter on the home or commercial building now runs two ways: it meters electric energy flowing to the customer when the solar panels are not providing all the necessary electricity to the building and also meters the electricity flowing back to the utility and the electric grid when the solar panels are producing more electricity than the building requires.⁹⁰ Over a monthly or yearly billing period, the customer pays the “net” of the electricity the building uses and produces, resulting in significantly lower electricity bills for the customer, and in some cases, a net profit for the customer.⁹¹

In the Energy Policy Act of 2005, Congress provided additional support for state net metering policies by encouraging states to adopt them and also to provide tax benefits to customers installing solar generation.⁹² Although one can argue that a sale of electric energy by a utility customer to the utility is a wholesale sale of electricity subject to Federal Energy Regulatory Commission (“FERC”) jurisdiction under the Federal Power Act, both the Energy Policy Act of 2005 and numerous FERC decisions have disclaimed federal jurisdiction over net metering and instead have encouraged states to regulate the practice as a matter of state jurisdiction over retail sales.⁹³

As of 2017, thirty-eight states and Washington, D.C. offer some form of net metering and utilities in some of the remaining states have adopted net metering

⁸⁷ Arik Levinson, *How Much do Energy Building Codes Save? Evidence from California Houses*, 106 AM. ECON. REV. 2867 (2016); Arik Levinson, *Energy Efficiency Standards are More Regressive Than Energy Taxes: Theory and Evidence*, Georgetown University and NBER (May 8, 2018), <http://faculty.georgetown.edu/aml6/pdfs&zips/RegressiveMandates.pdf>. See also David S. Loughran & Jonathan Kulick, *Demand Side Management and Energy Efficiency in the United States*, 25 ENERGY L.J. 19 (2004) (reviewing data and finding that actual electricity savings resulting from energy efficiency program were less than that reported by utilities).

⁸⁸ See Richard L. Revesz & Burcin Unel, *Managing the Future of the Electric Grid: Distributed Generation and Net Metering*, 41 HARV. ENVTL. L. REV. 43, 44 (2017) (“‘Distributed generation’ is a term used to describe electricity that is produced at or near the location where it is used. Distributed generation systems, also known as ‘distributed energy resources,’ can rely on a variety of energy sources, such as solar, wind, fuel cells, and combined heat and power. Distributed solar energy is produced by photovoltaic cells, popularly referred to as solar panels, which can be placed on rooftops or mounted on the ground.”).

⁸⁹ Revesz & Unel, *supra* note __, at 59-64 (describing history of net metering programs).

⁹⁰ JIM LAZAR, *ELECTRICITY REGULATION IN THE US: A GUIDE* 78-79 (2d ed. 2016); ALEXANDRA B. KLASS & HANNAH J. WISEMAN, *ENERGY LAW* 153-54 (Foundation Press 2017).

programs on a voluntary basis.⁹⁴ “Conventional” net metering compensates customers with solar panels at the retail electricity rate—the price the customers pay to buy electricity from the utility.⁹⁵ A few other states have compensation rules that are not considered to be “net metering” because they compensate customers at something other than the retail rate, such as a lower, wholesale rate, or they have a so-called “buy all, sell all” program where there is one meter for the customer’s purchases of electricity and another meter for the customer’s sale of electricity to the utility.⁹⁶ As discussed in more detail below,⁹⁷ Minnesota has adopted a “Value of Solar Tariff” for designated utility purchases of certain types of distributed solar generation that attempts to value the full costs and benefits of solar energy on the grid, and to avoid the bluntness of compensating customer-generated solar energy based on a retail or wholesale electricity rate.

Beyond the rate of compensation, states vary considerably with regard to other aspects of net metering programs. Many states have capacity limits on individual customer solar systems, such as a 20 kilowatt (kW), 1 megawatt (MW), or 10 MW size limit on the system, with twenty-three jurisdictions imposing a size limit below 100 kW.⁹⁸ Other states place limits on capacity based on the customer’s total electricity load, such as Arizona’s limit of 125% of the customer’s total load. States also have imposed limits on aggregate installed solar capacity within a utility’s service territory or within a state. For instance, Georgia limits solar installations to .2% of a

⁹¹ KLASS & WISEMAN, *supra* note __, at 153-54. For a more detailed description of various types of net metering, along with diagrams, see Minn. Pub. Utils. Comm’n, Net Metering & Compensation, <https://mn.gov/puc/energy/distributed-energy/net-metering/>.

⁹² Revesz & Unel, *supra* note __, at 59-60; U.S. Dep’t of Energy, Residential Renewable Energy Tax Credit, ENERGY.GOV, <https://www.energy.gov/savings/residential-renewable-energy-tax-credit>.

⁹³ See Revesz, *supra* note __, at 59-60; David Raskin, *The Regulatory Challenge of Distributed Generation*, 4 HARV. BUS. L. REV. 38, 42-45 (2013) (criticizing net metering as an unfair subsidy and arguing for federal jurisdiction over net metering); State Power Project, *Net Metering and Federal State Jurisdiction*, <https://statepowerproject.files.wordpress.com/2015/05/net-metering-policymaker-summary1.pdf>; Jim Rossi, *Federalism and the Net Metering Alternative*, 29 ELEC. J. 13 (January-February 2016) (disagreeing with Raskin and arguing for continued state jurisdiction over net metering).

⁹⁴ National Council of State Legislatures, State Net Metering Policies, Nov. 2017; DSIRE, Net Metering Map, Nov. 2017, http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2017/11/DSIRE_Net_Metering_November2017.pdf.

⁹⁵ Retail electricity rates—the price end use customers pay to the utility—are always higher than wholesale electricity rates—the price at which the utility buys or sells electricity to or from another wholesale provider of electricity such as a neighboring utility, a utility-scale wind farm, a natural gas generator, etc. Wholesale electricity rates vary significantly based on supply and demand and also based on the type of resource producing the

utility’s peak demand, California has a cap of 5% of the utility’s peak demand, Vermont has an aggregate capacity of limit of 15% of the state’s peak demand, and Utah’s limit is 20% of state peak demand.⁹⁹ States also vary in how long customers can maintain bill credits (e.g., next monthly billing period, 12-month period, indefinitely) and whether the rate of compensation is uniform across all systems in the state or varies based on system size.

When solar panels were few and far between, net metering was fairly uncontroversial. However, as tax incentives, net metering, and a growing desire for renewable energy encouraged more electricity customers to install solar panels, utilities began to express concerns regarding lost revenues and sought regulatory relief from state public utility commissions and legislative reform from state legislatures. One of the central arguments utilities made in this context is that non-solar owners are subsidizing solar owners. Because the utility’s fixed costs associated with maintaining the electric grid are primarily recovered from customers through volumetric rates, if solar owners are now purchasing 50-80% less electricity each year, but the utility still needs to maintain the same level of grid service for when the sun is not shining, the utility will need to raise rates since they are selling less power overall. When those rates, go up, the increase will be disproportionately born by non-solar owners. Thus, non-solar owners will now be shouldering a greater amount

electricity—natural gas, coal, nuclear, wind, or solar energy. By contrast, retail electricity rates are set by state public utility commissions and generally do not vary based on scarcity or resources, with some exceptions such as when a customer enrolls in a “time of use” program that ties retail rates to low and high peak demand times of day. In most states, the “avoided cost rate” (the cost of the utility to purchase energy as wholesale or generate the energy itself) are much lower than retail electricity rates. *See* Revesz & Unel, *supra* note __, at 60-61 (comparing avoided costs rates in Wisconsin in 2015 of \$0.03 to \$0.04 per kWh compared to retail rates of \$0.11 to \$0.14 per kWh). *See also* FERC v. Elec. Power Supply Ass’n, 136 S. Ct. 760, 769 (2016) (discussing price fluctuations in wholesale rates based on demand and fact that state regulators generally insulate retail customers from such rate fluctuations).

⁹⁶ LAZAR, *supra* note __, at 134-35 (discussing net metering in the states); Revesz & Unel, *supra* note __, at 47, 59-71 (discussing different state approaches to net metering and distributed energy compensation); Nat’l Conference of State Legislatures, *supra* note __; Database of State Incentives for Renewable Energy, Net Metering Policies—Customer Credits for Monthly Net Excess Generation (NEG) Under Net Metering, July 2016, <http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2014/11/NEG-1.20161.pdf>.

⁹⁷ *See infra* Part III.B.3.

⁹⁸ For comparison sake, 3 kW is common among residential systems and 10 MW is common among commercial and industrial systems, with lots of variation across both types of systems. Revesz & Unel, *supra* note __, at 62-63.

⁹⁹ Revesz & Unel, *supra* note __, at 63; Database of State Incentives for Renewable Energy, *supra* note __.

of those fixed costs, resulting in a “cross-subsidy” to solar owners and solar owners “free riding” on the grid.

It is important to note that cross-subsidies between different types of retail customers are ubiquitous in the utility world.¹⁰⁰ Customers who live in rural areas require more transmission infrastructure to connect to the electric grid, so urban customers who require less transmission infrastructure are arguably paying more than their “fair share” of transmission line costs.¹⁰¹ Low-income customers often receive rate discounts through state programs and industrial customers receive favorable rates from public utility commissions if those customers are successful in arguments that they need those lower rates to remain competitive.¹⁰² In each of those cases, there is a cross subsidy from one class of customers to the other. As a legal matter, however, the question is whether that cross subsidy is “unjust and unreasonable” or discriminatory under state law.¹⁰³

Since approximately 2015, the “net metering wars” taking place in state public utility commissions and state legislatures across the country have resulted in many state commissions reducing the benefits associated with net metering by placing new fixed charges and “demand” charges on solar customers, compensating solar customers at something less than the retail rate, or imposing new aggregate capacity limits on solar installations.¹⁰⁴ In 2018, forty-five states and the District of Columbia took some action with regard to distributed solar, whether it be changes to net

¹⁰⁰ See Rule, *supra* note __, at 131-34 (discussing common cross subsidies in utility rate design); Revesz & Unel, *supra* note __, at 76 (same); Peskoe, *supra* note __, at 121-29, 169-72 (explaining how cross-subsidies have always been embedded in the utility rate design).

¹⁰¹ Rule, *supra* note __, at 131-34.

¹⁰² *Id.* There are also cross subsidies between customers who use more electricity during peak demand times and those customers who do not. See Ian Schneider & Cass Sunstein, *Behavioral Considerations for Effective Time-Varying Electricity Prices*, Discussion Paper No. 891, John Olin Center for Law, Economics & Business, Harv. L. School 4 (Nov. 2016). Moving to “time of use” rates for all electricity customers minimizes or eliminates that cross subsidy, but time of use rates are still rare among residential utility customers in the United States. See *supra* note __; Ahmad Faruqui, *Residential Rates for the Utility of the Future*, May 13, 2016 (Powerpoint presentation on cross subsidies associated with flat retail electricity rates).

Such cross subsidies would be minimized or eliminated if all retail customers were moved to “time of use” rates. For a discussion of time of use rates, see *supra* note __.

¹⁰³ See Peskoe, *supra* note __, at 118-23 (discussing “just and reasonable” standard in utility ratemaking).

¹⁰⁴ See, e.g., Peskoe, *supra* note __, at 150 (noting that in arguments before public utility commissions, utilities “have launched a nationwide campaign against cross subsidies, in the name of consumer protection. They argue that rate structures that have allowed PV to gain traction are ‘unfair,’ ‘misleading’ to consumers, and ‘regressive.’ IOUs have also funded media campaigns that have painted PV adopters as thieves who steal their neighbors’ money

metering, fixed charges, minimum bill increases, or community solar policies.¹⁰⁵ In addition to efforts by utilities to reduce the financial benefits of rooftop solar in state commissions, utilities worked closely with the American Legislative Exchange Council (“ALEC”) to introduce model legislation in states across the country to ban or severely limit net metering or to impose large fixed fees on owners of solar panels.¹⁰⁶

In these proceedings, investor-owned electric utilities and ratepayer advocacy groups virtually always argue in favor of limiting or eliminating net metering for rooftop solar. They argue that rooftop reduces overall utility revenues (through lost electricity sales) without also lowering utility fixed costs and will thus lead to increased electricity rates for customers to cover those fixed costs. In turn, they argue, those higher rates will fall disproportionately on non-solar owners who tend to be less wealthy than solar owners. The players on the other side of the debate include (1) the rooftop solar industry—companies like Sunrun and SolarCity¹⁰⁷—which benefit financially from the increased financial incentives net metering provides for rooftop solar installations and (2) environmental groups, which support the growth of rooftop solar because it increases the penetration of renewable, distributed energy into the electric grid, reduces reliance on fossil fuels, and reduces GHG emissions and other fossil-fuel related pollutants.¹⁰⁸

In a 2017 article on distributed solar and net metering, Richard Revesz and Burcin Unel surveyed many of the public benefits and costs associated with distributed solar.¹⁰⁹ The benefits to the electric grid include reducing the utility system’s peak demand; reduced fuel expenses; lower transmission line power losses because distributed energy is closer to the end-user; long-term costs savings to the system by enabling deferral or complete avoidance of the cost of new power plants; and resiliency benefits during storms and other power outages. The benefits to the public include climate change benefits and health benefits through the displacement

while out-of-state billionaires reap the profits.”) (citing proceedings); Revesz & Unel, *supra* note __, at 64-71 (discussing challenges in numerous states to net metering); Welton, *supra* note __, at 592-97 (discussing contentious state utility commission proceedings over net metering and opponents’ “nationwide assault on the policy”).

¹⁰⁵ N.C. CLEAN ENERGY TECH. CTR., THE 50 STATES OF SOLAR Q3 2018 QUARTERLY REPORT, Executive Summary 5 (Oct. 2018).

¹⁰⁶ Revesz & Unel, *supra* note __, at 65.

¹⁰⁷ See Jacob Marsh, *Solar Power Companies in the U.S.: Which Should You Choose?*, ENERGYSAGE, June 28, 2018.

¹⁰⁸ See generally Revesz & Unel, *supra* note __, at 48-49 (discussing net metering battles); Peskoe, *supra* note __, at 154-55 (same).

¹⁰⁹ Revesz & Unel, *supra* note __, at 79-93.

of fossil fuels as well as more general environmental protection benefits associated with water quality and land use benefits.¹¹⁰

Not surprisingly, free riding and cross subsidy arguments arise frequently in the regulatory proceedings over distributed solar energy as illustrated below. Here is where a comparison to the use of free riding in the energy efficiency context becomes helpful. Free riding concerns in energy efficiency programs have been present for many decades, and economists and other experts have developed various ways of addressing them. One can certainly question how accurate our ability to evaluate free riders is in the energy efficiency context, but experts have at least developed metrics to measure free riders and, even if they aren't perfect, they provide a platform for analysis and debate.

Regulators and experts are at a much earlier stage of data collection and analysis when it comes to free rider concerns in the rooftop solar context. The question then becomes how much to support rooftop solar as these metrics are being developed. Opponents of rooftop solar, including many investor-owned electric utilities, argue that states should eliminate net metering in favor of much lower payments for rooftop solar energy because the public benefits provided are limited. Supporters argue that states should continue with net metering until we can more fully calculate the full system-wide and public benefits provided by rooftop solar because we know they exist and should encourage development of this energy resource.

A review of proceedings in Arizona, Nevada, and Minnesota surrounding compensation for rooftop solar generation shows a range of approaches to this question. In Arizona, the lack of information on the public benefits provided by rooftop solar caused regulators and utilities to downplay the benefits of rooftop solar and reduce net metering benefits. In Nevada, the utility commission first followed suit but then reconsidered its decision and used the lack of information as a reason to continue net metering until improved metrics could be developed. And in Minnesota, the state legislature required the state utility commission to adopt a “value of solar tariff” or VOST, to reduce the information asymmetry between the electric utility and the public and to begin to develop the types of metrics that exist in the energy efficiency context.

1. *Arizona*

¹¹⁰ *Id.* at 79-81. Costs to the grid include the costs of new meter installations grid interconnection, mismatches in power supply and demand that the utility cannot yet easily control, and responding to the variability of distributed resources that cannot be turned off and on with a switch on demand. *Id.* at 81-84.

In Arizona, in 2013, the Arizona Public Service Commission became one of the first state utility commissions to revise a state net metering program to reduce the value of rooftop solar in response to a utility claim of an unfair cost shift between residential customers with solar panels and residential customers without solar panels. The utility, Arizona Public Service (“APS”), filed an “Application for Approval of Net Metering Cost Shift Solution” as “a solution to the cross-subsidization of customers with Net-Metering DG [distributed generation] systems by those customers without such systems.”¹¹¹ Notably, in its filing, APS contended “that the issue is one of fairness for all customers and is not related to a loss of revenue by APS because of [net metering].”¹¹² Prior to its filing, APS hosted a technical conference to gather information and propose various solutions, which it presented to the Commission with its application.¹¹³

In its order ruling on the APS application, the Commission summarized the commission staff analysis of the issue, and found that “integral to the discussion of DG is the question of what *value* DG offers to APS’s electric system and thereby to the customers served by that system.”¹¹⁴ Staff found two values inherent in DG systems: (1) objective value, which consist of “measurable” benefits such as avoided fuel costs to the utility, although it recognized that “[e]ven objective value can be difficult to predict in future time periods; and (2) subjective value, which “requires the subjective assignment of monetary values to anticipated future benefit that are not easily measurable” and can include “increased grid security and air quality improvements.”¹¹⁵ The Commission, based on the staff report, recognized that several studies existed that attempted to quantify both objective and subjective value of DG, that subjective value “is a public policy issue” that requires “a subjective assignment of values consistent with policy goals,” and that both objective value and subjective value would need to be addressed in the next general rate case proceeding for the utility to quantify and value the costs and benefits of DG and then “allocate[] these costs and benefits equitably among customers [as] a matter of rate design.”¹¹⁶

As an interim measure, however, the Commission agreed with APS that some additional costs and fees on solar customers were appropriate. It did not place new fees on customers who already had installed solar panels but did place a \$.70 per kW monthly interim charge on all DG customers with installations after December 31,

¹¹¹ In re Arizona Public Service Company’s Application for Approval of Net Metering Cost Shift Solution, Order at 2, ¶ 10 (Ariz. Pub. Serv. Co., Dec. 3, 2013) [hereinafter “APS Order”].

¹¹² APS Order at 2, ¶ 11.

¹¹³ *Id.* at 2, ¶ 12.

¹¹⁴ *Id.* at 5, ¶ 24 (emphasis in original).

¹¹⁵ *Id.* at 5, ¶¶ 25-26.

¹¹⁶ *Id.* at 6, ¶¶ 30-32.

2013 to “ameliorate the impact of the cost shift on residential non DG customers.”¹¹⁷ This amount, which constituted the first approval of fixed charges on solar customers in the United States, was significantly lower than the \$3.00 per kW per month amount it believed could be supported APS’s data (equivalent to an additional \$21 per month for a customer system of 7 kW) and the \$70 per month APS said was warranted by the “cost shift issue” in a later proceeding on the same issue.¹¹⁸

Contentious battles over how to value and compensative rooftop solar generation continue in Arizona, with APS arguing that its customers “are bearing the brunt of the unfair cost shift” associated with continued net metering and arguing for higher fixed fees on solar customers.¹¹⁹ What is important for purposes of analysis here, is the position of APS that there is an “unfair” cost shift between customers with solar panels and customers without solar panels despite the fact that all parties recognized in the proceeding that it was very difficult to value the benefits to the overall system associated with distributed solar. If that value is high, then any current cost shift may not be unfair to any customers and, in fact, may benefit all customers. This is particularly true if the “value” of distributed solar includes creating markets for developing solar technologies that can result in reduced carbon emissions, greater grid security through distributed generation, and financial value from reducing the need to build more fossil-fuel generation once energy storage technologies develop sufficiently to support distributed solar. APS and other utilities may not “value” those benefits because they may result in reduced revenues for the utility in the short term, but that does not necessarily mean they are an unfair cost shift on utility customers without solar panels or that customers with solar panels are free riding on the utility system.

2. Nevada

The analysis was somewhat different in Nevada a few years later in 2016. In early 2016, the Public Utilities Commission of Nevada issued a “Modified Final Order” that phased out net metering for residential customers in Nevada with existing solar systems and tripled the “fixed charges” for those customers over a period of years.¹²⁰ This decreased the amount the utility paid customers for rooftop solar from the 11 cents per kWh retail rate to a 2 cents per kWh wholesale rate. It also resulted in an

¹¹⁷ *Id.* at 21.

¹¹⁸ *See id.* at 17, ¶ 84. *See also* In re Arizona Public Service Company’s Application for Approval of Net Metering Cost Shift Solution, Docket No. E-01345A-13-0248, Order at ¶¶ 106, 162 (Ariz. Pub. Serv. Co., Aug. 31, 2015).

¹¹⁹ *Id.* at ¶ 102.

¹²⁰ Pub. Util. Comm’n of Nevada, Modified Final Order, Docket Nos. 15-07041 and 15-07042 (Feb. 17, 2016).

increase in fixed monthly charges on solar customers from \$12.75 per month to \$38.50 per month.¹²¹ This action resulted in SolarCity and other solar installation companies pulling their operations out of the state entirely with a commensurate loss of solar-related jobs in the state. According to the commission itself, the Modified Final Order “all but crushed the rooftop solar industry in Northern Nevada, reducing the booming industry from 983 applications by residential homeowners and small commercial businesses in Sierra Pacific Power service territory in 2015 to 41 applications in 2016.”¹²²

A significant driver of the Commission’s Modified Final Order eliminating net metering was a 2015 statute enacted by the Nevada legislature, SB 374,¹²³ in which the legislature directed the commission to address solar cost shift issues. The relevant provisions of the statute provided that the commission may establish different rate classes for customers with distributed solar, may establish terms and conditions for participating in net metering, including limits on enrollment in net metering “to further the public interest,” may allow a utility to “establish just and reasonable rates and charges to avoid, reduce, or eliminate *an unreasonable shifting of costs* from customer-generators to other customers of the utility,” and shall not authorize rates or charges for net metering “that *unreasonably shift costs* from customer-generators to other customers of the utility.”¹²⁴

In its order revisiting its decision, the Commission evaluated the record before it with regard to the extent of any unfair cost shift from net metering customers to non-net metering customers.¹²⁵ It found the record “replete with conflicting evidence regarding the existence of a cost shift” with some studies showing the costs between customers classes will be “very nearly neutral” and total benefits of \$36 million over the lifetime of an average rooftop solar system.¹²⁶ Other studies, however, showed exactly the opposite, with a significant cost shift based in large part on the differential in price between utility scale solar and rooftop solar, with utility scale solar available at significantly lower rates.¹²⁷

With this conflicting evidence before it, the Commission stated that what it found most significant about the evidence submitted was that “credible and well-educated” economists, engineers, attorneys, and businesses failed to agree on

¹²¹ See Revesz & Unel, *supra* note __, at 66 (citing news reports).

¹²² In re Application of Sierra Pacific Power Co., Docket No. 16-06006, 16-06007, 16-06008, 16-06009, Order at 27, 2016 WL 7635932 (Nev. PUC, Dec. 28, 2016).

¹²³ NV S.B. 374, *codified* at NRS 704.7735, *repealed*, NV A.B. 405

¹²⁴ Sierra Pacific Power, *supra* note __, Order at 28.

¹²⁵ *Id.* at 29.

¹²⁶ *Id.* at 31-32.

¹²⁷ *Id.*

fundamental facts and methodologies relevant to the proceeding.¹²⁸ The Commission considered that this was “[p]erhaps due to Nevada being at a crossroads where traditional thinking is colliding with new technology and disruptive business models—new ways of looking at old energy problems are emerging.”¹²⁹ The Commission also considered that these divergent views may also “be because the facts regarding energy valuation, in many ways like the price of other commodities, change and continually evolve. What a cost prohibitive energy resource is today could very well be a fantastic value tomorrow.”¹³⁰ The Commission continued:

Jumping to a premature conclusion for the mere sake of having a resolution while the conversation and technology is evolving would not serve the public interest and Nevada. No certain answer at this time is better than the wrong one. More information, time, and analysis are necessary to find the appropriate balance for Nevada. The statement above is all-the-more true in the valuation of [net energy metering] NEM rooftop solar, as it impacts the overall cost-shift analysis.¹³¹

The Commission then stated that in its prior order eliminating net metering, it had recognized that the relevant factors for analyzing the positive and negative effects of net metering included avoided energy, avoided capacity, reduced energy losses/line losses, avoided CO₂ emissions, avoided criteria pollutant emissions, fuel hedging, utility integration and interconnected costs, and utility administration costs.¹³² In that earlier order, according to the Commission, it had “bound those factors to only those things which are ‘known and measurable’ but, in doing so “failed to fully account for other facts and policies—even those difficult or impossible to objectively quantify—which should also be included in a comprehensive NEM valuation analysis.”¹³³ Moreover:

Until a universally-acceptable formula can be settled upon to determine an appropriate value for . . . rooftop solar generation in Nevada, questions regarding the existence of a cost-shift will remain unresolved. More than “known and measurable” costs need to be included in this analysis. However, how is monetary value to be placed on the prevention of climate change? Clean air? Encouraging

¹²⁸ *Id.* at 32.

¹²⁹ *Id.*

¹³⁰ *Id.*

¹³¹ *Id.* at 33.

¹³² *Id.*

¹³³ *Id.*

job growth? Grid diversity? Energy choice and independence?
Building a “New Nevada” for our children? . . .¹³⁴

The Commission went on to find that even assuming the facts support a cost shift from non-solar customers to solar customers, the relevant statute only prohibited the Commission from approving an “unreasonable” cost shift.¹³⁵ It found that no unreasonable cost shift would occur because there would be no “discernable cost increase” on the average monthly bill for customers without distributed solar (approximately \$0.26 per month) and that most customers would experience a net decrease in the average monthly bill.¹³⁶ The Commission also noted that its determination of reasonableness in this case was guided by the Nevada Legislature’s stated policies supporting renewable energy, including solar energy as a “mainstream alternative for homes.”¹³⁷ Notably, within a year after the Commission’s order, the Nevada legislature ratified the order by repealing its earlier legislation—SB 374—and replacing it with provisions grandfathering in existing customers with full net metering and reducing the rate only slightly when certain installed capacity thresholds are met (e.g., 95% of the retail rate in the first 80 MW of installed capacity, with decreases for every additional 80 MW installed until it flattens at a 75% rate of compensation.¹³⁸

As detailed in Part IV, what is notable about the Nevada Commission’s order is its treatment of the present-day uncertainties regarding the valuation of costs and benefits of rooftop solar as compared with the Arizona Commission. In the face of the absence of “hard” data regarding present-day and long-term benefits of rooftop solar, the Arizona Commission accepted the utility’s arguments and assumed an unreasonable cost shift while the Nevada Commission did exactly the opposite. The Nevada Commission presumed that benefits to all customers associated with increased solar generation may exist now and would likely increase in the future. It found no existing cost shift between customer classes that was unreasonable based on the evidence before it, and relied on state legislative policies supporting renewable energy to allow the market for rooftop solar to develop and thrive in the state. By contrast, in Arizona, the commission saw its role more narrowly—to address the utility’s petition to address cost shifts taking place using the utility’s existing rate design which recovers both fixed and variable costs through volumetric electricity sales. It did not use the proceedings as an opportunity to question the rate design or

¹³⁴ *Id.* at 34, 36.

¹³⁵ *Id.* at 36.

¹³⁶ *Id.* at 36-37.

¹³⁷ *Id.* at 38 (quoting NRS § 701B.190).

¹³⁸ See Nev. A.B. 405, June 4, 2017; Julia Pyper, *Nevada’s New Solar Law is About Much More than Net Metering*, GREENTECH MEDIA, June 16, 2017.

to support a growing market for a form of energy generation that posed a direct threat to the utility’s existing business model.

3. *Minnesota*

Unlike Arizona and Nevada, where the commissions relied on more general statutory language regarding just and reasonable rates in the context of rooftop solar, in Minnesota the legislature directed the Commission to develop a new method to compensate distributed solar energy. Specifically, in 2013, in addition to using traditional net metering to compensate solar owners for systems between 40 kW and 1 MW, the legislature allowed utilities to compensate such customers based on “an alternative tariff that compensates customers through a bill credit mechanism for the value to the utility, its customers, and society for operating distributed solar photovoltaic resources interconnected to the utility system and operated by customers primarily for meeting their own energy needs.”¹³⁹

The legislature required that this alternative tariff, known as the “Value of Solar” tariff (also referred to as the “VOS rate” or “VOST”) be developed by the Minnesota Department of Commerce no later than January 31, 2014 and be approved, rejected, or modified with the Department’s consent by the Minnesota Public Utilities Commission within 60 days of submission.¹⁴⁰ In developing the VOST, the Department of Commerce was required to “consult stakeholders with experience and expertise in power systems, solar energy, and electric utility ratemaking regarding the proposed methodology, underlying assumptions, and preliminary data.”¹⁴¹ The VOST must “at a minimum, account for the value of energy and its delivery, generation capacity, transmission capacity, transmission and distribution line losses, and environmental value.” The Department of Commerce was also authorized, although not required, consider “known and measurable evidence of the cost or benefit of solar operation to the utility” and incorporate “other values into the methodology, including credit for locally manufactured or assembled energy systems, systems installed at high-value locations on the distribution grid, or other factors.”¹⁴²

The legislature also required the state’s largest utility, Xcel Energy, to create a program for “community solar gardens” defined as facilities that generate electricity “by means of a ground-mounted or roof-mounted solar photovoltaic device whereby subscribers receive a bill credit for the electricity generated in proportion to the size

¹³⁹ MINN. STAT. § 216B.164, subd. 3a (net metering); Minn. Stat. § 216B.164, subd. 10(a) (alternative tariff).

¹⁴⁰ MINN. STAT. § 216B.164, subd. 10(e).

¹⁴¹ MINN. STAT. § 216B.164, subd. 10(e).

¹⁴² MINN. STAT. § 216B.164, subd. 10(f).

of their subscription.”¹⁴³ The other two investor-owned utilities in the state are allowed, but not required to offer a solar garden program.¹⁴⁴ Solar gardens must be at a capacity of no more than 1 MW, and each subscription “shall be sized to represent at least 200 watts of the community solar garden’s generating capacity and to supply, when combined with other distributed generation resources serving the premises, no more than 120 percent of the average annual consumption of electricity by each subscriber at the premises to which the subscription is attributed.”¹⁴⁵ A solar garden must have at least five subscribers and no single subscriber may have more than a 40 percent interest in the garden.¹⁴⁶ Solar gardens may be owned by the utility or by a private solar development that contracts with the utility to sell the output of the solar garden.¹⁴⁷

The purpose of the solar garden statute was to allow residential and commercial utility customers to receive the benefits of solar energy without the need for the up-front capital costs of purchasing solar panels and to encourage the development of a solar industry in Minnesota.¹⁴⁸ Eligible solar gardens must be located “in the service territory of the public utility filing the plan” and subscribers must be retail utility customers located in the same county as the solar garden or a contiguous county.¹⁴⁹ The utility must purchase all energy the community solar garden generates and the purchase shall be at the VOS rate or, until the commission approves the VOS rate, at the applicable retail rate.¹⁵⁰

The Minnesota Public Utilities Commission reviewed and approved the VOST prepared by the Department of Commerce in April 2014.¹⁵¹ In its order, the Commission began by stating that the Department of Commerce “intends for the methodology to avoid cross-subsidies and disincentives for conservation inherent in net metering.”¹⁵² The Department’s methodology included eight relevant components, chosen because they were values “based on known and measureable

¹⁴³ MINN. STAT. § 216B.1641(a).

¹⁴⁴ *Id.*

¹⁴⁵ MINN. STAT. § 216B.1641(b).

¹⁴⁶ MINN. STAT. § 216B.1641(a).

¹⁴⁷ *Id.*

¹⁴⁸ See Bob Eleff, Legislative Analyst, Information Brief, *Xcel Energy’s Minnesota Solar Garden Program* (Updated Oct. 2017), <https://www.house.leg.state.mn.us/hrd/pubs/solargarden.pdf>.

¹⁴⁹ MINN. STAT. § 216B.1641(c).

¹⁵⁰ MINN. STAT. § 216B.1641(d).

¹⁵¹ In re Establishing a Distributed Solar Value Methodology Under Minn. Stat. § 216B.164, subd. 10(e) and (f), Order Approving Distributed Solar Value Methodology (Minn. P.U.C., Apr. 1, 2014) [hereinafter “MPUC Order”].

¹⁵² MPUC Order at 1.

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evidence of the cost or benefit of solar operation to the utility”: avoided fuel costs, avoided fixed plant operations and maintenance, avoided variable plant operations and maintenance, avoided generation capacity cost, avoided reserve capacity cost, avoided transmission capacity cost, avoided distribution capacity cost, and avoided environmental costs. According to the Commission, together, the components “account for the value of energy and its delivery, generation capacity, transmission capacity, transmission and distribution line losses, and environmental value attributable to PV solar.” The Department also included two “placeholder components” for future analysis—avoided voltage control cost and solar integration cost—on grounds that these costs and benefits will be “known and measurable in the future” and thus can be added to the calculation at that time. The Department declined to include as components the “compliance” value of Solar Renewable Energy Credits and the value of economic development on grounds that such values were not known or measurable at that time. The Department anticipated that additional value and cost components would be added in the future, “as more data and analysis becomes available about distributed solar and its costs and benefits.”

The Commission approved the Department’s methodologies with a few modifications relating to fuel price escalator factor, calculating avoided distribution capacity costs, and non-CO₂ avoided environmental costs values.¹⁵³ Pursuant to the statute, the VOST is calculated annually and the utility must use the VOST for community solar gardens but can elect to use VOST or net metering for other types of solar purchases, such as distributed solar, in the utility’s territory. Since the first VOST was established, it has been a few cents less than the retail rate used in traditional net metering. For instance, the VOST in 2016 for Xcel Energy was just under \$.10 per kWh while the retail rate for residential customers was \$.12 per kWh. Under both net metering and VOST, Xcel must offer to purchase the renewable energy credits associated with the solar energy generated.

Despite the lower price of VOST, Xcel Energy has opted to continue to use net metering when it can, likely in part because it anticipates that the VOST will rise in value in the future. When the first community solar gardens came on line, the Commission directed Xcel to compensate subscribers using the retail rate with an optional renewable energy credit payment, in order to provide sufficient incentives to get the solar garden program started, and so stakeholders could gain more experience with the program. In 2016, the Commission directed Xcel Energy to transition its solar garden program to VOST because that is what the legislature directed; because VOST will “provide predictable yearly rate increases,” thus improving the ability of solar gardens to obtain financing; and to “address concerns that nonparticipating

¹⁵³ MPUC Order, *supra* note __, at 15-16.

ratepayers are subsidizing the program.”¹⁵⁴ The Commission also required Xcel beginning with the 2018 VOST to use “location-specific avoided costs in calculating avoided distribution capacity” to ensure that the benefits of solar gardens located near load and the costs of solar gardens further from load are appropriately considered and factored into the benefits associated with reducing peak demand and deferring the need for distribution system upgrades.

Throughout the proceedings, the utilities, consumer advocacy groups, solar developers, and others have disagreed about appropriate inputs, assumptions, and other aspects of Minnesota’s VOST.¹⁵⁵ Nevertheless, VOST provides a framework to address the cost shift and free riding arguments inherent in traditional net metering by creating identifiable inputs, cataloguing which inputs are known and unknown, and allowing for a yearly refinement of the methodology to determine the costs and benefits of solar on the utility’s system as a whole. It also allows an alternative to trying to wedge distributed solar payments into the traditional utility ratemaking process, which was not designed for these types of energy inputs. VOST, of course, is not the only approach. Scholars have proposed numerous other alternatives that include greater use of time-of-use rates, feed-in tariffs, better valuation of environmental benefits associated with distributed energy, and the like. VOST, however, is the primary alternative to net metering that exists today, and thus provides one pathway to get beyond the free riding and cost shift arguments that will always be present in debates over net metering.

C. *Electric Utility Investment in EV Charging Infrastructure*

Utility investment in EV charging infrastructure provides a third illustration of the use of free riding arguments in state energy policy. The debates in this context are more recent than those involving energy efficiency, which have had decades to develop, as well as those involving rooftop solar, which have been in play since approximately 2013, and have reached virtually all states. The debates over utility investment in EV charging infrastructure existed in only a few states prior to 2016, at

¹⁵⁴ In re Petition of Northern States Power Co., dba Xcel Energy, For Approval of its Proposed Community Solar Garden Program, Docket No. E-002/M-13-867, 2016 WL 4701453 (Minn. P.U.C., Sept. 6, 2016).

¹⁵⁵ See, e.g., Laura Hannah, *Xcel Energy’s Community Solar Program Hits Major Milestones in Year Three*, GREENTECH MEDIA, Dec. 21, 2017 (discussing program developments and debates); Comments of Prof. Gabriel Chan on Xcel Energy’s 2019 VOS Calculation and Proposed 2019 Vintage Year Bill Credit Tariff Sheets, Docket No. M-13-867 (Nov. 27, 2018) (raising conceptual errors, conceptual extensions, and process reforms for yearly VOS proceeding); Eleff, *supra* note __ (discussing a range of disputed issues surrounding VOST and solar gardens since the enactment of the statutory provisions).

which time an increasing number of state commissions began to open dockets on the topic.¹⁵⁶

1. *EV Sales in the United States and the Role of EV Charging Infrastructure*

As an initial matter, although EV sales in the United States have increased significantly in recent years, EVs remain less than 1% of total vehicle sales in the United States, albeit with higher percentages in some states, particularly California, where the percentage of EV sales for several months in 2018 approached 10% of all vehicles sold.¹⁵⁷ The growth of EVs has resulted from improved battery technology as well as mandates that auto companies sell a certain percentage of EVs in some U.S. states (led by California) as well as in the EU and China.¹⁵⁸ As of October 2018, there were 1 million EVs on U.S. roads and analysts project that there will be over 18 million EVs in the United States by 2030.¹⁵⁹ As of 2018, the auto companies have embraced EVs and virtually every major auto company plans to invest heavily in the technology.¹⁶⁰

Environmental groups, along with some U.S. states, strongly support widespread EV adoption because it provides an opportunity to reduce the use of oil and its related GHG emissions and other pollutants in the transportation sector, which, as of 2018, emits more GHG emissions than any other sector.¹⁶¹ Moreover, although fossil fuels still made up nearly 63% of U.S. electricity generation in 2017, that percentage is far less in many states and is declining nationwide as a result of state

¹⁵⁶ See Klass, *supra* note ___, at Part IV (discussing state legislative and regulatory action).

¹⁵⁷ *EV Market Share By State*, EV ADOPTION, evadoption.com/ev-market-share/ev-market-share-state/.

¹⁵⁸ See Int'l Energy Agency, *Strong Policy and Falling Battery Costs Drive Another Record Year for Electric Cars*, May 30, 2018 (discussing EV sales in the EU and China, with 580,000 EVs sold in China in 2017, which was a 72% increase from the prior year).

¹⁵⁹ See EDISON ELEC. INST., *ELECTRIC VEHICLE SALES FORECAST AND THE CHARGING INFRASTRUCTURE REQUIRED THROUGH 2030* 1 (Nov. 2018). See also Jeffrey Ryser & Keiron Greenhalgh, *U.S. EV Sales Jump 72.5% on Year in 2018, Top 354,000*, S&P GLOBAL, Jan. 3, 2019 (reporting that 2018 was a “break-out year” for EVs “with sales of more than 354,000 vehicles, or 72.5% more than the 199,000 EVs sold in the US in 2017”).

¹⁶⁰ See, e.g., Mark Matousek, *32 Electric Cars You'll See on the Road by 2025*, BUS. INSIDER, Nov. 28, 2018 (discussing auto companies investments in new models of EVs); Dan Neil, *Think Electric Vehicles are Great Now? Just Wait . . .*, WALL ST. J., Dec. 26, 2018.

¹⁶¹ See Energy & Climate Staff, Rhodium Group, *Preliminary US Emissions Estimates for 2018* (Jan. 18, 2018) (“The transportation sector held its title as the largest source of US [CO₂] emissions for the third year running, as robust growth in demand for diesel and jet fuel offset a modest decline in gasoline consumption.”).

RPSs and declining costs of utility-scale and distributed renewable energy.¹⁶² As a result electrifying transportation is an important component of efforts worldwide to reduce GHG emissions.

As part of its efforts to reduce statewide GHG emissions from the transportations sector, California has enacted a Zero Emission Vehicle (“ZEV”) mandate that requires auto companies to sell a certain percentage of EVs in the state, and nine other states have adopted the ZEV mandate.¹⁶³ Most of these ZEV states have also enacted legislative policies to facilitate the development of widespread EV charging infrastructure to increase consumer demand for EVs and reduce “range anxiety.”¹⁶⁴

Because the fuel EVs require is electricity, utilities have the opportunity to play a central role in building out EV charging infrastructure. This infrastructure includes the distribution wires and related equipment necessary to power the charging stations, and the charging stations themselves. With regard to the charging stations, private charging companies such as ChargePoint, Greenlots, Blink, and EVGo have developed a range of business models to support home and business charging. In addition, the Volkswagen (“VW”) emissions cheating scandal resulted in a \$14.7 billion dollar settlement in 2016 that included requiring VW to create a new company, Electrify America, to spend \$2 billion building charging networks on interstates and in cities across the country. The settlement also requires VW to

¹⁶² See *supra* note ___ and accompanying text; U.S. Energy Info. Admin., *U.S. Electricity Generation By Source*, Oct. 29, 2018, <https://www.eia.gov/tools/faqs/faq.php?id=427&t=3>; Nadja Popovich, *How Your State Make Electricity*, N.Y. TIMES, Dec. 31, 2018 (showing over half the electricity in California generated from renewable energy resources, even larger percentages in Idaho, Washington, and Vermont, and nearly 40% of electricity in Iowa generated from wind energy alone).

¹⁶³ See Center for Climate and Energy Solutions, *U.S. Clean Energy Policies*, <https://www.c2es.org/document/zev-program/> (listing Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, and Vermont as “ZEV states” and discussing California’s ZEV program). During the Obama Administration, the U.S. EPA was also a strong supporter of EV adoption but now, under President Trump, the EPA has proposed to eliminate California’s authority to set its own vehicle emissions standards, including its EV mandate, as well as the ability of other states to adopt the California standards. See U.S. EPA and Nat’l Highway Safety Admin., *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks*, 83 Fed. Reg. 42986 (Aug. 24, 2018).

¹⁶⁴ See Camille von Kaenel, *Luring Electric Vehicle Buyers with Swift Charging, Roller-Skating*, GOVERNORS’ WIND & SOLAR ENERGY COAL. (Jan. 17, 2018), <http://governorswindenergycoalition.org/luring-electric-vehicle-buyers-with-swift-charging-roller-skating> (discussing industry, state, and utility efforts to build out public EV charging stations to reduce range anxiety and support EV drivers).

provide \$2.7 billion in funds for grants to states to support EV charging infrastructure.¹⁶⁵

These provisions of the VW settlement are a recognition that in order for consumers to embrace EVs, sufficient EV charging infrastructure must be built through a combination of EV charging stations in homes, at business locations, on highway corridors, and in public places such as shopping centers, government buildings, and even gas stations.¹⁶⁶ It is well documented that the lack of EV infrastructure can present a “chicken and egg” or “market coordination” problem in which consumers will not want to purchase an EV due to perceived lack of support, while no company will invest in EV infrastructure because it doesn’t see sufficient demand.¹⁶⁷

Who should build this infrastructure and who should pay for it, however, have become hotly contested issues in state public utility regulatory proceedings and state legislatures in recent years. Private charging companies and state commissions were initially opposed to utility investment in EV charging infrastructure, fearing the utilities would stifle competition and overbuild infrastructure in pursuit of profits. That opposition has softened considerably, however, and led the California Public Utilities Commission to reverse its position on the issue when it determined that substantial private infrastructure investment would not emerge until regulated

¹⁶⁵ INGRID MALMGREN & CASSIE POWERS, NAT’L ASS’N OF STATE ENERGY OFFICIALS, VOLKSWAGEN SETTLEMENT: BENEFICIARY MITIGATION PLAN TOOLKIT 4–5 (2017), <https://www.naseo.org/Data/Sites/1/naseo-vw-beneficiary-mitigation-plan-toolkit-final.pdf>; David Ferris, *7 Takeaways From a Wild Year for EVs*, ENERGYWIRE, Dec. 21, 2018 (discussing VW settlement).

¹⁶⁶ Although the major oil companies oppose transportation electrification because of its impact on market share, retail gas stations are beginning to see an opportunity for increased sales of convenience store items if they install EV charging stations because customers will be forced to spend more time at the stores while they wait for the cars to charge. *See, e.g.*, Ken Doyle & Erika Myers, *Why Aren’t More Convenience Stores Installing Electric Vehicle Chargers?*, SMART ELECTRIC POWER ALLIANCE, Nov. 9, 2017 (discussing financial benefits of EV chargers for service stations and convenience stores); Tina Casey, *It’s Over: Oil Giant Shell Doubles Down on EV Charging Stations*, CLEAN TECHNICA, Oct. 16, 2017 (reporting on oil company Royal Dutch Shell decision in install EV charging stations at its gas stations in the EU).

¹⁶⁷ *See, e.g.*, Initial Comments of Fresh Energy, Natural Resources Defense Council, the Sierra Club, and Minnesota Center for Environmental Advocacy, Docket No. E999/CI-17-879, Minn. Pub. Util. Comm’n. at 17 (July 27, 2018), <https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={80FFDC64-0000-CF18-AE69-6C936C279BF4}&documentTitle=20187-145282-01> [Hereinafter “CEO Initial Comments”]

utilities were permitted to enter the market.¹⁶⁸ Other state commissions, as well as state legislatures, have quickly followed suit.¹⁶⁹

2. *State Regulatory Proceedings Governing Utility Investment in EV Charging*

Regulators, scholars, auto manufacturers, environmental advocacy groups, and electric utilities nationwide are still struggling to determine best practices for cost-effective EV charging infrastructure investment. There appears to be broad consensus that EV adoption has substantial benefits, including “great potential to dramatically reduce local air pollution, greenhouse gas emissions and resulting climate change impacts, and oil use from the transport sector.”¹⁷⁰ Widespread EV adoption could also lead to lower electricity rates, by better allocating grid load to more optimally use all power generated.¹⁷¹ On the other hand, EV adoption is not without potential downsides, especially if EVs spike electricity demand at peak demand times.¹⁷²

As noted above, utilities have been central actors in efforts to expand EV charging infrastructure. Many of the ZEV states have enacted legislation authorizing utilities to recover their costs and receive a rate of return on investments in EV charging infrastructure.¹⁷³ Indeed, state legislatures and regulatory commissions have justified requiring all utility customers to pay for these investments based on

(describing market coordination problem); Adele Peters, *Want Electric Vehicles to Scale? Add Chargers to Gas Stations*, FAST COMPANY, Oct. 8, 2018 (discussing “chicken and egg” problem in the context of EV charging and potential solutions).

¹⁶⁸ David Roberts, *Electric Vehicles Are Gaining Momentum, Despite Trump*, VOX, June 27, 2018; Klass, *supra* note __, at 584.

¹⁶⁹ See Herman K. Trabish, *The Keystone State May Have Found the Key to the Next Wave of Transportation Electrification*, UTILITY DIVE, Jan. 14, 2019 (reporting on stakeholder collaboration for EV charging plan in Pennsylvania that includes major utility and private sector investments); Jeffrey Tomich, *In Car-Loving Michigan, An EV Master Plan Takes Shape*, ENERGYWIRE, Jan. 14, 2019 (discussing approval of Michigan utility investment of \$10 million that was supported by the private charging industry and is designed to “future-proof” the charging network to allow for future technology developments and avoid stranded assets).

¹⁷⁰ DALE HALL & NIC LUTSEY, EMERGING BEST PRACTICES FOR ELECTRIC VEHICLE CHARGING INFRASTRUCTURE at iii (2017), https://www.theicct.org/sites/default/files/publications/EV-charging-best-practices_ICCT-white-paper_04102017_vF.pdf.

¹⁷¹ Lisa Cohn, *Should All Utility Customers Pay for EV Infrastructure and Microgrids*, MICROGRID KNOWLEDGE (June 22, 2018), <https://microgridknowledge.com/ev-infrastructure-rate-based-microgrids/>.

¹⁷² HALL & LUTSEY, *supra* note __, at 24. This could be particularly dangerous as solar power plays an increasingly large role in nationwide grids if EV owners opt to charge their

evidence of the system-wide public benefits noted above, namely reduced GHG and other air pollutant emissions associated with transportation electrification as well as the potential for reduced electricity rates stemming from more efficient electric grid utilization.¹⁷⁴

State public utility commissions approved major utility investments in EV charging infrastructure in 2018, including nearly \$740 million in California, \$20 million in Massachusetts, and \$10 million in Ohio.¹⁷⁵ Other proposals are pending approval in New York, Maryland, and New Jersey, totaling nearly \$700 million with total proposals filed in the states as of the end of 2018 for review and approval in 2019 totaling \$1.5 billion in 18 states.¹⁷⁶ Each of these proposals would allow utilities to recover a rate of return on their investments, similar to traditional utility investments in electricity generation, transmission, and distribution assets.¹⁷⁷

Although there are familiar free riding arguments in the EV charging infrastructure context, some of the key players in these debates have “switched sides” from the rooftop solar proceedings. Because of the anticipation of increased profits from EV charging infrastructure investments and increased electricity sales,¹⁷⁸

EVs at home, after the sun sets. However, Hall and Lutsey hypothesize that improvements in technology may eliminate this issue. *Id.*

¹⁷³ See Klass, *supra* note __ at 584-89, 592-94. There are three primary regulatory models for utility investment in EV charging infrastructure: (1) the “make-ready model,” where the utility owns the traditional utility infrastructure such as the transformers, utility services, meters, conduits, and wiring that supports the charging station but the “site host” such as a parking lot or shopping mall contracts with a private charging company like ChargePoint or Greenlots for the purchase and maintenance of the station itself; (2) the “end-to-end model,” where the utility owns the charging station itself in addition to the utility infrastructure required to support the station; and (3) a “hybrid model” where the utility has end-to-end ownership in underserved markets such as multi-family housing or low-income areas but only “make-ready” ownership in more competitive arenas such as workplace charging or public charging. See CEO Initial Comments, *infra* note __, at 13-16 (discussing models of utility investment in EV charging infrastructure).

¹⁷⁴ See HALL & LUTSEY, *supra* note __, at 24; *infra* notes __ - __ and accompanying text (discussing evidence in Illinois commission proceeding submitted by environmental groups showing efficiency benefits and lower electricity rates for all electricity customers resulting from transportation electrification).

¹⁷⁵ Ferris, *supra* note __.

¹⁷⁶ *Id.* See also 2018 EV Recap: the Year of the Electric Vehicle and Tesla Prevails, INSIDEEVS, Dec. 31, 2018 (summarizing state commission approval of utility investment in EV charging infrastructure); Gavin Bade, 10 Trends Shaping the Electric Power Sector in 2019, UTILITY DIVE, Jan. 2, 2019 (noting that in the third quarter of 2018 alone, “32 states and D.C. took some action on electric vehicles, including the approval of utility EV charging programs in Massachusetts, Rhode Island, and earlier, in Nevada.”); Additional Comments of the Signatory Parties in Further Support of the Petition for Implementation of a Statewide

utilities generally favor policies encouraging EV adoption and utility-owned EV charging. Thus, utilities are aligned with environmental groups in these proceedings in arguing that such investments will not result in free riding and instead will provide system-wide benefits to all ratepayers, even those who do not currently own EVs. On the other side, many ratepayer advocacy groups oppose utility investment in EV charging infrastructure on grounds that it will result in free riding and unfair cross subsidies by providing financial benefits to EV owners that will be paid for disproportionately by non-EV owners who, like non-solar owners, tend to be lower income. But there are also new advocates making free riding arguments when it comes to EV charging—the oil companies.¹⁷⁹ Like the utilities in the rooftop solar debates, the oil companies are using free riding, cross subsidy, and “fairness” rhetoric to argue that utility customers will be hurt by these programs, and that such programs are not “just and reasonable” as required by state statutes governing utility rates.¹⁸⁰

In the most recent of these proceedings, it is clear that proponents of utility investment in EV charging have learned from the contentious rooftop solar net metering disputes and have marshaled more sophisticated empirical evidence to support system-wide benefits of transportation electrification that requires EV

Electric Vehicle Portfolio, Case No. 9478, pp. 7-11 (Md. Pub. Serv. Comm’n, Aug. 30, 2018) (summarizing utility proposals nationwide for EV charging investments); AP, *Michigan Approves Consumers Energy EV Charging Program*, THE STATE, Jan. 9, 2019 (reporting on approval of utility’s 3-year, \$10 million pilot program that includes a \$500 rebate for consumers who purchase an EV and sign up for the utility’s time-of-use rate to encourage nighttime charging and \$5,000 rebates for purchases of chargers installed in public areas like workplaces and shopping centers).

¹⁷⁷ Klass *supra* note __, at 569.

¹⁷⁸ Utilities only benefit from increased electricity sales due to EV or any other increased load in states that have not “decoupled” utility revenues from electricity sales. See *supra* notes __ - __ and accompanying text (discussing decoupling policies)

¹⁷⁹ See Jeffrey Tomich, *Big Oil Looks to Stop Utilities’ Charging Investments*, ENERGYWIRE, Oct. 25, 2018; *2018 EV Recap*, *supra* note __ (discussing how 2018 was the year that the oil companies “stepped up their efforts” in Washington and in the states to oppose policies that support EVs). This recent activity is part of a larger campaign by U.S. oil companies to retain market share in the transportation sector. The New York Times reported in December 2018 that the major U.S. oil companies had worked behind the scenes since the beginning of the Trump Administration to encourage the administration to repeal the Obama Administration’s signature vehicle fuel efficiency and vehicle emission standards, to discourage new states from adopting California’s more stringent vehicle emission standards, and to work to revoke California’s authority to set its own vehicle emission standards for GHG emissions, including the state’s ZEV program. See Hiroko Tabuchi, *The Oil Industry’s Covert Campaign to Rewrite American Car Emission Rules*, N.Y. TIMES, Dec. 13, 2018.

¹⁸⁰ See *infra* notes __ - __ and accompanying text.

charging programs. They also have the advantage of the utility supporting the program rather than opposing the program. For instance, in the net metering context, it is generally the utility that files a request with a state commission to eliminate net metering or impose fixed charges on solar customers, putting solar advocates in a defensive posture to justify the continuation of a net metering program. Moreover, supporters of net metering necessarily have more limited information on current costs and benefits of rooftop solar to the electric grid than the utilities possess. By contrast, when it comes to EV charging infrastructure, utilities are aligned with environmental groups and those groups, collectively, are making affirmative requests to state commissions to approve EV charging investment proposals, and providing evidence of public benefits to support the proposals.

The remainder of this section focuses on regulatory proceedings in Illinois, Missouri, and Maryland regarding utility investment in EV charging. These states show a range of arguments and analysis relating to free riding in very recent proceedings—with submission filed in 2018. This group of states also includes both ZEV and non-ZEV states which impacts whether free riding and cross subsidy arguments are used to oppose programs in their entirety or modify them to ensure that any program approved is cost-effective. As a general matter, in non-ZEV states, advocates cannot rely on a specific, state legislative or gubernatorial policy to support EV adoption or utility investment in EV charging infrastructure and instead must rely on more general state law governing “just and reasonable” rates.¹⁸¹ This lack of legislative direction gives opponents of utility investment in EV charging stronger grounds to oppose such programs because there has not been a legislative recognition of the public benefits of EVs and EV charging like in California and other ZEV states.¹⁸²

Finally, the proceedings in Illinois and Missouri highlight a recent development of oil companies and their trade associations beginning to react to the threat of EVs to their business interests, and responding by intervening in state regulatory proceedings and making free riding, fairness, and cross subsidy arguments in the name of utility customers to oppose these programs.¹⁸³ Thus, the oil companies have

¹⁸¹ Some states have adopted California ZEV mandate through legislation while others have done so through gubernatorial action. Many ZEV states have also adopted specific legislation supporting EVs in general and utility investment in EV charging stations in particular. *See* Klass, *supra* note __, at 578, 583-90.

¹⁸² For a discussion of state commission proceedings in ZEV states, see Klass, *supra* note __, at Part IV; David Ferris, *7 Takeaways From a Wild Year for EVs*, ENERGYWIRE, Dec. 21, 2018 (summarizing developments in the states).

¹⁸³ *See, e.g.*, Jeffrey Tomich, *Big Oil Looks to Stop Utilities' Charging Investments*, ENERGYWIRE, Oct. 25, 2018.

taken on the mantle of protecting the utility customers from programs allegedly rife with free riding, just as the utilities have done in the rooftop solar context.

a. Illinois

In September 2018, the Illinois Commerce Commission approved a Notice of Inquiry proceeding to gather “information and opinions from stakeholders on electric vehicles (‘EVs’) to help the Commission identify issues, potential challenges, and opportunities in EV deployment.”¹⁸⁴ The Commission’s goal was to use the proceeding “for studying and understanding the technical, financial, and policy implications of electric vehicles.”¹⁸⁵ The Notice of Inquiry asked participants to respond to a range of issues including: (1) How EVs contribute to energy efficiency in Illinois by relying on electricity instead of fossil fuels and whether and how EV charging stations will affect overall energy efficiency in the state; (2) whether and how EVs will improve grid reliability and resilience and how best charging practices can impact efficient operation of the grid; (3) existing regulatory barriers to increased transportation electrification and possible solutions; (4) cost and environmental benefits associated with increased EV deployment in the state; (5) whether and how more EV charging stations should be developed in the state and whether utilities should own charging stations; and (6) whether utilities should charge time-of-use rates to incentivize EV penetration and whether charging infrastructure owned by utilities should be included in the utility’s rate base.¹⁸⁶

The Notice of Inquiry prompted a range of comments from the state’s two investor-owned utilities, Ameren Illinois and Commonwealth Edison; environmental and energy efficiency groups; ratepayer advocates; the Illinois Attorney General’s Office; industrial utility customers; an oil company trade association, Americans for Prosperity (a political advocacy group funded by the Koch brothers); EV charging companies; and others.¹⁸⁷

Not surprisingly, the investor-owned utilities in the state—Ameren Illinois and Commonwealth Edison—both supported regulatory policies to encourage transportation electrification and utility investment in EV charging infrastructure,

¹⁸⁴ Notice of Inquiry, Ill. Comm. Comm’n, Docket No. 18-NOI-01 (Sept. 24, 2018), <https://www.icc.illinois.gov/downloads/public/ev/EV%20NOI.pdf>; Electric Vehicles Notice of Inquiry, Ill. Comm. Comm’n, <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx> (describing notice of inquiry and providing links to all comments submitted in the proceeding and relevant news articles).

¹⁸⁵ Electric Vehicles Notice of Inquiry, *supra* note __.

¹⁸⁶ Notice of Inquiry, *supra* note __, at 4-7.

¹⁸⁷ *See* Electric Vehicles Notice of Inquiry, *supra* note __ (providing links to comments).

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along with market approaches that included private EV charging companies.¹⁸⁸ The utilities also focused their comments in large part on how such programs would work in tandem with existing energy efficiency programs in the state to increase grid efficiencies and provide cost and environmental benefits for all utility customers.

Commonwealth Edison cited U.S. Department of Energy statistics showing that conventional vehicles convert only about 17% to 21% of the energy stored in gasoline to vehicle power, while EV convert about 59% to 62% of electric energy from the grid to vehicle power.¹⁸⁹ It also cited potential energy efficiency opportunities of electric buses as compared to diesel buses.¹⁹⁰ The utility was careful to note that it was not using these statistics to argue that transportation electrification contributed to directly to the utility’s energy efficiency program established under the 2016 Future Energy Jobs Act,¹⁹¹ but did state that “additional EV charging stations could directly impact the Company’s Energy Efficiency Program if the Program is able to incent and claim savings from energy efficient charging stations . . .”¹⁹² The remainder of Commonwealth Edison’s comments focused on how pricing signals through time of use rates would encourage EV users to charge at low peak times, resulting in better utilization of grid resources and put “downward pressure on per kWh rates.”¹⁹³ Commonwealth Edison also cited studies showing the environmental benefits of wide scale EV adoption through reductions in GHG emissions, vehicle noise, and other aesthetic benefits.¹⁹⁴ It also stated that utility programs for EV charging could target “low-income communities not currently served by the competitive market” to increase EV adoption in those communities as well as make way for electric buses and trains in underserved neighborhoods.¹⁹⁵

Ameren’s comments were similar, focusing on “the economic benefits that can be socialized to all utility customers, most notably the potential downward rate

¹⁸⁸ Initial Comments of Commonwealth Edison Co., Docket No. 18-NOI-01 at p. 10 (Ill. Commerce Comm’n, Oct. 22, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>; Ameren Illinois Company’s Initial Comments in Response to NOI Questions and Issues, Docket No. 18-NOI-01 at p. 17, (Ill. Commerce Comm’n, Oct. 23, 2018), <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

¹⁸⁹ Initial Comments of Commonwealth Edison Co., *supra* note __, at 2.

¹⁹⁰ *Id.*

¹⁹¹ See *supra* note __ and accompanying text (discussing energy efficiency provisions of Illinois Future Energy Jobs Act).

¹⁹² Initial Comments of Commonwealth Edison Co., *supra* note __, at 3.

¹⁹³ *Id.* at 7.

¹⁹⁴ *Id.* at 7-8.

¹⁹⁵ *Id.* at 9-10.

pressure that can result from EV owners charging their vehicles.”¹⁹⁶ Ameren also stressed the need to combine a sophisticated EV policy with “forward-thinking energy efficiency policy” in order to promote efficient use of electricity, reduce energy consumption on a per/BTU basis, and reduce air emissions which “would benefit Illinois customers under a variety of cost-benefit analyses.”¹⁹⁷ Ameren argued for a program that would provide “a level of standardized savings, evaluation criteria, and costs associated with EV programs and design” that could include “modification of the existing Illinois energy efficiency [technical resource manual] to include EV-related measures, either of which could provide for a standard quantification of energy and environmental benefits—including novel categories of benefits related to bringing EV access to underserved areas, among other things.”¹⁹⁸ To conclude on that issue, Ameren suggested that a “portfolio of EV programs that coordinates information with energy efficiency incentives and supportive public policy has the potential to reduce market barriers and the need for additional peak capacity investment. Such a result would provide benefits to the customers throughout Illinois.”¹⁹⁹

Environmental and energy nonprofit groups focused their comments on expert studies showing that EVs “provide the opportunity for broad-based cost savings for ratepayers” as well as “improved security from reduced dependence on imports of conventional fuels, improved local air quality, and reduced greenhouse gas emissions.”²⁰⁰ They also cited studies showing that increased EV adoption coupled with time of use rates and other “smart charging” program “can actually reduce costs for all ratepayers while benefiting the grid and providing a range of societal benefits.”²⁰¹ The Sierra Club and Natural Resources Defense Council also stressed that transportation electrification is “not at odds with the utilities’ statutorily-defined energy efficiency goals” and EVs themselves “are a form of energy efficiency because they reduce total energy consumption” as compared with conventional

¹⁹⁶ Initial Comments of Ameren Illinois, *supra* note ___, at 1.

¹⁹⁷ *Id.* at 3-4.

¹⁹⁸ *Id.*

¹⁹⁹ *Id.* at 4.

²⁰⁰ Comments of Advanced Energy Economy, Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Oct. 23, 2018), <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>. *See also* Comments of the Union of Concerned Scientists, Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>; Comments of the Sierra Club and Natural Resources Defense Council, Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Oct. 23, 2018), <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²⁰¹ Comments of Advanced Energy Economy, *supra* note __.

vehicles.²⁰² Other groups, including ratepayer advocacy groups, focused on the importance that electric load be managed cost-effectively through time of use rates to ensure that all ratepayers benefit from infrastructure costs.²⁰³ They warned that any program for utility ownership of charging stations be designed in a way to not crowd out private investment and to avoid creating “a profit incentive for utilities to overbuild.”²⁰⁴

ChargePoint’s comments cited studies showing transportation electrification had the potential to “create value for all ratepayers” because “the expected long-term energy revenues from incremental EV load generally exceeds the costs for the grid to support that load” which will “exert a downward pressure on unit energy costs that can benefit all utility customers regardless of EV ownership.”²⁰⁵ It warned, however, that this requires smart charging and other methods of avoiding “high cost ‘peak’ generation and/or distribution time periods.”²⁰⁶ ChargePoint cautiously supported ratepayer funding of utility investment in EV charging, citing specific criteria developed in other jurisdictions and highlighting the need to “maintain customer choice, encourage innovation, and stimulate competition.”²⁰⁷

The strongest opposition to ratepayer funded utility investment in EV charging infrastructure came from Americans for Prosperity, a political advocacy group funded by David and Charles Koch of Koch Industries, a \$110 billion private company with major investments in the oil refining and distribution industries.²⁰⁸ It argued that the Commission must “carefully consider the rights and interests of all ratepayers” as it evaluates EV charging programs.²⁰⁹ It stated it was submitting comments “in the interests of protecting ratepayers and consumers from program designs, rules, and regulations that promote unfair and regressive forms of cross-

²⁰² Comments of the Sierra Club and Natural Resources Defense Council, *supra* note ___, at 2, 4.

²⁰³ Initial Comments of Citizens Utility Board and Env’tl. Defense Fund, Docket No. 18-NOI-01 at p. 4-5 (Ill. Commerce Comm’n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²⁰⁴ *Id.* at 4.

²⁰⁵ Comments by ChargePoint, Docket No. 18-NOI-01 at p. 1-2 (Ill. Commerce Comm’n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²⁰⁶ *Id.* at 2.

²⁰⁷ *Id.* at 10-11.

²⁰⁸ See Koch Industries, FORBES, <https://www.forbes.com/companies/koch-industries/#732c6aa074ce>.

²⁰⁹ Americans for Prosperity Comments, Docket No. 18-NOI-01, at p. 1 (Ill. Commerce Comm’n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

subsidization that have been enacted in other jurisdictions.”²¹⁰ It warned the Commission that it was “required to prevent discriminatory practices where captive electric utility customers are forced to underwrite a distribution utility incursion into the EV charging infrastructure market” and that “[f]airness dictates that funding of non-public utility service needs to be done with shareholder funds, not through charges imposed on captive ratepayers with guaranteed cost recovery plus a guaranteed rate of return for the utility.”²¹¹ It contended that ratepayer-funded infrastructure is “unfair” because it will only “benefit the wealthiest ratepayers” who own EVs.²¹² In closing, it cited the Commission’s statutory mandate to ensure “just and reasonable” utility rates and charges and to prohibit and declare unlawful any “unjust and unreasonable” charges.²¹³

The American Petroleum Institute-Illinois Petroleum Council expressed similar sentiments, stating that “[c]onsumers and taxpayers should not be forced to pay more in taxes, fees and/or electric utility rates so that someone else can purchase and operate an expensive electric vehicle.”²¹⁴ It stated that EV charging “is currently only used by a small fraction of drivers, many of whom are wealthy enough to afford these more expensive vehicles” and that to allow utility investment in EV charging infrastructure and recover costs from all ratepayers “will result in an unfair shifting of costs onto those who have not opted for this technology.”²¹⁵

In reply comments, the Union for Concerned Scientists specifically singled out the comments of American for Prosperity, the Illinois Petroleum Council, and other commenters that opposed utility investment in EV charging.²¹⁶ In response to the stated concerns regarding wealth transfers from lower income to higher income ratepayers, the Union for Concerned Scientists acknowledged that “[r]egressive wealth transfer” is an important consideration in EV charging program design.²¹⁷ However, it warned that “categorically prohibiting utility investments due to the *possibility* of wealth transfer ignores the potential for programs to actively support

²¹⁰ *Id.*

²¹¹ *Id.* (emphasis omitted).

²¹² *Id.* at 3.

²¹³ *Id.*

²¹⁴ American Petroleum Institute-Illinois Petroleum Council Comments, Docket No. 18-NOI-01, at p. 1 (Ill. Commerce Comm’n, Oct. 22, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx> (emphasis omitted).

²¹⁵ *Id.* at 2.

²¹⁶ Reply Comments of Union of Concerned Scientists (UCS), Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Nov. 9, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²¹⁷ *Id.* at 3.

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equity and ensure benefits of transportation electrification to underserved markets.”²¹⁸

These comments show a range of opinions regarding the benefits of transportation electrification and utility investment in EV charging. Most commenters explicitly tied EV charging to energy efficiency, as the Commission had requested in its initial Notice of Inquiry order, and provided guidance on how EV charging could be made consistent with energy efficiency goals even though electricity use would likely increase through EV adoption. With utilities and environmental groups aligned, both groups could benefit from the superior information made available from the Illinois utilities’ expertise with Illinois customer and grid data and the environmental groups’ experience participating in numerous similar proceedings in other states. Whether to focus on current costs and benefits to ratepayers as opposed to future costs and benefits remained a constant theme in these proceedings, similar to the debate in the rooftop solar net metering context. And, once again, the party with the most to lose from the program—here, the oil companies—hid behind ratepayer fairness and cross subsidy arguments just as the utilities have done in the rooftop solar arena. Finally, it is important to note that the Illinois proceeding was a Notice of Inquiry soliciting responses to specific Commission questions, rather than an evaluation of a concrete utility proposal for investment. This means that the discuss was somewhat more general, allowing a broader discussion of potential benefits and concerns, and avoiding the need to delve too deeply into any of the data provided by proponents or opponents.

b. Missouri

Unlike the proceeding in Illinois, the Missouri proceeding involves a specific utility proposal for investment in EV charging infrastructure. In November 2017, Union Electric Company, d/b/a Ameren Missouri (Ameren), filed an “efficient electrification program” tariff case with the Missouri Public Service Commission.²¹⁹ Within this case was “[a] proposal to allow Ameren Missouri to provide incentives to encourage electric vehicle charging stations.”²²⁰ This “Charge Ahead—Electric Vehicles” program would “defray part or all of the cost of installing and operating electric vehicle (‘EV’) charging stations,” and would include workplace, public space,

²¹⁸ *Id.* (emphasis in original).

²¹⁹ Notice of Case Filing, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 15, 2017), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018006603.

²²⁰ *Id.*

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multi-family dwelling, and interstate/highway corridor chargers.²²¹ The program would cost \$11 million.²²² Ameren claimed that the program, along with a related program to provide financial incentives for adoption of electric forklifts and other business equipment (called the “Business Solutions Program”) would “(a) provide benefits to both Ameren Missouri and its customers, both from the standpoint of lower overall rates, more efficient utilization of the electric grid, and reduced emissions in the areas where those customers work and live; and (b) not negatively affect[] either the Company’s customers who are not participants in the program or regulated alternative fuel suppliers competing in the Company’s service territory.”²²³

Notably, in explaining why the program would benefit all utility customers, Ameren’s written testimony relied expressly on various energy efficiency cost-effectiveness tests, including the Ratepayer Impact Measure (“RIM”) test.²²⁴ In its Statement of Position supporting the program, Ameren stated that:

The Rate Impact Measure (“RIM”) test, a common cost effectiveness test that looks at the impact of a program on customer rates, indicates that the cost of the program will be more than fully offset by the benefits arising from the EVs using the program. The amount above program costs is a contribution to recovery of the fixed costs of the electric system which results in lower rates for all Ameren Missouri customers. Beyond the results of any of the cost effectiveness tests, this program also provides significant environmental benefits.²²⁵

²²¹ Application, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 3 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012294.

²²² See The Associated Press, *Ameren Plans \$11 Million Program to Add Charging Stations*, US NEWS & WORLD REPORT, Feb. 22, 2018.

²²³ *Id.* at 4-5.

²²⁴ Direct Testimony of Michael W. Harding, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 9–11 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012299; Direct Testimony of Steven M. Wills, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 16-40 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012295; Direct Testimony of David K. Pickles, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 9–11 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012296.

²²⁵ Ameren Missouri’s Statement of Position, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 2 (Nov. 27, 2018),

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In making this argument, it is notable that Ameren expressly relied on experience with evaluations of the cost-effectiveness of energy efficiency programs and set out a pathway to integrate investments in EV charging into those existing cost-effectiveness models.²²⁶

However, the Commission’s Staff recommended the rejection of the EV program as proposed, and urged the Commission to “order modification of the Workplace, Multifamily, and Public Area subprograms to minimize free ridership and maximize public policy benefits.”²²⁷ While Staff conceded that all customers would in fact pay lower rates if Ameren could incentivize sufficient EV adoption such that additional revenues would exceed the costs of grid expansion, subsidies, and program costs, it found that Ameren had not provided sufficient evidence that such adoption would occur.²²⁸

Staff claimed it was unable to analyze free riding directly because Ameren failed to adequately connect the tariffed program to the proposed budget.²²⁹ Indeed, Staff warned that, “as designed, these programs are rife with opportunities for free ridership and fail to include provisions to maximize public policy related benefits.”²³⁰ Based on the current proposal, Staff found “Ameren Missouri has made no clear connection between this program and its estimate of an additional 7,500 electric vehicles in the Ameren Missouri service territory for parties to begin to determine what level of adoption is naturally occurring and what would be attributable to the \$11 million ratepayer subsidy.”²³¹

https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007500.

²²⁶ For a discussion of the various tests used for determining cost effectiveness of energy efficiency programs, including the Ratepayer Impact Measure (“RIM”), see *supra* note __, and accompanying text.

²²⁷ Staff Position Statements, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007510.

²²⁸ *Id.* at 3. See also Rebuttal Testimony of Sarah L.K. Lange, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n at 2-13 (Oct. 1, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019004665 (staff testimony criticizing Ameren cost-effectiveness analysis).

²²⁹ Staff Position Statements, *supra* note __, at 5.

²³⁰ *Id.* at 6.

²³¹ *Id.* at 1-2.

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The Office of the Public Counsel²³² was also critical of Ameren’s proposal, but ultimately recommended approval of the program while imposing a performance-based recovery mechanism linking Ameren’s recovery to EV adoption rates in its service territory.²³³ It argued that Ameren had failed to show a need for its program, and that private companies could respond to increased EV demand without utility action.²³⁴ Notably, Office of Public Counsel claimed there was no evidence that further EV infrastructure investment was required to spur EV adoption.²³⁵ It agreed with Staff that Ameren had not shown its program to be cost effective, and essentially offered the performance-based mechanism as a concession to tie the fate of Ameren to the actual efficacy of its program without fully recommending outright rejection.²³⁶

On the other hand, the Sierra Club and Natural Resources Defense Council recommended approval of the program with only minor modifications.²³⁷ They claimed that Ameren had actually been conservative in its estimate of public benefits of EV adoption, and that it should be allowed full recovery of prudently incurred costs.²³⁸ The environmental groups’ position focused on the claim that the public benefits of EVs actually are quite large, and are sufficient to mitigate any cost shift. The Missouri Division of Energy also supported the proposal, but recommended that 10% of the budget be allocated to support EV charging station development in “underserved and low-income communities” as a way to combat cost shifting.²³⁹ The Division claimed that this would “promote more equitable access to electric vehicle

²³² The Missouri legislature created the Office of Public Counsel in 1975 to represent the interests of utility customers in proceedings before the Missouri Public Service Commission. The Office of Public Counsel has its own staff and budget and is independent from the Commission. *See* Missouri Office of Public Counsel, Who We Are, <https://opc.mo.gov/who-we-are.html>.

²³³ Position Statement of the Office of the Public Counsel, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007507.

²³⁴ *Id.* at 1–2.

²³⁵ *Id.* at 2.

²³⁶ *Id.* at 3–7.

²³⁷ Position Statement of Sierra Club and Natural Resources Defense Council, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007488.

²³⁸ *Id.* at 2.

²³⁹ Missouri Division of Energy Statement of Positions, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007494.

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charging and the associated benefits of cost savings resulting from electric vehicle use”²⁴⁰ ChargePoint echoed these calls for approval, claiming that Ameren’s “program design reduces risks to ratepayers, lowers the cost barrier to [EV charging infrastructure] deployment, allows the charging station site host to determine which equipment and services best meet their needs, and builds a sustainable EV charging marketplace to help accelerate EV adoption.”²⁴¹

Notably, after all interested parties had filed their opening testimony, response testimony, and position statements, the Missouri Petroleum Marketers and Convenience Store Association (“MPCA”) sought leave to file an Amicus Curiae Brief in the proceeding.²⁴² It argued that “Because Ameren Missouri seeks to compete with MPCA’s members in the motor fuel market, MPCA is in a unique position to provide a legal perspective and background information to the Commission for its consideration of whether Ameren Missouri has provided sufficient evidence to show the Charge Ahead – [Electric Vehicle and Business Solutions] Programs are needed and cost effective; what, if any, cost recovery mechanisms may be appropriate for these Programs; and whether the Commission should impose any conditions on these Programs.”²⁴³ The Commission granted the request in December 2018.²⁴⁴

The Missouri proceeding, which is still pending before the Commission, showcases many of the same arguments made in the Illinois proceeding, but in the context of a concrete utility proposal for EV charging investment. Although the \$11 million requested for the program is significantly more modest than other programs approved in California, Massachusetts, and other states in 2018, the Missouri Commission will need to act without the benefit of legislative or executive branch direction declaring the public benefits of transportation electrification or utility investment in EV charging. Instead, the parties supporting the program must rely on

²⁴⁰ *Id.*

²⁴¹ Chargepoint, Inc.’s Statement of Position on the Issues, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 2 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007499.

²⁴² Petition of Missouri Petroleum Marketers & Convenience Store Association for Leave to File Amicus Curiae Brief and Request for Expedited Ruling, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n (Nov. 30, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007741.

²⁴³ *Id.* at 2.

²⁴⁴ Order Granting Leave to File Amicus Curiae Brief, Docket No. ET-2018-0132 (Mo. Pub. Serv. Comm’n, Dec. 11, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019008382.

general statutory language regarding just and reasonable rates as well as fit the program within the cost-effectiveness regime that exists for utility-funded energy efficiency programs, which is a potentially a helpful model for other similarly situated states.

3. *Maryland*

In Maryland, in 2018, a coalition of charging companies, environmental groups, four Maryland investor-owned utilities, and other interested parties (referred to as the “Signatory Parties” filed a joint “Proposal to Implement a Statewide Electric Vehicle Portfolio” that included utility investments in EV charging totaling over \$100 million.²⁴⁵ Program components included rebates for residential and commercial EV chargers, utility-owned public charging networks, as well as funding for customer outreach, innovation, and technological development, and implementation of time of use rates to support “smart charging.”²⁴⁶ Most of the rebates for private charging included dollar caps or percentage caps on the cost of the charger. In support of the program, the Signatory Parties cited to state policies supporting EVs and EV charging infrastructure, including “the State’s Greenhouse Gas Reduction Act, the eight-state Zero-Emission Vehicle Memorandum of Understanding, Maryland’s role in the Transportation Climate Initiative, the legislatively-created Electric Vehicle Infrastructure Council, and the Maryland EV Recharging Equipment Rebate Program.”²⁴⁷

Early in the Proposal, the Signatory Parties state “it is not the responsibility of ratepayers to foot the bill for the entirety of the remaining charging infrastructure needed to fill the gap between what exists today and the projected infrastructure build-out necessary to support the State’s ZEV MOU goal of 300,000 electric vehicles on the road by 2025.”²⁴⁸ Instead, they wish to make the case through the Proposal that “that a targeted ratepayer investment facilitated by the Utilities and made in conjunction with private market participants will seed the burgeoning Maryland EV landscape in a manner that will promote a healthy, competitive, and lasting private market moving forward.”²⁴⁹ In support of the Proposal, the Signatory Parties discuss a range of Maryland-specific expert cost-benefit studies to establish the cost-effectiveness of the Proposal and make the case why all utility customers

²⁴⁵ Signatory Parties Proposal to Implement a Statewide Electric Vehicle Portfolio, Case No. 9478 pp. 27-31, 56-60 (Jan. 19, 2018). The docket with links to all filings in the proceeding is at <https://www.psc.state.md.us/search-results/?keyword=9478&x.x=16&x.y=13&search=all&search=case>.

²⁴⁶ *Id.*

²⁴⁷ Proposal to Implement a Statewide Electric Vehicle Portfolio, *supra* note ___, at 3-9.

²⁴⁸ *Id.* at 9.

²⁴⁹ *Id.* at 9.

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will benefit from the investment. They also propose an “evaluation, measurement, and verification” strategy similar to the approaches used in the energy efficiency context.²⁵⁰

Numerous participants in the regulatory proceeding raised free riding and cost shift arguments targeted primarily at the rebates for residential and commercial EV chargers. It is this part of the program that most closely resembles energy efficiency programs, in that it is important to determine the extent to which utility customers would have purchased the EV chargers even in the absence of the subsidy. In energy efficiency parlance, those customers are free riders and their actions should not be included as program benefits.

For instance, the Maryland Office of People’s Counsel expressed concern that the utility programs would replace or subsidize private investment in EV charging, resulting in excessive costs for ratepayers and stifling the private market. It found deficiencies in the proposed cost-benefit analyses and suggested that “similar to the evaluation of energy-efficiency programs, an evaluation of the EV Proposal could also include deriving metrics like freeridership and net-to-gross.”²⁵¹ In later comments, the Office of People’s Counsel again stressed free riding concerns, stating that the utilities should use the metrics and data on free riding from their own energy efficiency programs, and finding that the rebates proposed for EV charger were at a much higher percentage than those used in the past for water heaters and other appliances. It warned that “[i]f rebates are set at a level that is higher than what is optimal, then less customers will be able to participate in the program and free ridership will increase.”²⁵² Despite these criticisms, it expressed support that program modifications, along with a full evidentiary hearing, could “bring significant benefits to Maryland’s ratepayers.”²⁵³

Likewise, the Maryland Energy Administration requested a full evidentiary hearing due to the size and scope of the proposal, and found the proposal did not sufficiently make the case why the investment would lead to the increase in EVs needed to meet program goals and achieve system-wide benefits.²⁵⁴ While it supported the time of use rate programs and pilot programs to assess managed charging, it opposed any subsidies or other utility investments in EV charging in

²⁵⁰ *Id.* at 36-39.

²⁵¹ Comments of the Maryland Office of People’s Counsel, Case No. 9478 (Md. Pub. Serv. Comm’n, Mar. 27, 2018).

²⁵² Comments of the Maryland Office of People’s Counsel, Case No. 9478, p. 6-7 (Md. Pub. Serv. Comm’n, Aug. 30, 2018).

²⁵³ *Id.* at 15.

²⁵⁴ Md. Energy Admin. Comments, Case No. 9478, p. 2-4 (Md. Pub. Serv. Comm’n, Mar. 29, 2018).

areas that were not publically accessible, which would mean eliminating most of the residential and commercial rebates for EV chargers.²⁵⁵ It cited to regulatory decisions in California, Georgia, and Kentucky where utility investment in EV charging was limited to public locations, workplaces, and multifamily units.²⁵⁶ In later comments, the Administration again warned against allowing subsidies for private EV charging: “Meaningful portions of total program costs . . . represent large transfers to individual households, . . . This, in effect, means that lower-income households could be subsidizing upper-income households without receiving direct benefits, which presents a serious issue of equity for Maryland ratepayers.”²⁵⁷

Finally, the Commission Staff filed comments that included free rider concerns associating with EV charger rebates. It suggested limiting rebates to EV owners who purchased EVs after the start of the program, on the theory that utility customers with EVs before the start of the program would be more likely to purchase an EV charger even without the program subsidy.²⁵⁸ It also urged that the Commission reduce the subsidy amount in order to limit cross subsidization and to forbid utilities from owning public chargers, on the grounds that the private charging market could serve that role and also because of rate design challenges.²⁵⁹ Commission Staff also urged the Commission to require the utilities to file yearly reports of costs and charger usage so it could monitor progress.

Maryland, by contrast, provides an example of state commission proceeding regarding utility investment EV charging where cost-effectiveness tests are used to refine a utility EV charging program, rather than oppose it completely. This is in large part because Maryland is a ZEV state, and has explicit legislative policies supporting transportation electrification and EV charging. Thus, it is far less difficult for opponents to argue that free riding and cross subsidy concerns should result in rejecting a utility program outright. Instead, those arguments are used to refine the program, more similar to how they are used in the energy efficiency context.

IV. MOVING BEYOND FREE RIDING AND CROSS SUBSIDY ARGUMENTS IN ENERGY POLICY: LESSONS FROM THE PRECAUTIONARY PRINCIPLE

²⁵⁵ *Id.* at 5-11.

²⁵⁶ *Id.*

²⁵⁷ Md. Energy Admin. Comments, Case No. 9478, p. 4-5 (Md. Pub. Serv. Comm’n, Aug. 31, 2018).

²⁵⁸ Comments of the Staff of the Md. Pub. Serv. Comm’n, Case No. 9478 (Md. Pub. Serv. Comm’n, Mar. 27, 2018); Comments of the Staff of the Md. Pub. Serv. Comm’n, Case No. 9478 (Md. Pub. Serv. Comm’n, Aug. 31, 2018); Comments of the Staff of the Md. Pub. Serv. Comm’n, Case No. 9478 (Md. Pub. Serv. Comm’n, Sept. 28, 2018).

²⁵⁹ *Id.*

This Part builds on the previous discussion and suggests approaches for regulators in evaluating free riding, cross subsidy, and fairness arguments in energy ratemaking proceedings addressing “energy transition” issues such as promoting distributed solar or transportation electrification. In doing so, it proposes a long-term view of both costs and benefits for new programs that builds on precautionary principles. More specifically, in the context of distributed solar and EV charging policies, it suggests that regulators adopt principles developed in the energy efficiency context and modify them for current programs.

As discussed in Part III, regulators have decades of experience evaluating utility-funded energy efficiency programs, as well as the system-wide benefits of those programs on a long-term basis. The metrics are far from perfect, as evidenced by continuing debates over the role of energy efficiency programs in reducing energy use,²⁶⁰ but there is at least a general consensus that energy efficiency can have significant present and future benefits to all utility customers, even if the full extent of free riders, spillovers, and other factors remains in dispute. The same cannot be said for the long-term benefits of distributed solar and EV charging. From a regulatory perspective, these programs are in their infancy. As a result, state public utility commissions are reviewing dockets, sometimes with and sometimes without the benefit of specific legislative direction, and making decisions that will impact technological developments, utility experience, and utility customer choices.

In many ways, there are important parallels between these current regulatory challenges and the longstanding debates pitting cost-benefit analysis against the precautionary principle in developing environmental, health, and safety regulations. Cost-benefit analysis “is a well-established, if fallible, methodology for ensuring that regulations enhance, rather than detract from, overall social welfare.”²⁶¹ It does so by attempting to prevent inefficient regulations by comparing the costs and benefits of a particular regulatory action.²⁶² Many scholars criticize cost benefit analysis because its evaluation of costs and benefits are inherently imprecise and subjective.²⁶³ This is particularly true because it is very difficult to place a monetary value on many of the benefits of environmental, health, and safety regulations, such as clean air, clean

²⁶⁰ See *supra* notes ___ - ___ and accompanying text.

²⁶¹ See Daniel H. Cole, *Reconciling Cost-Benefit Analysis with the Precautionary Principle*, *The REGULATORY REVIEW* (Mar. 5, 2012).

²⁶² *Id.* See also David M. Driesen, *Cost-Benefit Analysis and the Precautionary Principle: Can They Be Reconciled?*, 2013 *MICH. ST. L. REV.* 771, 776-77 (2013); Daniel A. Farber, *Coping with Uncertainty: Cost-Benefit Analysis, the Precautionary Principle, and Climate Change*, 90 *WASH. L. REV.* 1659,

²⁶³ Cole, *supra* note ___.

water, human life and health, scenic and aesthetic values, and plant and animal health.²⁶⁴

Environmental law scholars have long pointed to the “precautionary principle” as a potential alternative approach. The precautionary principle calls for a higher level of regulation—or precaution—when significant but uncertain risks, such as climate change or harm from toxic chemicals, exist.²⁶⁵ One articulation of the precautionary principle from the 1992 Rio Declaration on Environment and Development states that “[w]hen there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”²⁶⁶ Thus, the precautionary principle generally places the burden of proof on those who would limit regulation with the potential to enhance public welfare, particularly environmental health and safety benefits, in the face of uncertainty. By contrast, cost-benefit analysis places the burden of proof on proponents of regulation; if benefits of regulation or risks of harm in the absence of regulation are uncertain or difficult to value, regulation is likely to be deemed inefficient under a cost-benefit test.

The literature supporting and criticizing cost-benefit analysis and the ability to manipulate its inputs is extensive and beyond the scope of this Article. The same is true for scholarly and regulatory debate on the role of the precautionary principle, both as an alternative to cost-benefit analysis or as a principle to integrate into cost-benefit analysis.²⁶⁷ These debates, however, are similar to the concerns raised repeatedly in the regulatory proceedings over how to value the costs and benefits of distributed solar compensation and EV charging investments. In both instances, questions arise over how to weigh current and future costs to non-solar customers and non-EV drivers against system-wide benefits that may not accrue to all utility

²⁶⁴ See, e.g., Center for Progressive Reform, *Cost-Benefit Analysis: Bad Numbers, Bad Decisions*, www.progressivereform.org/costBenefit.cfm (collecting scholarship critical of cost-benefit analysis); Daniel A. Farber, *Rethinking the Role of Cost-Benefit Analysis*, 76 U. CHI. L. REV. 1355 (2009) (discussing extensive literature on cost benefit analysis and precautionary principle).

²⁶⁵ See DOUGLAS A. KYSAR, *REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY* 19 (Yale U. Press 2010) (noting that “precautionary approaches can be defended as being particularly well suited to safeguarding life and the environment under conditions of uncertainty and ignorance, as opposed to the conditions of probabilistic sophistication that are presupposed by proponents of the economic approach.”).

²⁶⁶ Cole, *supra* note __ (citing and quoting 1992 Rio Declaration on Environment and Development). See also Farber, *supra* note __, at 1671-78 (discussing precautionary principle and scholarly criticisms of same).

²⁶⁷ See *supra* notes __ - __.

customers until far into the future, if at all.²⁶⁸ Should the precautionary principle be applied to these regulatory analyses to support higher compensation for distributed solar and rapid EV charging investment? Or should a narrower form of cost-benefit analysis be applied? Does the precautionary principle justify borrowing one of the broader cost-effectiveness tests from the energy efficiency context like the Societal Impact Test in evaluating these programs or should regulators use a more conservative test like the Ratepayer Impact Test?²⁶⁹ The remainder of this Part provides an evaluation of these issues.

A. Addressing Uncertainty in Evaluating Costs and Benefits of Distributed Solar

The regulatory proceedings in Arizona and Nevada illustrate state regulatory commissions struggling to deal with uncertainties over how to monetize, calculate, and weigh future costs and benefits associated with creating incentives for rooftop solar through net metering policies. Both commissions were faced with a similar problem, namely, the absence of reliable data regarding the costs and benefits of a utility subsidy program—net metering—that may provide more obvious benefits for one group of customers now, but may provide overall benefits to all customers both now and in the future, including reduced electricity bills and improved public welfare through reduced GHG emissions and other air pollutants. In both cases, the utility raised free riding, fairness, and cross subsidy arguments and, because of its role in managing the grid and customers, was at an information advantage as compared to solar proponents. One commission, Arizona, was receptive to the utility’s arguments regarding fairness while the other commission, Nevada, looked beyond those arguments to the bigger picture of the overall benefits that rooftop solar could provide to the entire utility system and the state.

In the Arizona proceeding, the Commission found a lack of measurable “objective” and “subjective” values distributed solar provided to the utility system.²⁷⁰ In the absence of hard data showing those values were equitably distributed across all customers, the Commission felt compelled to place at least some additional charges on solar customers.²⁷¹ Even though the fixed charges the Commission imposed

²⁶⁸ See, e.g., KYSAR, *supra* note __, at 64 (“On the precautionary account, environmental, health, and safety regulation is not merely an opportunity to maximize an existing set of individual preferences or interests, but rather a moment to consider the regulating body’s obligations to its present and future members, to other political communities, and to species.”).

²⁶⁹ See *supra* notes __ - __ and accompanying text (explaining different cost-effectiveness tests).

²⁷⁰ See APS Order, *supra* note __, at ¶¶ 25-26.

²⁷¹ See *supra* note __, and accompanying text.

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were far less than those requested by the utility, the order assumes there is at least some cross subsidy that must be addressed to ensure just and reasonable rates.

By contrast, in Nevada, the Commission focused on whether there was an “unreasonable” cost shift between customer classes rather than any cost shift at all, based on the applicable statute.²⁷² In finding no unreasonable cost shift, the Commission recognized that the evidence was in conflict, that present and future costs and benefits could not be measured accurately, and stated its intent to “avoid jumping to a premature conclusion for the mere sake of having a resolution while the conversation and technology is evolving . . .”²⁷³ The Commission was concerned that a “wrong answer” was worse than an “uncertain” answer, particularly when the benefits associated with distributed solar were real but “hard to quantify.”²⁷⁴ This analysis has many hallmarks of the application of the precautionary principle, even if the Commission did not use that term. In the face of uncertainty, it chose a policy that would potentially provide environmental and system-wide economic benefits to all utility customers in the future as well as public benefits to the entire state, even if there may be some shifting of costs to certain utility customers in the short term.

Moreover, although neither commission expressly referred to the cost-effectiveness tests from the energy efficiency realm, the debate over whether to use a narrow test looking at current, distributional fairness or a broader test that considers future, societal impacts, could be seen just barely below the surface of the proceedings. Both commissions recognized they were working with incomplete information on costs, benefits, and distributional implications of the policies under consideration. The Arizona Commission appeared to apply a more traditional cost-benefit analysis that heavily weighed the inputs the utility provided while the Nevada Commission took a different approach that more resembled application of the precautionary principle. Both commissions recognized that their results were crude at best and would need to be modified in the future.²⁷⁵

Most experts in the field recognize that solar net metering is a fairly crude approach to compensating a growing energy resource across the country, particularly when the costs of net metering on a kWh basis far exceed those of utility-scale solar and other utility-scale renewable energy resources in wholesale markets.²⁷⁶ By the

²⁷² Sierra Pacific Power Co., *supra* note ___, at 36.

²⁷³ *Id.* at 33.

²⁷⁴ *Id.* at 34.

²⁷⁵ See APS Order, *supra* note ___, at ¶¶ 30-32 (stating the need to quantify both the costs and benefits of distributed solar and then “allocate[] these costs and benefits equitably among customers [as] a matter of rate design.”)

²⁷⁶ See *supra* note __ and accompanying text (discussing markets for wholesale electricity sales that value energy based on demand and resource).

same token, paying distributed solar customers a rate that is based on wholesale prices for utility-scale wind and solar energy is also not appropriate, as such pricing fails to compensate distributed solar customers for the value of distributed energy, which, if widely adopted, may lead to new markets, technology and investment in micro-grids, battery storage, and the like.

In considering new approaches, however, public utility commissions should be cautious of free riding arguments articulated by utilities in a regulatory forum that cannot fully value the present and future costs and benefits of distributed solar energy on the electric grid.²⁷⁷ More states are beginning to enact legislation and regulations to replace net metering, similar to Minnesota, to avoid the net metering disputes on display in the Arizona and Nevada proceedings.²⁷⁸ Scholars have also suggested an “avoided cost plus social benefit” approach that resembles some of the broader energy efficiency tests discussed in Part III.A in that it expressly values social benefits of distributed solar.²⁷⁹

In the interim, there is value in recognizing that in most areas of the country, penetration levels of distributed solar energy are still extremely small. Regulators have time to develop metrics to evaluate the costs and benefits of distributed solar now and worry about the effects of larger penetration and ultimate rate design later, when more is known about the scale at which solar penetration will have a measurable positive or negative impact on rates, utility costs, and other factors. Using a precautionary approach will allow regulators to put the burden on utilities and others to show that rooftop solar is a problem for system maintenance or that cross subsidies are significant. To assume that is the case now in addressing concerns over net metering risks stifling expansion of an important energy resource with the potential for significant public benefits. This is particularly true because improved metrics will be developed within a regulatory system where cross subsidies have always existed and will continue to exist, often without objection by participants and

²⁷⁷ See, e.g., Welton, *supra* note __, at 595 (“Frustratingly for regulators, empirical evidence does not provide conclusive answers to this debate. Most studies show that average retail rates—at which net-metered customers are credited—approximate the value of solar to the grid, with about half of the studies finding that solar is underpaid and the other half finding that solar is overpaid. These divergent results point to a deeper challenge in framing this equity debate as an empirical question.”).

²⁷⁸ See, e.g., Julia Pyper, *Maine Proposes to Replace Net Metering with a Market Alternative*, GTM, Feb. 26, 2016; New York State, *Value of Distributed Energy Resources*, <https://www.nysderda.ny.gov/All-Programs/Programs/NY-Sun/Contractors/Value-of-Distributed-Energy-Resources> (discussing new regulations for valuing solar in New York State as a replacement to net metering); NYSDERA, *Summary of Value of Distributed Energy Resources*, Oct. 13, 2017 (explaining same).

²⁷⁹ See Revesz & Unel, *supra* note __, at 84-95, 99-101.

regulators. To single out one type of cross subsidy without recognizing the context in which it exists is short sighted.²⁸⁰

B. Using Energy Efficiency Metrics to Develop Frameworks for Utility Investment in EV Charging

In the EV charging context, proponents are approaching state regulatory commissions with increasingly sophisticated analyses of future program benefits, and this time it is the opponents of such programs who are at a relative information disadvantage. This is because in the EV charging context, utilities are aligned, for the most part, with private charging companies and environmental nonprofit groups, reducing some of the information asymmetries on display in the rooftop solar context. Nevertheless, there is still an information deficit because there are many unknowns regarding the extent of climate change damage associated with continuing to drive conventional vehicles, the pace of EV adoption, and the impact of EVs, both positive and negative, on the electric grid. This information will not exist until electric utilities, drivers, car companies, and others can evaluate the impacts of broad-based transportation electrification.

Nevertheless, state regulatory commissions are responding to utility proposals for EV charging investments and participants in these proceedings are making much more explicit use of energy efficiency cost-effectiveness tests than they are in the distributed solar context. This is in part because the parallels between utility investment in energy efficiency programs and utility investment in EV charging are much more obvious, at least in the context of utility rebates for EV chargers, which are a component of many utility proposals. In the energy efficiency context, a major goal of regulatory design is to identify free riders—utility customers who would have purchased a new furnace, energy efficient lighting, new insulation, or the like even in the absence of the utility subsidy. The same should be true for EV chargers in that a utility program to incentivize the purchase of EV chargers is not cost-effective if significant ratepayer funds are being used to subsidize customer purchases of EV chargers that would have occurred even absent the subsidy program.²⁸¹

²⁸⁰ See, e.g., Revesz & Unel, *supra* note __, at 102 (“Cost-recovery and cost-shifting problems are unintended consequences of the current, inefficient retail rate designs, and should not be blamed on net metering policies); Rule *supra* note __ (discussing cost shifts inherent in the utility ratemaking process).

²⁸¹ Indeed, the National Efficiency Screening Project, a stakeholder organization with a mission to improve cost-effectiveness evaluation of energy efficiency resources, has stated that its metrics designed for energy efficiency programs “can be used to assess the cost-effectiveness of supply-side resources or distributed energy resources (DERs)—including EE, demand response, distributed generation, distributed storage, electric vehicles, and strategic electrification technologies. National Efficiency Screening Project, <https://nationalefficiencyscreening.org/>.

For instance in the Illinois Notice of Inquiry proceeding described above, the Commission specifically asked participants to discuss how EVs would contribute to energy efficiency in Illinois through fuel switching and how EV charging stations would affect utility energy efficiency programs.²⁸² Because the Illinois Commission was not considering a specific utility proposal, the participants did not evaluate any cost-effectiveness tests but instead provided general information on how EVs and EV charging would impact utility energy efficiency programs in the state.

In Missouri, by contrast, there was significant testimony regarding whether Ameren’s EV charging proposal would meet the RIM Test, with Ameren contending that it would meet the test as well as “provide significant environmental benefits.”²⁸³ In response, Commission Staff recommended rejection of the EV program because there was insufficient evidence that the program would spur sufficient EV adoption to result in utility revenues at a level that would exceed the costs of the grid expansion, subsidies, and program costs.²⁸⁴ Moreover, Commission Staff found Ameren did not provide sufficient evidence that the subsidy proposed for EV chargers would avoid significant free riding.²⁸⁵ Comments from the Office of Public Counsel were similar, arguing that Ameren had failed to show a need for the program at all and that it had failed to meet its burden of showing was cost-effective.²⁸⁶

Notably, in their comments, opponents of Ameren’s proposal use energy efficiency metrics to oppose the program in its entirety rather than to urge revisions to the program, as would be the case in the energy efficiency context. This is not surprising. Nothing in any of the Missouri filings cites to any legislation or regulation in the state that exists to promote EVs or EV charging, whereas utility-funded energy efficiency program are creatures of state statute. As a result, free riding arguments in non ZEV states can be used in a way that is similar how they have been used are used in the rooftop solar context, which is quite different from how they are used in the energy efficiency context, where they provide an evaluative purpose to refine and improve programs rather than eliminate them. This stands in contrast to Maryland, where free riding arguments were used to attempt to modify the program and to encourage the development of metrics to ensure cost-effectiveness.²⁸⁷

V. CONCLUSION

²⁸² See *supra* note ___ and accompanying text.

²⁸³ See *supra* note ___ and accompanying text.

²⁸⁴ See *supra* note ___ and accompanying text.

²⁸⁵ See *supra* note ___ and accompanying text.

²⁸⁶ See *supra* note ___ and accompanying text.

²⁸⁷ See *supra* notes ___ - ___ and accompanying text.

REGULATING THE ENERGY "FREE RIDERS"

There is no doubt a role for free riding and cross subsidy concerns in both the distributed solar EV charging contexts. But it is also clear that opponents of regulatory programs to incentivize distributed solar and EV adoption have used and will continue to use free riding and cross subsidy arguments to block programs that may hurt them financially. Commissions should look beyond these arguments and consider free riding and cross subsidy concerns for purposes of requiring program advocates to develop appropriate metrics to optimize the programs at issue, rather than to impede them before they can provide system-wide benefits. In order to do so, state utility commissions can apply a precautionary approach with regard to evaluating present and future costs and benefits, and urge participants in regulatory proceedings to look to existing energy efficiency metrics as a starting point for analysis and modify these metrics to meet the needs of developing programs.

untitled

From: Alexandra Klass <aklass@umn.edu>
To: Michael Noble <noble@fresh-energy.org>
Sent: January 18, 2019 3:56:23 PM CST
Received: January 18, 2019 3:56:24 PM CST

Did you see my text about meeting Tuesday afternoon at 3:30?

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
aklass@umn.edu
612-625-0155
Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

Re:

From: Michael Noble <Noble@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu>
Sent: January 18, 2019 4:19:02 PM CST
Received: January 18, 2019 4:19:04 PM CST

Darn, I can't be there, but waiting on J. Just texted her.

Michael Noble

Executive Director

Fresh Energy

Direct: 651 726-7563

Mobile: 612 963-1268

Web: [Www.fresh-energy.org](http://www.fresh-energy.org)

Twitter: @NobleIdeas

From: Alexandra Klass <aklass@umn.edu>

Sent: Friday, January 18, 2019 4:16 PM

To: Michael Noble

Subject:

Did you see my text about meeting Tuesday afternoon at 3:30?

Alex

Alexandra B. Klass

Distinguished McKnight University Professor

University of Minnesota Law School

aklass@umn.edu

612-625-0155

Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

Re:

From: Alexandra Klass <aklass@umn.edu>
To: Michael Noble <Noble@fresh-energy.org>
Sent: January 18, 2019 4:22:53 PM CST
Received: January 18, 2019 4:22:56 PM CST

Are you available by phone at that time by chance? You could also join our meeting the following week which will probably be same day of week and time (to accommodate all the students' class and work schedules). So Tuesday, Jan. 29.

Alex

Alexandra B. Klass
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On Jan 18, 2019, at 5:19 PM, Michael Noble <Noble@fresh-energy.org> wrote:

Darn, I can't be there, but waiting on J. Just texted her.

Michael Noble
Executive Director
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Re:

From: Michael Noble <Noble@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu>
Sent: January 18, 2019 4:25:34 PM CST
Received: January 18, 2019 4:25:37 PM CST

I am in deep negotiations with opponents on a utility issue. It starts at 4.

I could be on the phone for 30 minutes if you like!?

Michael Noble

Executive Director

Fresh Energy

Direct: 651 726-7563

Mobile: 612 963-1268

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Subject:

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Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

Re:

From: Michael Noble <Noble@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu>
Sent: January 18, 2019 4:26:53 PM CST
Received: January 18, 2019 4:26:56 PM CST

I could appear in person the following Tuesday

Michael Noble

Executive Director

Fresh Energy

Direct: 651 726-7563

Mobile: 612 963-1268

Web: [Www.fresh-energy.org](http://www.fresh-energy.org)

Twitter: @NobleIdeas

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Sent: Friday, January 18, 2019 4:23 PM

To: Michael Noble

Subject: Re:

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Sent: Friday, January 18, 2019 4:16 PM

To: Michael Noble

Subject:

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Alex

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Distinguished McKnight University Professor

University of Minnesota Law School

aklass@umn.edu

612-625-0155

Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

Re:

From: Alexandra Klass <aklass@umn.edu>
To: Michael Noble <Noble@fresh-energy.org>
Sent: January 18, 2019 4:36:11 PM CST
Received: January 18, 2019 4:36:12 PM CST

Let's plan on that. And if J can make it this Tuesday, so much the better.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
aklass@umn.edu
612-625-0155
Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

On Jan 18, 2019, at 5:26 PM, Michael Noble <Noble@fresh-energy.org> wrote:

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Michael Noble
Executive Director
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Direct: 651 726-7563
Mobile: 612 963-1268
Web: www.fresh-energy.org
Twitter: @NobleIdeas

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To: Michael Noble
Subject: Re:

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Sent: Friday, January 18, 2019 4:16 PM
To: Michael Noble
Subject:

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aklass@umn.edu
612-625-0155
Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

Re:

From: Michael Noble <Noble@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu>
Cc: J. Drake Hamilton <Hamilton@fresh-energy.org>
Sent: January 18, 2019 4:36:37 PM CST
Received: January 18, 2019 4:36:41 PM CST

Looping in J. so she can “reply all” with her availability.

I could be on a call for 30 minutes tues at 330 with students, but not in person.

I could meet i person 3:30 the following Tuesday

Michael Noble

Executive Director

Fresh Energy

Direct: 651 726-7563

Mobile: 612 963-1268

Web: [Www.fresh-energy.org](http://www.fresh-energy.org)

Twitter: @NobleIdeas

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Sent: Friday, January 18, 2019 4:23 PM

To: Michael Noble

Subject: Re:

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Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

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Michael Noble
Executive Director
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Mobile: 612 963-1268
Web: www.fresh-energy.org
Twitter: @NobleIdeas

From: Alexandra Klass <aklass@umn.edu>

Sent: Friday, January 18, 2019 4:16 PM

To: Michael Noble

Subject:

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Alex

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Distinguished McKnight University Professor
University of Minnesota Law School
aklass@umn.edu
612-625-0155
Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

Re: Location for tomorrow afternoon?

From: Alexandra Klass <aklass@umn.edu>
To: J. Drake Hamilton <Hamilton@fresh-energy.org>
Sent: January 21, 2019 5:22:32 PM CST

Wonderful! We are meeting at 3:30. I don't know the room yet but will let you know tomorrow. It's at the law school (Mondale Hall) on the West Bank. 229-19th Avenue South. There is some metered parking nearby and also you can park in the law school surface parking lot next door to the law school. See you tomorrow.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Mon, Jan 21, 2019 at 4:23 PM J. Drake Hamilton <Hamilton@fresh-energy.org> wrote:

Alex,

I would love to meet with you and your students tomorrow (Tuesday) late afternoon. Let me know the time and location, please.

J.

J. Drake Hamilton

Science Policy Director
Fresh Energy

Phone 651 366 7557

www.fresh-energy.org | twitter.com/freshenergy

Re: Location for tomorrow afternoon?

From: Alexandra Klass <aklass@umn.edu>
To: J. Drake Hamilton <Hamilton@fresh-energy.org>
Sent: January 22, 2019 11:22:53 AM CST

Hi J. -- We will be in Room 209 at the law school today. Michael, we'll be in the same room next week too.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Mon, Jan 21, 2019 at 4:23 PM J. Drake Hamilton <Hamilton@fresh-energy.org> wrote:

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I would love to meet with you and your students tomorrow (Tuesday) late afternoon. Let me know the time and location, please.

J.

J. Drake Hamilton

Science Policy Director
Fresh Energy

Phone 651 366 7557

www.fresh-energy.org | twitter.com/freshenergy

Thanks

From: Alexandra Klass <aklass@umn.edu>
To: J. Drake Hamilton <Hamilton@fresh-energy.org>
Sent: January 23, 2019 9:21:40 AM CST

Hi J., thanks for coming to our meeting yesterday. It was really helpful to get more details on the damages analysis. And hopefully the legal discussion was helpful to your work.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

damages list

From: Alexandra Klass <aklass@umn.edu>
To: J. Drake Hamilton <Hamilton@fresh-energy.org>
Sent: January 26, 2019 2:06:51 PM CST

Hi J., do you have the bullet point list you referred to in the meeting?

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

Re: damages list

From: Alexandra Klass <aklass@umn.edu>
To: J. Drake Hamilton <Hamilton@fresh-energy.org>
Sent: January 26, 2019 4:16:08 PM CST

Thanks J. If you have a one-page summary/bullet list now, send it my way. That's really all I need for present purposes. I'll plan to provide a bullet list of general types of damages in my memo and make reference to your more detailed one.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Sat, Jan 26, 2019 at 4:13 PM J. Drake Hamilton <Hamilton@fresh-energy.org> wrote:
Hi Alex, working now to finalize the list. Will have it to you by the end of Sunday (tomorrow).
J.

From: Alexandra Klass <aklass@umn.edu>
Sent: Saturday, January 26, 2019 2:06 PM
To: J. Drake Hamilton
Subject: damages list

Hi J., do you have the bullet point list you referred to in the meeting?
Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

Voila! the damages list

From: J. Drake Hamilton <Hamilton@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu>
Sent: January 27, 2019 5:10:14 PM CST
Received: January 27, 2019 5:10:21 PM CST
Attachments: Damages List 1.27.2019.docx

Hi Alex,

Attached is the current damages list. I'll be doing citations and format over the next couple of days.

You may want to refer to the nine "**Costs of..**" headers to construct a 1-page list for your purposes. In each case, these are boldface/underlined/italized.

J.

1. Damages List 1.27.2019.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 52 KB (53,364 bytes)

MINNESOTA DAMAGES

Last updated 1.27.2019 5PM

Introduction: Climate change creates new risks and exacerbates existing climate vulnerabilities across Minnesota, presenting growing challenges to human health and safety, quality of life and rate of economic growth. The impacts of climate change are already being felt in communities across the state, and those damages are projected to increase. Minnesota is experiencing rapid temperature increases, more frequent and intense extreme weather and climate-related events, as well as changes in average climate conditions, that are expected to continue to damage the state's infrastructure and ecosystems that provide critical benefits to the state's communities. With business as usual, rising temperatures and changes in extreme precipitation events are expected to increasingly disrupt and damage essential infrastructure and property in Minnesota. Minnesota's industries and economies that depend on natural resources and favorable climate, such as agriculture, outdoor recreation, and tourism, are vulnerable to increasing damages from climate change.

By mid-century, without mitigation, the Midwest is projected to experience substantial loss of life, worsened health conditions, and economic impacts estimated in the billions of dollars as a result of climate change ⁱ(Fourth National Climate Assessment, 2018, p. 4).

Summary of Minnesota Climate Trends and Projections (except as noted, from MN DNR Office of Climatology)

Minnesota is and will continue to be impacted by increased temperatures and disruptions to the hydrologic cycle, including, but not more frequent and extreme precipitation events, more frequent and extreme heat waves, more frequent and extreme droughts, and the associated consequences of those physical and environmental changes.

- Minnesota's average land surface temperatures have increased at a rapid pace during the late 20th and early 21st centuries, and are projected to continue to increase. Minnesota has gotten warmer. Data for the last half century (1960-2013) show that the recent rate of warming for Minnesota has sped up substantially, to 0.5 degrees per decade. Dew points have also risen.
- Temperatures in Minnesota are projected to increase substantially by 2050 under all emissions scenarios.
- The number of extreme heat days in Minnesota will increase because of climate change. Minnesota is projected to have warmer summers in the future. By mid-century, models project that southern Minnesota will have 5-10 more days per year above 95 degrees (Hayhoe, K., Sonter, et al. date).

- The cities of Minneapolis and Mankato, Minnesota, are the second and third fastest warming cities in the United States. (<http://www.rcc.acis.org>)
- The DNR State Climatology Office has noted the dramatic loss of extreme cold temperatures (less than -35F) across Minnesota, and states: “the loss of Minnesota cold extremes is a MAJOR contributor to winter warming.” Minnesota average winter minimum temperature increased 0.49 F per decade between 1896 and 2018 (DNR).
- Winter temperatures have been increasing 13 times faster than summer temperatures:
 - Winters: Since 1970, the average change per decade in MN is 1.2 F for the period December through February.
 - Summers: Since 1970, the average change per decade in MN is 0.09 F for June through August)
 - (MN State Climatology Office, DNR)
- The DNR projects high confidence that heat will increase in severity, coverage, and duration, and that winter extreme cold will have continued, rapid decline.
- Flooding will become more frequent.
- Flooding will become more severe.
- Extreme precipitation events will become more frequent.
- Extreme precipitation events will become more severe.
- Minnesota has gotten much wetter and warmer, and is projected to continue doing so.
- Increased wetness has been driven in part by more frequent and larger heavy rains, with further increases expected.

Costs associated with future impacts of flooding, including the costs of increased property damage, economic injuries, and impacts to public health, as well as the costs to mitigate such impacts and the costs of adapting to, or remediating, such impacts.

- Heavy precipitation events (defined as rainfall equal to or greater than the historic 95th percentile) will significantly increase in frequency at least through the year 2100 (citation: Xiang Gao et al., 21st Century Changes in U.S. Heavy Precipitation Frequency Based on Resolved Atmospheric Patterns, MIT Joint Program on the Science and Policy of Global Change Report 302, 15 (2016).

- Minnesota is already experiencing a climatic and meteorological shift towards winters and springs with more extreme precipitation events (DNR Office of Climatology), and this shift is expected to accelerate.
- Damages from the heightened flood risk in the Midwest are projected to be at least \$500 million (in 2015 dollars) annually by 2050 (EPA, 2017: Multi-model Framework for Quantitative Sectoral Impacts Analysis: A Technical Report for the Fourth National Climate Assessment. EPA 430-R-17-001. U.S. Environmental Protection Agency (EPA), Washington, DC, 271 pp. [URL](#)).
- Minnesota is already experiencing a climatic and meteorological shift towards winters and springs with more extreme precipitation events (DNR Office of Climatology).
- Winter and spring precipitation are important to flood risk in the Midwest and are projected to increase by up to 30% by the end of this century. Easterling, D. R., J. R. Arnold, T. Knutson, K. E. Kunkel, A. N. LeGrande, L. R. Leung, R. S. Vose, D. E. Waliser, and M. F. Wehner, 2017: Precipitation Change in the United States. *Climate Science Special Report: Fourth National Climate Assessment, Volume I*. Wuebbles, D. J., D. W. Fahey, K. A. Hibbard, D. J. Dokken, B. C. Stewart, and T. K. Maycock, Eds., U.S. Global Change Research Program, Washington, DC, USA, 207–230. doi:[10.7930/J0H993CC](#).
- Minnesota is getting wetter everywhere, and in all seasons (MN DNR State Climatology Office). From the historical period 1901 to 1960, to the most recent 30-year average (1991 to 2012), precipitation in most of Minnesota increased by between 5 and 15%, and wetness is expected to continue to increase (National Climate Assessment 2014).
- Between 1920 and 2008, floods increased in Minnesota between 9 and 12 percent per decade (National Climate Assessment 2014).
- Extreme rainfalls are increasing: Minnesota experienced a 42 percent increase in the heaviest rainfall events (1 in 100-year floods) between 1958 and 2016 (National Climate Assessment 2018).

Heavy precipitation events in the Midwest have increased in frequency and intensity since 1901 and are projected to increase through this century. Easterling, D. R., J. R. Arnold, T. Knutson, K. E. Kunkel, A. N. LeGrande, L. R. Leung, R. S. Vose, D. E. Waliser, and M. F. Wehner, 2017: Precipitation Change in the United States. *Climate Science Special Report: Fourth National Climate Assessment, Volume I*. Wuebbles, D. J., D. W. Fahey, K. A. Hibbard, D. J. Dokken, B. C. Stewart, and T. K. Maycock, Eds., U.S. Global Change Research Program, Washington, DC, USA, 207–230. doi:[10.7930/J0H993CC](#).

- Winter and spring precipitation are important to flood risk in the Midwest and are projected to increase by up to 30% by the end of this century. Easterling, D. R., J. R. Arnold, T. Knutson, K. E. Kunkel, A. N. LeGrande, L. R. Leung, R. S. Vose, D. E. Waliser, and M. F.

Wehner, 2017: Precipitation Change in the United States. *Climate Science Special Report: Fourth National Climate Assessment, Volume I*. Wuebbles, D. J., D. W. Fahey, K. A. Hibbard, D. J. Dokken, B. C. Stewart, and T. K. Maycock, Eds., U.S. Global Change Research Program, Washington, DC, USA, 207–230. doi:[10.7930/J0H993CC](https://doi.org/10.7930/J0H993CC).

- The most recent (November 2018) National Climate Assessment predicts 30-40 percent increases in heavy downpours by the end of this century.
- June precipitation averaged in Minnesota is projected to increase by up to 70% along the North Shore of Lake Superior (Reich 2019).
- Increased intensity and frequency of storms results in flooding and erosion and impacts transportation, infrastructure, businesses, homes, and public health.
- The 1997 Red River of the North flood in Minnesota, North Dakota, and Southern Manitoba was the most severe flood of that river since 1826. Total damages for the Red River region were \$3.5 billion. The river inundated virtually everything in the community of East Grand Forks, Minnesota, and caused extensive flood damage in Moorhead, Minnesota. In East Grand Forks, with a population of 9,000, just 8 homes had no flood damage. The state of Minnesota and communities in Minnesota paid for portions of the damage relief not covered by federal disaster relief.
- Minnesota counties have been battered by four 1-in-1,000-year floods in just the last 13 years, in 2004, 2007, 2010, and 2012 (MN State Climatology Office, DNR). The state legislature in 2007 provided \$165 million in disaster relief after flash flooding hit southeastern Minnesota. In 2010, the legislature in a special session provided \$80 million in disaster relief after flooding in the same part of the state. Again in 2012, the legislature called a special session and provided \$167 million in flood relief to Duluth and 15 counties as well as 3 tribes, after storms and epic flooding over the span of just one week in June 2012 (<https://www.twincities.com/2013/09/08/minnesota-legislature-oks-4-5m-in-disaster-relief-in-one-day-session/>).

An increase in flooding can cause flooding in surface streets and low-lying areas, resulting in drinking water contamination, evacuation, damage to buildings, injury, and death.

USGCRP, 2016: The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. U.S. Global Change Research Program, Washington, DC, 312 pp. doi:[10.7930/J0R49NQX](https://doi.org/10.7930/J0R49NQX).

- Long after flood waters recede, flooded buildings, including homes, can experience mold growth that can trigger asthma attacks and allergies during cleanup efforts. Chew, G. L., J. Wilson, F. A. Rabito, F. Grimsley, S. Iqbal, T. Reponen, M. L. Mulenberg, P. S. Thorne, D. G. Dearborn, and R. L. Morley, 2006: Mold and endotoxin levels in the aftermath of Hurricane Katrina: A pilot project of homes in New Orleans undergoing renovation. *Environmental Health Perspectives*, **114** (12), 1883–1889. doi:[10.1289/ehp.9258](https://doi.org/10.1289/ehp.9258).

- Minnesotans in flooded areas also suffer from mental health issues. Mental stress during flooding events can cause substantial health impacts, including sleeplessness, anxiety, depression, and post-traumatic stress disorder. (ICAT, 2017, Adeola, F. O., 2009: Mental health & psychosocial distress sequelae of Katrina: An empirical study of survivors. *Human Ecology Review*, 16 (2), 195–210. [URL](#).)

Costs associated with damage to tourism and outdoor recreation.

Minnesota's tourist economies, outdoor recreation, and quality of life rely on benefits provided by the state's natural environment, that is being degraded by the impacts of climate change in multiple ways. Many of the impacts fall on rural communities that are centered on winter recreation, fishing, hunting, and forest-based recreation.

- In Minnesota, outdoor recreation generates \$16.7 billion annually in consumer spending, and 140,000 people are employed in the outdoor recreation economy. These industries generate approximately \$4.5 billion in wages, and pay \$1.4 billion a year in state and local tax revenue (<https://outdoorindustry.org/resource/minnesota-outdoor-recreation-economy-report/>.) Climate change damages that jeopardize the snow and ice seasons, clean water, healthy forests, and robust wildlife habitats would reduce those wages and tax revenues.
- Minnesota has 600,000 hunters, 1.1 million anglers, and 500,000 bird and wildlife watchers. Some fish, birds, and mammals have already shifted where they live, and their habitats are projected to continue to shift—these changes have big implications for hunting, fishing, and other wildlife-related activities in Minnesota, and for the communities that depend on those activities (Minnesota DNR Game and Fish Fund Report 2017).
- Declines in snow and ice cover caused by warmer winter temperatures will continue to reduce revenues for winter recreation, including at Nordic and downhill skiing and snowboarding businesses, and on state and local recreational lands (Cite)
- Minnesota species are already responding to changes that have occurred over the last several decades, and rapid climate change over the next century is expected to cause or further amplify stress in many species and ecological systems in the state. Plant, tree, and animal species are the foundation of many outdoor recreation experiences in Minnesota. In addition, the loss of species and the degradation of ecosystems have the potential to reduce or eliminate essential ecological services such as flood control, water purification, and crop pollination, thus reducing the potential for society to successfully adapt to ongoing changes (Difffenbaugh, N. S., and C. B. Field, 2013: Changes in ecologically critical terrestrial climate conditions. *Science*, 341 (6145), 486–492. doi:[10.1126/science.1237123](https://doi.org/10.1126/science.1237123), Staudinger, M. D., S. L. Carter, M. S. Cross, N. S. Dubois, J. E. Duffy, C. Enquist, R. Griffis, J. J. Hellmann, J. J.

Lawler, J. O'Leary, S. A. Morrison, L. Sneddon, B. A. Stein, L. M. Thompson, and W. Turner, 2013: Biodiversity in a changing climate: A synthesis of current and projected trends in the US. *Frontiers in Ecology and the Environment*, 11(9), 465–473. doi:[10.1890/120272](https://doi.org/10.1890/120272).

Costs associated with damages to agricultural yields, management and mitigation of crop diseases and crop pests, and costs of adapting to less fertile soils.

- Agriculture is a primary economic sector in Minnesota. Rising temperatures and heavy downpours have already damaged Minnesota's agricultural productivity. Rising temperatures, heavy downpours, extreme heat, and drought are expected to increasingly disrupt the state's agricultural productivity (National Climate Assessment 2014).
- Climate change threatens the economic vitality of Minnesota's rural farming communities, causing expected increasing in challenges to livestock health, declines in crop yields, declines in the nutritional value of crops, and changes in extreme events in Minnesota (Seeley, 2019).
- Climate changes projected to occur before mid-century will reduce Midwestern agricultural productivity to levels of the 1980s, without major technological advances and investments of money (National Climate Assessment 2018, Midwest, p. 3)
- Yields from major U.S. crops (including corn) are expected to decline as a consequence of increases in temperatures. Experts project higher temperatures on Midwest farms during the growing season will be the largest contributing factor to declines in the nation's agriculture productivity (National Climate Assessment 2018).
- Warmer summers are projected to cause reductions in corn yields in Minnesota, with a greater and greater impact over time. (Hatfield, J.L., L. Wright-Morton, and B. Hall. 2018. Vulnerability of grain crops and croplands in the Midwest to climatic variability and adaptation strategies. *Climate Change* 146:263-275. Figure 5).
- August precipitation is projected to decrease by up to 60% in agricultural regions across central Minnesota and in southeastern MN by the end of the century, during a critical part of the growing season for crop yields (Twine 2019).
- Insufficient soil moisture: Climate projections show that Midwest surface soil moisture likely will transition from excessive levels in spring due to increased precipitation to insufficient levels of soil moisture in summer driven by higher temperatures that cause more moisture to be lost through evaporation (Twine 2019).
- By the 2030s, Minnesota is expected to have less soil water available in the growing season than in the 1990s, endangering future crop yields (Seager et al. 2014).

- High growing-season temperatures shorten phenological stages for crops, for example, shortening the grain fill period for corn. Hatfield, J., C. Swanston, Maria Janowiak, R. F. Steele, J. Hempel, J. Bochicchio, W. Hall, M. Cole, S. Hestvik, and J. Whitaker, 2015: USDA Midwest and Northern Forests Regional Climate Hub: Assessment of Climate Change Vulnerability and Adaptation and Mitigation Strategies. U.S. Department of Agriculture, 55 pp. [URL](#).
- Heat stress in corn during the reproductive period is expected to reduce yields in the second half of the 21st century. Climate-related disease and pest outbreaks will also cause declines in production.
- Jin, Z., Q. Zhuang, J. Wang, S. V. Archontoulis, Z. Zobel, and V. R. Kotamarthi, 2017: The combined and separate impacts of climate extremes on the current and future U.S. rainfed maize and soybean production under elevated CO₂. *Global Change Biology*, **23** (7), 2687–2704. doi:[10.1111/gcb.13617](https://doi.org/10.1111/gcb.13617).
- The increases in warmer, wetter, and more humid conditions are making field work harder. With the number of days over 95 degrees F in Minnesota expected to increase by 5 to 10 days per growing season in, workers with outdoor occupations, including farmers, are expected to suffer more heat stress and emergency room visits (National Climate Assessment 2018).
- Increasing damage costs from invasive species, pests, and disease
- A challenging corn pest, corn rootworm, was found to have optimal weather conditions for survival in 24 out of 24 modelled future years in a warming climate. When temperature lows in the winter are not as cold, as is projected from climate change, eggs of these common crop pests can survive over winter, so that the pests have higher populations in the subsequent growing seasons
- (Difflenbaugh, N.S., C.H. Krupke, M.A. White and C.E. Alexander, 2008, Global warming presents new challenges for maize pest management. *Environmental Research Letters* 3 044007).
- During the 1990s, *Fusarium solani* (sudden soybean death syndrome) entered into the state of Minnesota. This crop disease and others are expected to get worse in the state, leading to crop losses or the costs of increased use of fungicides or pesticides to reduce crop losses. (Rozensweig, C., A. Iglesias, X.B. Yang, P.R. Epstein, E. Chivian. 2001. Climate Change and Extreme Weather Events: Implications for Food Production, Plant Diseases, and Pests. *Global Change and Human Health* 2, 90-104).
- Soybean aphid is beginning to develop resistance to pesticides. With increasing populations of soybean aphids, insecticide use may increase, causing potential problems for helpful insects and pollinators, and increasing production costs to farmers

- (<https://blog-crop-news.extension.umn.edu/2018/07/soybean-aphid-infestations-are.html>).
- Increases in absolute humidity have degraded the quality of stored grain, because of longer dew periods and high moisture conditions that favor many agricultural pests and pathogens. Wet fall conditions can cause a 35 percent reduction in shelf life of harvested corn and a 50 percent loss in storage time (<https://crops.extension.iastate.edu/cropnews/2016/09/wet-weather-creates-challenges-harvest>).
- By the 2030s, Minnesota is expected to have less soil water available in the growing season than in the 1990s, endangering future crop yields (Seager et al. 2014).
- Cow breeding success and production of milk, and egg production, will be reduced due to projected temperature increases by mid-century. (NCA4, MW, p. 5, Mader, T. L., L. J. Johnson, and J. B. Gaughan, 2010: A comprehensive index for assessing environmental stress in animals. *Journal of Animal Science*, 88 (6), 2153–2165. doi:10.2527/jas.2009-2586).
- The U.S. Pork Board projects that climate change will cause an estimated 10 percent heat stress-related loss in pork production (<https://www.scientificamerican.com/article/a-warming-climate-could-make-pigs-produce-less-meat>).
- An increasing number of high-value crops, such as apples, are grown in Minnesota. Fruit trees accumulate “chilling units” over the winter to mark time. Trees need a certain length of dormancy time to enable full flowering, fruit set, and bud development. Without sufficient winter dormancy—projected due to climate change—orchard trees will have irregular flowering and fruit production and producer revenues will decline (https://www.canr.msu.edu/news/winter_cold_hardiness_in_michigan_fruit_crops).

Increased spring precipitation and higher temperatures and humidity are expected to increase the number and intensity of fungus and disease outbreaks (Munkvold, G. P., and X. B. Yang, 1995: Crop damage and epidemics associated with 1993 floods in Iowa. *Plant Disease*, 79 (1), 95–101. doi:10.1094/PD-79-0095).

- Wu, F., D. Bhatnagar, T. Bui-Klimke, I. Carbone, R. Hellmich, G. Munkvold, P. Paul, G. Payne, and E. Takle, 2011: Climate change impacts on mycotoxin risks in US maize. *World Mycotoxin Journal*, 4 (1), 79–93. doi:10.3920/WMJ2010.1246).
- Increased precipitation and soil moisture in a warmer climate lead to increased loss in soil carbon, an important determinant of soil fertility. (Pan, Z., D. Andrade, M. Segal, J. Wimberley, N. McKinney, and E. Takle, 2010: Uncertainty in future soil carbon trends at a central US site under an ensemble of GCM scenario climates. *Ecological Modelling*, 221 (5), 876–881. doi:10.1016/j.ecolmodel.2009.11.013).

- Increased precipitation and soil moisture in a warmer climate lead to degraded surface water quality due to erosion of soil and loss of nutrients from farmland. (Cai, X., X. Zhang, P. H. Noël, and M. Shafiee-Jood, 2015: Impacts of climate change on agricultural water management: A review. *Wiley Interdisciplinary Reviews: Water*, 2 (5), 439–455. doi:[10.1002/wat2.1089](https://doi.org/10.1002/wat2.1089)).

Costs associated with additional medical treatment, and hospital visits necessitated by extreme heat events, increased allergen exposure, increases in asthma attacks, and exposure to vector-borne disease, mitigation measures and public education programs to reduce occurrence of such health impacts.

- Increased air temperatures and changes to the hydrologic cycle associated with anthropogenic climate change have resulted and will result in public health impacts for the State of Minnesota (ICAT, 2017). The state of Minnesota has incurred and will continue to incur expenses in planning, preparing for, and treating the public health impacts associated with anthropogenic global warming. For example, the Minnesota Department of Health is planning for the likelihood of more Minnesotans seeking emergency help on hotter days. Vulnerable populations such as the disabled, the elderly, children, people who live alone, people of color and less-resourced communities are more likely to suffer health effects from high air temperatures. The state of Minnesota, through the Minnesota Department of Health and local health agencies, has provided public education to some vulnerable communities about central cooling centers where people could go for relief, and has incurred costs educating the public about what to do in extreme heat.

Extreme heat in urban centers like Minneapolis and St. Paul, Minnesota, can cause dangerous living conditions (Hondula, D. M., R. E. Davis, M. V. Saha, C. R. Wegner, and L. M. Veazey, 2015: Geographic dimensions of heat-related mortality in seven U.S. cities. *Environmental Research*, 138, 439–452. doi:[10.1016/j.envres.2015.02.033](https://doi.org/10.1016/j.envres.2015.02.033)).

- High rates of heat-related illnesses have been observed in rural population, where occupational exposure to heat (e.g. farmers, forestry and construction workers) and access to health care is a concern. Exposure to high temperatures impacts workers' health, safety, and productivity. (Sheridan, S. C., and P. G. Dixon, 2016: Spatiotemporal trends in human vulnerability and adaptation to heat across the United States. *Anthropocene*, doi:[10.1016/j.ancene.2016.10.001](https://doi.org/10.1016/j.ancene.2016.10.001)).
- To address heat-related illnesses, the State and local governments have funded the planting and maintaining trees in urban centers as an adaptive strategy to provide cooling and shade. Climate change complicates, and makes more expensive, the care of urban forests by increasing extreme weather events and invasive plants and pests (ICAT, 2017)

Allergies and Pollen

- Climate change is expected to increase the frequency and severity of allergic illnesses, including asthma and hay fever. The prevalence of hay fever has increased from 10 percent of the population in 1970 to about one-third of the American population. As a result of our changing climate, Minnesota's ragweed pollen season lengthened between 1995 and 2013 by over 21 days (EPA).
- Heat and increased carbon dioxide concentrations increase the duration of the pollen season; these factors also increase the allergenicity (a measure of how much allergens, such as ragweed, affect people) of pollen-triggering asthma attacks. (Neil, K. and J. Wu. 2007: Elevated atmospheric CO2 concentrations and temperature across an urban-rural transect. Atmospheric Environment, 41, 7654-7665.)

Asthma

- Climate change is greatly exacerbating damages to asthma sufferers. More than 34 million Americans have been diagnosed with asthma. U.S. Asthma rates increased by approximately 10-fold between 1970 and 2000 (<https://www.aafa.org/media/1634/extreme-allergies-global-warming-report-2010.pdf>). In Minnesota, a total of 408,000 people have asthma: one in 14 children (7.1% of children) and one in 13 adults (7.5%).
- In 2014, there were 21,800 emergency department visits and 3,400 hospitalizations for asthma across Minnesota. In 2015, there were 61 deaths due to asthma in Minnesota.
- In Minnesota in 2014, asthma cost an estimated \$669.3 million, including \$614.9 million in direct medical expenses and \$54.3 million in lost work days (<http://www.health.state.mn.us/asthma>; <http://www.health.state.mn.us/divs/healthimprovement/content/documents/asthmainMN2020.pdf>). The Minnesota damages from asthma will increase with climate change.
- Vector-borne Illnesses: Climate change is expected to shift the geographic range and the distribution of disease-carrying insects and pest, exposing more Minnesotans to ticks that carry Lyme disease, and mosquitoes that transmit viruses such as West Nile (National Climate Assessment 2018).
- Lyme Disease in Minnesota has exploded in recent years as a human health problem, from no cases in most of the state 1996-2000, to an incidence of over 100 to 160 cases per 100,000 person-years between 2006 and 2010 (Ticking Bomb: The Impact of Climate Change on the Incidence of Lyme Disease, Igor Dumitru, Edson Severnini, Can J Infect Dis Med Microbiology 2018). In Minnesota, increasing temperatures and the expected accompanying changes in seasonal patterns are expected to result in earlier seasonal tick activity and an expansion in tick habitat range, increasing the risk of human exposure to ticks.
- West Nile virus is the leading cause of mosquito-borne disease in the United States. Climate change will increase human vulnerability to this potent virus. The Centers for Disease

Control report that, between 2010 and 2013 in Minnesota, the incidence of West Nile virus increased from 0 per 100,000 people to greater than 10 cases per 100,000 people in some parts of Minnesota (<http://dx.doi.org/10.7930/J0765C7V>)

- CDC, 2014: Surveillance Resources: ArboNET. Centers for Disease Control and Prevention, Arboviral Diseases Branch, Fort Collins, CO. <http://www.cdc.gov/westnile/resourcepages/survResources.htm>.
- The threat of an increase in such harmful diseases created the need for additional monitoring and surveillance by the Minnesota Department of Health. For example, increases in tick-borne diseases are expected as winters become warmer and rainier, as is projected.
- Prevention, monitoring, and reporting costs, borne by the Minnesota Department of Health and other authorities, associated with the spread of such illnesses would increase (ICAT, 2017)
- Costs for mosquito habitat and control by authorities within the state will need to increase to control some vector-borne diseases (ICAT, 2017)
- Populations including the elderly, children, low-income communities, and people of color are often disproportionately impacted by, and less resilient to, the health impacts of climate change; therefore, these impacted communities and the agencies that serve them will bear an increasing and disproportionate portion of these costs (DNR cite).
- Increases in toxic algal (cyanobacteria) growth: Higher water temperatures, increased runoff, and nutrient-rich agricultural habitats are likely to increase in the Midwest, causing toxic algal blooms. Introducing cyanobacteria into recreational water supplies would result in in restrictions on access and use of the affected water body, and loss of public enjoyment of the resource. Contact with water contaminated with cyanobacteria has been associated with skin and eye irritation, respiratory disease, gastrointestinal illness, and liver and kidney damage (USGCRP, 2016: The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. U.S. Global Change Research Program, Washington, DC, 312 pp. doi:[10.7930/J0R49NQX](https://doi.org/10.7930/J0R49NQX), EPA, 2017: Multi-model Framework for Quantitative Sectoral Impacts Analysis: A Technical Report for the Fourth National Climate Assessment. EPA 430-R-17-001. U.S. Environmental Protection Agency (EPA), Washington, DC, 271 pp. [URL](#).)

Costs of associated with responding to, managing, and repairing damages from climate change to the forested lands of Minnesota.

- Minnesota contains large acreages of state forests and state parks that provide significant economic, ecological, and recreation benefits to the state's population. However, climate change is resulting in shifting precipitation patterns, altered disturbance regimes, and increased frequency of late-season moisture stress, all of which amplify the effects of

existing forest stressors such as invasive species, insect pests, and plant diseases (Swanston, C., L. A. Brandt, M. K. Janowiak, S. D. Handler, P. Butler-Leopold, L. Iverson, F. R. Thompson III, T. A. Ontl, and P. D. Shannon, 2018: Vulnerability of forests of the Midwest and Northeast United States to climate change. *Climatic Change*, 146 (1), 103–116. doi:[10.1007/s10584-017-2065-2](https://doi.org/10.1007/s10584-017-2065-2).)

- A shift to summer temperatures in northern Minnesota above 66 degrees F could eliminate boreal tree species, in favor of temperate species including red maple and sugar maple. Widespread invasion of Minnesota's boreal forests by temperate forest species, including balsam fir, is already occurring with the amount of climate warming that has already occurred. Furthermore, early springs expected with climate change are good for temperate forests and grasslands, but will kill boreal forests. (Frelich and Reich, *Frontiers in Ecology and the Environment*, 2010) In 2070, boreal forest will have disappeared in Minnesota unless we are on a low carbon dioxide emission pathway (Frelich in press). Under a high emissions scenario, one-third of all native species will disappear from what is today the boreal forest region of Minnesota.

A variety of factors affecting forest health will also change when the climate changes. Insect pests currently limited by cold winter temperatures will be able to increase the extent of infested forests, including mountain pine beetles and emerald ash borer.

- In Minnesota, emerald ash borer has been found in 16 counties, all of which are under quarantine for the pest. There are nearly one billion ash trees in Minnesota. Because there is no demonstrated resistance to emerald ash borer in the native ash, Minnesota is in danger of losing 99 percent of its ash trees. This loss will have a profound impact on native plants and animals dependent on ash communities, industries that rely on ash fiber and bark, and communities that have park, boulevard, and yard ash trees. The damages include the cost to quarantine forest land, and to remove and then replace ash trees (DNR Game and Fish Fund Report, p. 83)
- “As of 2017, the Minnesota Department of Natural Resources Forest Health Unit reported that more than 440,000 acres of tamarack were in some stage of infestation by the eastern larch beetle.” 172 square miles of tamaracks are already dead, and a total of 688 square miles of tamaracks are dead or expected to die. “The absence of an obligatory overwintering period, combined with longer growing seasons brought by warming temperatures, may allow for multiple generations per year on a consistent basis. This switch in life history results in faster spread and increased tree mortality. Warmer winters are also presumably causing less winter mortality for overwintering beetles. In addition to the exploding populations of beetles, warmer winters mean less access for loggers to manage tamarack stands, which typically require frozen ground to operate machinery” (<https://entomologytoday.org/2018/04/18/eastern-larch-beetle-outbreak-keeps-going-winter-not-cold/>). The DNR is beginning to replant tamarack, but those costs to the state for forest replacement will increase over the next decades with increasing climate change (https://www.dnr.state.mn.us/climate/climate_change_info/impacts-climate-change.html).

- Minnesota's natural resource managers are incorporating climate adaptation into land management, for example, taking steps to address these issues by increasing the diversity of trees and introducing species suitable for a sustainable climate. But this diverse suite of planning and implementation actions comes at significant cost to the state.
- Ontl, T. A., C. Swanston, L. A. Brandt, P. R. Butler, A. W. D'Amato, S. D. Handler, M. K. Janowiak, and P. D. Shannon, 2018: Adaptation pathways: Ecoregion and land ownership influences on climate adaptation decision-making in forest management. *Climatic Change*, 146 (1), 75–88. doi:[10.1007/s10584-017-1983-3](https://doi.org/10.1007/s10584-017-1983-3).
<https://link.springer.com/article/10.1007%2Fs10584-017-1983-3>
- The 4.2 million acres of state forest land create great economic, social, and environmental benefits for all Minnesotans. In a recent year, the DNR used \$1,238,000 last year of game and fish funds on forest management and invasive species control and educational efforts, including for emerald ash borer that kills ash trees. Climate change impacts will make additional state forest management expenditures necessary (DNR).
- Minnesota's forests store 1.6 million metric tons of atmospheric carbon. Loss of forests due to climate change means loss of stored carbon, and puts the state at greater risk of not meeting its Next Generation Energy Act goals for reducing economy-wide greenhouse gases by at least 30 percent by 2025 (ICAT, 2017).

Costs of analyzing and evaluating the future impacts of climate change on infrastructure, including transportation, water supply, wastewater treatment, and the power system, and the costs of mitigating, adapting to, or remediating those impacts.

Climate change that is already underway and expected to continue poses challenges to transportation and storm water systems in Minnesota, including from increased flooding. Winter and spring precipitation are important to flood risk in Minnesota and are projected to increase by up to 30 percent by the end of the century. Heavy precipitation events in Minnesota have increased by 42 percent from 1958 to 2016 and are projected to increase through this century. Easterling, D. R., J. R. Arnold, T. Knutson, K. E. Kunkel, A. N. LeGrande, L. R. Leung, R. S. Vose, D. E. Waliser, and M. F. Wehner, 2017: Precipitation Change in the United States. *Climate Science Special Report: Fourth National Climate Assessment, Volume I*. Wuebbles, D. J., D. W. Fahey, K. A. Hibbard, D. J. Dokken, B. C. Stewart, and T. K. Maycock, Eds., U.S. Global Change Research Program, Washington, DC, USA, 207–230. doi:[10.7930/J0H993CC](https://doi.org/10.7930/J0H993CC).

- Minnesota has an aging transportation infrastructure that is further stressed by increases in heavy precipitation events, as well as changes that are already occurring in the state's average precipitation. The expected continued increase in the frequency and severity of heavy precipitation events will affect access to roads, the viability of bridges, and the safety of pipelines (ICAT, 2017).

- Heavy rainstorms can result in the temporary closure of roadways, and economic disruptions from slower transportation of goods (ICAT 2017 report).
- Minnesota’s vibrant manufacturing, retail, recreation, and service sectors require a robust network of highways. Heavy rain events have increased the overall flood risk, causing disruption to transportation and damage to road and bridge infrastructure in the state (https://www.dnr.illinois.gov/WaterResources/Documents/Final_UFAA_Report.pdf).

Faster water flow caused by extreme rains can erode the bases of bridges, a condition known as scour. Scour may leave bridges vulnerable to damage and failure during flooding by undermining bridge foundations or removing the protection from the abutment slopes. The Minnesota Department of Transportation allocates resources to address bridge scour through multiple efforts; those costs will increase due to climate change (ICAT 2017). The EPA estimates the annual cost of maintaining current levels of service on Midwestern bridges from scour damage from climate change at about \$400 million per year in 2050. [EPA, 2017: Multi-model Framework for Quantitative Sectoral Impacts Analysis: A Technical Report for the Fourth National Climate Assessment. EPA 430-R-17-001. U.S. Environmental Protection Agency \(EPA\), Washington, DC, 271 pp. URL.](#)

In addition to its impacts on infrastructure, heavy downpours also affect the operators of roadway safety, as they reduce safety and capacity while increasing travel times. The projected increased in the number of extreme rainfall events has been linked to increased number of traffic crashes, with increased damage costs falling on public safety officials, individuals, and insurers. [Leard, B., and K. Roth, 2016: Weather, Traffic Accidents and Exposure to Climate Change. RFF DP 15-19-REV. Resources for the Future , Washington DC, URL.](#)

- The EPA estimates that higher temperatures associated with unmitigated climate change would result in, by 2090, U.S. annual road maintenance costs increasing by over \$6 billion (in 2015 dollars) each year. Minnesotans would be responsible for most of those in-state costs. [EPA, 2017: Multi-model Framework for Quantitative Sectoral Impacts Analysis: A Technical Report for the Fourth National Climate Assessment. EPA 430-R-17-001. U.S. Environmental Protection Agency \(EPA\), Washington, DC, 271 pp. URL.](#)
- Transportation agencies including the Minnesota Department of Transportation can use intelligent transportation services to minimize adverse impacts associated with climate change, but that will increase costs to state government. [Dey, K. C., A. Mishra, and M. Chowdhury, 2015: Potential of intelligent transportation systems in mitigating adverse weather impacts on road mobility: A review. *IEEE Transactions on Intelligent Transportation Systems*, 16 \(3\), 1107–1119. doi:10.1109/TITS.2014.2371455.](#)

- Increased flooding from climate change will also impact Minnesota’s bus networks, both disrupting services and requiring relocation of a number of bus stops to upland locations (ICAT 2017)
- Shipping through the harbor of Duluth-Superior is vulnerable to climate impacts, with damages including lower profits for shippers and lower revenue for port authorities. Research on Lake Superior showed that decreasing lake levels with climate change will increase shipping costs, because lower water levels reduce cargo capacity in ships. [Millerd, F., 2011: The potential impact of climate change on Great Lakes international shipping. *Climatic Change*, 104 \(3–4\), 629–652. doi:10.1007/s10584-010-9872-z.](#)
- One of the most direct energy security impacts of major storm events is power outages. Power outages result in indirect costs, such as lost business and tax revenue that would otherwise accrue to the State, and health impacts from loss of electricity and air conditioning (ICAT 2017). Minnesota’s more frequent storms will increase these costs.
- Increased extreme heat days also put stress on the state’s electricity grid, by requiring increased air conditioning. State agencies are playing key roles in overseeing energy assurance and resiliency in Minnesota; climate change will increase the cost to provide these assurances (ICAT, 2017).
- State-operated buildings may see an increase in air conditioning demand by 300 percent by 2100, with increasing costs for state taxpayers (MPCA Climate Adaptation Framework 2018).
- Increased rainfall will cause damage to water and sewer systems; costs will increase for local and state authorities who fund operations and maintenance of these systems (USGCRP, NCA4).
- Increased summer and fall dry spells will stress Minnesota’s water supply. Reduced seasonal precipitation will increase public reliance on groundwater sources to provide drinking water, and simultaneously slow replenishment of groundwater aquifers (National Climate Assessment 2018, ICAT 2017).
- Wastewater management costs will increase. Many Minnesota wastewater systems are located in floodplains to take advantage of gravity fed flows. Increased flooding will exceed infrastructure capacity, overwhelming and submerging infrastructure, including pipelines, wastewater pumping stations and treatment systems. Treatment systems and pumping stations will require upgrades to withstand future conditions, and the Metropolitan Council has already begun requiring resiliency analysis as part of major wastewater treatment plant permit reissuances (ICAT 2017).

Costs of responding to, managing, and repairing damage to fisheries from climate change.

Minnesota has 5,500 fishing lakes, as well as 18,000 miles of fishable rivers and streams. Minnesota's population includes 1.2 million anglers (Minnesota Department of Natural Resources, Game and Fish Fund Report, 2017).

Minnesota's fisheries and terrestrial plant and animal life have been threatened and damaged, to the detriment of public enjoyment. The state of Minnesota has incurred costs in order to reduce those threats and damages, and to adapt fisheries and recreational resources to allow for continued public enjoyment under an anthropogenically changing climate (ICAT, 2017).

Cool- and cold-water fish, including trout, in the Midwest will likely experience local extinction in some lakes from climate change, and reduced geographic distribution around Minnesota. Herb, W. R., L. B. Johnson, P. C. Jacobson, and H. G. Stefan, 2014: Projecting cold-water fish habitat in lakes of the glacial lakes region under changing land use and climate regimes. *Canadian Journal of Fisheries and Aquatic Sciences*, 71 (9), 1334–1348. doi:10.1139/cjfas-2013-0535, Jiang, L., X. Fang, H. G. Stefan, P. C. Jacobson, and D. L. Pereira, 2012: Oxythermal habitat parameters and identifying cisco refuge lakes in Minnesota under future climate scenarios using variable benchmark periods. *Ecological Modelling*, 232, 14–27. doi:10.1016/j.ecolmodel.2012.02.014, Jiang, L., and X. Fang, 2016: Simulation and validation of cisco lethal conditions in Minnesota lakes under past and future climate scenarios using constant survival limits. *Water*, 8 (7), 279. doi:10.3390/w8070279.

- The Minnesota DNR spent \$1,235,786 on trout management in 2017, 90% of that revenue from the sale of trout stamps. The DNR uses these funds to maintain, improve, and preserve habitat for trout in trout streams and lakes. Declining trout populations will cut into that revenue, requiring replacement revenue to pay for these critical habitat services (DNR Game and Fish Fund Report, 2017).
- The ice fishing season has decreased on many lakes in Minnesota since the 1940s, as lake ice-in dates have come later and later in the season, while ice-out dates are arriving earlier in the spring. For example, ice fishing was limited due to mild temperatures in the winters of 2015-16 and 2016-17 (NCA4, Midwest, p2). The long-term state average decline in lake ice season is 1.8 days per decade. However, the ice period decline from 1987-2017 (the last 30 years) has been 4.2 days per decade (Source: DNR internal analyses), reducing Minnesotans' recreational opportunities and cutting tax and other revenues to the state from that winter sport (https://www.dnr.state.mn.us/climate/climate_change_info/impacts-climate-change.html).
- Healthy fisheries are critical for maintaining healthy fish habitat, as Minnesota relies heavily on fishing license sales for funds to manage and maintain fish populations. The DNR thus relies on a satisfied and large population of anglers to help fund fisheries. In 2017, fishing license sales generated \$26,912,000. Those revenues would need to be replaced if fisheries decrease as is expected with climate change.

- Fishing license revenues provided \$4,790,000 in 2017 to support ecological and water services by the DNR, including habitat protection.
- The DNR faces many challenges related to climate change, including the need to be vigilant in preventing the spread of aquatic invasive species; that work is partly funded by a surcharge on non-resident fishing licenses (yearly revenue of \$1,098,589 in 2017). The DNR reports that it will need increased funds, beyond that surcharge, to help ensure that Minnesota's waters provide healthy habitats and enjoyable recreational opportunities. An increase in the cost of non-resident fishing licenses would require that tourists perceive good fishing in Minnesota; but climate change is expected to reduce cool- and cold-water fishing in Minnesota (Minnesota DNR, Game and Fish Fund Report for the Year Ended June 30, 2017). The DNR's critical aquatic invasive species work would be damaged by climate change.

The costs associated with responding to the threats to indigenous communities from disruptions to their livelihoods, economics, health, and cultural identities.

- Climate change increasingly threatens indigenous communities' livelihoods, economics, health, and cultural identities by disrupting ecological systems including wild rice. Cultural identifies based on historical use of wild rice are at risk from climate change (National Climate Assessment 4, Summary p. 4).
- Large swaths of land in Minnesota contain ceded territory of many tribes, including Ojibwe tribes with reserved in treaties hunting, fishing, and gathering rights to native plants, all of which play vital roles in maintaining cultural heritage. Projected climate change will have strong, negative impacts on these activities. Various species used by tribes are declining and may shift entirely outside of treaty boundaries. [Bennett, T. M. B., N. G. Maynard, P. Cochran, R. Gough, K. Lynn, J. Maldonado, G. Voggesser, S. Wotkyns, and K. Cozzetto, 2014: Ch. 12: Indigenous peoples, lands, and resources. *Climate Change Impacts in the United States: The Third National Climate Assessment*. Melillo, J. M., T. \(T. C. . Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, Washington, DC, 297–317. doi:10.7930/J09G5JR1.](#)
- The DNR spends about \$40,000 per year for the management of designated public waters to improve natural wild rice production. In 2017, 87.6% of wild rice management funds originated from sales of wild rice licenses. Wild rice harvests would decline with climate change, and the revenue for wild rice management would need to be replaced by another revenue source (DNR Game and Fish Fund Report 2017).
- On tribal lands, infestations of invasive emerald ash borer are already occurring and projected to increase, and these are devastating ash tree populations, and damaging indigenous cultural and economic traditions (Reich 2019).

Cost to analyze and evaluate the future impacts of climate change, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts.

Minnesota is undertaking extensive planning efforts across state agencies, as well as funding independent research efforts, to assess the State’s vulnerability to a broad range of climate change-related impacts, and to develop adaptation and resilience strategies. For example, since 2009, fifteen Minnesota state departments and agencies (Administration, Agriculture, Commerce, Corrections, Employment and Economic Development, Environmental Quality Board, Health, Military Affairs, Natural Resources, Pollution Control, Public Safety, Transportation, Water and Soil Resources, as well as the Metropolitan Council and Minnesota State Colleges and Universities) have been collaborating on climate adaptation through the Interagency Climate Adaptation Team, including sharing information on the hundreds of agency research and planning projects that help Minnesota evaluate, analyze, mitigate, and adapt to climate change (Minnesota Interagency Climate Adaptation Team, *Adapting to Climate Change in Minnesota*, 2017).

Re: Voila! the damages list

From: Alexandra Klass <aklass@umn.edu>
To: J. Drake Hamilton <Hamilton@fresh-energy.org>
Sent: January 27, 2019 5:25:25 PM CST

Perfect; thanks. I will incorporate.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Sun, Jan 27, 2019 at 5:10 PM J. Drake Hamilton <Hamilton@fresh-energy.org> wrote:

Hi Alex,

Attached is the current damages list. I'll be doing citations and format over the next couple of days. You may want to refer to the nine "**Costs of..**" headers to construct a 1-page list for your purposes. In each case, these are boldface/underlined/italized.

J.

Memo is complete

From: Michael Noble <Noble@fresh-energy.org>
To: Judith Eck <judith@climateintegrity.org>
Cc: Alexandra Klass <aklass@umn.edu>
Sent: January 29, 2019 4:24:08 PM CST
Received: January 29, 2019 4:24:14 PM CST

Should we put it in an envelope or email it?

Alex is completely [REDACTED]

I want our face to face meeting between March 5-25.

Michael Noble

Executive Director

Fresh Energy

Direct: 651 726-7563

Mobile: 612 963-1268

Web: www.fresh-energy.org

Twitter: @NobleIdeas

From: Judith Enck <judith@climateintegrity.org>

Sent: Wednesday, January 2, 2019 4:09 PM

To: Sarah Clark

Cc: Michael Noble; Jillian Theuer

Subject: Re: Talking tomorrow - 4PM NY time

great i will call in tomorrow, jan 3 at 4pm, new york time. i have the number cheers, Judith Enck

On Wed, Jan 2, 2019 at 4:54 PM Sarah Clark <clark@fresh-energy.org> wrote:

Hi Judith –

It looks like 4PM NY time (3PM CT) works for everyone. Looping in Jillian Theuer who will send the official calendar invite with a call in number.

Thanks!

Sarah

Sarah Clark

Chief Program Advancement Officer

Fresh Energy

Phone 651 726 7564

www.fresh-energy.org | twitter.com/freshenergy

Re: Memo is complete

From: Michael Noble <Noble@fresh-energy.org>
To: Judith Eck <judith@climateintegrity.org>
Cc: Alexandra Klass <aklass@umn.edu>
Sent: January 29, 2019 4:31:06 PM CST
Received: January 29, 2019 4:31:08 PM CST

Maybe best thing is to have a phone conference after you read it, and before Alex [REDACTED]. Is Thursday or Friday possible?

Michael Noble
Executive Director
Fresh Energy
Direct: 651 726-7563
Mobile: 612 963-1268
Web: [Www.fresh-energy.org](http://www.fresh-energy.org)
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Sarah Clark

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Phone 651 726 7564

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To: Michael Noble <Noble@fresh-energy.org>
Cc: Alexandra Klass <aklass@umn.edu>
Sent: January 29, 2019 5:16:13 PM CST
Received: January 29, 2019 5:16:17 PM CST

Email to me. Thanks

Sent from my iPhone

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To: Michael Noble <Noble@fresh-energy.org>
Cc: Alexandra Klass <aklass@umn.edu>
Sent: January 29, 2019 5:17:21 PM CST
Received: January 29, 2019 5:17:23 PM CST
Friday at 4 or later , ny time. Tx

Sent from my iPhone

On Jan 29, 2019, at 5:31 PM, Michael Noble <Noble@fresh-energy.org> wrote:

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From: Alexandra Klass <aklass@umn.edu>
To: Judith Enck <judith@climateintegrity.org>
Cc: Michael Noble <Noble@fresh-energy.org>
Sent: January 29, 2019 5:43:37 PM CST
Attachments: Memo to AG Ellison on Climate Change Litigation 1 2019.pdf

Here's the memo.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

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[Sarah Clark](#)

Chief Program Advancement Officer

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1. Memo to AG Ellison on Climate Change Litigation 1 2019.pdf

Type: application/pdf
Size: 486 KB (498,293 bytes)

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Twin Cities Campus


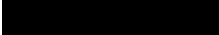
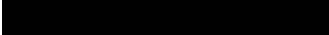
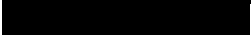
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MEMORANDUM

TO: Keith Ellison
Minnesota Attorney General

FROM: Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School

 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Law Class of 2020
 Minnesota Law Class of 2019

DATE: January 31, 2019

RE: Potential Lawsuit against Fossil Fuel Companies for Minnesota Climate Change Damages

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INTRODUCTION

This memorandum sets forth possible claims for damages by the State of Minnesota against major oil, gas, and coal companies for their contribution to climate change-related damages in Minnesota. Such a lawsuit would be likely be filed in Minnesota District Court and would be similar to pending lawsuits that states, counties, and cities in other parts country have filed against the fossil fuel companies for damages. The remaining sections of this Memorandum discuss the status of the climate change damages lawsuits filed to date in other states and the potential claims that could be brought in a Minnesota lawsuit. These include statutory consumer protection and antitrust claims, strict liability design defect and strict liability failure to warn claims, and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

Part I surveys the climate change lawsuits in other states and the Attorneys General who have supported them. Part II evaluates Minnesota law governing consumer protection claims, product liability claims, and common law tort claims and sets forth model causes of action for each claim under Minnesota law.

The defendants in the lawsuit could include BP, Chevron, ConocoPhillips, Exxon Mobil, Shell, and other oil, gas, and coal companies. These companies extracted, produced, designed, and sold fossil fuel products that emitted massive tons of CO₂ into the atmosphere upon their use. For example, 90 producers of oil, natural gas, coal, and cement are responsible for 63% of cumulative industrial CO₂ and methane emissions worldwide from 1751-2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (NOV. 22, 2013). Just 28 companies are

responsible for 25% of all emissions since 1965. *Id.*¹ As CO₂ is a relatively stable compound, most of these molecules will remain in the atmosphere for centuries. The increase in CO₂ emissions resulting from fossil fuel use has contributed to and accelerated the greenhouse effect, causing climate change damages ranging from drought, flooding, change in weather patterns, loss of species biodiversity, sea level rise, and increases in invasive species, with average annual temperatures over the contiguous United States already increasing by 1.8°F since 1895.

The nature of the damages Minnesota could seek to recover in a lawsuit are set forth in detail in the accompanying Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy. These damages are costs the state has already incurred or will incur as a result of climate change caused by fossil fuel companies and include:

- Costs associated with flooding, including costs of damage to state property and costs to mitigate and remediate the flooding related impacts to property and public health;
- Costs associated with damages to tourism and outdoor recreation, including mitigating climate-related stress to plant and animal species and ecological systems in the state;
- Costs associated with damages to agricultural yields, management and mitigation of crop diseases and crop pests, and costs of adopting to less fertile soils;
- Costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure, increased asthma attacks, and exposure to vector-borne disease as well as mitigation measures and public education programs to reduce the occurrence of these impacts;
- Costs associated with responding to, managing, and repairing damages from climate change to Minnesota forest lands, including impacts on state-run hunting and fishing industries;
- Costs of analyzing and evaluating the impacts of climate change on infrastructure, including transportation, water supply, wastewater treatment, and the power system and the costs of mitigating, adapting to, and remediating those impacts;

¹ In the Santa Clara County lawsuit, described in more detail in Part I.A., the plaintiffs sued approximately 40 fossil fuel companies, which the plaintiffs alleged were responsible for 227.6 gigatons of CO₂ emissions between 1965 and 2015, representing 20.3% of total emissions of CO₂ during that period.

- Costs of responding to, managing, and repairing damage to Minnesota fisheries from climate change, including extinction of cool and cold-water fish species and the impacts of the spread of aquatic invasive species; and
- Costs associated with the threats to indigenous communities from disruptions to their livelihoods, health, and cultural identities.

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides a brief history and current status of the recent climate change lawsuits brought by states and local governments against fossil fuel companies seeking damages for climate-change related harms. Other related lawsuits include suits against Exxon Mobil for investor fraud brought by the Attorneys General of New York and Massachusetts, countersuits by Exxon Mobil against those states filed in Texas courts, and public trust and constitutional claims for climate change harm brought by the group “Our Children’s Trust” against the federal government, states, and fossil fuel companies to compel limits on greenhouse gas (“GHG”) emissions. This memorandum will focus solely on the lawsuits by governmental entities seeking damages for climate-change related harms and will not discuss the other lawsuits noted above. This section will also discuss the positions of Attorneys General around the country in support of or in opposition to the lawsuits for climate change damages.

A. State Law Damages Suits for Climate Change Related Harms

In 2017 and 2018, several government entities across the country (e.g., cities, counties and states) brought lawsuits seeking damages against major fossil fuel companies for climate change-related harm caused by the extraction, promotion, and sale of fossil fuels. The complaints assert state statutory and common law causes of action including public nuisance, private nuisance, trespass, products liability, and consumer protection. A common argument among each

plaintiff is that the fossil fuel companies knew or should have known about the hazards associated with the extraction, promotion, and sale of fossil fuels, but the fossil fuel companies obscured the hazards from the public and regulators. A common argument among defendants is that federal court is the proper venue, and that the Clean Air Act displaces the state law claims and thus the lawsuits should be dismissed. All the lawsuits are described in detail at the Sabin Center for Climate Change Law's U.S. Climate Change Litigation Database, available at <http://climatecasechart.com/case-category/common-law-claims/>. For each case, the database has a summary of the case, its current status, and links to all pleadings filed in the lawsuit.

These lawsuits are the second round of lawsuits by governmental entities against fossil fuel companies for climate change-related harm. The first major climate change lawsuits, filed in the early 2000s, sought relief in federal court under federal common law nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. In *Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("AEP"), the U.S. Supreme Court held that the federal Clean Air Act displaced federal common law claims against defendants for GHG emissions. *See also Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849 (9th Cir. 2012), *cert. denied*, 569 U.S. 1000 (2013). These rulings serve as a backdrop for the recent wave of litigation using state law to hold fossil fuel companies accountable for climate change related harms.

In *AEP*, several states and private land trusts brought federal public nuisance claims against the five largest GHG emitting facilities in the United States. *AEP*, 564 U.S. at 418. Plaintiffs sought an injunction against each defendant "to cap its carbon dioxide emissions and then reduce them by a specified percentage each year for at least a decade." *Id.* at 419. The Court determined that the Clean Air Act displaced the plaintiffs' claims because the statute directly

authorized the U.S. EPA Administrator to regulate the emission of pollutants from stationary sources. *Id.* at 424 (citing 42 U.S.C. § 7411).

In *Kivalina*, an Alaskan village brought a public nuisance action against several fossil fuel companies and energy producers for sea level rise and erosion due to climate change caused by defendants' GHG emissions. *Kivalina*, 696 F.3d at 854. In contrast to *AEP*, the plaintiffs in *Kivalina* sought damages rather than an injunction. *Id.* at 857. Relying on *AEP*, the U.S. Court of Appeals for the Ninth Circuit reasoned that the Clean Air Act displaces federal common law claims for harms caused by GHG emissions regardless of the relief sought. *Id.* In response to *AEP* and *Kivalina*, the more recent litigation against fossil fuel companies to recover for climate change damages discussed below has attempted to avoid Clean Air Act displacement by bringing state law claims in state courts, and by focusing on the extraction, promotion, and sale of fossil fuels rather than emissions of GHGs.

1. *The California Cases: San Mateo v. Chevron, and California v. BP*

Most damages suits utilizing state law claims against fossil fuel companies for climate change harms are in their infancy. In these cases, government plaintiffs seek relief in state court and the defendants attempt to remove the action to federal court. Two cases brought in California state court—*County of San Mateo v. Chevron*, and *California v. BP*—highlight two emerging schools of thought on whether state or federal court is the appropriate venue. The plaintiffs in each case brought similar claims against numerous fossil fuel companies. However, in *County of San Mateo v. Chevron*, Judge Chhabria remanded the case to state court while in *California v. BP*, Judge Alsup denied the request for remand and dismissed the plaintiffs' claims. Both cases are on appeal to the Ninth Circuit. Notably, both judges sit on the U.S. District for the Northern

District of California. In each case, outside counsel for the local governments is Sher Edling LLP in San Francisco.

In *California v. BP*, the cities of San Francisco and Oakland brought state public nuisance claims against BP, Chevron, ConocoPhillips, Exxon Mobil and Shell for damages caused by climate change. Complaint, *California v. BP*, No. 17-561370 (Cal. Super. Ct. Sept. 19, 2017) (referencing the San Francisco Complaint); Complaint, *California v. BP*, No. 17-1785889 (Cal. Super. Ct. Sept. 19, 2017) (referencing the Oakland Complaint). Plaintiffs requested relief in the form of an abatement fund to provide for infrastructure necessary to adapt to global warming impacts such as sea level rise, as well as other relief. Plaintiffs argued the defendants promoted the use of fossil fuels despite being aware that their use would cause severe climate change, and that harms were already being felt and would intensify. Defendants removed the case to federal court and Judge Alsup of the Northern District of California denied the cities' motion for remand. Judge Alsup held that the suit was "necessarily governed by federal common law" and that "a patchwork of fifty different answers to the same fundamental global issue would be unworkable." *California v. BP*, 2018 U.S. Dist. LEXIS 32990, at *5, 10 (N.D. Cal., Feb. 27, 2018).

Plaintiffs then filed an amended complaint, which included a federal public nuisance claim, and defendants moved to dismiss. The Attorneys General of Indiana, Alabama, Arkansas, Colorado, Georgia, Kansas, Louisiana, Nebraska, Oklahoma, Texas, Utah and West Virginia, and Wyoming, as well as the United States of America filed amicus briefs in favor of dismissal. Opposing dismissal, as amici, were the Attorneys General of California, Washington and New Jersey.

The court dismissed all the claims. *City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017, 1019 (N.D. Cal. 2018). The court held that *AEP* and *Kivalina*'s Clean Air Act displacement rule applied even though plaintiffs styled their claims as based on the extraction, production, and sale of fossil fuels rather than emissions. *Id.* at 1024 (“If an oil producer cannot be sued under the federal common law for their own emissions, a fortiori they cannot be sued for someone else’s.”). The court also grounded its holding in the doctrine of separation of powers and judicial restraint, finding that:

questions of how to appropriately balance these worldwide negatives against the worldwide positives of the energy itself, and of how to allocate the pluses and minuses among the nations of the world, demand the expertise of our environmental agencies, our diplomats, our Executive, and at least the Senate. Nuisance suits in various United States judicial districts regarding conduct worldwide are far less likely to solve the problem and, indeed, could interfere with reaching a worldwide consensus.

Id. at 1024–1026. Plaintiffs’ appeal to the Ninth Circuit is pending.

In a separate action in California, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed similar suits in California Superior Court against numerous fossil fuel companies. *See e.g.*, Complaint, *County of San Mateo v. Chevron Corp.*, No. 17CIV03222 (Cal. Super. Ct. July 17, 2017). However, in addition to public nuisance, the plaintiffs also claimed strict liability for failure to warn, strict liability for design defect, private nuisance, negligence, negligent failure to warn, and trespass. Plaintiffs alleged that the fossil fuel companies’ “production, promotion, marketing, and use of fossil fuel products, simultaneous concealment of the known hazards of those products, and their championing of anti-regulation and anti-science campaigns, actively and proximately caused” injuries to plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. Among other relief, Plaintiffs requested compensatory and

punitive damages, and abatement of nuisances. Defendants removed the actions to federal court, and the three actions were then consolidated into one action.

Judge Chhabria of the U.S. District Court for the Northern District of California remanded the case to state court. Judge Chhabria expressly disagreed with Judge Alsup's ruling in the San Francisco and Oakland suit. Judge Chhabria held that "[b]ecause federal common law does not govern the plaintiffs' claims, it also does not preclude them from asserting the state law claims in these lawsuits. Simply put, *these cases should not have been removed to federal court on the basis of federal common law that no longer exists.*" *Id.* at 2 (emphasis added). The defendants appealed the remand order to the Ninth Circuit. The Ninth Circuit then consolidated the three remand actions brought by the County of San Mateo, County of Marin, City of Imperial Beach, as well as others stemming from similar suits brought by the County of Santa Cruz, City of Santa Cruz, and City of Richmond. Order, *Cty. of San Mateo v. Chevron Corp.*, No. 18-15499 (9th Cir. 2018). In November 2018, the U.S. Chamber of Commerce filed an amicus brief in opposition to the remand order. Briefing is ongoing in the Ninth Circuit.

2. *Rhode Island v. Chevron*

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling LLP as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court. The parties are awaiting the federal court's remand decision. Like the California cases, Rhode Island seeks to hold numerous fossil fuel companies liable for current and future injuries to state owned or operated facilities and property as well as for other harms. Complaint, *State of Rhode Island v. Chevron Corp.*, No. PC-2018-4716 (R.I. Super. Ct. 2018). Rhode Island seeks, among other relief, compensatory and punitive damages, and abatement of nuisances under state law claims for public nuisance, strict liability

for failure to warn, strict liability for design defect, negligent design defect, negligent failure to warn, trespass, impairment of public trust resources and state Environmental Rights Act—Equitable Relief Action. To date, this is the only climate change damage lawsuit brought by a State Attorney General as opposed to a city or county.

3. *Baltimore v. BP*

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought a claim in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and the California suits, Baltimore alleged that through the defendants' production, promotion and marketing of fossil fuels, defendants concealed the hazards of their products and disseminated information intended to mislead consumers, customers, and regulators regarding the known and foreseeable risks of climate change caused by their products. Complaint at 116, *Mayor and City Council of Baltimore v. BP*, No. 24-C-18-004219 (Md. Cir. Ct. 2018). Alleged damages include more severe and frequent storms and floods, increased sea level, heat waves, droughts, and harms to public health. Baltimore is seeking compensatory and punitive damages, and equitable relief among other remedies for public nuisance, private nuisance, strict liability failure to warn, strict liability design defect, negligent, design defect, negligent failure to warn, trespass, and violations of Maryland's Consumer Protection Act. The defendants removed the case to federal court and Baltimore has moved for remand.

4. *King County v. Chevron*

In May 2018, King County in Washington, with outside counsel from Hagens Berman LLP, filed a similar suit for public nuisance and trespass in Washington state court against numerous fossil fuel companies. Complaint at ii, *King Cty. v. BP*, 2:18-cv-00758-RSL (Wash. Super. Ct. 2018). Plaintiffs sought compensatory damages and the establishment of an abatement

fund to pay for a climate change adaptation program. Defendants removed the case to federal court and moved for dismissal. Plaintiff moved for and was granted a stay until the Ninth Circuit issues a decision in *City of Oakland v. BP*. The stay is currently in place.

5. *Pacific Coast Federation of Fishermen's Association v. Chevron*

In November 2018, a fishing industry trade group represented by Sher Edling LLP filed a climate change damage suit against the fossil fuel companies in California state court. The trade group is relying on California state nuisance and products liability law to hold the defendants liable for closures to crab fisheries caused by climate change. *Pacific Coast Federation of Fishermen's Association v. Chevron Corp.*, No. CGC-18-571285 (Cal. Super. Ct. 2018). Specifically, Plaintiffs assert that warming ocean temperatures caused by climate change has led to an increase in a plankton species, *Pseudo-nitzschia*, responsible for causing “amnesic shellfish poisoning” through the release of the toxin domoic acid. Plaintiffs seek compensatory and punitive damages and equitable relief. In December 2018, defendants filed a notice of removal.

6. *Boulder County v. Suncor Energy*

In April 2018, three Colorado local government entities—the City of Boulder and the Counties of Boulder and San Miguel—filed suit against fossil fuel companies seeking damages and other relief for the companies’ role in causing climate change. Outside counsel includes Hannon Law Firm LLP, EarthRights International, and the Niskanen Center, a libertarian think tank. Plaintiffs brought claims under public and private nuisance, trespass, the Colorado Consumer Protection Act, and civil conspiracy. In an effort to avoid federal jurisdiction and *AEP*-like displacement, Plaintiffs’ complaint stated:

[Plaintiffs] do not seek to impose liability, restrain or interfere with Defendants ability to participate in public debates about climate change, or otherwise interfere with Defendants’ speech. . . [and] do not seek to enjoin any oil and gas operations or sales in the State of Colorado, or elsewhere, or to enforce emissions controls of

any kind. Plaintiffs do not seek damages or abatement relief for injuries to or occurring on federal lands. Plaintiffs do not seek damages or any relief based on any activity by Defendants that could be considered lobbying or petitioning of federal, state or local governments.

Complaint at 123, *Cty. of Boulder v. Suncor Energy Inc.*, No. 2018CV030349 (Colo. D. Ct. 2018). Defendants removed to federal court. Plaintiffs moved to remand. That motion is pending.

7. *City of New York v. BP*

In January 2018, New York City filed suit for damages and equitable relief in federal court against fossil fuel companies asserting public nuisance, private nuisance, and trespass claims under New York State law against fossil fuel companies. Complaint at i, 63. *City of New York v. BP*, No. 1:18-cv-00182-JFK (S.D.N.Y. 2018). In contrast to the suits discussed above, New York filed in federal court rather than in state court. Outside counsel includes Hagen Berman LLP and Seeger Weiss LLP. The Niskanen Center filed an amicus brief in support of New York City. In support of Defendants, fifteen states led by Indiana filed an amicus brief in favor of dismissal. The court dismissed, and New York City appealed. On appeal to the U.S. Court of Appeals for the Second Circuit, Attorneys General of New York, California, Maryland, New Jersey, Oregon, Rhode Island, Vermont, Washington, and the District of Columbia have filed an amicus brief in support of New York. Other amicus briefs in support of New York include ones from law professors, environmental justice groups, and the National League of Cities. Briefing is ongoing.

B. State Attorneys General Supporting Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of plaintiffs bringing damages claims for climate change-related harms to state resources and infrastructure. For example, in *New York City v. BP* Attorneys General Underwood (NY), Becerra (CA), Kilmartin (RI), Frosh (MD), Donovan (VT), Grewal (NJ), Ferguson (WA), Rosenblum (OR), and Racine

(D.C.) signed an amicus in support of New York City’s claim. In support of the fossil fuel companies were Attorneys General Fisher (IL), Hill (IN), Marshall (AL), Rutledge (AR), Coffman (CO), Carr (GA), Schmidt (KS), Landry (LA), Peterson (NE), Hunter (OK), Wilson (SC), Paxton (TX), Reyes (UT), Morrissey (WV), Schimel (WS), and Michael (WY). In *Oakland v. Chevron*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA) supported the plaintiffs. In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP*. Additionally, several other Attorneys General are likely or potentially supportive of actions against fossil fuel companies for climate change-related harms based on recent campaign statements. They include Letitia James (NY), Josh Shapiro (PA), Josh Kaul (WI), Dana Nessel (MI), Phil Weiser (CO), Josh Stine (NC), and Kwame Raoul (IL).

II. Potential Claims Against Fossil Fuel Companies Under Minnesota Law

This Part discusses potential claims the Minnesota Attorney General could bring against fossil fuel companies for climate change-related damages in Minnesota. These claims build off the claims in the existing lawsuits discussed in Part I. For each claim, this Memorandum discusses the applicable law in Minnesota and then provides an example of what the claim would look like in a complaint using Minnesota-specific law as well as Minnesota-specific damages.

The claims discussed below are: (1) consumer protection claims, including the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”), the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”), and antitrust claims under Minn. Stat. §§ 325D.49-325D.66; (2) product liability claims, including design defect and failure to warn; and (3) common law tort claims, including

public nuisance, private nuisance, trespass and strict liability for abnormally dangerous activities. This Part also discusses the statutes of limitations potentially applicable to these claims.

A. Consumer Protection Claims

Two of the existing climate change lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations. The Colorado plaintiffs also allege conspiracy claims. Both cases were removed to federal court and motions to remand are pending. The complaints in these cases and the possibility of similar claims under Minnesota law are discussed below.

1. Applicable law

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”) and the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”). Minnesota and Blue Cross Blue Shield used these laws to sue the tobacco companies in the 1990s, leading to a \$6.6 billion settlement in 1998.

The Minnesota Supreme Court has “cited its prior statements that the CFA should be liberally construed in favor of protecting consumers and that the CFA reflected ‘a clear legislative policy encouraging aggressive prosecution of statutory violations.’” Prentiss Cox, *Goliath Has The Slingshot: Public Benefit And Private Enforcement Of Minnesota Consumer Protection Laws*, 33 WM. MITCHELL L. REV. 163, 178 (2006) (citing *Ly v. Nystrom*, 602 N.W.2d 644, 308 (Minn. Ct. App. 1999) (citing *State v. Philip Morris, Inc.*, 551 N.W.2d 490, 495-96 (Minn. 1996))). See also Gary L. Wilson & Jason A. Gillmer, *Minnesota’s Tobacco Case: Recovering Damages Without Individual Proof of Reliance Under Minnesota’s Consumer Protection Statutes*, 25 WM. MITCHELL L. REV. 567, 590 (1999) (“Minnesota consumer

protection statutes present one example in which the legislature has made a policy decision to make it easier to sue for a consumer protection violation than it would be under the common law. The legislature did so by relaxing the requirement of causation. . .”).

The Attorney General has express responsibility to “investigate offenses” and “assist in enforcement” of the CFA, UTPA, and the FSAA in Minn. Stat. § 8.31, subd. 1. Subdivision 3(a) of § 8.31 gives clear authority to the Attorney General to seek damages and equitable remedies for CFA, UTPA and FSAA violations, providing that “[i]n any action brought by the attorney general pursuant to this section, the court may award any of the remedies allowable under this subdivision,” which include “damages . . . costs and disbursements, including costs of investigation and reasonable attorney’s fees, and . . . other equitable relief.” Minn. Stat. § 8.31(3)(a).

The CFA forbids “[t]he act, use, or employment by any person of any fraud, false pretense, false promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any person has in fact been misled, deceived, or damaged thereby. . .” Minn. Stat. § 325F.69, subd. 1. The UTPA provides that “[n]o person shall, in connection with the sale of merchandise, knowingly misrepresent, directly or indirectly, the true quality, ingredients or origin of such merchandise.” Minn. Stat. § 325D.13. The FSAA prohibits a broad range of advertising and other activities designed to “increase the consumption” of merchandise that “contain[] any material assertion, representation, or statement of fact which is untrue, deceptive, or misleading .

. . .” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.²

Any claims under Minnesota consumer protection statutes for climate change-related damages should be brought by the Attorney General as a direct action on behalf of the state, rather than a subrogation action on behalf of state citizens. *See State v. Minnesota School of Business, Inc.*, 915 N.W.2d 903, 910 (2018) (denying restitution to individuals that did not testify at trial). In actions seeking damages, the Minnesota Supreme Court held that Minn. Stat. § 8.31, subd. 3(a) demands:

[T]hat there must be some “legal nexus” between the injury and the defendants’ wrongful conduct. . . where the plaintiffs’ damages are alleged to be caused by a lengthy course of prohibited conduct that affected a large number of consumers, the showing of reliance that must be made to prove a causal nexus need not include direct evidence of reliance by individual consumers of defendants’ products. Rather, the causal nexus and its reliance component may be established by other direct or circumstantial evidence. . .

Grp. Health Plan, Inc. v. Philip Morris Inc., 621 N.W.2d 2, 15 (Minn. 2001).

The Minnesota tobacco case was a direct action in which the state and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare providers. *Wilson & Gillmer, supra* at 570-576. While specific individual reliance was not required, at least six types of evidence made effective “legal nexus” causation arguments: (1) evidence of the defendants’ intentional misconduct, (2) addiction of the defendants’ customers; (3) the defendants’ exploitation of smokers; (4) the defendants’ reassurance of smokers through advertising; (5) the defendants’ youth marketing strategies; and (6) the defendants’ intent that their conduct be relied upon. *Wilson & Gillmer, supra* at 608-624.

² The UDTPA is not expressly mentioned in Minn. Stat. § 8.31, so “[t]here is a question whether damages are available for violations.” *Wilson & Gillmer, supra* at 588. The court did not allow a UDTPA action for damages in the tobacco litigation; however, some argue that damages may be available pursuant to § 8.31(3)(a). *Id.* at 588-589.

Based on the publicly available information, there is a wealth of similar facts the Attorney General can rely on in a case against the fossil fuel companies for climate change damages. As with the tobacco companies, the fossil fuel companies intentionally deceived Minnesota, other states, and the public about the long-term risks of continued fossil fuel use through advertisements, public statements, and funded research. Much of this disinformation campaign has come to light only recently.

There is also evidence that the fossil fuel companies have encouraged a public “addiction” to oil and created hostility toward cleaner fuels. These actions are similar to the tobacco companies’ efforts to increase individuals’ nicotine intake—despite their ability to lower nicotine content. *See id.* at 613-616 (“The tobacco industry has the technological capability of removing most of the nicotine from cigarettes. However, evidence suggests the tobacco industry maintains nicotine at certain levels because the companies know that nicotine is the addictive substance. . . .”) (citation omitted); *see also* Peter Teigland, *Petroleum Refining in Minnesota*, NORTH STAR POLICY INST. (May 10, 2018) (explaining that much of the oil flowing into and through Minnesota comes from the Bakken shale and Canadian tar sands).

The plaintiffs in both the Maryland and Colorado lawsuits allege that developing “dirtier” sources of fuel shows oil companies’ blatant disregard of climate data. *See, e.g.*, Colorado Complaint ¶ 384 (“Moreover, and despite its knowledge of the grave threats fossil fuels pose to the climate as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to the concentration of atmospheric CO₂.”) In addition, evidence of the industry’s significant spending on advertising and correlating sales may be used to show causation by establishing the companies’ intention that their publications be relied on by consumers. Wilson & Gillmer, *supra* at 601, 617 (“Even without a showing of intentional

conduct, vast promotional expenditures give rise to a presumption that consumers have been deceived . . . The industry conceded that success in the marketplace is evidence of consumer reliance on the industry’s words and actions.”).

The Attorney General may also bring antitrust claims against the fossil fuel companies, similar to the claims in the Colorado lawsuit. The prohibitions in the Minnesota Antitrust Law of 1971, Minn. Stat. §§ 325D.49-325D.66, include conspiracy and seeking/exercising monopoly power. According to the Minnesota Supreme Court, “Minnesota antitrust law is generally interpreted consistently with federal antitrust law.” Brent A. Olson, MINN. PRAC., BUSINESS LAW DESKBOOK § 22A:1 (2018) (citation omitted). As such, “antitrust claims are *not* subject to a heightened standard of specificity in pleading . . .” *In re Milk Indirect Purchaser Antitrust Litig.*, 588 N.W.2d 772, 775 (Minn. Ct. App. 1999). The court may assess significant penalties: “Any person, any governmental body. . . injured directly or indirectly by a violation of sections 325D.49 to 325D.66, shall recover three times the actual damages sustained . . .” Minn. Stat. § 325D.57. The Attorney General has express authority to investigate and commence appropriate legal action seeking damages for violation of the statutory provisions. Minn. Stat. § 325D.59.

2. *Model claims for violation of consumer protection and antitrust statutes*

The consumer protection claims in the Minnesota tobacco litigation and the Maryland and Colorado lawsuits against fossil fuel companies for climate change-related damages provide an outline for consumer protection claims in Minnesota against fossil fuel companies. The following model complaint language is largely adapted from the claims in the Maryland and Colorado cases and the Second Amended Complaint in the Minnesota tobacco litigation, *State of Minnesota v. Philip Morris Inc.*, No. C1-94-8565 (Ramsey Co. Dist. Ct. 1998).

Prevention of Consumer Fraud Act, Minn. Stat. § 325F.68-70:

1. Defendants, in connection with the sale of merchandise, knowingly misrepresented, and continue to misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to fossil fuel use and climate change, including knowing misrepresentations that there is no causal connection between fossil fuel use and climate change, efforts to spread doubt about the link between fossil fuel use and climate change, and disparagement of the work of others that show the connection between fossil fuel use and climate change;
 - Defendants' fraudulent concealment of information relating to fossil fuel use and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use, including: the true cost and harms from their products, the damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.
3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

False Statement in Advertising, Minn. Stat. §325F.67:

1. Defendants, intending to sell and increase consumption of their products, knowingly caused and continue to cause to be made and placed before the public in Minnesota advertisements regarding their products which contained material assertions, representations and/or statements of fact that were untrue, deceptive, and/or misleading. *See* Minn. Stat. § 325F.67.
2. Defendants' wrongful conduct includes, by way of example:
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that make intentional, material misrepresentations, such as that there is no causal connection between fossil fuel use and climate change and publications and advertisements that advance false theories refuting the connection between fossil fuel use and climate change;
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that intentionally omit material information about the connection between fossil fuel use and climate change and existing and likely impacts of climate change on society.

3. As a direct and proximate result of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unlawful Trade Practices Act, Minn. Stat. §§ 325D.09-16:

1. Defendants, in connection with the sale of merchandise, including fossil fuels, knowingly misrepresented, and continue to knowingly misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations that there is no causal connection between fossil fuels and climate change, efforts to spread doubt about the link between fossil fuels and climate change, and disparagement of the work of others that showed the connection between fossil fuels and climate change;
 - Defendants' misrepresentations that they would or did conduct and disclose objective research on the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations;
 - Defendants' fraudulent concealment of information relating to fossil fuel use/extraction and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use/extraction, the true cost and harms from their products, the likely damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.
3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unreasonable Restraint of Trade and Commerce, Minn. Stat. § 325D.51:

1. For several decades and continuing today, Defendants entered into a contract, combination, or conspiracy between two or more persons aiming to unreasonably restrain trade and commerce in Minnesota's energy and transportation sectors. The energy and transportation markets are inextricably linked with Minnesota's interests in those fields and in other fields including but not limited to: health care, real estate, tourism and natural resources.
2. Defendants and their co-conspirators had a meeting of the minds to accomplish their goals to maintain and/or to increase fossil fuel usage at levels they knew were sufficient to alter the climate, and to withhold material information concerning the continuing and increasing harm caused by their fossil fuel activities, specifically concerning the damage to the climate that the

use of their goods and services would cause and the impacts of the use of their fossil fuels and fossil fuel-derived products and services on Plaintiff's property, social services and infrastructure.

3. This contract, combination, or conspiracy had the purpose and effect of restraining competition in the energy and transportation markets in Minnesota and controlling those markets in Minnesota through restraining and suppressing research on the causal connection between fossil fuel extraction/use and climate change and the harms of climate change, restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
4. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Monopolization of the Transportation/Energy/Petroleum Market in Minnesota, Minn. Stat. § 325D.52:

1. Defendants collectively and with co-conspirators have for at least several decades, and to this day maintained and used, or attempted to establish, maintain, or use monopoly power over trade and commerce to affect competition and/or control, fix or maintain prices in the oil market and other related markets. *See* Minn. Stat. § 325D.52.
2. Defendants, through their acts and omissions described above, maintained and used their monopoly power to affect competition by restraining and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use; and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
3. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Civil Conspiracy, Minn. Stat. § 325D.53:

1. Beginning at least as early as the 1950s and continuing until the present day, Defendants entered into a conspiracy with the intentional and unlawful purpose and effect of restraining

and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel combustion/use; engaging in affirmative misrepresentations on the harmful effects of fossil fuel combustion/use; and restraining and suppressing the research, development, production, and marketing of better alternatives. In furtherance of defendants' conspiracy, defendants lent encouragement, substantial assistance, and otherwise aided and abetted each other with respect to these wrongful acts.

2. As a direct and proximate result of Defendants' unlawful conspiracy, Plaintiff has suffered and will continue to suffer substantial injuries and damages, including but not limited to (see damages list above).

B. Products Liability Design Defect

1. Applicable law

Six lawsuits filed in state courts against fossil fuel companies for their products' contribution to climate change damages have alleged design defect and failure to warn claims arising under state common law. *See Mayor & City Council of Baltimore v. B.P.*, 24-C-18-004219 (Md. Cir. Ct. 2018); *Rhode Island v. Chevron Corp.*, PC-2018-4716 (R.I. Super. Ct. 2018); *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). All of these lawsuits allege both negligent design defect and failure to warn and strict liability design defect and failure to warn. *Id.* Minnesota could allege similar products liability claims against fossil fuel companies related to their extraction, production, marketing, and sale of fossil fuel products.

Minnesota adopted strict liability in tort for products liability cases in 1967. *See McCormack v. Hanksraft Co.*, 154 N.W.2d 488 (Minn. 1967). The Minnesota Supreme Court found that public policy necessitated protecting consumers from the risk of harm that arose from

“mass production and complex marketing.” *Id.* at 500. Adopting the strict liability theory, manufacturers are liable for the cost of injuries that result from their defective product regardless of negligence or privity of contract. *Id.* In *McCormack*, the Court reasoned that strict liability should apply as the makers of the product are in the best position to “most effectively reduce or eliminate the hazard to life and health, and absorb and pass on such costs [to consumers].” *Id.*

Since *McCormack* products liability law has expanded in Minnesota to cover three different theories of defective products: (1) manufacturing defects that arise from flaws in the way the product was made; (2) design defects that result from an unreasonably safe product design; and (3) failure to warn of reasonably foreseeable dangers from a products use. *See* Rest. (Third) of Torts: Products Liability § 2 (1998). As products liability law in Minnesota continued to evolve, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrock v. Marshalltown Mfg. Co.*, 473 N.W.2d 352 (Minn. Ct. App. 1991) (“*Bilotta* merged strict liability, negligence, and implied warranty remedies into a single products liability theory.”) (referencing *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 623 (Minn. 1984)); *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (“Toyota correctly notes that [in Minnesota] in the product liability context, strict liability and negligence theories merge into one unified theory, sharing the same elements and burden of proof.”).

Of the three products liability claims alleged in the other lawsuits against the fossil fuel companies, only design defect and failure to warn claims would apply in Minnesota. Manufacturing defect claims cover faulty or defective products that arise despite a reasonably safe design—e.g., defects that may occur to a discrete number of products during the manufacturing process. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases looks at the condition of the product and compare any defects found with the flawless

product). In contrast, all fossil fuel products on the market result in a dangerous condition—increased CO₂ emissions/climate change—*because* of the products unreasonably safe design. *See id.* (in a design defect case the “defect” lies in the consciously chosen design and the product is in the condition intended by the manufacturer).

a. Design defect

In Minnesota, a manufacturer has a nondelegable duty to design a reasonably safe product. *Bilotta*, 346 N.W.2d 616; *see also Schweich v. Ziegler, Inc.*, 463 N.W.2d 722, 731 (Minn. 1990) (“Caterpillar is duty bound to use reasonable care in designing the DH6 to protect users from unreasonable risk of harm while using it in a foreseeable manner.”). If a manufacturer breaches this duty and the defect proximately causes the plaintiff’s injury, it is liable in tort under a design defect theory. *Farr v. Armstrong Rubber Co.*, 288 Minn. 83, 90 (Minn. 1970). Therefore, to recover against a manufacturer for a design defect a plaintiff must show that: “(1) a product was in a defective condition unreasonably dangerous for its intended use; (2) the defect existed at the time the product left the defendant’s control; and (3) the defect proximately caused the plaintiff’s injury.” *Duxbury v. Spex Feeds, Inc.*, 681 N.W.2d 380, 393 (Minn. Ct. App. 2004). *See also Adams v. Toyota Motor Corp.*, 867 F.3d 902, 916–17 (8th Cir. 2017) (applying Minnesota law).

Unreasonably dangerous condition: To determine whether the design of a product is unreasonably dangerous, Minnesota courts employ the reasonable care balancing test adopted from Florida and New York courts in *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 624 (Minn. 1984). This test looks at the totality of circumstances including: “a balancing of the likelihood of harm, and the gravity of harm if it happens, against the burden of the precaution which would be effective to avoid the harm.” *Id.* It is an objective standard that “focuses on the conduct of the

manufacturer in evaluating whether its choice of design struck an acceptable balance among several competing factors.” *Id.* at 622. Often considered by courts and juries employing the reasonable care balancing test is whether or not there existed, or the plaintiff can prove, a practical alternative design. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 96 (Minn. 1987) (holding that existence of a practical alternative design is a factor, but not an element of a *prima facie* case, in design defect claims).

Fossil fuel products were, and continue to be, in a defective condition unreasonably dangerous for their intended use. The emission of GHGs resulting from the use of fossil fuel products causes severe and grave harms in the form of global warming, increased severity of dangerous weather patterns, rising sea level, increased drought, increased weather patterns, serious public health concerns particularly to low income and minority communities, and overall climate change damages. The fossil fuel companies were well aware of the gravity of this harm, as well as the extremely high likelihood that this harm would occur from their continued extraction, production, use, and marketing of fossil fuel products as early as 1965. This is particularly true in light of generally accepted scientific knowledge that unfettered anthropogenic GHG emissions would result in catastrophic impacts. The burden of precaution necessary to avoid the harms was significantly lower when the companies first became aware of the risk their fossil fuel products posed and has only grown since.

Defect existed at the time it left defendants’ control: The second element of a design defect claim is that “the defect existed at the time the product left the defendant’s control” *Duxbury*, 681 N.W.2d at 393. GHGs emitted from the combustion/use of fossil fuel products exists at the time they are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, individual and aggregate fossil fuel products reached the consumer in a

condition substantially unchanged from that in which it left the companies' control—and “were used in the manner in which they were intended to be used . . . by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.” Complaint at ¶ 212, *PCFFA v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018). Therefore, the defect existed at the time fossil fuel products left the fossil fuel companies' control.

Defect proximately caused the plaintiff's injury: Finally, the plaintiff must prove that the design defect proximately caused the plaintiff's injury. *Duxbury*, 681 N.W.2d at 393. “Proximate cause exists if the defendant's conduct, without intervening or superseding events, was a substantial factor in creating the harm.” *Thompson v. Hirano Tecseed Co., Ltd.*, 456 F.3d 805, 812 (8th Cir. 2006) (applying Minnesota law). A substantial factor has also been described as a “material element” in the happening of the injury. *Draxton v. Katzmarek*, 280 N.W. 288, 289 (Minn. 1938).

But-for causation is still necessary for a substantial factor causation analysis, because “if the harm would have occurred even without the negligent act, the act could not have been a substantial factor in bringing about the harm.” *George v. Estate of Baker*, 724 N.W.2d 1, 11 (Minn. 2006) (citing Rest. (Second) of Torts § 432 (1965)). However, if there are concurring acts that together cause the plaintiff's injury and act contemporaneously, or so nearly together that there is no break in the chain of causation, this is sufficient to meet the causation analysis even if the injury would not have resulted in the absence of either one. *Roemer v. Martin*, 440 N.W.2d 122, 123, n.1 (Minn. 1989). If there are concurrent acts of negligence, both parties are liable for the whole unless the resulting damage is “clearly separable.” *See Mathews v. Mills*, 178 N.W.2d

841, 844 (Minn. 1970). Before a particular factor can be said to be a concurrent cause, it must, first of all, be established that it is a cause. *Roemer*, 440 N.W.2d at 123.

The fossil fuel companies' extraction, production, refining, marketing, and sale of fossil fuels was and will continue to be a substantial factor in creating Minnesota's harm from climate change. Ninety producers of oil and gas are responsible for 63% of the cumulative industrial CO₂ and methane emissions worldwide between 1751 and 2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (Nov. 22, 2013). Abundant scientific studies and reports link these anthropogenic GHG emissions to climate change and its damages.

California has similarly adopted the substantial factor test to determine proximate causation. *People v. Atlantic Richfield Co.*, 2013 WL 6687953, at *16 (Cal. Super. Ct. 2013) ("Under this test, independent tortfeasors are liable so long as their conduct was a "substantial factor" in bringing about the injury."), *aff'd sub nom. People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51 (Cal. Ct. App. 2017). However, it is important to note that California's substantial factor test appears to be broader than Minnesota's, requiring the defendant's conduct to only be "a very minor force" to find it was a substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102. Despite this, *People v. Atlantic Richfield Co.*, still provides a useful analogy for determining whether multiple manufacturers of a product were each a "substantial factor" in creating the plaintiff's injury and may act as persuasive authority in Minnesota. 2013 WL 6687963 at *1, *aff'd sub nom. ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 169 (affirming holding of liability against lead paint manufacturers but limiting scope of abatement remedy to pre-1951 homes).

In *Atlantic Richfield Co.*, counties in California brought a public nuisance action against five lead paint manufacturers seeking abatement of the public nuisance created by the lead paint manufactured and sold by defendants in ten jurisdictions in California. Three of the paint manufacturers, ConAgra, NL Industries, and Sherwin Williams, were found to have created or assisted in the creation of the public nuisance and, as a result, the Court held their conduct was a substantial factor in bringing about the public nuisance. *Id.* at *54.

ConAgra was a large producer and supplier of lead, operated to a major degree within the jurisdictions that brought suit, and continued to sell lead paint until 1958 and therefore the Court found their conduct was a substantial factor in creating the public nuisance. *Id.* at *52. NL Industries (formerly known as National Lead Company) was the largest manufacturer, promoter, and seller of lead pigments for use in house paint and was an active participant in campaigns to promote lead paint. Based on this, the Court found NL to be a substantial factor in causing the public nuisance. *Id.* at *53. Finally, Sherwin Williams' conduct was found to have been a substantial factor in the public nuisance despite testimony offered by SW's expert witness Dr. Van Liere who estimated that Sherwin William's lead paint contributed a mere 0.1% of the total lead consumed in California from 1894 to 2009. *Id.* at *39. This was because the company had two plants, stores, and dealers selling lead paint within the jurisdictions bringing suit and it transported millions of pounds of lead paints to its warehouses and factories during the first four decades of the 20th century. *Id.* at *53.

The California Court of Appeals upheld the trial court findings, further emphasizing that all three defendants' marketing campaigns promoting lead paint as safe for use in residential homes and on doors and windows frames played at least a *minor* role in creating the public nuisance and therefore met the "substantial factor" test. *People v. ConAgra Grocery Products*

Co., 17 Cal. App. 5th 51, 102–03 (Cal. Ct. App. 2017). Minnesota can use the California courts’ reasoning to establish that each individual fossil fuel company named as defendant was a substantial factor in causing Minnesota’s climate damages.

Lastly, not only must the design defect be a substantial factor, or material element, in bringing about plaintiff’s injuries—there cannot be a “superseding” event that breaks the causal chain between the defendants’ conduct and the plaintiff’s injury:

A cause is “superseding” if four elements are established: (1) Its harmful effects must have occurred after the original negligence; (2) it must not have been brought about by the original negligence; (3) it must actively work to bring about a result which would not otherwise have followed from the original negligence; and (4) it must not have been reasonably foreseeable by the original wrongdoer.

Regan v. Stromberg, 285 N.W.2d 97, 100 (Minn. 1979). There were no intervening or superseding events that caused Minnesota’s climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between the fossil fuel companies’ conduct and Minnesota’s injuries and damages, or superseded the fossil fuel companies’ breach of its duty to design a reasonable safe product.

b. Joint and several liability and market share liability

Notably, although an individual oil or gas company may claim that its extraction, production, and sale of fossil fuel products was not a substantial factor or the “but-for” cause of Minnesota’s climate change damages, Minnesota can rely on two liability structures to overcome the causation burden: concurring causes and the indivisible injury rule which impose joint and several liability and market share liability.

In general, parties whose negligence concurs to cause an indivisible injury are jointly and severally liable, even if not acting in concert. *Maday v. Yellow Taxi Co.*, 311 N.W.2d 849 (Minn. 1981); *see also Rowe v. Munye*, 702 N.W.2d 729, 736 (Minn. 2005) (“[M]ultiple defendants are

jointly and severally liable when they, through independent consecutive acts of negligence closely related in time, cause indivisible injuries to the plaintiff.”). A harm is indivisible if “it is not reasonably possible to make a division of the damage caused by the separate acts of negligence.” *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970) (quotation omitted). When two or more persons are jointly liable, contributions to awards shall be in proportion to the percentage of fault attributable to each, except that each is jointly and severally liable for the whole award. Minn. Stat. § 604.02, subd. 1 (2018). However, a plaintiff would still be required to show that each defendant’s conduct was a substantial factor in causing its harming. *Jenson v. Eveleth Taconite Co.*, 130 F.3d 1287, 1294 (8th Cir. 1997).

At least four other state lawsuits have alleged fossil fuel companies’ acts and omissions were indivisible causes to the plaintiffs’ injuries and damages because it is not possible to determine the source of any particular GHG molecule from anthropogenic sources. *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman’s Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) (“*PCFFA v. Chevron*”). Joint and several liability would also apply in a lawsuit against fossil fuel companies for damages resulting from climate change in Minnesota. Minnesota is experiencing a single indivisible injury caused by multiple fossil fuel companies’ independent consecutive actions closely related in time. *See Jenson*, 130 F.3d at 1305 n.9 (explaining how the single indivisible injury rule imposes joint and several liability). Because Minnesota’s harm is indivisible, each fossil fuel company would be liable for the entire harm. *Id.*

If the fossil fuel companies argue that Minnesota's harms are divisible, they each may be able to limit their liability. However, the defendant asserting divisibility bears the burden of proving apportionment. *See e.g., Jensen*, 130 F.3d at 1294 (explaining that "plaintiffs bear no burden to prove apportionment" because apportionment is akin to an affirmative defense). Fossil fuel companies could attempt to prove apportionment based on the amount of GHG their fossil fuel products emitted.

People of the State of California v. Atlantic Richfield Co. once again provides reference for how oil and gas companies may be jointly and severally liable and can act as persuasive authority in Minnesota's courts. 2013 WL 6687953, 44 (Cal. Super. Ct. 2013). Under California law, when multiple tortfeasors are each a substantial factor in creating a public nuisance, they are jointly and severally liable for that nuisance. *Id.* at * 44 (quoting *Am. Motorcycle Assn v. Superior Court*, 20 Cal. 3d 578, 586 (1978)). Similar to Minnesota, if the injury is indivisible each actor whose conduct was a substantial factor in causing the damages is legally responsible for the whole. *Id.* California has found that this joint and several liability theory applies when multiple sources of contamination result in a single nuisance. *Id.* (quoting *State v. Allstate Ins. Co.*, 45 Cal. 4th 1008, 1036 (2009)). Because of this, the California Superior Court found that the three lead paint manufacturers who were found to be substantial factors in causing the public nuisance were all jointly and severally liable. *Id.* A similar theory of recovery could be used in Minnesota against fossil fuel companies applying Minnesota's version of concurrent harms, the invisible harm rule, and joint and several liability.

Finally, the market share liability theory allows a plaintiff to recover damages against defendants based on their proportion of the market share at the time the injury was caused if the defendants all produced an identical, or fungible product, and the plaintiff is unable to identify

which manufacturer produced the product that caused their injuries. *See Sindell v. Abbott Labs.*, 607 P.2d 924 (Cal. 1980) (establishing market share liability theory and apportioning liability based on the relative market share of each of the liable defendants). The Minnesota Supreme Court has not explicitly accepted or rejected the market share liability theory. *See Bixler v. J.C. Penney Co.*, 376 N.W.2d 209, 214 n.1 (Minn. 1985) (“We express no opinion as to whether we would adopt such a rule [market share liability], particularly where the product involved is not entirely fungible with similar products on the market.”). Because the Minnesota Supreme Court has not categorically ruled out the market share liability theory, it is possible that under the right set of facts, that theory of recovery may be available.

Minnesota can allege a market share liability theory if it is unable to prove which fossil fuel company caused its injuries because each fossil fuel company’s products are fungible with regard to their GHG emissions. The Wisconsin Supreme Court adopted a version of the market share liability theory known as the “risk contribution theory” in *Collins v. Eli Lilly Co.*, the state’s first DES case. 342 N.W.2d 37, 49 (Wis. 1984). In *Collins*, the Wisconsin Supreme Court recognized that the plaintiff would face an insurmountable obstacle if she had to prove which defendant manufactured the DES that her mother ingested based on the lack of records and pharmaceutical practices at that time. *Id.* at 44–45. Despite this, the Court found that Collins was entitled to a remedy at law for her injuries under the Wisconsin Constitution and therefore took the task of fashioning an adequate remedy. *See Id.* at 45 (“When an adequate remedy or forum does not exist to resolve disputes or provide due process, the courts, under the Wisconsin Constitution, can fashion an adequate remedy.”). *Compare* WIS. CONST. art. 1, § 9 (“Every person is entitled to a certain remedy in the laws for all injuries, or wrongs which he may receive in his person, property, or character.”) *with* MINN. CONST. art. 1, § 8 (“Every person is entitled to

a certain remedy in the laws for all injuries or wrongs which he may receive to his person, property or character . . .”).

In *Collins*, the Wisconsin Supreme Court held that for cases seeking recovery for harms associated with DES, and situations factually similar to DES cases, “the plaintiff need only allege and prove that the defendant drug company produced or marketed the drug DES for use in preventing miscarriages during pregnancy.” *Id.* at 50. In order to protect defendant drug companies that could not have contributed to Collins injury, the Court held that a defendant could escape liability if it could prove by a preponderance of evidence that the DES it produced or marketed could not have reached the plaintiffs mother. *Id.* at 197–98. The defendants could apportion liability using the comparative negligence theory, with the jury determining each company’s liability based on a number of factors including whether the company tested DES for safety, sought FDA approval, issued warnings about DES, produced or marketed DES after it knew of possible risks, and whether it took affirmative steps to reduce risk of injury to public. *Id.* at 199–200.

The Wisconsin Supreme Court later extended the risk contribution theory to a plaintiff who suffered lead poisoning but could not identify the paint manufacturer that had caused his injury. *See Thomas v. Mallet*, 285 Wis. 2d 236, 256 (Wis. 2005). Because many victims of lead poisoning would be denied an adequate remedy for harm, and Thomas’ case was factually similar enough to *Collins*, the Wisconsin Supreme Court agreed that the *Collins* risk-contribution theory should be extended to white lead carbonate claims. *Id.* at 293, 306 (explaining that lead poisoning plaintiffs are severely harmed by a substance they had no control over without an ability to prove with certainty which manufacturer produced or promoted the white lead carbonate that caused the injury).

In sum, both California's market share liability theory or Wisconsin's risk-contribution theory provide viable theories of recovery in Minnesota courts against fossil fuel companies for climate change harm in Minnesota. Fossil fuel companies' actions and the damages in Minnesota stemming from the use of their products closely resemble the factual circumstances of cases involving DES and lead paint. Fossil fuel products are fungible, the fossil fuel companies breached a legally recognized duty by failing to design their products in a reasonably safe manner, fossil fuel companies continued to market and produce their products despite knowledge of this danger, and the use of these fossil fuel products caused Minnesota's injuries. Moreover, in the case of fossil fuel companies, there is significant data on the percentage of GHG emissions related to each fossil fuel company's extraction, production, refining, and sales, making this arguably a stronger case for market share liability or risk-contribution theory than either the DES or lead paint cases.

2. *Model claim for design defect*

Below is an example of a model complaint alleging a claim of defective design for fossil fuel products under the reasonable care balancing test in Minnesota, along with support for each assertion. The language and sources are largely adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted, refined, formulated, designed, packaged, distributed, tested, constructed, marketed, promoted and sold fossil fuel products intended to be burned for energy, refined into petrochemicals, and/or refined/incorporated into petrochemical products including fuels and products.
2. The emissions of GHGs from the intended use of Defendants' fossil fuel products is a defective condition that makes the product unreasonably dangerous because GHG emissions cause numerous global and local changes to Earth's climate.
 - Fossil fuel combustion and industrial processes are responsible for the majority of emissions that have caused GHG concentrations to reach hazardous and

unprecedented levels, contributing roughly 78% of total GHG emission increases from 1970 to 2011.

- As a result of GHG emissions caused and contributed to by Defendants' fossil fuel activities, atmospheric CO₂ now stands at 408 parts per million (ppm), a level which is unprecedented in human history.
 - Once CO₂ enters the atmosphere, a significant portion of it remains there, with a warming influence that lasts for hundreds (if not thousands) of years. It also cannot be feasibly removed from the atmosphere with existing technology, committing the world to some degree of irreversible warming and associated climate change resulting from emissions to date.
 - These anthropogenic increases in CO₂ and GHG emissions act like a greenhouse in the atmosphere, trapping heat inside the Earth and leading to a warming atmosphere, oceans, and changing climate.
 - Minnesota's winters are warming thirteen times faster than its summers and Minneapolis and Mankato are the second and third fastest-warming cities respectively in the United States. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).
3. Based on the totality of the circumstances, balancing the likelihood of harm and the gravity of the harm if it occurred, against the burden of the precaution that would be effective to avoid the harm, the design of fossil fuel products was unreasonably dangerous.
4. The gravity of potential harms is extreme.
- Potential harms arising from fossil fuel products unreasonably dangerous design include global warming, extreme high temperature events, extreme precipitation events, droughts, significant public health impacts, and more.
 - Public health impacts of climatological changes are likely to be disproportionately borne by communities made vulnerable by geographic, racial, or income disparities including low-income communities, some communities of color, immigrant groups, indigenous peoples, children and pregnant woman, other adults, and others. Janet Gamble, U.S. EPA, John Balbus, Nat'l Inst. of Health, *The Impacts of Climate Change on Human Health in the United States* 249 (Apr. 2016).
 - In Minnesota, invasive species and diseases like Asian soybean rust may be able to survive Minnesota's warmer winters threatening Minnesota crops. Pine woods could retreat north changing Minnesota's tree population and warmer winters could even drive out Minnesota's state bird, the common loon. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).

- Minnesota will have more precipitation, but late summer conditions will be drier and warmer. *Id.* August rainfall could drop by up to 60 percent in some parts of the state by the end of the century. *Id.*
- Other Minnesota specific damages arising from climate change include:
 - Damages to agriculture including reduced yields, increases in pesticide and insecticide application to maintain yields, loss in soil agriculture, loss of yield in animal agriculture (pigs, cows, chickens, milk, egg, and pork production are lost when temperatures stay above 90 degrees), reduced fruit agriculture yields, particularly apples (apples need a certain number of chilling days per fall), and the cost to educate farmers on these changes and steps to mitigate damages by state agencies.
 - Current hydrologic damages including flooding on farmlands, excessive floods that fall under the compensation threshold by FEMA, increase in heavy storms. Future hydrological damages include an increase in prolonged droughts and flooding events.
 - Significant health impacts, particularly to low income and communities of color, including increased asthma attacks, allergens, hay fever, toxic algal blooms, heat stress and heat related illness (many low to medium income housing units do not have air conditioners), vector borne diseases (West Nile virus, tick borne diseases), flood damages and mold in homes (cost to remediate, mental health impacts, etc.)
 - Damages to Minnesota's lakes including toxic algal blooms, loss of cold-water species as we move to from cold-water lakes to cool water lakes, cost for state agencies to restock fisheries/lakes.
 - Damages to Minnesota's forests ranging from loss of wildlife habitat and species (including moose, common loon, and other iconic species).
 - A large tract of tamarack trees in Northeastern Minnesota has already been lost to eastern larch beetles, which are able to survive longer and cause more damage due to the warming climate. *See Josephine Marcotty, As Climate Warms, an Exploding Larch Beetle Population is Transforming Minnesota's Forests, STAR TRIBUNE (Aug. 13, 2017) (“It’s a fantastic example of climate change in action,” said Brian Aukema, a University of Minnesota professor who studies larch beetles and other forest insects. ‘That insect is telling us that tamarack no longer belongs here.’”)*
 - Costs to transportation infrastructure including flood damages to bridges and roads.

- Other infrastructure damages including stormwater systems, sewer systems, power sector constraints, increased burden on emergency management and need to retrofit state operated buildings with air conditioning.
5. Defendants not only *knew* of the significant potential likelihood that harm would occur from continued use of their fossil fuel products as early as 1965, they actively worked to obscure public knowledge and create uncertainty regarding climate science.
 6. The cost to society of each ton of CO₂ emitted into the atmosphere increases as total global emissions increase, so that with each extraction/consumption of fossil fuel product the gravity of harm and likelihood increases.
 7. The cost to society from climate change damages greatly outweighs the social benefit from unchecked extraction and consumption of fossil fuel.
 8. Oil and gas companies were in a position to create, develop, and design alternative technologies, energy sources, and businesses practices that would have eased the transition to a lower carbon economy, reduced GHG emissions, and mitigated the harms associated with climate change.
 9. Defendants could have mitigated the burden of the precautionary measures necessary to reduce GHG emissions by investing time and resources into developing alternative forms of energy.
 10. Instead, these same companies spent decades and vast resources on a concerted campaign to discredit climate change science and warnings despite internal knowledge that “it would be unwise and potentially dangerous to ignore the mounting concern.” John Browne, BP Climate Change Speech to Stanford, Climate Files (May 19, 1997), <http://climatefiles.com/bp/bp-climate-change-speech-to-stanford/>.
 11. Defendants also invested heavily in lobbying campaigns to avoid GHG regulation and international treaties addressing climate change.
 12. Defendants’ individual and aggregate fossil fuel products reached the consumer in a condition substantially unchanged from that in which it left Defendants’ control—and were used in the manner in which they were intended to be used by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.
 13. Defendants’ design of fossil fuel products led to an unreasonably dangerous defect that was the direct and proximate cause of substantial climate change damages in Minnesota.
 14. The emission of GHGs, a defective condition in fossil fuel products, is and will continue to be a substantial factor causing climate change damages in Minnesota.

15. Defendants' individual and collective acts and omissions were actual, substantial causes of increased average temperatures, spread of invasive species, drought, flooding and related consequences, including Minnesota's injuries and damages set forth herein.
16. There were no intervening or superseding events that caused Minnesota's climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between oil and gas companies' conduct and Minnesota's injuries and damages, or superseded Defendants' breach of their duties to design a reasonable safe product.
17. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions. *See supra*.
18. Defendants' acts and omissions as alleged herein are indivisible causes of Minnesota's injuries and damages as alleged herein, because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly diffuse and coningle in the atmosphere.
19. Defendants are jointly and severally liable for Minnesota's indivisible injuries stemming from climate change damages.

C. Products Liability Failure to Warn

1. Applicable law

In Minnesota “[g]enerally stated, a failure to warn claim has three elements: ‘(1) whether there exists a duty to warn about the risk in question; (2) whether the warning given was inadequate; and (3) whether the lack of a warning was a cause of plaintiff’s injuries.’” *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (quoting *Seefeld v. Crown, Cork & Seal Co., Inc.*, 779 F. Supp. 461, 464 (D. Minn.1991)).

Duty to warn: The first element of a failure to warn claim is whether or not a duty exists. “The duty to warn arises when a manufacturer knew or should have known about an alleged defect or danger, and should have reasonably foreseen that the defect or danger would cause injury.” *Id.* (citing *Seefeld*, 779 F. Supp. at 464; *Harmon Contract Glazing, Inc. v. Libby–Owens–Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). The duty extends to all

reasonably foreseeable users. *Whiteford v. Yamaha Motor Corp.*, 582 N.W.2d 916, 918 n.6 (Minn. 1998). The knowledge of an alleged defect or danger can be either actual or constructive. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987) (allowing recovery where the plaintiff either knew of the danger or *should* have known). Because a manufacturer has duty to keep informed of all current scientific knowledge, courts in Minnesota will look to current/past scientific knowledge to help determine whether a manufacturer *should* have known of the risks in its products. *Harmon Contract Glazing, Inc. v. Libby-Owens Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992).

Fossil fuel companies had both actual and constructive knowledge, particularly in light of scientific knowledge generally accepted at the time, that their fossil fuel products were dangerous due to their emissions of GHGs. It was also reasonably foreseeable that climate change damages would result from these emissions and thus fossil fuel companies had a duty to warn potential users of the foreseeable dangers.

However, a manufacturer has no duty to warn of dangers that are obvious to anyone using the product. *See Drager v. Aluminum Indus. Corp.*, 495 N.W.2d 879, 884 (Minn. Ct. App. 1993). “A failure to warn ‘is not the proximate cause of injury if the user is aware of the danger posed by the device in issue.’” *Shovein v. SGM Group USA, Inc.*, 2008 WL 11348494, at *6 (D. Minn. 2008) (citing *Mix v. MTD Products, Inc.*, 393 N.W.2d 18, 19 (Minn. App. 1986)). For example, in *Mix v. MTD*, the Minnesota Court of Appeals held that MTD did not have a duty to warn of the danger that could result from attempting to reattach a belt while the lawnmower’s engine was in neutral because the danger was obvious to most potential users. *Mix v. MTD Prods., Inc.*, 393 N.W.2d 18, 20 (Minn. Ct. App. 1986). Because of fossil fuel companies’ protracted and

intensive denialist campaign, the dangers of using fossil fuel products were not obvious to the public.

Adequate warning: Second, if a warning was issued it must be adequate. “To be legally adequate, a product supplier’s warning to a user of any foreseeable dangers associated with the product’s intended use should (1) attract the attention of those that the product could harm; (2) explain the mechanism and mode of injury; and (3) provide instructions on ways to safely use the product to avoid injury.” *Gray v. Badger Min. Corp.*, 676 N.W.2d 268, 274 (Minn. 2004). Consumers of fossil fuel products were prevented from recognizing the risk that fossil fuel products would cause grave climate changes because the companies “individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.” Complaint at ¶ 318, *County of Santa Cruz v. Chevron Corp.* (Cal. Super. Ct. 2018). Therefore, any warnings that may have publicized the danger to the public or Minnesota were undermined and rendered ineffective because of the companies’ public relations materials and campaigns. *Id.*

Causation: In order to recover under a failure to warn theory, the plaintiff must show a causal connection between the inadequate warning or failure to warn and the injuries he or she sustained. *Rients v. Int’l Harvester Co.*, 346 N.W.2d 359, 362 (Minn. Ct. App. 1984). Minnesota courts have interpreted this as requiring the plaintiff to show that *had* adequate warnings been provided, the injury would not have occurred. *See Hauenstein v. Loctite Corp.*, 347 N.W.2d 272, 276 (Minn. 1984) (explaining that causation is not met when the accident would have occurred whether or not there was a warning). While many states have adopted a “heeding presumption”—a rebuttable presumption that if warnings had been provided, they would have been read and heeded—the Minnesota Supreme Court specifically declined to do so in a failure

to warn case. *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99–100 (Minn. 1987); *see also Tuttle v. Lorillard Tobacco Co.*, 377 F.3d 917, 925 (8th Cir. 2004) (predicting that Minnesota courts would not adopt the heeding presumption). Furthermore, when a plaintiff requested the Minnesota Court of Appeals to adopt the heeding presumption in *Montemayor v. Sebright Products, Inc.* (unpublished case) the Court found that it was not its role “to extend the law.” 2017 WL 5560180, at *3 (Minn. Ct. App. 2017).

However, the U.S. Court of Appeals for the Eighth Circuit has noted that to establish causation in Minnesota failure to warn cases “it is sufficient to present testimony that purchasers would have avoided the risk of harm had they been told of the relevant danger.” *In re Levaquin Products Liability Litigation*, 700 F.3d 1161, 1168 (8th Cir. 2012) (citing *Erickson v. American Honda Motor Co., Inc.*, 455 N.W.2d 74, 77 (Minn. Ct. App. 1990)). This type of testimony can be rebutted by evidence that the plaintiff knew of the danger or disregarded other dangers or ignored other warnings. 27 Minn. Prac. Series § 4.11 (2018). This was at issue in *Tuttle v. Lorillard Tobacco Co.* because Tuttle passed away from oral cancer (caused by defendant’s smokeless tobacco product) before he could testify that he would have avoided the risk of harm if he had been told of the danger. 377 F.3d at 925 (8th Cir. 2004). Furthermore, the Court reasoned that because Tuttle continued to use smokeless tobacco until 1993, even after the Smokeless Tobacco Act required warnings in advertising and on packaging as early as February 1987, that “Tuttle’s actions undercuts any ‘heeding presumption’ and any reasonable reliance arguments.” *Id.* at 927 n.6.

Had Minnesota been adequately warned of the significance of danger that fossil fuel consumption and use presented to the state and the public, it would have heeded said warnings

and either consumed fewer fossil fuel products or began to transition away from a fossil fuel dependent economy much sooner.

2. *Model claim for failure to warn*

Below is an example of a model complaint alleging a failure to warn claim against fossil fuel companies for harm caused by their products. Support for these assertions can be found *supra* in the model design defect claim. The language and sources are largely adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted produced, distributed, marketed, and placed into the stream of commerce fossil fuel products including oil, coal, and natural gas.
2. Defendants had at all times a duty to issue adequate warnings to Minnesota, the public, consumers, and public officials of the reasonably foreseeable danger and risks posed by their fossil fuel products.
3. Defendants had actual and constructive knowledge, in light of the current scientific knowledge generally accepted at that time and the information passed to them from internal research divisions, that fossil fuel products were defective and dangerous based on the climate effects inherently caused by their normal use and operation.
 - a. Internal research divisions and affiliates passed adequate information to oil and gas companies warning of the dangers GHG emissions from their fossil fuel products could cause.
 - b. Furthermore, the international scientific community was well aware of, and made public, scientific knowledge regarding the significant and damaging climate effects that past and continued use and operation of fossil fuel products would cause.
 - c. This knowledge included the likelihood and likely severity of global warming, global and local sea level rise, more frequent and extreme droughts, more frequent and extreme precipitation events, more frequent and extreme heat waves, and the associated consequences of those physical and environmental changes, including Minnesota's injuries and damages.
4. Based on this information, defendants knew or should have known that the climate effects described herein rendered their fossil fuel products dangerous, or likely to be dangerous, when used as intended.

5. Defendants should have reasonably foreseen that the danger from use of their fossil fuel products would cause significant injuries to the public.
 - a. Because releasing GHGs into the atmosphere inevitably causes, *inter alia*, global warming, sea level rise, more frequent and extreme heat waves, and the associated consequences of those physical and environmental damages, it was reasonably foreseeable that fossil fuel product use would cause injury.
 - b. The emission of GHGs from fossil fuel products was and will continue to be a substantial factor causing climate change damages in Minnesota.
 - c. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions.
6. It was not obvious to consumers or the public that the use of fossil fuel products presented significant dangers of an unprecedented magnitude to public health, publicly owned infrastructure, real property, public trust resources, and rights of Minnesota and its citizens.
 - a. Consumers were prevented from recognizing the risk that fossil fuel products would cause grave climate change-related damages because Defendants individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.
 - b. Any warnings that may have disseminated were undermined and rendered ineffective because of Defendants' public relations materials and campaigns that prevented reasonable consumers from recognizing the risks that fossil fuel products posed.
7. Throughout the times at issue, Defendants breached their duty of care by failing to provide *any* warning, let alone an adequate warning, to customers, consumers, regulators, and the general public of the known and foreseeable risks that inevitably flow from the intended use of their fossil fuel products.
8. Defendants failed to issue warnings to consumers or any other party of the climate effects that are posed by the continued use of their fossil fuel products.
9. Defendants' failure to warn the public and Plaintiff of the dangers stemming from fossil fuel extraction, production, and use is causally connected to the injuries Minnesota has and will continue to sustain from climate change.
10. Had Defendants provided adequate warnings the climate change injuries to Minnesota would not have occurred.
 - a. Purchasers of fossil fuels, including Plaintiff, would have avoided the risk of harm if Defendants had warned them of the severity and extent of danger their products caused.

- b. Because of Defendants’ disinformation campaigns, the general public, consumers, and regulators did not have adequate knowledge of the danger fossil fuel products posed, and therefore did not disregard the dangers or ignore other warnings.
11. Minnesota has sustained and will sustain other substantial expenses and damages set forth in this Complaint, including damage to public owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.

D. Public Nuisance

1. Applicable law

Under Minnesota law, public nuisance is a misdemeanor offense, defined in Minn. Stat. § 609.74:

[w]hoever by an act or failure to perform a legal duty intentionally does any of the following is guilty of maintaining a public nuisance, which is a misdemeanor:

- (1) maintains or permits a condition which unreasonably annoys, injures or endangers the safety, health, morals, comfort, or repose of any considerable number of members of the public; or
- (2) interferes with, obstructs, or renders dangerous for passage, any public highway or right-of-way, or waters used by the public; or
- (3) is guilty of any other act or omission declared by law to be a public nuisance and for which no sentence is specifically provided.

Minn. Stat. § 609.74 (2018). Under Minn. Stat. § 609.745, “[w]hoever having control of real property permits it to be used to maintain a public nuisance or lets the same knowing it will be so used is guilty of a misdemeanor.” Minn. Stat. § 609.745 (2018). Statutory public nuisance violations brought under § 609.74 are enforced through criminal prosecution. However, it is unlikely that a claim for damages could be sought under the criminal statute, and instead this statute would provide a means for injunctive relief or abatement. *See* Minn. Stat. § 617.80 et seq. Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. *But see Doe 30 v. Diocese of New Ulm*,

No. 62-CV-14-871, 2014 WL 10936509 at *9 (Minn. Dist. Ct. 2014) (“While plaintiff’s Complaint asserts a common-law public nuisance claim, it is evident from Minnesota’s public-nuisance jurisprudence that common-law claims either no longer exist or are synonymous with section 609.74 claims.”).

Common law public nuisance claims in Minnesota appear to be rare; the majority of public nuisance claims seem to be brought primarily under municipal nuisance ordinances or the state public nuisance statute. For example, in *State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545 (Minn. 1911), the Minnesota Supreme Court considered the validity of a Minneapolis city ordinance that declared the emission of smoke from locomotives a public nuisance, prohibiting the use of soft coal. The court recognized that although the Legislature cannot prevent a lawful use of property by prohibiting non-nuisance uses, “it is equally clear that acts or conditions which are detrimental to the comfort and health of the community may be effectively declared nuisances by the Legislature, and in the exercise of that power specified acts or conditions may be declared a nuisance, although not so determined at common law.” *Id.* at 546.

Likewise, in *State v. Lloyd A. Fry Roofing Co.*, 246 N.W.2d 692 (Minn. 1976), the Minnesota Supreme Court held that:

[T]he general rule regarding nuisances is that “it is immaterial how innocent the intent was[,] for the element of motive or intent does not enter into the question of nuisance,” so a state legislature may declare certain acts to be nuisances regardless of the intent with which they are carried out and even though they were not such at common law, or the legislature may delegate this authority to a municipal corporation.

Id. at 538 (citing Joyce, *Law of Nuisance*, § 43 at 77 & §§ 81, 84). On the subject of common law public nuisance, the court cites Dean Prosser’s work on tort law and notes that intent and

failure to act reasonably are not essential elements of common-law nuisance violations, and “are even less relevant to nuisances that are codified in statutes or ordinances.” *Id.* at 539.

Although statutory public nuisance claims seem to make up the vast majority of cases in Minnesota, common law public nuisance may still resemble the Restatement approach: interference with public property or a right common to the public. *See* Restatement (Second) of Torts § 821B(1). Although the court in *Doe 30 v. Diocese of New Ulm* considered the matter, it is a district court decision and the analysis is dicta because the court did not reach a decision on the issue.

Significantly, in 2010, Minnesota Attorney General Lori Swanson brought “common law nuisance” claims against 3M Company over chemicals it produced known as perfluorochemicals (PFCs). *See* Complaint, *State v. 3M Co.*, No. 27-CV-10-28862, 2010 WL 5395085 at ¶¶ 83–89, 90–97 (D. Minn. Dec. 30, 2010). In particular, the complaint alleged damages for common law nuisance for contamination of surface water, groundwater, and sediments by PFCs released by 3M. The Attorney General claimed that the “use, enjoyment and existence of the State’s groundwater, surface water and sediments, free from interference, is a *common right* to citizens of the state.” *Id.* at ¶ 84 (emphasis added). 3M’s alleged contamination of groundwater, surface water, and sediments with PFCs “materially and substantially interferes with State citizens’ free enjoyment of these natural resources, and constitutes a public nuisance.” *Id.* at ¶ 85.

2. *Model claim for public nuisance*

A public nuisance claim under Minnesota law could be adapted from public nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from public nuisance claims brought by the Rhode Island Attorney General against a number of fossil fuel companies, including Chevron, Exxon Mobil, and BP, among others. *See*

Complaint, *Bd. Cty. Comm'rs. of Boulder Cty. v. Suncor Energy, Inc.*, No. 2018-CV-30349 (June 11, 2018); Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018).

1. In Minnesota, the public is entitled by right to the protection, preservation, and enhancement of the air, water, land, and other natural resources located within the State, and it is the policy of the State to create and maintain within the State conditions under which man and nature can exist in productive harmony in order that present and future generations may enjoy clean air and water, productive land, and other natural resources with which the State has been endowed.
2. Defendants' affirmative acts, omissions, and fossil fuel activities—i.e. knowingly producing, promoting, refining, marketing, and selling a substantial amount of fossil fuels at levels sufficient to alter the climate, and misrepresenting the dangers associated with their use—have caused, created, contributed to, and/or exacerbated dangerous alterations in the climate.
3. The alterations in the climate substantially caused and contributed to by Defendants constitute a present and continuing nuisance in Plaintiff's communities. Plaintiff must mitigate the impacts and severity of the public nuisances caused and contributed to by the levels of Defendants' fossil fuel activities, including, but not limited to: increasing frequency and intensity of extreme heat days in the State; increasing frequency and intensity of extreme precipitation events in the State and associated flooding, erosion, damage to infrastructure; the spread of pests, disease, and increasing threats to public health by, among other things, increasing allergens and ozone, as well as diminishing air quality.
4. Plaintiff is specially injured by the public nuisance brought about by Defendants' actions, which altered the climate. This is due to Plaintiff's special responsibility to respond to and abate the hazards brought by the climate alteration caused by Defendants' climate-altering activities, and because Plaintiff and its property and assets are especially vulnerable to the impacts of climate change, including, specifically, but not exclusively, its:
 - transportation infrastructure, including roads, bridges, and culverts;
 - flood, stormwater, and water supply infrastructure;
 - agricultural and open space lands; and
 - lakes, rivers, streams, and associated plant and wildlife that Plaintiff holds in trust for its citizens.
5. The public nuisance created and contributed to by Defendants unreasonably endangers and injures the property, health, peace, comfort, safety, and welfare of the general public and the natural resources of the State of Minnesota, interfering with the comfort and convenience of communities state-wide, as well as with the State's *parens patriae* ability to protect, conserve, and manage the water, land, and wildlife of the state, which are by law precious and invaluable public resources.

6. The harms caused by Defendants are and will continue to be borne by Plaintiff and residents of Plaintiff's communities in the form of damage to property; impairment of public health; obstructed movement within the state; the loss of use and enjoyment of public property, the environment, and local eco-systems and infrastructure; as well as added costs to protect, repair, and remediate the harms caused by Defendants' alteration of the climate.
7. Defendants have contributed to and continue to contribute to the creation and exacerbation of the public nuisance, in that the intended and foreseeable combustion of Defendants' fossil fuels at the levels at which they were being used has produced and will continue to produce a substantial amount of GHG emissions, measured in billions of excess tons of CO₂ and other GHGs. Those excess tons have caused, contributed to, and/or exacerbated the impacts of climate change, including in Plaintiff's communities. Additionally, Defendants' fossil fuel activities and concealment and/or misrepresentation of the risk, known to Defendants, of the intended use of fossil fuels has also resulted in a substantial amount of excess GHG emissions, which caused, contributed to, and/or exacerbated the impacts of climate change.
8. Defendants intentionally, negligently and/or recklessly created the interference incurred by Plaintiff and the Plaintiff's communities caused by climate change. For decades, Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff and Plaintiff's communities—were substantially certain to result when they produced, promoted, refined, marketed and sold fossil fuels intending that they would be combusted at significant rates. Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff communities—were substantially certain to result when they concealed and affirmatively misrepresented the truth about climate change and the negative impacts of fossil fuel use to the public and their consumers.
9. Defendants' interference with public rights is unreasonable. For decades, Defendants have internalized the benefits of fossil fuel use—i.e., their profits—and externalized their costs—i.e., the impacts of climate change—onto communities such as Plaintiff's. Defendants knew or should have known the costs to Plaintiff and its communities of their fossil fuel activities, and have not compensated Plaintiff for those foreseen harms. Defendants continue to produce, promote, refine, market and sell fossil fuels at levels that cause and contribute to alteration of the climate, continue to profit from rising sales and continue to not compensate Plaintiff or its communities for the continued and added impacts that it and they suffer and will continue to suffer from as a direct and proximate result of Defendants' nuisance.
10. Defendants specifically created, contributed to, assisted in creating, and/or were a substantial contributing factor in the creation of the public nuisance by, *inter alia*:
 - a. Controlling every step of the fossil fuel product supply chain, including the extraction of raw fossil fuel products, including crude oil, coal, and natural gas

from the Earth; the refining and marketing of those fossil fuel products, and the placement of those fossil fuel products into the stream of commerce;

- b. Affirmatively and knowingly promoting the sale and use of fossil fuel products which Defendants knew to be hazardous and knew would cause or exacerbate global warming and related consequences, including, but not limited to, drought, extreme precipitation events, extreme heat events, and changing and increasingly severe weather patterns;
 - c. Affirmatively and knowingly concealing the hazards that Defendants knew would result from the normal use of their fossil fuel products by misrepresenting and casting doubt on the integrity of scientific information related to climate change;
 - d. Disseminating and funding the dissemination of information intended to mislead customers, consumers, and regulators regarding the known and foreseeable risk of climate change and its consequences, which follow from the normal use of Defendants' fossil fuel products;
 - e. Affirmatively and knowingly campaigning against the regulation of Defendants' fossil fuel products, despite knowing the hazards and climate effects associated with the normal use of those products, in order to continue profiting from the regular use of those products by externalizing those costs onto the public, the environment, and communities; and failing to warn the public about the hazards associated with the use of fossil fuel products.
11. Plaintiff and its residents have been damaged, including in their exercise of public and common rights, as a direct and proximate result of the public nuisance created by Defendants. Plaintiff has spent and will have to spend substantial sums to mitigate this interference. The ultimate nature of the harm is the destruction of real and personal property, the loss of natural resources, and actual threats to public health, rather than mere annoyance. Plaintiff's damages and losses include, but are not limited to:
- costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;
 - costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;

- costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;
 - costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
12. These damages and losses are the direct and proximate result of the public nuisance—climate alteration—that Defendants caused and contributed to.
13. Defendants’ acts and omissions as alleged herein are indivisible causes of Plaintiff State of Minnesota’s injuries and damage as alleged herein because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly commingle in the atmosphere.

E. Private Nuisance

1. Applicable law

Minnesota’s statutory private nuisance law is covered by Minn. Stat. § 561.01:

Anything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable

enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.

Minn. Stat. § 561.01 (2018).

A private nuisance requires interference with another's use of property. *See Uland v. City of Winstead*, 570 F. Supp. 2d 1114, 1120 (D. Minn. 2008). There must be some type of conduct that causes the alleged nuisance harm, and that conduct must be "wrongful." *See Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65, 70–71 (Minn. 1982) (citing *Randall v. Village of Excelsior*, 103 N.W.2d 131, 134 (1960)). This wrongful conduct varies, and may be characterized as, for example, intentional conduct, negligence, ultrahazardous activity, violation of a statute, or some other type of tortious activity. *Id.*

Minnesota's nuisance statute appears to provide a broader cause of action than common law nuisance under the Restatement (Second) of Torts, as § 561.01 does not require that the action be intentional or unreasonable. The Minnesota Supreme Court has found that Minnesota's nuisance statute "defines a nuisance in terms of the *resultant harm* rather than in terms of the kind of conduct by a defendant which causes the harm . . . Where pollutants cause the harm, such as where sewage is deposited on plaintiff's property, the wrongful conduct appears to be self-evident." *Id.* (emphasis added). The Minnesota Supreme Court has likewise declined to consider an application of the Restatement nuisance test, preferring instead to use § 561.01 and Minnesota case law. *Id.*

In addition to nuisance abatement, a successful plaintiff may recover damages sustained as a result of the activity. Minn. Stat. § 561.01. Minnesota courts have found a variety of activity to be private nuisances. *Heller v. American Range Corp.*, 234 N.W. 316 (Minn. 1931) (industrial plants transferring dust to adjacent residential property); *Brede v. Minnesota Crushed Stone Co.*,

179 N.W. 638 (Minn. 1920) (limestone quarries giving off noise, fumes, and odors); *Fagerlie v. City of Wilmar*, 435 N.W.2d 641 (Minn. App. 1989) (wastewater treatment plant odors); *Schrupp v. Hanson*, 235 N.W.2d 822 (Minn. 1975) (poultry and hog farm odors); *Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65 (Minn. 1982) (water and sewage runoff).

In *Johnson v. Paynesville Farmers Union Co-op Oil Co.*, 817 N.W.2d 693, 706 (Minn. 2012), the Minnesota Supreme Court considered the state’s approach to private nuisance in an action brought by an organic farmer against a co-op alleged to have caused pesticides to drift onto the organic farm. Citing Minn. Stat. § 561.01, the supreme court found that an action that seeks an injunction or to recover damages can be brought under the statute by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance. The plaintiff must show that the defendant’s conduct caused an interference with the use or enjoyment of the plaintiff’s property. *Id.* As an equitable cause of action, the court stated that § 561.01 “implicitly recognized a need to balance the social utility of defendants’ actions with the harm to the plaintiff.” *Highview North Apartments v. County of Ramsey*, 323 N.W.2d 65, 71 (Minn. 1982).

In deciding the issue of nuisance, the *Johnson* court cited *Highview North Apartments v. County of Ramsey*, in which the Minnesota Supreme Court held that “disruption and inconvenience” caused by a nuisance are actionable damages. *Johnson v. Paynesville Farmers Union* at 713 (citing *Highview North Apts.*, 323 N.W.2d at 73). In *Highview* a plaintiff sued multiple municipalities over harm that consisted of groundwater seeping into two apartment building basements, a condition that the court found to be “ongoing, injurious to the premises, substantial, and likely to worsen.” *Highview North Apts.*, 323 N.W.2d at 71. Applying the *Highview* ruling, the *Johnson* court remanded the plaintiffs’ allegations that they suffered from

“cotton mouth, swollen throat and headaches” because they were exposed to pesticide drift. *Id.* The court held that the inconvenience and adverse health effects, if proven, would affect the plaintiffs’ ability to use and enjoy their land and thereby constitute a nuisance, and so the issue was remanded for further fact-finding, including an assessment of damages. *Id.*

2. *Model claim for private nuisance*

This model private nuisance claim has been adapted from common law and statutory nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims brought against 3M by the Minnesota Attorney General. Although these claims may be brought under either a common law or statutory nuisance cause of action, Minnesota’s statutory nuisance provision appears to be broader and more protective than standard common law nuisance. As such, both common law and statutory nuisance claims are addressed in these model claims:

1. Minn. Stat. § 561.01 provides that: “[a]nything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.”
2. The use, enjoyment, and existence of the State’s natural resources is a right common to the people of the State.
3. Plaintiff owns, leases, occupies, manages, controls, and/or is otherwise in lawful possession of extensive real property within its jurisdiction.
4. As a direct and proximate result of Defendants’ conduct, as set forth above, Plaintiff’s property rights and interests, including its rights to the free and unthreatened use and enjoyment of that property as well as the free and unthreatened use and enjoyment of that property by communities within the State of Minnesota, have been and will be unreasonably interfered with and otherwise injuriously affected.
5. Defendants, and each of them, by causing and/or contributing to climate change through their acts and omissions described above, have created conditions on and/or set in motion forces that cause interference with and injuriously affected Plaintiff’s real

property, and permitted those conditions and forces to persist, which constitute a nuisance.

6. Plaintiff's property has been and/or will be substantially harmed by the effects of climate change. The conditions and forces Defendants created substantially and unreasonably interfere with, injuriously affect, and will substantially interfere with, and injuriously affect, Plaintiff's use and quiet enjoyment of rights to and interests in its real property, including by increasing the frequency and intensity of flooding and erosion, storms, extreme heat events, and the spread of invasive species.
7. The harms to and interference with Plaintiff's property have become and/or will continue to be regular and severe.
8. Plaintiff has not consented to Defendants' conduct in creating the condition that has interfered with and injuriously affected Plaintiff's property.
9. All of its harms will actually be borne by Plaintiff as loss of use and enjoyment of public property and infrastructure. The burden on Plaintiff to mitigate, repair, remediate and prevent further grave interferences with and injury to its property is significant and severe.
10. Defendants' conduct was and is negligent, reckless, and intentional because Defendants knew or should have known their actions were substantially certain to interfere with and injure Plaintiff's property rights and interests. Defendants have known for decades, and/or reasonably should have known, that their conduct was substantially certain to alter or contribute to alterations in the climate and is exacerbating climate change.
11. Defendants' conduct was and is unreasonable because they have created and are creating the interference with Plaintiff's property rights and injury to Plaintiff's property rights without compensating Plaintiff for the harm they knowingly, recklessly, or negligently created or will create.
12. Defendants' conduct is continuing and has produced and will produce ongoing injurious effects.
13. Defendants' actions are a direct and proximate cause of Plaintiff's damages and losses.
14. Plaintiff's real property has been damaged and its use and enjoyment of that property has been threatened by the nuisance created by Defendants; Plaintiff has spent and will have to spend substantial dollars to mitigate this interference. Plaintiff's damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is

expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;

- costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;
 - costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;
 - costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
15. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.
16. Wherefore, Plaintiff prays for an award of damages and restitution of its costs to abate the nuisance.

F. Trespass

1. Applicable law

In Minnesota, “[t]respass encompasses any unlawful interference with one’s person, property, or rights, and requires only two essential elements: a rightful possession in the plaintiff and unlawful entry upon such possession by the defendant.” *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003), *review denied* (Minn. Aug. 5, 2003). Minnesota courts have described trespass as “an invasion of the plaintiff’s right to exercise exclusive possession of the land” while “nuisance is an interference with the plaintiff’s use and enjoyment of the land.” *Fagerlie v. City of Willmar*, 435 N.W.2d 641, 644 n.2 (Minn. Ct App. 1989); *see also Johnson v. Paynesville Farmers Union Coop Oil Co.*, 817 N.W.2d 693, 701 (Minn. 2010) (stating that unlawful entry “must be done by means of some physical, tangible agency in order to constitute a trespass.”). Actual damages are not an element of the tort of trespass. *Johnson v. Paynesville Farmers Union* at 701 (citing *Greenwood v. Evergreen Mines Co.*, 19 N.W.2d 726, 734–35 (Minn. 1945)). In the absence of actual damages, the trespasser is liable for nominal damages. *Id.* (citing *Sime v. Jensen*, 7 N.W.2d 325, 328 (Minn. 1942)). Because trespass is an intentional tort, reasonableness on the part of the defendant is not a defense to trespass liability. *Id.* (citing *H. Christiansen & Sons, Inc. v. City of Duluth*, 31 N.W.2d 270, 273–74 (Minn. 1948)).

In *Johnson v. Paynesville Farmers Union Co-op. Oil Co.*, the Minnesota Supreme Court considered the question of whether particulate matter, such as pesticide drift can result in a trespass. *Id.* (noting that the “particulate matter” has been defined as “material suspended in the air in the form of minute solid particles or liquid droplets, especially when considered as an atmospheric pollutant.”). The Supreme Court found that Minnesota case law is consistent with a traditional formulation of trespass that has recognized trespasses when a person or a tangible

object enters the plaintiff's land and interferes with rights of exclusive possession. *Id.* According to the court, "disruption to the landowner's exclusive possessory interest is not the same when the invasion is committed by an intangible agency, such as the particulate matter [pesticides] at issue here." *Id.* at 702. "Such invasions," the court continued, "may interfere with the landowner's use and enjoyment of her land, but those invasions do not require that the landowner share possession of her land in the way that invasions by physical objects do." *Id.*; *see also Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003) (noting that Minnesota "has not recognized trespass by particulate matter" and rejecting a trespass claim over offensive odors). The court declined to abandon traditional distinctions between trespass and nuisance law, and noted that the public policy concerns that compelled other jurisdictions to blur the lines between trespass and nuisance (e.g. statutes of limitations) are not present in Minnesota. *Id.* at 704–05. "In summary, trespass claims address tangible invasions of the right to exclusive possession of land, and nuisance claims address invasions of the right to use and enjoyment of land." *Id.* at 705.

The Minnesota Attorney General lawsuit against 3M claimed trespass damages against the state's public trust resources. Complaint, *State of Minnesota v. 3M Company*, No. 27-CV-10-28862, 2010 WL 5395085 (D. Minn. 2010). Much of the state's suit was focused on direct groundwater and surface water pollution, issues which are unlikely to be present when dealing with oil refineries, emissions, and climate change damages. However, the effects of climate change can impact surface and groundwater in other ways that are not as direct, such as harm to aquatic organisms and plants through warmer waters, increased flooding and erosion from more severe storms and precipitation, drought, algae blooms, etc. Thus, a trespass claim against fossil fuel companies for climate change damages would be based on indirect invasions of property.

2. *Model trespass claim*

This model trespass claim has been adapted from claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims brought against 3M by the Minnesota Attorney General.

1. Plaintiff is the owner, in lawful possession, of real property.
2. Defendants have intentionally engaged in conduct that has caused and contributed to climate change which, in the usual course of events, has caused and will cause flood waters, hail, rain, snow, wind, pests, and invasive species to enter Plaintiff's property.
3. Defendants knew, with substantial certainty, that their fossil fuel activities would cause and contribute to climate change, and thus cause these invasions of Plaintiff's property.
4. This trespass is recurring, and will continue into the future.
5. Plaintiff did not give Defendants permission for these invasions of Plaintiff's property.
6. Defendants' trespasses are the direct and proximate cause of damages and losses to the Plaintiff.
7. Defendants' actions are and have been a cause of the injuries and damages to Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' trespasses, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by the trespasses. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;

- costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiffs;
 - costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;
 - loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public's ability to use Plaintiff's properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

G. Strict Liability for Abnormally Dangerous Activity

1. Applicable law

The Second Restatement of Torts on Strict Liability for Abnormally Dangerous Activities is not controlling law in Minnesota, though Minnesota courts have discussed §§ 519–520. Restatement (Second) of Torts § 519–520 (1977); *see, e.g., Mahowald v. Minnesota Gas Co.*, 344 N.W.2d 856, 860–61 (Minn. 1984); *Cairly v. City of St. Paul*, 268 N.W.2d 908 (Minn. 1978); *Ferguson v. Northern States Power Co.*, 239 N.W.2d 190 (Minn. 1976); *Quigley v. Village of Hibbing*, 129 N.W.2d 765 (Minn. 1964). For example, in *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993), the Minnesota Court of Appeals noted that “[a]lthough this Restatement section is not controlling law in Minnesota, because the supreme court has recognized it in other cases, *see, e.g., Mahowald v. Minnesota Gas Co.* . . . we believe the trial court’s use of it was appropriate.” *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993).

However, the Minnesota Supreme Court has been careful to note that while “we have recognized the applicability of [the Restatement §§ 519 and 520] in other contexts, that is all we did—recognize the existence of those two sections. In none of these cases did we apply those sections, nor has our attention been directed to any other case where we did apply them.” *Mahowald*, 344 N.W.2d at 861. The Minnesota Supreme Court has explicitly rejected applying Restatement §§ 519–520 in strict liability cases for accidents arising out of escaping gas from lines maintained in public streets. *Id.*

Nevertheless, applying strict liability without proof of negligence is consistent with a long line of Minnesota cases involving abnormally dangerous activities. *See, e.g., Sachs v. Chiat*, 162 N.W.2d 243 (1968) (pile driving abnormally dangerous activity that requires liability without fault); *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924) (waterworks operated by municipal corporation requires liability without fault); *Wiltse v. City of Red Wing*, 109 N.W. 114 (Minn. 1906) (collapse of reservoir destroying plaintiff’s house requires liability without fault); *Berger v. Minneapolis Gaslight Co.*, 62 N.W. 336 (Minn. 1895) (petroleum that escaped from gas company’s tanks, damaging wells and cellars, requires liability without fault); *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (Minn. 1871) (tunnel collapse under property lessee’s land requires liability without negligence in its construction or maintenance).

The Minnesota Supreme Court was one of the first American jurisdictions to adopt the famous English tort law ruling on strict liability, *Rylands v. Fletcher*. *See, e.g., Minnesota Mining & Mfg. Co. v. Travelers Indem. Co.*, 457 N.W.2d 175, 183 (Minn. 1990). In *Rylands*, defendant owners of a mill built a reservoir to supply their mill with water. *Rylands v. Fletcher*, LR 3 H.L. 330 (1868). The plaintiff leased coal mines on neighboring land between the reservoir and the mill. Water from the reservoir burst into old, unused mine shafts, and flooded the mine.

When the defendants appealed, arguing that they did not know that the flooded shafts were connected to the mine, the House of Lords held that the plaintiff did not need to prove negligence, because “the person who, for his own purposes, brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril.” *Id.* at 339.

On the relationship of obligation between neighbors, the *Ryland* court found that:

[I]t seems but reasonable and just that the neighbour who has brought something on his own property (which was not naturally there), harmless to others so long as it is confined to his own property, but which he knows will be mischievous if it gets on his neighbour’s, should be obliged to make good the damage which ensues if he does not succeed in confining it to his own property.

Id. at 340.

In *Kennedy Building Associates v. Viacom, Inc.*, the U.S. Court of Appeals for the Eighth Circuit found that Minnesota has “not limited the *Rylands* cause of action to cases in which the plaintiff and defendant were neighboring landowners,” citing *Hannem v. Pence*, a case in which a plaintiff was injured by falling ice while walking past a defendant’s building. *Kennedy Building Associates v. Viacom, Inc.*, 375 F.3d 731, 740 (8th Cir. 2004) (citing *Hannem v. Pence*, 41 N.W. 657 (Minn. 1889)). The Minnesota Supreme Court has also applied the *Rylands* rule to defendants that do not own the land on which they created a hazard. *See Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (1871). Under Minnesota’s strict liability rule, it makes no difference that a defendant is no longer in possession of control of the instrumentality that caused a hazard. *Id.*

Minnesota has also applied strict liability for abnormally dangerous activity to enterprises that ultimately benefit the community. Although these activities may be useful to society, the court has found that as times change and large-scale industrial activity increases, the responsibility for damages from useful operations should not fall on harmed individuals. *Bridgeman-Russell Co. v. City of Duluth* involved a waterworks operated by a municipal

corporation that discharged water, damaging the plaintiff's property. *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924). The Minnesota Supreme Court imposed strict liability, without requiring proof of negligence, stating that:

Congestion of population in large cities is on the increase. This calls for water systems on a vast scale either by the cities themselves or by strong corporations. Water in immense quantities must be accumulated and held where none of it existed before. If a break occurs in the reservoir itself, or in the principal mains, the flood may utterly ruin an individual financially. In such a case, even though negligence be absent, natural justice would seem to demand that the enterprise, or what really is the same thing, the whole community benefited by the enterprise, should stand the loss rather than the individual. It is too heavy a burden upon one.

Id. at 972.

In light of this Minnesota case law expressing a fairly expansive view of strict liability, even in the case of activities that have social value, a claim by Minnesota against fossil fuel companies for climate change damages would appear to fit squarely within a claim for strict liability for abnormally dangerous activities.

2. *Model claim for strict liability for abnormally dangerous activity*

This model claim for strict liability for abnormally dangerous activity was adopted from claims brought by the Rhode Island Attorney General against a number of fossil fuel companies including Chevron, Exxon Mobil, and BP. *See* Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018).

1. There is overwhelming scientific evidence linking fossil fuel combustion to climate change.
2. Defendants knew or should have known of the climate effects inherently caused by the normal use and operation of their fossil fuel products, including the likelihood and likely severity of global and local climate change and its consequences, and including injuries to Plaintiff, its citizens, and its natural resources, as described herein.
3. Defendants' activities in extracting, refining, formulating, designing, packaging, distributing, testing, constructing, fabricating, analyzing, recommending, merchandizing, advertising, promoting, and selling fossil fuel products, intended by

Defendants to be burned for energy, refined into petrochemicals, and reined and/or incorporated into petrochemical products including but not limited to fuels and plastics brought substantial amounts of fossil fuels onto Defendants' properties which were not naturally there.

4. Defendants knew that substantial amounts of fossil fuels not naturally on their properties, when released, would cause significant damages to, *inter alia*, Plaintiff, Plaintiff's property, and Plaintiff's citizens due to the effects of climate change.
5. Defendants' activities constituted an abnormally dangerous activity and/or created abnormally dangerous conditions.
6. As a direct and proximate result of Defendants' actions and omissions, Plaintiff has sustained and will sustain substantial expenses and damages, including damage to publicly owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.
7. Defendants are strictly liable for the damages resulting as a natural consequence from the release of fossil fuels and GHGs from their properties, including response costs incurred by Plaintiff to respond to the effect of these releases on Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' abnormally dangerous activities, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by these activities. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
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 - costs of repair of physical damage to buildings owned by Plaintiff;

- costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;
 - loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public's ability to use Plaintiff's properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

H. Other Claims

Minnesota could also consider claims under the Minnesota Environmental Rights Act, Minn. Stat. ch. 116B (“MERA”), and the Minnesota Environmental Response, Compensation, and Liability Act, Minn. Stat. ch. 115B (“MERLA”). In particular, the Minnesota Attorney General lawsuit against 3M discussed earlier contained a MERLA claim. The applicability of these claims to a potential lawsuit against fossil fuel companies for climate change damages is not discussed in this Memorandum but could be subject to further investigation.

I. Applicable Statutes of Limitations for All Claims

The statute of limitations for violations of the consumer protection laws is six years. Minn. Stat. § 541.05(2). Fraud allegations are also subject to a six-year statute of limitations under Minn. Stat. § 541.05(6), which begins upon “discovery by the aggrieved party of the facts constituting the fraud.” The statute of limitations may be suspended for fraudulent concealment if the facts which establish the cause of action are fraudulently concealed. *Hydra-Mac, Inc. v. Onan Corp.*, 450 N.W.2d 913, 918–19 (Minn. 1990). Antitrust claims in Minnesota are subject to a four-year statute of limitations, although “a cause of action for a continuing violation is deemed to arise at any time during the period of the violation.” Minn. Stat. § 325D.64, subd. 1.

For the product liability claims, a four-year statute of limitations applies to strict products liability claims, while a six-year statute of limitations applies to negligence claims. *See* Minn. Stat. § 541.05, subds. 1–2. However, because Minnesota courts have merged negligence and strict products liability theories into one single recovery for design defect and failure to warn claims, it is arguable that the six-year negligence statute of limitations would apply. For example, in *Klempka v. G.D. Searle & Co.* the U.S. Court of Appeals for the Eighth Circuit applied Minnesota law to hold that the statute of limitations was six years for a products liability claim. 63 F.2d 168, 170 (8th Cir. 1992).

For the common law tort claims of strict liability for abnormally dangerous activities, public nuisance, and private nuisance, and trespass, it is likely that a six-year statute of limitations would apply as such claims fall under the general six-year statute of limitations found in Minn. Stat. § 541.05, subd. 1(2). *See e.g., Citizens for a Safe Grant v. Lone Oak Sportsmen’s Club, Inc.*, 624 N.W.2d 796 (Minn. Ct. App. 2001) (six-year limitations period applied to trespass and nuisance actions brought by neighborhood organization against gun club operating outdoor shooting ranges).

Two elements must be satisfied before a cause of action accrues for any of the common law claims: “(1) a cognizable physical manifestation of the disease or injury, and (2) evidence of a causal connection between the injury or disease and the defendant’s product, act, or omission.” *Narum v. Eli Lilly and Co.*, 914 F. Supp 317, 319 (D. Minn. 1996). Under Minnesota law, “[a] plaintiff who is aware of both her injury and the likely cause of her injury is not permitted to circumvent the statute of limitations by waiting for a more serious injury to develop.” *Klempka v. G.D. Searle & Co.*, 963 F.2d 168, 170 (8th Cir. 1992).

Fossil fuel company defendants may allege that Minnesota's claims are time barred because the first cognizable physical manifestation of climate change damages occurred longer than six years ago. However, Minnesota also recognizes the continuing violation doctrine. *Brotherhood of Ry. and S.S. Clerks, Freight Handlers & Station Employees v. State by Balfour*, 229 N.W.2d 3, 193 (Minn. 1975). That doctrine holds that when a violation is ongoing, the statute of limitations does not run from the initial wrongful action, but rather begins to run only when the wrong ceases. *N. States Power Co. v. Franklin*, 122 N.W.2d 26, 30-31 (Minn. 1963). For example, in *Hempel v. Creek House Train*, the Minnesota Supreme Court found that the defendant's continuing negligence tolled the limitations period. *Hempel v. Creek House Tr.*, 743 N.W.2d 305, 312 (Minn. 2007).

While there have been a number of cases where courts applying Minnesota law have found that the continuing violation doctrine did not apply based on the facts of the case, these were not categorical exclusions of the doctrine in Minnesota. *See e.g., Union Pac. R.R. Co. v. Reilly Indus., Inc.*, 4 F. Supp. 2d 860, 867 (D. Minn. 1998) (holding that the continuing wrong doctrine did not apply because there was no "leakage from storage tanks or basins," and that any "leakage" ceased before the relevant limitations period expired). Because the fossil fuel companies' extraction, production, marketing, and sale of fossil fuel products has continued, the continuing violation doctrine would apply, and the claims would not be barred by the statute of limitations.

Re: Memo is complete

From: Alexandra Klass <aklass@umn.edu>
To: Judith Enck <judith@climateintegrity.org>
Cc: Michael Noble <Noble@fresh-energy.org>
Sent: January 29, 2019 5:44:20 PM CST

I can do 4:15 pm ET on Friday.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Tue, Jan 29, 2019 at 5:17 PM Judith Enck <judith@climateintegrity.org> wrote:
Friday at 4 or later , ny time. Tx

Sent from my iPhone

On Jan 29, 2019, at 5:31 PM, Michael Noble <Noble@fresh-energy.org> wrote:

Maybe best thing is to have a phone conference after you read it, and before Alex [REDACTED]
[REDACTED] Is Thursday or Friday possible?

Michael Noble
Executive Director
Fresh Energy
Direct: 651 726-7563
Mobile: 612 963-1268
Web: www.fresh-energy.org
Twitter: @NobleIdeas

From: Michael Noble <noble@fresh-energy.org>
Sent: Tuesday, January 29, 2019 4:24 PM
To: Judith Eck
Cc: Alexandra Klass
Subject: Memo is complete

Should we put it in an envelope or email it?
Alex is completely [REDACTED]
I want our face to face meeting between March 5-25.
Michael Noble
Executive Director
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Direct: 651 726-7563
Mobile: 612 963-1268
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From: Judith Enck <judith@climateintegrity.org>
Sent: Wednesday, January 2, 2019 4:09 PM
To: Sarah Clark
Cc: Michael Noble; Jillian Theuer
Subject: Re: Talking tomorrow - 4PM NY time

great i will call in tomorrow, jan 3 at 4pm, new york time. i have the number cheers, Judith Enck

On Wed, Jan 2, 2019 at 4:54 PM Sarah Clark <clark@fresh-energy.org> wrote:

Hi Judith –

It looks like 4PM NY time (3PM CT) works for everyone. Looping in Jillian Theuer who will send the official calendar invite with a call in number.

Thanks!

Sarah

[Sarah Clark](#)

Chief Program Advancement Officer

Fresh Energy

Phone 651 726 7564

www.fresh-energy.org | twitter.com/freshenergy

Re: Memo is complete

From: Michael Noble <Noble@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu>, Judith Eck <judith@climateintegrity.org>
Sent: January 29, 2019 5:53:41 PM CST
Received: January 29, 2019 5:53:47 PM CST

I could have Sarah Clark and J. Hamilton join but I have an immovable conflict at 4:15 Friday.

Michael Noble

Executive Director

Fresh Energy

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Mobile: 612 963-1268

Web: [Www.fresh-energy.org](http://www.fresh-energy.org)

Twitter: @NobleIdeas

From: Alexandra Klass <aklass@umn.edu>

Sent: Tuesday, January 29, 2019 5:44 PM

To: Judith Eck

Cc: Michael Noble

Subject: Re: Memo is complete

Here's the memo.

Alex

Alexandra B. Klass

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229-19th Avenue South

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aklass@umn.edu

Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Tue, Jan 29, 2019 at 5:16 PM Judith Enck <judith@climateintegrity.org> wrote:

Email to me. Thanks

Sent from my iPhone

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To: Michael Noble <Noble@fresh-energy.org>
Cc: Judith Eck <judith@climateintegrity.org>
Sent: January 29, 2019 6:01:32 PM CST
Received: January 29, 2019 6:01:33 PM CST

What else works for both of you Friday?

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
aklass@umn.edu
612-625-0155
Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

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To: Alexandra Klass <aklass@umn.edu>
Cc: Judith Eck <judith@climateintegrity.org>
Sent: January 29, 2019 6:43:12 PM CST
Received: January 29, 2019 6:43:30 PM CST

I can do 10 or 12 EST on Friday but I have LOTS of time tomorrow and some times Th

Michael Noble

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Twitter: @NobleIdeas

From: Alexandra Klass <aklass@umn.edu>

Sent: Tuesday, January 29, 2019 6:01 PM

To: Michael Noble

Cc: Judith Eck

Subject: Re: Memo is complete

What else works for both of you Friday?

Alex

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From: Judith Enck <judith@climateintegrity.org>
To: Alexandra Klass <aklass@umn.edu>
Sent: January 29, 2019 9:22:18 PM CST
Received: January 29, 2019 9:22:21 PM CST

Thank you

Sent from my iPhone

On Jan 29, 2019, at 6:43 PM, Alexandra Klass <aklass@umn.edu> wrote:

Here's the memo.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

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Direct: 651 726-7563
Mobile: 612 963-1268
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Cc: Michael Noble; Jillian Theuer
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<Memo to AG Ellison on Climate Change Litigation 1 2019.pdf>

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To: Alexandra Klass <aklass@umn.edu>
Cc: Michael Noble <Noble@fresh-energy.org>
Sent: January 29, 2019 9:24:03 PM CST
Received: January 29, 2019 9:24:06 PM CST

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Sent from my iPhone

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To: Judith Eck <judith@climateintegrity.org>, Alexandra Klass <aklass@umn.edu>
Sent: January 29, 2019 9:29:39 PM CST
Received: January 29, 2019 9:29:51 PM CST

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Michael Noble

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To: Michael Noble <Noble@fresh-energy.org>
Cc: Judith Eck <judith@climateintegrity.org>
Sent: January 29, 2019 9:45:25 PM CST
Received: January 29, 2019 9:45:26 PM CST

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From: Alexandra Klass <aklass@umn.edu>
To: Judith Enck <judith@climateintegrity.org>
Cc: Michael Noble <Noble@fresh-energy.org>
Sent: January 31, 2019 8:54:30 AM CST

Am I right that everyone is free at 4:45 CT/5:45 ET? If so, that's fine with me. If we have a call, it would be nice to have the students participate too. Please let me know if that's OK. Will Alyssa join us?

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From: Alexandra Klass <aklass@umn.edu>
To: Judith Enck <judith@climateintegrity.org>
Cc: Michael Noble <Noble@fresh-energy.org>
Sent: January 31, 2019 1:41:45 PM CST

Do you want me to send around a call in number or do one of you you have one you like to use? (I can't recall what we did last time).

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Thu, Jan 31, 2019 at 1:22 PM Judith Enck <judith@climateintegrity.org> wrote:
5:45 tomorrow good. My colleague Alyssa Johl will join us so let's do a call in number. Thsnks

Sent from my iPhone

On Jan 31, 2019, at 2:13 PM, Michael Noble <Noble@fresh-energy.org> wrote:

I will call both your cell phones at 4:45 central and 5:45 Eastern on Friday.

Alex: [REDACTED]

Judith: 518 605 1770

Michael Noble

Executive Director

Fresh Energy

Phone 651 726 7563

www.fresh-energy.org | twitter.com/nobleideas

-

Practical policy. Brighter future. [Support our work today.](#)

From: Judith Enck <judith@climateintegrity.org>
Sent: Thursday, January 31, 2019 1:03 PM
To: Michael Noble <Noble@fresh-energy.org>
Cc: Alexandra Klass <aklass@umn.edu>
Subject: Re: Memo is complete

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Cc: Michael Noble <Noble@fresh-energy.org>
Sent: January 31, 2019 1:45:42 PM CST
Attachments: Memo to AG Ellison on Climate Change Litigation 1 2019.pdf

Here it is.

I also have a shorter version (about 45 pages) that includes the same analysis in this memorandum but doesn't include the model claims that would be used in an actual complaint.

Alex

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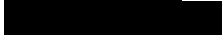
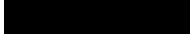
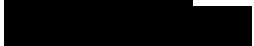
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MEMORANDUM

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Minnesota Attorney General

FROM: Alexandra B. Klass
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 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Law Class of 2020
 Minnesota Law Class of 2019

DATE: January 31, 2019

RE: Potential Lawsuit against Fossil Fuel Companies for Minnesota Climate Change Damages

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INTRODUCTION

This memorandum sets forth possible claims for damages by the State of Minnesota against major oil, gas, and coal companies for their contribution to climate change-related damages in Minnesota. Such a lawsuit would be likely be filed in Minnesota District Court and would be similar to pending lawsuits that states, counties, and cities in other parts country have filed against the fossil fuel companies for damages. The remaining sections of this Memorandum discuss the status of the climate change damages lawsuits filed to date in other states and the potential claims that could be brought in a Minnesota lawsuit. These include statutory consumer protection and antitrust claims, strict liability design defect and strict liability failure to warn claims, and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

Part I surveys the climate change lawsuits in other states and the Attorneys General who have supported them. Part II evaluates Minnesota law governing consumer protection claims, product liability claims, and common law tort claims and sets forth model causes of action for each claim under Minnesota law.

The defendants in the lawsuit could include BP, Chevron, ConocoPhillips, Exxon Mobil, Shell, and other oil, gas, and coal companies. These companies extracted, produced, designed, and sold fossil fuel products that emitted massive tons of CO₂ into the atmosphere upon their use. For example, 90 producers of oil, natural gas, coal, and cement are responsible for 63% of cumulative industrial CO₂ and methane emissions worldwide from 1751-2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (NOV. 22, 2013). Just 28 companies are

responsible for 25% of all emissions since 1965. *Id.*¹ As CO₂ is a relatively stable compound, most of these molecules will remain in the atmosphere for centuries. The increase in CO₂ emissions resulting from fossil fuel use has contributed to and accelerated the greenhouse effect, causing climate change damages ranging from drought, flooding, change in weather patterns, loss of species biodiversity, sea level rise, and increases in invasive species, with average annual temperatures over the contiguous United States already increasing by 1.8°F since 1895.

The nature of the damages Minnesota could seek to recover in a lawsuit are set forth in detail in the accompanying Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy. These damages are costs the state has already incurred or will incur as a result of climate change caused by fossil fuel companies and include:

- Costs associated with flooding, including costs of damage to state property and costs to mitigate and remediate the flooding related impacts to property and public health;
- Costs associated with damages to tourism and outdoor recreation, including mitigating climate-related stress to plant and animal species and ecological systems in the state;
- Costs associated with damages to agricultural yields, management and mitigation of crop diseases and crop pests, and costs of adopting to less fertile soils;
- Costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure, increased asthma attacks, and exposure to vector-borne disease as well as mitigation measures and public education programs to reduce the occurrence of these impacts;
- Costs associated with responding to, managing, and repairing damages from climate change to Minnesota forest lands, including impacts on state-run hunting and fishing industries;
- Costs of analyzing and evaluating the impacts of climate change on infrastructure, including transportation, water supply, wastewater treatment, and the power system and the costs of mitigating, adapting to, and remediating those impacts;

¹ In the Santa Clara County lawsuit, described in more detail in Part I.A., the plaintiffs sued approximately 40 fossil fuel companies, which the plaintiffs alleged were responsible for 227.6 gigatons of CO₂ emissions between 1965 and 2015, representing 20.3% of total emissions of CO₂ during that period.

- Costs of responding to, managing, and repairing damage to Minnesota fisheries from climate change, including extinction of cool and cold-water fish species and the impacts of the spread of aquatic invasive species; and
- Costs associated with the threats to indigenous communities from disruptions to their livelihoods, health, and cultural identities.

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides a brief history and current status of the recent climate change lawsuits brought by states and local governments against fossil fuel companies seeking damages for climate-change related harms. Other related lawsuits include suits against Exxon Mobil for investor fraud brought by the Attorneys General of New York and Massachusetts, countersuits by Exxon Mobil against those states filed in Texas courts, and public trust and constitutional claims for climate change harm brought by the group “Our Children’s Trust” against the federal government, states, and fossil fuel companies to compel limits on greenhouse gas (“GHG”) emissions. This memorandum will focus solely on the lawsuits by governmental entities seeking damages for climate-change related harms and will not discuss the other lawsuits noted above. This section will also discuss the positions of Attorneys General around the country in support of or in opposition to the lawsuits for climate change damages.

A. State Law Damages Suits for Climate Change Related Harms

In 2017 and 2018, several government entities across the country (e.g., cities, counties and states) brought lawsuits seeking damages against major fossil fuel companies for climate change-related harm caused by the extraction, promotion, and sale of fossil fuels. The complaints assert state statutory and common law causes of action including public nuisance, private nuisance, trespass, products liability, and consumer protection. A common argument among each

plaintiff is that the fossil fuel companies knew or should have known about the hazards associated with the extraction, promotion, and sale of fossil fuels, but the fossil fuel companies obscured the hazards from the public and regulators. A common argument among defendants is that federal court is the proper venue, and that the Clean Air Act displaces the state law claims and thus the lawsuits should be dismissed. All the lawsuits are described in detail at the Sabin Center for Climate Change Law's U.S. Climate Change Litigation Database, available at <http://climatecasechart.com/case-category/common-law-claims/>. For each case, the database has a summary of the case, its current status, and links to all pleadings filed in the lawsuit.

These lawsuits are the second round of lawsuits by governmental entities against fossil fuel companies for climate change-related harm. The first major climate change lawsuits, filed in the early 2000s, sought relief in federal court under federal common law nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. In *Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("AEP"), the U.S. Supreme Court held that the federal Clean Air Act displaced federal common law claims against defendants for GHG emissions. *See also Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849 (9th Cir. 2012), *cert. denied*, 569 U.S. 1000 (2013). These rulings serve as a backdrop for the recent wave of litigation using state law to hold fossil fuel companies accountable for climate change related harms.

In *AEP*, several states and private land trusts brought federal public nuisance claims against the five largest GHG emitting facilities in the United States. *AEP*, 564 U.S. at 418. Plaintiffs sought an injunction against each defendant "to cap its carbon dioxide emissions and then reduce them by a specified percentage each year for at least a decade." *Id.* at 419. The Court determined that the Clean Air Act displaced the plaintiffs' claims because the statute directly

authorized the U.S. EPA Administrator to regulate the emission of pollutants from stationary sources. *Id.* at 424 (citing 42 U.S.C. § 7411).

In *Kivalina*, an Alaskan village brought a public nuisance action against several fossil fuel companies and energy producers for sea level rise and erosion due to climate change caused by defendants' GHG emissions. *Kivalina*, 696 F.3d at 854. In contrast to *AEP*, the plaintiffs in *Kivalina* sought damages rather than an injunction. *Id.* at 857. Relying on *AEP*, the U.S. Court of Appeals for the Ninth Circuit reasoned that the Clean Air Act displaces federal common law claims for harms caused by GHG emissions regardless of the relief sought. *Id.* In response to *AEP* and *Kivalina*, the more recent litigation against fossil fuel companies to recover for climate change damages discussed below has attempted to avoid Clean Air Act displacement by bringing state law claims in state courts, and by focusing on the extraction, promotion, and sale of fossil fuels rather than emissions of GHGs.

1. The California Cases: San Mateo v. Chevron, and California v. BP

Most damages suits utilizing state law claims against fossil fuel companies for climate change harms are in their infancy. In these cases, government plaintiffs seek relief in state court and the defendants attempt to remove the action to federal court. Two cases brought in California state court—*County of San Mateo v. Chevron*, and *California v. BP*—highlight two emerging schools of thought on whether state or federal court is the appropriate venue. The plaintiffs in each case brought similar claims against numerous fossil fuel companies. However, in *County of San Mateo v. Chevron*, Judge Chhabria remanded the case to state court while in *California v. BP*, Judge Alsup denied the request for remand and dismissed the plaintiffs' claims. Both cases are on appeal to the Ninth Circuit. Notably, both judges sit on the U.S. District for the Northern

District of California. In each case, outside counsel for the local governments is Sher Edling LLP in San Francisco.

In *California v. BP*, the cities of San Francisco and Oakland brought state public nuisance claims against BP, Chevron, ConocoPhillips, Exxon Mobil and Shell for damages caused by climate change. Complaint, *California v. BP*, No. 17-561370 (Cal. Super. Ct. Sept. 19, 2017) (referencing the San Francisco Complaint); Complaint, *California v. BP*, No. 17-1785889 (Cal. Super. Ct. Sept. 19, 2017) (referencing the Oakland Complaint). Plaintiffs requested relief in the form of an abatement fund to provide for infrastructure necessary to adapt to global warming impacts such as sea level rise, as well as other relief. Plaintiffs argued the defendants promoted the use of fossil fuels despite being aware that their use would cause severe climate change, and that harms were already being felt and would intensify. Defendants removed the case to federal court and Judge Alsup of the Northern District of California denied the cities' motion for remand. Judge Alsup held that the suit was "necessarily governed by federal common law" and that "a patchwork of fifty different answers to the same fundamental global issue would be unworkable." *California v. BP*, 2018 U.S. Dist. LEXIS 32990, at *5, 10 (N.D. Cal., Feb. 27, 2018).

Plaintiffs then filed an amended complaint, which included a federal public nuisance claim, and defendants moved to dismiss. The Attorneys General of Indiana, Alabama, Arkansas, Colorado, Georgia, Kansas, Louisiana, Nebraska, Oklahoma, Texas, Utah and West Virginia, and Wyoming, as well as the United States of America filed amicus briefs in favor of dismissal. Opposing dismissal, as amici, were the Attorneys General of California, Washington and New Jersey.

The court dismissed all the claims. *City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017, 1019 (N.D. Cal. 2018). The court held that *AEP* and *Kivalina*'s Clean Air Act displacement rule applied even though plaintiffs styled their claims as based on the extraction, production, and sale of fossil fuels rather than emissions. *Id.* at 1024 (“If an oil producer cannot be sued under the federal common law for their own emissions, a fortiori they cannot be sued for someone else’s.”). The court also grounded its holding in the doctrine of separation of powers and judicial restraint, finding that:

questions of how to appropriately balance these worldwide negatives against the worldwide positives of the energy itself, and of how to allocate the pluses and minuses among the nations of the world, demand the expertise of our environmental agencies, our diplomats, our Executive, and at least the Senate. Nuisance suits in various United States judicial districts regarding conduct worldwide are far less likely to solve the problem and, indeed, could interfere with reaching a worldwide consensus.

Id. at 1024–1026. Plaintiffs’ appeal to the Ninth Circuit is pending.

In a separate action in California, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed similar suits in California Superior Court against numerous fossil fuel companies. *See e.g.*, Complaint, *County of San Mateo v. Chevron Corp.*, No. 17CIV03222 (Cal. Super. Ct. July 17, 2017). However, in addition to public nuisance, the plaintiffs also claimed strict liability for failure to warn, strict liability for design defect, private nuisance, negligence, negligent failure to warn, and trespass. Plaintiffs alleged that the fossil fuel companies’ “production, promotion, marketing, and use of fossil fuel products, simultaneous concealment of the known hazards of those products, and their championing of anti-regulation and anti-science campaigns, actively and proximately caused” injuries to plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. Among other relief, Plaintiffs requested compensatory and

punitive damages, and abatement of nuisances. Defendants removed the actions to federal court, and the three actions were then consolidated into one action.

Judge Chhabria of the U.S. District Court for the Northern District of California remanded the case to state court. Judge Chhabria expressly disagreed with Judge Alsup's ruling in the San Francisco and Oakland suit. Judge Chhabria held that "[b]ecause federal common law does not govern the plaintiffs' claims, it also does not preclude them from asserting the state law claims in these lawsuits. Simply put, *these cases should not have been removed to federal court on the basis of federal common law that no longer exists.*" *Id.* at 2 (emphasis added). The defendants appealed the remand order to the Ninth Circuit. The Ninth Circuit then consolidated the three remand actions brought by the County of San Mateo, County of Marin, City of Imperial Beach, as well as others stemming from similar suits brought by the County of Santa Cruz, City of Santa Cruz, and City of Richmond. Order, *Cty. of San Mateo v. Chevron Corp.*, No. 18-15499 (9th Cir. 2018). In November 2018, the U.S. Chamber of Commerce filed an amicus brief in opposition to the remand order. Briefing is ongoing in the Ninth Circuit.

2. *Rhode Island v. Chevron*

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling LLP as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court. The parties are awaiting the federal court's remand decision. Like the California cases, Rhode Island seeks to hold numerous fossil fuel companies liable for current and future injuries to state owned or operated facilities and property as well as for other harms. Complaint, *State of Rhode Island v. Chevron Corp.*, No. PC-2018-4716 (R.I. Super. Ct. 2018). Rhode Island seeks, among other relief, compensatory and punitive damages, and abatement of nuisances under state law claims for public nuisance, strict liability

for failure to warn, strict liability for design defect, negligent design defect, negligent failure to warn, trespass, impairment of public trust resources and state Environmental Rights Act—Equitable Relief Action. To date, this is the only climate change damage lawsuit brought by a State Attorney General as opposed to a city or county.

3. *Baltimore v. BP*

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought a claim in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and the California suits, Baltimore alleged that through the defendants' production, promotion and marketing of fossil fuels, defendants concealed the hazards of their products and disseminated information intended to mislead consumers, customers, and regulators regarding the known and foreseeable risks of climate change caused by their products. Complaint at 116, *Mayor and City Council of Baltimore v. BP*, No. 24-C-18-004219 (Md. Cir. Ct. 2018). Alleged damages include more severe and frequent storms and floods, increased sea level, heat waves, droughts, and harms to public health. Baltimore is seeking compensatory and punitive damages, and equitable relief among other remedies for public nuisance, private nuisance, strict liability failure to warn, strict liability design defect, negligent, design defect, negligent failure to warn, trespass, and violations of Maryland's Consumer Protection Act. The defendants removed the case to federal court and Baltimore has moved for remand.

4. *King County v. Chevron*

In May 2018, King County in Washington, with outside counsel from Hagens Berman LLP, filed a similar suit for public nuisance and trespass in Washington state court against numerous fossil fuel companies. Complaint at ii, *King Cty. v. BP*, 2:18-cv-00758-RSL (Wash. Super. Ct. 2018). Plaintiffs sought compensatory damages and the establishment of an abatement

fund to pay for a climate change adaptation program. Defendants removed the case to federal court and moved for dismissal. Plaintiff moved for and was granted a stay until the Ninth Circuit issues a decision in *City of Oakland v. BP*. The stay is currently in place.

5. *Pacific Coast Federation of Fishermen's Association v. Chevron*

In November 2018, a fishing industry trade group represented by Sher Edling LLP filed a climate change damage suit against the fossil fuel companies in California state court. The trade group is relying on California state nuisance and products liability law to hold the defendants liable for closures to crab fisheries caused by climate change. *Pacific Coast Federation of Fishermen's Association v. Chevron Corp.*, No. CGC-18-571285 (Cal. Super. Ct. 2018). Specifically, Plaintiffs assert that warming ocean temperatures caused by climate change has led to an increase in a plankton species, *Pseudo-nitzschia*, responsible for causing “amnesic shellfish poisoning” through the release of the toxin domoic acid. Plaintiffs seek compensatory and punitive damages and equitable relief. In December 2018, defendants filed a notice of removal.

6. *Boulder County v. Suncor Energy*

In April 2018, three Colorado local government entities—the City of Boulder and the Counties of Boulder and San Miguel—filed suit against fossil fuel companies seeking damages and other relief for the companies’ role in causing climate change. Outside counsel includes Hannon Law Firm LLP, EarthRights International, and the Niskanen Center, a libertarian think tank. Plaintiffs brought claims under public and private nuisance, trespass, the Colorado Consumer Protection Act, and civil conspiracy. In an effort to avoid federal jurisdiction and *AEP*-like displacement, Plaintiffs’ complaint stated:

[Plaintiffs] do not seek to impose liability, restrain or interfere with Defendants ability to participate in public debates about climate change, or otherwise interfere with Defendants’ speech. . . [and] do not seek to enjoin any oil and gas operations or sales in the State of Colorado, or elsewhere, or to enforce emissions controls of

any kind. Plaintiffs do not seek damages or abatement relief for injuries to or occurring on federal lands. Plaintiffs do not seek damages or any relief based on any activity by Defendants that could be considered lobbying or petitioning of federal, state or local governments.

Complaint at 123, *Cty. of Boulder v. Suncor Energy Inc.*, No. 2018CV030349 (Colo. D. Ct. 2018). Defendants removed to federal court. Plaintiffs moved to remand. That motion is pending.

7. *City of New York v. BP*

In January 2018, New York City filed suit for damages and equitable relief in federal court against fossil fuel companies asserting public nuisance, private nuisance, and trespass claims under New York State law against fossil fuel companies. Complaint at i, 63. *City of New York v. BP*, No. 1:18-cv-00182-JFK (S.D.N.Y. 2018). In contrast to the suits discussed above, New York filed in federal court rather than in state court. Outside counsel includes Hagen Berman LLP and Seeger Weiss LLP. The Niskanen Center filed an amicus brief in support of New York City. In support of Defendants, fifteen states led by Indiana filed an amicus brief in favor of dismissal. The court dismissed, and New York City appealed. On appeal to the U.S. Court of Appeals for the Second Circuit, Attorneys General of New York, California, Maryland, New Jersey, Oregon, Rhode Island, Vermont, Washington, and the District of Columbia have filed an amicus brief in support of New York. Other amicus briefs in support of New York include ones from law professors, environmental justice groups, and the National League of Cities. Briefing is ongoing.

B. State Attorneys General Supporting Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of plaintiffs bringing damages claims for climate change-related harms to state resources and infrastructure. For example, in *New York City v. BP* Attorneys General Underwood (NY), Becerra (CA), Kilmartin (RI), Frosh (MD), Donovan (VT), Grewal (NJ), Ferguson (WA), Rosenblum (OR), and Racine

(D.C.) signed an amicus in support of New York City’s claim. In support of the fossil fuel companies were Attorneys General Fisher (IL), Hill (IN), Marshall (AL), Rutledge (AR), Coffman (CO), Carr (GA), Schmidt (KS), Landry (LA), Peterson (NE), Hunter (OK), Wilson (SC), Paxton (TX), Reyes (UT), Morrissey (WV), Schimel (WS), and Michael (WY). In *Oakland v. Chevron*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA) supported the plaintiffs. In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP*. Additionally, several other Attorneys General are likely or potentially supportive of actions against fossil fuel companies for climate change-related harms based on recent campaign statements. They include Letitia James (NY), Josh Shapiro (PA), Josh Kaul (WI), Dana Nessel (MI), Phil Weiser (CO), Josh Stine (NC), and Kwame Raoul (IL).

II. Potential Claims Against Fossil Fuel Companies Under Minnesota Law

This Part discusses potential claims the Minnesota Attorney General could bring against fossil fuel companies for climate change-related damages in Minnesota. These claims build off the claims in the existing lawsuits discussed in Part I. For each claim, this Memorandum discusses the applicable law in Minnesota and then provides an example of what the claim would look like in a complaint using Minnesota-specific law as well as Minnesota-specific damages.

The claims discussed below are: (1) consumer protection claims, including the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”), the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”), and antitrust claims under Minn. Stat. §§ 325D.49-325D.66; (2) product liability claims, including design defect and failure to warn; and (3) common law tort claims, including

public nuisance, private nuisance, trespass and strict liability for abnormally dangerous activities. This Part also discusses the statutes of limitations potentially applicable to these claims.

A. Consumer Protection Claims

Two of the existing climate change lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations. The Colorado plaintiffs also allege conspiracy claims. Both cases were removed to federal court and motions to remand are pending. The complaints in these cases and the possibility of similar claims under Minnesota law are discussed below.

1. Applicable law

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”) and the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”). Minnesota and Blue Cross Blue Shield used these laws to sue the tobacco companies in the 1990s, leading to a \$6.6 billion settlement in 1998.

The Minnesota Supreme Court has “cited its prior statements that the CFA should be liberally construed in favor of protecting consumers and that the CFA reflected ‘a clear legislative policy encouraging aggressive prosecution of statutory violations.’” Prentiss Cox, *Goliath Has The Slingshot: Public Benefit And Private Enforcement Of Minnesota Consumer Protection Laws*, 33 WM. MITCHELL L. REV. 163, 178 (2006) (citing *Ly v. Nystrom*, 602 N.W.2d 644, 308 (Minn. Ct. App. 1999) (citing *State v. Philip Morris, Inc.*, 551 N.W.2d 490, 495-96 (Minn. 1996))). See also Gary L. Wilson & Jason A. Gillmer, *Minnesota’s Tobacco Case: Recovering Damages Without Individual Proof of Reliance Under Minnesota’s Consumer Protection Statutes*, 25 WM. MITCHELL L. REV. 567, 590 (1999) (“Minnesota consumer

protection statutes present one example in which the legislature has made a policy decision to make it easier to sue for a consumer protection violation than it would be under the common law. The legislature did so by relaxing the requirement of causation. . .”).

The Attorney General has express responsibility to “investigate offenses” and “assist in enforcement” of the CFA, UTPA, and the FSAA in Minn. Stat. § 8.31, subd. 1. Subdivision 3(a) of § 8.31 gives clear authority to the Attorney General to seek damages and equitable remedies for CFA, UTPA and FSAA violations, providing that “[i]n any action brought by the attorney general pursuant to this section, the court may award any of the remedies allowable under this subdivision,” which include “damages . . . costs and disbursements, including costs of investigation and reasonable attorney’s fees, and . . . other equitable relief.” Minn. Stat. § 8.31(3)(a).

The CFA forbids “[t]he act, use, or employment by any person of any fraud, false pretense, false promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any person has in fact been misled, deceived, or damaged thereby. . .” Minn. Stat. § 325F.69, subd. 1. The UTPA provides that “[n]o person shall, in connection with the sale of merchandise, knowingly misrepresent, directly or indirectly, the true quality, ingredients or origin of such merchandise.” Minn. Stat. § 325D.13. The FSAA prohibits a broad range of advertising and other activities designed to “increase the consumption” of merchandise that “contain[] any material assertion, representation, or statement of fact which is untrue, deceptive, or misleading .

. . .” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.²

Any claims under Minnesota consumer protection statutes for climate change-related damages should be brought by the Attorney General as a direct action on behalf of the state, rather than a subrogation action on behalf of state citizens. *See State v. Minnesota School of Business, Inc.*, 915 N.W.2d 903, 910 (2018) (denying restitution to individuals that did not testify at trial). In actions seeking damages, the Minnesota Supreme Court held that Minn. Stat. § 8.31, subd. 3(a) demands:

[T]hat there must be some “legal nexus” between the injury and the defendants’ wrongful conduct. . . where the plaintiffs’ damages are alleged to be caused by a lengthy course of prohibited conduct that affected a large number of consumers, the showing of reliance that must be made to prove a causal nexus need not include direct evidence of reliance by individual consumers of defendants’ products. Rather, the causal nexus and its reliance component may be established by other direct or circumstantial evidence. . .

Grp. Health Plan, Inc. v. Philip Morris Inc., 621 N.W.2d 2, 15 (Minn. 2001).

The Minnesota tobacco case was a direct action in which the state and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare providers. *Wilson & Gillmer, supra* at 570-576. While specific individual reliance was not required, at least six types of evidence made effective “legal nexus” causation arguments: (1) evidence of the defendants’ intentional misconduct, (2) addiction of the defendants’ customers; (3) the defendants’ exploitation of smokers; (4) the defendants’ reassurance of smokers through advertising; (5) the defendants’ youth marketing strategies; and (6) the defendants’ intent that their conduct be relied upon. *Wilson & Gillmer, supra* at 608-624.

² The UDTPA is not expressly mentioned in Minn. Stat. § 8.31, so “[t]here is a question whether damages are available for violations.” *Wilson & Gillmer, supra* at 588. The court did not allow a UDTPA action for damages in the tobacco litigation; however, some argue that damages may be available pursuant to § 8.31(3)(a). *Id.* at 588-589.

Based on the publicly available information, there is a wealth of similar facts the Attorney General can rely on in a case against the fossil fuel companies for climate change damages. As with the tobacco companies, the fossil fuel companies intentionally deceived Minnesota, other states, and the public about the long-term risks of continued fossil fuel use through advertisements, public statements, and funded research. Much of this disinformation campaign has come to light only recently.

There is also evidence that the fossil fuel companies have encouraged a public “addiction” to oil and created hostility toward cleaner fuels. These actions are similar to the tobacco companies’ efforts to increase individuals’ nicotine intake—despite their ability to lower nicotine content. *See id.* at 613-616 (“The tobacco industry has the technological capability of removing most of the nicotine from cigarettes. However, evidence suggests the tobacco industry maintains nicotine at certain levels because the companies know that nicotine is the addictive substance. . . .”) (citation omitted); *see also* Peter Teigland, *Petroleum Refining in Minnesota*, NORTH STAR POLICY INST. (May 10, 2018) (explaining that much of the oil flowing into and through Minnesota comes from the Bakken shale and Canadian tar sands).

The plaintiffs in both the Maryland and Colorado lawsuits allege that developing “dirtier” sources of fuel shows oil companies’ blatant disregard of climate data. *See, e.g.*, Colorado Complaint ¶ 384 (“Moreover, and despite its knowledge of the grave threats fossil fuels pose to the climate as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to the concentration of atmospheric CO₂.”) In addition, evidence of the industry’s significant spending on advertising and correlating sales may be used to show causation by establishing the companies’ intention that their publications be relied on by consumers. Wilson & Gillmer, *supra* at 601, 617 (“Even without a showing of intentional

conduct, vast promotional expenditures give rise to a presumption that consumers have been deceived . . . The industry conceded that success in the marketplace is evidence of consumer reliance on the industry’s words and actions.”).

The Attorney General may also bring antitrust claims against the fossil fuel companies, similar to the claims in the Colorado lawsuit. The prohibitions in the Minnesota Antitrust Law of 1971, Minn. Stat. §§ 325D.49-325D.66, include conspiracy and seeking/exercising monopoly power. According to the Minnesota Supreme Court, “Minnesota antitrust law is generally interpreted consistently with federal antitrust law.” Brent A. Olson, MINN. PRAC., BUSINESS LAW DESKBOOK § 22A:1 (2018) (citation omitted). As such, “antitrust claims are *not* subject to a heightened standard of specificity in pleading . . .” *In re Milk Indirect Purchaser Antitrust Litig.*, 588 N.W.2d 772, 775 (Minn. Ct. App. 1999). The court may assess significant penalties: “Any person, any governmental body. . . injured directly or indirectly by a violation of sections 325D.49 to 325D.66, shall recover three times the actual damages sustained . . .” Minn. Stat. § 325D.57. The Attorney General has express authority to investigate and commence appropriate legal action seeking damages for violation of the statutory provisions. Minn. Stat. § 325D.59.

2. *Model claims for violation of consumer protection and antitrust statutes*

The consumer protection claims in the Minnesota tobacco litigation and the Maryland and Colorado lawsuits against fossil fuel companies for climate change-related damages provide an outline for consumer protection claims in Minnesota against fossil fuel companies. The following model complaint language is largely adapted from the claims in the Maryland and Colorado cases and the Second Amended Complaint in the Minnesota tobacco litigation, *State of Minnesota v. Philip Morris Inc.*, No. C1-94-8565 (Ramsey Co. Dist. Ct. 1998).

Prevention of Consumer Fraud Act, Minn. Stat. § 325F.68-70:

1. Defendants, in connection with the sale of merchandise, knowingly misrepresented, and continue to misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to fossil fuel use and climate change, including knowing misrepresentations that there is no causal connection between fossil fuel use and climate change, efforts to spread doubt about the link between fossil fuel use and climate change, and disparagement of the work of others that show the connection between fossil fuel use and climate change;
 - Defendants' fraudulent concealment of information relating to fossil fuel use and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use, including: the true cost and harms from their products, the damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.
3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

False Statement in Advertising, Minn. Stat. §325F.67:

1. Defendants, intending to sell and increase consumption of their products, knowingly caused and continue to cause to be made and placed before the public in Minnesota advertisements regarding their products which contained material assertions, representations and/or statements of fact that were untrue, deceptive, and/or misleading. *See* Minn. Stat. § 325F.67.
2. Defendants' wrongful conduct includes, by way of example:
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that make intentional, material misrepresentations, such as that there is no causal connection between fossil fuel use and climate change and publications and advertisements that advance false theories refuting the connection between fossil fuel use and climate change;
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that intentionally omit material information about the connection between fossil fuel use and climate change and existing and likely impacts of climate change on society.

3. As a direct and proximate result of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unlawful Trade Practices Act, Minn. Stat. §§ 325D.09-16:

1. Defendants, in connection with the sale of merchandise, including fossil fuels, knowingly misrepresented, and continue to knowingly misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations that there is no causal connection between fossil fuels and climate change, efforts to spread doubt about the link between fossil fuels and climate change, and disparagement of the work of others that showed the connection between fossil fuels and climate change;
 - Defendants' misrepresentations that they would or did conduct and disclose objective research on the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations;
 - Defendants' fraudulent concealment of information relating to fossil fuel use/extraction and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use/extraction, the true cost and harms from their products, the likely damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.
3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unreasonable Restraint of Trade and Commerce, Minn. Stat. § 325D.51:

1. For several decades and continuing today, Defendants entered into a contract, combination, or conspiracy between two or more persons aiming to unreasonably restrain trade and commerce in Minnesota's energy and transportation sectors. The energy and transportation markets are inextricably linked with Minnesota's interests in those fields and in other fields including but not limited to: health care, real estate, tourism and natural resources.
2. Defendants and their co-conspirators had a meeting of the minds to accomplish their goals to maintain and/or to increase fossil fuel usage at levels they knew were sufficient to alter the climate, and to withhold material information concerning the continuing and increasing harm caused by their fossil fuel activities, specifically concerning the damage to the climate that the

use of their goods and services would cause and the impacts of the use of their fossil fuels and fossil fuel-derived products and services on Plaintiff's property, social services and infrastructure.

3. This contract, combination, or conspiracy had the purpose and effect of restraining competition in the energy and transportation markets in Minnesota and controlling those markets in Minnesota through restraining and suppressing research on the causal connection between fossil fuel extraction/use and climate change and the harms of climate change, restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
4. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Monopolization of the Transportation/Energy/Petroleum Market in Minnesota, Minn. Stat. § 325D.52:

1. Defendants collectively and with co-conspirators have for at least several decades, and to this day maintained and used, or attempted to establish, maintain, or use monopoly power over trade and commerce to affect competition and/or control, fix or maintain prices in the oil market and other related markets. *See* Minn. Stat. § 325D.52.
2. Defendants, through their acts and omissions described above, maintained and used their monopoly power to affect competition by restraining and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use; and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
3. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Civil Conspiracy, Minn. Stat. § 325D.53:

1. Beginning at least as early as the 1950s and continuing until the present day, Defendants entered into a conspiracy with the intentional and unlawful purpose and effect of restraining

and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel combustion/use; engaging in affirmative misrepresentations on the harmful effects of fossil fuel combustion/use; and restraining and suppressing the research, development, production, and marketing of better alternatives. In furtherance of defendants' conspiracy, defendants lent encouragement, substantial assistance, and otherwise aided and abetted each other with respect to these wrongful acts.

2. As a direct and proximate result of Defendants' unlawful conspiracy, Plaintiff has suffered and will continue to suffer substantial injuries and damages, including but not limited to (see damages list above).

B. Products Liability Design Defect

1. Applicable law

Six lawsuits filed in state courts against fossil fuel companies for their products' contribution to climate change damages have alleged design defect and failure to warn claims arising under state common law. *See Mayor & City Council of Baltimore v. B.P.*, 24-C-18-004219 (Md. Cir. Ct. 2018); *Rhode Island v. Chevron Corp.*, PC-2018-4716 (R.I. Super. Ct. 2018); *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). All of these lawsuits allege both negligent design defect and failure to warn and strict liability design defect and failure to warn. *Id.* Minnesota could allege similar products liability claims against fossil fuel companies related to their extraction, production, marketing, and sale of fossil fuel products.

Minnesota adopted strict liability in tort for products liability cases in 1967. *See McCormack v. Hankscraft Co.*, 154 N.W.2d 488 (Minn. 1967). The Minnesota Supreme Court found that public policy necessitated protecting consumers from the risk of harm that arose from

“mass production and complex marketing.” *Id.* at 500. Adopting the strict liability theory, manufacturers are liable for the cost of injuries that result from their defective product regardless of negligence or privity of contract. *Id.* In *McCormack*, the Court reasoned that strict liability should apply as the makers of the product are in the best position to “most effectively reduce or eliminate the hazard to life and health, and absorb and pass on such costs [to consumers].” *Id.*

Since *McCormack* products liability law has expanded in Minnesota to cover three different theories of defective products: (1) manufacturing defects that arise from flaws in the way the product was made; (2) design defects that result from an unreasonably safe product design; and (3) failure to warn of reasonably foreseeable dangers from a products use. *See* Rest. (Third) of Torts: Products Liability § 2 (1998). As products liability law in Minnesota continued to evolve, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrock v. Marshalltown Mfg. Co.*, 473 N.W.2d 352 (Minn. Ct. App. 1991) (“*Bilotta* merged strict liability, negligence, and implied warranty remedies into a single products liability theory.”) (referencing *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 623 (Minn. 1984)); *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (“Toyota correctly notes that [in Minnesota] in the product liability context, strict liability and negligence theories merge into one unified theory, sharing the same elements and burden of proof.”).

Of the three products liability claims alleged in the other lawsuits against the fossil fuel companies, only design defect and failure to warn claims would apply in Minnesota. Manufacturing defect claims cover faulty or defective products that arise despite a reasonably safe design—e.g., defects that may occur to a discrete number of products during the manufacturing process. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases looks at the condition of the product and compare any defects found with the flawless

product). In contrast, all fossil fuel products on the market result in a dangerous condition—increased CO₂ emissions/climate change—*because* of the products unreasonably safe design. *See id.* (in a design defect case the “defect” lies in the consciously chosen design and the product is in the condition intended by the manufacturer).

a. Design defect

In Minnesota, a manufacturer has a nondelegable duty to design a reasonably safe product. *Bilotta*, 346 N.W.2d 616; *see also Schweich v. Ziegler, Inc.*, 463 N.W.2d 722, 731 (Minn. 1990) (“Caterpillar is duty bound to use reasonable care in designing the DH6 to protect users from unreasonable risk of harm while using it in a foreseeable manner.”). If a manufacturer breaches this duty and the defect proximately causes the plaintiff’s injury, it is liable in tort under a design defect theory. *Farr v. Armstrong Rubber Co.*, 288 Minn. 83, 90 (Minn. 1970). Therefore, to recover against a manufacturer for a design defect a plaintiff must show that: “(1) a product was in a defective condition unreasonably dangerous for its intended use; (2) the defect existed at the time the product left the defendant’s control; and (3) the defect proximately caused the plaintiff’s injury.” *Duxbury v. Spex Feeds, Inc.*, 681 N.W.2d 380, 393 (Minn. Ct. App. 2004). *See also Adams v. Toyota Motor Corp.*, 867 F.3d 902, 916–17 (8th Cir. 2017) (applying Minnesota law).

Unreasonably dangerous condition: To determine whether the design of a product is unreasonably dangerous, Minnesota courts employ the reasonable care balancing test adopted from Florida and New York courts in *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 624 (Minn. 1984). This test looks at the totality of circumstances including: “a balancing of the likelihood of harm, and the gravity of harm if it happens, against the burden of the precaution which would be effective to avoid the harm.” *Id.* It is an objective standard that “focuses on the conduct of the

manufacturer in evaluating whether its choice of design struck an acceptable balance among several competing factors.” *Id.* at 622. Often considered by courts and juries employing the reasonable care balancing test is whether or not there existed, or the plaintiff can prove, a practical alternative design. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 96 (Minn. 1987) (holding that existence of a practical alternative design is a factor, but not an element of a *prima facie* case, in design defect claims).

Fossil fuel products were, and continue to be, in a defective condition unreasonably dangerous for their intended use. The emission of GHGs resulting from the use of fossil fuel products causes severe and grave harms in the form of global warming, increased severity of dangerous weather patterns, rising sea level, increased drought, increased weather patterns, serious public health concerns particularly to low income and minority communities, and overall climate change damages. The fossil fuel companies were well aware of the gravity of this harm, as well as the extremely high likelihood that this harm would occur from their continued extraction, production, use, and marketing of fossil fuel products as early as 1965. This is particularly true in light of generally accepted scientific knowledge that unfettered anthropogenic GHG emissions would result in catastrophic impacts. The burden of precaution necessary to avoid the harms was significantly lower when the companies first became aware of the risk their fossil fuel products posed and has only grown since.

Defect existed at the time it left defendants’ control: The second element of a design defect claim is that “the defect existed at the time the product left the defendant’s control” *Duxbury*, 681 N.W.2d at 393. GHGs emitted from the combustion/use of fossil fuel products exists at the time they are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, individual and aggregate fossil fuel products reached the consumer in a

condition substantially unchanged from that in which it left the companies' control—and “were used in the manner in which they were intended to be used . . . by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.” Complaint at ¶ 212, *PCFFA v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018). Therefore, the defect existed at the time fossil fuel products left the fossil fuel companies' control.

Defect proximately caused the plaintiff's injury: Finally, the plaintiff must prove that the design defect proximately caused the plaintiff's injury. *Duxbury*, 681 N.W.2d at 393. “Proximate cause exists if the defendant's conduct, without intervening or superseding events, was a substantial factor in creating the harm.” *Thompson v. Hirano Tecseed Co., Ltd.*, 456 F.3d 805, 812 (8th Cir. 2006) (applying Minnesota law). A substantial factor has also been described as a “material element” in the happening of the injury. *Draxton v. Katzmarek*, 280 N.W. 288, 289 (Minn. 1938).

But-for causation is still necessary for a substantial factor causation analysis, because “if the harm would have occurred even without the negligent act, the act could not have been a substantial factor in bringing about the harm.” *George v. Estate of Baker*, 724 N.W.2d 1, 11 (Minn. 2006) (citing Rest. (Second) of Torts § 432 (1965)). However, if there are concurring acts that together cause the plaintiff's injury and act contemporaneously, or so nearly together that there is no break in the chain of causation, this is sufficient to meet the causation analysis even if the injury would not have resulted in the absence of either one. *Roemer v. Martin*, 440 N.W.2d 122, 123, n.1 (Minn. 1989). If there are concurrent acts of negligence, both parties are liable for the whole unless the resulting damage is “clearly separable.” *See Mathews v. Mills*, 178 N.W.2d

841, 844 (Minn. 1970). Before a particular factor can be said to be a concurrent cause, it must, first of all, be established that it is a cause. *Roemer*, 440 N.W.2d at 123.

The fossil fuel companies' extraction, production, refining, marketing, and sale of fossil fuels was and will continue to be a substantial factor in creating Minnesota's harm from climate change. Ninety producers of oil and gas are responsible for 63% of the cumulative industrial CO₂ and methane emissions worldwide between 1751 and 2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (Nov. 22, 2013). Abundant scientific studies and reports link these anthropogenic GHG emissions to climate change and its damages.

California has similarly adopted the substantial factor test to determine proximate causation. *People v. Atlantic Richfield Co.*, 2013 WL 6687953, at *16 (Cal. Super. Ct. 2013) ("Under this test, independent tortfeasors are liable so long as their conduct was a "substantial factor" in bringing about the injury."), *aff'd sub nom. People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51 (Cal. Ct. App. 2017). However, it is important to note that California's substantial factor test appears to be broader than Minnesota's, requiring the defendant's conduct to only be "a very minor force" to find it was a substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102. Despite this, *People v. Atlantic Richfield Co.*, still provides a useful analogy for determining whether multiple manufacturers of a product were each a "substantial factor" in creating the plaintiff's injury and may act as persuasive authority in Minnesota. 2013 WL 6687963 at *1, *aff'd sub nom. ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 169 (affirming holding of liability against lead paint manufacturers but limiting scope of abatement remedy to pre-1951 homes).

In *Atlantic Richfield Co.*, counties in California brought a public nuisance action against five lead paint manufacturers seeking abatement of the public nuisance created by the lead paint manufactured and sold by defendants in ten jurisdictions in California. Three of the paint manufacturers, ConAgra, NL Industries, and Sherwin Williams, were found to have created or assisted in the creation of the public nuisance and, as a result, the Court held their conduct was a substantial factor in bringing about the public nuisance. *Id.* at *54.

ConAgra was a large producer and supplier of lead, operated to a major degree within the jurisdictions that brought suit, and continued to sell lead paint until 1958 and therefore the Court found their conduct was a substantial factor in creating the public nuisance. *Id.* at *52. NL Industries (formerly known as National Lead Company) was the largest manufacturer, promoter, and seller of lead pigments for use in house paint and was an active participant in campaigns to promote lead paint. Based on this, the Court found NL to be a substantial factor in causing the public nuisance. *Id.* at *53. Finally, Sherwin Williams' conduct was found to have been a substantial factor in the public nuisance despite testimony offered by SW's expert witness Dr. Van Liere who estimated that Sherwin William's lead paint contributed a mere 0.1% of the total lead consumed in California from 1894 to 2009. *Id.* at *39. This was because the company had two plants, stores, and dealers selling lead paint within the jurisdictions bringing suit and it transported millions of pounds of lead paints to its warehouses and factories during the first four decades of the 20th century. *Id.* at *53.

The California Court of Appeals upheld the trial court findings, further emphasizing that all three defendants' marketing campaigns promoting lead paint as safe for use in residential homes and on doors and windows frames played at least a *minor* role in creating the public nuisance and therefore met the "substantial factor" test. *People v. ConAgra Grocery Products*

Co., 17 Cal. App. 5th 51, 102–03 (Cal. Ct. App. 2017). Minnesota can use the California courts’ reasoning to establish that each individual fossil fuel company named as defendant was a substantial factor in causing Minnesota’s climate damages.

Lastly, not only must the design defect be a substantial factor, or material element, in bringing about plaintiff’s injuries—there cannot be a “superseding” event that breaks the causal chain between the defendants’ conduct and the plaintiff’s injury:

A cause is “superseding” if four elements are established: (1) Its harmful effects must have occurred after the original negligence; (2) it must not have been brought about by the original negligence; (3) it must actively work to bring about a result which would not otherwise have followed from the original negligence; and (4) it must not have been reasonably foreseeable by the original wrongdoer.

Regan v. Stromberg, 285 N.W.2d 97, 100 (Minn. 1979). There were no intervening or superseding events that caused Minnesota’s climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between the fossil fuel companies’ conduct and Minnesota’s injuries and damages, or superseded the fossil fuel companies’ breach of its duty to design a reasonable safe product.

b. Joint and several liability and market share liability

Notably, although an individual oil or gas company may claim that its extraction, production, and sale of fossil fuel products was not a substantial factor or the “but-for” cause of Minnesota’s climate change damages, Minnesota can rely on two liability structures to overcome the causation burden: concurring causes and the indivisible injury rule which impose joint and several liability and market share liability.

In general, parties whose negligence concurs to cause an indivisible injury are jointly and severally liable, even if not acting in concert. *Maday v. Yellow Taxi Co.*, 311 N.W.2d 849 (Minn. 1981); *see also Rowe v. Munye*, 702 N.W.2d 729, 736 (Minn. 2005) (“[M]ultiple defendants are

jointly and severally liable when they, through independent consecutive acts of negligence closely related in time, cause indivisible injuries to the plaintiff.”). A harm is indivisible if “it is not reasonably possible to make a division of the damage caused by the separate acts of negligence.” *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970) (quotation omitted). When two or more persons are jointly liable, contributions to awards shall be in proportion to the percentage of fault attributable to each, except that each is jointly and severally liable for the whole award. Minn. Stat. § 604.02, subd. 1 (2018). However, a plaintiff would still be required to show that each defendant’s conduct was a substantial factor in causing its harming. *Jenson v. Eveleth Taconite Co.*, 130 F.3d 1287, 1294 (8th Cir. 1997).

At least four other state lawsuits have alleged fossil fuel companies’ acts and omissions were indivisible causes to the plaintiffs’ injuries and damages because it is not possible to determine the source of any particular GHG molecule from anthropogenic sources. *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman’s Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) (“*PCFFA v. Chevron*”). Joint and several liability would also apply in a lawsuit against fossil fuel companies for damages resulting from climate change in Minnesota. Minnesota is experiencing a single indivisible injury caused by multiple fossil fuel companies’ independent consecutive actions closely related in time. *See Jenson*, 130 F.3d at 1305 n.9 (explaining how the single indivisible injury rule imposes joint and several liability). Because Minnesota’s harm is indivisible, each fossil fuel company would be liable for the entire harm. *Id.*

If the fossil fuel companies argue that Minnesota's harms are divisible, they each may be able to limit their liability. However, the defendant asserting divisibility bears the burden of proving apportionment. *See e.g., Jensen*, 130 F.3d at 1294 (explaining that "plaintiffs bear no burden to prove apportionment" because apportionment is akin to an affirmative defense). Fossil fuel companies could attempt to prove apportionment based on the amount of GHG their fossil fuel products emitted.

People of the State of California v. Atlantic Richfield Co. once again provides reference for how oil and gas companies may be jointly and severally liable and can act as persuasive authority in Minnesota's courts. 2013 WL 6687953, 44 (Cal. Super. Ct. 2013). Under California law, when multiple tortfeasors are each a substantial factor in creating a public nuisance, they are jointly and severally liable for that nuisance. *Id.* at * 44 (quoting *Am. Motorcycle Assn v. Superior Court*, 20 Cal. 3d 578, 586 (1978)). Similar to Minnesota, if the injury is indivisible each actor whose conduct was a substantial factor in causing the damages is legally responsible for the whole. *Id.* California has found that this joint and several liability theory applies when multiple sources of contamination result in a single nuisance. *Id.* (quoting *State v. Allstate Ins. Co.*, 45 Cal. 4th 1008, 1036 (2009)). Because of this, the California Superior Court found that the three lead paint manufacturers who were found to be substantial factors in causing the public nuisance were all jointly and severally liable. *Id.* A similar theory of recovery could be used in Minnesota against fossil fuel companies applying Minnesota's version of concurrent harms, the invisible harm rule, and joint and several liability.

Finally, the market share liability theory allows a plaintiff to recover damages against defendants based on their proportion of the market share at the time the injury was caused if the defendants all produced an identical, or fungible product, and the plaintiff is unable to identify

which manufacturer produced the product that caused their injuries. *See Sindell v. Abbott Labs.*, 607 P.2d 924 (Cal. 1980) (establishing market share liability theory and apportioning liability based on the relative market share of each of the liable defendants). The Minnesota Supreme Court has not explicitly accepted or rejected the market share liability theory. *See Bixler v. J.C. Penney Co.*, 376 N.W.2d 209, 214 n.1 (Minn. 1985) (“We express no opinion as to whether we would adopt such a rule [market share liability], particularly where the product involved is not entirely fungible with similar products on the market.”). Because the Minnesota Supreme Court has not categorically ruled out the market share liability theory, it is possible that under the right set of facts, that theory of recovery may be available.

Minnesota can allege a market share liability theory if it is unable to prove which fossil fuel company caused its injuries because each fossil fuel company’s products are fungible with regard to their GHG emissions. The Wisconsin Supreme Court adopted a version of the market share liability theory known as the “risk contribution theory” in *Collins v. Eli Lilly Co.*, the state’s first DES case. 342 N.W.2d 37, 49 (Wis. 1984). In *Collins*, the Wisconsin Supreme Court recognized that the plaintiff would face an insurmountable obstacle if she had to prove which defendant manufactured the DES that her mother ingested based on the lack of records and pharmaceutical practices at that time. *Id.* at 44–45. Despite this, the Court found that Collins was entitled to a remedy at law for her injuries under the Wisconsin Constitution and therefore took the task of fashioning an adequate remedy. *See Id.* at 45 (“When an adequate remedy or forum does not exist to resolve disputes or provide due process, the courts, under the Wisconsin Constitution, can fashion an adequate remedy.”). *Compare* WIS. CONST. art. 1, § 9 (“Every person is entitled to a certain remedy in the laws for all injuries, or wrongs which he may receive in his person, property, or character.”) *with* MINN. CONST. art. 1, § 8 (“Every person is entitled to

a certain remedy in the laws for all injuries or wrongs which he may receive to his person, property or character . . .”).

In *Collins*, the Wisconsin Supreme Court held that for cases seeking recovery for harms associated with DES, and situations factually similar to DES cases, “the plaintiff need only allege and prove that the defendant drug company produced or marketed the drug DES for use in preventing miscarriages during pregnancy.” *Id.* at 50. In order to protect defendant drug companies that could not have contributed to Collins injury, the Court held that a defendant could escape liability if it could prove by a preponderance of evidence that the DES it produced or marketed could not have reached the plaintiffs mother. *Id.* at 197–98. The defendants could apportion liability using the comparative negligence theory, with the jury determining each company’s liability based on a number of factors including whether the company tested DES for safety, sought FDA approval, issued warnings about DES, produced or marketed DES after it knew of possible risks, and whether it took affirmative steps to reduce risk of injury to public. *Id.* at 199–200.

The Wisconsin Supreme Court later extended the risk contribution theory to a plaintiff who suffered lead poisoning but could not identify the paint manufacturer that had caused his injury. *See Thomas v. Mallet*, 285 Wis. 2d 236, 256 (Wis. 2005). Because many victims of lead poisoning would be denied an adequate remedy for harm, and Thomas’ case was factually similar enough to *Collins*, the Wisconsin Supreme Court agreed that the *Collins* risk-contribution theory should be extended to white lead carbonate claims. *Id.* at 293, 306 (explaining that lead poisoning plaintiffs are severely harmed by a substance they had no control over without an ability to prove with certainty which manufacturer produced or promoted the white lead carbonate that caused the injury).

In sum, both California's market share liability theory or Wisconsin's risk-contribution theory provide viable theories of recovery in Minnesota courts against fossil fuel companies for climate change harm in Minnesota. Fossil fuel companies' actions and the damages in Minnesota stemming from the use of their products closely resemble the factual circumstances of cases involving DES and lead paint. Fossil fuel products are fungible, the fossil fuel companies breached a legally recognized duty by failing to design their products in a reasonably safe manner, fossil fuel companies continued to market and produce their products despite knowledge of this danger, and the use of these fossil fuel products caused Minnesota's injuries. Moreover, in the case of fossil fuel companies, there is significant data on the percentage of GHG emissions related to each fossil fuel company's extraction, production, refining, and sales, making this arguably a stronger case for market share liability or risk-contribution theory than either the DES or lead paint cases.

2. *Model claim for design defect*

Below is an example of a model complaint alleging a claim of defective design for fossil fuel products under the reasonable care balancing test in Minnesota, along with support for each assertion. The language and sources are largely adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted, refined, formulated, designed, packaged, distributed, tested, constructed, marketed, promoted and sold fossil fuel products intended to be burned for energy, refined into petrochemicals, and/or refined/incorporated into petrochemical products including fuels and products.
2. The emissions of GHGs from the intended use of Defendants' fossil fuel products is a defective condition that makes the product unreasonably dangerous because GHG emissions cause numerous global and local changes to Earth's climate.
 - Fossil fuel combustion and industrial processes are responsible for the majority of emissions that have caused GHG concentrations to reach hazardous and

unprecedented levels, contributing roughly 78% of total GHG emission increases from 1970 to 2011.

- As a result of GHG emissions caused and contributed to by Defendants' fossil fuel activities, atmospheric CO₂ now stands at 408 parts per million (ppm), a level which is unprecedented in human history.
 - Once CO₂ enters the atmosphere, a significant portion of it remains there, with a warming influence that lasts for hundreds (if not thousands) of years. It also cannot be feasibly removed from the atmosphere with existing technology, committing the world to some degree of irreversible warming and associated climate change resulting from emissions to date.
 - These anthropogenic increases in CO₂ and GHG emissions act like a greenhouse in the atmosphere, trapping heat inside the Earth and leading to a warming atmosphere, oceans, and changing climate.
 - Minnesota's winters are warming thirteen times faster than its summers and Minneapolis and Mankato are the second and third fastest-warming cities respectively in the United States. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).
3. Based on the totality of the circumstances, balancing the likelihood of harm and the gravity of the harm if it occurred, against the burden of the precaution that would be effective to avoid the harm, the design of fossil fuel products was unreasonably dangerous.
4. The gravity of potential harms is extreme.
- Potential harms arising from fossil fuel products unreasonably dangerous design include global warming, extreme high temperature events, extreme precipitation events, droughts, significant public health impacts, and more.
 - Public health impacts of climatological changes are likely to be disproportionately borne by communities made vulnerable by geographic, racial, or income disparities including low-income communities, some communities of color, immigrant groups, indigenous peoples, children and pregnant woman, other adults, and others. Janet Gamble, U.S. EPA, John Balbus, Nat'l Inst. of Health, *The Impacts of Climate Change on Human Health in the United States* 249 (Apr. 2016).
 - In Minnesota, invasive species and diseases like Asian soybean rust may be able to survive Minnesota's warmer winters threatening Minnesota crops. Pine woods could retreat north changing Minnesota's tree population and warmer winters could even drive out Minnesota's state bird, the common loon. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).

- Minnesota will have more precipitation, but late summer conditions will be drier and warmer. *Id.* August rainfall could drop by up to 60 percent in some parts of the state by the end of the century. *Id.*
- Other Minnesota specific damages arising from climate change include:
 - Damages to agriculture including reduced yields, increases in pesticide and insecticide application to maintain yields, loss in soil agriculture, loss of yield in animal agriculture (pigs, cows, chickens, milk, egg, and pork production are lost when temperatures stay above 90 degrees), reduced fruit agriculture yields, particularly apples (apples need a certain number of chilling days per fall), and the cost to educate farmers on these changes and steps to mitigate damages by state agencies.
 - Current hydrologic damages including flooding on farmlands, excessive floods that fall under the compensation threshold by FEMA, increase in heavy storms. Future hydrological damages include an increase in prolonged droughts and flooding events.
 - Significant health impacts, particularly to low income and communities of color, including increased asthma attacks, allergens, hay fever, toxic algal blooms, heat stress and heat related illness (many low to medium income housing units do not have air conditioners), vector borne diseases (West Nile virus, tick borne diseases), flood damages and mold in homes (cost to remediate, mental health impacts, etc.)
 - Damages to Minnesota's lakes including toxic algal blooms, loss of cold-water species as we move to from cold-water lakes to cool water lakes, cost for state agencies to restock fisheries/lakes.
 - Damages to Minnesota's forests ranging from loss of wildlife habitat and species (including moose, common loon, and other iconic species).
 - A large tract of tamarack trees in Northeastern Minnesota has already been lost to eastern larch beetles, which are able to survive longer and cause more damage due to the warming climate. *See Josephine Marcotty, As Climate Warms, an Exploding Larch Beetle Population is Transforming Minnesota's Forests, STAR TRIBUNE (Aug. 13, 2017) (“It’s a fantastic example of climate change in action,” said Brian Aukema, a University of Minnesota professor who studies larch beetles and other forest insects. ‘That insect is telling us that tamarack no longer belongs here.’”)*
 - Costs to transportation infrastructure including flood damages to bridges and roads.

- Other infrastructure damages including stormwater systems, sewer systems, power sector constraints, increased burden on emergency management and need to retrofit state operated buildings with air conditioning.
5. Defendants not only *knew* of the significant potential likelihood that harm would occur from continued use of their fossil fuel products as early as 1965, they actively worked to obscure public knowledge and create uncertainty regarding climate science.
 6. The cost to society of each ton of CO₂ emitted into the atmosphere increases as total global emissions increase, so that with each extraction/consumption of fossil fuel product the gravity of harm and likelihood increases.
 7. The cost to society from climate change damages greatly outweighs the social benefit from unchecked extraction and consumption of fossil fuel.
 8. Oil and gas companies were in a position to create, develop, and design alternative technologies, energy sources, and businesses practices that would have eased the transition to a lower carbon economy, reduced GHG emissions, and mitigated the harms associated with climate change.
 9. Defendants could have mitigated the burden of the precautionary measures necessary to reduce GHG emissions by investing time and resources into developing alternative forms of energy.
 10. Instead, these same companies spent decades and vast resources on a concerted campaign to discredit climate change science and warnings despite internal knowledge that “it would be unwise and potentially dangerous to ignore the mounting concern.” John Browne, BP Climate Change Speech to Stanford, Climate Files (May 19, 1997), <http://climatefiles.com/bp/bp-climate-change-speech-to-stanford/>.
 11. Defendants also invested heavily in lobbying campaigns to avoid GHG regulation and international treaties addressing climate change.
 12. Defendants’ individual and aggregate fossil fuel products reached the consumer in a condition substantially unchanged from that in which it left Defendants’ control—and were used in the manner in which they were intended to be used by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.
 13. Defendants’ design of fossil fuel products led to an unreasonably dangerous defect that was the direct and proximate cause of substantial climate change damages in Minnesota.
 14. The emission of GHGs, a defective condition in fossil fuel products, is and will continue to be a substantial factor causing climate change damages in Minnesota.

15. Defendants' individual and collective acts and omissions were actual, substantial causes of increased average temperatures, spread of invasive species, drought, flooding and related consequences, including Minnesota's injuries and damages set forth herein.
16. There were no intervening or superseding events that caused Minnesota's climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between oil and gas companies' conduct and Minnesota's injuries and damages, or superseded Defendants' breach of their duties to design a reasonable safe product.
17. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions. *See supra*.
18. Defendants' acts and omissions as alleged herein are indivisible causes of Minnesota's injuries and damages as alleged herein, because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly diffuse and coningle in the atmosphere.
19. Defendants are jointly and severally liable for Minnesota's indivisible injuries stemming from climate change damages.

C. Products Liability Failure to Warn

1. Applicable law

In Minnesota “[g]enerally stated, a failure to warn claim has three elements: ‘(1) whether there exists a duty to warn about the risk in question; (2) whether the warning given was inadequate; and (3) whether the lack of a warning was a cause of plaintiff’s injuries.’” *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (quoting *Seefeld v. Crown, Cork & Seal Co., Inc.*, 779 F. Supp. 461, 464 (D. Minn.1991)).

Duty to warn: The first element of a failure to warn claim is whether or not a duty exists. “The duty to warn arises when a manufacturer knew or should have known about an alleged defect or danger, and should have reasonably foreseen that the defect or danger would cause injury.” *Id.* (citing *Seefeld*, 779 F. Supp. at 464; *Harmon Contract Glazing, Inc. v. Libby–Owens–Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). The duty extends to all

reasonably foreseeable users. *Whiteford v. Yamaha Motor Corp.*, 582 N.W.2d 916, 918 n.6 (Minn. 1998). The knowledge of an alleged defect or danger can be either actual or constructive. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987) (allowing recovery where the plaintiff either knew of the danger or *should* have known). Because a manufacturer has duty to keep informed of all current scientific knowledge, courts in Minnesota will look to current/past scientific knowledge to help determine whether a manufacturer *should* have known of the risks in its products. *Harmon Contract Glazing, Inc. v. Libby-Owens Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992).

Fossil fuel companies had both actual and constructive knowledge, particularly in light of scientific knowledge generally accepted at the time, that their fossil fuel products were dangerous due to their emissions of GHGs. It was also reasonably foreseeable that climate change damages would result from these emissions and thus fossil fuel companies had a duty to warn potential users of the foreseeable dangers.

However, a manufacturer has no duty to warn of dangers that are obvious to anyone using the product. *See Drager v. Aluminum Indus. Corp.*, 495 N.W.2d 879, 884 (Minn. Ct. App. 1993). “A failure to warn ‘is not the proximate cause of injury if the user is aware of the danger posed by the device in issue.’” *Shovein v. SGM Group USA, Inc.*, 2008 WL 11348494, at *6 (D. Minn. 2008) (citing *Mix v. MTD Products, Inc.*, 393 N.W.2d 18, 19 (Minn. App. 1986)). For example, in *Mix v. MTD*, the Minnesota Court of Appeals held that MTD did not have a duty to warn of the danger that could result from attempting to reattach a belt while the lawnmower’s engine was in neutral because the danger was obvious to most potential users. *Mix v. MTD Prods., Inc.*, 393 N.W.2d 18, 20 (Minn. Ct. App. 1986). Because of fossil fuel companies’ protracted and

intensive denialist campaign, the dangers of using fossil fuel products were not obvious to the public.

Adequate warning: Second, if a warning was issued it must be adequate. “To be legally adequate, a product supplier’s warning to a user of any foreseeable dangers associated with the product’s intended use should (1) attract the attention of those that the product could harm; (2) explain the mechanism and mode of injury; and (3) provide instructions on ways to safely use the product to avoid injury.” *Gray v. Badger Min. Corp.*, 676 N.W.2d 268, 274 (Minn. 2004). Consumers of fossil fuel products were prevented from recognizing the risk that fossil fuel products would cause grave climate changes because the companies “individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.” Complaint at ¶ 318, *County of Santa Cruz v. Chevron Corp.* (Cal. Super. Ct. 2018). Therefore, any warnings that may have publicized the danger to the public or Minnesota were undermined and rendered ineffective because of the companies’ public relations materials and campaigns. *Id.*

Causation: In order to recover under a failure to warn theory, the plaintiff must show a causal connection between the inadequate warning or failure to warn and the injuries he or she sustained. *Rients v. Int’l Harvester Co.*, 346 N.W.2d 359, 362 (Minn. Ct. App. 1984). Minnesota courts have interpreted this as requiring the plaintiff to show that *had* adequate warnings been provided, the injury would not have occurred. *See Hauenstein v. Loctite Corp.*, 347 N.W.2d 272, 276 (Minn. 1984) (explaining that causation is not met when the accident would have occurred whether or not there was a warning). While many states have adopted a “heeding presumption”—a rebuttable presumption that if warnings had been provided, they would have been read and heeded—the Minnesota Supreme Court specifically declined to do so in a failure

to warn case. *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99–100 (Minn. 1987); *see also Tuttle v. Lorillard Tobacco Co.*, 377 F.3d 917, 925 (8th Cir. 2004) (predicting that Minnesota courts would not adopt the heeding presumption). Furthermore, when a plaintiff requested the Minnesota Court of Appeals to adopt the heeding presumption in *Montemayor v. Sebright Products, Inc.* (unpublished case) the Court found that it was not its role “to extend the law.” 2017 WL 5560180, at *3 (Minn. Ct. App. 2017).

However, the U.S. Court of Appeals for the Eighth Circuit has noted that to establish causation in Minnesota failure to warn cases “it is sufficient to present testimony that purchasers would have avoided the risk of harm had they been told of the relevant danger.” *In re Levaquin Products Liability Litigation*, 700 F.3d 1161, 1168 (8th Cir. 2012) (citing *Erickson v. American Honda Motor Co., Inc.*, 455 N.W.2d 74, 77 (Minn. Ct. App. 1990)). This type of testimony can be rebutted by evidence that the plaintiff knew of the danger or disregarded other dangers or ignored other warnings. 27 Minn. Prac. Series § 4.11 (2018). This was at issue in *Tuttle v. Lorillard Tobacco Co.* because Tuttle passed away from oral cancer (caused by defendant’s smokeless tobacco product) before he could testify that he would have avoided the risk of harm if he had been told of the danger. 377 F.3d at 925 (8th Cir. 2004). Furthermore, the Court reasoned that because Tuttle continued to use smokeless tobacco until 1993, even after the Smokeless Tobacco Act required warnings in advertising and on packaging as early as February 1987, that “Tuttle’s actions undercuts any ‘heeding presumption’ and any reasonable reliance arguments.” *Id.* at 927 n.6.

Had Minnesota been adequately warned of the significance of danger that fossil fuel consumption and use presented to the state and the public, it would have heeded said warnings

and either consumed fewer fossil fuel products or began to transition away from a fossil fuel dependent economy much sooner.

2. *Model claim for failure to warn*

Below is an example of a model complaint alleging a failure to warn claim against fossil fuel companies for harm caused by their products. Support for these assertions can be found *supra* in the model design defect claim. The language and sources are largely adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted produced, distributed, marketed, and placed into the stream of commerce fossil fuel products including oil, coal, and natural gas.
2. Defendants had at all times a duty to issue adequate warnings to Minnesota, the public, consumers, and public officials of the reasonably foreseeable danger and risks posed by their fossil fuel products.
3. Defendants had actual and constructive knowledge, in light of the current scientific knowledge generally accepted at that time and the information passed to them from internal research divisions, that fossil fuel products were defective and dangerous based on the climate effects inherently caused by their normal use and operation.
 - a. Internal research divisions and affiliates passed adequate information to oil and gas companies warning of the dangers GHG emissions from their fossil fuel products could cause.
 - b. Furthermore, the international scientific community was well aware of, and made public, scientific knowledge regarding the significant and damaging climate effects that past and continued use and operation of fossil fuel products would cause.
 - c. This knowledge included the likelihood and likely severity of global warming, global and local sea level rise, more frequent and extreme droughts, more frequent and extreme precipitation events, more frequent and extreme heat waves, and the associated consequences of those physical and environmental changes, including Minnesota's injuries and damages.
4. Based on this information, defendants knew or should have known that the climate effects described herein rendered their fossil fuel products dangerous, or likely to be dangerous, when used as intended.

5. Defendants should have reasonably foreseen that the danger from use of their fossil fuel products would cause significant injuries to the public.
 - a. Because releasing GHGs into the atmosphere inevitably causes, *inter alia*, global warming, sea level rise, more frequent and extreme heat waves, and the associated consequences of those physical and environmental damages, it was reasonably foreseeable that fossil fuel product use would cause injury.
 - b. The emission of GHGs from fossil fuel products was and will continue to be a substantial factor causing climate change damages in Minnesota.
 - c. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions.
6. It was not obvious to consumers or the public that the use of fossil fuel products presented significant dangers of an unprecedented magnitude to public health, publicly owned infrastructure, real property, public trust resources, and rights of Minnesota and its citizens.
 - a. Consumers were prevented from recognizing the risk that fossil fuel products would cause grave climate change-related damages because Defendants individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.
 - b. Any warnings that may have disseminated were undermined and rendered ineffective because of Defendants' public relations materials and campaigns that prevented reasonable consumers from recognizing the risks that fossil fuel products posed.
7. Throughout the times at issue, Defendants breached their duty of care by failing to provide *any* warning, let alone an adequate warning, to customers, consumers, regulators, and the general public of the known and foreseeable risks that inevitably flow from the intended use of their fossil fuel products.
8. Defendants failed to issue warnings to consumers or any other party of the climate effects that are posed by the continued use of their fossil fuel products.
9. Defendants' failure to warn the public and Plaintiff of the dangers stemming from fossil fuel extraction, production, and use is causally connected to the injuries Minnesota has and will continue to sustain from climate change.
10. Had Defendants provided adequate warnings the climate change injuries to Minnesota would not have occurred.
 - a. Purchasers of fossil fuels, including Plaintiff, would have avoided the risk of harm if Defendants had warned them of the severity and extent of danger their products caused.

- b. Because of Defendants’ disinformation campaigns, the general public, consumers, and regulators did not have adequate knowledge of the danger fossil fuel products posed, and therefore did not disregard the dangers or ignore other warnings.
11. Minnesota has sustained and will sustain other substantial expenses and damages set forth in this Complaint, including damage to public owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.

D. Public Nuisance

1. Applicable law

Under Minnesota law, public nuisance is a misdemeanor offense, defined in Minn. Stat. § 609.74:

[w]hoever by an act or failure to perform a legal duty intentionally does any of the following is guilty of maintaining a public nuisance, which is a misdemeanor:

- (1) maintains or permits a condition which unreasonably annoys, injures or endangers the safety, health, morals, comfort, or repose of any considerable number of members of the public; or
- (2) interferes with, obstructs, or renders dangerous for passage, any public highway or right-of-way, or waters used by the public; or
- (3) is guilty of any other act or omission declared by law to be a public nuisance and for which no sentence is specifically provided.

Minn. Stat. § 609.74 (2018). Under Minn. Stat. § 609.745, “[w]hoever having control of real property permits it to be used to maintain a public nuisance or lets the same knowing it will be so used is guilty of a misdemeanor.” Minn. Stat. § 609.745 (2018). Statutory public nuisance violations brought under § 609.74 are enforced through criminal prosecution. However, it is unlikely that a claim for damages could be sought under the criminal statute, and instead this statute would provide a means for injunctive relief or abatement. *See* Minn. Stat. § 617.80 et seq. Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. *But see Doe 30 v. Diocese of New Ulm*,

No. 62-CV-14-871, 2014 WL 10936509 at *9 (Minn. Dist. Ct. 2014) (“While plaintiff’s Complaint asserts a common-law public nuisance claim, it is evident from Minnesota’s public-nuisance jurisprudence that common-law claims either no longer exist or are synonymous with section 609.74 claims.”).

Common law public nuisance claims in Minnesota appear to be rare; the majority of public nuisance claims seem to be brought primarily under municipal nuisance ordinances or the state public nuisance statute. For example, in *State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545 (Minn. 1911), the Minnesota Supreme Court considered the validity of a Minneapolis city ordinance that declared the emission of smoke from locomotives a public nuisance, prohibiting the use of soft coal. The court recognized that although the Legislature cannot prevent a lawful use of property by prohibiting non-nuisance uses, “it is equally clear that acts or conditions which are detrimental to the comfort and health of the community may be effectively declared nuisances by the Legislature, and in the exercise of that power specified acts or conditions may be declared a nuisance, although not so determined at common law.” *Id.* at 546.

Likewise, in *State v. Lloyd A. Fry Roofing Co.*, 246 N.W.2d 692 (Minn. 1976), the Minnesota Supreme Court held that:

[T]he general rule regarding nuisances is that “it is immaterial how innocent the intent was[,] for the element of motive or intent does not enter into the question of nuisance,” so a state legislature may declare certain acts to be nuisances regardless of the intent with which they are carried out and even though they were not such at common law, or the legislature may delegate this authority to a municipal corporation.

Id. at 538 (citing Joyce, *Law of Nuisance*, § 43 at 77 & §§ 81, 84). On the subject of common law public nuisance, the court cites Dean Prosser’s work on tort law and notes that intent and

failure to act reasonably are not essential elements of common-law nuisance violations, and “are even less relevant to nuisances that are codified in statutes or ordinances.” *Id.* at 539.

Although statutory public nuisance claims seem to make up the vast majority of cases in Minnesota, common law public nuisance may still resemble the Restatement approach: interference with public property or a right common to the public. *See* Restatement (Second) of Torts § 821B(1). Although the court in *Doe 30 v. Diocese of New Ulm* considered the matter, it is a district court decision and the analysis is dicta because the court did not reach a decision on the issue.

Significantly, in 2010, Minnesota Attorney General Lori Swanson brought “common law nuisance” claims against 3M Company over chemicals it produced known as perfluorochemicals (PFCs). *See* Complaint, *State v. 3M Co.*, No. 27-CV-10-28862, 2010 WL 5395085 at ¶¶ 83–89, 90–97 (D. Minn. Dec. 30, 2010). In particular, the complaint alleged damages for common law nuisance for contamination of surface water, groundwater, and sediments by PFCs released by 3M. The Attorney General claimed that the “use, enjoyment and existence of the State’s groundwater, surface water and sediments, free from interference, is a *common right* to citizens of the state.” *Id.* at ¶ 84 (emphasis added). 3M’s alleged contamination of groundwater, surface water, and sediments with PFCs “materially and substantially interferes with State citizens’ free enjoyment of these natural resources, and constitutes a public nuisance.” *Id.* at ¶ 85.

2. *Model claim for public nuisance*

A public nuisance claim under Minnesota law could be adapted from public nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from public nuisance claims brought by the Rhode Island Attorney General against a number of fossil fuel companies, including Chevron, Exxon Mobil, and BP, among others. *See*

Complaint, *Bd. Cty. Comm'rs. of Boulder Cty. v. Suncor Energy, Inc.*, No. 2018-CV-30349 (June 11, 2018); Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018).

1. In Minnesota, the public is entitled by right to the protection, preservation, and enhancement of the air, water, land, and other natural resources located within the State, and it is the policy of the State to create and maintain within the State conditions under which man and nature can exist in productive harmony in order that present and future generations may enjoy clean air and water, productive land, and other natural resources with which the State has been endowed.
2. Defendants' affirmative acts, omissions, and fossil fuel activities—i.e. knowingly producing, promoting, refining, marketing, and selling a substantial amount of fossil fuels at levels sufficient to alter the climate, and misrepresenting the dangers associated with their use—have caused, created, contributed to, and/or exacerbated dangerous alterations in the climate.
3. The alterations in the climate substantially caused and contributed to by Defendants constitute a present and continuing nuisance in Plaintiff's communities. Plaintiff must mitigate the impacts and severity of the public nuisances caused and contributed to by the levels of Defendants' fossil fuel activities, including, but not limited to: increasing frequency and intensity of extreme heat days in the State; increasing frequency and intensity of extreme precipitation events in the State and associated flooding, erosion, damage to infrastructure; the spread of pests, disease, and increasing threats to public health by, among other things, increasing allergens and ozone, as well as diminishing air quality.
4. Plaintiff is specially injured by the public nuisance brought about by Defendants' actions, which altered the climate. This is due to Plaintiff's special responsibility to respond to and abate the hazards brought by the climate alteration caused by Defendants' climate-altering activities, and because Plaintiff and its property and assets are especially vulnerable to the impacts of climate change, including, specifically, but not exclusively, its:
 - transportation infrastructure, including roads, bridges, and culverts;
 - flood, stormwater, and water supply infrastructure;
 - agricultural and open space lands; and
 - lakes, rivers, streams, and associated plant and wildlife that Plaintiff holds in trust for its citizens.
5. The public nuisance created and contributed to by Defendants unreasonably endangers and injures the property, health, peace, comfort, safety, and welfare of the general public and the natural resources of the State of Minnesota, interfering with the comfort and convenience of communities state-wide, as well as with the State's *parens patriae* ability to protect, conserve, and manage the water, land, and wildlife of the state, which are by law precious and invaluable public resources.

6. The harms caused by Defendants are and will continue to be borne by Plaintiff and residents of Plaintiff's communities in the form of damage to property; impairment of public health; obstructed movement within the state; the loss of use and enjoyment of public property, the environment, and local eco-systems and infrastructure; as well as added costs to protect, repair, and remediate the harms caused by Defendants' alteration of the climate.
7. Defendants have contributed to and continue to contribute to the creation and exacerbation of the public nuisance, in that the intended and foreseeable combustion of Defendants' fossil fuels at the levels at which they were being used has produced and will continue to produce a substantial amount of GHG emissions, measured in billions of excess tons of CO₂ and other GHGs. Those excess tons have caused, contributed to, and/or exacerbated the impacts of climate change, including in Plaintiff's communities. Additionally, Defendants' fossil fuel activities and concealment and/or misrepresentation of the risk, known to Defendants, of the intended use of fossil fuels has also resulted in a substantial amount of excess GHG emissions, which caused, contributed to, and/or exacerbated the impacts of climate change.
8. Defendants intentionally, negligently and/or recklessly created the interference incurred by Plaintiff and the Plaintiff's communities caused by climate change. For decades, Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff and Plaintiff's communities—were substantially certain to result when they produced, promoted, refined, marketed and sold fossil fuels intending that they would be combusted at significant rates. Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff communities—were substantially certain to result when they concealed and affirmatively misrepresented the truth about climate change and the negative impacts of fossil fuel use to the public and their consumers.
9. Defendants' interference with public rights is unreasonable. For decades, Defendants have internalized the benefits of fossil fuel use—i.e., their profits—and externalized their costs—i.e., the impacts of climate change—onto communities such as Plaintiff's. Defendants knew or should have known the costs to Plaintiff and its communities of their fossil fuel activities, and have not compensated Plaintiff for those foreseen harms. Defendants continue to produce, promote, refine, market and sell fossil fuels at levels that cause and contribute to alteration of the climate, continue to profit from rising sales and continue to not compensate Plaintiff or its communities for the continued and added impacts that it and they suffer and will continue to suffer from as a direct and proximate result of Defendants' nuisance.
10. Defendants specifically created, contributed to, assisted in creating, and/or were a substantial contributing factor in the creation of the public nuisance by, *inter alia*:
 - a. Controlling every step of the fossil fuel product supply chain, including the extraction of raw fossil fuel products, including crude oil, coal, and natural gas

from the Earth; the refining and marketing of those fossil fuel products, and the placement of those fossil fuel products into the stream of commerce;

- b. Affirmatively and knowingly promoting the sale and use of fossil fuel products which Defendants knew to be hazardous and knew would cause or exacerbate global warming and related consequences, including, but not limited to, drought, extreme precipitation events, extreme heat events, and changing and increasingly severe weather patterns;
 - c. Affirmatively and knowingly concealing the hazards that Defendants knew would result from the normal use of their fossil fuel products by misrepresenting and casting doubt on the integrity of scientific information related to climate change;
 - d. Disseminating and funding the dissemination of information intended to mislead customers, consumers, and regulators regarding the known and foreseeable risk of climate change and its consequences, which follow from the normal use of Defendants' fossil fuel products;
 - e. Affirmatively and knowingly campaigning against the regulation of Defendants' fossil fuel products, despite knowing the hazards and climate effects associated with the normal use of those products, in order to continue profiting from the regular use of those products by externalizing those costs onto the public, the environment, and communities; and failing to warn the public about the hazards associated with the use of fossil fuel products.
11. Plaintiff and its residents have been damaged, including in their exercise of public and common rights, as a direct and proximate result of the public nuisance created by Defendants. Plaintiff has spent and will have to spend substantial sums to mitigate this interference. The ultimate nature of the harm is the destruction of real and personal property, the loss of natural resources, and actual threats to public health, rather than mere annoyance. Plaintiff's damages and losses include, but are not limited to:
- costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;
 - costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;

- costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;
 - costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
12. These damages and losses are the direct and proximate result of the public nuisance—climate alteration—that Defendants caused and contributed to.
13. Defendants’ acts and omissions as alleged herein are indivisible causes of Plaintiff State of Minnesota’s injuries and damage as alleged herein because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly commingle in the atmosphere.

E. Private Nuisance

1. Applicable law

Minnesota’s statutory private nuisance law is covered by Minn. Stat. § 561.01:

Anything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable

enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.

Minn. Stat. § 561.01 (2018).

A private nuisance requires interference with another's use of property. *See Uland v. City of Winstead*, 570 F. Supp. 2d 1114, 1120 (D. Minn. 2008). There must be some type of conduct that causes the alleged nuisance harm, and that conduct must be "wrongful." *See Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65, 70–71 (Minn. 1982) (citing *Randall v. Village of Excelsior*, 103 N.W.2d 131, 134 (1960)). This wrongful conduct varies, and may be characterized as, for example, intentional conduct, negligence, ultrahazardous activity, violation of a statute, or some other type of tortious activity. *Id.*

Minnesota's nuisance statute appears to provide a broader cause of action than common law nuisance under the Restatement (Second) of Torts, as § 561.01 does not require that the action be intentional or unreasonable. The Minnesota Supreme Court has found that Minnesota's nuisance statute "defines a nuisance in terms of the *resultant harm* rather than in terms of the kind of conduct by a defendant which causes the harm . . . Where pollutants cause the harm, such as where sewage is deposited on plaintiff's property, the wrongful conduct appears to be self-evident." *Id.* (emphasis added). The Minnesota Supreme Court has likewise declined to consider an application of the Restatement nuisance test, preferring instead to use § 561.01 and Minnesota case law. *Id.*

In addition to nuisance abatement, a successful plaintiff may recover damages sustained as a result of the activity. Minn. Stat. § 561.01. Minnesota courts have found a variety of activity to be private nuisances. *Heller v. American Range Corp.*, 234 N.W. 316 (Minn. 1931) (industrial plants transferring dust to adjacent residential property); *Brede v. Minnesota Crushed Stone Co.*,

179 N.W. 638 (Minn. 1920) (limestone quarries giving off noise, fumes, and odors); *Fagerlie v. City of Wilmar*, 435 N.W.2d 641 (Minn. App. 1989) (wastewater treatment plant odors); *Schrupp v. Hanson*, 235 N.W.2d 822 (Minn. 1975) (poultry and hog farm odors); *Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65 (Minn. 1982) (water and sewage runoff).

In *Johnson v. Paynesville Farmers Union Co-op Oil Co.*, 817 N.W.2d 693, 706 (Minn. 2012), the Minnesota Supreme Court considered the state’s approach to private nuisance in an action brought by an organic farmer against a co-op alleged to have caused pesticides to drift onto the organic farm. Citing Minn. Stat. § 561.01, the supreme court found that an action that seeks an injunction or to recover damages can be brought under the statute by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance. The plaintiff must show that the defendant’s conduct caused an interference with the use or enjoyment of the plaintiff’s property. *Id.* As an equitable cause of action, the court stated that § 561.01 “implicitly recognized a need to balance the social utility of defendants’ actions with the harm to the plaintiff.” *Highview North Apartments v. County of Ramsey*, 323 N.W.2d 65, 71 (Minn. 1982).

In deciding the issue of nuisance, the *Johnson* court cited *Highview North Apartments v. County of Ramsey*, in which the Minnesota Supreme Court held that “disruption and inconvenience” caused by a nuisance are actionable damages. *Johnson v. Paynesville Farmers Union* at 713 (citing *Highview North Apts.*, 323 N.W.2d at 73). In *Highview* a plaintiff sued multiple municipalities over harm that consisted of groundwater seeping into two apartment building basements, a condition that the court found to be “ongoing, injurious to the premises, substantial, and likely to worsen.” *Highview North Apts.*, 323 N.W.2d at 71. Applying the *Highview* ruling, the *Johnson* court remanded the plaintiffs’ allegations that they suffered from

“cotton mouth, swollen throat and headaches” because they were exposed to pesticide drift. *Id.* The court held that the inconvenience and adverse health effects, if proven, would affect the plaintiffs’ ability to use and enjoy their land and thereby constitute a nuisance, and so the issue was remanded for further fact-finding, including an assessment of damages. *Id.*

2. *Model claim for private nuisance*

This model private nuisance claim has been adapted from common law and statutory nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims brought against 3M by the Minnesota Attorney General. Although these claims may be brought under either a common law or statutory nuisance cause of action, Minnesota’s statutory nuisance provision appears to be broader and more protective than standard common law nuisance. As such, both common law and statutory nuisance claims are addressed in these model claims:

1. Minn. Stat. § 561.01 provides that: “[a]nything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.”
2. The use, enjoyment, and existence of the State’s natural resources is a right common to the people of the State.
3. Plaintiff owns, leases, occupies, manages, controls, and/or is otherwise in lawful possession of extensive real property within its jurisdiction.
4. As a direct and proximate result of Defendants’ conduct, as set forth above, Plaintiff’s property rights and interests, including its rights to the free and unthreatened use and enjoyment of that property as well as the free and unthreatened use and enjoyment of that property by communities within the State of Minnesota, have been and will be unreasonably interfered with and otherwise injuriously affected.
5. Defendants, and each of them, by causing and/or contributing to climate change through their acts and omissions described above, have created conditions on and/or set in motion forces that cause interference with and injuriously affected Plaintiff’s real

property, and permitted those conditions and forces to persist, which constitute a nuisance.

6. Plaintiff's property has been and/or will be substantially harmed by the effects of climate change. The conditions and forces Defendants created substantially and unreasonably interfere with, injuriously affect, and will substantially interfere with, and injuriously affect, Plaintiff's use and quiet enjoyment of rights to and interests in its real property, including by increasing the frequency and intensity of flooding and erosion, storms, extreme heat events, and the spread of invasive species.
7. The harms to and interference with Plaintiff's property have become and/or will continue to be regular and severe.
8. Plaintiff has not consented to Defendants' conduct in creating the condition that has interfered with and injuriously affected Plaintiff's property.
9. All of its harms will actually be borne by Plaintiff as loss of use and enjoyment of public property and infrastructure. The burden on Plaintiff to mitigate, repair, remediate and prevent further grave interferences with and injury to its property is significant and severe.
10. Defendants' conduct was and is negligent, reckless, and intentional because Defendants knew or should have known their actions were substantially certain to interfere with and injure Plaintiff's property rights and interests. Defendants have known for decades, and/or reasonably should have known, that their conduct was substantially certain to alter or contribute to alterations in the climate and is exacerbating climate change.
11. Defendants' conduct was and is unreasonable because they have created and are creating the interference with Plaintiff's property rights and injury to Plaintiff's property rights without compensating Plaintiff for the harm they knowingly, recklessly, or negligently created or will create.
12. Defendants' conduct is continuing and has produced and will produce ongoing injurious effects.
13. Defendants' actions are a direct and proximate cause of Plaintiff's damages and losses.
14. Plaintiff's real property has been damaged and its use and enjoyment of that property has been threatened by the nuisance created by Defendants; Plaintiff has spent and will have to spend substantial dollars to mitigate this interference. Plaintiff's damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is

expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;

- costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;
 - costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;
 - costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
15. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.
16. Wherefore, Plaintiff prays for an award of damages and restitution of its costs to abate the nuisance.

F. Trespass

1. Applicable law

In Minnesota, “[t]respass encompasses any unlawful interference with one’s person, property, or rights, and requires only two essential elements: a rightful possession in the plaintiff and unlawful entry upon such possession by the defendant.” *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003), *review denied* (Minn. Aug. 5, 2003). Minnesota courts have described trespass as “an invasion of the plaintiff’s right to exercise exclusive possession of the land” while “nuisance is an interference with the plaintiff’s use and enjoyment of the land.” *Fagerlie v. City of Willmar*, 435 N.W.2d 641, 644 n.2 (Minn. Ct App. 1989); *see also Johnson v. Paynesville Farmers Union Coop Oil Co.*, 817 N.W.2d 693, 701 (Minn. 2010) (stating that unlawful entry “must be done by means of some physical, tangible agency in order to constitute a trespass.”). Actual damages are not an element of the tort of trespass. *Johnson v. Paynesville Farmers Union* at 701 (citing *Greenwood v. Evergreen Mines Co.*, 19 N.W.2d 726, 734–35 (Minn. 1945)). In the absence of actual damages, the trespasser is liable for nominal damages. *Id.* (citing *Sime v. Jensen*, 7 N.W.2d 325, 328 (Minn. 1942)). Because trespass is an intentional tort, reasonableness on the part of the defendant is not a defense to trespass liability. *Id.* (citing *H. Christiansen & Sons, Inc. v. City of Duluth*, 31 N.W.2d 270, 273–74 (Minn. 1948)).

In *Johnson v. Paynesville Farmers Union Co-op. Oil Co.*, the Minnesota Supreme Court considered the question of whether particulate matter, such as pesticide drift can result in a trespass. *Id.* (noting that the “particulate matter” has been defined as “material suspended in the air in the form of minute solid particles or liquid droplets, especially when considered as an atmospheric pollutant.”). The Supreme Court found that Minnesota case law is consistent with a traditional formulation of trespass that has recognized trespasses when a person or a tangible

object enters the plaintiff's land and interferes with rights of exclusive possession. *Id.* According to the court, "disruption to the landowner's exclusive possessory interest is not the same when the invasion is committed by an intangible agency, such as the particulate matter [pesticides] at issue here." *Id.* at 702. "Such invasions," the court continued, "may interfere with the landowner's use and enjoyment of her land, but those invasions do not require that the landowner share possession of her land in the way that invasions by physical objects do." *Id.*; *see also Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003) (noting that Minnesota "has not recognized trespass by particulate matter" and rejecting a trespass claim over offensive odors). The court declined to abandon traditional distinctions between trespass and nuisance law, and noted that the public policy concerns that compelled other jurisdictions to blur the lines between trespass and nuisance (e.g. statutes of limitations) are not present in Minnesota. *Id.* at 704–05. "In summary, trespass claims address tangible invasions of the right to exclusive possession of land, and nuisance claims address invasions of the right to use and enjoyment of land." *Id.* at 705.

The Minnesota Attorney General lawsuit against 3M claimed trespass damages against the state's public trust resources. Complaint, *State of Minnesota v. 3M Company*, No. 27-CV-10-28862, 2010 WL 5395085 (D. Minn. 2010). Much of the state's suit was focused on direct groundwater and surface water pollution, issues which are unlikely to be present when dealing with oil refineries, emissions, and climate change damages. However, the effects of climate change can impact surface and groundwater in other ways that are not as direct, such as harm to aquatic organisms and plants through warmer waters, increased flooding and erosion from more severe storms and precipitation, drought, algae blooms, etc. Thus, a trespass claim against fossil fuel companies for climate change damages would be based on indirect invasions of property.

2. *Model trespass claim*

This model trespass claim has been adapted from claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims brought against 3M by the Minnesota Attorney General.

1. Plaintiff is the owner, in lawful possession, of real property.
2. Defendants have intentionally engaged in conduct that has caused and contributed to climate change which, in the usual course of events, has caused and will cause flood waters, hail, rain, snow, wind, pests, and invasive species to enter Plaintiff's property.
3. Defendants knew, with substantial certainty, that their fossil fuel activities would cause and contribute to climate change, and thus cause these invasions of Plaintiff's property.
4. This trespass is recurring, and will continue into the future.
5. Plaintiff did not give Defendants permission for these invasions of Plaintiff's property.
6. Defendants' trespasses are the direct and proximate cause of damages and losses to the Plaintiff.
7. Defendants' actions are and have been a cause of the injuries and damages to Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' trespasses, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by the trespasses. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;

- costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiffs;
 - costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;
 - loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public’s ability to use Plaintiff’s properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

G. Strict Liability for Abnormally Dangerous Activity

1. Applicable law

The Second Restatement of Torts on Strict Liability for Abnormally Dangerous Activities is not controlling law in Minnesota, though Minnesota courts have discussed §§ 519–520. Restatement (Second) of Torts § 519–520 (1977); *see, e.g., Mahowald v. Minnesota Gas Co.*, 344 N.W.2d 856, 860–61 (Minn. 1984); *Cairly v. City of St. Paul*, 268 N.W.2d 908 (Minn. 1978); *Ferguson v. Northern States Power Co.*, 239 N.W.2d 190 (Minn. 1976); *Quigley v. Village of Hibbing*, 129 N.W.2d 765 (Minn. 1964). For example, in *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993), the Minnesota Court of Appeals noted that “[a]lthough this Restatement section is not controlling law in Minnesota, because the supreme court has recognized it in other cases, *see, e.g., Mahowald v. Minnesota Gas Co.* . . . we believe the trial court’s use of it was appropriate.” *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993).

However, the Minnesota Supreme Court has been careful to note that while “we have recognized the applicability of [the Restatement §§ 519 and 520] in other contexts, that is all we did—recognize the existence of those two sections. In none of these cases did we apply those sections, nor has our attention been directed to any other case where we did apply them.” *Mahowald*, 344 N.W.2d at 861. The Minnesota Supreme Court has explicitly rejected applying Restatement §§ 519–520 in strict liability cases for accidents arising out of escaping gas from lines maintained in public streets. *Id.*

Nevertheless, applying strict liability without proof of negligence is consistent with a long line of Minnesota cases involving abnormally dangerous activities. *See, e.g., Sachs v. Chiat*, 162 N.W.2d 243 (1968) (pile driving abnormally dangerous activity that requires liability without fault); *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924) (waterworks operated by municipal corporation requires liability without fault); *Wiltse v. City of Red Wing*, 109 N.W. 114 (Minn. 1906) (collapse of reservoir destroying plaintiff’s house requires liability without fault); *Berger v. Minneapolis Gaslight Co.*, 62 N.W. 336 (Minn. 1895) (petroleum that escaped from gas company’s tanks, damaging wells and cellars, requires liability without fault); *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (Minn. 1871) (tunnel collapse under property lessee’s land requires liability without negligence in its construction or maintenance).

The Minnesota Supreme Court was one of the first American jurisdictions to adopt the famous English tort law ruling on strict liability, *Rylands v. Fletcher*. *See, e.g., Minnesota Mining & Mfg. Co. v. Travelers Indem. Co.*, 457 N.W.2d 175, 183 (Minn. 1990). In *Rylands*, defendant owners of a mill built a reservoir to supply their mill with water. *Rylands v. Fletcher*, LR 3 H.L. 330 (1868). The plaintiff leased coal mines on neighboring land between the reservoir and the mill. Water from the reservoir burst into old, unused mine shafts, and flooded the mine.

When the defendants appealed, arguing that they did not know that the flooded shafts were connected to the mine, the House of Lords held that the plaintiff did not need to prove negligence, because “the person who, for his own purposes, brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril.” *Id.* at 339.

On the relationship of obligation between neighbors, the *Ryland* court found that:

[I]t seems but reasonable and just that the neighbour who has brought something on his own property (which was not naturally there), harmless to others so long as it is confined to his own property, but which he knows will be mischievous if it gets on his neighbour's, should be obliged to make good the damage which ensues if he does not succeed in confining it to his own property.

Id. at 340.

In *Kennedy Building Associates v. Viacom, Inc.*, the U.S. Court of Appeals for the Eighth Circuit found that Minnesota has “not limited the *Rylands* cause of action to cases in which the plaintiff and defendant were neighboring landowners,” citing *Hannem v. Pence*, a case in which a plaintiff was injured by falling ice while walking past a defendant's building. *Kennedy Building Associates v. Viacom, Inc.*, 375 F.3d 731, 740 (8th Cir. 2004) (citing *Hannem v. Pence*, 41 N.W. 657 (Minn. 1889)). The Minnesota Supreme Court has also applied the *Rylands* rule to defendants that do not own the land on which they created a hazard. *See Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (1871). Under Minnesota's strict liability rule, it makes no difference that a defendant is no longer in possession of control of the instrumentality that caused a hazard. *Id.*

Minnesota has also applied strict liability for abnormally dangerous activity to enterprises that ultimately benefit the community. Although these activities may be useful to society, the court has found that as times change and large-scale industrial activity increases, the responsibility for damages from useful operations should not fall on harmed individuals. *Bridgeman-Russell Co. v. City of Duluth* involved a waterworks operated by a municipal

corporation that discharged water, damaging the plaintiff's property. *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924). The Minnesota Supreme Court imposed strict liability, without requiring proof of negligence, stating that:

Congestion of population in large cities is on the increase. This calls for water systems on a vast scale either by the cities themselves or by strong corporations. Water in immense quantities must be accumulated and held where none of it existed before. If a break occurs in the reservoir itself, or in the principal mains, the flood may utterly ruin an individual financially. In such a case, even though negligence be absent, natural justice would seem to demand that the enterprise, or what really is the same thing, the whole community benefited by the enterprise, should stand the loss rather than the individual. It is too heavy a burden upon one.

Id. at 972.

In light of this Minnesota case law expressing a fairly expansive view of strict liability, even in the case of activities that have social value, a claim by Minnesota against fossil fuel companies for climate change damages would appear to fit squarely within a claim for strict liability for abnormally dangerous activities.

2. *Model claim for strict liability for abnormally dangerous activity*

This model claim for strict liability for abnormally dangerous activity was adopted from claims brought by the Rhode Island Attorney General against a number of fossil fuel companies including Chevron, Exxon Mobil, and BP. *See* Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018).

1. There is overwhelming scientific evidence linking fossil fuel combustion to climate change.
2. Defendants knew or should have known of the climate effects inherently caused by the normal use and operation of their fossil fuel products, including the likelihood and likely severity of global and local climate change and its consequences, and including injuries to Plaintiff, its citizens, and its natural resources, as described herein.
3. Defendants' activities in extracting, refining, formulating, designing, packaging, distributing, testing, constructing, fabricating, analyzing, recommending, merchandizing, advertising, promoting, and selling fossil fuel products, intended by

Defendants to be burned for energy, refined into petrochemicals, and reined and/or incorporated into petrochemical products including but not limited to fuels and plastics brought substantial amounts of fossil fuels onto Defendants' properties which were not naturally there.

4. Defendants knew that substantial amounts of fossil fuels not naturally on their properties, when released, would cause significant damages to, *inter alia*, Plaintiff, Plaintiff's property, and Plaintiff's citizens due to the effects of climate change.
5. Defendants' activities constituted an abnormally dangerous activity and/or created abnormally dangerous conditions.
6. As a direct and proximate result of Defendants' actions and omissions, Plaintiff has sustained and will sustain substantial expenses and damages, including damage to publicly owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.
7. Defendants are strictly liable for the damages resulting as a natural consequence from the release of fossil fuels and GHGs from their properties, including response costs incurred by Plaintiff to respond to the effect of these releases on Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' abnormally dangerous activities, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by these activities. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;
 - costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiff;

- costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;
 - loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public's ability to use Plaintiff's properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

H. Other Claims

Minnesota could also consider claims under the Minnesota Environmental Rights Act, Minn. Stat. ch. 116B ("MERA"), and the Minnesota Environmental Response, Compensation, and Liability Act, Minn. Stat. ch. 115B ("MERLA"). In particular, the Minnesota Attorney General lawsuit against 3M discussed earlier contained a MERLA claim. The applicability of these claims to a potential lawsuit against fossil fuel companies for climate change damages is not discussed in this Memorandum but could be subject to further investigation.

I. Applicable Statutes of Limitations for All Claims

The statute of limitations for violations of the consumer protection laws is six years. Minn. Stat. § 541.05(2). Fraud allegations are also subject to a six-year statute of limitations under Minn. Stat. § 541.05(6), which begins upon "discovery by the aggrieved party of the facts constituting the fraud." The statute of limitations may be suspended for fraudulent concealment if the facts which establish the cause of action are fraudulently concealed. *Hydra-Mac, Inc. v. Onan Corp.*, 450 N.W.2d 913, 918–19 (Minn. 1990). Antitrust claims in Minnesota are subject to a four-year statute of limitations, although "a cause of action for a continuing violation is deemed to arise at any time during the period of the violation." Minn. Stat. § 325D.64, subd. 1.

For the product liability claims, a four-year statute of limitations applies to strict products liability claims, while a six-year statute of limitations applies to negligence claims. *See* Minn. Stat. § 541.05, subds. 1–2. However, because Minnesota courts have merged negligence and strict products liability theories into one single recovery for design defect and failure to warn claims, it is arguable that the six-year negligence statute of limitations would apply. For example, in *Klempka v. G.D. Searle & Co.* the U.S. Court of Appeals for the Eighth Circuit applied Minnesota law to hold that the statute of limitations was six years for a products liability claim. 63 F.2d 168, 170 (8th Cir. 1992).

For the common law tort claims of strict liability for abnormally dangerous activities, public nuisance, and private nuisance, and trespass, it is likely that a six-year statute of limitations would apply as such claims fall under the general six-year statute of limitations found in Minn. Stat. § 541.05, subd. 1(2). *See e.g., Citizens for a Safe Grant v. Lone Oak Sportsmen’s Club, Inc.*, 624 N.W.2d 796 (Minn. Ct. App. 2001) (six-year limitations period applied to trespass and nuisance actions brought by neighborhood organization against gun club operating outdoor shooting ranges).

Two elements must be satisfied before a cause of action accrues for any of the common law claims: “(1) a cognizable physical manifestation of the disease or injury, and (2) evidence of a causal connection between the injury or disease and the defendant’s product, act, or omission.” *Narum v. Eli Lilly and Co.*, 914 F. Supp 317, 319 (D. Minn. 1996). Under Minnesota law, “[a] plaintiff who is aware of both her injury and the likely cause of her injury is not permitted to circumvent the statute of limitations by waiting for a more serious injury to develop.” *Klempka v. G.D. Searle & Co.*, 963 F.2d 168, 170 (8th Cir. 1992).

Fossil fuel company defendants may allege that Minnesota's claims are time barred because the first cognizable physical manifestation of climate change damages occurred longer than six years ago. However, Minnesota also recognizes the continuing violation doctrine. *Brotherhood of Ry. and S.S. Clerks, Freight Handlers & Station Employees v. State by Balfour*, 229 N.W.2d 3, 193 (Minn. 1975). That doctrine holds that when a violation is ongoing, the statute of limitations does not run from the initial wrongful action, but rather begins to run only when the wrong ceases. *N. States Power Co. v. Franklin*, 122 N.W.2d 26, 30-31 (Minn. 1963). For example, in *Hempel v. Creek House Train*, the Minnesota Supreme Court found that the defendant's continuing negligence tolled the limitations period. *Hempel v. Creek House Tr.*, 743 N.W.2d 305, 312 (Minn. 2007).

While there have been a number of cases where courts applying Minnesota law have found that the continuing violation doctrine did not apply based on the facts of the case, these were not categorical exclusions of the doctrine in Minnesota. *See e.g., Union Pac. R.R. Co. v. Reilly Indus., Inc.*, 4 F. Supp. 2d 860, 867 (D. Minn. 1998) (holding that the continuing wrong doctrine did not apply because there was no "leakage from storage tanks or basins," and that any "leakage" ceased before the relevant limitations period expired). Because the fossil fuel companies' extraction, production, marketing, and sale of fossil fuel products has continued, the continuing violation doctrine would apply, and the claims would not be barred by the statute of limitations.

Re: Memo is complete

From: Alexandra Klass <aklass@umn.edu>
To: Judith Enck <judith@climateintegrity.org>
Cc: Michael Noble <Noble@fresh-energy.org>
Sent: January 31, 2019 1:52:45 PM CST

I did a few minutes ago. Did you get it? I also sent it to you Tuesday afternoon if you want to search your inbox.

Alex

Alexandra B. Klass
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Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Thu, Jan 31, 2019 at 1:51 PM Judith Enck <judith@climateintegrity.org> wrote:
Yes. Can someone please email me the draft memo today. ? Tx

Sent from my iPhone

On Jan 31, 2019, at 2:41 PM, Alexandra Klass <aklass@umn.edu> wrote:

Do you want me to send around a call in number or do one of you you have one you like to use? (I can't recall what we did last time).

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
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229-19th Avenue South
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On Thu, Jan 31, 2019 at 1:22 PM Judith Enck <judith@climateintegrity.org> wrote:
5:45 tomorrow good. My colleague Alyssa Johl will join us so let's do a call in number.
Thsnks

Sent from my iPhone

On Jan 31, 2019, at 2:13 PM, Michael Noble <Noble@fresh-energy.org> wrote:

I will call both your cell phones at 4:45 central and 5:45 Eastern on Friday.

Alex: [REDACTED]

Judith: 518 605 1770

Michael Noble

Executive Director

Fresh Energy

Phone 651 726 7563

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-

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From: Judith Enck <judith@climateintegrity.org>
Sent: Thursday, January 31, 2019 1:03 PM
To: Michael Noble <Noble@fresh-energy.org>
Cc: Alexandra Klass <aklass@umn.edu>
Subject: Re: Memo is complete

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Sent from my iPhone

On Jan 31, 2019, at 10:10 AM, Michael Noble <Noble@fresh-energy.org> wrote:

Confirmed here.

Michael Noble

Executive Director

Fresh Energy

Direct: 651 726-7563

Mobile: 612 963-1268

Web: www.fresh-energy.org

Twitter: @NobleIdeas

From: Alexandra Klass <aklass@umn.edu>
Sent: Thursday, January 31, 2019 8:55 AM
To: Judith Eck
Cc: Michael Noble
Subject: Re: Memo is complete

Am I right that everyone is free at 4:45 CT/5:45 ET? If so, that's fine with me. If we have a call, it would be nice to have the students participate too. Please let me know if that's OK. Will Alyssa join us?

Alex

Alexandra B. Klass

Distinguished McKnight University Professor
University of Minnesota Law School

229-19th Avenue South

Minneapolis, MN 55455

aklass@umn.edu

Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Wed, Jan 30, 2019 at 7:32 AM Judith Enck
<judith@climateintegrity.org> wrote:

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From: Judith Enck <judith@climateintegrity.org>
Sent: Tuesday, January 29, 2019 9:24 PM
To: Alexandra Klass
Cc: Michael Noble
Subject: Re: Memo is complete

Friday is heavily booked. I could tsfk Friday until 6:30pm ny time if that helps. Tx

Sent from my iPhone

On Jan 29, 2019, at 7:01 PM, Alexandra Klass <aklass@umn.edu> wrote:

What else works for both of you
Friday?

Alex

Alexandra B. Klass

Distinguished McKnight University
Professor

University of Minnesota Law School

aklass@umn.edu

612-625-0155

Bio: <https://www.law.umn.edu/faculty/profiles/klassa.html>

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Executive Director

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Web: [Www.fresh-energy.org](http://www.fresh-energy.org)

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From: Alexandra Klass <aklass@umn.edu>
Sent: Tuesday, January 29, 2019 5:44 PM
To: Judith Eck
Cc: Michael Noble
Subject: Re: Memo is complete

Here's the memo.

Alex

Alexandra B. Klass

Distinguished McKnight
University Professor
University of Minnesota
Law School

229-19th Avenue South

Minneapolis, MN 55455

aklass@umn.edu

Bio: [https://www.law.umn.edu/profiles/alexandra-
klass](https://www.law.umn.edu/profiles/alexandra-
klass)

On Tue, Jan 29, 2019 at
5:16 PM Judith Enck
<judith@climateintegrity.org> wrote:

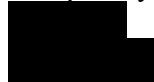
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Sent from my iPhone

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Noble <[Noble@fresh-
energy.org](mailto:Noble@fresh-energy.org)> wrote:

Should we
put it in an
envelope or
email it?

Alex is
completely



I want our
face to face
meeting
between
March 5-
25.

Michael
Noble

Executive
Director

Fresh
Energy

Direct: 651
726-7563

Mobile:
612 963-
1268

Web:
[Www.fresh
-energy.org](http://www.fresh-energy.org)

Twitter:
[@NobleIde
as](https://twitter.com/NobleIdeas)

From:
Judith
Enck
<[judith@cl
imateintegr
ity.org](mailto:judith@climateintegrity.org)>

Sent:
Wednesday
, January 2,
2019 4:09
PM

To: Sarah
Clark

Cc:
Michael
Noble;
Jillian
Theuer

Subject:
Re:
Talking
tomorrow -
4PM NY
time

great i
will call in
tomorrow,
jan 3 at
4pm, new
york time. i
have the
number
cheers,
Judith
Enck

On Wed,
Jan 2, 2019
at 4:54 PM
Sarah
Clark
<[clark@fre-
sh-
energy.org](mailto:clark@fre-sh-energy.org)>
> wrote:

Hi
Judith -

It looks
like 4PM
NY time
(3PM
CT)
works
for
everyon
e.
Looping
in Jillian
Theuer
who will
send the
official
calendar
invite
with a
call in
number.

Thanks!

Sarah

Sarah
Clark

Chief
Progra
m
Advance
ment
Officer

Fresh
Energy

Phone 6
51 726
7564

[www.fresh-
energy.o
rg](http://www.fresh-energy.org) |
[twitter.c
om/fres
henergy](https://twitter.com/freshenergy)

Re: Memo is complete

From: Alexandra Klass <aklass@umn.edu>
To: Michael Noble <Noble@fresh-energy.org>
Sent: January 31, 2019 2:57:46 PM CST

Michael -- did you send a call in number around last time? Do you want to do the same this time?

I have one if you don't.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Thu, Jan 31, 2019 at 1:13 PM Michael Noble <Noble@fresh-energy.org> wrote:

I will call both your cell phones at 4:45 central and 5:45 Eastern on Friday.

Alex: [REDACTED]

Judith: 518 605 1770

Michael Noble

Executive Director

Fresh Energy

Phone 651 726 7563

www.fresh-energy.org | twitter.com/nobleideas

-

Practical policy. Brighter future. [Support our work today.](#)

From: Judith Enck <judith@climateintegrity.org>
Sent: Thursday, January 31, 2019 1:03 PM
To: Michael Noble <Noble@fresh-energy.org>
Cc: Alexandra Klass <aklass@umn.edu>
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I want our face to face meeting
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Michael Noble

Executive Director

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Mobile: 612 963-1268

Web: www.fresh-energy.org

Twitter: @NobleIdeas

From: Judith Enck
<judith@climateintegrity.org>
Sent: Wednesday, January 2, 2019
4:09 PM
To: Sarah Clark
Cc: Michael Noble; Jillian Theuer
Subject: Re: Talking tomorrow - 4PM
NY time

great i will call in tomorrow, jan 3 at
4pm, new york time. i have the
number cheers, Judith Enck

On Wed, Jan 2, 2019 at 4:54 PM Sarah
Clark <clark@fresh-energy.org>
wrote:

Hi Judith –

It looks like 4PM NY time (3PM
CT) works for everyone. Looping
in Jillian Theuer who will send the
official calendar invite with a call
in number.

Thanks!

Sarah

[Sarah Clark](#)

Chief Program Advancement
Officer

Fresh Energy

Phone 651 726 7564

www.fresh-energy.org |
twitter.com/freshenergy

Re: Phone Call - Michael Noble, Sarah Clark, Judith Eck, Alex Klass

From: Alexandra Klass <aklass@umn.edu>
To: Judith Enck <judith@climateintegrity.org>
Cc: Michael Noble <Noble@fresh-energy.org>, Alyssa Johl <alyssa@climateintegrity.org>, Sarah Clark <clark@fresh-energy.org>
Sent: January 31, 2019 6:00:48 PM CST

Would it be better to start at 5:30? Works for me; not sure about Michael.

Alex

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Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
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Sent from my iPhone

On Jan 2, 2019, at 5:06 PM, Michael Noble <Noble@fresh-energy.org> wrote:

Dial-in: [REDACTED]

Access: [REDACTED]

<mime-attachment.ics>

Re: Phone Call - Michael Noble, Sarah Clark, Judith Eck, Alex Klass

From: Alyssa Johl <alyssa@climateintegrity.org>
To: Judith Enck <judith@climateintegrity.org>
Cc: Alexandra Klass <aklass@umn.edu>, Michael Noble <Noble@fresh-energy.org>, Sarah Clark <clark@fresh-energy.org>
Sent: February 1, 2019 6:23:00 AM CST
Received: February 1, 2019 6:23:03 AM CST

I'm available at 5:30 or 5:45 pm ET. Thanks.

On Jan 31, 2019, at 9:36 PM, Judith Enck <judith@climateintegrity.org> wrote:

That works for me.

Sent from my iPhone

On Jan 31, 2019, at 7:00 PM, Alexandra Klass <aklass@umn.edu> wrote:

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Dial-in: [REDACTED]

Access: [REDACTED]

<mime-attachment.ics>

shorter memo

From: Alexandra Klass <aklass@umn.edu>
To: Judith Enck <judith@climateintegrity.org>, Alyssa Johl <alyssa@climateintegrity.org>
Sent: February 1, 2019 4:35:18 PM CST
Attachments: Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019.pdf

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

1. Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019.pdf

Type: application/pdf
Size: 364 KB (373,489 bytes)

UNIVERSITY OF MINNESOTA

Twin Cities Campus

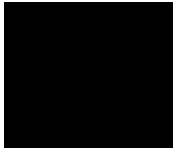
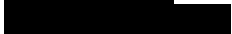
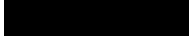
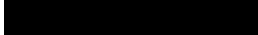
The Law School
Walter F. Mondale Hall

Room 285
229-19th Avenue South
Minneapolis, MN 55455
612-625-1000
Fax: 612-625-2011
<http://www.law.umn.edu/>

MEMORANDUM

TO: Keith Ellison
Minnesota Attorney General

FROM: Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School

 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Minnesota Law Class of 2019

DATE: January 31, 2019

RE: Potential Lawsuit against Fossil Fuel Companies for Minnesota Climate Change Damages

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INTRODUCTION

This memorandum sets forth possible claims for damages by the State of Minnesota against major oil, gas, and coal companies for their contribution to climate change-related damages in Minnesota. Such a lawsuit would be likely be filed in Minnesota District Court and would be similar to pending lawsuits that states, counties, and cities in other parts country have filed against the fossil fuel companies for damages. The remaining sections of this Memorandum discuss the status of the climate change damages lawsuits filed to date in other states and the potential claims that could be brought in a Minnesota lawsuit. These include statutory consumer protection and antitrust claims, strict liability design defect and strict liability failure to warn claims, and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

Part I surveys the climate change lawsuits in other states and the Attorneys General who have supported them. Part II evaluates Minnesota law governing consumer protection claims; product liability claims of defective design and failure to warn; and common law tort claims of

public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

The defendants in the lawsuit could include BP, Chevron, ConocoPhillips, Exxon Mobil, Shell, and other oil, gas, and coal companies. These companies extracted, produced, designed, and sold fossil fuel products that emitted massive tons of CO₂ into the atmosphere upon their use. For example, 90 producers of oil, natural gas, coal, and cement are responsible for 63% of cumulative industrial CO₂ and methane emissions worldwide from 1751-2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (NOV. 22, 2013). Just 28 companies are responsible for 25% of all emissions since 1965. *Id.*¹ As CO₂ is a relatively stable compound, most of these molecules will remain in the atmosphere for centuries. The increase in CO₂ emissions resulting from fossil fuel use has contributed to and accelerated the greenhouse effect, causing climate change damages ranging from drought, flooding, change in weather patterns, loss of species biodiversity, sea level rise, and increases in invasive species, with average annual temperatures over the contiguous United States already increasing by 1.8°F since 1895.

The nature of the damages Minnesota could seek to recover in a lawsuit are set forth in detail in the accompanying Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy. These damages are costs the state has already incurred or will incur as a result of climate change caused by fossil fuel companies and include:

- Costs associated with flooding, including costs of damage to state property and costs to mitigate and remediate the flooding related impacts to property and public health;

¹ In the Santa Clara County lawsuit, described in more detail in Part I.A., the plaintiffs sued approximately 40 fossil fuel companies, which the plaintiffs alleged were responsible for 227.6 gigatons of CO₂ emissions between 1965 and 2015, representing 20.3% of total emissions of CO₂ during that period.

- Costs associated with damages to tourism and outdoor recreation, including mitigating climate-related stress to plant and animal species and ecological systems in the state;
- Costs associated with damages to agricultural yields, management and mitigation of crop diseases and crop pests, and costs of adopting to less fertile soils;
- Costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure, increased asthma attacks, and exposure to vector-borne disease as well as mitigation measures and public education programs to reduce the occurrence of these impacts;
- Costs associated with responding to, managing, and repairing damages from climate change to Minnesota forest lands, including impacts on state-run hunting and fishing industries;
- Costs of analyzing and evaluating the impacts of climate change on infrastructure, including transportation, water supply, wastewater treatment, and the power system and the costs of mitigating, adapting to, and remediating those impacts;
- Costs of responding to, managing, and repairing damage to Minnesota fisheries from climate change, including extinction of cool and cold-water fish species and the impacts of the spread of aquatic invasive species; and
- Costs associated with the threats to indigenous communities from disruptions to their livelihoods, health, and cultural identities.

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides a brief history and current status of the recent climate change lawsuits brought by states and local governments against fossil fuel companies seeking damages for climate-change related harms. Other related lawsuits include suits against Exxon Mobil for investor fraud brought by the Attorneys General of New York and Massachusetts, countersuits by Exxon Mobil against those states filed in Texas courts, and public trust and constitutional claims for climate change harm brought by the group “Our Children’s Trust” against the federal government, states, and fossil fuel companies to compel limits on greenhouse gas (“GHG”) emissions. This memorandum will focus solely on the lawsuits by governmental entities seeking damages for climate-change related harms and

will not discuss the other lawsuits noted above. This section will also discuss the positions of Attorneys General around the country in support of or in opposition to the lawsuits for climate change damages.

A. State Law Damages Suits for Climate Change Related Harms

In 2017 and 2018, several government entities across the country (e.g., cities, counties and states) brought lawsuits seeking damages against major fossil fuel companies for climate change-related harm caused by the extraction, promotion, and sale of fossil fuels. The complaints assert state statutory and common law causes of action including public nuisance, private nuisance, trespass, products liability, and consumer protection. A common argument among each plaintiff is that the fossil fuel companies knew or should have known about the hazards associated with the extraction, promotion, and sale of fossil fuels, but the fossil fuel companies obscured the hazards from the public and regulators. A common argument among defendants is that federal court is the proper venue, and that the Clean Air Act displaces the state law claims and thus the lawsuits should be dismissed. All the lawsuits are described in detail at the Sabin Center for Climate Change Law's U.S. Climate Change Litigation Database, available at <http://climatecasechart.com/case-category/common-law-claims/>. For each case, the database has a summary of the case, its current status, and links to all pleadings filed in the lawsuit.

These lawsuits are the second round of lawsuits by governmental entities against fossil fuel companies for climate change-related harm. The first major climate change lawsuits, filed in the early 2000s, sought relief in federal court under federal common law nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. In *Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("AEP"), the U.S. Supreme Court held that the federal Clean Air Act displaced federal common law claims against

defendants for GHG emissions. *See also Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849 (9th Cir. 2012), *cert. denied*, 569 U.S. 1000 (2013). These rulings serve as a backdrop for the recent wave of litigation using state law to hold fossil fuel companies accountable for climate change related harms.

In *AEP*, several states and private land trusts brought federal public nuisance claims against the five largest GHG emitting facilities in the United States. *AEP*, 564 U.S. at 418. Plaintiffs sought an injunction against each defendant “to cap its carbon dioxide emissions and then reduce them by a specified percentage each year for at least a decade.” *Id.* at 419. The Court determined that the Clean Air Act displaced the plaintiffs’ claims because the statute directly authorized the U.S. EPA Administrator to regulate the emission of pollutants from stationary sources. *Id.* at 424 (citing 42 U.S.C. § 7411).

In *Kivalina*, an Alaskan village brought a public nuisance action against several fossil fuel companies and energy producers for sea level rise and erosion due to climate change caused by defendants’ GHG emissions. *Kivalina*, 696 F.3d at 854. In contrast to *AEP*, the plaintiffs in *Kivalina* sought damages rather than an injunction. *Id.* at 857. Relying on *AEP*, the U.S. Court of Appeals for the Ninth Circuit reasoned that the Clean Air Act displaces federal common law claims for harms caused by GHG emissions regardless of the relief sought. *Id.* In response to *AEP* and *Kivalina*, the more recent litigation against fossil fuel companies to recover for climate change damages discussed below has attempted to avoid Clean Air Act displacement by bringing state law claims in state courts, and by focusing on the extraction, promotion, and sale of fossils fuels rather than emissions of GHGs.

1. The California Cases: San Mateo v. Chevron, and California v. BP

Most damages suits utilizing state law claims against fossil fuel companies for climate change harms are in their infancy. In these cases, government plaintiffs seek relief in state court and the defendants attempt to remove the action to federal court. Two cases brought in California state court—*County of San Mateo v. Chevron*, and *California v. BP*—highlight two emerging schools of thought on whether state or federal court is the appropriate venue. The plaintiffs in each case brought similar claims against numerous fossil fuel companies. However, in *County of San Mateo v. Chevron*, Judge Chhabria remanded the case to state court while in *California v. BP*, Judge Alsup denied the request for remand and dismissed the plaintiffs’ claims. Both cases are on appeal to the Ninth Circuit. Notably, both judges sit on the U.S. District for the Northern District of California. In each case, outside counsel for the local governments is Sher Edling LLP in San Francisco.

In *California v. BP*, the cities of San Francisco and Oakland brought state public nuisance claims against BP, Chevron, ConocoPhillips, Exxon Mobil and Shell for damages caused by climate change. Complaint, *California v. BP*, No. 17-561370 (Cal. Super. Ct. Sept. 19, 2017) (referencing the San Francisco Complaint); Complaint, *California v. BP*, No. 17-1785889 (Cal. Super. Ct. Sept. 19, 2017) (referencing the Oakland Complaint). Plaintiffs requested relief in the form of an abatement fund to provide for infrastructure necessary to adapt to global warming impacts such as sea level rise, as well as other relief. Plaintiffs argued the defendants promoted the use of fossil fuels despite being aware that their use would cause severe climate change, and that harms were already being felt and would intensify. Defendants removed the case to federal court and Judge Alsup of the Northern District of California denied the cities’ motion for remand. Judge Alsup held that the suit was “necessarily governed by federal common law” and

that “a patchwork of fifty different answers to the same fundamental global issue would be unworkable.” *California v. BP*, 2018 U.S. Dist. LEXIS 32990, at *5, 10 (N.D. Cal., Feb. 27, 2018).

Plaintiffs then filed an amended complaint, which included a federal public nuisance claim, and defendants moved to dismiss. The Attorneys General of Indiana, Alabama, Arkansas, Colorado, Georgia, Kansas, Louisiana, Nebraska, Oklahoma, Texas, Utah and West Virginia, and Wyoming, as well as the United States of America filed amicus briefs in favor of dismissal. Opposing dismissal, as amici, were the Attorneys General of California, Washington and New Jersey.

The court dismissed all the claims. *City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017, 1019 (N.D. Cal. 2018). The court held that *AEP* and *Kivalina*’s Clean Air Act displacement rule applied even though plaintiffs styled their claims as based on the extraction, production, and sale of fossil fuels rather than emissions. *Id.* at 1024 (“If an oil producer cannot be sued under the federal common law for their own emissions, a fortiori they cannot be sued for someone else’s.”). The court also grounded its holding in the doctrine of separation of powers and judicial restraint, finding that:

questions of how to appropriately balance these worldwide negatives against the worldwide positives of the energy itself, and of how to allocate the pluses and minuses among the nations of the world, demand the expertise of our environmental agencies, our diplomats, our Executive, and at least the Senate. Nuisance suits in various United States judicial districts regarding conduct worldwide are far less likely to solve the problem and, indeed, could interfere with reaching a worldwide consensus.

Id. at 1024–1026. Plaintiffs’ appeal to the Ninth Circuit is pending.

In a separate action in California, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed similar suits in California Superior Court against

numerous fossil fuel companies. *See e.g.*, Complaint, *County of San Mateo v. Chevron Corp.*, No. 17CIV03222 (Cal. Super. Ct. July 17, 2017). However, in addition to public nuisance, the plaintiffs also claimed strict liability for failure to warn, strict liability for design defect, private nuisance, negligence, negligent failure to warn, and trespass. Plaintiffs alleged that the fossil fuel companies’ “production, promotion, marketing, and use of fossil fuel products, simultaneous concealment of the known hazards of those products, and their championing of anti-regulation and anti-science campaigns, actively and proximately caused” injuries to plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. Among other relief, Plaintiffs requested compensatory and punitive damages, and abatement of nuisances. Defendants removed the actions to federal court, and the three actions were then consolidated into one action.

Judge Chhabria of the U.S. District Court for the Northern District of California remanded the case to state court. Judge Chhabria expressly disagreed with Judge Alsup’s ruling in the San Francisco and Oakland suit. Judge Chhabria held that “[b]ecause federal common law does not govern the plaintiffs’ claims, it also does not preclude them from asserting the state law claims in these lawsuits. Simply put, *these cases should not have been removed to federal court on the basis of federal common law that no longer exists.*” *Id.* at 2 (emphasis added). The defendants appealed the remand order to the Ninth Circuit. The Ninth Circuit then consolidated the three remand actions brought by the County of San Mateo, County of Marin, City of Imperial Beach, as well as others stemming from similar suits brought by the County of Santa Cruz, City of Santa Cruz, and City of Richmond. Order, *Cty. of San Mateo v. Chevron Corp.*, No. 18-15499 (9th Cir. 2018). In November 2018, the U.S. Chamber of Commerce filed an amicus brief in opposition to the remand order. Briefing is ongoing in the Ninth Circuit.

2. *Rhode Island v. Chevron*

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling LLP as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court. The parties are awaiting the federal court's remand decision. Like the California cases, Rhode Island seeks to hold numerous fossil fuel companies liable for current and future injuries to state owned or operated facilities and property as well as for other harms. Complaint, *State of Rhode Island v. Chevron Corp.*, No. PC-2018-4716 (R.I. Super. Ct. 2018). Rhode Island seeks, among other relief, compensatory and punitive damages, and abatement of nuisances under state law claims for public nuisance, strict liability for failure to warn, strict liability for design defect, negligent design defect, negligent failure to warn, trespass, impairment of public trust resources and state Environmental Rights Act—Equitable Relief Action. To date, this is the only climate change damage lawsuit brought by a State Attorney General as opposed to a city or county.

3. *Baltimore v. BP*

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought a claim in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and the California suits, Baltimore alleged that through the defendants' production, promotion and marketing of fossil fuels, defendants concealed the hazards of their products and disseminated information intended to mislead consumers, customers, and regulators regarding the known and foreseeable risks of climate change caused by their products. Complaint at 116, *Mayor and City Council of Baltimore v. BP*, No. 24-C-18-004219 (Md. Cir. Ct. 2018). Alleged damages include more severe and frequent storms and floods, increased sea level, heat waves, droughts, and harms to public health. Baltimore is seeking compensatory and punitive

damages, and equitable relief among other remedies for public nuisance, private nuisance, strict liability failure to warn, strict liability design defect, negligent, design defect, negligent failure to warn, trespass, and violations of Maryland's Consumer Protection Act. The defendants removed the case to federal court and Baltimore has moved for remand.

4. *King County v. Chevron*

In May 2018, King County in Washington, with outside counsel from Hagens Berman LLP, filed a similar suit for public nuisance and trespass in Washington state court against numerous fossil fuel companies. Complaint at ii, *King Cty. v. BP*, 2:18-cv-00758-RSL (Wash. Super. Ct. 2018). Plaintiffs sought compensatory damages and the establishment of an abatement fund to pay for a climate change adaptation program. Defendants removed the case to federal court and moved for dismissal. Plaintiff moved for and was granted a stay until the Ninth Circuit issues a decision in *City of Oakland v. BP*. The stay is currently in place.

5. *Pacific Coast Federation of Fishermen's Association v. Chevron*

In November 2018, a fishing industry trade group represented by Sher Edling LLP filed a climate change damage suit against the fossil fuel companies in California state court. The trade group is relying on California state nuisance and products liability law to hold the defendants liable for closures to crab fisheries caused by climate change. *Pacific Coast Federation of Fishermen's Association v. Chevron Corp.*, No. CGC-18-571285 (Cal. Super. Ct. 2018). Specifically, Plaintiffs assert that warming ocean temperatures caused by climate change has led to an increase in a plankton species, *Pseudo-nitzschia*, responsible for causing "amnesic shellfish poisoning" through the release of the toxin domoic acid. Plaintiffs seek compensatory and punitive damages and equitable relief. In December 2018, defendants filed a notice of removal.

6. *Boulder County v. Suncor Energy*

In April 2018, three Colorado local government entities—the City of Boulder and the Counties of Boulder and San Miguel—filed suit against fossil fuel companies seeking damages and other relief for the companies’ role in causing climate change. Outside counsel includes Hannon Law Firm LLP, EarthRights International, and the Niskanen Center, a libertarian think tank. Plaintiffs brought claims under public and private nuisance, trespass, the Colorado Consumer Protection Act, and civil conspiracy. In an effort to avoid federal jurisdiction and *AEP*-like displacement, Plaintiffs’ complaint stated:

[Plaintiffs] do not seek to impose liability, restrain or interfere with Defendants ability to participate in public debates about climate change, or otherwise interfere with Defendants’ speech. . . [and] do not seek to enjoin any oil and gas operations or sales in the State of Colorado, or elsewhere, or to enforce emissions controls of any kind. Plaintiffs do not seek damages or abatement relief for injuries to or occurring on federal lands. Plaintiffs do not seek damages or any relief based on any activity by Defendants that could be considered lobbying or petitioning of federal, state or local governments.

Complaint at 123, *Cty. of Boulder v. Suncor Energy Inc.*, No. 2018CV030349 (Colo. D. Ct. 2018). Defendants removed to federal court. Plaintiffs moved to remand. That motion is pending.

7. *City of New York v. BP*

In January 2018, New York City filed suit for damages and equitable relief in federal court against fossil fuel companies asserting public nuisance, private nuisance, and trespass claims under New York State law against fossil fuel companies. Complaint at i, 63. *City of New York v. BP*, No. 1:18-cv-00182-JFK (S.D.N.Y. 2018). In contrast to the suits discussed above, New York filed in federal court rather than in state court. Outside counsel includes Hagen Berman LLP and Seeger Weiss LLP. The Niskanen Center filed an amicus brief in support of New York City. In support of Defendants, fifteen states led by Indiana filed an amicus brief in favor of dismissal. The court dismissed, and New York City appealed. On appeal to the U.S.

Court of Appeals for the Second Circuit, Attorneys General of New York, California, Maryland, New Jersey, Oregon, Rhode Island, Vermont, Washington, and the District of Columbia have filed an amicus brief in support of New York. Other amicus briefs in support of New York include ones from law professors, environmental justice groups, and the National League of Cities. Briefing is ongoing.

B. State Attorneys General Supporting Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of plaintiffs bringing damages claims for climate change-related harms to state resources and infrastructure. For example, in *New York City v. BP* Attorneys General Underwood (NY), Becerra (CA), Kilmartin (RI), Frosh (MD), Donovan (VT), Grewal (NJ), Ferguson (WA), Rosenblum (OR), and Racine (D.C.) signed an amicus in support of New York City's claim. In support of the fossil fuel companies were Attorneys General Fisher (IL), Hill (IN), Marshall (AL), Rutledge (AR), Coffman (CO), Carr (GA), Schmidt (KS), Landry (LA), Peterson (NE), Hunter (OK), Wilson (SC), Paxton (TX), Reyes (UT), Morrissey (WV), Schimel (WS), and Michael (WY). In *Oakland v. Chevron*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA) supported the plaintiffs. In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP*. Additionally, several other Attorneys General are likely or potentially supportive of actions against fossil fuel companies for climate change-related harms based on recent campaign statements. They include Letitia James (NY), Josh Shapiro (PA), Josh Kaul (WI), Dana Nessel (MI), Phil Weiser (CO), Josh Stine (NC), and Kwame Raoul (IL).

II. Potential Claims Against Fossil Fuel Companies Under Minnesota Law

This Part discusses potential claims the Minnesota Attorney General could bring against fossil fuel companies for climate change-related damages in Minnesota. These claims build off the claims in the existing lawsuits discussed in Part I. The claims discussed below are: (1) consumer protection claims, including the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”), the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”), and antitrust claims under Minn. Stat. §§ 325D.49-325D.66; (2) product liability claims, including design defect and failure to warn; and (3) common law tort claims, including public nuisance, private nuisance, trespass and strict liability for abnormally dangerous activities. This Part also discusses the statutes of limitations potentially applicable to these claims.

A. Consumer Protection Claims

Two of the existing climate change lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations. The Colorado plaintiffs also allege conspiracy claims. Both cases were removed to federal court and motions to remand are pending. The complaints in these cases and the possibility of similar claims under Minnesota law are discussed below.

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”) and the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”). Minnesota and Blue Cross Blue Shield used these laws to sue the tobacco companies in the 1990s, leading to a \$6.6 billion settlement in 1998.

The Minnesota Supreme Court has “cited its prior statements that the CFA should be liberally construed in favor of protecting consumers and that the CFA reflected ‘a clear legislative policy encouraging aggressive prosecution of statutory violations.’” Prentiss Cox, *Goliath Has The Slingshot: Public Benefit And Private Enforcement Of Minnesota Consumer Protection Laws*, 33 WM. MITCHELL L. REV. 163, 178 (2006) (citing *Ly v. Nystrom*, 602 N.W.2d 644, 308 (Minn. Ct. App. 1999) (citing *State v. Philip Morris, Inc.*, 551 N.W.2d 490, 495-96 (Minn. 1996)). See also Gary L. Wilson & Jason A. Gillmer, *Minnesota’s Tobacco Case: Recovering Damages Without Individual Proof of Reliance Under Minnesota’s Consumer Protection Statutes*, 25 WM. MITCHELL L. REV. 567, 590 (1999) (“Minnesota consumer protection statutes present one example in which the legislature has made a policy decision to make it easier to sue for a consumer protection violation than it would be under the common law. The legislature did so by relaxing the requirement of causation. . .”).

The Attorney General has express responsibility to “investigate offenses” and “assist in enforcement” of the CFA, UTPA, and the FSAA in Minn. Stat. § 8.31, subd. 1. Subdivision 3(a) of § 8.31 gives clear authority to the Attorney General to seek damages and equitable remedies for CFA, UTPA and FSAA violations, providing that “[i]n any action brought by the attorney general pursuant to this section, the court may award any of the remedies allowable under this subdivision,” which include “damages . . . costs and disbursements, including costs of investigation and reasonable attorney’s fees, and . . . other equitable relief.” Minn. Stat. § 8.31(3)(a).

The CFA forbids “[t]he act, use, or employment by any person of any fraud, false pretense, false promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any

person has in fact been misled, deceived, or damaged thereby. . .” Minn. Stat. § 325F.69, subd. 1. The UTPA provides that “[n]o person shall, in connection with the sale of merchandise, knowingly misrepresent, directly or indirectly, the true quality, ingredients or origin of such merchandise.” Minn. Stat. § 325D.13. The FSAA prohibits a broad range of advertising and other activities designed to “increase the consumption” of merchandise that “contain[] any material assertion, representation, or statement of fact which is untrue, deceptive, or misleading . . .” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.²

Any claims under Minnesota consumer protection statutes for climate change-related damages should be brought by the Attorney General as a direct action on behalf of the state, rather than a subrogation action on behalf of state citizens. *See State v. Minnesota School of Business, Inc.*, 915 N.W.2d 903, 910 (2018) (denying restitution to individuals that did not testify at trial). In actions seeking damages, the Minnesota Supreme Court held that Minn. Stat. § 8.31, subd. 3(a) demands:

[T]hat there must be some “legal nexus” between the injury and the defendants’ wrongful conduct. . . where the plaintiffs’ damages are alleged to be caused by a lengthy course of prohibited conduct that affected a large number of consumers, the showing of reliance that must be made to prove a causal nexus need not include direct evidence of reliance by individual consumers of defendants’ products. Rather, the causal nexus and its reliance component may be established by other direct or circumstantial evidence. . .

Grp. Health Plan, Inc. v. Philip Morris Inc., 621 N.W.2d 2, 15 (Minn. 2001).

The Minnesota tobacco case was a direct action in which the state and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare

² The UDTPA is not expressly mentioned in Minn. Stat. § 8.31, so “[t]here is a question whether damages are available for violations.” Wilson & Gillmer, *supra* at 588. The court did not allow a UDTPA action for damages in the tobacco litigation; however, some argue that damages may be available pursuant to § 8.31(3)(a). *Id.* at 588-589.

providers. Wilson & Gillmer, *supra* at 570-576. While specific individual reliance was not required, at least six types of evidence made effective “legal nexus” causation arguments: (1) evidence of the defendants’ intentional misconduct, (2) addiction of the defendants’ customers; (3) the defendants’ exploitation of smokers; (4) the defendants’ reassurance of smokers through advertising; (5) the defendants’ youth marketing strategies; and (6) the defendants’ intent that their conduct be relied upon. Wilson & Gillmer, *supra* at 608-624.

Based on the publicly available information, there is a wealth of similar facts the Attorney General can rely on in a case against the fossil fuel companies for climate change damages. As with the tobacco companies, the fossil fuel companies intentionally deceived Minnesota, other states, and the public about the long-term risks of continued fossil fuel use through advertisements, public statements, and funded research. Much of this disinformation campaign has come to light only recently.

There is also evidence that the fossil fuel companies have encouraged a public “addiction” to oil and created hostility toward cleaner fuels. These actions are similar to the tobacco companies’ efforts to increase individuals’ nicotine intake—despite their ability to lower nicotine content. *See id.* at 613-616 (“The tobacco industry has the technological capability of removing most of the nicotine from cigarettes. However, evidence suggests the tobacco industry maintains nicotine at certain levels because the companies know that nicotine is the addictive substance. . .”) (citation omitted); *see also* Peter Teigland, *Petroleum Refining in Minnesota*, NORTH STAR POLICY INST. (May 10, 2018) (explaining that much of the oil flowing into and through Minnesota comes from the Bakken shale and Canadian tar sands).

The plaintiffs in both the Maryland and Colorado lawsuits allege that developing “dirtier” sources of fuel shows oil companies’ blatant disregard of climate data. *See, e.g.*, Colorado

Complaint ¶ 384 (“Moreover, and despite its knowledge of the grave threats fossil fuels pose to the climate as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to the concentration of atmospheric CO₂.”) In addition, evidence of the industry’s significant spending on advertising and correlating sales may be used to show causation by establishing the companies’ intention that their publications be relied on by consumers. *Wilson & Gillmer, supra* at 601, 617 (“Even without a showing of intentional conduct, vast promotional expenditures give rise to a presumption that consumers have been deceived . . . The industry conceded that success in the marketplace is evidence of consumer reliance on the industry’s words and actions.”).

The Attorney General may also bring antitrust claims against the fossil fuel companies, similar to the claims in the Colorado lawsuit. The prohibitions in the Minnesota Antitrust Law of 1971, Minn. Stat. §§ 325D.49-325D.66, include conspiracy and seeking/exercising monopoly power. According to the Minnesota Supreme Court, “Minnesota antitrust law is generally interpreted consistently with federal antitrust law.” Brent A. Olson, *MINN. PRAC., BUSINESS LAW DESKBOOK* § 22A:1 (2018) (citation omitted). As such, “antitrust claims are *not* subject to a heightened standard of specificity in pleading . . .” *In re Milk Indirect Purchaser Antitrust Litig.*, 588 N.W.2d 772, 775 (Minn. Ct. App. 1999). The court may assess significant penalties: “Any person, any governmental body. . . injured directly or indirectly by a violation of sections 325D.49 to 325D.66, shall recover three times the actual damages sustained . . .” Minn. Stat. § 325D.57. The Attorney General has express authority to investigate and commence appropriate legal action seeking damages for violation of the statutory provisions. Minn. Stat. § 325D.59.

B. Products Liability Design Defect

Six lawsuits filed in state courts against fossil fuel companies for their products' contribution to climate change damages have alleged design defect and failure to warn claims arising under state common law. *See Mayor & City Council of Baltimore v. B.P.*, 24-C-18-004219 (Md. Cir. Ct. 2018); *Rhode Island v. Chevron Corp.*, PC-2018-4716 (R.I. Super. Ct. 2018); *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). All of these lawsuits allege both negligent design defect and failure to warn and strict liability design defect and failure to warn. *Id.* Minnesota could allege similar products liability claims against fossil fuel companies related to their extraction, production, marketing, and sale of fossil fuel products.

Minnesota adopted strict liability in tort for products liability cases in 1967. *See McCormack v. Hanksraft Co.*, 154 N.W.2d 488 (Minn. 1967). The Minnesota Supreme Court found that public policy necessitated protecting consumers from the risk of harm that arose from "mass production and complex marketing." *Id.* at 500. Adopting the strict liability theory, manufacturers are liable for the cost of injuries that result from their defective product regardless of negligence or privity of contract. *Id.* In *McCormack*, the Court reasoned that strict liability should apply as the makers of the product are in the best position to "most effectively reduce or eliminate the hazard to life and health, and absorb and pass on such costs [to consumers]." *Id.*

Since *McCormack* products liability law has expanded in Minnesota to cover three different theories of defective products: (1) manufacturing defects that arise from flaws in the

way the product was made; (2) design defects that result from an unreasonably safe product design; and (3) failure to warn of reasonably foreseeable dangers from a products use. *See* Rest. (Third) of Torts: Products Liability § 2 (1998). As products liability law in Minnesota continued to evolve, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrook v. Marshalltown Mfg. Co.*, 473 N.W.2d 352 (Minn. Ct. App. 1991) (“*Bilotta* merged strict liability, negligence, and implied warranty remedies into a single products liability theory.”) (referencing *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 623 (Minn. 1984)); *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (“Toyota correctly notes that [in Minnesota] in the product liability context, strict liability and negligence theories merge into one unified theory, sharing the same elements and burden of proof.”).

Of the three products liability claims alleged in the other lawsuits against the fossil fuel companies, only design defect and failure to warn claims would apply in Minnesota. Manufacturing defect claims cover faulty or defective products that arise despite a reasonably safe design—e.g., defects that may occur to a discrete number of products during the manufacturing process. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases look at the condition of the product and compare any defects found with the flawless product). In contrast, all fossil fuel products on the market result in a dangerous condition—increased CO₂ emissions/climate change—*because* of the products unreasonably safe design. *See id.* (in a design defect case the “defect” lies in the consciously chosen design and the product is in the condition intended by the manufacturer).

1. Design defect

In Minnesota, a manufacturer has a nondelegable duty to design a reasonably safe product. *Bilotta*, 346 N.W.2d 616; *see also Schweich v. Ziegler, Inc.*, 463 N.W.2d 722, 731

(Minn. 1990) (“Caterpillar is duty bound to use reasonable care in designing the DH6 to protect users from unreasonable risk of harm while using it in a foreseeable manner.”). If a manufacturer breaches this duty and the defect proximately causes the plaintiff’s injury, it is liable in tort under a design defect theory. *Farr v. Armstrong Rubber Co.*, 288 Minn. 83, 90 (Minn. 1970). Therefore, to recover against a manufacturer for a design defect a plaintiff must show that: “(1) a product was in a defective condition unreasonably dangerous for its intended use; (2) the defect existed at the time the product left the defendant’s control; and (3) the defect proximately caused the plaintiff’s injury.” *Duxbury v. Spex Feeds, Inc.*, 681 N.W.2d 380, 393 (Minn. Ct. App. 2004). *See also Adams v. Toyota Motor Corp.*, 867 F.3d 902, 916–17 (8th Cir. 2017) (applying Minnesota law).

Unreasonably dangerous condition: To determine whether the design of a product is unreasonably dangerous, Minnesota courts employ the reasonable care balancing test adopted from Florida and New York courts in *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 624 (Minn. 1984). This test looks at the totality of circumstances including: “a balancing of the likelihood of harm, and the gravity of harm if it happens, against the burden of the precaution which would be effective to avoid the harm.” *Id.* It is an objective standard that “focuses on the conduct of the manufacturer in evaluating whether its choice of design struck an acceptable balance among several competing factors.” *Id.* at 622. Often considered by courts and juries employing the reasonable care balancing test is whether or not there existed, or the plaintiff can prove, a practical alternative design. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 96 (Minn. 1987) (holding that existence of a practical alternative design is a factor, but not an element of a *prima facie* case, in design defect claims).

Fossil fuel products were, and continue to be, in a defective condition unreasonably dangerous for their intended use. The emission of GHGs resulting from the use of fossil fuel products causes severe and grave harms in the form of global warming, increased severity of dangerous weather patterns, rising sea level, increased drought, increased weather patterns, serious public health concerns particularly to low income and minority communities, and overall climate change damages. The fossil fuel companies were well aware of the gravity of this harm, as well as the extremely high likelihood that this harm would occur from their continued extraction, production, use, and marketing of fossil fuel products as early as 1965. This is particularly true in light of generally accepted scientific knowledge that unfettered anthropogenic GHG emissions would result in catastrophic impacts. The burden of precaution necessary to avoid the harms was significantly lower when the companies first became aware of the risk their fossil fuel products posed and has only grown since.

Defect existed at the time it left defendants' control: The second element of a design defect claim is that “the defect existed at the time the product left the defendant’s control” *Duxbury*, 681 N.W.2d at 393. GHGs emitted from the combustion/use of fossil fuel products exists at the time they are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, individual and aggregate fossil fuel products reached the consumer in a condition substantially unchanged from that in which it left the companies’ control—and “were used in the manner in which they were intended to be used . . . by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.” Complaint at ¶ 212, *PCFFA v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018). Therefore, the defect existed at the time fossil fuel products left the fossil fuel companies’ control.

Defect proximately caused the plaintiff's injury: Finally, the plaintiff must prove that the design defect proximately caused the plaintiff's injury. *Duxbury*, 681 N.W.2d at 393. "Proximate cause exists if the defendant's conduct, without intervening or superseding events, was a substantial factor in creating the harm." *Thompson v. Hirano Tecseed Co., Ltd.*, 456 F.3d 805, 812 (8th Cir. 2006) (applying Minnesota law). A substantial factor has also been described as a "material element" in the happening of the injury. *Draxton v. Katzmarek*, 280 N.W. 288, 289 (Minn. 1938).

But-for causation is still necessary for a substantial factor causation analysis, because "if the harm would have occurred even without the negligent act, the act could not have been a substantial factor in bringing about the harm." *George v. Estate of Baker*, 724 N.W.2d 1, 11 (Minn. 2006) (citing Rest. (Second) of Torts § 432 (1965)). However, if there are concurring acts that together cause the plaintiff's injury and act contemporaneously, or so nearly together that there is no break in the chain of causation, this is sufficient to meet the causation analysis even if the injury would not have resulted in the absence of either one. *Roemer v. Martin*, 440 N.W.2d 122, 123, n.1 (Minn. 1989). If there are concurrent acts of negligence, both parties are liable for the whole unless the resulting damage is "clearly separable." See *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970). Before a particular factor can be said to be a concurrent cause, it must, first of all, be established that it is a cause. *Roemer*, 440 N.W.2d at 123.

The fossil fuel companies' extraction, production, refining, marketing, and sale of fossil fuels was and will continue to be a substantial factor in creating Minnesota's harm from climate change. Ninety producers of oil and gas are responsible for 63% of the cumulative industrial CO₂ and methane emissions worldwide between 1751 and 2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122

CLIMATIC CHANGE 229 (Nov. 22, 2013). Abundant scientific studies and reports link these anthropogenic GHG emissions to climate change and its damages.

California has similarly adopted the substantial factor test to determine proximate causation. *People v. Atlantic Richfield Co.*, 2013 WL 6687953, at *16 (Cal. Super. Ct. 2013) (“Under this test, independent tortfeasors are liable so long as their conduct was a “substantial factor” in bringing about the injury.”), *aff’d sub nom. People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51 (Cal. Ct. App. 2017). However, it is important to note that California’s substantial factor test appears to be broader than Minnesota’s, requiring the defendant’s conduct to only be “a very minor force” to find it was a substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102. Despite this, *People v. Atlantic Richfield Co.*, still provides a useful analogy for determining whether multiple manufacturers of a product were each a “substantial factor” in creating the plaintiff’s injury and may act as persuasive authority in Minnesota. 2013 WL 6687963 at *1, *aff’d sub nom. ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 169 (affirming holding of liability against lead paint manufacturers but limiting scope of abatement remedy to pre-1951 homes).

In *Atlantic Richfield Co.*, counties in California brought a public nuisance action against five lead paint manufacturers seeking abatement of the public nuisance created by the lead paint manufactured and sold by defendants in ten jurisdictions in California. Three of the paint manufacturers, ConAgra, NL Industries, and Sherwin Williams, were found to have created or assisted in the creation of the public nuisance and, as a result, the Court held their conduct was a substantial factor in bringing about the public nuisance. *Id.* at *54.

ConAgra was a large producer and supplier of lead, operated to a major degree within the jurisdictions that brought suit, and continued to sell lead paint until 1958 and therefore the Court

found their conduct was a substantial factor in creating the public nuisance. *Id.* at *52. NL Industries (formerly known as National Lead Company) was the largest manufacturer, promoter, and seller of lead pigments for use in house paint and was an active participant in campaigns to promote lead paint. Based on this, the Court found NL to be a substantial factor in causing the public nuisance. *Id.* at *53. Finally, Sherwin Williams’ conduct was found to have been a substantial factor in the public nuisance despite testimony offered by SW’s expert witness Dr. Van Liere who estimated that Sherwin William’s lead paint contributed a mere 0.1% of the total lead consumed in California from 1894 to 2009. *Id.* at *39. This was because the company had two plants, stores, and dealers selling lead paint within the jurisdictions bringing suit and it transported millions of pounds of lead paints to its warehouses and factories during the first four decades of the 20th century. *Id.* at *53.

The California Court of Appeals upheld the trial court findings, further emphasizing that all three defendants’ marketing campaigns promoting lead paint as safe for use in residential homes and on doors and windows frames played at least a *minor* role in creating the public nuisance and therefore met the “substantial factor” test. *People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51, 102–03 (Cal. Ct. App. 2017). Minnesota can use the California courts’ reasoning to establish that each individual fossil fuel company named as defendant was a substantial factor in causing Minnesota’s climate damages.

Lastly, not only must the design defect be a substantial factor, or material element, in bringing about plaintiff’s injuries—there cannot be a “superseding” event that breaks the causal chain between the defendants’ conduct and the plaintiff’s injury:

A cause is “superseding” if four elements are established: (1) Its harmful effects must have occurred after the original negligence; (2) it must not have been brought about by the original negligence; (3) it must actively work to bring about

a result which would not otherwise have followed from the original negligence; and (4) it must not have been reasonably foreseeable by the original wrongdoer.

Regan v. Stromberg, 285 N.W.2d 97, 100 (Minn. 1979). There were no intervening or superseding events that caused Minnesota’s climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between the fossil fuel companies’ conduct and Minnesota’s injuries and damages, or superseded the fossil fuel companies’ breach of its duty to design a reasonable safe product.

2. *Joint and several liability and market share liability*

Notably, although an individual oil or gas company may claim that its extraction, production, and sale of fossil fuel products was not a substantial factor or the “but-for” cause of Minnesota’s climate change damages, Minnesota can rely on two liability structures to overcome the causation burden: concurring causes and the indivisible injury rule which impose joint and several liability and market share liability.

In general, parties whose negligence concurs to cause an indivisible injury are jointly and severally liable, even if not acting in concert. *Maday v. Yellow Taxi Co.*, 311 N.W.2d 849 (Minn. 1981); *see also Rowe v. Munye*, 702 N.W.2d 729, 736 (Minn. 2005) (“[M]ultiple defendants are jointly and severally liable when they, through independent consecutive acts of negligence closely related in time, cause indivisible injuries to the plaintiff.”). A harm is indivisible if “it is not reasonably possible to make a division of the damage caused by the separate acts of negligence.” *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970) (quotation omitted). When two or more persons are jointly liable, contributions to awards shall be in proportion to the percentage of fault attributable to each, except that each is jointly and severally liable for the whole award. Minn. Stat. § 604.02, subd. 1 (2018). However, a plaintiff would still be required

to show that each defendant's conduct was a substantial factor in causing its harming. *Jenson v. Eveleth Taconite Co.*, 130 F.3d 1287, 1294 (8th Cir. 1997).

At least four other state lawsuits have alleged fossil fuel companies' acts and omissions were indivisible causes to the plaintiffs' injuries and damages because it is not possible to determine the source of any particular GHG molecule from anthropogenic sources. *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). Joint and several liability would also apply in a lawsuit against fossil fuel companies for damages resulting from climate change in Minnesota. Minnesota is experiencing a single indivisible injury caused by multiple fossil fuel companies' independent consecutive actions closely related in time. *See Jenson*, 130 F.3d at 1305 n.9 (explaining how the single indivisible injury rule imposes joint and several liability). Because Minnesota's harm is indivisible, each fossil fuel company would be liable for the entire harm. *Id.*

If the fossil fuel companies argue that Minnesota's harms are divisible, they each may be able to limit their liability. However, the defendant asserting divisibility bears the burden of proving apportionment. *See e.g., Jenson*, 130 F.3d at 1294 (explaining that "plaintiffs bear no burden to prove apportionment" because apportionment is akin to an affirmative defense). Fossil fuel companies could attempt to prove apportionment based on the amount of GHG their fossil fuel products emitted.

People of the State of California v. Atlantic Richfield Co. once again provides reference for how oil and gas companies may be jointly and severally liable and can act as persuasive

authority in Minnesota's courts. 2013 WL 6687953, 44 (Cal. Super. Ct. 2013). Under California law, when multiple tortfeasors are each a substantial factor in creating a public nuisance, they are jointly and severally liable for that nuisance. *Id.* at * 44 (quoting *Am. Motorcycle Assn v. Superior Court*, 20 Cal. 3d 578, 586 (1978)). Similar to Minnesota, if the injury is indivisible each actor whose conduct was a substantial factor in causing the damages is legally responsible for the whole. *Id.* California has found that this joint and several liability theory applies when multiple sources of contamination result in a single nuisance. *Id.* (quoting *State v. Allstate Ins. Co.*, 45 Cal. 4th 1008, 1036 (2009)). Because of this, the California Superior Court found that the three lead paint manufacturers who were found to be substantial factors in causing the public nuisance were all jointly and severally liable. *Id.* A similar theory of recovery could be used in Minnesota against fossil fuel companies applying Minnesota's version of concurrent harms, the invisible harm rule, and joint and several liability.

Finally, the market share liability theory allows a plaintiff to recover damages against defendants based on their proportion of the market share at the time the injury was caused if the defendants all produced an identical, or fungible product, and the plaintiff is unable to identify which manufacturer produced the product that caused their injuries. *See Sindell v. Abbott Labs.*, 607 P.2d 924 (Cal. 1980) (establishing market share liability theory and apportioning liability based on the relative market share of each of the liable defendants). The Minnesota Supreme Court has not explicitly accepted or rejected the market share liability theory. *See Bixler v. J.C. Penney Co.*, 376 N.W.2d 209, 214 n.1 (Minn. 1985) ("We express no opinion as to whether we would adopt such a rule [market share liability], particularly where the product involved is not entirely fungible with similar products on the market."). Because the Minnesota Supreme Court

has not categorically ruled out the market share liability theory, it is possible that under the right set of facts, that theory of recovery may be available.

Minnesota can allege a market share liability theory if it is unable to prove which fossil fuel company caused its injuries because each fossil fuel company's products are fungible with regard to their GHG emissions. The Wisconsin Supreme Court adopted a version of the market share liability theory known as the "risk contribution theory" in *Collins v. Eli Lilly Co.*, the state's first DES case. 342 N.W.2d 37, 49 (Wis. 1984). In *Collins*, the Wisconsin Supreme Court recognized that the plaintiff would face an insurmountable obstacle if she had to prove which defendant manufactured the DES that her mother ingested based on the lack of records and pharmaceutical practices at that time. *Id.* at 44–45. Despite this, the Court found that Collins was entitled to a remedy at law for her injuries under the Wisconsin Constitution and therefore took the task of fashioning an adequate remedy. *See Id.* at 45 ("When an adequate remedy or forum does not exist to resolve disputes or provide due process, the courts, under the Wisconsin Constitution, can fashion an adequate remedy."). Compare WIS. CONST. art. 1, § 9 ("Every person is entitled to a certain remedy in the laws for all injuries, or wrongs which he may receive in his person, property, or character.") with MINN. CONST. art. 1, § 8 ("Every person is entitled to a certain remedy in the laws for all injuries or wrongs which he may receive to his person, property or character . . .").

In *Collins*, the Wisconsin Supreme Court held that for cases seeking recovery for harms associated with DES, and situations factually similar to DES cases, "the plaintiff need only allege and prove that the defendant drug company produced or marketed the drug DES for use in preventing miscarriages during pregnancy." *Id.* at 50. In order to protect defendant drug companies that could not have contributed to Collins injury, the Court held that a defendant

could escape liability if it could prove by a preponderance of evidence that the DES it produced or marketed could not have reached the plaintiffs mother. *Id.* at 197–98. The defendants could apportion liability using the comparative negligence theory, with the jury determining each company’s liability based on a number of factors including whether the company tested DES for safety, sought FDA approval, issued warnings about DES, produced or marketed DES after it knew of possible risks, and whether it took affirmative steps to reduce risk of injury to public. *Id.* at 199–200.

The Wisconsin Supreme Court later extended the risk contribution theory to a plaintiff who suffered lead poisoning but could not identify the paint manufacturer that had caused his injury. *See Thomas v. Mallet*, 285 Wis. 2d 236, 256 (Wis. 2005). Because many victims of lead poisoning would be denied an adequate remedy for harm, and Thomas’ case was factually similar enough to *Collins*, the Wisconsin Supreme Court agreed that the *Collins* risk-contribution theory should be extended to white lead carbonate claims. *Id.* at 293, 306 (explaining that lead poisoning plaintiffs are severely harmed by a substance they had no control over without an ability to prove with certainty which manufacturer produced or promoted the white lead carbonate that caused the injury).

In sum, both California’s market share liability theory or Wisconsin’s risk-contribution theory provide viable theories of recovery in Minnesota courts against fossil fuel companies for climate change harm in Minnesota. Fossil fuel companies’ actions and the damages in Minnesota stemming from the use of their products closely resemble the factual circumstances of cases involving DES and lead paint. Fossil fuel products are fungible, the fossil fuel companies breached a legally recognized duty by failing to design their products in a reasonably safe manner, fossil fuel companies continued to market and produce their products despite knowledge

of this danger, and the use of these fossil fuel products caused Minnesota's injuries. Moreover, in the case of fossil fuel companies, there is significant data on the percentage of GHG emissions related to each fossil fuel company's extraction, production, refining, and sales, making this arguably a stronger case for market share liability or risk-contribution theory than either the DES or lead paint cases.

C. Products Liability Failure to Warn

In Minnesota “[g]enerally stated, a failure to warn claim has three elements: ‘(1) whether there exists a duty to warn about the risk in question; (2) whether the warning given was inadequate; and (3) whether the lack of a warning was a cause of plaintiff’s injuries.’” *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (quoting *Seefeld v. Crown, Cork & Seal Co., Inc.*, 779 F. Supp. 461, 464 (D. Minn.1991)).

Duty to warn: The first element of a failure to warn claim is whether or not a duty exists. “The duty to warn arises when a manufacturer knew or should have known about an alleged defect or danger, and should have reasonably foreseen that the defect or danger would cause injury.” *Id.* (citing *Seefeld*, 779 F. Supp. at 464; *Harmon Contract Glazing, Inc. v. Libby–Owens–Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). The duty extends to all reasonably foreseeable users. *Whiteford v. Yamaha Motor Corp.*, 582 N.W.2d 916, 918 n.6 (Minn. 1998). The knowledge of an alleged defect or danger can be either actual or constructive. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987) (allowing recovery where the plaintiff either knew of the danger or *should* have known). Because a manufacturer has duty to keep informed of all current scientific knowledge, courts in Minnesota will look to current/past scientific knowledge to help determine whether a manufacturer *should* have known of the risks

in its products. *Harmon Contract Glazing, Inc. v. Libby-Owens Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992).

Fossil fuel companies had both actual and constructive knowledge, particularly in light of scientific knowledge generally accepted at the time, that their fossil fuel products were dangerous due to their emissions of GHGs. It was also reasonably foreseeable that climate change damages would result from these emissions and thus fossil fuel companies had a duty to warn potential users of the foreseeable dangers.

However, a manufacturer has no duty to warn of dangers that are obvious to anyone using the product. *See Drager v. Aluminum Indus. Corp.*, 495 N.W.2d 879, 884 (Minn. Ct. App. 1993). “A failure to warn ‘is not the proximate cause of injury if the user is aware of the danger posed by the device in issue.’” *Shovein v. SGM Group USA, Inc.*, 2008 WL 11348494, at *6 (D. Minn. 2008) (citing *Mix v. MTD Products, Inc.*, 393 N.W.2d 18, 19 (Minn. App. 1986)). For example, in *Mix v. MTD*, the Minnesota Court of Appeals held that MTD did not have a duty to warn of the danger that could result from attempting to reattach a belt while the lawnmower’s engine was in neutral because the danger was obvious to most potential users. *Mix v. MTD Prods., Inc.*, 393 N.W.2d 18, 20 (Minn. Ct. App. 1986). Because of fossil fuel companies’ protracted and intensive denialist campaign, the dangers of using fossil fuel products were not obvious to the public.

Adequate warning: Second, if a warning was issued it must be adequate. “To be legally adequate, a product supplier’s warning to a user of any foreseeable dangers associated with the product’s intended use should (1) attract the attention of those that the product could harm; (2) explain the mechanism and mode of injury; and (3) provide instructions on ways to safely use the product to avoid injury.” *Gray v. Badger Min. Corp.*, 676 N.W.2d 268, 274 (Minn. 2004).

Consumers of fossil fuel products were prevented from recognizing the risk that fossil fuel products would cause grave climate changes because the companies “individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.” Complaint at ¶ 318, *County of Santa Cruz v. Chevron Corp.* (Cal. Super. Ct. 2018). Therefore, any warnings that may have publicized the danger to the public or Minnesota were undermined and rendered ineffective because of the companies’ public relations materials and campaigns. *Id.*

Causation: In order to recover under a failure to warn theory, the plaintiff must show a causal connection between the inadequate warning or failure to warn and the injuries he or she sustained. *Rients v. Int’l Harvester Co.*, 346 N.W.2d 359, 362 (Minn. Ct. App. 1984). Minnesota courts have interpreted this as requiring the plaintiff to show that *had* adequate warnings been provided, the injury would not have occurred. *See Hauenstein v. Loctite Corp.*, 347 N.W.2d 272, 276 (Minn. 1984) (explaining that causation is not met when the accident would have occurred whether or not there was a warning). While many states have adopted a “heeding presumption”—a rebuttable presumption that if warnings had been provided, they would have been read and heeded—the Minnesota Supreme Court specifically declined to do so in a failure to warn case. *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99–100 (Minn. 1987); *see also Tuttle v. Lorillard Tobacco Co.*, 377 F.3d 917, 925 (8th Cir. 2004) (predicting that Minnesota courts would not adopt the heeding presumption). Furthermore, when a plaintiff requested the Minnesota Court of Appeals to adopt the heeding presumption in *Montemayor v. Sebright Products, Inc.* (unpublished case) the Court found that it was not its role “to extend the law.” 2017 WL 5560180, at *3 (Minn. Ct. App. 2017).

However, the U.S. Court of Appeals for the Eighth Circuit has noted that to establish causation in Minnesota failure to warn cases “it is sufficient to present testimony that purchasers would have avoided the risk of harm had they been told of the relevant danger.” *In re Levaquin Products Liability Litigation*, 700 F.3d 1161, 1168 (8th Cir. 2012) (citing *Erickson v. American Honda Motor Co., Inc.*, 455 N.W.2d 74, 77 (Minn. Ct. App. 1990)). This type of testimony can be rebutted by evidence that the plaintiff knew of the danger or disregarded other dangers or ignored other warnings. 27 Minn. Prac. Series § 4.11 (2018). This was at issue in *Tuttle v. Lorillard Tobacco Co.* because Tuttle passed away from oral cancer (caused by defendant’s smokeless tobacco product) before he could testify that he would have avoided the risk of harm if he had been told of the danger. 377 F.3d at 925 (8th Cir. 2004). Furthermore, the Court reasoned that because Tuttle continued to use smokeless tobacco until 1993, even after the Smokeless Tobacco Act required warnings in advertising and on packaging as early as February 1987, that “Tuttle’s actions undercuts any ‘heeding presumption’ and any reasonable reliance arguments.” *Id.* at 927 n.6.

Had Minnesota been adequately warned of the significance of danger that fossil fuel consumption and use presented to the state and the public, it would have heeded said warnings and either consumed fewer fossil fuel products or began to transition away from a fossil fuel dependent economy much sooner.

D. Public Nuisance

Under Minnesota law, public nuisance is a misdemeanor offense, defined in Minn. Stat. § 609.74:

[w]hoever by an act or failure to perform a legal duty intentionally does any of the following is guilty of maintaining a public nuisance, which is a misdemeanor:

- (1) maintains or permits a condition which unreasonably annoys, injures or endangers the safety, health, morals, comfort, or repose of any considerable number of members of the public; or
- (2) interferes with, obstructs, or renders dangerous for passage, any public highway or right-of-way, or waters used by the public; or
- (3) is guilty of any other act or omission declared by law to be a public nuisance and for which no sentence is specifically provided.

Minn. Stat. § 609.74 (2018). Under Minn. Stat. § 609.745, “[w]hoever having control of real property permits it to be used to maintain a public nuisance or lets the same knowing it will be so used is guilty of a misdemeanor.” Minn. Stat. § 609.745 (2018). Statutory public nuisance violations brought under § 609.74 are enforced through criminal prosecution. However, it is unlikely that a claim for damages could be sought under the criminal statute, and instead this statute would provide a means for injunctive relief or abatement. *See* Minn. Stat. § 617.80 et seq. Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. *But see Doe 30 v. Diocese of New Ulm*, No. 62-CV-14-871, 2014 WL 10936509 at *9 (Minn. Dist. Ct. 2014) (“While plaintiff’s Complaint asserts a common-law public nuisance claim, it is evident from Minnesota’s public-nuisance jurisprudence that common-law claims either no longer exist or are synonymous with section 609.74 claims.”).

Common law public nuisance claims in Minnesota appear to be rare; the majority of public nuisance claims seem to be brought primarily under municipal nuisance ordinances or the state public nuisance statute. For example, in *State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545 (Minn. 1911), the Minnesota Supreme Court considered the validity of a Minneapolis city ordinance that declared the emission of smoke from locomotives a public nuisance, prohibiting the use of soft coal. The court recognized that although the Legislature

cannot prevent a lawful use of property by prohibiting non-nuisance uses, “it is equally clear that acts or conditions which are detrimental to the comfort and health of the community may be effectively declared nuisances by the Legislature, and in the exercise of that power specified acts or conditions may be declared a nuisance, although not so determined at common law.” *Id.* at 546.

Likewise, in *State v. Lloyd A. Fry Roofing Co.*, 246 N.W.2d 692 (Minn. 1976), the Minnesota Supreme Court held that:

[T]he general rule regarding nuisances is that “it is immaterial how innocent the intent was[,] for the element of motive or intent does not enter into the question of nuisance,” so a state legislature may declare certain acts to be nuisances regardless of the intent with which they are carried out and even though they were not such at common law, or the legislature may delegate this authority to a municipal corporation.

Id. at 538 (citing Joyce, *Law of Nuisance*, § 43 at 77 & §§ 81, 84). On the subject of common law public nuisance, the court cites Dean Prosser’s work on tort law and notes that intent and failure to act reasonably are not essential elements of common-law nuisance violations, and “are even less relevant to nuisances that are codified in statutes or ordinances.” *Id.* at 539.

Although statutory public nuisance claims seem to make up the vast majority of cases in Minnesota, common law public nuisance may still resemble the Restatement approach: interference with public property or a right common to the public. *See* Restatement (Second) of Torts § 821B(1). Although the court in *Doe 30 v. Diocese of New Ulm* considered the matter, it is a district court decision and the analysis is dicta because the court did not reach a decision on the issue.

Significantly, in 2010, Minnesota Attorney General Lori Swanson brought “common law nuisance” claims against 3M Company over chemicals it produced known as perfluorochemicals (PFCs). *See* Complaint, *State v. 3M Co.*, No. 27-CV-10-28862, 2010 WL 5395085 at ¶¶ 83–89,

90–97 (D. Minn. Dec. 30, 2010). In particular, the complaint alleged damages for common law nuisance for contamination of surface water, groundwater, and sediments by PFCs released by 3M. The Attorney General claimed that the “use, enjoyment and existence of the State’s groundwater, surface water and sediments, free from interference, is a *common right* to citizens of the state.” *Id.* at ¶ 84 (emphasis added). 3M’s alleged contamination of groundwater, surface water, and sediments with PFCs “materially and substantially interferes with State citizens’ free enjoyment of these natural resources, and constitutes a public nuisance.” *Id.* at ¶ 85.

E. Private Nuisance

Minnesota’s statutory private nuisance law is covered by Minn. Stat. § 561.01:

Anything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.

Minn. Stat. § 561.01 (2018).

A private nuisance requires interference with another’s use of property. *See Uland v. City of Winstead*, 570 F. Supp. 2d 1114, 1120 (D. Minn. 2008). There must be some type of conduct that causes the alleged nuisance harm, and that conduct must be “wrongful.” *See Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65, 70–71 (Minn. 1982) (citing *Randall v. Village of Excelsior*, 103 N.W.2d 131, 134 (1960)). This wrongful conduct varies, and may be characterized as, for example, intentional conduct, negligence, ultrahazardous activity, violation of a statute, or some other type of tortious activity. *Id.*

Minnesota’s nuisance statute appears to provide a broader cause of action than common law nuisance under the Restatement (Second) of Torts, as § 561.01 does not require that the

action be intentional or unreasonable. The Minnesota Supreme Court has found that Minnesota's nuisance statute "defines a nuisance in terms of the *resultant harm* rather than in terms of the kind of conduct by a defendant which causes the harm . . . Where pollutants cause the harm, such as where sewage is deposited on plaintiff's property, the wrongful conduct appears to be self-evident." *Id.* (emphasis added). The Minnesota Supreme Court has likewise declined to consider an application of the Restatement nuisance test, preferring instead to use § 561.01 and Minnesota case law. *Id.*

In addition to nuisance abatement, a successful plaintiff may recover damages sustained as a result of the activity. Minn. Stat. § 561.01. Minnesota courts have found a variety of activity to be private nuisances. *Heller v. American Range Corp.*, 234 N.W. 316 (Minn. 1931) (industrial plants transferring dust to adjacent residential property); *Brede v. Minnesota Crushed Stone Co.*, 179 N.W. 638 (Minn. 1920) (limestone quarries giving off noise, fumes, and odors); *Fagerlie v. City of Wilmar*, 435 N.W.2d 641 (Minn. App. 1989) (wastewater treatment plant odors); *Schrupp v. Hanson*, 235 N.W.2d 822 (Minn. 1975) (poultry and hog farm odors); *Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65 (Minn. 1982) (water and sewage runoff).

In *Johnson v. Paynesville Farmers Union Co-op Oil Co.*, 817 N.W.2d 693, 706 (Minn. 2012), the Minnesota Supreme Court considered the state's approach to private nuisance in an action brought by an organic farmer against a co-op alleged to have caused pesticides to drift onto the organic farm. Citing Minn. Stat. § 561.01, the supreme court found that an action that seeks an injunction or to recover damages can be brought under the statute by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance. The plaintiff must show that the defendant's conduct caused an interference with the use or enjoyment of the plaintiff's property. *Id.* As an equitable cause of action, the court stated that §

561.01 “implicitly recognized a need to balance the social utility of defendants’ actions with the harm to the plaintiff.” *Highview North Apartments v. County of Ramsey*, 323 N.W.2d 65, 71 (Minn. 1982).

In deciding the issue of nuisance, the *Johnson* court cited *Highview North Apartments v. County of Ramsey*, in which the Minnesota Supreme Court held that “disruption and inconvenience” caused by a nuisance are actionable damages. *Johnson v. Paynesville Farmers Union* at 713 (citing *Highview North Apts.*, 323 N.W.2d at 73). In *Highview* a plaintiff sued multiple municipalities over harm that consisted of groundwater seeping into two apartment building basements, a condition that the court found to be “ongoing, injurious to the premises, substantial, and likely to worsen.” *Highview North Apts.*, 323 N.W.2d at 71. Applying the *Highview* ruling, the *Johnson* court remanded the plaintiffs’ allegations that they suffered from “cotton mouth, swollen throat and headaches” because they were exposed to pesticide drift. *Id.* The court held that the inconvenience and adverse health effects, if proven, would affect the plaintiffs’ ability to use and enjoy their land and thereby constitute a nuisance, and so the issue was remanded for further fact-finding, including an assessment of damages. *Id.*

F. Trespass

In Minnesota, “[t]respass encompasses any unlawful interference with one’s person, property, or rights, and requires only two essential elements: a rightful possession in the plaintiff and unlawful entry upon such possession by the defendant.” *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003), *review denied* (Minn. Aug. 5, 2003). Minnesota courts have described trespass as “an invasion of the plaintiff’s right to exercise exclusive possession of the land” while “nuisance is an interference with the plaintiff’s use and enjoyment of the land.” *Fagerlie v. City of Willmar*, 435 N.W.2d 641, 644 n.2 (Minn. Ct App. 1989); *see also Johnson v.*

Paynesville Farmers Union Coop Oil Co., 817 N.W.2d 693, 701 (Minn. 2010) (stating that unlawful entry “must be done by means of some physical, tangible agency in order to constitute a trespass.”). Actual damages are not an element of the tort of trespass. *Johnson v. Paynesville Farmers Union* at 701 (citing *Greenwood v. Evergreen Mines Co.*, 19 N.W.2d 726, 734–35 (Minn. 1945)). In the absence of actual damages, the trespasser is liable for nominal damages. *Id.* (citing *Sime v. Jensen*, 7 N.W.2d 325, 328 (Minn. 1942)). Because trespass is an intentional tort, reasonableness on the part of the defendant is not a defense to trespass liability. *Id.* (citing *H. Christiansen & Sons, Inc. v. City of Duluth*, 31 N.W.2d 270, 273–74 (Minn. 1948)).

In *Johnson v. Paynesville Farmers Union Co-op. Oil Co.*, the Minnesota Supreme Court considered the question of whether particulate matter, such as pesticide drift can result in a trespass. *Id.* (noting that the “particulate matter” has been defined as “material suspended in the air in the form of minute solid particles or liquid droplets, especially when considered as an atmospheric pollutant.”). The Supreme Court found that Minnesota case law is consistent with a traditional formulation of trespass that has recognized trespasses when a person or a tangible object enters the plaintiff’s land and interferes with rights of exclusive possession. *Id.* According to the court, “disruption to the landowner’s exclusive possessory interest is not the same when the invasion is committed by an intangible agency, such as the particulate matter [pesticides] at issue here.” *Id.* at 702. “Such invasions,” the court continued, “may interfere with the landowner’s use and enjoyment of her land, but those invasions do not require that the landowner share possession of her land in the way that invasions by physical objects do.” *Id.*; see also *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003) (noting that Minnesota “has not recognized trespass by particulate matter” and rejecting a trespass claim over offensive odors). The court declined to abandon traditional distinctions between trespass and

nuisance law, and noted that the public policy concerns that compelled other jurisdictions to blur the lines between trespass and nuisance (e.g. statutes of limitations) are not present in Minnesota. *Id.* at 704–05. “In summary, trespass claims address tangible invasions of the right to exclusive possession of land, and nuisance claims address invasions of the right to use and enjoyment of land.” *Id.* at 705.

The Minnesota Attorney General lawsuit against 3M claimed trespass damages against the state’s public trust resources. Complaint, *State of Minnesota v. 3M Company*, No. 27-CV-10-28862, 2010 WL 5395085 (D. Minn. 2010). Much of the state’s suit was focused on direct groundwater and surface water pollution, issues which are unlikely to be present when dealing with oil refineries, emissions, and climate change damages. However, the effects of climate change can impact surface and groundwater in other ways that are not as direct, such as harm to aquatic organisms and plants through warmer waters, increased flooding and erosion from more severe storms and precipitation, drought, algae blooms, etc. Thus, a trespass claim against fossil fuel companies for climate change damages would be based on indirect invasions of property.

G. Strict Liability for Abnormally Dangerous Activity

The Second Restatement of Torts on Strict Liability for Abnormally Dangerous Activities is not controlling law in Minnesota, though Minnesota courts have discussed §§ 519–520. Restatement (Second) of Torts § 519–520 (1977); *see, e.g., Mahowald v. Minnesota Gas Co.*, 344 N.W.2d 856, 860–61 (Minn. 1984); *Cairly v. City of St. Paul*, 268 N.W.2d 908 (Minn. 1978); *Ferguson v. Northern States Power Co.*, 239 N.W.2d 190 (Minn. 1976); *Quigley v. Village of Hibbing*, 129 N.W.2d 765 (Minn. 1964). For example, in *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993), the Minnesota Court of Appeals noted that “[a]lthough this Restatement section is not controlling law in Minnesota, because the supreme

court has recognized it in other cases, *see, e.g., Mahowald v. Minnesota Gas Co.* . . . we believe the trial court’s use of it was appropriate.” *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993).

However, the Minnesota Supreme Court has been careful to note that while “we have recognized the applicability of [the Restatement §§ 519 and 520] in other contexts, that is all we did—recognize the existence of those two sections. In none of these cases did we apply those sections, nor has our attention been directed to any other case where we did apply them.” *Mahowald*, 344 N.W.2d at 861. The Minnesota Supreme Court has explicitly rejected applying Restatement §§ 519–520 in strict liability cases for accidents arising out of escaping gas from lines maintained in public streets. *Id.*

Nevertheless, applying strict liability without proof of negligence is consistent with a long line of Minnesota cases involving abnormally dangerous activities. *See, e.g., Sachs v. Chiat*, 162 N.W.2d 243 (1968) (pile driving abnormally dangerous activity that requires liability without fault); *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924) (waterworks operated by municipal corporation requires liability without fault); *Wiltse v. City of Red Wing*, 109 N.W. 114 (Minn. 1906) (collapse of reservoir destroying plaintiff’s house requires liability without fault); *Berger v. Minneapolis Gaslight Co.*, 62 N.W. 336 (Minn. 1895) (petroleum that escaped from gas company’s tanks, damaging wells and cellars, requires liability without fault); *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (Minn. 1871) (tunnel collapse under property lessee’s land requires liability without negligence in its construction or maintenance).

The Minnesota Supreme Court was one of the first American jurisdictions to adopt the famous English tort law ruling on strict liability, *Rylands v. Fletcher*. *See, e.g., Minnesota Mining & Mfg. Co. v. Travelers Indem. Co.*, 457 N.W.2d 175, 183 (Minn. 1990). In *Rylands*,

defendant owners of a mill built a reservoir to supply their mill with water. *Rylands v. Fletcher*, LR 3 H.L. 330 (1868). The plaintiff leased coal mines on neighboring land between the reservoir and the mill. Water from the reservoir burst into old, unused mine shafts, and flooded the mine. When the defendants appealed, arguing that they did not know that the flooded shafts were connected to the mine, the House of Lords held that the plaintiff did not need to prove negligence, because “the person who, for his own purposes, brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril.” *Id.* at 339. On the relationship of obligation between neighbors, the *Ryland* court found that:

[I]t seems but reasonable and just that the neighbour who has brought something on his own property (which was not naturally there), harmless to others so long as it is confined to his own property, but which he knows will be mischievous if it gets on his neighbour’s, should be obliged to make good the damage which ensues if he does not succeed in confining it to his own property.

Id. at 340.

In *Kennedy Building Associates v. Viacom, Inc.*, the U.S. Court of Appeals for the Eighth Circuit found that Minnesota has “not limited the *Rylands* cause of action to cases in which the plaintiff and defendant were neighboring landowners,” citing *Hannem v. Pence*, a case in which a plaintiff was injured by falling ice while walking past a defendant’s building. *Kennedy Building Associates v. Viacom, Inc.*, 375 F.3d 731, 740 (8th Cir. 2004) (citing *Hannem v. Pence*, 41 N.W. 657 (Minn. 1889)). The Minnesota Supreme Court has also applied the *Rylands* rule to defendants that do not own the land on which they created a hazard. See *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (1871). Under Minnesota’s strict liability rule, it makes no difference that a defendant is no longer in possession of control of the instrumentality that caused a hazard. *Id.*

Minnesota has also applied strict liability for abnormally dangerous activity to enterprises that ultimately benefit the community. Although these activities may be useful to society, the

court has found that as times change and large-scale industrial activity increases, the responsibility for damages from useful operations should not fall on harmed individuals. *Bridgeman-Russell Co. v. City of Duluth* involved a waterworks operated by a municipal corporation that discharged water, damaging the plaintiff's property. *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924). The Minnesota Supreme Court imposed strict liability, without requiring proof of negligence, stating that:

Congestion of population in large cities is on the increase. This calls for water systems on a vast scale either by the cities themselves or by strong corporations. Water in immense quantities must be accumulated and held where none of it existed before. If a break occurs in the reservoir itself, or in the principal mains, the flood may utterly ruin an individual financially. In such a case, even though negligence be absent, natural justice would seem to demand that the enterprise, or what really is the same thing, the whole community benefited by the enterprise, should stand the loss rather than the individual. It is too heavy a burden upon one.

Id. at 972.

In light of this Minnesota case law expressing a fairly expansive view of strict liability, even in the case of activities that have social value, a claim by Minnesota against fossil fuel companies for climate change damages would appear to fit squarely within a claim for strict liability for abnormally dangerous activities.

H. Other Claims

Minnesota could also consider claims under the Minnesota Environmental Rights Act, Minn. Stat. ch. 116B ("MERA"), and the Minnesota Environmental Response, Compensation, and Liability Act, Minn. Stat. ch. 115B ("MERLA"). In particular, the Minnesota Attorney General lawsuit against 3M discussed earlier contained a MERLA claim. The applicability of these claims to a potential lawsuit against fossil fuel companies for climate change damages is not discussed in this Memorandum but could be subject to further investigation.

I. Applicable Statutes of Limitations for All Claims

The statute of limitations for violations of the consumer protection laws is six years. Minn. Stat. § 541.05(2). Fraud allegations are also subject to a six-year statute of limitations under Minn. Stat. § 541.05(6), which begins upon “discovery by the aggrieved party of the facts constituting the fraud.” The statute of limitations may be suspended for fraudulent concealment if the facts which establish the cause of action are fraudulently concealed. *Hydra-Mac, Inc. v. Onan Corp.*, 450 N.W.2d 913, 918–19 (Minn. 1990). Antitrust claims in Minnesota are subject to a four-year statute of limitations, although “a cause of action for a continuing violation is deemed to arise at any time during the period of the violation.” Minn. Stat. § 325D.64, subd. 1.

For the product liability claims, a four-year statute of limitations applies to strict products liability claims, while a six-year statute of limitations applies to negligence claims. *See* Minn. Stat. § 541.05, subds. 1–2. However, because Minnesota courts have merged negligence and strict products liability theories into one single recovery for design defect and failure to warn claims, it is arguable that the six-year negligence statute of limitations would apply. For example, in *Klempka v. G.D. Searle & Co.* the U.S. Court of Appeals for the Eighth Circuit applied Minnesota law to hold that the statute of limitations was six years for a products liability claim. 63 F.2d 168, 170 (8th Cir. 1992).

For the common law tort claims of strict liability for abnormally dangerous activities, public nuisance, and private nuisance, and trespass, it is likely that a six-year statute of limitations would apply as such claims fall under the general six-year statute of limitations found in Minn. Stat. § 541.05, subd. 1(2). *See e.g., Citizens for a Safe Grant v. Lone Oak Sportsmen’s Club, Inc.*, 624 N.W.2d 796 (Minn. Ct. App. 2001) (six-year limitations period applied to

trespass and nuisance actions brought by neighborhood organization against gun club operating outdoor shooting ranges).

Two elements must be satisfied before a cause of action accrues for any of the common law claims: “(1) a cognizable physical manifestation of the disease or injury, and (2) evidence of a causal connection between the injury or disease and the defendant’s product, act, or omission.” *Narum v. Eli Lilly and Co.*, 914 F. Supp 317, 319 (D. Minn. 1996). Under Minnesota law, “[a] plaintiff who is aware of both her injury and the likely cause of her injury is not permitted to circumvent the statute of limitations by waiting for a more serious injury to develop.” *Klempka v. G.D. Searle & Co.*, 963 F.2d 168, 170 (8th Cir. 1992).

Fossil fuel company defendants may allege that Minnesota’s claims are time barred because the first cognizable physical manifestation of climate change damages occurred longer than six years ago. However, Minnesota also recognizes the continuing violation doctrine. *Brotherhood of Ry. and S.S. Clerks, Freight Handlers & Station Employees v. State by Balfour*, 229 N.W.2d 3, 193 (Minn. 1975). That doctrine holds that when a violation is ongoing, the statute of limitations does not run from the initial wrongful action, but rather begins to run only when the wrong ceases. *N. States Power Co. v. Franklin*, 122 N.W.2d 26, 30-31 (Minn. 1963). For example, in *Hempel v. Creek House Train*, the Minnesota Supreme Court found that the defendant’s continuing negligence tolled the limitations period. *Hempel v. Creek House Tr.*, 743 N.W.2d 305, 312 (Minn. 2007).

While there have been a number of cases where courts applying Minnesota law have found that the continuing violation doctrine did not apply based on the facts of the case, these were not categorical exclusions of the doctrine in Minnesota. *See e.g., Union Pac. R.R. Co. v. Reilly Indus., Inc.*, 4 F. Supp. 2d 860, 867 (D. Minn. 1998) (holding that the continuing wrong

doctrine did not apply because there was no “leakage from storage tanks or basins,” and that any “leakage” ceased before the relevant limitations period expired). Because the fossil fuel companies’ extraction, production, marketing, and sale of fossil fuel products has continued, the continuing violation doctrine would apply, and the claims would not be barred by the statute of limitations.

Re: shorter memo

From: Alexandra Klass <aklass@umn.edu>
To: Alyssa Johl <alyssa@climateintegrity.org>
Cc: Judith Enck <judith@climateintegrity.org> [REDACTED]

Sent: February 1, 2019 5:06:17 PM CST

Hi Alyssa, I'm copying [REDACTED] on this response so you have their contact information. Go ahead and make your redline edits on this version of the memo and we will put the claims in a separate appendix.

Best,

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
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On Fri, Feb 1, 2019 at 4:56 PM Alyssa Johl <alyssa@climateintegrity.org> wrote:

Thanks so much, Alex. And please do let me know if there are students whom I should keep in the loop as well.

Alyssa

On Fri, Feb 1, 2019 at 5:35 PM Alexandra Klass <aklass@umn.edu> wrote:

Alexandra B. Klass
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--

Alyssa Johl
Legal Counsel
Center for Climate Integrity
T: +1-510-435-6892 | E: alyssa@climateintegrity.org

Re: shorter memo

From: Alexandra Klass <aklass@umn.edu>
To: Alyssa Johl <alyssa@climateintegrity.org>
Cc: Judith Enck <judith@climateintegrity.org>, [REDACTED]
[REDACTED]
Michael Noble <Noble@fresh-energy.org>
Sent: February 2, 2019 7:01:50 AM CST
Attachments: Memo to AG Ellison on Climate Change Litigation 1 2019.docx, Memo to AG Ellison on Climate Change Litigation 1 2019.pdf, Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019.docx, Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019.pdf, Appendix A_Model Claims.docx, Appendix A_Model Claims.pdf

Dear Alyssa and Judith: Attached the following documents:

"Longer" memorandum in both Word and PDF
"Shorter" memorandum in both Word and PDF
Appendix A (model claims) to shorter memorandum in both Word and PDF

Alyssa -- Why don't you make your changes in redline to the Word version of the shorter memorandum.

Best,

Alex

Alexandra B. Klass
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University of Minnesota Law School
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Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

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Hi Alyssa, I'm copying [REDACTED] on this response so you have their contact information. Go ahead and make your redline edits on this version of the memo and we will put the claims in a separate appendix.

Best,

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
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On Fri, Feb 1, 2019 at 4:56 PM Alyssa Johl <alyssa@climateintegrity.org> wrote:

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Alyssa

On Fri, Feb 1, 2019 at 5:35 PM Alexandra Klass <aklass@umn.edu> wrote:

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--

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1. Memo to AG Ellison on Climate Change Litigation 1 2019.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 110 KB (113,511 bytes)

2. Memo to AG Ellison on Climate Change Litigation 1 2019.pdf

Type: application/pdf
Size: 486 KB (498,293 bytes)

3. Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 81 KB (83,431 bytes)

4. Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019.pdf

Type: application/pdf
Size: 364 KB (373,489 bytes)

5. Appendix A_Model Claims.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 56 KB (58,128 bytes)

6. Appendix A_Model Claims.pdf

Type: application/pdf
Size: 216 KB (221,476 bytes)

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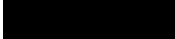
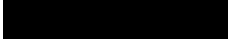
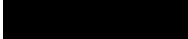

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MEMORANDUM

TO: Keith Ellison
Minnesota Attorney General

FROM: Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School

 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Minnesota Law Class of 2019

DATE: January 31, 2019

RE: Potential Lawsuit against Fossil Fuel Companies for Minnesota Climate Change Damages

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INTRODUCTION

This memorandum sets forth possible claims for damages by the State of Minnesota against major oil, gas, and coal companies for their contribution to climate change-related damages in Minnesota. Such a lawsuit would be likely be filed in Minnesota District Court and would be similar to pending lawsuits that states, counties, and cities in other parts country have filed against the fossil fuel companies for damages. The remaining sections of this Memorandum discuss the status of the climate change damages lawsuits filed to date in other states and the potential claims that could be brought in a Minnesota lawsuit. These include statutory consumer protection and antitrust claims, strict liability design defect and strict liability failure to warn claims, and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

Part I surveys the climate change lawsuits in other states and the Attorneys General who have supported them. Part II evaluates Minnesota law governing consumer protection claims, product liability claims, and common law tort claims and sets forth model causes of action for each claim under Minnesota law.

The defendants in the lawsuit could include BP, Chevron, ConocoPhillips, Exxon Mobil, Shell, and other oil, gas, and coal companies. These companies extracted, produced, designed, and sold fossil fuel products that emitted massive tons of CO₂ into the atmosphere upon their use. For example, 90 producers of oil, natural gas, coal, and cement are responsible for 63% of cumulative industrial CO₂ and methane emissions worldwide from 1751-2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (NOV. 22, 2013). Just 28 companies are

responsible for 25% of all emissions since 1965. *Id.*¹ As CO₂ is a relatively stable compound, most of these molecules will remain in the atmosphere for centuries. The increase in CO₂ emissions resulting from fossil fuel use has contributed to and accelerated the greenhouse effect, causing climate change damages ranging from drought, flooding, change in weather patterns, loss of species biodiversity, sea level rise, and increases in invasive species, with average annual temperatures over the contiguous United States already increasing by 1.8°F since 1895.

The nature of the damages Minnesota could seek to recover in a lawsuit are set forth in detail in the accompanying Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy. These damages are costs the state has already incurred or will incur as a result of climate change caused by fossil fuel companies and include:

- Costs associated with flooding, including costs of damage to state property and costs to mitigate and remediate the flooding related impacts to property and public health;
- Costs associated with damages to tourism and outdoor recreation, including mitigating climate-related stress to plant and animal species and ecological systems in the state;
- Costs associated with damages to agricultural yields, management and mitigation of crop diseases and crop pests, and costs of adopting to less fertile soils;
- Costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure, increased asthma attacks, and exposure to vector-borne disease as well as mitigation measures and public education programs to reduce the occurrence of these impacts;
- Costs associated with responding to, managing, and repairing damages from climate change to Minnesota forest lands, including impacts on state-run hunting and fishing industries;
- Costs of analyzing and evaluating the impacts of climate change on infrastructure, including transportation, water supply, wastewater treatment, and the power system and the costs of mitigating, adapting to, and remediating those impacts;

¹ In the Santa Clara County lawsuit, described in more detail in Part I.A., the plaintiffs sued approximately 40 fossil fuel companies, which the plaintiffs alleged were responsible for 227.6 gigatons of CO₂ emissions between 1965 and 2015, representing 20.3% of total emissions of CO₂ during that period.

- Costs of responding to, managing, and repairing damage to Minnesota fisheries from climate change, including extinction of cool and cold-water fish species and the impacts of the spread of aquatic invasive species; and
- Costs associated with the threats to indigenous communities from disruptions to their livelihoods, health, and cultural identities.

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides a brief history and current status of the recent climate change lawsuits brought by states and local governments against fossil fuel companies seeking damages for climate-change related harms. Other related lawsuits include suits against Exxon Mobil for investor fraud brought by the Attorneys General of New York and Massachusetts, countersuits by Exxon Mobil against those states filed in Texas courts, and public trust and constitutional claims for climate change harm brought by the group “Our Children’s Trust” against the federal government, states, and fossil fuel companies to compel limits on greenhouse gas (“GHG”) emissions. This memorandum will focus solely on the lawsuits by governmental entities seeking damages for climate-change related harms and will not discuss the other lawsuits noted above. This section will also discuss the positions of Attorneys General around the country in support of or in opposition to the lawsuits for climate change damages.

A. State Law Damages Suits for Climate Change Related Harms

In 2017 and 2018, several government entities across the country (e.g., cities, counties and states) brought lawsuits seeking damages against major fossil fuel companies for climate change-related harm caused by the extraction, promotion, and sale of fossil fuels. The complaints assert state statutory and common law causes of action including public nuisance, private nuisance, trespass, products liability, and consumer protection. A common argument among each

plaintiff is that the fossil fuel companies knew or should have known about the hazards associated with the extraction, promotion, and sale of fossil fuels, but the fossil fuel companies obscured the hazards from the public and regulators. A common argument among defendants is that federal court is the proper venue, and that the Clean Air Act displaces the state law claims and thus the lawsuits should be dismissed. All the lawsuits are described in detail at the Sabin Center for Climate Change Law's U.S. Climate Change Litigation Database, available at <http://climatecasechart.com/case-category/common-law-claims/>. For each case, the database has a summary of the case, its current status, and links to all pleadings filed in the lawsuit.

These lawsuits are the second round of lawsuits by governmental entities against fossil fuel companies for climate change-related harm. The first major climate change lawsuits, filed in the early 2000s, sought relief in federal court under federal common law nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. In *Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("AEP"), the U.S. Supreme Court held that the federal Clean Air Act displaced federal common law claims against defendants for GHG emissions. *See also Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849 (9th Cir. 2012), *cert. denied*, 569 U.S. 1000 (2013). These rulings serve as a backdrop for the recent wave of litigation using state law to hold fossil fuel companies accountable for climate change related harms.

In *AEP*, several states and private land trusts brought federal public nuisance claims against the five largest GHG emitting facilities in the United States. *AEP*, 564 U.S. at 418. Plaintiffs sought an injunction against each defendant "to cap its carbon dioxide emissions and then reduce them by a specified percentage each year for at least a decade." *Id.* at 419. The Court determined that the Clean Air Act displaced the plaintiffs' claims because the statute directly

authorized the U.S. EPA Administrator to regulate the emission of pollutants from stationary sources. *Id.* at 424 (citing 42 U.S.C. § 7411).

In *Kivalina*, an Alaskan village brought a public nuisance action against several fossil fuel companies and energy producers for sea level rise and erosion due to climate change caused by defendants' GHG emissions. *Kivalina*, 696 F.3d at 854. In contrast to *AEP*, the plaintiffs in *Kivalina* sought damages rather than an injunction. *Id.* at 857. Relying on *AEP*, the U.S. Court of Appeals for the Ninth Circuit reasoned that the Clean Air Act displaces federal common law claims for harms caused by GHG emissions regardless of the relief sought. *Id.* In response to *AEP* and *Kivalina*, the more recent litigation against fossil fuel companies to recover for climate change damages discussed below has attempted to avoid Clean Air Act displacement by bringing state law claims in state courts, and by focusing on the extraction, promotion, and sale of fossils fuels rather than emissions of GHGs.

1. The California Cases: San Mateo v. Chevron, and California v. BP

Most damages suits utilizing state law claims against fossil fuel companies for climate change harms are in their infancy. In these cases, government plaintiffs seek relief in state court and the defendants attempt to remove the action to federal court. Two cases brought in California state court—*County of San Mateo v. Chevron*, and *California v. BP*—highlight two emerging schools of thought on whether state or federal court is the appropriate venue. The plaintiffs in each case brought similar claims against numerous fossil fuel companies. However, in *County of San Mateo v. Chevron*, Judge Chhabria remanded the case to state court while in *California v. BP*, Judge Alsup denied the request for remand and dismissed the plaintiffs' claims. Both cases are on appeal to the Ninth Circuit. Notably, both judges sit on the U.S. District for the Northern

District of California. In each case, outside counsel for the local governments is Sher Edling LLP in San Francisco.

In *California v. BP*, the cities of San Francisco and Oakland brought state public nuisance claims against BP, Chevron, ConocoPhillips, Exxon Mobil and Shell for damages caused by climate change. Complaint, *California v. BP*, No. 17-561370 (Cal. Super. Ct. Sept. 19, 2017) (referencing the San Francisco Complaint); Complaint, *California v. BP*, No. 17-1785889 (Cal. Super. Ct. Sept. 19, 2017) (referencing the Oakland Complaint). Plaintiffs requested relief in the form of an abatement fund to provide for infrastructure necessary to adapt to global warming impacts such as sea level rise, as well as other relief. Plaintiffs argued the defendants promoted the use of fossil fuels despite being aware that their use would cause severe climate change, and that harms were already being felt and would intensify. Defendants removed the case to federal court and Judge Alsup of the Northern District of California denied the cities' motion for remand. Judge Alsup held that the suit was "necessarily governed by federal common law" and that "a patchwork of fifty different answers to the same fundamental global issue would be unworkable." *California v. BP*, 2018 U.S. Dist. LEXIS 32990, at *5, 10 (N.D. Cal., Feb. 27, 2018).

Plaintiffs then filed an amended complaint, which included a federal public nuisance claim, and defendants moved to dismiss. The Attorneys General of Indiana, Alabama, Arkansas, Colorado, Georgia, Kansas, Louisiana, Nebraska, Oklahoma, Texas, Utah and West Virginia, and Wyoming, as well as the United States of America filed amicus briefs in favor of dismissal. Opposing dismissal, as amici, were the Attorneys General of California, Washington and New Jersey.

The court dismissed all the claims. *City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017, 1019 (N.D. Cal. 2018). The court held that *AEP* and *Kivalina*'s Clean Air Act displacement rule applied even though plaintiffs styled their claims as based on the extraction, production, and sale of fossil fuels rather than emissions. *Id.* at 1024 (“If an oil producer cannot be sued under the federal common law for their own emissions, a fortiori they cannot be sued for someone else’s.”). The court also grounded its holding in the doctrine of separation of powers and judicial restraint, finding that:

questions of how to appropriately balance these worldwide negatives against the worldwide positives of the energy itself, and of how to allocate the pluses and minuses among the nations of the world, demand the expertise of our environmental agencies, our diplomats, our Executive, and at least the Senate. Nuisance suits in various United States judicial districts regarding conduct worldwide are far less likely to solve the problem and, indeed, could interfere with reaching a worldwide consensus.

Id. at 1024–1026. Plaintiffs’ appeal to the Ninth Circuit is pending.

In a separate action in California, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed similar suits in California Superior Court against numerous fossil fuel companies. *See e.g.*, Complaint, *County of San Mateo v. Chevron Corp.*, No. 17CIV03222 (Cal. Super. Ct. July 17, 2017). However, in addition to public nuisance, the plaintiffs also claimed strict liability for failure to warn, strict liability for design defect, private nuisance, negligence, negligent failure to warn, and trespass. Plaintiffs alleged that the fossil fuel companies’ “production, promotion, marketing, and use of fossil fuel products, simultaneous concealment of the known hazards of those products, and their championing of anti-regulation and anti-science campaigns, actively and proximately caused” injuries to plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. Among other relief, Plaintiffs requested compensatory and

punitive damages, and abatement of nuisances. Defendants removed the actions to federal court, and the three actions were then consolidated into one action.

Judge Chhabria of the U.S. District Court for the Northern District of California remanded the case to state court. Judge Chhabria expressly disagreed with Judge Alsup's ruling in the San Francisco and Oakland suit. Judge Chhabria held that "[b]ecause federal common law does not govern the plaintiffs' claims, it also does not preclude them from asserting the state law claims in these lawsuits. Simply put, *these cases should not have been removed to federal court on the basis of federal common law that no longer exists.*" *Id.* at 2 (emphasis added). The defendants appealed the remand order to the Ninth Circuit. The Ninth Circuit then consolidated the three remand actions brought by the County of San Mateo, County of Marin, City of Imperial Beach, as well as others stemming from similar suits brought by the County of Santa Cruz, City of Santa Cruz, and City of Richmond. Order, *Cty. of San Mateo v. Chevron Corp.*, No. 18-15499 (9th Cir. 2018). In November 2018, the U.S. Chamber of Commerce filed an amicus brief in opposition to the remand order. Briefing is ongoing in the Ninth Circuit.

2. *Rhode Island v. Chevron*

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling LLP as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court. The parties are awaiting the federal court's remand decision. Like the California cases, Rhode Island seeks to hold numerous fossil fuel companies liable for current and future injuries to state owned or operated facilities and property as well as for other harms. Complaint, *State of Rhode Island v. Chevron Corp.*, No. PC-2018-4716 (R.I. Super. Ct. 2018). Rhode Island seeks, among other relief, compensatory and punitive damages, and abatement of nuisances under state law claims for public nuisance, strict liability

for failure to warn, strict liability for design defect, negligent design defect, negligent failure to warn, trespass, impairment of public trust resources and state Environmental Rights Act—Equitable Relief Action. To date, this is the only climate change damage lawsuit brought by a State Attorney General as opposed to a city or county.

3. *Baltimore v. BP*

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought a claim in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and the California suits, Baltimore alleged that through the defendants' production, promotion and marketing of fossil fuels, defendants concealed the hazards of their products and disseminated information intended to mislead consumers, customers, and regulators regarding the known and foreseeable risks of climate change caused by their products. Complaint at 116, *Mayor and City Council of Baltimore v. BP*, No. 24-C-18-004219 (Md. Cir. Ct. 2018). Alleged damages include more severe and frequent storms and floods, increased sea level, heat waves, droughts, and harms to public health. Baltimore is seeking compensatory and punitive damages, and equitable relief among other remedies for public nuisance, private nuisance, strict liability failure to warn, strict liability design defect, negligent, design defect, negligent failure to warn, trespass, and violations of Maryland's Consumer Protection Act. The defendants removed the case to federal court and Baltimore has moved for remand.

4. *King County v. Chevron*

In May 2018, King County in Washington, with outside counsel from Hagens Berman LLP, filed a similar suit for public nuisance and trespass in Washington state court against numerous fossil fuel companies. Complaint at ii, *King Cty. v. BP*, 2:18-cv-00758-RSL (Wash. Super. Ct. 2018). Plaintiffs sought compensatory damages and the establishment of an abatement

fund to pay for a climate change adaptation program. Defendants removed the case to federal court and moved for dismissal. Plaintiff moved for and was granted a stay until the Ninth Circuit issues a decision in *City of Oakland v. BP*. The stay is currently in place.

5. *Pacific Coast Federation of Fishermen's Association v. Chevron*

In November 2018, a fishing industry trade group represented by Sher Edling LLP filed a climate change damage suit against the fossil fuel companies in California state court. The trade group is relying on California state nuisance and products liability law to hold the defendants liable for closures to crab fisheries caused by climate change. *Pacific Coast Federation of Fishermen's Association v. Chevron Corp.*, No. CGC-18-571285 (Cal. Super. Ct. 2018). Specifically, Plaintiffs assert that warming ocean temperatures caused by climate change has led to an increase in a plankton species, *Pseudo-nitzschia*, responsible for causing “amnesic shellfish poisoning” through the release of the toxin domoic acid. Plaintiffs seek compensatory and punitive damages and equitable relief. In December 2018, defendants filed a notice of removal.

6. *Boulder County v. Suncor Energy*

In April 2018, three Colorado local government entities—the City of Boulder and the Counties of Boulder and San Miguel—filed suit against fossil fuel companies seeking damages and other relief for the companies’ role in causing climate change. Outside counsel includes Hannon Law Firm LLP, EarthRights International, and the Niskanen Center, a libertarian think tank. Plaintiffs brought claims under public and private nuisance, trespass, the Colorado Consumer Protection Act, and civil conspiracy. In an effort to avoid federal jurisdiction and *AEP*-like displacement, Plaintiffs’ complaint stated:

[Plaintiffs] do not seek to impose liability, restrain or interfere with Defendants ability to participate in public debates about climate change, or otherwise interfere with Defendants’ speech. . . [and] do not seek to enjoin any oil and gas operations or sales in the State of Colorado, or elsewhere, or to enforce emissions controls of

any kind. Plaintiffs do not seek damages or abatement relief for injuries to or occurring on federal lands. Plaintiffs do not seek damages or any relief based on any activity by Defendants that could be considered lobbying or petitioning of federal, state or local governments.

Complaint at 123, *Cty. of Boulder v. Suncor Energy Inc.*, No. 2018CV030349 (Colo. D. Ct. 2018). Defendants removed to federal court. Plaintiffs moved to remand. That motion is pending.

7. *City of New York v. BP*

In January 2018, New York City filed suit for damages and equitable relief in federal court against fossil fuel companies asserting public nuisance, private nuisance, and trespass claims under New York State law against fossil fuel companies. Complaint at i, 63. *City of New York v. BP*, No. 1:18-cv-00182-JFK (S.D.N.Y. 2018). In contrast to the suits discussed above, New York filed in federal court rather than in state court. Outside counsel includes Hagen Berman LLP and Seeger Weiss LLP. The Niskanen Center filed an amicus brief in support of New York City. In support of Defendants, fifteen states led by Indiana filed an amicus brief in favor of dismissal. The court dismissed, and New York City appealed. On appeal to the U.S. Court of Appeals for the Second Circuit, Attorneys General of New York, California, Maryland, New Jersey, Oregon, Rhode Island, Vermont, Washington, and the District of Columbia have filed an amicus brief in support of New York. Other amicus briefs in support of New York include ones from law professors, environmental justice groups, and the National League of Cities. Briefing is ongoing.

B. State Attorneys General Supporting Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of plaintiffs bringing damages claims for climate change-related harms to state resources and infrastructure. For example, in *New York City v. BP* Attorneys General Underwood (NY), Becerra (CA), Kilmartin (RI), Frosh (MD), Donovan (VT), Grewal (NJ), Ferguson (WA), Rosenblum (OR), and Racine

(D.C.) signed an amicus in support of New York City’s claim. In support of the fossil fuel companies were Attorneys General Fisher (IL), Hill (IN), Marshall (AL), Rutledge (AR), Coffman (CO), Carr (GA), Schmidt (KS), Landry (LA), Peterson (NE), Hunter (OK), Wilson (SC), Paxton (TX), Reyes (UT), Morrissey (WV), Schimel (WS), and Michael (WY). In *Oakland v. Chevron*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA) supported the plaintiffs. In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP*. Additionally, several other Attorneys General are likely or potentially supportive of actions against fossil fuel companies for climate change-related harms based on recent campaign statements. They include Letitia James (NY), Josh Shapiro (PA), Josh Kaul (WI), Dana Nessel (MI), Phil Weiser (CO), Josh Stine (NC), and Kwame Raoul (IL).

II. Potential Claims Against Fossil Fuel Companies Under Minnesota Law

This Part discusses potential claims the Minnesota Attorney General could bring against fossil fuel companies for climate change-related damages in Minnesota. These claims build off the claims in the existing lawsuits discussed in Part I. For each claim, this Memorandum discusses the applicable law in Minnesota and then provides an example of what the claim would look like in a complaint using Minnesota-specific law as well as Minnesota-specific damages.

The claims discussed below are: (1) consumer protection claims, including the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”), the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”), and antitrust claims under Minn. Stat. §§ 325D.49-325D.66; (2) product liability claims, including design defect and failure to warn; and (3) common law tort claims, including

public nuisance, private nuisance, trespass and strict liability for abnormally dangerous activities. This Part also discusses the statutes of limitations potentially applicable to these claims.

A. Consumer Protection Claims

Two of the existing climate change lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations. The Colorado plaintiffs also allege conspiracy claims. Both cases were removed to federal court and motions to remand are pending. The complaints in these cases and the possibility of similar claims under Minnesota law are discussed below.

1. Applicable law

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”) and the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”). Minnesota and Blue Cross Blue Shield used these laws to sue the tobacco companies in the 1990s, leading to a \$6.6 billion settlement in 1998.

The Minnesota Supreme Court has “cited its prior statements that the CFA should be liberally construed in favor of protecting consumers and that the CFA reflected ‘a clear legislative policy encouraging aggressive prosecution of statutory violations.’” Prentiss Cox, *Goliath Has The Slingshot: Public Benefit And Private Enforcement Of Minnesota Consumer Protection Laws*, 33 WM. MITCHELL L. REV. 163, 178 (2006) (citing *Ly v. Nystrom*, 602 N.W.2d 644, 308 (Minn. Ct. App. 1999) (citing *State v. Philip Morris, Inc.*, 551 N.W.2d 490, 495-96 (Minn. 1996)). See also Gary L. Wilson & Jason A. Gillmer, *Minnesota’s Tobacco Case: Recovering Damages Without Individual Proof of Reliance Under Minnesota’s Consumer Protection Statutes*, 25 WM. MITCHELL L. REV. 567, 590 (1999) (“Minnesota consumer

protection statutes present one example in which the legislature has made a policy decision to make it easier to sue for a consumer protection violation than it would be under the common law. The legislature did so by relaxing the requirement of causation. . .”).

The Attorney General has express responsibility to “investigate offenses” and “assist in enforcement” of the CFA, UTPA, and the FSAA in Minn. Stat. § 8.31, subd. 1. Subdivision 3(a) of § 8.31 gives clear authority to the Attorney General to seek damages and equitable remedies for CFA, UTPA and FSAA violations, providing that “[i]n any action brought by the attorney general pursuant to this section, the court may award any of the remedies allowable under this subdivision,” which include “damages . . . costs and disbursements, including costs of investigation and reasonable attorney’s fees, and . . . other equitable relief.” Minn. Stat. § 8.31(3)(a).

The CFA forbids “[t]he act, use, or employment by any person of any fraud, false pretense, false promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any person has in fact been misled, deceived, or damaged thereby. . .” Minn. Stat. § 325F.69, subd. 1. The UTPA provides that “[n]o person shall, in connection with the sale of merchandise, knowingly misrepresent, directly or indirectly, the true quality, ingredients or origin of such merchandise.” Minn. Stat. § 325D.13. The FSAA prohibits a broad range of advertising and other activities designed to “increase the consumption” of merchandise that “contain[] any material assertion, representation, or statement of fact which is untrue, deceptive, or misleading .

. .” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.²

Any claims under Minnesota consumer protection statutes for climate change-related damages should be brought by the Attorney General as a direct action on behalf of the state, rather than a subrogation action on behalf of state citizens. *See State v. Minnesota School of Business, Inc.*, 915 N.W.2d 903, 910 (2018) (denying restitution to individuals that did not testify at trial). In actions seeking damages, the Minnesota Supreme Court held that Minn. Stat. § 8.31, subd. 3(a) demands:

[T]hat there must be some “legal nexus” between the injury and the defendants’ wrongful conduct. . . where the plaintiffs’ damages are alleged to be caused by a lengthy course of prohibited conduct that affected a large number of consumers, the showing of reliance that must be made to prove a causal nexus need not include direct evidence of reliance by individual consumers of defendants’ products. Rather, the causal nexus and its reliance component may be established by other direct or circumstantial evidence. . .

Grp. Health Plan, Inc. v. Philip Morris Inc., 621 N.W.2d 2, 15 (Minn. 2001).

The Minnesota tobacco case was a direct action in which the state and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare providers. *Wilson & Gillmer, supra* at 570-576. While specific individual reliance was not required, at least six types of evidence made effective “legal nexus” causation arguments: (1) evidence of the defendants’ intentional misconduct, (2) addiction of the defendants’ customers; (3) the defendants’ exploitation of smokers; (4) the defendants’ reassurance of smokers through advertising; (5) the defendants’ youth marketing strategies; and (6) the defendants’ intent that their conduct be relied upon. *Wilson & Gillmer, supra* at 608-624.

² The UDTPA is not expressly mentioned in Minn. Stat. § 8.31, so “[t]here is a question whether damages are available for violations.” *Wilson & Gillmer, supra* at 588. The court did not allow a UDTPA action for damages in the tobacco litigation; however, some argue that damages may be available pursuant to § 8.31(3)(a). *Id.* at 588-589.

Based on the publicly available information, there is a wealth of similar facts the Attorney General can rely on in a case against the fossil fuel companies for climate change damages. As with the tobacco companies, the fossil fuel companies intentionally deceived Minnesota, other states, and the public about the long-term risks of continued fossil fuel use through advertisements, public statements, and funded research. Much of this disinformation campaign has come to light only recently.

There is also evidence that the fossil fuel companies have encouraged a public “addiction” to oil and created hostility toward cleaner fuels. These actions are similar to the tobacco companies’ efforts to increase individuals’ nicotine intake—despite their ability to lower nicotine content. *See id.* at 613-616 (“The tobacco industry has the technological capability of removing most of the nicotine from cigarettes. However, evidence suggests the tobacco industry maintains nicotine at certain levels because the companies know that nicotine is the addictive substance. . .”) (citation omitted); *see also* Peter Teigland, *Petroleum Refining in Minnesota*, NORTH STAR POLICY INST. (May 10, 2018) (explaining that much of the oil flowing into and through Minnesota comes from the Bakken shale and Canadian tar sands).

The plaintiffs in both the Maryland and Colorado lawsuits allege that developing “dirtier” sources of fuel shows oil companies’ blatant disregard of climate data. *See, e.g.*, Colorado Complaint ¶ 384 (“Moreover, and despite its knowledge of the grave threats fossil fuels pose to the climate as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to the concentration of atmospheric CO₂.”) In addition, evidence of the industry’s significant spending on advertising and correlating sales may be used to show causation by establishing the companies’ intention that their publications be relied on by consumers. Wilson & Gillmer, *supra* at 601, 617 (“Even without a showing of intentional

conduct, vast promotional expenditures give rise to a presumption that consumers have been deceived . . . The industry conceded that success in the marketplace is evidence of consumer reliance on the industry’s words and actions.”).

The Attorney General may also bring antitrust claims against the fossil fuel companies, similar to the claims in the Colorado lawsuit. The prohibitions in the Minnesota Antitrust Law of 1971, Minn. Stat. §§ 325D.49-325D.66, include conspiracy and seeking/exercising monopoly power. According to the Minnesota Supreme Court, “Minnesota antitrust law is generally interpreted consistently with federal antitrust law.” Brent A. Olson, MINN. PRAC., BUSINESS LAW DESKBOOK § 22A:1 (2018) (citation omitted). As such, “antitrust claims are *not* subject to a heightened standard of specificity in pleading . . .” *In re Milk Indirect Purchaser Antitrust Litig.*, 588 N.W.2d 772, 775 (Minn. Ct. App. 1999). The court may assess significant penalties: “Any person, any governmental body. . . injured directly or indirectly by a violation of sections 325D.49 to 325D.66, shall recover three times the actual damages sustained . . .” Minn. Stat. § 325D.57. The Attorney General has express authority to investigate and commence appropriate legal action seeking damages for violation of the statutory provisions. Minn. Stat. § 325D.59.

2. Model claims for violation of consumer protection and antitrust statutes

The consumer protection claims in the Minnesota tobacco litigation and the Maryland and Colorado lawsuits against fossil fuel companies for climate change-related damages provide an outline for consumer protection claims in Minnesota against fossil fuel companies. The following model complaint language is largely adapted from the claims in the Maryland and Colorado cases and the Second Amended Complaint in the Minnesota tobacco litigation, *State of Minnesota v. Philip Morris Inc.*, No. C1-94-8565 (Ramsey Co. Dist. Ct. 1998).

Prevention of Consumer Fraud Act, Minn. Stat. § 325F.68-70:

1. Defendants, in connection with the sale of merchandise, knowingly misrepresented, and continue to misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to fossil fuel use and climate change, including knowing misrepresentations that there is no causal connection between fossil fuel use and climate change, efforts to spread doubt about the link between fossil fuel use and climate change, and disparagement of the work of others that show the connection between fossil fuel use and climate change;
 - Defendants' fraudulent concealment of information relating to fossil fuel use and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use, including: the true cost and harms from their products, the damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.
3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

False Statement in Advertising, Minn. Stat. §325F.67:

1. Defendants, intending to sell and increase consumption of their products, knowingly caused and continue to cause to be made and placed before the public in Minnesota advertisements regarding their products which contained material assertions, representations and/or statements of fact that were untrue, deceptive, and/or misleading. *See* Minn. Stat. § 325F.67.
2. Defendants' wrongful conduct includes, by way of example:
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that make intentional, material misrepresentations, such as that there is no causal connection between fossil fuel use and climate change and publications and advertisements that advance false theories refuting the connection between fossil fuel use and climate change;
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that intentionally omit material information about the connection between fossil fuel use and climate change and existing and likely impacts of climate change on society.

3. As a direct and proximate result of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unlawful Trade Practices Act, Minn. Stat. §§ 325D.09-16:

1. Defendants, in connection with the sale of merchandise, including fossil fuels, knowingly misrepresented, and continue to knowingly misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations that there is no causal connection between fossil fuels and climate change, efforts to spread doubt about the link between fossil fuels and climate change, and disparagement of the work of others that showed the connection between fossil fuels and climate change;
 - Defendants' misrepresentations that they would or did conduct and disclose objective research on the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations;
 - Defendants' fraudulent concealment of information relating to fossil fuel use/extraction and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use/extraction, the true cost and harms from their products, the likely damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.
3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unreasonable Restraint of Trade and Commerce, Minn. Stat. § 325D.51:

1. For several decades and continuing today, Defendants entered into a contract, combination, or conspiracy between two or more persons aiming to unreasonably restrain trade and commerce in Minnesota's energy and transportation sectors. The energy and transportation markets are inextricably linked with Minnesota's interests in those fields and in other fields including but not limited to: health care, real estate, tourism and natural resources.
2. Defendants and their co-conspirators had a meeting of the minds to accomplish their goals to maintain and/or to increase fossil fuel usage at levels they knew were sufficient to alter the climate, and to withhold material information concerning the continuing and increasing harm caused by their fossil fuel activities, specifically concerning the damage to the climate that the

use of their goods and services would cause and the impacts of the use of their fossil fuels and fossil fuel-derived products and services on Plaintiff's property, social services and infrastructure.

3. This contract, combination, or conspiracy had the purpose and effect of restraining competition in the energy and transportation markets in Minnesota and controlling those markets in Minnesota through restraining and suppressing research on the causal connection between fossil fuel extraction/use and climate change and the harms of climate change, restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
4. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Monopolization of the Transportation/Energy/Petroleum Market in Minnesota, Minn. Stat. § 325D.52:

1. Defendants collectively and with co-conspirators have for at least several decades, and to this day maintained and used, or attempted to establish, maintain, or use monopoly power over trade and commerce to affect competition and/or control, fix or maintain prices in the oil market and other related markets. *See* Minn. Stat. § 325D.52.
2. Defendants, through their acts and omissions described above, maintained and used their monopoly power to affect competition by restraining and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use; and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
3. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Civil Conspiracy, Minn. Stat. § 325D.53:

1. Beginning at least as early as the 1950s and continuing until the present day, Defendants entered into a conspiracy with the intentional and unlawful purpose and effect of restraining

and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel combustion/use; engaging in affirmative misrepresentations on the harmful effects of fossil fuel combustion/use; and restraining and suppressing the research, development, production, and marketing of better alternatives. In furtherance of defendants' conspiracy, defendants lent encouragement, substantial assistance, and otherwise aided and abetted each other with respect to these wrongful acts.

2. As a direct and proximate result of Defendants' unlawful conspiracy, Plaintiff has suffered and will continue to suffer substantial injuries and damages, including but not limited to (see damages list above).

B. Products Liability Design Defect

1. Applicable law

Six lawsuits filed in state courts against fossil fuel companies for their products' contribution to climate change damages have alleged design defect and failure to warn claims arising under state common law. *See Mayor & City Council of Baltimore v. B.P.*, 24-C-18-004219 (Md. Cir. Ct. 2018); *Rhode Island v. Chevron Corp.*, PC-2018-4716 (R.I. Super. Ct. 2018); *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). All of these lawsuits allege both negligent design defect and failure to warn and strict liability design defect and failure to warn. *Id.* Minnesota could allege similar products liability claims against fossil fuel companies related to their extraction, production, marketing, and sale of fossil fuel products.

Minnesota adopted strict liability in tort for products liability cases in 1967. *See McCormack v. Hanksraft Co.*, 154 N.W.2d 488 (Minn. 1967). The Minnesota Supreme Court found that public policy necessitated protecting consumers from the risk of harm that arose from

“mass production and complex marketing.” *Id.* at 500. Adopting the strict liability theory, manufacturers are liable for the cost of injuries that result from their defective product regardless of negligence or privity of contract. *Id.* In *McCormack*, the Court reasoned that strict liability should apply as the makers of the product are in the best position to “most effectively reduce or eliminate the hazard to life and health, and absorb and pass on such costs [to consumers].” *Id.*

Since *McCormack* products liability law has expanded in Minnesota to cover three different theories of defective products: (1) manufacturing defects that arise from flaws in the way the product was made; (2) design defects that result from an unreasonably safe product design; and (3) failure to warn of reasonably foreseeable dangers from a products use. *See Rest. (Third) of Torts: Products Liability* § 2 (1998). As products liability law in Minnesota continued to evolve, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrook v. Marshalltown Mfg. Co.*, 473 N.W.2d 352 (Minn. Ct. App. 1991) (“*Bilotta* merged strict liability, negligence, and implied warranty remedies into a single products liability theory.”) (referencing *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 623 (Minn. 1984)); *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (“Toyota correctly notes that [in Minnesota] in the product liability context, strict liability and negligence theories merge into one unified theory, sharing the same elements and burden of proof.”).

Of the three products liability claims alleged in the other lawsuits against the fossil fuel companies, only design defect and failure to warn claims would apply in Minnesota. Manufacturing defect claims cover faulty or defective products that arise despite a reasonably safe design—e.g., defects that may occur to a discrete number of products during the manufacturing process. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases looks at the condition of the product and compare any defects found with the flawless

product). In contrast, all fossil fuel products on the market result in a dangerous condition—increased CO₂ emissions/climate change—*because* of the products unreasonably safe design. *See id.* (in a design defect case the “defect” lies in the consciously chosen design and the product is in the condition intended by the manufacturer).

a. Design defect

In Minnesota, a manufacturer has a nondelegable duty to design a reasonably safe product. *Bilotta*, 346 N.W.2d 616; *see also Schweich v. Ziegler, Inc.*, 463 N.W.2d 722, 731 (Minn. 1990) (“Caterpillar is duty bound to use reasonable care in designing the DH6 to protect users from unreasonable risk of harm while using it in a foreseeable manner.”). If a manufacturer breaches this duty and the defect proximately causes the plaintiff’s injury, it is liable in tort under a design defect theory. *Farr v. Armstrong Rubber Co.*, 288 Minn. 83, 90 (Minn. 1970). Therefore, to recover against a manufacturer for a design defect a plaintiff must show that: “(1) a product was in a defective condition unreasonably dangerous for its intended use; (2) the defect existed at the time the product left the defendant’s control; and (3) the defect proximately caused the plaintiff’s injury.” *Duxbury v. Spex Feeds, Inc.*, 681 N.W.2d 380, 393 (Minn. Ct. App. 2004). *See also Adams v. Toyota Motor Corp.*, 867 F.3d 902, 916–17 (8th Cir. 2017) (applying Minnesota law).

Unreasonably dangerous condition: To determine whether the design of a product is unreasonably dangerous, Minnesota courts employ the reasonable care balancing test adopted from Florida and New York courts in *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 624 (Minn. 1984). This test looks at the totality of circumstances including: “a balancing of the likelihood of harm, and the gravity of harm if it happens, against the burden of the precaution which would be effective to avoid the harm.” *Id.* It is an objective standard that “focuses on the conduct of the

manufacturer in evaluating whether its choice of design struck an acceptable balance among several competing factors.” *Id.* at 622. Often considered by courts and juries employing the reasonable care balancing test is whether or not there existed, or the plaintiff can prove, a practical alternative design. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 96 (Minn. 1987) (holding that existence of a practical alternative design is a factor, but not an element of a *prima facie* case, in design defect claims).

Fossil fuel products were, and continue to be, in a defective condition unreasonably dangerous for their intended use. The emission of GHGs resulting from the use of fossil fuel products causes severe and grave harms in the form of global warming, increased severity of dangerous weather patterns, rising sea level, increased drought, increased weather patterns, serious public health concerns particularly to low income and minority communities, and overall climate change damages. The fossil fuel companies were well aware of the gravity of this harm, as well as the extremely high likelihood that this harm would occur from their continued extraction, production, use, and marketing of fossil fuel products as early as 1965. This is particularly true in light of generally accepted scientific knowledge that unfettered anthropogenic GHG emissions would result in catastrophic impacts. The burden of precaution necessary to avoid the harms was significantly lower when the companies first became aware of the risk their fossil fuel products posed and has only grown since.

Defect existed at the time it left defendants’ control: The second element of a design defect claim is that “the defect existed at the time the product left the defendant’s control” *Duxbury*, 681 N.W.2d at 393. GHGs emitted from the combustion/use of fossil fuel products exists at the time they are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, individual and aggregate fossil fuel products reached the consumer in a

condition substantially unchanged from that in which it left the companies' control—and “were used in the manner in which they were intended to be used . . . by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.” Complaint at ¶ 212, *PCFFA v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018). Therefore, the defect existed at the time fossil fuel products left the fossil fuel companies' control.

Defect proximately caused the plaintiff's injury: Finally, the plaintiff must prove that the design defect proximately caused the plaintiff's injury. *Duxbury*, 681 N.W.2d at 393. “Proximate cause exists if the defendant's conduct, without intervening or superseding events, was a substantial factor in creating the harm.” *Thompson v. Hirano Tecseed Co., Ltd.*, 456 F.3d 805, 812 (8th Cir. 2006) (applying Minnesota law). A substantial factor has also been described as a “material element” in the happening of the injury. *Draxton v. Katzmarek*, 280 N.W. 288, 289 (Minn. 1938).

But-for causation is still necessary for a substantial factor causation analysis, because “if the harm would have occurred even without the negligent act, the act could not have been a substantial factor in bringing about the harm.” *George v. Estate of Baker*, 724 N.W.2d 1, 11 (Minn. 2006) (citing Rest. (Second) of Torts § 432 (1965)). However, if there are concurring acts that together cause the plaintiff's injury and act contemporaneously, or so nearly together that there is no break in the chain of causation, this is sufficient to meet the causation analysis even if the injury would not have resulted in the absence of either one. *Roemer v. Martin*, 440 N.W.2d 122, 123, n.1 (Minn. 1989). If there are concurrent acts of negligence, both parties are liable for the whole unless the resulting damage is “clearly separable.” See *Mathews v. Mills*, 178 N.W.2d

841, 844 (Minn. 1970). Before a particular factor can be said to be a concurrent cause, it must, first of all, be established that it is a cause. *Roemer*, 440 N.W.2d at 123.

The fossil fuel companies' extraction, production, refining, marketing, and sale of fossil fuels was and will continue to be a substantial factor in creating Minnesota's harm from climate change. Ninety producers of oil and gas are responsible for 63% of the cumulative industrial CO₂ and methane emissions worldwide between 1751 and 2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (Nov. 22, 2013). Abundant scientific studies and reports link these anthropogenic GHG emissions to climate change and its damages.

California has similarly adopted the substantial factor test to determine proximate causation. *People v. Atlantic Richfield Co.*, 2013 WL 6687953, at *16 (Cal. Super. Ct. 2013) ("Under this test, independent tortfeasors are liable so long as their conduct was a "substantial factor" in bringing about the injury."), *aff'd sub nom. People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51 (Cal. Ct. App. 2017). However, it is important to note that California's substantial factor test appears to be broader than Minnesota's, requiring the defendant's conduct to only be "a very minor force" to find it was a substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102. Despite this, *People v. Atlantic Richfield Co.*, still provides a useful analogy for determining whether multiple manufacturers of a product were each a "substantial factor" in creating the plaintiff's injury and may act as persuasive authority in Minnesota. 2013 WL 6687963 at *1, *aff'd sub nom. ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 169 (affirming holding of liability against lead paint manufacturers but limiting scope of abatement remedy to pre-1951 homes).

In *Atlantic Richfield Co.*, counties in California brought a public nuisance action against five lead paint manufacturers seeking abatement of the public nuisance created by the lead paint manufactured and sold by defendants in ten jurisdictions in California. Three of the paint manufacturers, ConAgra, NL Industries, and Sherwin Williams, were found to have created or assisted in the creation of the public nuisance and, as a result, the Court held their conduct was a substantial factor in bringing about the public nuisance. *Id.* at *54.

ConAgra was a large producer and supplier of lead, operated to a major degree within the jurisdictions that brought suit, and continued to sell lead paint until 1958 and therefore the Court found their conduct was a substantial factor in creating the public nuisance. *Id.* at *52. NL Industries (formerly known as National Lead Company) was the largest manufacturer, promoter, and seller of lead pigments for use in house paint and was an active participant in campaigns to promote lead paint. Based on this, the Court found NL to be a substantial factor in causing the public nuisance. *Id.* at *53. Finally, Sherwin Williams' conduct was found to have been a substantial factor in the public nuisance despite testimony offered by SW's expert witness Dr. Van Liere who estimated that Sherwin William's lead paint contributed a mere 0.1% of the total lead consumed in California from 1894 to 2009. *Id.* at *39. This was because the company had two plants, stores, and dealers selling lead paint within the jurisdictions bringing suit and it transported millions of pounds of lead paints to its warehouses and factories during the first four decades of the 20th century. *Id.* at *53.

The California Court of Appeals upheld the trial court findings, further emphasizing that all three defendants' marketing campaigns promoting lead paint as safe for use in residential homes and on doors and windows frames played at least a *minor* role in creating the public nuisance and therefore met the "substantial factor" test. *People v. ConAgra Grocery Products*

Co., 17 Cal. App. 5th 51, 102–03 (Cal. Ct. App. 2017). Minnesota can use the California courts’ reasoning to establish that each individual fossil fuel company named as defendant was a substantial factor in causing Minnesota’s climate damages.

Lastly, not only must the design defect be a substantial factor, or material element, in bringing about plaintiff’s injuries—there cannot be a “superseding” event that breaks the causal chain between the defendants’ conduct and the plaintiff’s injury:

A cause is “superseding” if four elements are established: (1) Its harmful effects must have occurred after the original negligence; (2) it must not have been brought about by the original negligence; (3) it must actively work to bring about a result which would not otherwise have followed from the original negligence; and (4) it must not have been reasonably foreseeable by the original wrongdoer.

Regan v. Stromberg, 285 N.W.2d 97, 100 (Minn. 1979). There were no intervening or superseding events that caused Minnesota’s climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between the fossil fuel companies’ conduct and Minnesota’s injuries and damages, or superseded the fossil fuel companies’ breach of its duty to design a reasonable safe product.

b. Joint and several liability and market share liability

Notably, although an individual oil or gas company may claim that its extraction, production, and sale of fossil fuel products was not a substantial factor or the “but-for” cause of Minnesota’s climate change damages, Minnesota can rely on two liability structures to overcome the causation burden: concurring causes and the indivisible injury rule which impose joint and several liability and market share liability.

In general, parties whose negligence concurs to cause an indivisible injury are jointly and severally liable, even if not acting in concert. *Maday v. Yellow Taxi Co.*, 311 N.W.2d 849 (Minn. 1981); *see also Rowe v. Munye*, 702 N.W.2d 729, 736 (Minn. 2005) (“[M]ultiple defendants are

jointly and severally liable when they, through independent consecutive acts of negligence closely related in time, cause indivisible injuries to the plaintiff.”). A harm is indivisible if “it is not reasonably possible to make a division of the damage caused by the separate acts of negligence.” *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970) (quotation omitted). When two or more persons are jointly liable, contributions to awards shall be in proportion to the percentage of fault attributable to each, except that each is jointly and severally liable for the whole award. Minn. Stat. § 604.02, subd. 1 (2018). However, a plaintiff would still be required to show that each defendant’s conduct was a substantial factor in causing its harming. *Jenson v. Eveleth Taconite Co.*, 130 F.3d 1287, 1294 (8th Cir. 1997).

At least four other state lawsuits have alleged fossil fuel companies’ acts and omissions were indivisible causes to the plaintiffs’ injuries and damages because it is not possible to determine the source of any particular GHG molecule from anthropogenic sources. *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman’s Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) (“*PCFFA v. Chevron*”). Joint and several liability would also apply in a lawsuit against fossil fuel companies for damages resulting from climate change in Minnesota. Minnesota is experiencing a single indivisible injury caused by multiple fossil fuel companies’ independent consecutive actions closely related in time. *See Jenson*, 130 F.3d at 1305 n.9 (explaining how the single indivisible injury rule imposes joint and several liability). Because Minnesota’s harm is indivisible, each fossil fuel company would be liable for the entire harm. *Id.*

If the fossil fuel companies argue that Minnesota's harms are divisible, they each may be able to limit their liability. However, the defendant asserting divisibility bears the burden of proving apportionment. *See e.g., Jenson*, 130 F.3d at 1294 (explaining that "plaintiffs bear no burden to prove apportionment" because apportionment is akin to an affirmative defense). Fossil fuel companies could attempt to prove apportionment based on the amount of GHG their fossil fuel products emitted.

People of the State of California v. Atlantic Richfield Co. once again provides reference for how oil and gas companies may be jointly and severally liable and can act as persuasive authority in Minnesota's courts. 2013 WL 6687953, 44 (Cal. Super. Ct. 2013). Under California law, when multiple tortfeasors are each a substantial factor in creating a public nuisance, they are jointly and severally liable for that nuisance. *Id.* at * 44 (quoting *Am. Motorcycle Assn v. Superior Court*, 20 Cal. 3d 578, 586 (1978)). Similar to Minnesota, if the injury is indivisible each actor whose conduct was a substantial factor in causing the damages is legally responsible for the whole. *Id.* California has found that this joint and several liability theory applies when multiple sources of contamination result in a single nuisance. *Id.* (quoting *State v. Allstate Ins. Co.*, 45 Cal. 4th 1008, 1036 (2009)). Because of this, the California Superior Court found that the three lead paint manufacturers who were found to be substantial factors in causing the public nuisance were all jointly and severally liable. *Id.* A similar theory of recovery could be used in Minnesota against fossil fuel companies applying Minnesota's version of concurrent harms, the invisible harm rule, and joint and several liability.

Finally, the market share liability theory allows a plaintiff to recover damages against defendants based on their proportion of the market share at the time the injury was caused if the defendants all produced an identical, or fungible product, and the plaintiff is unable to identify

which manufacturer produced the product that caused their injuries. *See Sindell v. Abbott Labs.*, 607 P.2d 924 (Cal. 1980) (establishing market share liability theory and apportioning liability based on the relative market share of each of the liable defendants). The Minnesota Supreme Court has not explicitly accepted or rejected the market share liability theory. *See Bixler v. J.C. Penney Co.*, 376 N.W.2d 209, 214 n.1 (Minn. 1985) (“We express no opinion as to whether we would adopt such a rule [market share liability], particularly where the product involved is not entirely fungible with similar products on the market.”). Because the Minnesota Supreme Court has not categorically ruled out the market share liability theory, it is possible that under the right set of facts, that theory of recovery may be available.

Minnesota can allege a market share liability theory if it is unable to prove which fossil fuel company caused its injuries because each fossil fuel company’s products are fungible with regard to their GHG emissions. The Wisconsin Supreme Court adopted a version of the market share liability theory known as the “risk contribution theory” in *Collins v. Eli Lilly Co.*, the state’s first DES case. 342 N.W.2d 37, 49 (Wis. 1984). In *Collins*, the Wisconsin Supreme Court recognized that the plaintiff would face an insurmountable obstacle if she had to prove which defendant manufactured the DES that her mother ingested based on the lack of records and pharmaceutical practices at that time. *Id.* at 44–45. Despite this, the Court found that Collins was entitled to a remedy at law for her injuries under the Wisconsin Constitution and therefore took the task of fashioning an adequate remedy. *See Id.* at 45 (“When an adequate remedy or forum does not exist to resolve disputes or provide due process, the courts, under the Wisconsin Constitution, can fashion an adequate remedy.”). *Compare* WIS. CONST. art. 1, § 9 (“Every person is entitled to a certain remedy in the laws for all injuries, or wrongs which he may receive in his person, property, or character.”) *with* MINN. CONST. art. 1, § 8 (“Every person is entitled to

a certain remedy in the laws for all injuries or wrongs which he may receive to his person, property or character . . .”).

In *Collins*, the Wisconsin Supreme Court held that for cases seeking recovery for harms associated with DES, and situations factually similar to DES cases, “the plaintiff need only allege and prove that the defendant drug company produced or marketed the drug DES for use in preventing miscarriages during pregnancy.” *Id.* at 50. In order to protect defendant drug companies that could not have contributed to Collins injury, the Court held that a defendant could escape liability if it could prove by a preponderance of evidence that the DES it produced or marketed could not have reached the plaintiffs mother. *Id.* at 197–98. The defendants could apportion liability using the comparative negligence theory, with the jury determining each company’s liability based on a number of factors including whether the company tested DES for safety, sought FDA approval, issued warnings about DES, produced or marketed DES after it knew of possible risks, and whether it took affirmative steps to reduce risk of injury to public. *Id.* at 199–200.

The Wisconsin Supreme Court later extended the risk contribution theory to a plaintiff who suffered lead poisoning but could not identify the paint manufacturer that had caused his injury. *See Thomas v. Mallet*, 285 Wis. 2d 236, 256 (Wis. 2005). Because many victims of lead poisoning would be denied an adequate remedy for harm, and Thomas’ case was factually similar enough to *Collins*, the Wisconsin Supreme Court agreed that the *Collins* risk-contribution theory should be extended to white lead carbonate claims. *Id.* at 293, 306 (explaining that lead poisoning plaintiffs are severely harmed by a substance they had no control over without an ability to prove with certainty which manufacturer produced or promoted the white lead carbonate that caused the injury).

In sum, both California's market share liability theory or Wisconsin's risk-contribution theory provide viable theories of recovery in Minnesota courts against fossil fuel companies for climate change harm in Minnesota. Fossil fuel companies' actions and the damages in Minnesota stemming from the use of their products closely resemble the factual circumstances of cases involving DES and lead paint. Fossil fuel products are fungible, the fossil fuel companies breached a legally recognized duty by failing to design their products in a reasonably safe manner, fossil fuel companies continued to market and produce their products despite knowledge of this danger, and the use of these fossil fuel products caused Minnesota's injuries. Moreover, in the case of fossil fuel companies, there is significant data on the percentage of GHG emissions related to each fossil fuel company's extraction, production, refining, and sales, making this arguably a stronger case for market share liability or risk-contribution theory than either the DES or lead paint cases.

2. *Model claim for design defect*

Below is an example of a model complaint alleging a claim of defective design for fossil fuel products under the reasonable care balancing test in Minnesota, along with support for each assertion. The language and sources are largely adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted, refined, formulated, designed, packaged, distributed, tested, constructed, marketed, promoted and sold fossil fuel products intended to be burned for energy, refined into petrochemicals, and/or refined/incorporated into petrochemical products including fuels and products.
2. The emissions of GHGs from the intended use of Defendants' fossil fuel products is a defective condition that makes the product unreasonably dangerous because GHG emissions cause numerous global and local changes to Earth's climate.
 - Fossil fuel combustion and industrial processes are responsible for the majority of emissions that have caused GHG concentrations to reach hazardous and

unprecedented levels, contributing roughly 78% of total GHG emission increases from 1970 to 2011.

- As a result of GHG emissions caused and contributed to by Defendants' fossil fuel activities, atmospheric CO₂ now stands at 408 parts per million (ppm), a level which is unprecedented in human history.
 - Once CO₂ enters the atmosphere, a significant portion of it remains there, with a warming influence that lasts for hundreds (if not thousands) of years. It also cannot be feasibly removed from the atmosphere with existing technology, committing the world to some degree of irreversible warming and associated climate change resulting from emissions to date.
 - These anthropogenic increases in CO₂ and GHG emissions act like a greenhouse in the atmosphere, trapping heat inside the Earth and leading to a warming atmosphere, oceans, and changing climate.
 - Minnesota's winters are warming thirteen times faster than its summers and Minneapolis and Mankato are the second and third fastest-warming cities respectively in the United States. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).
3. Based on the totality of the circumstances, balancing the likelihood of harm and the gravity of the harm if it occurred, against the burden of the precaution that would be effective to avoid the harm, the design of fossil fuel products was unreasonably dangerous.
4. The gravity of potential harms is extreme.
- Potential harms arising from fossil fuel products unreasonably dangerous design include global warming, extreme high temperature events, extreme precipitation events, droughts, significant public health impacts, and more.
 - Public health impacts of climatological changes are likely to be disproportionately borne by communities made vulnerable by geographic, racial, or income disparities including low-income communities, some communities of color, immigrant groups, indigenous peoples, children and pregnant woman, other adults, and others. Janet Gamble, U.S. EPA, John Balbus, Nat'l Inst. of Health, *The Impacts of Climate Change on Human Health in the United States* 249 (Apr. 2016).
 - In Minnesota, invasive species and diseases like Asian soybean rust may be able to survive Minnesota's warmer winters threatening Minnesota crops. Pine woods could retreat north changing Minnesota's tree population and warmer winters could even drive out Minnesota's state bird, the common loon. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).

- Minnesota will have more precipitation, but late summer conditions will be drier and warmer. *Id.* August rainfall could drop by up to 60 percent in some parts of the state by the end of the century. *Id.*
- Other Minnesota specific damages arising from climate change include:
 - Damages to agriculture including reduced yields, increases in pesticide and insecticide application to maintain yields, loss in soil agriculture, loss of yield in animal agriculture (pigs, cows, chickens, milk, egg, and pork production are lost when temperatures stay above 90 degrees), reduced fruit agriculture yields, particularly apples (apples need a certain number of chilling days per fall), and the cost to educate farmers on these changes and steps to mitigate damages by state agencies.
 - Current hydrologic damages including flooding on farmlands, excessive floods that fall under the compensation threshold by FEMA, increase in heavy storms. Future hydrological damages include an increase in prolonged droughts and flooding events.
 - Significant health impacts, particularly to low income and communities of color, including increased asthma attacks, allergens, hay fever, toxic algal blooms, heat stress and heat related illness (many low to medium income housing units do not have air conditioners), vector borne diseases (West Nile virus, tick borne diseases), flood damages and mold in homes (cost to remediate, mental health impacts, etc.)
 - Damages to Minnesota's lakes including toxic algal blooms, loss of cold-water species as we move to from cold-water lakes to cool water lakes, cost for state agencies to restock fisheries/lakes.
 - Damages to Minnesota's forests ranging from loss of wildlife habitat and species (including moose, common loon, and other iconic species).
 - A large tract of tamarack trees in Northeastern Minnesota has already been lost to eastern larch beetles, which are able to survive longer and cause more damage due to the warming climate. *See Josephine Marcotty, As Climate Warms, an Exploding Larch Beetle Population is Transforming Minnesota's Forests, STAR TRIBUNE (Aug. 13, 2017) ("It's a fantastic example of climate change in action," said Brian Aukema, a University of Minnesota professor who studies larch beetles and other forest insects. "That insect is telling us that tamarack no longer belongs here.")*
 - Costs to transportation infrastructure including flood damages to bridges and roads.

- Other infrastructure damages including stormwater systems, sewer systems, power sector constraints, increased burden on emergency management and need to retrofit state operated buildings with air conditioning.
5. Defendants not only *knew* of the significant potential likelihood that harm would occur from continued use of their fossil fuel products as early as 1965, they actively worked to obscure public knowledge and create uncertainty regarding climate science.
 6. The cost to society of each ton of CO₂ emitted into the atmosphere increases as total global emissions increase, so that with each extraction/consumption of fossil fuel product the gravity of harm and likelihood increases.
 7. The cost to society from climate change damages greatly outweighs the social benefit from unchecked extraction and consumption of fossil fuel.
 8. Oil and gas companies were in a position to create, develop, and design alternative technologies, energy sources, and businesses practices that would have eased the transition to a lower carbon economy, reduced GHG emissions, and mitigated the harms associated with climate change.
 9. Defendants could have mitigated the burden of the precautionary measures necessary to reduce GHG emissions by investing time and resources into developing alternative forms of energy.
 10. Instead, these same companies spent decades and vast resources on a concerted campaign to discredit climate change science and warnings despite internal knowledge that “it would be unwise and potentially dangerous to ignore the mounting concern.” John Browne, BP Climate Change Speech to Stanford, Climate Files (May 19, 1997), <http://climatefiles.com/bp/bp-climate-change-speech-to-stanford/>.
 11. Defendants also invested heavily in lobbying campaigns to avoid GHG regulation and international treaties addressing climate change.
 12. Defendants’ individual and aggregate fossil fuel products reached the consumer in a condition substantially unchanged from that in which it left Defendants’ control—and were used in the manner in which they were intended to be used by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.
 13. Defendants’ design of fossil fuel products led to an unreasonably dangerous defect that was the direct and proximate cause of substantial climate change damages in Minnesota.
 14. The emission of GHGs, a defective condition in fossil fuel products, is and will continue to be a substantial factor causing climate change damages in Minnesota.

15. Defendants' individual and collective acts and omissions were actual, substantial causes of increased average temperatures, spread of invasive species, drought, flooding and related consequences, including Minnesota's injuries and damages set forth herein.
16. There were no intervening or superseding events that caused Minnesota's climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between oil and gas companies' conduct and Minnesota's injuries and damages, or superseded Defendants' breach of their duties to design a reasonable safe product.
17. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions. *See supra*.
18. Defendants' acts and omissions as alleged herein are indivisible causes of Minnesota's injuries and damages as alleged herein, because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly diffuse and commingle in the atmosphere.
19. Defendants are jointly and severally liable for Minnesota's indivisible injuries stemming from climate change damages.

C. Products Liability Failure to Warn

I. Applicable law

In Minnesota “[g]enerally stated, a failure to warn claim has three elements: ‘(1) whether there exists a duty to warn about the risk in question; (2) whether the warning given was inadequate; and (3) whether the lack of a warning was a cause of plaintiff’s injuries.’” *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (quoting *Seefeld v. Crown, Cork & Seal Co., Inc.*, 779 F. Supp. 461, 464 (D. Minn.1991)).

Duty to warn: The first element of a failure to warn claim is whether or not a duty exists. “The duty to warn arises when a manufacturer knew or should have known about an alleged defect or danger, and should have reasonably foreseen that the defect or danger would cause injury.” *Id.* (citing *Seefeld*, 779 F. Supp. at 464; *Harmon Contract Glazing, Inc. v. Libby–Owens–Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). The duty extends to all

reasonably foreseeable users. *Whiteford v. Yamaha Motor Corp.*, 582 N.W.2d 916, 918 n.6 (Minn. 1998). The knowledge of an alleged defect or danger can be either actual or constructive. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987) (allowing recovery where the plaintiff either knew of the danger or *should* have known). Because a manufacturer has duty to keep informed of all current scientific knowledge, courts in Minnesota will look to current/past scientific knowledge to help determine whether a manufacturer *should* have known of the risks in its products. *Harmon Contract Glazing, Inc. v. Libby-Owens Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992).

Fossil fuel companies had both actual and constructive knowledge, particularly in light of scientific knowledge generally accepted at the time, that their fossil fuel products were dangerous due to their emissions of GHGs. It was also reasonably foreseeable that climate change damages would result from these emissions and thus fossil fuel companies had a duty to warn potential users of the foreseeable dangers.

However, a manufacturer has no duty to warn of dangers that are obvious to anyone using the product. *See Drager v. Aluminum Indus. Corp.*, 495 N.W.2d 879, 884 (Minn. Ct. App. 1993). “A failure to warn ‘is not the proximate cause of injury if the user is aware of the danger posed by the device in issue.’” *Shovein v. SGM Group USA, Inc.*, 2008 WL 11348494, at *6 (D. Minn. 2008) (citing *Mix v. MTD Products, Inc.*, 393 N.W.2d 18, 19 (Minn. App. 1986)). For example, in *Mix v. MTD*, the Minnesota Court of Appeals held that MTD did not have a duty to warn of the danger that could result from attempting to reattach a belt while the lawnmower’s engine was in neutral because the danger was obvious to most potential users. *Mix v. MTD Prods., Inc.*, 393 N.W.2d 18, 20 (Minn. Ct. App. 1986). Because of fossil fuel companies’ protracted and

intensive denialist campaign, the dangers of using fossil fuel products were not obvious to the public.

Adequate warning: Second, if a warning was issued it must be adequate. “To be legally adequate, a product supplier’s warning to a user of any foreseeable dangers associated with the product’s intended use should (1) attract the attention of those that the product could harm; (2) explain the mechanism and mode of injury; and (3) provide instructions on ways to safely use the product to avoid injury.” *Gray v. Badger Min. Corp.*, 676 N.W.2d 268, 274 (Minn. 2004). Consumers of fossil fuel products were prevented from recognizing the risk that fossil fuel products would cause grave climate changes because the companies “individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.” Complaint at ¶ 318, *County of Santa Cruz v. Chevron Corp.* (Cal. Super. Ct. 2018). Therefore, any warnings that may have publicized the danger to the public or Minnesota were undermined and rendered ineffective because of the companies’ public relations materials and campaigns. *Id.*

Causation: In order to recover under a failure to warn theory, the plaintiff must show a causal connection between the inadequate warning or failure to warn and the injuries he or she sustained. *Rients v. Int’l Harvester Co.*, 346 N.W.2d 359, 362 (Minn. Ct. App. 1984). Minnesota courts have interpreted this as requiring the plaintiff to show that *had* adequate warnings been provided, the injury would not have occurred. *See Hauenstein v. Loctite Corp.*, 347 N.W.2d 272, 276 (Minn. 1984) (explaining that causation is not met when the accident would have occurred whether or not there was a warning). While many states have adopted a “heeding presumption”—a rebuttable presumption that if warnings had been provided, they would have been read and heeded—the Minnesota Supreme Court specifically declined to do so in a failure

to warn case. *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99–100 (Minn. 1987); *see also Tuttle v. Lorillard Tobacco Co.*, 377 F.3d 917, 925 (8th Cir. 2004) (predicting that Minnesota courts would not adopt the heeding presumption). Furthermore, when a plaintiff requested the Minnesota Court of Appeals to adopt the heeding presumption in *Montemayor v. Sebright Products, Inc.* (unpublished case) the Court found that it was not its role “to extend the law.” 2017 WL 5560180, at *3 (Minn. Ct. App. 2017).

However, the U.S. Court of Appeals for the Eighth Circuit has noted that to establish causation in Minnesota failure to warn cases “it is sufficient to present testimony that purchasers would have avoided the risk of harm had they been told of the relevant danger.” *In re Levaquin Products Liability Litigation*, 700 F.3d 1161, 1168 (8th Cir. 2012) (citing *Erickson v. American Honda Motor Co., Inc.*, 455 N.W.2d 74, 77 (Minn. Ct. App. 1990)). This type of testimony can be rebutted by evidence that the plaintiff knew of the danger or disregarded other dangers or ignored other warnings. 27 Minn. Prac. Series § 4.11 (2018). This was at issue in *Tuttle v. Lorillard Tobacco Co.* because Tuttle passed away from oral cancer (caused by defendant’s smokeless tobacco product) before he could testify that he would have avoided the risk of harm if he had been told of the danger. 377 F.3d at 925 (8th Cir. 2004). Furthermore, the Court reasoned that because Tuttle continued to use smokeless tobacco until 1993, even after the Smokeless Tobacco Act required warnings in advertising and on packaging as early as February 1987, that “Tuttle’s actions undercuts any ‘heeding presumption’ and any reasonable reliance arguments.” *Id.* at 927 n.6.

Had Minnesota been adequately warned of the significance of danger that fossil fuel consumption and use presented to the state and the public, it would have heeded said warnings

and either consumed fewer fossil fuel products or began to transition away from a fossil fuel dependent economy much sooner.

2. *Model claim for failure to warn*

Below is an example of a model complaint alleging a failure to warn claim against fossil fuel companies for harm caused by their products. Support for these assertions can be found *supra* in the model design defect claim. The language and sources are largely adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted produced, distributed, marketed, and placed into the stream of commerce fossil fuel products including oil, coal, and natural gas.
2. Defendants had at all times a duty to issue adequate warnings to Minnesota, the public, consumers, and public officials of the reasonably foreseeable danger and risks posed by their fossil fuel products.
3. Defendants had actual and constructive knowledge, in light of the current scientific knowledge generally accepted at that time and the information passed to them from internal research divisions, that fossil fuel products were defective and dangerous based on the climate effects inherently caused by their normal use and operation.
 - a. Internal research divisions and affiliates passed adequate information to oil and gas companies warning of the dangers GHG emissions from their fossil fuel products could cause.
 - b. Furthermore, the international scientific community was well aware of, and made public, scientific knowledge regarding the significant and damaging climate effects that past and continued use and operation of fossil fuel products would cause.
 - c. This knowledge included the likelihood and likely severity of global warming, global and local sea level rise, more frequent and extreme droughts, more frequent and extreme precipitation events, more frequent and extreme heat waves, and the associated consequences of those physical and environmental changes, including Minnesota's injuries and damages.
4. Based on this information, defendants knew or should have known that the climate effects described herein rendered their fossil fuel products dangerous, or likely to be dangerous, when used as intended.

5. Defendants should have reasonably foreseen that the danger from use of their fossil fuel products would cause significant injuries to the public.
 - a. Because releasing GHGs into the atmosphere inevitably causes, *inter alia*, global warming, sea level rise, more frequent and extreme heat waves, and the associated consequences of those physical and environmental damages, it was reasonably foreseeable that fossil fuel product use would cause injury.
 - b. The emission of GHGs from fossil fuel products was and will continue to be a substantial factor causing climate change damages in Minnesota.
 - c. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions.
6. It was not obvious to consumers or the public that the use of fossil fuel products presented significant dangers of an unprecedented magnitude to public health, publicly owned infrastructure, real property, public trust resources, and rights of Minnesota and its citizens.
 - a. Consumers were prevented from recognizing the risk that fossil fuel products would cause grave climate change-related damages because Defendants individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.
 - b. Any warnings that may have disseminated were undermined and rendered ineffective because of Defendants' public relations materials and campaigns that prevented reasonable consumers from recognizing the risks that fossil fuel products posed.
7. Throughout the times at issue, Defendants breached their duty of care by failing to provide *any* warning, let alone an adequate warning, to customers, consumers, regulators, and the general public of the known and foreseeable risks that inevitably flow from the intended use of their fossil fuel products.
8. Defendants failed to issue warnings to consumers or any other party of the climate effects that are posed by the continued use of their fossil fuel products.
9. Defendants' failure to warn the public and Plaintiff of the dangers stemming from fossil fuel extraction, production, and use is causally connected to the injuries Minnesota has and will continue to sustain from climate change.
10. Had Defendants provided adequate warnings the climate change injuries to Minnesota would not have occurred.
 - a. Purchasers of fossil fuels, including Plaintiff, would have avoided the risk of harm if Defendants had warned them of the severity and extent of danger their products caused.

- b. Because of Defendants' disinformation campaigns, the general public, consumers, and regulators did not have adequate knowledge of the danger fossil fuel products posed, and therefore did not disregard the dangers or ignore other warnings.
11. Minnesota has sustained and will sustain other substantial expenses and damages set forth in this Complaint, including damage to public owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.

D. Public Nuisance

1. Applicable law

Under Minnesota law, public nuisance is a misdemeanor offense, defined in Minn. Stat. § 609.74:

[w]hoever by an act or failure to perform a legal duty intentionally does any of the following is guilty of maintaining a public nuisance, which is a misdemeanor:

- (1) maintains or permits a condition which unreasonably annoys, injures or endangers the safety, health, morals, comfort, or repose of any considerable number of members of the public; or
- (2) interferes with, obstructs, or renders dangerous for passage, any public highway or right-of-way, or waters used by the public; or
- (3) is guilty of any other act or omission declared by law to be a public nuisance and for which no sentence is specifically provided.

Minn. Stat. § 609.74 (2018). Under Minn. Stat. § 609.745, “[w]hoever having control of real property permits it to be used to maintain a public nuisance or lets the same knowing it will be so used is guilty of a misdemeanor.” Minn. Stat. § 609.745 (2018). Statutory public nuisance violations brought under § 609.74 are enforced through criminal prosecution. However, it is unlikely that a claim for damages could be sought under the criminal statute, and instead this statute would provide a means for injunctive relief or abatement. *See* Minn. Stat. § 617.80 et seq. Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. *But see Doe 30 v. Diocese of New Ulm*,

No. 62-CV-14-871, 2014 WL 10936509 at *9 (Minn. Dist. Ct. 2014) (“While plaintiff’s Complaint asserts a common-law public nuisance claim, it is evident from Minnesota’s public-nuisance jurisprudence that common-law claims either no longer exist or are synonymous with section 609.74 claims.”).

Common law public nuisance claims in Minnesota appear to be rare; the majority of public nuisance claims seem to be brought primarily under municipal nuisance ordinances or the state public nuisance statute. For example, in *State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545 (Minn. 1911), the Minnesota Supreme Court considered the validity of a Minneapolis city ordinance that declared the emission of smoke from locomotives a public nuisance, prohibiting the use of soft coal. The court recognized that although the Legislature cannot prevent a lawful use of property by prohibiting non-nuisance uses, “it is equally clear that acts or conditions which are detrimental to the comfort and health of the community may be effectively declared nuisances by the Legislature, and in the exercise of that power specified acts or conditions may be declared a nuisance, although not so determined at common law.” *Id.* at 546.

Likewise, in *State v. Lloyd A. Fry Roofing Co.*, 246 N.W.2d 692 (Minn. 1976), the Minnesota Supreme Court held that:

[T]he general rule regarding nuisances is that “it is immaterial how innocent the intent was[,] for the element of motive or intent does not enter into the question of nuisance,” so a state legislature may declare certain acts to be nuisances regardless of the intent with which they are carried out and even though they were not such at common law, or the legislature may delegate this authority to a municipal corporation.

Id. at 538 (citing Joyce, *Law of Nuisance*, § 43 at 77 & §§ 81, 84). On the subject of common law public nuisance, the court cites Dean Prosser’s work on tort law and notes that intent and

failure to act reasonably are not essential elements of common-law nuisance violations, and “are even less relevant to nuisances that are codified in statutes or ordinances.” *Id.* at 539.

Although statutory public nuisance claims seem to make up the vast majority of cases in Minnesota, common law public nuisance may still resemble the Restatement approach: interference with public property or a right common to the public. *See* Restatement (Second) of Torts § 821B(1). Although the court in *Doe 30 v. Diocese of New Ulm* considered the matter, it is a district court decision and the analysis is dicta because the court did not reach a decision on the issue.

Significantly, in 2010, Minnesota Attorney General Lori Swanson brought “common law nuisance” claims against 3M Company over chemicals it produced known as perfluorochemicals (PFCs). *See* Complaint, *State v. 3M Co.*, No. 27-CV-10-28862, 2010 WL 5395085 at ¶¶ 83–89, 90–97 (D. Minn. Dec. 30, 2010). In particular, the complaint alleged damages for common law nuisance for contamination of surface water, groundwater, and sediments by PFCs released by 3M. The Attorney General claimed that the “use, enjoyment and existence of the State’s groundwater, surface water and sediments, free from interference, is a *common right* to citizens of the state.” *Id.* at ¶ 84 (emphasis added). 3M’s alleged contamination of groundwater, surface water, and sediments with PFCs “materially and substantially interferes with State citizens’ free enjoyment of these natural resources, and constitutes a public nuisance.” *Id.* at ¶ 85.

2. *Model claim for public nuisance*

A public nuisance claim under Minnesota law could be adapted from public nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from public nuisance claims brought by the Rhode Island Attorney General against a number of fossil fuel companies, including Chevron, Exxon Mobil, and BP, among others. *See*

Complaint, *Bd. Cty. Comm'rs. of Boulder Cty. v. Suncor Energy, Inc.*, No. 2018-CV-30349 (June 11, 2018); Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018).

1. In Minnesota, the public is entitled by right to the protection, preservation, and enhancement of the air, water, land, and other natural resources located within the State, and it is the policy of the State to create and maintain within the State conditions under which man and nature can exist in productive harmony in order that present and future generations may enjoy clean air and water, productive land, and other natural resources with which the State has been endowed.
2. Defendants' affirmative acts, omissions, and fossil fuel activities—i.e. knowingly producing, promoting, refining, marketing, and selling a substantial amount of fossil fuels at levels sufficient to alter the climate, and misrepresenting the dangers associated with their use—have caused, created, contributed to, and/or exacerbated dangerous alterations in the climate.
3. The alterations in the climate substantially caused and contributed to by Defendants constitute a present and continuing nuisance in Plaintiff's communities. Plaintiff must mitigate the impacts and severity of the public nuisances caused and contributed to by the levels of Defendants' fossil fuel activities, including, but not limited to: increasing frequency and intensity of extreme heat days in the State; increasing frequency and intensity of extreme precipitation events in the State and associated flooding, erosion, damage to infrastructure; the spread of pests, disease, and increasing threats to public health by, among other things, increasing allergens and ozone, as well as diminishing air quality.
4. Plaintiff is specially injured by the public nuisance brought about by Defendants' actions, which altered the climate. This is due to Plaintiff's special responsibility to respond to and abate the hazards brought by the climate alteration caused by Defendants' climate-altering activities, and because Plaintiff and its property and assets are especially vulnerable to the impacts of climate change, including, specifically, but not exclusively, its:
 - transportation infrastructure, including roads, bridges, and culverts;
 - flood, stormwater, and water supply infrastructure;
 - agricultural and open space lands; and
 - lakes, rivers, streams, and associated plant and wildlife that Plaintiff holds in trust for its citizens.
5. The public nuisance created and contributed to by Defendants unreasonably endangers and injures the property, health, peace, comfort, safety, and welfare of the general public and the natural resources of the State of Minnesota, interfering with the comfort and convenience of communities state-wide, as well as with the State's *parens patriae* ability to protect, conserve, and manage the water, land, and wildlife of the state, which are by law precious and invaluable public resources.

6. The harms caused by Defendants are and will continue to be borne by Plaintiff and residents of Plaintiff's communities in the form of damage to property; impairment of public health; obstructed movement within the state; the loss of use and enjoyment of public property, the environment, and local eco-systems and infrastructure; as well as added costs to protect, repair, and remediate the harms caused by Defendants' alteration of the climate.
7. Defendants have contributed to and continue to contribute to the creation and exacerbation of the public nuisance, in that the intended and foreseeable combustion of Defendants' fossil fuels at the levels at which they were being used has produced and will continue to produce a substantial amount of GHG emissions, measured in billions of excess tons of CO₂ and other GHGs. Those excess tons have caused, contributed to, and/or exacerbated the impacts of climate change, including in Plaintiff's communities. Additionally, Defendants' fossil fuel activities and concealment and/or misrepresentation of the risk, known to Defendants, of the intended use of fossil fuels has also resulted in a substantial amount of excess GHG emissions, which caused, contributed to, and/or exacerbated the impacts of climate change.
8. Defendants intentionally, negligently and/or recklessly created the interference incurred by Plaintiff and the Plaintiff's communities caused by climate change. For decades, Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff and Plaintiff's communities—were substantially certain to result when they produced, promoted, refined, marketed and sold fossil fuels intending that they would be combusted at significant rates. Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff communities—were substantially certain to result when they concealed and affirmatively misrepresented the truth about climate change and the negative impacts of fossil fuel use to the public and their consumers.
9. Defendants' interference with public rights is unreasonable. For decades, Defendants have internalized the benefits of fossil fuel use—i.e., their profits—and externalized their costs—i.e., the impacts of climate change—onto communities such as Plaintiff's. Defendants knew or should have known the costs to Plaintiff and its communities of their fossil fuel activities, and have not compensated Plaintiff for those foreseen harms. Defendants continue to produce, promote, refine, market and sell fossil fuels at levels that cause and contribute to alteration of the climate, continue to profit from rising sales and continue to not compensate Plaintiff or its communities for the continued and added impacts that it and they suffer and will continue to suffer from as a direct and proximate result of Defendants' nuisance.
10. Defendants specifically created, contributed to, assisted in creating, and/or were a substantial contributing factor in the creation of the public nuisance by, *inter alia*:
 - a. Controlling every step of the fossil fuel product supply chain, including the extraction of raw fossil fuel products, including crude oil, coal, and natural gas

from the Earth; the refining and marketing of those fossil fuel products, and the placement of those fossil fuel products into the stream of commerce;

- b. Affirmatively and knowingly promoting the sale and use of fossil fuel products which Defendants knew to be hazardous and knew would cause or exacerbate global warming and related consequences, including, but not limited to, drought, extreme precipitation events, extreme heat events, and changing and increasingly severe weather patterns;
 - c. Affirmatively and knowingly concealing the hazards that Defendants knew would result from the normal use of their fossil fuel products by misrepresenting and casting doubt on the integrity of scientific information related to climate change;
 - d. Disseminating and funding the dissemination of information intended to mislead customers, consumers, and regulators regarding the known and foreseeable risk of climate change and its consequences, which follow from the normal use of Defendants' fossil fuel products;
 - e. Affirmatively and knowingly campaigning against the regulation of Defendants' fossil fuel products, despite knowing the hazards and climate effects associated with the normal use of those products, in order to continue profiting from the regular use of those products by externalizing those costs onto the public, the environment, and communities; and failing to warn the public about the hazards associated with the use of fossil fuel products.
11. Plaintiff and its residents have been damaged, including in their exercise of public and common rights, as a direct and proximate result of the public nuisance created by Defendants. Plaintiff has spent and will have to spend substantial sums to mitigate this interference. The ultimate nature of the harm is the destruction of real and personal property, the loss of natural resources, and actual threats to public health, rather than mere annoyance. Plaintiff's damages and losses include, but are not limited to:
- costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;
 - costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;

- costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;
 - costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
12. These damages and losses are the direct and proximate result of the public nuisance—climate alteration—that Defendants caused and contributed to.
13. Defendants’ acts and omissions as alleged herein are indivisible causes of Plaintiff State of Minnesota’s injuries and damage as alleged herein because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly commingle in the atmosphere.

E. Private Nuisance

1. Applicable law

Minnesota’s statutory private nuisance law is covered by Minn. Stat. § 561.01:

Anything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable

enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.

Minn. Stat. § 561.01 (2018).

A private nuisance requires interference with another's use of property. *See Uland v. City of Winstead*, 570 F. Supp. 2d 1114, 1120 (D. Minn. 2008). There must be some type of conduct that causes the alleged nuisance harm, and that conduct must be "wrongful." *See Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65, 70–71 (Minn. 1982) (citing *Randall v. Village of Excelsior*, 103 N.W.2d 131, 134 (1960)). This wrongful conduct varies, and may be characterized as, for example, intentional conduct, negligence, ultrahazardous activity, violation of a statute, or some other type of tortious activity. *Id.*

Minnesota's nuisance statute appears to provide a broader cause of action than common law nuisance under the Restatement (Second) of Torts, as § 561.01 does not require that the action be intentional or unreasonable. The Minnesota Supreme Court has found that Minnesota's nuisance statute "defines a nuisance in terms of the *resultant harm* rather than in terms of the kind of conduct by a defendant which causes the harm . . . Where pollutants cause the harm, such as where sewage is deposited on plaintiff's property, the wrongful conduct appears to be self-evident." *Id.* (emphasis added). The Minnesota Supreme Court has likewise declined to consider an application of the Restatement nuisance test, preferring instead to use § 561.01 and Minnesota case law. *Id.*

In addition to nuisance abatement, a successful plaintiff may recover damages sustained as a result of the activity. Minn. Stat. § 561.01. Minnesota courts have found a variety of activity to be private nuisances. *Heller v. American Range Corp.*, 234 N.W. 316 (Minn. 1931) (industrial plants transferring dust to adjacent residential property); *Brede v. Minnesota Crushed Stone Co.*,

179 N.W. 638 (Minn. 1920) (limestone quarries giving off noise, fumes, and odors); *Fagerlie v. City of Wilmar*, 435 N.W.2d 641 (Minn. App. 1989) (wastewater treatment plant odors); *Schrupp v. Hanson*, 235 N.W.2d 822 (Minn. 1975) (poultry and hog farm odors); *Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65 (Minn. 1982) (water and sewage runoff).

In *Johnson v. Paynesville Farmers Union Co-op Oil Co.*, 817 N.W.2d 693, 706 (Minn. 2012), the Minnesota Supreme Court considered the state’s approach to private nuisance in an action brought by an organic farmer against a co-op alleged to have caused pesticides to drift onto the organic farm. Citing Minn. Stat. § 561.01, the supreme court found that an action that seeks an injunction or to recover damages can be brought under the statute by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance. The plaintiff must show that the defendant’s conduct caused an interference with the use or enjoyment of the plaintiff’s property. *Id.* As an equitable cause of action, the court stated that § 561.01 “implicitly recognized a need to balance the social utility of defendants’ actions with the harm to the plaintiff.” *Highview North Apartments v. County of Ramsey*, 323 N.W.2d 65, 71 (Minn. 1982).

In deciding the issue of nuisance, the *Johnson* court cited *Highview North Apartments v. County of Ramsey*, in which the Minnesota Supreme Court held that “disruption and inconvenience” caused by a nuisance are actionable damages. *Johnson v. Paynesville Farmers Union* at 713 (citing *Highview North Apts.*, 323 N.W.2d at 73). In *Highview* a plaintiff sued multiple municipalities over harm that consisted of groundwater seeping into two apartment building basements, a condition that the court found to be “ongoing, injurious to the premises, substantial, and likely to worsen.” *Highview North Apts.*, 323 N.W.2d at 71. Applying the *Highview* ruling, the *Johnson* court remanded the plaintiffs’ allegations that they suffered from

“cotton mouth, swollen throat and headaches” because they were exposed to pesticide drift. *Id.* The court held that the inconvenience and adverse health effects, if proven, would affect the plaintiffs’ ability to use and enjoy their land and thereby constitute a nuisance, and so the issue was remanded for further fact-finding, including an assessment of damages. *Id.*

2. *Model claim for private nuisance*

This model private nuisance claim has been adapted from common law and statutory nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims brought against 3M by the Minnesota Attorney General. Although these claims may be brought under either a common law or statutory nuisance cause of action, Minnesota’s statutory nuisance provision appears to be broader and more protective than standard common law nuisance. As such, both common law and statutory nuisance claims are addressed in these model claims:

1. Minn. Stat. § 561.01 provides that: “[a]nything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.”
2. The use, enjoyment, and existence of the State’s natural resources is a right common to the people of the State.
3. Plaintiff owns, leases, occupies, manages, controls, and/or is otherwise in lawful possession of extensive real property within its jurisdiction.
4. As a direct and proximate result of Defendants’ conduct, as set forth above, Plaintiff’s property rights and interests, including its rights to the free and unthreatened use and enjoyment of that property as well as the free and unthreatened use and enjoyment of that property by communities within the State of Minnesota, have been and will be unreasonably interfered with and otherwise injuriously affected.
5. Defendants, and each of them, by causing and/or contributing to climate change through their acts and omissions described above, have created conditions on and/or set in motion forces that cause interference with and injuriously affected Plaintiff’s real

property, and permitted those conditions and forces to persist, which constitute a nuisance.

6. Plaintiff's property has been and/or will be substantially harmed by the effects of climate change. The conditions and forces Defendants created substantially and unreasonably interfere with, injuriously affect, and will substantially interfere with, and injuriously affect, Plaintiff's use and quiet enjoyment of rights to and interests in its real property, including by increasing the frequency and intensity of flooding and erosion, storms, extreme heat events, and the spread of invasive species.
7. The harms to and interference with Plaintiff's property have become and/or will continue to be regular and severe.
8. Plaintiff has not consented to Defendants' conduct in creating the condition that has interfered with and injuriously affected Plaintiff's property.
9. All of its harms will actually be borne by Plaintiff as loss of use and enjoyment of public property and infrastructure. The burden on Plaintiff to mitigate, repair, remediate and prevent further grave interferences with and injury to its property is significant and severe.
10. Defendants' conduct was and is negligent, reckless, and intentional because Defendants knew or should have known their actions were substantially certain to interfere with and injure Plaintiff's property rights and interests. Defendants have known for decades, and/or reasonably should have known, that their conduct was substantially certain to alter or contribute to alterations in the climate and is exacerbating climate change.
11. Defendants' conduct was and is unreasonable because they have created and are creating the interference with Plaintiff's property rights and injury to Plaintiff's property rights without compensating Plaintiff for the harm they knowingly, recklessly, or negligently created or will create.
12. Defendants' conduct is continuing and has produced and will produce ongoing injurious effects.
13. Defendants' actions are a direct and proximate cause of Plaintiff's damages and losses.
14. Plaintiff's real property has been damaged and its use and enjoyment of that property has been threatened by the nuisance created by Defendants; Plaintiff has spent and will have to spend substantial dollars to mitigate this interference. Plaintiff's damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is

expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;

- costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;
 - costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;
 - costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
15. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.
16. Wherefore, Plaintiff prays for an award of damages and restitution of its costs to abate the nuisance.

F. Trespass

1. Applicable law

In Minnesota, “[t]respass encompasses any unlawful interference with one’s person, property, or rights, and requires only two essential elements: a rightful possession in the plaintiff and unlawful entry upon such possession by the defendant.” *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003), *review denied* (Minn. Aug. 5, 2003). Minnesota courts have described trespass as “an invasion of the plaintiff’s right to exercise exclusive possession of the land” while “nuisance is an interference with the plaintiff’s use and enjoyment of the land.” *Fagerlie v. City of Willmar*, 435 N.W.2d 641, 644 n.2 (Minn. Ct App. 1989); *see also Johnson v. Paynesville Farmers Union Coop Oil Co.*, 817 N.W.2d 693, 701 (Minn. 2010) (stating that unlawful entry “must be done by means of some physical, tangible agency in order to constitute a trespass.”). Actual damages are not an element of the tort of trespass. *Johnson v. Paynesville Farmers Union* at 701 (citing *Greenwood v. Evergreen Mines Co.*, 19 N.W.2d 726, 734–35 (Minn. 1945)). In the absence of actual damages, the trespasser is liable for nominal damages. *Id.* (citing *Sime v. Jensen*, 7 N.W.2d 325, 328 (Minn. 1942)). Because trespass is an intentional tort, reasonableness on the part of the defendant is not a defense to trespass liability. *Id.* (citing *H. Christiansen & Sons, Inc. v. City of Duluth*, 31 N.W.2d 270, 273–74 (Minn. 1948)).

In *Johnson v. Paynesville Farmers Union Co-op. Oil Co.*, the Minnesota Supreme Court considered the question of whether particulate matter, such as pesticide drift can result in a trespass. *Id.* (noting that the “particulate matter” has been defined as “material suspended in the air in the form of minute solid particles or liquid droplets, especially when considered as an atmospheric pollutant.”). The Supreme Court found that Minnesota case law is consistent with a traditional formulation of trespass that has recognized trespasses when a person or a tangible

object enters the plaintiff's land and interferes with rights of exclusive possession. *Id.* According to the court, "disruption to the landowner's exclusive possessory interest is not the same when the invasion is committed by an intangible agency, such as the particulate matter [pesticides] at issue here." *Id.* at 702. "Such invasions," the court continued, "may interfere with the landowner's use and enjoyment of her land, but those invasions do not require that the landowner share possession of her land in the way that invasions by physical objects do." *Id.*; *see also Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003) (noting that Minnesota "has not recognized trespass by particulate matter" and rejecting a trespass claim over offensive odors). The court declined to abandon traditional distinctions between trespass and nuisance law, and noted that the public policy concerns that compelled other jurisdictions to blur the lines between trespass and nuisance (e.g. statutes of limitations) are not present in Minnesota. *Id.* at 704–05. "In summary, trespass claims address tangible invasions of the right to exclusive possession of land, and nuisance claims address invasions of the right to use and enjoyment of land." *Id.* at 705.

The Minnesota Attorney General lawsuit against 3M claimed trespass damages against the state's public trust resources. Complaint, *State of Minnesota v. 3M Company*, No. 27-CV-10-28862, 2010 WL 5395085 (D. Minn. 2010). Much of the state's suit was focused on direct groundwater and surface water pollution, issues which are unlikely to be present when dealing with oil refineries, emissions, and climate change damages. However, the effects of climate change can impact surface and groundwater in other ways that are not as direct, such as harm to aquatic organisms and plants through warmer waters, increased flooding and erosion from more severe storms and precipitation, drought, algae blooms, etc. Thus, a trespass claim against fossil fuel companies for climate change damages would be based on indirect invasions of property.

2. *Model trespass claim*

This model trespass claim has been adapted from claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims brought against 3M by the Minnesota Attorney General.

1. Plaintiff is the owner, in lawful possession, of real property.
2. Defendants have intentionally engaged in conduct that has caused and contributed to climate change which, in the usual course of events, has caused and will cause flood waters, hail, rain, snow, wind, pests, and invasive species to enter Plaintiff's property.
3. Defendants knew, with substantial certainty, that their fossil fuel activities would cause and contribute to climate change, and thus cause these invasions of Plaintiff's property.
4. This trespass is recurring, and will continue into the future.
5. Plaintiff did not give Defendants permission for these invasions of Plaintiff's property.
6. Defendants' trespasses are the direct and proximate cause of damages and losses to the Plaintiff.
7. Defendants' actions are and have been a cause of the injuries and damages to Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' trespasses, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by the trespasses. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;

- costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiffs;
 - costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;
 - loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public's ability to use Plaintiff's properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

G. Strict Liability for Abnormally Dangerous Activity

I. Applicable law

The Second Restatement of Torts on Strict Liability for Abnormally Dangerous Activities is not controlling law in Minnesota, though Minnesota courts have discussed §§ 519–520. Restatement (Second) of Torts § 519–520 (1977); *see, e.g., Mahowald v. Minnesota Gas Co.*, 344 N.W.2d 856, 860–61 (Minn. 1984); *Cairly v. City of St. Paul*, 268 N.W.2d 908 (Minn. 1978); *Ferguson v. Northern States Power Co.*, 239 N.W.2d 190 (Minn. 1976); *Quigley v. Village of Hibbing*, 129 N.W.2d 765 (Minn. 1964). For example, in *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993), the Minnesota Court of Appeals noted that “[a]lthough this Restatement section is not controlling law in Minnesota, because the supreme court has recognized it in other cases, *see, e.g., Mahowald v. Minnesota Gas Co.* . . . we believe the trial court’s use of it was appropriate.” *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993).

However, the Minnesota Supreme Court has been careful to note that while “we have recognized the applicability of [the Restatement §§ 519 and 520] in other contexts, that is all we did—recognize the existence of those two sections. In none of these cases did we apply those sections, nor has our attention been directed to any other case where we did apply them.” *Mahowald*, 344 N.W.2d at 861. The Minnesota Supreme Court has explicitly rejected applying Restatement §§ 519–520 in strict liability cases for accidents arising out of escaping gas from lines maintained in public streets. *Id.*

Nevertheless, applying strict liability without proof of negligence is consistent with a long line of Minnesota cases involving abnormally dangerous activities. *See, e.g., Sachs v. Chiat*, 162 N.W.2d 243 (1968) (pile driving abnormally dangerous activity that requires liability without fault); *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924) (waterworks operated by municipal corporation requires liability without fault); *Wiltse v. City of Red Wing*, 109 N.W. 114 (Minn. 1906) (collapse of reservoir destroying plaintiff’s house requires liability without fault); *Berger v. Minneapolis Gaslight Co.*, 62 N.W. 336 (Minn. 1895) (petroleum that escaped from gas company’s tanks, damaging wells and cellars, requires liability without fault); *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (Minn. 1871) (tunnel collapse under property lessee’s land requires liability without negligence in its construction or maintenance).

The Minnesota Supreme Court was one of the first American jurisdictions to adopt the famous English tort law ruling on strict liability, *Rylands v. Fletcher*. *See, e.g., Minnesota Mining & Mfg. Co. v. Travelers Indem. Co.*, 457 N.W.2d 175, 183 (Minn. 1990). In *Rylands*, defendant owners of a mill built a reservoir to supply their mill with water. *Rylands v. Fletcher*, LR 3 H.L. 330 (1868). The plaintiff leased coal mines on neighboring land between the reservoir and the mill. Water from the reservoir burst into old, unused mine shafts, and flooded the mine.

When the defendants appealed, arguing that they did not know that the flooded shafts were connected to the mine, the House of Lords held that the plaintiff did not need to prove negligence, because “the person who, for his own purposes, brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril.” *Id.* at 339.

On the relationship of obligation between neighbors, the *Ryland* court found that:

[I]t seems but reasonable and just that the neighbour who has brought something on his own property (which was not naturally there), harmless to others so long as it is confined to his own property, but which he knows will be mischievous if it gets on his neighbour's, should be obliged to make good the damage which ensues if he does not succeed in confining it to his own property.

Id. at 340.

In *Kennedy Building Associates v. Viacom, Inc.*, the U.S. Court of Appeals for the Eighth Circuit found that Minnesota has “not limited the *Rylands* cause of action to cases in which the plaintiff and defendant were neighboring landowners,” citing *Hannem v. Pence*, a case in which a plaintiff was injured by falling ice while walking past a defendant's building. *Kennedy Building Associates v. Viacom, Inc.*, 375 F.3d 731, 740 (8th Cir. 2004) (citing *Hannem v. Pence*, 41 N.W. 657 (Minn. 1889)). The Minnesota Supreme Court has also applied the *Rylands* rule to defendants that do not own the land on which they created a hazard. See *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (1871). Under Minnesota's strict liability rule, it makes no difference that a defendant is no longer in possession of control of the instrumentality that caused a hazard. *Id.*

Minnesota has also applied strict liability for abnormally dangerous activity to enterprises that ultimately benefit the community. Although these activities may be useful to society, the court has found that as times change and large-scale industrial activity increases, the responsibility for damages from useful operations should not fall on harmed individuals. *Bridgeman-Russell Co. v. City of Duluth* involved a waterworks operated by a municipal

corporation that discharged water, damaging the plaintiff's property. *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924). The Minnesota Supreme Court imposed strict liability, without requiring proof of negligence, stating that:

Congestion of population in large cities is on the increase. This calls for water systems on a vast scale either by the cities themselves or by strong corporations. Water in immense quantities must be accumulated and held where none of it existed before. If a break occurs in the reservoir itself, or in the principal mains, the flood may utterly ruin an individual financially. In such a case, even though negligence be absent, natural justice would seem to demand that the enterprise, or what really is the same thing, the whole community benefited by the enterprise, should stand the loss rather than the individual. It is too heavy a burden upon one.

Id. at 972.

In light of this Minnesota case law expressing a fairly expansive view of strict liability, even in the case of activities that have social value, a claim by Minnesota against fossil fuel companies for climate change damages would appear to fit squarely within a claim for strict liability for abnormally dangerous activities.

2. *Model claim for strict liability for abnormally dangerous activity*

This model claim for strict liability for abnormally dangerous activity was adopted from claims brought by the Rhode Island Attorney General against a number of fossil fuel companies including Chevron, Exxon Mobil, and BP. *See* Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018).

1. There is overwhelming scientific evidence linking fossil fuel combustion to climate change.
2. Defendants knew or should have known of the climate effects inherently caused by the normal use and operation of their fossil fuel products, including the likelihood and likely severity of global and local climate change and its consequences, and including injuries to Plaintiff, its citizens, and its natural resources, as described herein.
3. Defendants' activities in extracting, refining, formulating, designing, packaging, distributing, testing, constructing, fabricating, analyzing, recommending, merchandizing, advertising, promoting, and selling fossil fuel products, intended by

Defendants to be burned for energy, refined into petrochemicals, and reined and/or incorporated into petrochemical products including but not limited to fuels and plastics brought substantial amounts of fossil fuels onto Defendants' properties which were not naturally there.

4. Defendants knew that substantial amounts of fossil fuels not naturally on their properties, when released, would cause significant damages to, *inter alia*, Plaintiff, Plaintiff's property, and Plaintiff's citizens due to the effects of climate change.
5. Defendants' activities constituted an abnormally dangerous activity and/or created abnormally dangerous conditions.
6. As a direct and proximate result of Defendants' actions and omissions, Plaintiff has sustained and will sustain substantial expenses and damages, including damage to publicly owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.
7. Defendants are strictly liable for the damages resulting as a natural consequence from the release of fossil fuels and GHGs from their properties, including response costs incurred by Plaintiff to respond to the effect of these releases on Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' abnormally dangerous activities, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by these activities. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;
 - costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiff;

- costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;
 - loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public's ability to use Plaintiff's properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

H. Other Claims

Minnesota could also consider claims under the Minnesota Environmental Rights Act, Minn. Stat. ch. 116B ("MERA"), and the Minnesota Environmental Response, Compensation, and Liability Act, Minn. Stat. ch. 115B ("MERLA"). In particular, the Minnesota Attorney General lawsuit against 3M discussed earlier contained a MERLA claim. The applicability of these claims to a potential lawsuit against fossil fuel companies for climate change damages is not discussed in this Memorandum but could be subject to further investigation.

I. Applicable Statutes of Limitations for All Claims

The statute of limitations for violations of the consumer protection laws is six years. Minn. Stat. § 541.05(2). Fraud allegations are also subject to a six-year statute of limitations under Minn. Stat. § 541.05(6), which begins upon "discovery by the aggrieved party of the facts constituting the fraud." The statute of limitations may be suspended for fraudulent concealment if the facts which establish the cause of action are fraudulently concealed. *Hydra-Mac, Inc. v. Onan Corp.*, 450 N.W.2d 913, 918–19 (Minn. 1990). Antitrust claims in Minnesota are subject to a four-year statute of limitations, although "a cause of action for a continuing violation is deemed to arise at any time during the period of the violation." Minn. Stat. § 325D.64, subd. 1.

For the product liability claims, a four-year statute of limitations applies to strict products liability claims, while a six-year statute of limitations applies to negligence claims. *See* Minn. Stat. § 541.05, subds. 1–2. However, because Minnesota courts have merged negligence and strict products liability theories into one single recovery for design defect and failure to warn claims, it is arguable that the six-year negligence statute of limitations would apply. For example, in *Klempka v. G.D. Searle & Co.* the U.S. Court of Appeals for the Eighth Circuit applied Minnesota law to hold that the statute of limitations was six years for a products liability claim. 63 F.2d 168, 170 (8th Cir. 1992).

For the common law tort claims of strict liability for abnormally dangerous activities, public nuisance, and private nuisance, and trespass, it is likely that a six-year statute of limitations would apply as such claims fall under the general six-year statute of limitations found in Minn. Stat. § 541.05, subd. 1(2). *See e.g., Citizens for a Safe Grant v. Lone Oak Sportsmen’s Club, Inc.*, 624 N.W.2d 796 (Minn. Ct. App. 2001) (six-year limitations period applied to trespass and nuisance actions brought by neighborhood organization against gun club operating outdoor shooting ranges).

Two elements must be satisfied before a cause of action accrues for any of the common law claims: “(1) a cognizable physical manifestation of the disease or injury, and (2) evidence of a causal connection between the injury or disease and the defendant’s product, act, or omission.” *Narum v. Eli Lilly and Co.*, 914 F. Supp 317, 319 (D. Minn. 1996). Under Minnesota law, “[a] plaintiff who is aware of both her injury and the likely cause of her injury is not permitted to circumvent the statute of limitations by waiting for a more serious injury to develop.” *Klempka v. G.D. Searle & Co.*, 963 F.2d 168, 170 (8th Cir. 1992).

Fossil fuel company defendants may allege that Minnesota's claims are time barred because the first cognizable physical manifestation of climate change damages occurred longer than six years ago. However, Minnesota also recognizes the continuing violation doctrine. *Brotherhood of Ry. and S.S. Clerks, Freight Handlers & Station Employees v. State by Balfour*, 229 N.W.2d 3, 193 (Minn. 1975). That doctrine holds that when a violation is ongoing, the statute of limitations does not run from the initial wrongful action, but rather begins to run only when the wrong ceases. *N. States Power Co. v. Franklin*, 122 N.W.2d 26, 30-31 (Minn. 1963). For example, in *Hempel v. Creek House Train*, the Minnesota Supreme Court found that the defendant's continuing negligence tolled the limitations period. *Hempel v. Creek House Tr.*, 743 N.W.2d 305, 312 (Minn. 2007).

While there have been a number of cases where courts applying Minnesota law have found that the continuing violation doctrine did not apply based on the facts of the case, these were not categorical exclusions of the doctrine in Minnesota. *See e.g., Union Pac. R.R. Co. v. Reilly Indus., Inc.*, 4 F. Supp. 2d 860, 867 (D. Minn. 1998) (holding that the continuing wrong doctrine did not apply because there was no "leakage from storage tanks or basins," and that any "leakage" ceased before the relevant limitations period expired). Because the fossil fuel companies' extraction, production, marketing, and sale of fossil fuel products has continued, the continuing violation doctrine would apply, and the claims would not be barred by the statute of limitations.

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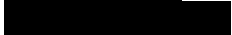
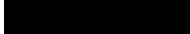
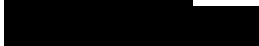
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MEMORANDUM

TO: Keith Ellison
Minnesota Attorney General

FROM: Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School

 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Law Class of 2020
 Minnesota Law Class of 2019

DATE: January 31, 2019

RE: Potential Lawsuit against Fossil Fuel Companies for Minnesota Climate Change Damages

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INTRODUCTION

This memorandum sets forth possible claims for damages by the State of Minnesota against major oil, gas, and coal companies for their contribution to climate change-related damages in Minnesota. Such a lawsuit would be likely be filed in Minnesota District Court and would be similar to pending lawsuits that states, counties, and cities in other parts country have filed against the fossil fuel companies for damages. The remaining sections of this Memorandum discuss the status of the climate change damages lawsuits filed to date in other states and the potential claims that could be brought in a Minnesota lawsuit. These include statutory consumer protection and antitrust claims, strict liability design defect and strict liability failure to warn claims, and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

Part I surveys the climate change lawsuits in other states and the Attorneys General who have supported them. Part II evaluates Minnesota law governing consumer protection claims, product liability claims, and common law tort claims and sets forth model causes of action for each claim under Minnesota law.

The defendants in the lawsuit could include BP, Chevron, ConocoPhillips, Exxon Mobil, Shell, and other oil, gas, and coal companies. These companies extracted, produced, designed, and sold fossil fuel products that emitted massive tons of CO₂ into the atmosphere upon their use. For example, 90 producers of oil, natural gas, coal, and cement are responsible for 63% of cumulative industrial CO₂ and methane emissions worldwide from 1751-2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (NOV. 22, 2013). Just 28 companies are

responsible for 25% of all emissions since 1965. *Id.*¹ As CO₂ is a relatively stable compound, most of these molecules will remain in the atmosphere for centuries. The increase in CO₂ emissions resulting from fossil fuel use has contributed to and accelerated the greenhouse effect, causing climate change damages ranging from drought, flooding, change in weather patterns, loss of species biodiversity, sea level rise, and increases in invasive species, with average annual temperatures over the contiguous United States already increasing by 1.8°F since 1895.

The nature of the damages Minnesota could seek to recover in a lawsuit are set forth in detail in the accompanying Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy. These damages are costs the state has already incurred or will incur as a result of climate change caused by fossil fuel companies and include:

- Costs associated with flooding, including costs of damage to state property and costs to mitigate and remediate the flooding related impacts to property and public health;
- Costs associated with damages to tourism and outdoor recreation, including mitigating climate-related stress to plant and animal species and ecological systems in the state;
- Costs associated with damages to agricultural yields, management and mitigation of crop diseases and crop pests, and costs of adopting to less fertile soils;
- Costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure, increased asthma attacks, and exposure to vector-borne disease as well as mitigation measures and public education programs to reduce the occurrence of these impacts;
- Costs associated with responding to, managing, and repairing damages from climate change to Minnesota forest lands, including impacts on state-run hunting and fishing industries;
- Costs of analyzing and evaluating the impacts of climate change on infrastructure, including transportation, water supply, wastewater treatment, and the power system and the costs of mitigating, adapting to, and remediating those impacts;

¹ In the Santa Clara County lawsuit, described in more detail in Part I.A., the plaintiffs sued approximately 40 fossil fuel companies, which the plaintiffs alleged were responsible for 227.6 gigatons of CO₂ emissions between 1965 and 2015, representing 20.3% of total emissions of CO₂ during that period.

- Costs of responding to, managing, and repairing damage to Minnesota fisheries from climate change, including extinction of cool and cold-water fish species and the impacts of the spread of aquatic invasive species; and
- Costs associated with the threats to indigenous communities from disruptions to their livelihoods, health, and cultural identities.

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides a brief history and current status of the recent climate change lawsuits brought by states and local governments against fossil fuel companies seeking damages for climate-change related harms. Other related lawsuits include suits against Exxon Mobil for investor fraud brought by the Attorneys General of New York and Massachusetts, countersuits by Exxon Mobil against those states filed in Texas courts, and public trust and constitutional claims for climate change harm brought by the group “Our Children’s Trust” against the federal government, states, and fossil fuel companies to compel limits on greenhouse gas (“GHG”) emissions. This memorandum will focus solely on the lawsuits by governmental entities seeking damages for climate-change related harms and will not discuss the other lawsuits noted above. This section will also discuss the positions of Attorneys General around the country in support of or in opposition to the lawsuits for climate change damages.

A. State Law Damages Suits for Climate Change Related Harms

In 2017 and 2018, several government entities across the country (e.g., cities, counties and states) brought lawsuits seeking damages against major fossil fuel companies for climate change-related harm caused by the extraction, promotion, and sale of fossil fuels. The complaints assert state statutory and common law causes of action including public nuisance, private nuisance, trespass, products liability, and consumer protection. A common argument among each

plaintiff is that the fossil fuel companies knew or should have known about the hazards associated with the extraction, promotion, and sale of fossil fuels, but the fossil fuel companies obscured the hazards from the public and regulators. A common argument among defendants is that federal court is the proper venue, and that the Clean Air Act displaces the state law claims and thus the lawsuits should be dismissed. All the lawsuits are described in detail at the Sabin Center for Climate Change Law's U.S. Climate Change Litigation Database, available at <http://climatecasechart.com/case-category/common-law-claims/>. For each case, the database has a summary of the case, its current status, and links to all pleadings filed in the lawsuit.

These lawsuits are the second round of lawsuits by governmental entities against fossil fuel companies for climate change-related harm. The first major climate change lawsuits, filed in the early 2000s, sought relief in federal court under federal common law nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. In *Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("AEP"), the U.S. Supreme Court held that the federal Clean Air Act displaced federal common law claims against defendants for GHG emissions. *See also Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849 (9th Cir. 2012), *cert. denied*, 569 U.S. 1000 (2013). These rulings serve as a backdrop for the recent wave of litigation using state law to hold fossil fuel companies accountable for climate change related harms.

In *AEP*, several states and private land trusts brought federal public nuisance claims against the five largest GHG emitting facilities in the United States. *AEP*, 564 U.S. at 418. Plaintiffs sought an injunction against each defendant "to cap its carbon dioxide emissions and then reduce them by a specified percentage each year for at least a decade." *Id.* at 419. The Court determined that the Clean Air Act displaced the plaintiffs' claims because the statute directly

authorized the U.S. EPA Administrator to regulate the emission of pollutants from stationary sources. *Id.* at 424 (citing 42 U.S.C. § 7411).

In *Kivalina*, an Alaskan village brought a public nuisance action against several fossil fuel companies and energy producers for sea level rise and erosion due to climate change caused by defendants' GHG emissions. *Kivalina*, 696 F.3d at 854. In contrast to *AEP*, the plaintiffs in *Kivalina* sought damages rather than an injunction. *Id.* at 857. Relying on *AEP*, the U.S. Court of Appeals for the Ninth Circuit reasoned that the Clean Air Act displaces federal common law claims for harms caused by GHG emissions regardless of the relief sought. *Id.* In response to *AEP* and *Kivalina*, the more recent litigation against fossil fuel companies to recover for climate change damages discussed below has attempted to avoid Clean Air Act displacement by bringing state law claims in state courts, and by focusing on the extraction, promotion, and sale of fossil fuels rather than emissions of GHGs.

1. *The California Cases: San Mateo v. Chevron, and California v. BP*

Most damages suits utilizing state law claims against fossil fuel companies for climate change harms are in their infancy. In these cases, government plaintiffs seek relief in state court and the defendants attempt to remove the action to federal court. Two cases brought in California state court—*County of San Mateo v. Chevron*, and *California v. BP*—highlight two emerging schools of thought on whether state or federal court is the appropriate venue. The plaintiffs in each case brought similar claims against numerous fossil fuel companies. However, in *County of San Mateo v. Chevron*, Judge Chhabria remanded the case to state court while in *California v. BP*, Judge Alsup denied the request for remand and dismissed the plaintiffs' claims. Both cases are on appeal to the Ninth Circuit. Notably, both judges sit on the U.S. District for the Northern

District of California. In each case, outside counsel for the local governments is Sher Edling LLP in San Francisco.

In *California v. BP*, the cities of San Francisco and Oakland brought state public nuisance claims against BP, Chevron, ConocoPhillips, Exxon Mobil and Shell for damages caused by climate change. Complaint, *California v. BP*, No. 17-561370 (Cal. Super. Ct. Sept. 19, 2017) (referencing the San Francisco Complaint); Complaint, *California v. BP*, No. 17-1785889 (Cal. Super. Ct. Sept. 19, 2017) (referencing the Oakland Complaint). Plaintiffs requested relief in the form of an abatement fund to provide for infrastructure necessary to adapt to global warming impacts such as sea level rise, as well as other relief. Plaintiffs argued the defendants promoted the use of fossil fuels despite being aware that their use would cause severe climate change, and that harms were already being felt and would intensify. Defendants removed the case to federal court and Judge Alsup of the Northern District of California denied the cities' motion for remand. Judge Alsup held that the suit was "necessarily governed by federal common law" and that "a patchwork of fifty different answers to the same fundamental global issue would be unworkable." *California v. BP*, 2018 U.S. Dist. LEXIS 32990, at *5, 10 (N.D. Cal., Feb. 27, 2018).

Plaintiffs then filed an amended complaint, which included a federal public nuisance claim, and defendants moved to dismiss. The Attorneys General of Indiana, Alabama, Arkansas, Colorado, Georgia, Kansas, Louisiana, Nebraska, Oklahoma, Texas, Utah and West Virginia, and Wyoming, as well as the United States of America filed amicus briefs in favor of dismissal. Opposing dismissal, as amici, were the Attorneys General of California, Washington and New Jersey.

The court dismissed all the claims. *City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017, 1019 (N.D. Cal. 2018). The court held that *AEP* and *Kivalina*'s Clean Air Act displacement rule applied even though plaintiffs styled their claims as based on the extraction, production, and sale of fossil fuels rather than emissions. *Id.* at 1024 (“If an oil producer cannot be sued under the federal common law for their own emissions, a fortiori they cannot be sued for someone else’s.”). The court also grounded its holding in the doctrine of separation of powers and judicial restraint, finding that:

questions of how to appropriately balance these worldwide negatives against the worldwide positives of the energy itself, and of how to allocate the pluses and minuses among the nations of the world, demand the expertise of our environmental agencies, our diplomats, our Executive, and at least the Senate. Nuisance suits in various United States judicial districts regarding conduct worldwide are far less likely to solve the problem and, indeed, could interfere with reaching a worldwide consensus.

Id. at 1024–1026. Plaintiffs’ appeal to the Ninth Circuit is pending.

In a separate action in California, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed similar suits in California Superior Court against numerous fossil fuel companies. *See e.g.*, Complaint, *County of San Mateo v. Chevron Corp.*, No. 17CIV03222 (Cal. Super. Ct. July 17, 2017). However, in addition to public nuisance, the plaintiffs also claimed strict liability for failure to warn, strict liability for design defect, private nuisance, negligence, negligent failure to warn, and trespass. Plaintiffs alleged that the fossil fuel companies’ “production, promotion, marketing, and use of fossil fuel products, simultaneous concealment of the known hazards of those products, and their championing of anti-regulation and anti-science campaigns, actively and proximately caused” injuries to plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. Among other relief, Plaintiffs requested compensatory and

punitive damages, and abatement of nuisances. Defendants removed the actions to federal court, and the three actions were then consolidated into one action.

Judge Chhabria of the U.S. District Court for the Northern District of California remanded the case to state court. Judge Chhabria expressly disagreed with Judge Alsup's ruling in the San Francisco and Oakland suit. Judge Chhabria held that "[b]ecause federal common law does not govern the plaintiffs' claims, it also does not preclude them from asserting the state law claims in these lawsuits. Simply put, *these cases should not have been removed to federal court on the basis of federal common law that no longer exists.*" *Id.* at 2 (emphasis added). The defendants appealed the remand order to the Ninth Circuit. The Ninth Circuit then consolidated the three remand actions brought by the County of San Mateo, County of Marin, City of Imperial Beach, as well as others stemming from similar suits brought by the County of Santa Cruz, City of Santa Cruz, and City of Richmond. Order, *Cty. of San Mateo v. Chevron Corp.*, No. 18-15499 (9th Cir. 2018). In November 2018, the U.S. Chamber of Commerce filed an amicus brief in opposition to the remand order. Briefing is ongoing in the Ninth Circuit.

2. *Rhode Island v. Chevron*

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling LLP as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court. The parties are awaiting the federal court's remand decision. Like the California cases, Rhode Island seeks to hold numerous fossil fuel companies liable for current and future injuries to state owned or operated facilities and property as well as for other harms. Complaint, *State of Rhode Island v. Chevron Corp.*, No. PC-2018-4716 (R.I. Super. Ct. 2018). Rhode Island seeks, among other relief, compensatory and punitive damages, and abatement of nuisances under state law claims for public nuisance, strict liability

for failure to warn, strict liability for design defect, negligent design defect, negligent failure to warn, trespass, impairment of public trust resources and state Environmental Rights Act—Equitable Relief Action. To date, this is the only climate change damage lawsuit brought by a State Attorney General as opposed to a city or county.

3. *Baltimore v. BP*

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought a claim in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and the California suits, Baltimore alleged that through the defendants' production, promotion and marketing of fossil fuels, defendants concealed the hazards of their products and disseminated information intended to mislead consumers, customers, and regulators regarding the known and foreseeable risks of climate change caused by their products. Complaint at 116, *Mayor and City Council of Baltimore v. BP*, No. 24-C-18-004219 (Md. Cir. Ct. 2018). Alleged damages include more severe and frequent storms and floods, increased sea level, heat waves, droughts, and harms to public health. Baltimore is seeking compensatory and punitive damages, and equitable relief among other remedies for public nuisance, private nuisance, strict liability failure to warn, strict liability design defect, negligent, design defect, negligent failure to warn, trespass, and violations of Maryland's Consumer Protection Act. The defendants removed the case to federal court and Baltimore has moved for remand.

4. *King County v. Chevron*

In May 2018, King County in Washington, with outside counsel from Hagens Berman LLP, filed a similar suit for public nuisance and trespass in Washington state court against numerous fossil fuel companies. Complaint at ii, *King Cty. v. BP*, 2:18-cv-00758-RSL (Wash. Super. Ct. 2018). Plaintiffs sought compensatory damages and the establishment of an abatement

fund to pay for a climate change adaptation program. Defendants removed the case to federal court and moved for dismissal. Plaintiff moved for and was granted a stay until the Ninth Circuit issues a decision in *City of Oakland v. BP*. The stay is currently in place.

5. *Pacific Coast Federation of Fishermen's Association v. Chevron*

In November 2018, a fishing industry trade group represented by Sher Edling LLP filed a climate change damage suit against the fossil fuel companies in California state court. The trade group is relying on California state nuisance and products liability law to hold the defendants liable for closures to crab fisheries caused by climate change. *Pacific Coast Federation of Fishermen's Association v. Chevron Corp.*, No. CGC-18-571285 (Cal. Super. Ct. 2018). Specifically, Plaintiffs assert that warming ocean temperatures caused by climate change has led to an increase in a plankton species, *Pseudo-nitzschia*, responsible for causing “amnesic shellfish poisoning” through the release of the toxin domoic acid. Plaintiffs seek compensatory and punitive damages and equitable relief. In December 2018, defendants filed a notice of removal.

6. *Boulder County v. Suncor Energy*

In April 2018, three Colorado local government entities—the City of Boulder and the Counties of Boulder and San Miguel—filed suit against fossil fuel companies seeking damages and other relief for the companies’ role in causing climate change. Outside counsel includes Hannon Law Firm LLP, EarthRights International, and the Niskanen Center, a libertarian think tank. Plaintiffs brought claims under public and private nuisance, trespass, the Colorado Consumer Protection Act, and civil conspiracy. In an effort to avoid federal jurisdiction and *AEP*-like displacement, Plaintiffs’ complaint stated:

[Plaintiffs] do not seek to impose liability, restrain or interfere with Defendants ability to participate in public debates about climate change, or otherwise interfere with Defendants’ speech. . . [and] do not seek to enjoin any oil and gas operations or sales in the State of Colorado, or elsewhere, or to enforce emissions controls of

any kind. Plaintiffs do not seek damages or abatement relief for injuries to or occurring on federal lands. Plaintiffs do not seek damages or any relief based on any activity by Defendants that could be considered lobbying or petitioning of federal, state or local governments.

Complaint at 123, *Cty. of Boulder v. Suncor Energy Inc.*, No. 2018CV030349 (Colo. D. Ct. 2018). Defendants removed to federal court. Plaintiffs moved to remand. That motion is pending.

7. *City of New York v. BP*

In January 2018, New York City filed suit for damages and equitable relief in federal court against fossil fuel companies asserting public nuisance, private nuisance, and trespass claims under New York State law against fossil fuel companies. Complaint at i, 63. *City of New York v. BP*, No. 1:18-cv-00182-JFK (S.D.N.Y. 2018). In contrast to the suits discussed above, New York filed in federal court rather than in state court. Outside counsel includes Hagen Berman LLP and Seeger Weiss LLP. The Niskanen Center filed an amicus brief in support of New York City. In support of Defendants, fifteen states led by Indiana filed an amicus brief in favor of dismissal. The court dismissed, and New York City appealed. On appeal to the U.S. Court of Appeals for the Second Circuit, Attorneys General of New York, California, Maryland, New Jersey, Oregon, Rhode Island, Vermont, Washington, and the District of Columbia have filed an amicus brief in support of New York. Other amicus briefs in support of New York include ones from law professors, environmental justice groups, and the National League of Cities. Briefing is ongoing.

B. State Attorneys General Supporting Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of plaintiffs bringing damages claims for climate change-related harms to state resources and infrastructure. For example, in *New York City v. BP* Attorneys General Underwood (NY), Becerra (CA), Kilmartin (RI), Frosh (MD), Donovan (VT), Grewal (NJ), Ferguson (WA), Rosenblum (OR), and Racine

(D.C.) signed an amicus in support of New York City’s claim. In support of the fossil fuel companies were Attorneys General Fisher (IL), Hill (IN), Marshall (AL), Rutledge (AR), Coffman (CO), Carr (GA), Schmidt (KS), Landry (LA), Peterson (NE), Hunter (OK), Wilson (SC), Paxton (TX), Reyes (UT), Morrissey (WV), Schimel (WS), and Michael (WY). In *Oakland v. Chevron*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA) supported the plaintiffs. In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP*. Additionally, several other Attorneys General are likely or potentially supportive of actions against fossil fuel companies for climate change-related harms based on recent campaign statements. They include Letitia James (NY), Josh Shapiro (PA), Josh Kaul (WI), Dana Nessel (MI), Phil Weiser (CO), Josh Stine (NC), and Kwame Raoul (IL).

II. Potential Claims Against Fossil Fuel Companies Under Minnesota Law

This Part discusses potential claims the Minnesota Attorney General could bring against fossil fuel companies for climate change-related damages in Minnesota. These claims build off the claims in the existing lawsuits discussed in Part I. For each claim, this Memorandum discusses the applicable law in Minnesota and then provides an example of what the claim would look like in a complaint using Minnesota-specific law as well as Minnesota-specific damages.

The claims discussed below are: (1) consumer protection claims, including the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”), the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”), and antitrust claims under Minn. Stat. §§ 325D.49-325D.66; (2) product liability claims, including design defect and failure to warn; and (3) common law tort claims, including

public nuisance, private nuisance, trespass and strict liability for abnormally dangerous activities. This Part also discusses the statutes of limitations potentially applicable to these claims.

A. Consumer Protection Claims

Two of the existing climate change lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations. The Colorado plaintiffs also allege conspiracy claims. Both cases were removed to federal court and motions to remand are pending. The complaints in these cases and the possibility of similar claims under Minnesota law are discussed below.

1. Applicable law

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”) and the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”). Minnesota and Blue Cross Blue Shield used these laws to sue the tobacco companies in the 1990s, leading to a \$6.6 billion settlement in 1998.

The Minnesota Supreme Court has “cited its prior statements that the CFA should be liberally construed in favor of protecting consumers and that the CFA reflected ‘a clear legislative policy encouraging aggressive prosecution of statutory violations.’” Prentiss Cox, *Goliath Has The Slingshot: Public Benefit And Private Enforcement Of Minnesota Consumer Protection Laws*, 33 WM. MITCHELL L. REV. 163, 178 (2006) (citing *Ly v. Nystrom*, 602 N.W.2d 644, 308 (Minn. Ct. App. 1999) (citing *State v. Philip Morris, Inc.*, 551 N.W.2d 490, 495-96 (Minn. 1996))). See also Gary L. Wilson & Jason A. Gillmer, *Minnesota’s Tobacco Case: Recovering Damages Without Individual Proof of Reliance Under Minnesota’s Consumer Protection Statutes*, 25 WM. MITCHELL L. REV. 567, 590 (1999) (“Minnesota consumer

protection statutes present one example in which the legislature has made a policy decision to make it easier to sue for a consumer protection violation than it would be under the common law. The legislature did so by relaxing the requirement of causation. . .”).

The Attorney General has express responsibility to “investigate offenses” and “assist in enforcement” of the CFA, UTPA, and the FSAA in Minn. Stat. § 8.31, subd. 1. Subdivision 3(a) of § 8.31 gives clear authority to the Attorney General to seek damages and equitable remedies for CFA, UTPA and FSAA violations, providing that “[i]n any action brought by the attorney general pursuant to this section, the court may award any of the remedies allowable under this subdivision,” which include “damages . . . costs and disbursements, including costs of investigation and reasonable attorney’s fees, and . . . other equitable relief.” Minn. Stat. § 8.31(3)(a).

The CFA forbids “[t]he act, use, or employment by any person of any fraud, false pretense, false promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any person has in fact been misled, deceived, or damaged thereby. . .” Minn. Stat. § 325F.69, subd. 1. The UTPA provides that “[n]o person shall, in connection with the sale of merchandise, knowingly misrepresent, directly or indirectly, the true quality, ingredients or origin of such merchandise.” Minn. Stat. § 325D.13. The FSAA prohibits a broad range of advertising and other activities designed to “increase the consumption” of merchandise that “contain[] any material assertion, representation, or statement of fact which is untrue, deceptive, or misleading .

. . .” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.²

Any claims under Minnesota consumer protection statutes for climate change-related damages should be brought by the Attorney General as a direct action on behalf of the state, rather than a subrogation action on behalf of state citizens. *See State v. Minnesota School of Business, Inc.*, 915 N.W.2d 903, 910 (2018) (denying restitution to individuals that did not testify at trial). In actions seeking damages, the Minnesota Supreme Court held that Minn. Stat. § 8.31, subd. 3(a) demands:

[T]hat there must be some “legal nexus” between the injury and the defendants’ wrongful conduct. . . where the plaintiffs’ damages are alleged to be caused by a lengthy course of prohibited conduct that affected a large number of consumers, the showing of reliance that must be made to prove a causal nexus need not include direct evidence of reliance by individual consumers of defendants’ products. Rather, the causal nexus and its reliance component may be established by other direct or circumstantial evidence. . .

Grp. Health Plan, Inc. v. Philip Morris Inc., 621 N.W.2d 2, 15 (Minn. 2001).

The Minnesota tobacco case was a direct action in which the state and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare providers. *Wilson & Gillmer, supra* at 570-576. While specific individual reliance was not required, at least six types of evidence made effective “legal nexus” causation arguments: (1) evidence of the defendants’ intentional misconduct, (2) addiction of the defendants’ customers; (3) the defendants’ exploitation of smokers; (4) the defendants’ reassurance of smokers through advertising; (5) the defendants’ youth marketing strategies; and (6) the defendants’ intent that their conduct be relied upon. *Wilson & Gillmer, supra* at 608-624.

² The UDTPA is not expressly mentioned in Minn. Stat. § 8.31, so “[t]here is a question whether damages are available for violations.” *Wilson & Gillmer, supra* at 588. The court did not allow a UDTPA action for damages in the tobacco litigation; however, some argue that damages may be available pursuant to § 8.31(3)(a). *Id.* at 588-589.

Based on the publicly available information, there is a wealth of similar facts the Attorney General can rely on in a case against the fossil fuel companies for climate change damages. As with the tobacco companies, the fossil fuel companies intentionally deceived Minnesota, other states, and the public about the long-term risks of continued fossil fuel use through advertisements, public statements, and funded research. Much of this disinformation campaign has come to light only recently.

There is also evidence that the fossil fuel companies have encouraged a public “addiction” to oil and created hostility toward cleaner fuels. These actions are similar to the tobacco companies’ efforts to increase individuals’ nicotine intake—despite their ability to lower nicotine content. *See id.* at 613-616 (“The tobacco industry has the technological capability of removing most of the nicotine from cigarettes. However, evidence suggests the tobacco industry maintains nicotine at certain levels because the companies know that nicotine is the addictive substance. . .”) (citation omitted); *see also* Peter Teigland, *Petroleum Refining in Minnesota*, NORTH STAR POLICY INST. (May 10, 2018) (explaining that much of the oil flowing into and through Minnesota comes from the Bakken shale and Canadian tar sands).

The plaintiffs in both the Maryland and Colorado lawsuits allege that developing “dirtier” sources of fuel shows oil companies’ blatant disregard of climate data. *See, e.g.*, Colorado Complaint ¶ 384 (“Moreover, and despite its knowledge of the grave threats fossil fuels pose to the climate as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to the concentration of atmospheric CO₂.”) In addition, evidence of the industry’s significant spending on advertising and correlating sales may be used to show causation by establishing the companies’ intention that their publications be relied on by consumers. Wilson & Gillmer, *supra* at 601, 617 (“Even without a showing of intentional

conduct, vast promotional expenditures give rise to a presumption that consumers have been deceived . . . The industry conceded that success in the marketplace is evidence of consumer reliance on the industry’s words and actions.”).

The Attorney General may also bring antitrust claims against the fossil fuel companies, similar to the claims in the Colorado lawsuit. The prohibitions in the Minnesota Antitrust Law of 1971, Minn. Stat. §§ 325D.49-325D.66, include conspiracy and seeking/exercising monopoly power. According to the Minnesota Supreme Court, “Minnesota antitrust law is generally interpreted consistently with federal antitrust law.” Brent A. Olson, MINN. PRAC., BUSINESS LAW DESKBOOK § 22A:1 (2018) (citation omitted). As such, “antitrust claims are *not* subject to a heightened standard of specificity in pleading . . .” *In re Milk Indirect Purchaser Antitrust Litig.*, 588 N.W.2d 772, 775 (Minn. Ct. App. 1999). The court may assess significant penalties: “Any person, any governmental body. . . injured directly or indirectly by a violation of sections 325D.49 to 325D.66, shall recover three times the actual damages sustained . . .” Minn. Stat. § 325D.57. The Attorney General has express authority to investigate and commence appropriate legal action seeking damages for violation of the statutory provisions. Minn. Stat. § 325D.59.

2. *Model claims for violation of consumer protection and antitrust statutes*

The consumer protection claims in the Minnesota tobacco litigation and the Maryland and Colorado lawsuits against fossil fuel companies for climate change-related damages provide an outline for consumer protection claims in Minnesota against fossil fuel companies. The following model complaint language is largely adapted from the claims in the Maryland and Colorado cases and the Second Amended Complaint in the Minnesota tobacco litigation, *State of Minnesota v. Philip Morris Inc.*, No. C1-94-8565 (Ramsey Co. Dist. Ct. 1998).

Prevention of Consumer Fraud Act, Minn. Stat. § 325F.68-70:

1. Defendants, in connection with the sale of merchandise, knowingly misrepresented, and continue to misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to fossil fuel use and climate change, including knowing misrepresentations that there is no causal connection between fossil fuel use and climate change, efforts to spread doubt about the link between fossil fuel use and climate change, and disparagement of the work of others that show the connection between fossil fuel use and climate change;
 - Defendants' fraudulent concealment of information relating to fossil fuel use and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use, including: the true cost and harms from their products, the damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.
3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

False Statement in Advertising, Minn. Stat. §325F.67:

1. Defendants, intending to sell and increase consumption of their products, knowingly caused and continue to cause to be made and placed before the public in Minnesota advertisements regarding their products which contained material assertions, representations and/or statements of fact that were untrue, deceptive, and/or misleading. *See* Minn. Stat. § 325F.67.
2. Defendants' wrongful conduct includes, by way of example:
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that make intentional, material misrepresentations, such as that there is no causal connection between fossil fuel use and climate change and publications and advertisements that advance false theories refuting the connection between fossil fuel use and climate change;
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that intentionally omit material information about the connection between fossil fuel use and climate change and existing and likely impacts of climate change on society.

3. As a direct and proximate result of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unlawful Trade Practices Act, Minn. Stat. §§ 325D.09-16:

1. Defendants, in connection with the sale of merchandise, including fossil fuels, knowingly misrepresented, and continue to knowingly misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations that there is no causal connection between fossil fuels and climate change, efforts to spread doubt about the link between fossil fuels and climate change, and disparagement of the work of others that showed the connection between fossil fuels and climate change;
 - Defendants' misrepresentations that they would or did conduct and disclose objective research on the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations;
 - Defendants' fraudulent concealment of information relating to fossil fuel use/extraction and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use/extraction, the true cost and harms from their products, the likely damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.
3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unreasonable Restraint of Trade and Commerce, Minn. Stat. § 325D.51:

1. For several decades and continuing today, Defendants entered into a contract, combination, or conspiracy between two or more persons aiming to unreasonably restrain trade and commerce in Minnesota's energy and transportation sectors. The energy and transportation markets are inextricably linked with Minnesota's interests in those fields and in other fields including but not limited to: health care, real estate, tourism and natural resources.
2. Defendants and their co-conspirators had a meeting of the minds to accomplish their goals to maintain and/or to increase fossil fuel usage at levels they knew were sufficient to alter the climate, and to withhold material information concerning the continuing and increasing harm caused by their fossil fuel activities, specifically concerning the damage to the climate that the

use of their goods and services would cause and the impacts of the use of their fossil fuels and fossil fuel-derived products and services on Plaintiff's property, social services and infrastructure.

3. This contract, combination, or conspiracy had the purpose and effect of restraining competition in the energy and transportation markets in Minnesota and controlling those markets in Minnesota through restraining and suppressing research on the causal connection between fossil fuel extraction/use and climate change and the harms of climate change, restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
4. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Monopolization of the Transportation/Energy/Petroleum Market in Minnesota, Minn. Stat. § 325D.52:

1. Defendants collectively and with co-conspirators have for at least several decades, and to this day maintained and used, or attempted to establish, maintain, or use monopoly power over trade and commerce to affect competition and/or control, fix or maintain prices in the oil market and other related markets. *See* Minn. Stat. § 325D.52.
2. Defendants, through their acts and omissions described above, maintained and used their monopoly power to affect competition by restraining and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use; and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
3. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Civil Conspiracy, Minn. Stat. § 325D.53:

1. Beginning at least as early as the 1950s and continuing until the present day, Defendants entered into a conspiracy with the intentional and unlawful purpose and effect of restraining

and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel combustion/use; engaging in affirmative misrepresentations on the harmful effects of fossil fuel combustion/use; and restraining and suppressing the research, development, production, and marketing of better alternatives. In furtherance of defendants' conspiracy, defendants lent encouragement, substantial assistance, and otherwise aided and abetted each other with respect to these wrongful acts.

2. As a direct and proximate result of Defendants' unlawful conspiracy, Plaintiff has suffered and will continue to suffer substantial injuries and damages, including but not limited to (see damages list above).

B. Products Liability Design Defect

1. Applicable law

Six lawsuits filed in state courts against fossil fuel companies for their products' contribution to climate change damages have alleged design defect and failure to warn claims arising under state common law. *See Mayor & City Council of Baltimore v. B.P.*, 24-C-18-004219 (Md. Cir. Ct. 2018); *Rhode Island v. Chevron Corp.*, PC-2018-4716 (R.I. Super. Ct. 2018); *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). All of these lawsuits allege both negligent design defect and failure to warn and strict liability design defect and failure to warn. *Id.* Minnesota could allege similar products liability claims against fossil fuel companies related to their extraction, production, marketing, and sale of fossil fuel products.

Minnesota adopted strict liability in tort for products liability cases in 1967. *See McCormack v. Hanksraft Co.*, 154 N.W.2d 488 (Minn. 1967). The Minnesota Supreme Court found that public policy necessitated protecting consumers from the risk of harm that arose from

“mass production and complex marketing.” *Id.* at 500. Adopting the strict liability theory, manufacturers are liable for the cost of injuries that result from their defective product regardless of negligence or privity of contract. *Id.* In *McCormack*, the Court reasoned that strict liability should apply as the makers of the product are in the best position to “most effectively reduce or eliminate the hazard to life and health, and absorb and pass on such costs [to consumers].” *Id.*

Since *McCormack* products liability law has expanded in Minnesota to cover three different theories of defective products: (1) manufacturing defects that arise from flaws in the way the product was made; (2) design defects that result from an unreasonably safe product design; and (3) failure to warn of reasonably foreseeable dangers from a products use. *See Rest. (Third) of Torts: Products Liability* § 2 (1998). As products liability law in Minnesota continued to evolve, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrook v. Marshalltown Mfg. Co.*, 473 N.W.2d 352 (Minn. Ct. App. 1991) (“*Bilotta* merged strict liability, negligence, and implied warranty remedies into a single products liability theory.”) (referencing *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 623 (Minn. 1984)); *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (“Toyota correctly notes that [in Minnesota] in the product liability context, strict liability and negligence theories merge into one unified theory, sharing the same elements and burden of proof.”).

Of the three products liability claims alleged in the other lawsuits against the fossil fuel companies, only design defect and failure to warn claims would apply in Minnesota. Manufacturing defect claims cover faulty or defective products that arise despite a reasonably safe design—e.g., defects that may occur to a discrete number of products during the manufacturing process. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases looks at the condition of the product and compare any defects found with the flawless

product). In contrast, all fossil fuel products on the market result in a dangerous condition—increased CO₂ emissions/climate change—*because* of the products unreasonably safe design. *See id.* (in a design defect case the “defect” lies in the consciously chosen design and the product is in the condition intended by the manufacturer).

a. Design defect

In Minnesota, a manufacturer has a nondelegable duty to design a reasonably safe product. *Bilotta*, 346 N.W.2d 616; *see also Schweich v. Ziegler, Inc.*, 463 N.W.2d 722, 731 (Minn. 1990) (“Caterpillar is duty bound to use reasonable care in designing the DH6 to protect users from unreasonable risk of harm while using it in a foreseeable manner.”). If a manufacturer breaches this duty and the defect proximately causes the plaintiff’s injury, it is liable in tort under a design defect theory. *Farr v. Armstrong Rubber Co.*, 288 Minn. 83, 90 (Minn. 1970). Therefore, to recover against a manufacturer for a design defect a plaintiff must show that: “(1) a product was in a defective condition unreasonably dangerous for its intended use; (2) the defect existed at the time the product left the defendant’s control; and (3) the defect proximately caused the plaintiff’s injury.” *Duxbury v. Spex Feeds, Inc.*, 681 N.W.2d 380, 393 (Minn. Ct. App. 2004). *See also Adams v. Toyota Motor Corp.*, 867 F.3d 902, 916–17 (8th Cir. 2017) (applying Minnesota law).

Unreasonably dangerous condition: To determine whether the design of a product is unreasonably dangerous, Minnesota courts employ the reasonable care balancing test adopted from Florida and New York courts in *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 624 (Minn. 1984). This test looks at the totality of circumstances including: “a balancing of the likelihood of harm, and the gravity of harm if it happens, against the burden of the precaution which would be effective to avoid the harm.” *Id.* It is an objective standard that “focuses on the conduct of the

manufacturer in evaluating whether its choice of design struck an acceptable balance among several competing factors.” *Id.* at 622. Often considered by courts and juries employing the reasonable care balancing test is whether or not there existed, or the plaintiff can prove, a practical alternative design. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 96 (Minn. 1987) (holding that existence of a practical alternative design is a factor, but not an element of a *prima facie* case, in design defect claims).

Fossil fuel products were, and continue to be, in a defective condition unreasonably dangerous for their intended use. The emission of GHGs resulting from the use of fossil fuel products causes severe and grave harms in the form of global warming, increased severity of dangerous weather patterns, rising sea level, increased drought, increased weather patterns, serious public health concerns particularly to low income and minority communities, and overall climate change damages. The fossil fuel companies were well aware of the gravity of this harm, as well as the extremely high likelihood that this harm would occur from their continued extraction, production, use, and marketing of fossil fuel products as early as 1965. This is particularly true in light of generally accepted scientific knowledge that unfettered anthropogenic GHG emissions would result in catastrophic impacts. The burden of precaution necessary to avoid the harms was significantly lower when the companies first became aware of the risk their fossil fuel products posed and has only grown since.

Defect existed at the time it left defendants’ control: The second element of a design defect claim is that “the defect existed at the time the product left the defendant’s control” *Duxbury*, 681 N.W.2d at 393. GHGs emitted from the combustion/use of fossil fuel products exists at the time they are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, individual and aggregate fossil fuel products reached the consumer in a

condition substantially unchanged from that in which it left the companies' control—and “were used in the manner in which they were intended to be used . . . by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.” Complaint at ¶ 212, *PCFFA v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018). Therefore, the defect existed at the time fossil fuel products left the fossil fuel companies' control.

Defect proximately caused the plaintiff's injury: Finally, the plaintiff must prove that the design defect proximately caused the plaintiff's injury. *Duxbury*, 681 N.W.2d at 393. “Proximate cause exists if the defendant's conduct, without intervening or superseding events, was a substantial factor in creating the harm.” *Thompson v. Hirano Tecseed Co., Ltd.*, 456 F.3d 805, 812 (8th Cir. 2006) (applying Minnesota law). A substantial factor has also been described as a “material element” in the happening of the injury. *Draxton v. Katzmarek*, 280 N.W. 288, 289 (Minn. 1938).

But-for causation is still necessary for a substantial factor causation analysis, because “if the harm would have occurred even without the negligent act, the act could not have been a substantial factor in bringing about the harm.” *George v. Estate of Baker*, 724 N.W.2d 1, 11 (Minn. 2006) (citing Rest. (Second) of Torts § 432 (1965)). However, if there are concurring acts that together cause the plaintiff's injury and act contemporaneously, or so nearly together that there is no break in the chain of causation, this is sufficient to meet the causation analysis even if the injury would not have resulted in the absence of either one. *Roemer v. Martin*, 440 N.W.2d 122, 123, n.1 (Minn. 1989). If there are concurrent acts of negligence, both parties are liable for the whole unless the resulting damage is “clearly separable.” *See Mathews v. Mills*, 178 N.W.2d

841, 844 (Minn. 1970). Before a particular factor can be said to be a concurrent cause, it must, first of all, be established that it is a cause. *Roemer*, 440 N.W.2d at 123.

The fossil fuel companies' extraction, production, refining, marketing, and sale of fossil fuels was and will continue to be a substantial factor in creating Minnesota's harm from climate change. Ninety producers of oil and gas are responsible for 63% of the cumulative industrial CO₂ and methane emissions worldwide between 1751 and 2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (Nov. 22, 2013). Abundant scientific studies and reports link these anthropogenic GHG emissions to climate change and its damages.

California has similarly adopted the substantial factor test to determine proximate causation. *People v. Atlantic Richfield Co.*, 2013 WL 6687953, at *16 (Cal. Super. Ct. 2013) ("Under this test, independent tortfeasors are liable so long as their conduct was a "substantial factor" in bringing about the injury."), *aff'd sub nom. People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51 (Cal. Ct. App. 2017). However, it is important to note that California's substantial factor test appears to be broader than Minnesota's, requiring the defendant's conduct to only be "a very minor force" to find it was a substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102. Despite this, *People v. Atlantic Richfield Co.*, still provides a useful analogy for determining whether multiple manufacturers of a product were each a "substantial factor" in creating the plaintiff's injury and may act as persuasive authority in Minnesota. 2013 WL 6687963 at *1, *aff'd sub nom. ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 169 (affirming holding of liability against lead paint manufacturers but limiting scope of abatement remedy to pre-1951 homes).

In *Atlantic Richfield Co.*, counties in California brought a public nuisance action against five lead paint manufacturers seeking abatement of the public nuisance created by the lead paint manufactured and sold by defendants in ten jurisdictions in California. Three of the paint manufacturers, ConAgra, NL Industries, and Sherwin Williams, were found to have created or assisted in the creation of the public nuisance and, as a result, the Court held their conduct was a substantial factor in bringing about the public nuisance. *Id.* at *54.

ConAgra was a large producer and supplier of lead, operated to a major degree within the jurisdictions that brought suit, and continued to sell lead paint until 1958 and therefore the Court found their conduct was a substantial factor in creating the public nuisance. *Id.* at *52. NL Industries (formerly known as National Lead Company) was the largest manufacturer, promoter, and seller of lead pigments for use in house paint and was an active participant in campaigns to promote lead paint. Based on this, the Court found NL to be a substantial factor in causing the public nuisance. *Id.* at *53. Finally, Sherwin Williams' conduct was found to have been a substantial factor in the public nuisance despite testimony offered by SW's expert witness Dr. Van Liere who estimated that Sherwin William's lead paint contributed a mere 0.1% of the total lead consumed in California from 1894 to 2009. *Id.* at *39. This was because the company had two plants, stores, and dealers selling lead paint within the jurisdictions bringing suit and it transported millions of pounds of lead paints to its warehouses and factories during the first four decades of the 20th century. *Id.* at *53.

The California Court of Appeals upheld the trial court findings, further emphasizing that all three defendants' marketing campaigns promoting lead paint as safe for use in residential homes and on doors and windows frames played at least a *minor* role in creating the public nuisance and therefore met the "substantial factor" test. *People v. ConAgra Grocery Products*

Co., 17 Cal. App. 5th 51, 102–03 (Cal. Ct. App. 2017). Minnesota can use the California courts’ reasoning to establish that each individual fossil fuel company named as defendant was a substantial factor in causing Minnesota’s climate damages.

Lastly, not only must the design defect be a substantial factor, or material element, in bringing about plaintiff’s injuries—there cannot be a “superseding” event that breaks the causal chain between the defendants’ conduct and the plaintiff’s injury:

A cause is “superseding” if four elements are established: (1) Its harmful effects must have occurred after the original negligence; (2) it must not have been brought about by the original negligence; (3) it must actively work to bring about a result which would not otherwise have followed from the original negligence; and (4) it must not have been reasonably foreseeable by the original wrongdoer.

Regan v. Stromberg, 285 N.W.2d 97, 100 (Minn. 1979). There were no intervening or superseding events that caused Minnesota’s climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between the fossil fuel companies’ conduct and Minnesota’s injuries and damages, or superseded the fossil fuel companies’ breach of its duty to design a reasonable safe product.

b. Joint and several liability and market share liability

Notably, although an individual oil or gas company may claim that its extraction, production, and sale of fossil fuel products was not a substantial factor or the “but-for” cause of Minnesota’s climate change damages, Minnesota can rely on two liability structures to overcome the causation burden: concurring causes and the indivisible injury rule which impose joint and several liability and market share liability.

In general, parties whose negligence concurs to cause an indivisible injury are jointly and severally liable, even if not acting in concert. *Maday v. Yellow Taxi Co.*, 311 N.W.2d 849 (Minn. 1981); *see also Rowe v. Munye*, 702 N.W.2d 729, 736 (Minn. 2005) (“[M]ultiple defendants are

jointly and severally liable when they, through independent consecutive acts of negligence closely related in time, cause indivisible injuries to the plaintiff.”). A harm is indivisible if “it is not reasonably possible to make a division of the damage caused by the separate acts of negligence.” *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970) (quotation omitted). When two or more persons are jointly liable, contributions to awards shall be in proportion to the percentage of fault attributable to each, except that each is jointly and severally liable for the whole award. Minn. Stat. § 604.02, subd. 1 (2018). However, a plaintiff would still be required to show that each defendant’s conduct was a substantial factor in causing its harming. *Jenson v. Eveleth Taconite Co.*, 130 F.3d 1287, 1294 (8th Cir. 1997).

At least four other state lawsuits have alleged fossil fuel companies’ acts and omissions were indivisible causes to the plaintiffs’ injuries and damages because it is not possible to determine the source of any particular GHG molecule from anthropogenic sources. *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman’s Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) (“*PCFFA v. Chevron*”). Joint and several liability would also apply in a lawsuit against fossil fuel companies for damages resulting from climate change in Minnesota. Minnesota is experiencing a single indivisible injury caused by multiple fossil fuel companies’ independent consecutive actions closely related in time. *See Jenson*, 130 F.3d at 1305 n.9 (explaining how the single indivisible injury rule imposes joint and several liability). Because Minnesota’s harm is indivisible, each fossil fuel company would be liable for the entire harm. *Id.*

If the fossil fuel companies argue that Minnesota's harms are divisible, they each may be able to limit their liability. However, the defendant asserting divisibility bears the burden of proving apportionment. *See e.g., Jenson*, 130 F.3d at 1294 (explaining that "plaintiffs bear no burden to prove apportionment" because apportionment is akin to an affirmative defense). Fossil fuel companies could attempt to prove apportionment based on the amount of GHG their fossil fuel products emitted.

People of the State of California v. Atlantic Richfield Co. once again provides reference for how oil and gas companies may be jointly and severally liable and can act as persuasive authority in Minnesota's courts. 2013 WL 6687953, 44 (Cal. Super. Ct. 2013). Under California law, when multiple tortfeasors are each a substantial factor in creating a public nuisance, they are jointly and severally liable for that nuisance. *Id.* at * 44 (quoting *Am. Motorcycle Assn v. Superior Court*, 20 Cal. 3d 578, 586 (1978)). Similar to Minnesota, if the injury is indivisible each actor whose conduct was a substantial factor in causing the damages is legally responsible for the whole. *Id.* California has found that this joint and several liability theory applies when multiple sources of contamination result in a single nuisance. *Id.* (quoting *State v. Allstate Ins. Co.*, 45 Cal. 4th 1008, 1036 (2009)). Because of this, the California Superior Court found that the three lead paint manufacturers who were found to be substantial factors in causing the public nuisance were all jointly and severally liable. *Id.* A similar theory of recovery could be used in Minnesota against fossil fuel companies applying Minnesota's version of concurrent harms, the invisible harm rule, and joint and several liability.

Finally, the market share liability theory allows a plaintiff to recover damages against defendants based on their proportion of the market share at the time the injury was caused if the defendants all produced an identical, or fungible product, and the plaintiff is unable to identify

which manufacturer produced the product that caused their injuries. *See Sindell v. Abbott Labs.*, 607 P.2d 924 (Cal. 1980) (establishing market share liability theory and apportioning liability based on the relative market share of each of the liable defendants). The Minnesota Supreme Court has not explicitly accepted or rejected the market share liability theory. *See Bixler v. J.C. Penney Co.*, 376 N.W.2d 209, 214 n.1 (Minn. 1985) (“We express no opinion as to whether we would adopt such a rule [market share liability], particularly where the product involved is not entirely fungible with similar products on the market.”). Because the Minnesota Supreme Court has not categorically ruled out the market share liability theory, it is possible that under the right set of facts, that theory of recovery may be available.

Minnesota can allege a market share liability theory if it is unable to prove which fossil fuel company caused its injuries because each fossil fuel company’s products are fungible with regard to their GHG emissions. The Wisconsin Supreme Court adopted a version of the market share liability theory known as the “risk contribution theory” in *Collins v. Eli Lilly Co.*, the state’s first DES case. 342 N.W.2d 37, 49 (Wis. 1984). In *Collins*, the Wisconsin Supreme Court recognized that the plaintiff would face an insurmountable obstacle if she had to prove which defendant manufactured the DES that her mother ingested based on the lack of records and pharmaceutical practices at that time. *Id.* at 44–45. Despite this, the Court found that Collins was entitled to a remedy at law for her injuries under the Wisconsin Constitution and therefore took the task of fashioning an adequate remedy. *See Id.* at 45 (“When an adequate remedy or forum does not exist to resolve disputes or provide due process, the courts, under the Wisconsin Constitution, can fashion an adequate remedy.”). *Compare* WIS. CONST. art. 1, § 9 (“Every person is entitled to a certain remedy in the laws for all injuries, or wrongs which he may receive in his person, property, or character.”) *with* MINN. CONST. art. 1, § 8 (“Every person is entitled to

a certain remedy in the laws for all injuries or wrongs which he may receive to his person, property or character . . .”).

In *Collins*, the Wisconsin Supreme Court held that for cases seeking recovery for harms associated with DES, and situations factually similar to DES cases, “the plaintiff need only allege and prove that the defendant drug company produced or marketed the drug DES for use in preventing miscarriages during pregnancy.” *Id.* at 50. In order to protect defendant drug companies that could not have contributed to Collins injury, the Court held that a defendant could escape liability if it could prove by a preponderance of evidence that the DES it produced or marketed could not have reached the plaintiffs mother. *Id.* at 197–98. The defendants could apportion liability using the comparative negligence theory, with the jury determining each company’s liability based on a number of factors including whether the company tested DES for safety, sought FDA approval, issued warnings about DES, produced or marketed DES after it knew of possible risks, and whether it took affirmative steps to reduce risk of injury to public. *Id.* at 199–200.

The Wisconsin Supreme Court later extended the risk contribution theory to a plaintiff who suffered lead poisoning but could not identify the paint manufacturer that had caused his injury. *See Thomas v. Mallet*, 285 Wis. 2d 236, 256 (Wis. 2005). Because many victims of lead poisoning would be denied an adequate remedy for harm, and Thomas’ case was factually similar enough to *Collins*, the Wisconsin Supreme Court agreed that the *Collins* risk-contribution theory should be extended to white lead carbonate claims. *Id.* at 293, 306 (explaining that lead poisoning plaintiffs are severely harmed by a substance they had no control over without an ability to prove with certainty which manufacturer produced or promoted the white lead carbonate that caused the injury).

In sum, both California's market share liability theory or Wisconsin's risk-contribution theory provide viable theories of recovery in Minnesota courts against fossil fuel companies for climate change harm in Minnesota. Fossil fuel companies' actions and the damages in Minnesota stemming from the use of their products closely resemble the factual circumstances of cases involving DES and lead paint. Fossil fuel products are fungible, the fossil fuel companies breached a legally recognized duty by failing to design their products in a reasonably safe manner, fossil fuel companies continued to market and produce their products despite knowledge of this danger, and the use of these fossil fuel products caused Minnesota's injuries. Moreover, in the case of fossil fuel companies, there is significant data on the percentage of GHG emissions related to each fossil fuel company's extraction, production, refining, and sales, making this arguably a stronger case for market share liability or risk-contribution theory than either the DES or lead paint cases.

2. *Model claim for design defect*

Below is an example of a model complaint alleging a claim of defective design for fossil fuel products under the reasonable care balancing test in Minnesota, along with support for each assertion. The language and sources are largely adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted, refined, formulated, designed, packaged, distributed, tested, constructed, marketed, promoted and sold fossil fuel products intended to be burned for energy, refined into petrochemicals, and/or refined/incorporated into petrochemical products including fuels and products.
2. The emissions of GHGs from the intended use of Defendants' fossil fuel products is a defective condition that makes the product unreasonably dangerous because GHG emissions cause numerous global and local changes to Earth's climate.
 - Fossil fuel combustion and industrial processes are responsible for the majority of emissions that have caused GHG concentrations to reach hazardous and

unprecedented levels, contributing roughly 78% of total GHG emission increases from 1970 to 2011.

- As a result of GHG emissions caused and contributed to by Defendants' fossil fuel activities, atmospheric CO₂ now stands at 408 parts per million (ppm), a level which is unprecedented in human history.
 - Once CO₂ enters the atmosphere, a significant portion of it remains there, with a warming influence that lasts for hundreds (if not thousands) of years. It also cannot be feasibly removed from the atmosphere with existing technology, committing the world to some degree of irreversible warming and associated climate change resulting from emissions to date.
 - These anthropogenic increases in CO₂ and GHG emissions act like a greenhouse in the atmosphere, trapping heat inside the Earth and leading to a warming atmosphere, oceans, and changing climate.
 - Minnesota's winters are warming thirteen times faster than its summers and Minneapolis and Mankato are the second and third fastest-warming cities respectively in the United States. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).
3. Based on the totality of the circumstances, balancing the likelihood of harm and the gravity of the harm if it occurred, against the burden of the precaution that would be effective to avoid the harm, the design of fossil fuel products was unreasonably dangerous.
4. The gravity of potential harms is extreme.
- Potential harms arising from fossil fuel products unreasonably dangerous design include global warming, extreme high temperature events, extreme precipitation events, droughts, significant public health impacts, and more.
 - Public health impacts of climatological changes are likely to be disproportionately borne by communities made vulnerable by geographic, racial, or income disparities including low-income communities, some communities of color, immigrant groups, indigenous peoples, children and pregnant woman, other adults, and others. Janet Gamble, U.S. EPA, John Balbus, Nat'l Inst. of Health, *The Impacts of Climate Change on Human Health in the United States* 249 (Apr. 2016).
 - In Minnesota, invasive species and diseases like Asian soybean rust may be able to survive Minnesota's warmer winters threatening Minnesota crops. Pine woods could retreat north changing Minnesota's tree population and warmer winters could even drive out Minnesota's state bird, the common loon. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).

- Minnesota will have more precipitation, but late summer conditions will be drier and warmer. *Id.* August rainfall could drop by up to 60 percent in some parts of the state by the end of the century. *Id.*
- Other Minnesota specific damages arising from climate change include:
 - Damages to agriculture including reduced yields, increases in pesticide and insecticide application to maintain yields, loss in soil agriculture, loss of yield in animal agriculture (pigs, cows, chickens, milk, egg, and pork production are lost when temperatures stay above 90 degrees), reduced fruit agriculture yields, particularly apples (apples need a certain number of chilling days per fall), and the cost to educate farmers on these changes and steps to mitigate damages by state agencies.
 - Current hydrologic damages including flooding on farmlands, excessive floods that fall under the compensation threshold by FEMA, increase in heavy storms. Future hydrological damages include an increase in prolonged droughts and flooding events.
 - Significant health impacts, particularly to low income and communities of color, including increased asthma attacks, allergens, hay fever, toxic algal blooms, heat stress and heat related illness (many low to medium income housing units do not have air conditioners), vector borne diseases (West Nile virus, tick borne diseases), flood damages and mold in homes (cost to remediate, mental health impacts, etc.)
 - Damages to Minnesota's lakes including toxic algal blooms, loss of cold-water species as we move to from cold-water lakes to cool water lakes, cost for state agencies to restock fisheries/lakes.
 - Damages to Minnesota's forests ranging from loss of wildlife habitat and species (including moose, common loon, and other iconic species).
 - A large tract of tamarack trees in Northeastern Minnesota has already been lost to eastern larch beetles, which are able to survive longer and cause more damage due to the warming climate. *See Josephine Marcotty, As Climate Warms, an Exploding Larch Beetle Population is Transforming Minnesota's Forests*, STAR TRIBUNE (Aug. 13, 2017) (“‘It’s a fantastic example of climate change in action,’ said Brian Aukema, a University of Minnesota professor who studies larch beetles and other forest insects. ‘That insect is telling us that tamarack no longer belongs here.’”)
 - Costs to transportation infrastructure including flood damages to bridges and roads.

- Other infrastructure damages including stormwater systems, sewer systems, power sector constraints, increased burden on emergency management and need to retrofit state operated buildings with air conditioning.
5. Defendants not only *knew* of the significant potential likelihood that harm would occur from continued use of their fossil fuel products as early as 1965, they actively worked to obscure public knowledge and create uncertainty regarding climate science.
 6. The cost to society of each ton of CO₂ emitted into the atmosphere increases as total global emissions increase, so that with each extraction/consumption of fossil fuel product the gravity of harm and likelihood increases.
 7. The cost to society from climate change damages greatly outweighs the social benefit from unchecked extraction and consumption of fossil fuel.
 8. Oil and gas companies were in a position to create, develop, and design alternative technologies, energy sources, and businesses practices that would have eased the transition to a lower carbon economy, reduced GHG emissions, and mitigated the harms associated with climate change.
 9. Defendants could have mitigated the burden of the precautionary measures necessary to reduce GHG emissions by investing time and resources into developing alternative forms of energy.
 10. Instead, these same companies spent decades and vast resources on a concerted campaign to discredit climate change science and warnings despite internal knowledge that “it would be unwise and potentially dangerous to ignore the mounting concern.” John Browne, BP Climate Change Speech to Stanford, Climate Files (May 19, 1997), <http://climatefiles.com/bp/bp-climate-change-speech-to-stanford/>.
 11. Defendants also invested heavily in lobbying campaigns to avoid GHG regulation and international treaties addressing climate change.
 12. Defendants’ individual and aggregate fossil fuel products reached the consumer in a condition substantially unchanged from that in which it left Defendants’ control—and were used in the manner in which they were intended to be used by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.
 13. Defendants’ design of fossil fuel products led to an unreasonably dangerous defect that was the direct and proximate cause of substantial climate change damages in Minnesota.
 14. The emission of GHGs, a defective condition in fossil fuel products, is and will continue to be a substantial factor causing climate change damages in Minnesota.

15. Defendants' individual and collective acts and omissions were actual, substantial causes of increased average temperatures, spread of invasive species, drought, flooding and related consequences, including Minnesota's injuries and damages set forth herein.
16. There were no intervening or superseding events that caused Minnesota's climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between oil and gas companies' conduct and Minnesota's injuries and damages, or superseded Defendants' breach of their duties to design a reasonable safe product.
17. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions. *See supra*.
18. Defendants' acts and omissions as alleged herein are indivisible causes of Minnesota's injuries and damages as alleged herein, because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly diffuse and coningle in the atmosphere.
19. Defendants are jointly and severally liable for Minnesota's indivisible injuries stemming from climate change damages.

C. Products Liability Failure to Warn

1. Applicable law

In Minnesota “[g]enerally stated, a failure to warn claim has three elements: ‘(1) whether there exists a duty to warn about the risk in question; (2) whether the warning given was inadequate; and (3) whether the lack of a warning was a cause of plaintiff’s injuries.’” *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (quoting *Seefeld v. Crown, Cork & Seal Co., Inc.*, 779 F. Supp. 461, 464 (D. Minn.1991)).

Duty to warn: The first element of a failure to warn claim is whether or not a duty exists. “The duty to warn arises when a manufacturer knew or should have known about an alleged defect or danger, and should have reasonably foreseen that the defect or danger would cause injury.” *Id.* (citing *Seefeld*, 779 F. Supp. at 464; *Harmon Contract Glazing, Inc. v. Libby–Owens–Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). The duty extends to all

reasonably foreseeable users. *Whiteford v. Yamaha Motor Corp.*, 582 N.W.2d 916, 918 n.6 (Minn. 1998). The knowledge of an alleged defect or danger can be either actual or constructive. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987) (allowing recovery where the plaintiff either knew of the danger or *should* have known). Because a manufacturer has duty to keep informed of all current scientific knowledge, courts in Minnesota will look to current/past scientific knowledge to help determine whether a manufacturer *should* have known of the risks in its products. *Harmon Contract Glazing, Inc. v. Libby-Owens Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992).

Fossil fuel companies had both actual and constructive knowledge, particularly in light of scientific knowledge generally accepted at the time, that their fossil fuel products were dangerous due to their emissions of GHGs. It was also reasonably foreseeable that climate change damages would result from these emissions and thus fossil fuel companies had a duty to warn potential users of the foreseeable dangers.

However, a manufacturer has no duty to warn of dangers that are obvious to anyone using the product. *See Drager v. Aluminum Indus. Corp.*, 495 N.W.2d 879, 884 (Minn. Ct. App. 1993). “A failure to warn ‘is not the proximate cause of injury if the user is aware of the danger posed by the device in issue.’” *Shovein v. SGM Group USA, Inc.*, 2008 WL 11348494, at *6 (D. Minn. 2008) (citing *Mix v. MTD Products, Inc.*, 393 N.W.2d 18, 19 (Minn. App. 1986)). For example, in *Mix v. MTD*, the Minnesota Court of Appeals held that MTD did not have a duty to warn of the danger that could result from attempting to reattach a belt while the lawnmower’s engine was in neutral because the danger was obvious to most potential users. *Mix v. MTD Prods., Inc.*, 393 N.W.2d 18, 20 (Minn. Ct. App. 1986). Because of fossil fuel companies’ protracted and

intensive denialist campaign, the dangers of using fossil fuel products were not obvious to the public.

Adequate warning: Second, if a warning was issued it must be adequate. “To be legally adequate, a product supplier’s warning to a user of any foreseeable dangers associated with the product’s intended use should (1) attract the attention of those that the product could harm; (2) explain the mechanism and mode of injury; and (3) provide instructions on ways to safely use the product to avoid injury.” *Gray v. Badger Min. Corp.*, 676 N.W.2d 268, 274 (Minn. 2004). Consumers of fossil fuel products were prevented from recognizing the risk that fossil fuel products would cause grave climate changes because the companies “individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.” Complaint at ¶ 318, *County of Santa Cruz v. Chevron Corp.* (Cal. Super. Ct. 2018). Therefore, any warnings that may have publicized the danger to the public or Minnesota were undermined and rendered ineffective because of the companies’ public relations materials and campaigns. *Id.*

Causation: In order to recover under a failure to warn theory, the plaintiff must show a causal connection between the inadequate warning or failure to warn and the injuries he or she sustained. *Rients v. Int’l Harvester Co.*, 346 N.W.2d 359, 362 (Minn. Ct. App. 1984). Minnesota courts have interpreted this as requiring the plaintiff to show that *had* adequate warnings been provided, the injury would not have occurred. *See Hauenstein v. Loctite Corp.*, 347 N.W.2d 272, 276 (Minn. 1984) (explaining that causation is not met when the accident would have occurred whether or not there was a warning). While many states have adopted a “heeding presumption”—a rebuttable presumption that if warnings had been provided, they would have been read and heeded—the Minnesota Supreme Court specifically declined to do so in a failure

to warn case. *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99–100 (Minn. 1987); *see also Tuttle v. Lorillard Tobacco Co.*, 377 F.3d 917, 925 (8th Cir. 2004) (predicting that Minnesota courts would not adopt the heeding presumption). Furthermore, when a plaintiff requested the Minnesota Court of Appeals to adopt the heeding presumption in *Montemayor v. Sebright Products, Inc.* (unpublished case) the Court found that it was not its role “to extend the law.” 2017 WL 5560180, at *3 (Minn. Ct. App. 2017).

However, the U.S. Court of Appeals for the Eighth Circuit has noted that to establish causation in Minnesota failure to warn cases “it is sufficient to present testimony that purchasers would have avoided the risk of harm had they been told of the relevant danger.” *In re Levaquin Products Liability Litigation*, 700 F.3d 1161, 1168 (8th Cir. 2012) (citing *Erickson v. American Honda Motor Co., Inc.*, 455 N.W.2d 74, 77 (Minn. Ct. App. 1990)). This type of testimony can be rebutted by evidence that the plaintiff knew of the danger or disregarded other dangers or ignored other warnings. 27 Minn. Prac. Series § 4.11 (2018). This was at issue in *Tuttle v. Lorillard Tobacco Co.* because Tuttle passed away from oral cancer (caused by defendant’s smokeless tobacco product) before he could testify that he would have avoided the risk of harm if he had been told of the danger. 377 F.3d at 925 (8th Cir. 2004). Furthermore, the Court reasoned that because Tuttle continued to use smokeless tobacco until 1993, even after the Smokeless Tobacco Act required warnings in advertising and on packaging as early as February 1987, that “Tuttle’s actions undercuts any ‘heeding presumption’ and any reasonable reliance arguments.” *Id.* at 927 n.6.

Had Minnesota been adequately warned of the significance of danger that fossil fuel consumption and use presented to the state and the public, it would have heeded said warnings

and either consumed fewer fossil fuel products or began to transition away from a fossil fuel dependent economy much sooner.

2. *Model claim for failure to warn*

Below is an example of a model complaint alleging a failure to warn claim against fossil fuel companies for harm caused by their products. Support for these assertions can be found *supra* in the model design defect claim. The language and sources are largely adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted produced, distributed, marketed, and placed into the stream of commerce fossil fuel products including oil, coal, and natural gas.
2. Defendants had at all times a duty to issue adequate warnings to Minnesota, the public, consumers, and public officials of the reasonably foreseeable danger and risks posed by their fossil fuel products.
3. Defendants had actual and constructive knowledge, in light of the current scientific knowledge generally accepted at that time and the information passed to them from internal research divisions, that fossil fuel products were defective and dangerous based on the climate effects inherently caused by their normal use and operation.
 - a. Internal research divisions and affiliates passed adequate information to oil and gas companies warning of the dangers GHG emissions from their fossil fuel products could cause.
 - b. Furthermore, the international scientific community was well aware of, and made public, scientific knowledge regarding the significant and damaging climate effects that past and continued use and operation of fossil fuel products would cause.
 - c. This knowledge included the likelihood and likely severity of global warming, global and local sea level rise, more frequent and extreme droughts, more frequent and extreme precipitation events, more frequent and extreme heat waves, and the associated consequences of those physical and environmental changes, including Minnesota's injuries and damages.
4. Based on this information, defendants knew or should have known that the climate effects described herein rendered their fossil fuel products dangerous, or likely to be dangerous, when used as intended.

5. Defendants should have reasonably foreseen that the danger from use of their fossil fuel products would cause significant injuries to the public.
 - a. Because releasing GHGs into the atmosphere inevitably causes, *inter alia*, global warming, sea level rise, more frequent and extreme heat waves, and the associated consequences of those physical and environmental damages, it was reasonably foreseeable that fossil fuel product use would cause injury.
 - b. The emission of GHGs from fossil fuel products was and will continue to be a substantial factor causing climate change damages in Minnesota.
 - c. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions.
6. It was not obvious to consumers or the public that the use of fossil fuel products presented significant dangers of an unprecedented magnitude to public health, publicly owned infrastructure, real property, public trust resources, and rights of Minnesota and its citizens.
 - a. Consumers were prevented from recognizing the risk that fossil fuel products would cause grave climate change-related damages because Defendants individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.
 - b. Any warnings that may have disseminated were undermined and rendered ineffective because of Defendants' public relations materials and campaigns that prevented reasonable consumers from recognizing the risks that fossil fuel products posed.
7. Throughout the times at issue, Defendants breached their duty of care by failing to provide *any* warning, let alone an adequate warning, to customers, consumers, regulators, and the general public of the known and foreseeable risks that inevitably flow from the intended use of their fossil fuel products.
8. Defendants failed to issue warnings to consumers or any other party of the climate effects that are posed by the continued use of their fossil fuel products.
9. Defendants' failure to warn the public and Plaintiff of the dangers stemming from fossil fuel extraction, production, and use is causally connected to the injuries Minnesota has and will continue to sustain from climate change.
10. Had Defendants provided adequate warnings the climate change injuries to Minnesota would not have occurred.
 - a. Purchasers of fossil fuels, including Plaintiff, would have avoided the risk of harm if Defendants had warned them of the severity and extent of danger their products caused.

- b. Because of Defendants’ disinformation campaigns, the general public, consumers, and regulators did not have adequate knowledge of the danger fossil fuel products posed, and therefore did not disregard the dangers or ignore other warnings.
11. Minnesota has sustained and will sustain other substantial expenses and damages set forth in this Complaint, including damage to public owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.

D. Public Nuisance

1. Applicable law

Under Minnesota law, public nuisance is a misdemeanor offense, defined in Minn. Stat. § 609.74:

[w]hoever by an act or failure to perform a legal duty intentionally does any of the following is guilty of maintaining a public nuisance, which is a misdemeanor:

- (1) maintains or permits a condition which unreasonably annoys, injures or endangers the safety, health, morals, comfort, or repose of any considerable number of members of the public; or
- (2) interferes with, obstructs, or renders dangerous for passage, any public highway or right-of-way, or waters used by the public; or
- (3) is guilty of any other act or omission declared by law to be a public nuisance and for which no sentence is specifically provided.

Minn. Stat. § 609.74 (2018). Under Minn. Stat. § 609.745, “[w]hoever having control of real property permits it to be used to maintain a public nuisance or lets the same knowing it will be so used is guilty of a misdemeanor.” Minn. Stat. § 609.745 (2018). Statutory public nuisance violations brought under § 609.74 are enforced through criminal prosecution. However, it is unlikely that a claim for damages could be sought under the criminal statute, and instead this statute would provide a means for injunctive relief or abatement. *See* Minn. Stat. § 617.80 et seq. Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. *But see Doe 30 v. Diocese of New Ulm*,

No. 62-CV-14-871, 2014 WL 10936509 at *9 (Minn. Dist. Ct. 2014) (“While plaintiff’s Complaint asserts a common-law public nuisance claim, it is evident from Minnesota’s public-nuisance jurisprudence that common-law claims either no longer exist or are synonymous with section 609.74 claims.”).

Common law public nuisance claims in Minnesota appear to be rare; the majority of public nuisance claims seem to be brought primarily under municipal nuisance ordinances or the state public nuisance statute. For example, in *State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545 (Minn. 1911), the Minnesota Supreme Court considered the validity of a Minneapolis city ordinance that declared the emission of smoke from locomotives a public nuisance, prohibiting the use of soft coal. The court recognized that although the Legislature cannot prevent a lawful use of property by prohibiting non-nuisance uses, “it is equally clear that acts or conditions which are detrimental to the comfort and health of the community may be effectively declared nuisances by the Legislature, and in the exercise of that power specified acts or conditions may be declared a nuisance, although not so determined at common law.” *Id.* at 546.

Likewise, in *State v. Lloyd A. Fry Roofing Co.*, 246 N.W.2d 692 (Minn. 1976), the Minnesota Supreme Court held that:

[T]he general rule regarding nuisances is that “it is immaterial how innocent the intent was[,] for the element of motive or intent does not enter into the question of nuisance,” so a state legislature may declare certain acts to be nuisances regardless of the intent with which they are carried out and even though they were not such at common law, or the legislature may delegate this authority to a municipal corporation.

Id. at 538 (citing Joyce, *Law of Nuisance*, § 43 at 77 & §§ 81, 84). On the subject of common law public nuisance, the court cites Dean Prosser’s work on tort law and notes that intent and

failure to act reasonably are not essential elements of common-law nuisance violations, and “are even less relevant to nuisances that are codified in statutes or ordinances.” *Id.* at 539.

Although statutory public nuisance claims seem to make up the vast majority of cases in Minnesota, common law public nuisance may still resemble the Restatement approach: interference with public property or a right common to the public. *See* Restatement (Second) of Torts § 821B(1). Although the court in *Doe 30 v. Diocese of New Ulm* considered the matter, it is a district court decision and the analysis is dicta because the court did not reach a decision on the issue.

Significantly, in 2010, Minnesota Attorney General Lori Swanson brought “common law nuisance” claims against 3M Company over chemicals it produced known as perfluorochemicals (PFCs). *See* Complaint, *State v. 3M Co.*, No. 27-CV-10-28862, 2010 WL 5395085 at ¶¶ 83–89, 90–97 (D. Minn. Dec. 30, 2010). In particular, the complaint alleged damages for common law nuisance for contamination of surface water, groundwater, and sediments by PFCs released by 3M. The Attorney General claimed that the “use, enjoyment and existence of the State’s groundwater, surface water and sediments, free from interference, is a *common right* to citizens of the state.” *Id.* at ¶ 84 (emphasis added). 3M’s alleged contamination of groundwater, surface water, and sediments with PFCs “materially and substantially interferes with State citizens’ free enjoyment of these natural resources, and constitutes a public nuisance.” *Id.* at ¶ 85.

2. *Model claim for public nuisance*

A public nuisance claim under Minnesota law could be adapted from public nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from public nuisance claims brought by the Rhode Island Attorney General against a number of fossil fuel companies, including Chevron, Exxon Mobil, and BP, among others. *See*

Complaint, *Bd. Cty. Comm'rs. of Boulder Cty. v. Suncor Energy, Inc.*, No. 2018-CV-30349 (June 11, 2018); Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018).

1. In Minnesota, the public is entitled by right to the protection, preservation, and enhancement of the air, water, land, and other natural resources located within the State, and it is the policy of the State to create and maintain within the State conditions under which man and nature can exist in productive harmony in order that present and future generations may enjoy clean air and water, productive land, and other natural resources with which the State has been endowed.
2. Defendants' affirmative acts, omissions, and fossil fuel activities—i.e. knowingly producing, promoting, refining, marketing, and selling a substantial amount of fossil fuels at levels sufficient to alter the climate, and misrepresenting the dangers associated with their use—have caused, created, contributed to, and/or exacerbated dangerous alterations in the climate.
3. The alterations in the climate substantially caused and contributed to by Defendants constitute a present and continuing nuisance in Plaintiff's communities. Plaintiff must mitigate the impacts and severity of the public nuisances caused and contributed to by the levels of Defendants' fossil fuel activities, including, but not limited to: increasing frequency and intensity of extreme heat days in the State; increasing frequency and intensity of extreme precipitation events in the State and associated flooding, erosion, damage to infrastructure; the spread of pests, disease, and increasing threats to public health by, among other things, increasing allergens and ozone, as well as diminishing air quality.
4. Plaintiff is specially injured by the public nuisance brought about by Defendants' actions, which altered the climate. This is due to Plaintiff's special responsibility to respond to and abate the hazards brought by the climate alteration caused by Defendants' climate-altering activities, and because Plaintiff and its property and assets are especially vulnerable to the impacts of climate change, including, specifically, but not exclusively, its:
 - transportation infrastructure, including roads, bridges, and culverts;
 - flood, stormwater, and water supply infrastructure;
 - agricultural and open space lands; and
 - lakes, rivers, streams, and associated plant and wildlife that Plaintiff holds in trust for its citizens.
5. The public nuisance created and contributed to by Defendants unreasonably endangers and injures the property, health, peace, comfort, safety, and welfare of the general public and the natural resources of the State of Minnesota, interfering with the comfort and convenience of communities state-wide, as well as with the State's *parens patriae* ability to protect, conserve, and manage the water, land, and wildlife of the state, which are by law precious and invaluable public resources.

6. The harms caused by Defendants are and will continue to be borne by Plaintiff and residents of Plaintiff's communities in the form of damage to property; impairment of public health; obstructed movement within the state; the loss of use and enjoyment of public property, the environment, and local eco-systems and infrastructure; as well as added costs to protect, repair, and remediate the harms caused by Defendants' alteration of the climate.
7. Defendants have contributed to and continue to contribute to the creation and exacerbation of the public nuisance, in that the intended and foreseeable combustion of Defendants' fossil fuels at the levels at which they were being used has produced and will continue to produce a substantial amount of GHG emissions, measured in billions of excess tons of CO₂ and other GHGs. Those excess tons have caused, contributed to, and/or exacerbated the impacts of climate change, including in Plaintiff's communities. Additionally, Defendants' fossil fuel activities and concealment and/or misrepresentation of the risk, known to Defendants, of the intended use of fossil fuels has also resulted in a substantial amount of excess GHG emissions, which caused, contributed to, and/or exacerbated the impacts of climate change.
8. Defendants intentionally, negligently and/or recklessly created the interference incurred by Plaintiff and the Plaintiff's communities caused by climate change. For decades, Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff and Plaintiff's communities—were substantially certain to result when they produced, promoted, refined, marketed and sold fossil fuels intending that they would be combusted at significant rates. Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff communities—were substantially certain to result when they concealed and affirmatively misrepresented the truth about climate change and the negative impacts of fossil fuel use to the public and their consumers.
9. Defendants' interference with public rights is unreasonable. For decades, Defendants have internalized the benefits of fossil fuel use—i.e., their profits—and externalized their costs—i.e., the impacts of climate change—onto communities such as Plaintiff's. Defendants knew or should have known the costs to Plaintiff and its communities of their fossil fuel activities, and have not compensated Plaintiff for those foreseen harms. Defendants continue to produce, promote, refine, market and sell fossil fuels at levels that cause and contribute to alteration of the climate, continue to profit from rising sales and continue to not compensate Plaintiff or its communities for the continued and added impacts that it and they suffer and will continue to suffer from as a direct and proximate result of Defendants' nuisance.
10. Defendants specifically created, contributed to, assisted in creating, and/or were a substantial contributing factor in the creation of the public nuisance by, *inter alia*:
 - a. Controlling every step of the fossil fuel product supply chain, including the extraction of raw fossil fuel products, including crude oil, coal, and natural gas

from the Earth; the refining and marketing of those fossil fuel products, and the placement of those fossil fuel products into the stream of commerce;

- b. Affirmatively and knowingly promoting the sale and use of fossil fuel products which Defendants knew to be hazardous and knew would cause or exacerbate global warming and related consequences, including, but not limited to, drought, extreme precipitation events, extreme heat events, and changing and increasingly severe weather patterns;
 - c. Affirmatively and knowingly concealing the hazards that Defendants knew would result from the normal use of their fossil fuel products by misrepresenting and casting doubt on the integrity of scientific information related to climate change;
 - d. Disseminating and funding the dissemination of information intended to mislead customers, consumers, and regulators regarding the known and foreseeable risk of climate change and its consequences, which follow from the normal use of Defendants' fossil fuel products;
 - e. Affirmatively and knowingly campaigning against the regulation of Defendants' fossil fuel products, despite knowing the hazards and climate effects associated with the normal use of those products, in order to continue profiting from the regular use of those products by externalizing those costs onto the public, the environment, and communities; and failing to warn the public about the hazards associated with the use of fossil fuel products.
11. Plaintiff and its residents have been damaged, including in their exercise of public and common rights, as a direct and proximate result of the public nuisance created by Defendants. Plaintiff has spent and will have to spend substantial sums to mitigate this interference. The ultimate nature of the harm is the destruction of real and personal property, the loss of natural resources, and actual threats to public health, rather than mere annoyance. Plaintiff's damages and losses include, but are not limited to:
- costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;
 - costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;

- costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;
 - costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
12. These damages and losses are the direct and proximate result of the public nuisance—climate alteration—that Defendants caused and contributed to.
13. Defendants’ acts and omissions as alleged herein are indivisible causes of Plaintiff State of Minnesota’s injuries and damage as alleged herein because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly commingle in the atmosphere.

E. Private Nuisance

1. Applicable law

Minnesota’s statutory private nuisance law is covered by Minn. Stat. § 561.01:

Anything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable

enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.

Minn. Stat. § 561.01 (2018).

A private nuisance requires interference with another's use of property. *See Uland v. City of Winstead*, 570 F. Supp. 2d 1114, 1120 (D. Minn. 2008). There must be some type of conduct that causes the alleged nuisance harm, and that conduct must be "wrongful." *See Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65, 70–71 (Minn. 1982) (citing *Randall v. Village of Excelsior*, 103 N.W.2d 131, 134 (1960)). This wrongful conduct varies, and may be characterized as, for example, intentional conduct, negligence, ultrahazardous activity, violation of a statute, or some other type of tortious activity. *Id.*

Minnesota's nuisance statute appears to provide a broader cause of action than common law nuisance under the Restatement (Second) of Torts, as § 561.01 does not require that the action be intentional or unreasonable. The Minnesota Supreme Court has found that Minnesota's nuisance statute "defines a nuisance in terms of the *resultant harm* rather than in terms of the kind of conduct by a defendant which causes the harm . . . Where pollutants cause the harm, such as where sewage is deposited on plaintiff's property, the wrongful conduct appears to be self-evident." *Id.* (emphasis added). The Minnesota Supreme Court has likewise declined to consider an application of the Restatement nuisance test, preferring instead to use § 561.01 and Minnesota case law. *Id.*

In addition to nuisance abatement, a successful plaintiff may recover damages sustained as a result of the activity. Minn. Stat. § 561.01. Minnesota courts have found a variety of activity to be private nuisances. *Heller v. American Range Corp.*, 234 N.W. 316 (Minn. 1931) (industrial plants transferring dust to adjacent residential property); *Brede v. Minnesota Crushed Stone Co.*,

179 N.W. 638 (Minn. 1920) (limestone quarries giving off noise, fumes, and odors); *Fagerlie v. City of Wilmar*, 435 N.W.2d 641 (Minn. App. 1989) (wastewater treatment plant odors); *Schrupp v. Hanson*, 235 N.W.2d 822 (Minn. 1975) (poultry and hog farm odors); *Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65 (Minn. 1982) (water and sewage runoff).

In *Johnson v. Paynesville Farmers Union Co-op Oil Co.*, 817 N.W.2d 693, 706 (Minn. 2012), the Minnesota Supreme Court considered the state’s approach to private nuisance in an action brought by an organic farmer against a co-op alleged to have caused pesticides to drift onto the organic farm. Citing Minn. Stat. § 561.01, the supreme court found that an action that seeks an injunction or to recover damages can be brought under the statute by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance. The plaintiff must show that the defendant’s conduct caused an interference with the use or enjoyment of the plaintiff’s property. *Id.* As an equitable cause of action, the court stated that § 561.01 “implicitly recognized a need to balance the social utility of defendants’ actions with the harm to the plaintiff.” *Highview North Apartments v. County of Ramsey*, 323 N.W.2d 65, 71 (Minn. 1982).

In deciding the issue of nuisance, the *Johnson* court cited *Highview North Apartments v. County of Ramsey*, in which the Minnesota Supreme Court held that “disruption and inconvenience” caused by a nuisance are actionable damages. *Johnson v. Paynesville Farmers Union* at 713 (citing *Highview North Apts.*, 323 N.W.2d at 73). In *Highview* a plaintiff sued multiple municipalities over harm that consisted of groundwater seeping into two apartment building basements, a condition that the court found to be “ongoing, injurious to the premises, substantial, and likely to worsen.” *Highview North Apts.*, 323 N.W.2d at 71. Applying the *Highview* ruling, the *Johnson* court remanded the plaintiffs’ allegations that they suffered from

“cotton mouth, swollen throat and headaches” because they were exposed to pesticide drift. *Id.* The court held that the inconvenience and adverse health effects, if proven, would affect the plaintiffs’ ability to use and enjoy their land and thereby constitute a nuisance, and so the issue was remanded for further fact-finding, including an assessment of damages. *Id.*

2. *Model claim for private nuisance*

This model private nuisance claim has been adapted from common law and statutory nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims brought against 3M by the Minnesota Attorney General. Although these claims may be brought under either a common law or statutory nuisance cause of action, Minnesota’s statutory nuisance provision appears to be broader and more protective than standard common law nuisance. As such, both common law and statutory nuisance claims are addressed in these model claims:

1. Minn. Stat. § 561.01 provides that: “[a]nything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.”
2. The use, enjoyment, and existence of the State’s natural resources is a right common to the people of the State.
3. Plaintiff owns, leases, occupies, manages, controls, and/or is otherwise in lawful possession of extensive real property within its jurisdiction.
4. As a direct and proximate result of Defendants’ conduct, as set forth above, Plaintiff’s property rights and interests, including its rights to the free and unthreatened use and enjoyment of that property as well as the free and unthreatened use and enjoyment of that property by communities within the State of Minnesota, have been and will be unreasonably interfered with and otherwise injuriously affected.
5. Defendants, and each of them, by causing and/or contributing to climate change through their acts and omissions described above, have created conditions on and/or set in motion forces that cause interference with and injuriously affected Plaintiff’s real

property, and permitted those conditions and forces to persist, which constitute a nuisance.

6. Plaintiff's property has been and/or will be substantially harmed by the effects of climate change. The conditions and forces Defendants created substantially and unreasonably interfere with, injuriously affect, and will substantially interfere with, and injuriously affect, Plaintiff's use and quiet enjoyment of rights to and interests in its real property, including by increasing the frequency and intensity of flooding and erosion, storms, extreme heat events, and the spread of invasive species.
7. The harms to and interference with Plaintiff's property have become and/or will continue to be regular and severe.
8. Plaintiff has not consented to Defendants' conduct in creating the condition that has interfered with and injuriously affected Plaintiff's property.
9. All of its harms will actually be borne by Plaintiff as loss of use and enjoyment of public property and infrastructure. The burden on Plaintiff to mitigate, repair, remediate and prevent further grave interferences with and injury to its property is significant and severe.
10. Defendants' conduct was and is negligent, reckless, and intentional because Defendants knew or should have known their actions were substantially certain to interfere with and injure Plaintiff's property rights and interests. Defendants have known for decades, and/or reasonably should have known, that their conduct was substantially certain to alter or contribute to alterations in the climate and is exacerbating climate change.
11. Defendants' conduct was and is unreasonable because they have created and are creating the interference with Plaintiff's property rights and injury to Plaintiff's property rights without compensating Plaintiff for the harm they knowingly, recklessly, or negligently created or will create.
12. Defendants' conduct is continuing and has produced and will produce ongoing injurious effects.
13. Defendants' actions are a direct and proximate cause of Plaintiff's damages and losses.
14. Plaintiff's real property has been damaged and its use and enjoyment of that property has been threatened by the nuisance created by Defendants; Plaintiff has spent and will have to spend substantial dollars to mitigate this interference. Plaintiff's damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is

expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;

- costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;
 - costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;
 - costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
15. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.
16. Wherefore, Plaintiff prays for an award of damages and restitution of its costs to abate the nuisance.

F. Trespass

1. Applicable law

In Minnesota, “[t]respass encompasses any unlawful interference with one’s person, property, or rights, and requires only two essential elements: a rightful possession in the plaintiff and unlawful entry upon such possession by the defendant.” *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003), *review denied* (Minn. Aug. 5, 2003). Minnesota courts have described trespass as “an invasion of the plaintiff’s right to exercise exclusive possession of the land” while “nuisance is an interference with the plaintiff’s use and enjoyment of the land.” *Fagerlie v. City of Willmar*, 435 N.W.2d 641, 644 n.2 (Minn. Ct App. 1989); *see also Johnson v. Paynesville Farmers Union Coop Oil Co.*, 817 N.W.2d 693, 701 (Minn. 2010) (stating that unlawful entry “must be done by means of some physical, tangible agency in order to constitute a trespass.”). Actual damages are not an element of the tort of trespass. *Johnson v. Paynesville Farmers Union* at 701 (citing *Greenwood v. Evergreen Mines Co.*, 19 N.W.2d 726, 734–35 (Minn. 1945)). In the absence of actual damages, the trespasser is liable for nominal damages. *Id.* (citing *Sime v. Jensen*, 7 N.W.2d 325, 328 (Minn. 1942)). Because trespass is an intentional tort, reasonableness on the part of the defendant is not a defense to trespass liability. *Id.* (citing *H. Christiansen & Sons, Inc. v. City of Duluth*, 31 N.W.2d 270, 273–74 (Minn. 1948)).

In *Johnson v. Paynesville Farmers Union Co-op. Oil Co.*, the Minnesota Supreme Court considered the question of whether particulate matter, such as pesticide drift can result in a trespass. *Id.* (noting that the “particulate matter” has been defined as “material suspended in the air in the form of minute solid particles or liquid droplets, especially when considered as an atmospheric pollutant.”). The Supreme Court found that Minnesota case law is consistent with a traditional formulation of trespass that has recognized trespasses when a person or a tangible

object enters the plaintiff's land and interferes with rights of exclusive possession. *Id.* According to the court, "disruption to the landowner's exclusive possessory interest is not the same when the invasion is committed by an intangible agency, such as the particulate matter [pesticides] at issue here." *Id.* at 702. "Such invasions," the court continued, "may interfere with the landowner's use and enjoyment of her land, but those invasions do not require that the landowner share possession of her land in the way that invasions by physical objects do." *Id.*; *see also Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003) (noting that Minnesota "has not recognized trespass by particulate matter" and rejecting a trespass claim over offensive odors). The court declined to abandon traditional distinctions between trespass and nuisance law, and noted that the public policy concerns that compelled other jurisdictions to blur the lines between trespass and nuisance (e.g. statutes of limitations) are not present in Minnesota. *Id.* at 704–05. "In summary, trespass claims address tangible invasions of the right to exclusive possession of land, and nuisance claims address invasions of the right to use and enjoyment of land." *Id.* at 705.

The Minnesota Attorney General lawsuit against 3M claimed trespass damages against the state's public trust resources. Complaint, *State of Minnesota v. 3M Company*, No. 27-CV-10-28862, 2010 WL 5395085 (D. Minn. 2010). Much of the state's suit was focused on direct groundwater and surface water pollution, issues which are unlikely to be present when dealing with oil refineries, emissions, and climate change damages. However, the effects of climate change can impact surface and groundwater in other ways that are not as direct, such as harm to aquatic organisms and plants through warmer waters, increased flooding and erosion from more severe storms and precipitation, drought, algae blooms, etc. Thus, a trespass claim against fossil fuel companies for climate change damages would be based on indirect invasions of property.

2. *Model trespass claim*

This model trespass claim has been adapted from claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims brought against 3M by the Minnesota Attorney General.

1. Plaintiff is the owner, in lawful possession, of real property.
2. Defendants have intentionally engaged in conduct that has caused and contributed to climate change which, in the usual course of events, has caused and will cause flood waters, hail, rain, snow, wind, pests, and invasive species to enter Plaintiff's property.
3. Defendants knew, with substantial certainty, that their fossil fuel activities would cause and contribute to climate change, and thus cause these invasions of Plaintiff's property.
4. This trespass is recurring, and will continue into the future.
5. Plaintiff did not give Defendants permission for these invasions of Plaintiff's property.
6. Defendants' trespasses are the direct and proximate cause of damages and losses to the Plaintiff.
7. Defendants' actions are and have been a cause of the injuries and damages to Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' trespasses, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by the trespasses. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;

- costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiffs;
 - costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;
 - loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public’s ability to use Plaintiff’s properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

G. Strict Liability for Abnormally Dangerous Activity

1. Applicable law

The Second Restatement of Torts on Strict Liability for Abnormally Dangerous Activities is not controlling law in Minnesota, though Minnesota courts have discussed §§ 519–520. Restatement (Second) of Torts § 519–520 (1977); *see, e.g., Mahowald v. Minnesota Gas Co.*, 344 N.W.2d 856, 860–61 (Minn. 1984); *Cairly v. City of St. Paul*, 268 N.W.2d 908 (Minn. 1978); *Ferguson v. Northern States Power Co.*, 239 N.W.2d 190 (Minn. 1976); *Quigley v. Village of Hibbing*, 129 N.W.2d 765 (Minn. 1964). For example, in *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993), the Minnesota Court of Appeals noted that “[a]lthough this Restatement section is not controlling law in Minnesota, because the supreme court has recognized it in other cases, *see, e.g., Mahowald v. Minnesota Gas Co.* . . . we believe the trial court’s use of it was appropriate.” *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993).

However, the Minnesota Supreme Court has been careful to note that while “we have recognized the applicability of [the Restatement §§ 519 and 520] in other contexts, that is all we did—recognize the existence of those two sections. In none of these cases did we apply those sections, nor has our attention been directed to any other case where we did apply them.” *Mahowald*, 344 N.W.2d at 861. The Minnesota Supreme Court has explicitly rejected applying Restatement §§ 519–520 in strict liability cases for accidents arising out of escaping gas from lines maintained in public streets. *Id.*

Nevertheless, applying strict liability without proof of negligence is consistent with a long line of Minnesota cases involving abnormally dangerous activities. *See, e.g., Sachs v. Chiat*, 162 N.W.2d 243 (1968) (pile driving abnormally dangerous activity that requires liability without fault); *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924) (waterworks operated by municipal corporation requires liability without fault); *Wiltse v. City of Red Wing*, 109 N.W. 114 (Minn. 1906) (collapse of reservoir destroying plaintiff’s house requires liability without fault); *Berger v. Minneapolis Gaslight Co.*, 62 N.W. 336 (Minn. 1895) (petroleum that escaped from gas company’s tanks, damaging wells and cellars, requires liability without fault); *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (Minn. 1871) (tunnel collapse under property lessee’s land requires liability without negligence in its construction or maintenance).

The Minnesota Supreme Court was one of the first American jurisdictions to adopt the famous English tort law ruling on strict liability, *Rylands v. Fletcher*. *See, e.g., Minnesota Mining & Mfg. Co. v. Travelers Indem. Co.*, 457 N.W.2d 175, 183 (Minn. 1990). In *Rylands*, defendant owners of a mill built a reservoir to supply their mill with water. *Rylands v. Fletcher*, LR 3 H.L. 330 (1868). The plaintiff leased coal mines on neighboring land between the reservoir and the mill. Water from the reservoir burst into old, unused mine shafts, and flooded the mine.

When the defendants appealed, arguing that they did not know that the flooded shafts were connected to the mine, the House of Lords held that the plaintiff did not need to prove negligence, because “the person who, for his own purposes, brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril.” *Id.* at 339.

On the relationship of obligation between neighbors, the *Ryland* court found that:

[I]t seems but reasonable and just that the neighbour who has brought something on his own property (which was not naturally there), harmless to others so long as it is confined to his own property, but which he knows will be mischievous if it gets on his neighbour’s, should be obliged to make good the damage which ensues if he does not succeed in confining it to his own property.

Id. at 340.

In *Kennedy Building Associates v. Viacom, Inc.*, the U.S. Court of Appeals for the Eighth Circuit found that Minnesota has “not limited the *Rylands* cause of action to cases in which the plaintiff and defendant were neighboring landowners,” citing *Hannem v. Pence*, a case in which a plaintiff was injured by falling ice while walking past a defendant’s building. *Kennedy Building Associates v. Viacom, Inc.*, 375 F.3d 731, 740 (8th Cir. 2004) (citing *Hannem v. Pence*, 41 N.W. 657 (Minn. 1889)). The Minnesota Supreme Court has also applied the *Rylands* rule to defendants that do not own the land on which they created a hazard. *See Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (1871). Under Minnesota’s strict liability rule, it makes no difference that a defendant is no longer in possession of control of the instrumentality that caused a hazard. *Id.*

Minnesota has also applied strict liability for abnormally dangerous activity to enterprises that ultimately benefit the community. Although these activities may be useful to society, the court has found that as times change and large-scale industrial activity increases, the responsibility for damages from useful operations should not fall on harmed individuals. *Bridgeman-Russell Co. v. City of Duluth* involved a waterworks operated by a municipal

corporation that discharged water, damaging the plaintiff's property. *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924). The Minnesota Supreme Court imposed strict liability, without requiring proof of negligence, stating that:

Congestion of population in large cities is on the increase. This calls for water systems on a vast scale either by the cities themselves or by strong corporations. Water in immense quantities must be accumulated and held where none of it existed before. If a break occurs in the reservoir itself, or in the principal mains, the flood may utterly ruin an individual financially. In such a case, even though negligence be absent, natural justice would seem to demand that the enterprise, or what really is the same thing, the whole community benefited by the enterprise, should stand the loss rather than the individual. It is too heavy a burden upon one.

Id. at 972.

In light of this Minnesota case law expressing a fairly expansive view of strict liability, even in the case of activities that have social value, a claim by Minnesota against fossil fuel companies for climate change damages would appear to fit squarely within a claim for strict liability for abnormally dangerous activities.

2. Model claim for strict liability for abnormally dangerous activity

This model claim for strict liability for abnormally dangerous activity was adopted from claims brought by the Rhode Island Attorney General against a number of fossil fuel companies including Chevron, Exxon Mobil, and BP. *See* Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018).

1. There is overwhelming scientific evidence linking fossil fuel combustion to climate change.
2. Defendants knew or should have known of the climate effects inherently caused by the normal use and operation of their fossil fuel products, including the likelihood and likely severity of global and local climate change and its consequences, and including injuries to Plaintiff, its citizens, and its natural resources, as described herein.
3. Defendants' activities in extracting, refining, formulating, designing, packaging, distributing, testing, constructing, fabricating, analyzing, recommending, merchandizing, advertising, promoting, and selling fossil fuel products, intended by

Defendants to be burned for energy, refined into petrochemicals, and reined and/or incorporated into petrochemical products including but not limited to fuels and plastics brought substantial amounts of fossil fuels onto Defendants' properties which were not naturally there.

4. Defendants knew that substantial amounts of fossil fuels not naturally on their properties, when released, would cause significant damages to, *inter alia*, Plaintiff, Plaintiff's property, and Plaintiff's citizens due to the effects of climate change.
5. Defendants' activities constituted an abnormally dangerous activity and/or created abnormally dangerous conditions.
6. As a direct and proximate result of Defendants' actions and omissions, Plaintiff has sustained and will sustain substantial expenses and damages, including damage to publicly owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.
7. Defendants are strictly liable for the damages resulting as a natural consequence from the release of fossil fuels and GHGs from their properties, including response costs incurred by Plaintiff to respond to the effect of these releases on Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' abnormally dangerous activities, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by these activities. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;
 - costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiff;

- costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;
 - loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public's ability to use Plaintiff's properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

H. Other Claims

Minnesota could also consider claims under the Minnesota Environmental Rights Act, Minn. Stat. ch. 116B ("MERA"), and the Minnesota Environmental Response, Compensation, and Liability Act, Minn. Stat. ch. 115B ("MERLA"). In particular, the Minnesota Attorney General lawsuit against 3M discussed earlier contained a MERLA claim. The applicability of these claims to a potential lawsuit against fossil fuel companies for climate change damages is not discussed in this Memorandum but could be subject to further investigation.

I. Applicable Statutes of Limitations for All Claims

The statute of limitations for violations of the consumer protection laws is six years. Minn. Stat. § 541.05(2). Fraud allegations are also subject to a six-year statute of limitations under Minn. Stat. § 541.05(6), which begins upon "discovery by the aggrieved party of the facts constituting the fraud." The statute of limitations may be suspended for fraudulent concealment if the facts which establish the cause of action are fraudulently concealed. *Hydra-Mac, Inc. v. Onan Corp.*, 450 N.W.2d 913, 918–19 (Minn. 1990). Antitrust claims in Minnesota are subject to a four-year statute of limitations, although "a cause of action for a continuing violation is deemed to arise at any time during the period of the violation." Minn. Stat. § 325D.64, subd. 1.

For the product liability claims, a four-year statute of limitations applies to strict products liability claims, while a six-year statute of limitations applies to negligence claims. *See* Minn. Stat. § 541.05, subds. 1–2. However, because Minnesota courts have merged negligence and strict products liability theories into one single recovery for design defect and failure to warn claims, it is arguable that the six-year negligence statute of limitations would apply. For example, in *Klempka v. G.D. Searle & Co.* the U.S. Court of Appeals for the Eighth Circuit applied Minnesota law to hold that the statute of limitations was six years for a products liability claim. 63 F.2d 168, 170 (8th Cir. 1992).

For the common law tort claims of strict liability for abnormally dangerous activities, public nuisance, and private nuisance, and trespass, it is likely that a six-year statute of limitations would apply as such claims fall under the general six-year statute of limitations found in Minn. Stat. § 541.05, subd. 1(2). *See e.g., Citizens for a Safe Grant v. Lone Oak Sportsmen’s Club, Inc.*, 624 N.W.2d 796 (Minn. Ct. App. 2001) (six-year limitations period applied to trespass and nuisance actions brought by neighborhood organization against gun club operating outdoor shooting ranges).

Two elements must be satisfied before a cause of action accrues for any of the common law claims: “(1) a cognizable physical manifestation of the disease or injury, and (2) evidence of a causal connection between the injury or disease and the defendant’s product, act, or omission.” *Narum v. Eli Lilly and Co.*, 914 F. Supp 317, 319 (D. Minn. 1996). Under Minnesota law, “[a] plaintiff who is aware of both her injury and the likely cause of her injury is not permitted to circumvent the statute of limitations by waiting for a more serious injury to develop.” *Klempka v. G.D. Searle & Co.*, 963 F.2d 168, 170 (8th Cir. 1992).

Fossil fuel company defendants may allege that Minnesota's claims are time barred because the first cognizable physical manifestation of climate change damages occurred longer than six years ago. However, Minnesota also recognizes the continuing violation doctrine. *Brotherhood of Ry. and S.S. Clerks, Freight Handlers & Station Employees v. State by Balfour*, 229 N.W.2d 3, 193 (Minn. 1975). That doctrine holds that when a violation is ongoing, the statute of limitations does not run from the initial wrongful action, but rather begins to run only when the wrong ceases. *N. States Power Co. v. Franklin*, 122 N.W.2d 26, 30-31 (Minn. 1963). For example, in *Hempel v. Creek House Train*, the Minnesota Supreme Court found that the defendant's continuing negligence tolled the limitations period. *Hempel v. Creek House Tr.*, 743 N.W.2d 305, 312 (Minn. 2007).

While there have been a number of cases where courts applying Minnesota law have found that the continuing violation doctrine did not apply based on the facts of the case, these were not categorical exclusions of the doctrine in Minnesota. *See e.g., Union Pac. R.R. Co. v. Reilly Indus., Inc.*, 4 F. Supp. 2d 860, 867 (D. Minn. 1998) (holding that the continuing wrong doctrine did not apply because there was no "leakage from storage tanks or basins," and that any "leakage" ceased before the relevant limitations period expired). Because the fossil fuel companies' extraction, production, marketing, and sale of fossil fuel products has continued, the continuing violation doctrine would apply, and the claims would not be barred by the statute of limitations.

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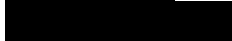
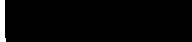
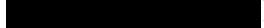
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MEMORANDUM

TO: Keith Ellison
Minnesota Attorney General

FROM: Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School

 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Minnesota Law Class of 2019

DATE: January 31, 2019

RE: Potential Lawsuit against Fossil Fuel Companies for Minnesota Climate Change Damages

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INTRODUCTION

This memorandum sets forth possible claims for damages by the State of Minnesota against major oil, gas, and coal companies for their contribution to climate change-related damages in Minnesota. Such a lawsuit would be likely be filed in Minnesota District Court and would be similar to pending lawsuits that states, counties, and cities in other parts country have filed against the fossil fuel companies for damages. The remaining sections of this Memorandum discuss the status of the climate change damages lawsuits filed to date in other states and the potential claims that could be brought in a Minnesota lawsuit. These include statutory consumer protection and antitrust claims, strict liability design defect and strict liability failure to warn claims, and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

Part I surveys the climate change lawsuits in other states and the Attorneys General who have supported them. Part II evaluates Minnesota law governing consumer protection claims; product liability claims of defective design and failure to warn; and common law tort claims of

public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

The defendants in the lawsuit could include BP, Chevron, ConocoPhillips, Exxon Mobil, Shell, and other oil, gas, and coal companies. These companies extracted, produced, designed, and sold fossil fuel products that emitted massive tons of CO₂ into the atmosphere upon their use. For example, 90 producers of oil, natural gas, coal, and cement are responsible for 63% of cumulative industrial CO₂ and methane emissions worldwide from 1751-2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (NOV. 22, 2013). Just 28 companies are responsible for 25% of all emissions since 1965. *Id.*¹ As CO₂ is a relatively stable compound, most of these molecules will remain in the atmosphere for centuries. The increase in CO₂ emissions resulting from fossil fuel use has contributed to and accelerated the greenhouse effect, causing climate change damages ranging from drought, flooding, change in weather patterns, loss of species biodiversity, sea level rise, and increases in invasive species, with average annual temperatures over the contiguous United States already increasing by 1.8°F since 1895.

The nature of the damages Minnesota could seek to recover in a lawsuit are set forth in detail in the accompanying Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy. These damages are costs the state has already incurred or will incur as a result of climate change caused by fossil fuel companies and include:

- Costs associated with flooding, including costs of damage to state property and costs to mitigate and remediate the flooding related impacts to property and public health;

¹ In the Santa Clara County lawsuit, described in more detail in Part I.A., the plaintiffs sued approximately 40 fossil fuel companies, which the plaintiffs alleged were responsible for 227.6 gigatons of CO₂ emissions between 1965 and 2015, representing 20.3% of total emissions of CO₂ during that period.

- Costs associated with damages to tourism and outdoor recreation, including mitigating climate-related stress to plant and animal species and ecological systems in the state;
- Costs associated with damages to agricultural yields, management and mitigation of crop diseases and crop pests, and costs of adopting to less fertile soils;
- Costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure, increased asthma attacks, and exposure to vector-borne disease as well as mitigation measures and public education programs to reduce the occurrence of these impacts;
- Costs associated with responding to, managing, and repairing damages from climate change to Minnesota forest lands, including impacts on state-run hunting and fishing industries;
- Costs of analyzing and evaluating the impacts of climate change on infrastructure, including transportation, water supply, wastewater treatment, and the power system and the costs of mitigating, adapting to, and remediating those impacts;
- Costs of responding to, managing, and repairing damage to Minnesota fisheries from climate change, including extinction of cool and cold-water fish species and the impacts of the spread of aquatic invasive species; and
- Costs associated with the threats to indigenous communities from disruptions to their livelihoods, health, and cultural identities.

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides a brief history and current status of the recent climate change lawsuits brought by states and local governments against fossil fuel companies seeking damages for climate-change related harms. Other related lawsuits include suits against Exxon Mobil for investor fraud brought by the Attorneys General of New York and Massachusetts, countersuits by Exxon Mobil against those states filed in Texas courts, and public trust and constitutional claims for climate change harm brought by the group “Our Children’s Trust” against the federal government, states, and fossil fuel companies to compel limits on greenhouse gas (“GHG”) emissions. This memorandum will focus solely on the lawsuits by governmental entities seeking damages for climate-change related harms and

will not discuss the other lawsuits noted above. This section will also discuss the positions of Attorneys General around the country in support of or in opposition to the lawsuits for climate change damages.

A. State Law Damages Suits for Climate Change Related Harms

In 2017 and 2018, several government entities across the country (e.g., cities, counties and states) brought lawsuits seeking damages against major fossil fuel companies for climate change-related harm caused by the extraction, promotion, and sale of fossil fuels. The complaints assert state statutory and common law causes of action including public nuisance, private nuisance, trespass, products liability, and consumer protection. A common argument among each plaintiff is that the fossil fuel companies knew or should have known about the hazards associated with the extraction, promotion, and sale of fossil fuels, but the fossil fuel companies obscured the hazards from the public and regulators. A common argument among defendants is that federal court is the proper venue, and that the Clean Air Act displaces the state law claims and thus the lawsuits should be dismissed. All the lawsuits are described in detail at the Sabin Center for Climate Change Law's U.S. Climate Change Litigation Database, available at <http://climatecasechart.com/case-category/common-law-claims/>. For each case, the database has a summary of the case, its current status, and links to all pleadings filed in the lawsuit.

These lawsuits are the second round of lawsuits by governmental entities against fossil fuel companies for climate change-related harm. The first major climate change lawsuits, filed in the early 2000s, sought relief in federal court under federal common law nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. In *Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("AEP"), the U.S. Supreme Court held that the federal Clean Air Act displaced federal common law claims against

defendants for GHG emissions. *See also Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849 (9th Cir. 2012), *cert. denied*, 569 U.S. 1000 (2013). These rulings serve as a backdrop for the recent wave of litigation using state law to hold fossil fuel companies accountable for climate change related harms.

In *AEP*, several states and private land trusts brought federal public nuisance claims against the five largest GHG emitting facilities in the United States. *AEP*, 564 U.S. at 418. Plaintiffs sought an injunction against each defendant “to cap its carbon dioxide emissions and then reduce them by a specified percentage each year for at least a decade.” *Id.* at 419. The Court determined that the Clean Air Act displaced the plaintiffs’ claims because the statute directly authorized the U.S. EPA Administrator to regulate the emission of pollutants from stationary sources. *Id.* at 424 (citing 42 U.S.C. § 7411).

In *Kivalina*, an Alaskan village brought a public nuisance action against several fossil fuel companies and energy producers for sea level rise and erosion due to climate change caused by defendants’ GHG emissions. *Kivalina*, 696 F.3d at 854. In contrast to *AEP*, the plaintiffs in *Kivalina* sought damages rather than an injunction. *Id.* at 857. Relying on *AEP*, the U.S. Court of Appeals for the Ninth Circuit reasoned that the Clean Air Act displaces federal common law claims for harms caused by GHG emissions regardless of the relief sought. *Id.* In response to *AEP* and *Kivalina*, the more recent litigation against fossil fuel companies to recover for climate change damages discussed below has attempted to avoid Clean Air Act displacement by bringing state law claims in state courts, and by focusing on the extraction, promotion, and sale of fossil fuels rather than emissions of GHGs.

1. The California Cases: San Mateo v. Chevron, and California v. BP

Most damages suits utilizing state law claims against fossil fuel companies for climate change harms are in their infancy. In these cases, government plaintiffs seek relief in state court and the defendants attempt to remove the action to federal court. Two cases brought in California state court—*County of San Mateo v Chevron*, and *California v. BP*—highlight two emerging schools of thought on whether state or federal court is the appropriate venue. The plaintiffs in each case brought similar claims against numerous fossil fuel companies. However, in *County of San Mateo v. Chevron*, Judge Chhabria remanded the case to state court while in *California v. BP*, Judge Alsup denied the request for remand and dismissed the plaintiffs’ claims. Both cases are on appeal to the Ninth Circuit. Notably, both judges sit on the U.S. District for the Northern District of California. In each case, outside counsel for the local governments is Sher Edling LLP in San Francisco.

In *California v. BP*, the cities of San Francisco and Oakland brought state public nuisance claims against BP, Chevron, ConocoPhillips, Exxon Mobil and Shell for damages caused by climate change. Complaint, *California v. BP*, No. 17-561370 (Cal. Super. Ct. Sept. 19, 2017) (referencing the San Francisco Complaint); Complaint, *California v. BP*, No. 17-1785889 (Cal. Super. Ct. Sept. 19, 2017) (referencing the Oakland Complaint). Plaintiffs requested relief in the form of an abatement fund to provide for infrastructure necessary to adapt to global warming impacts such as sea level rise, as well as other relief. Plaintiffs argued the defendants promoted the use of fossil fuels despite being aware that their use would cause severe climate change, and that harms were already being felt and would intensify. Defendants removed the case to federal court and Judge Alsup of the Northern District of California denied the cities’ motion for remand. Judge Alsup held that the suit was “necessarily governed by federal common law” and

that “a patchwork of fifty different answers to the same fundamental global issue would be unworkable.” *California v. BP*, 2018 U.S. Dist. LEXIS 32990, at *5, 10 (N.D. Cal., Feb. 27, 2018).

Plaintiffs then filed an amended complaint, which included a federal public nuisance claim, and defendants moved to dismiss. The Attorneys General of Indiana, Alabama, Arkansas, Colorado, Georgia, Kansas, Louisiana, Nebraska, Oklahoma, Texas, Utah and West Virginia, and Wyoming, as well as the United States of America filed amicus briefs in favor of dismissal. Opposing dismissal, as amici, were the Attorneys General of California, Washington and New Jersey.

The court dismissed all the claims. *City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017, 1019 (N.D. Cal. 2018). The court held that *AEP* and *Kivalina*’s Clean Air Act displacement rule applied even though plaintiffs styled their claims as based on the extraction, production, and sale of fossil fuels rather than emissions. *Id.* at 1024 (“If an oil producer cannot be sued under the federal common law for their own emissions, a fortiori they cannot be sued for someone else’s.”). The court also grounded its holding in the doctrine of separation of powers and judicial restraint, finding that:

questions of how to appropriately balance these worldwide negatives against the worldwide positives of the energy itself, and of how to allocate the pluses and minuses among the nations of the world, demand the expertise of our environmental agencies, our diplomats, our Executive, and at least the Senate. Nuisance suits in various United States judicial districts regarding conduct worldwide are far less likely to solve the problem and, indeed, could interfere with reaching a worldwide consensus.

Id. at 1024–1026. Plaintiffs’ appeal to the Ninth Circuit is pending.

In a separate action in California, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed similar suits in California Superior Court against

numerous fossil fuel companies. *See e.g.*, Complaint, *County of San Mateo v. Chevron Corp.*, No. 17CIV03222 (Cal. Super. Ct. July 17, 2017). However, in addition to public nuisance, the plaintiffs also claimed strict liability for failure to warn, strict liability for design defect, private nuisance, negligence, negligent failure to warn, and trespass. Plaintiffs alleged that the fossil fuel companies’ “production, promotion, marketing, and use of fossil fuel products, simultaneous concealment of the known hazards of those products, and their championing of anti-regulation and anti-science campaigns, actively and proximately caused” injuries to plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. Among other relief, Plaintiffs requested compensatory and punitive damages, and abatement of nuisances. Defendants removed the actions to federal court, and the three actions were then consolidated into one action.

Judge Chhabria of the U.S. District Court for the Northern District of California remanded the case to state court. Judge Chhabria expressly disagreed with Judge Alsup’s ruling in the San Francisco and Oakland suit. Judge Chhabria held that “[b]ecause federal common law does not govern the plaintiffs’ claims, it also does not preclude them from asserting the state law claims in these lawsuits. Simply put, *these cases should not have been removed to federal court on the basis of federal common law that no longer exists.*” *Id.* at 2 (emphasis added). The defendants appealed the remand order to the Ninth Circuit. The Ninth Circuit then consolidated the three remand actions brought by the County of San Mateo, County of Marin, City of Imperial Beach, as well as others stemming from similar suits brought by the County of Santa Cruz, City of Santa Cruz, and City of Richmond. Order, *Cty. of San Mateo v. Chevron Corp.*, No. 18-15499 (9th Cir. 2018). In November 2018, the U.S. Chamber of Commerce filed an amicus brief in opposition to the remand order. Briefing is ongoing in the Ninth Circuit.

2. *Rhode Island v. Chevron*

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling LLP as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court. The parties are awaiting the federal court's remand decision. Like the California cases, Rhode Island seeks to hold numerous fossil fuel companies liable for current and future injuries to state owned or operated facilities and property as well as for other harms. Complaint, *State of Rhode Island v. Chevron Corp.*, No. PC-2018-4716 (R.I. Super. Ct. 2018). Rhode Island seeks, among other relief, compensatory and punitive damages, and abatement of nuisances under state law claims for public nuisance, strict liability for failure to warn, strict liability for design defect, negligent design defect, negligent failure to warn, trespass, impairment of public trust resources and state Environmental Rights Act—Equitable Relief Action. To date, this is the only climate change damage lawsuit brought by a State Attorney General as opposed to a city or county.

3. *Baltimore v. BP*

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought a claim in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and the California suits, Baltimore alleged that through the defendants' production, promotion and marketing of fossil fuels, defendants concealed the hazards of their products and disseminated information intended to mislead consumers, customers, and regulators regarding the known and foreseeable risks of climate change caused by their products. Complaint at 116, *Mayor and City Council of Baltimore v. BP*, No. 24-C-18-004219 (Md. Cir. Ct. 2018). Alleged damages include more severe and frequent storms and floods, increased sea level, heat waves, droughts, and harms to public health. Baltimore is seeking compensatory and punitive

damages, and equitable relief among other remedies for public nuisance, private nuisance, strict liability failure to warn, strict liability design defect, negligent, design defect, negligent failure to warn, trespass, and violations of Maryland’s Consumer Protection Act. The defendants removed the case to federal court and Baltimore has moved for remand.

4. *King County v. Chevron*

In May 2018, King County in Washington, with outside counsel from Hagens Berman LLP, filed a similar suit for public nuisance and trespass in Washington state court against numerous fossil fuel companies. Complaint at ii, *King Cty. v. BP*, 2:18-cv-00758-RSL (Wash. Super. Ct. 2018). Plaintiffs sought compensatory damages and the establishment of an abatement fund to pay for a climate change adaptation program. Defendants removed the case to federal court and moved for dismissal. Plaintiff moved for and was granted a stay until the Ninth Circuit issues a decision in *City of Oakland v. BP*. The stay is currently in place.

5. *Pacific Coast Federation of Fishermen’s Association v. Chevron*

In November 2018, a fishing industry trade group represented by Sher Edling LLP filed a climate change damage suit against the fossil fuel companies in California state court. The trade group is relying on California state nuisance and products liability law to hold the defendants liable for closures to crab fisheries caused by climate change. *Pacific Coast Federation of Fishermen’s Association v. Chevron Corp.*, No. CGC-18-571285 (Cal. Super. Ct. 2018). Specifically, Plaintiffs assert that warming ocean temperatures caused by climate change has led to an increase in a plankton species, *Pseudo-nitzschia*, responsible for causing “amnesic shellfish poisoning” through the release of the toxin domoic acid. Plaintiffs seek compensatory and punitive damages and equitable relief. In December 2018, defendants filed a notice of removal.

6. *Boulder County v. Suncor Energy*

In April 2018, three Colorado local government entities—the City of Boulder and the Counties of Boulder and San Miguel—filed suit against fossil fuel companies seeking damages and other relief for the companies’ role in causing climate change. Outside counsel includes Hannon Law Firm LLP, EarthRights International, and the Niskanen Center, a libertarian think tank. Plaintiffs brought claims under public and private nuisance, trespass, the Colorado Consumer Protection Act, and civil conspiracy. In an effort to avoid federal jurisdiction and *AEP*-like displacement, Plaintiffs’ complaint stated:

[Plaintiffs] do not seek to impose liability, restrain or interfere with Defendants ability to participate in public debates about climate change, or otherwise interfere with Defendants’ speech. . . [and] do not seek to enjoin any oil and gas operations or sales in the State of Colorado, or elsewhere, or to enforce emissions controls of any kind. Plaintiffs do not seek damages or abatement relief for injuries to or occurring on federal lands. Plaintiffs do not seek damages or any relief based on any activity by Defendants that could be considered lobbying or petitioning of federal, state or local governments.

Complaint at 123, *Cty. of Boulder v. Suncor Energy Inc.*, No. 2018CV030349 (Colo. D. Ct. 2018). Defendants removed to federal court. Plaintiffs moved to remand. That motion is pending.

7. *City of New York v. BP*

In January 2018, New York City filed suit for damages and equitable relief in federal court against fossil fuel companies asserting public nuisance, private nuisance, and trespass claims under New York State law against fossil fuel companies. Complaint at i, 63. *City of New York v. BP*, No. 1:18-cv-00182-JFK (S.D.N.Y. 2018). In contrast to the suits discussed above, New York filed in federal court rather than in state court. Outside counsel includes Hagen Berman LLP and Seeger Weiss LLP. The Niskanen Center filed an amicus brief in support of New York City. In support of Defendants, fifteen states led by Indiana filed an amicus brief in favor of dismissal. The court dismissed, and New York City appealed. On appeal to the U.S.

Court of Appeals for the Second Circuit, Attorneys General of New York, California, Maryland, New Jersey, Oregon, Rhode Island, Vermont, Washington, and the District of Columbia have filed an amicus brief in support of New York. Other amicus briefs in support of New York include ones from law professors, environmental justice groups, and the National League of Cities. Briefing is ongoing.

B. State Attorneys General Supporting Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of plaintiffs bringing damages claims for climate change-related harms to state resources and infrastructure. For example, in *New York City v. BP* Attorneys General Underwood (NY), Becerra (CA), Kilmartin (RI), Frosh (MD), Donovan (VT), Grewal (NJ), Ferguson (WA), Rosenblum (OR), and Racine (D.C.) signed an amicus in support of New York City's claim. In support of the fossil fuel companies were Attorneys General Fisher (IL), Hill (IN), Marshall (AL), Rutledge (AR), Coffman (CO), Carr (GA), Schmidt (KS), Landry (LA), Peterson (NE), Hunter (OK), Wilson (SC), Paxton (TX), Reyes (UT), Morrissey (WV), Schimel (WS), and Michael (WY). In *Oakland v. Chevron*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA) supported the plaintiffs. In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP*. Additionally, several other Attorneys General are likely or potentially supportive of actions against fossil fuel companies for climate change-related harms based on recent campaign statements. They include Letitia James (NY), Josh Shapiro (PA), Josh Kaul (WI), Dana Nessel (MI), Phil Weiser (CO), Josh Stine (NC), and Kwame Raoul (IL).

II. Potential Claims Against Fossil Fuel Companies Under Minnesota Law

This Part discusses potential claims the Minnesota Attorney General could bring against fossil fuel companies for climate change-related damages in Minnesota. These claims build off the claims in the existing lawsuits discussed in Part I. The claims discussed below are: (1) consumer protection claims, including the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”), the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”), and antitrust claims under Minn. Stat. §§ 325D.49-325D.66; (2) product liability claims, including design defect and failure to warn; and (3) common law tort claims, including public nuisance, private nuisance, trespass and strict liability for abnormally dangerous activities. This Part also discusses the statutes of limitations potentially applicable to these claims.

A. Consumer Protection Claims

Two of the existing climate change lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations. The Colorado plaintiffs also allege conspiracy claims. Both cases were removed to federal court and motions to remand are pending. The complaints in these cases and the possibility of similar claims under Minnesota law are discussed below.

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”) and the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”). Minnesota and Blue Cross Blue Shield used these laws to sue the tobacco companies in the 1990s, leading to a \$6.6 billion settlement in 1998.

The Minnesota Supreme Court has “cited its prior statements that the CFA should be liberally construed in favor of protecting consumers and that the CFA reflected ‘a clear legislative policy encouraging aggressive prosecution of statutory violations.’” Prentiss Cox, *Goliath Has The Slingshot: Public Benefit And Private Enforcement Of Minnesota Consumer Protection Laws*, 33 WM. MITCHELL L. REV. 163, 178 (2006) (citing *Ly v. Nystrom*, 602 N.W.2d 644, 308 (Minn. Ct. App. 1999) (citing *State v. Philip Morris, Inc.*, 551 N.W.2d 490, 495-96 (Minn. 1996)). See also Gary L. Wilson & Jason A. Gillmer, *Minnesota’s Tobacco Case: Recovering Damages Without Individual Proof of Reliance Under Minnesota’s Consumer Protection Statutes*, 25 WM. MITCHELL L. REV. 567, 590 (1999) (“Minnesota consumer protection statutes present one example in which the legislature has made a policy decision to make it easier to sue for a consumer protection violation than it would be under the common law. The legislature did so by relaxing the requirement of causation. . .”).

The Attorney General has express responsibility to “investigate offenses” and “assist in enforcement” of the CFA, UTPA, and the FSAA in Minn. Stat. § 8.31, subd. 1. Subdivision 3(a) of § 8.31 gives clear authority to the Attorney General to seek damages and equitable remedies for CFA, UTPA and FSAA violations, providing that “[i]n any action brought by the attorney general pursuant to this section, the court may award any of the remedies allowable under this subdivision,” which include “damages . . . costs and disbursements, including costs of investigation and reasonable attorney’s fees, and . . . other equitable relief.” Minn. Stat. § 8.31(3)(a).

The CFA forbids “[t]he act, use, or employment by any person of any fraud, false pretense, false promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any

person has in fact been misled, deceived, or damaged thereby. . .” Minn. Stat. § 325F.69, subd. 1. The UTPA provides that “[n]o person shall, in connection with the sale of merchandise, knowingly misrepresent, directly or indirectly, the true quality, ingredients or origin of such merchandise.” Minn. Stat. § 325D.13. The FSAA prohibits a broad range of advertising and other activities designed to “increase the consumption” of merchandise that “contain[] any material assertion, representation, or statement of fact which is untrue, deceptive, or misleading . . .” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.²

Any claims under Minnesota consumer protection statutes for climate change-related damages should be brought by the Attorney General as a direct action on behalf of the state, rather than a subrogation action on behalf of state citizens. *See State v. Minnesota School of Business, Inc.*, 915 N.W.2d 903, 910 (2018) (denying restitution to individuals that did not testify at trial). In actions seeking damages, the Minnesota Supreme Court held that Minn. Stat. § 8.31, subd. 3(a) demands:

[T]hat there must be some “legal nexus” between the injury and the defendants’ wrongful conduct. . . where the plaintiffs’ damages are alleged to be caused by a lengthy course of prohibited conduct that affected a large number of consumers, the showing of reliance that must be made to prove a causal nexus need not include direct evidence of reliance by individual consumers of defendants’ products. Rather, the causal nexus and its reliance component may be established by other direct or circumstantial evidence. . .

Grp. Health Plan, Inc. v. Philip Morris Inc., 621 N.W.2d 2, 15 (Minn. 2001).

The Minnesota tobacco case was a direct action in which the state and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare

² The UDTPA is not expressly mentioned in Minn. Stat. § 8.31, so “[t]here is a question whether damages are available for violations.” Wilson & Gillmer, *supra* at 588. The court did not allow a UDTPA action for damages in the tobacco litigation; however, some argue that damages may be available pursuant to § 8.31(3)(a). *Id.* at 588-589.

providers. Wilson & Gillmer, *supra* at 570-576. While specific individual reliance was not required, at least six types of evidence made effective “legal nexus” causation arguments: (1) evidence of the defendants’ intentional misconduct, (2) addiction of the defendants’ customers; (3) the defendants’ exploitation of smokers; (4) the defendants’ reassurance of smokers through advertising; (5) the defendants’ youth marketing strategies; and (6) the defendants’ intent that their conduct be relied upon. Wilson & Gillmer, *supra* at 608-624.

Based on the publicly available information, there is a wealth of similar facts the Attorney General can rely on in a case against the fossil fuel companies for climate change damages. As with the tobacco companies, the fossil fuel companies intentionally deceived Minnesota, other states, and the public about the long-term risks of continued fossil fuel use through advertisements, public statements, and funded research. Much of this disinformation campaign has come to light only recently.

There is also evidence that the fossil fuel companies have encouraged a public “addiction” to oil and created hostility toward cleaner fuels. These actions are similar to the tobacco companies’ efforts to increase individuals’ nicotine intake—despite their ability to lower nicotine content. *See id.* at 613-616 (“The tobacco industry has the technological capability of removing most of the nicotine from cigarettes. However, evidence suggests the tobacco industry maintains nicotine at certain levels because the companies know that nicotine is the addictive substance. . .”) (citation omitted); *see also* Peter Teigland, *Petroleum Refining in Minnesota*, NORTH STAR POLICY INST. (May 10, 2018) (explaining that much of the oil flowing into and through Minnesota comes from the Bakken shale and Canadian tar sands).

The plaintiffs in both the Maryland and Colorado lawsuits allege that developing “dirtier” sources of fuel shows oil companies’ blatant disregard of climate data. *See, e.g.*, Colorado

Complaint ¶ 384 (“Moreover, and despite its knowledge of the grave threats fossil fuels pose to the climate as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to the concentration of atmospheric CO₂.”) In addition, evidence of the industry’s significant spending on advertising and correlating sales may be used to show causation by establishing the companies’ intention that their publications be relied on by consumers. *Wilson & Gillmer, supra* at 601, 617 (“Even without a showing of intentional conduct, vast promotional expenditures give rise to a presumption that consumers have been deceived . . . The industry conceded that success in the marketplace is evidence of consumer reliance on the industry’s words and actions.”).

The Attorney General may also bring antitrust claims against the fossil fuel companies, similar to the claims in the Colorado lawsuit. The prohibitions in the Minnesota Antitrust Law of 1971, Minn. Stat. §§ 325D.49-325D.66, include conspiracy and seeking/exercising monopoly power. According to the Minnesota Supreme Court, “Minnesota antitrust law is generally interpreted consistently with federal antitrust law.” Brent A. Olson, *MINN. PRAC., BUSINESS LAW DESKBOOK* § 22A:1 (2018) (citation omitted). As such, “antitrust claims are *not* subject to a heightened standard of specificity in pleading . . .” *In re Milk Indirect Purchaser Antitrust Litig.*, 588 N.W.2d 772, 775 (Minn. Ct. App. 1999). The court may assess significant penalties: “Any person, any governmental body. . . injured directly or indirectly by a violation of sections 325D.49 to 325D.66, shall recover three times the actual damages sustained . . .” Minn. Stat. § 325D.57. The Attorney General has express authority to investigate and commence appropriate legal action seeking damages for violation of the statutory provisions. Minn. Stat. § 325D.59.

B. Products Liability Design Defect

Six lawsuits filed in state courts against fossil fuel companies for their products' contribution to climate change damages have alleged design defect and failure to warn claims arising under state common law. *See Mayor & City Council of Baltimore v. B.P.*, 24-C-18-004219 (Md. Cir. Ct. 2018); *Rhode Island v. Chevron Corp.*, PC-2018-4716 (R.I. Super. Ct. 2018); *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). All of these lawsuits allege both negligent design defect and failure to warn and strict liability design defect and failure to warn. *Id.* Minnesota could allege similar products liability claims against fossil fuel companies related to their extraction, production, marketing, and sale of fossil fuel products.

Minnesota adopted strict liability in tort for products liability cases in 1967. *See McCormack v. Hanksraft Co.*, 154 N.W.2d 488 (Minn. 1967). The Minnesota Supreme Court found that public policy necessitated protecting consumers from the risk of harm that arose from "mass production and complex marketing." *Id.* at 500. Adopting the strict liability theory, manufacturers are liable for the cost of injuries that result from their defective product regardless of negligence or privity of contract. *Id.* In *McCormack*, the Court reasoned that strict liability should apply as the makers of the product are in the best position to "most effectively reduce or eliminate the hazard to life and health, and absorb and pass on such costs [to consumers]." *Id.*

Since *McCormack* products liability law has expanded in Minnesota to cover three different theories of defective products: (1) manufacturing defects that arise from flaws in the

way the product was made; (2) design defects that result from an unreasonably safe product design; and (3) failure to warn of reasonably foreseeable dangers from a products use. *See* Rest. (Third) of Torts: Products Liability § 2 (1998). As products liability law in Minnesota continued to evolve, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrook v. Marshalltown Mfg. Co.*, 473 N.W.2d 352 (Minn. Ct. App. 1991) (“*Bilotta* merged strict liability, negligence, and implied warranty remedies into a single products liability theory.”) (referencing *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 623 (Minn. 1984)); *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (“Toyota correctly notes that [in Minnesota] in the product liability context, strict liability and negligence theories merge into one unified theory, sharing the same elements and burden of proof.”).

Of the three products liability claims alleged in the other lawsuits against the fossil fuel companies, only design defect and failure to warn claims would apply in Minnesota. Manufacturing defect claims cover faulty or defective products that arise despite a reasonably safe design—e.g., defects that may occur to a discrete number of products during the manufacturing process. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases looks at the condition of the product and compare any defects found with the flawless product). In contrast, all fossil fuel products on the market result in a dangerous condition—increased CO₂ emissions/climate change—*because* of the products unreasonably safe design. *See id.* (in a design defect case the “defect” lies in the consciously chosen design and the product is in the condition intended by the manufacturer).

I. Design defect

In Minnesota, a manufacturer has a nondelegable duty to design a reasonably safe product. *Bilotta*, 346 N.W.2d 616; *see also Schweich v. Ziegler, Inc.*, 463 N.W.2d 722, 731

(Minn. 1990) (“Caterpillar is duty bound to use reasonable care in designing the DH6 to protect users from unreasonable risk of harm while using it in a foreseeable manner.”). If a manufacturer breaches this duty and the defect proximately causes the plaintiff’s injury, it is liable in tort under a design defect theory. *Farr v. Armstrong Rubber Co.*, 288 Minn. 83, 90 (Minn. 1970). Therefore, to recover against a manufacturer for a design defect a plaintiff must show that: “(1) a product was in a defective condition unreasonably dangerous for its intended use; (2) the defect existed at the time the product left the defendant’s control; and (3) the defect proximately caused the plaintiff’s injury.” *Duxbury v. Spex Feeds, Inc.*, 681 N.W.2d 380, 393 (Minn. Ct. App. 2004). *See also Adams v. Toyota Motor Corp.*, 867 F.3d 902, 916–17 (8th Cir. 2017) (applying Minnesota law).

Unreasonably dangerous condition: To determine whether the design of a product is unreasonably dangerous, Minnesota courts employ the reasonable care balancing test adopted from Florida and New York courts in *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 624 (Minn. 1984). This test looks at the totality of circumstances including: “a balancing of the likelihood of harm, and the gravity of harm if it happens, against the burden of the precaution which would be effective to avoid the harm.” *Id.* It is an objective standard that “focuses on the conduct of the manufacturer in evaluating whether its choice of design struck an acceptable balance among several competing factors.” *Id.* at 622. Often considered by courts and juries employing the reasonable care balancing test is whether or not there existed, or the plaintiff can prove, a practical alternative design. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 96 (Minn. 1987) (holding that existence of a practical alternative design is a factor, but not an element of a *prima facie* case, in design defect claims).

Fossil fuel products were, and continue to be, in a defective condition unreasonably dangerous for their intended use. The emission of GHGs resulting from the use of fossil fuel products causes severe and grave harms in the form of global warming, increased severity of dangerous weather patterns, rising sea level, increased drought, increased weather patterns, serious public health concerns particularly to low income and minority communities, and overall climate change damages. The fossil fuel companies were well aware of the gravity of this harm, as well as the extremely high likelihood that this harm would occur from their continued extraction, production, use, and marketing of fossil fuel products as early as 1965. This is particularly true in light of generally accepted scientific knowledge that unfettered anthropogenic GHG emissions would result in catastrophic impacts. The burden of precaution necessary to avoid the harms was significantly lower when the companies first became aware of the risk their fossil fuel products posed and has only grown since.

Defect existed at the time it left defendants' control: The second element of a design defect claim is that “the defect existed at the time the product left the defendant’s control” *Duxbury*, 681 N.W.2d at 393. GHGs emitted from the combustion/use of fossil fuel products exists at the time they are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, individual and aggregate fossil fuel products reached the consumer in a condition substantially unchanged from that in which it left the companies’ control—and “were used in the manner in which they were intended to be used . . . by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.” Complaint at ¶ 212, *PCFFA v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018). Therefore, the defect existed at the time fossil fuel products left the fossil fuel companies’ control.

Defect proximately caused the plaintiff's injury: Finally, the plaintiff must prove that the design defect proximately caused the plaintiff's injury. *Duxbury*, 681 N.W.2d at 393. "Proximate cause exists if the defendant's conduct, without intervening or superseding events, was a substantial factor in creating the harm." *Thompson v. Hirano Tecseed Co., Ltd.*, 456 F.3d 805, 812 (8th Cir. 2006) (applying Minnesota law). A substantial factor has also been described as a "material element" in the happening of the injury. *Draxton v. Katzmarek*, 280 N.W. 288, 289 (Minn. 1938).

But-for causation is still necessary for a substantial factor causation analysis, because "if the harm would have occurred even without the negligent act, the act could not have been a substantial factor in bringing about the harm." *George v. Estate of Baker*, 724 N.W.2d 1, 11 (Minn. 2006) (citing Rest. (Second) of Torts § 432 (1965)). However, if there are concurring acts that together cause the plaintiff's injury and act contemporaneously, or so nearly together that there is no break in the chain of causation, this is sufficient to meet the causation analysis even if the injury would not have resulted in the absence of either one. *Roemer v. Martin*, 440 N.W.2d 122, 123, n.1 (Minn. 1989). If there are concurrent acts of negligence, both parties are liable for the whole unless the resulting damage is "clearly separable." See *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970). Before a particular factor can be said to be a concurrent cause, it must, first of all, be established that it is a cause. *Roemer*, 440 N.W.2d at 123.

The fossil fuel companies' extraction, production, refining, marketing, and sale of fossil fuels was and will continue to be a substantial factor in creating Minnesota's harm from climate change. Ninety producers of oil and gas are responsible for 63% of the cumulative industrial CO₂ and methane emissions worldwide between 1751 and 2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122

CLIMATIC CHANGE 229 (Nov. 22, 2013). Abundant scientific studies and reports link these anthropogenic GHG emissions to climate change and its damages.

California has similarly adopted the substantial factor test to determine proximate causation. *People v. Atlantic Richfield Co.*, 2013 WL 6687953, at *16 (Cal. Super. Ct. 2013) (“Under this test, independent tortfeasors are liable so long as their conduct was a “substantial factor” in bringing about the injury.”), *aff’d sub nom. People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51 (Cal. Ct. App. 2017). However, it is important to note that California’s substantial factor test appears to be broader than Minnesota’s, requiring the defendant’s conduct to only be “a very minor force” to find it was a substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102. Despite this, *People v. Atlantic Richfield Co.*, still provides a useful analogy for determining whether multiple manufacturers of a product were each a “substantial factor” in creating the plaintiff’s injury and may act as persuasive authority in Minnesota. 2013 WL 6687963 at *1, *aff’d sub nom. ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 169 (affirming holding of liability against lead paint manufacturers but limiting scope of abatement remedy to pre-1951 homes).

In *Atlantic Richfield Co.*, counties in California brought a public nuisance action against five lead paint manufacturers seeking abatement of the public nuisance created by the lead paint manufactured and sold by defendants in ten jurisdictions in California. Three of the paint manufacturers, ConAgra, NL Industries, and Sherwin Williams, were found to have created or assisted in the creation of the public nuisance and, as a result, the Court held their conduct was a substantial factor in bringing about the public nuisance. *Id.* at *54.

ConAgra was a large producer and supplier of lead, operated to a major degree within the jurisdictions that brought suit, and continued to sell lead paint until 1958 and therefore the Court

found their conduct was a substantial factor in creating the public nuisance. *Id.* at *52. NL Industries (formerly known as National Lead Company) was the largest manufacturer, promoter, and seller of lead pigments for use in house paint and was an active participant in campaigns to promote lead paint. Based on this, the Court found NL to be a substantial factor in causing the public nuisance. *Id.* at *53. Finally, Sherwin Williams' conduct was found to have been a substantial factor in the public nuisance despite testimony offered by SW's expert witness Dr. Van Liere who estimated that Sherwin William's lead paint contributed a mere 0.1% of the total lead consumed in California from 1894 to 2009. *Id.* at *39. This was because the company had two plants, stores, and dealers selling lead paint within the jurisdictions bringing suit and it transported millions of pounds of lead paints to its warehouses and factories during the first four decades of the 20th century. *Id.* at *53.

The California Court of Appeals upheld the trial court findings, further emphasizing that all three defendants' marketing campaigns promoting lead paint as safe for use in residential homes and on doors and windows frames played at least a *minor* role in creating the public nuisance and therefore met the "substantial factor" test. *People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51, 102–03 (Cal. Ct. App. 2017). Minnesota can use the California courts' reasoning to establish that each individual fossil fuel company named as defendant was a substantial factor in causing Minnesota's climate damages.

Lastly, not only must the design defect be a substantial factor, or material element, in bringing about plaintiff's injuries—there cannot be a "superseding" event that breaks the causal chain between the defendants' conduct and the plaintiff's injury:

A cause is "superseding" if four elements are established: (1) Its harmful effects must have occurred after the original negligence; (2) it must not have been brought about by the original negligence; (3) it must actively work to bring about

a result which would not otherwise have followed from the original negligence; and (4) it must not have been reasonably foreseeable by the original wrongdoer.

Regan v. Stromberg, 285 N.W.2d 97, 100 (Minn. 1979). There were no intervening or superseding events that caused Minnesota’s climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between the fossil fuel companies’ conduct and Minnesota’s injuries and damages, or superseded the fossil fuel companies’ breach of its duty to design a reasonable safe product.

2. *Joint and several liability and market share liability*

Notably, although an individual oil or gas company may claim that its extraction, production, and sale of fossil fuel products was not a substantial factor or the “but-for” cause of Minnesota’s climate change damages, Minnesota can rely on two liability structures to overcome the causation burden: concurring causes and the indivisible injury rule which impose joint and several liability and market share liability.

In general, parties whose negligence concurs to cause an indivisible injury are jointly and severally liable, even if not acting in concert. *Maday v. Yellow Taxi Co.*, 311 N.W.2d 849 (Minn. 1981); *see also Rowe v. Munye*, 702 N.W.2d 729, 736 (Minn. 2005) (“[M]ultiple defendants are jointly and severally liable when they, through independent consecutive acts of negligence closely related in time, cause indivisible injuries to the plaintiff.”). A harm is indivisible if “it is not reasonably possible to make a division of the damage caused by the separate acts of negligence.” *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970) (quotation omitted). When two or more persons are jointly liable, contributions to awards shall be in proportion to the percentage of fault attributable to each, except that each is jointly and severally liable for the whole award. Minn. Stat. § 604.02, subd. 1 (2018). However, a plaintiff would still be required

to show that each defendant's conduct was a substantial factor in causing its harming. *Jenson v. Eveleth Taconite Co.*, 130 F.3d 1287, 1294 (8th Cir. 1997).

At least four other state lawsuits have alleged fossil fuel companies' acts and omissions were indivisible causes to the plaintiffs' injuries and damages because it is not possible to determine the source of any particular GHG molecule from anthropogenic sources. *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). Joint and several liability would also apply in a lawsuit against fossil fuel companies for damages resulting from climate change in Minnesota. Minnesota is experiencing a single indivisible injury caused by multiple fossil fuel companies' independent consecutive actions closely related in time. *See Jenson*, 130 F.3d at 1305 n.9 (explaining how the single indivisible injury rule imposes joint and several liability). Because Minnesota's harm is indivisible, each fossil fuel company would be liable for the entire harm. *Id.*

If the fossil fuel companies argue that Minnesota's harms are divisible, they each may be able to limit their liability. However, the defendant asserting divisibility bears the burden of proving apportionment. *See e.g., Jenson*, 130 F.3d at 1294 (explaining that "plaintiffs bear no burden to prove apportionment" because apportionment is akin to an affirmative defense). Fossil fuel companies could attempt to prove apportionment based on the amount of GHG their fossil fuel products emitted.

People of the State of California v. Atlantic Richfield Co. once again provides reference for how oil and gas companies may be jointly and severally liable and can act as persuasive

authority in Minnesota's courts. 2013 WL 6687953, 44 (Cal. Super. Ct. 2013). Under California law, when multiple tortfeasors are each a substantial factor in creating a public nuisance, they are jointly and severally liable for that nuisance. *Id.* at * 44 (quoting *Am. Motorcycle Assn v. Superior Court*, 20 Cal. 3d 578, 586 (1978)). Similar to Minnesota, if the injury is indivisible each actor whose conduct was a substantial factor in causing the damages is legally responsible for the whole. *Id.* California has found that this joint and several liability theory applies when multiple sources of contamination result in a single nuisance. *Id.* (quoting *State v. Allstate Ins. Co.*, 45 Cal. 4th 1008, 1036 (2009)). Because of this, the California Superior Court found that the three lead paint manufacturers who were found to be substantial factors in causing the public nuisance were all jointly and severally liable. *Id.* A similar theory of recovery could be used in Minnesota against fossil fuel companies applying Minnesota's version of concurrent harms, the invisible harm rule, and joint and several liability.

Finally, the market share liability theory allows a plaintiff to recover damages against defendants based on their proportion of the market share at the time the injury was caused if the defendants all produced an identical, or fungible product, and the plaintiff is unable to identify which manufacturer produced the product that caused their injuries. *See Sindell v. Abbott Labs.*, 607 P.2d 924 (Cal. 1980) (establishing market share liability theory and apportioning liability based on the relative market share of each of the liable defendants). The Minnesota Supreme Court has not explicitly accepted or rejected the market share liability theory. *See Bixler v. J.C. Penney Co.*, 376 N.W.2d 209, 214 n.1 (Minn. 1985) ("We express no opinion as to whether we would adopt such a rule [market share liability], particularly where the product involved is not entirely fungible with similar products on the market."). Because the Minnesota Supreme Court

has not categorically ruled out the market share liability theory, it is possible that under the right set of facts, that theory of recovery may be available.

Minnesota can allege a market share liability theory if it is unable to prove which fossil fuel company caused its injuries because each fossil fuel company's products are fungible with regard to their GHG emissions. The Wisconsin Supreme Court adopted a version of the market share liability theory known as the "risk contribution theory" in *Collins v. Eli Lilly Co.*, the state's first DES case. 342 N.W.2d 37, 49 (Wis. 1984). In *Collins*, the Wisconsin Supreme Court recognized that the plaintiff would face an insurmountable obstacle if she had to prove which defendant manufactured the DES that her mother ingested based on the lack of records and pharmaceutical practices at that time. *Id.* at 44–45. Despite this, the Court found that Collins was entitled to a remedy at law for her injuries under the Wisconsin Constitution and therefore took the task of fashioning an adequate remedy. *See Id.* at 45 ("When an adequate remedy or forum does not exist to resolve disputes or provide due process, the courts, under the Wisconsin Constitution, can fashion an adequate remedy."). Compare WIS. CONST. art. 1, § 9 ("Every person is entitled to a certain remedy in the laws for all injuries, or wrongs which he may receive in his person, property, or character.") with MINN. CONST. art. 1, § 8 ("Every person is entitled to a certain remedy in the laws for all injuries or wrongs which he may receive to his person, property or character . . .").

In *Collins*, the Wisconsin Supreme Court held that for cases seeking recovery for harms associated with DES, and situations factually similar to DES cases, "the plaintiff need only allege and prove that the defendant drug company produced or marketed the drug DES for use in preventing miscarriages during pregnancy." *Id.* at 50. In order to protect defendant drug companies that could not have contributed to Collins injury, the Court held that a defendant

could escape liability if it could prove by a preponderance of evidence that the DES it produced or marketed could not have reached the plaintiffs mother. *Id.* at 197–98. The defendants could apportion liability using the comparative negligence theory, with the jury determining each company’s liability based on a number of factors including whether the company tested DES for safety, sought FDA approval, issued warnings about DES, produced or marketed DES after it knew of possible risks, and whether it took affirmative steps to reduce risk of injury to public. *Id.* at 199–200.

The Wisconsin Supreme Court later extended the risk contribution theory to a plaintiff who suffered lead poisoning but could not identify the paint manufacturer that had caused his injury. *See Thomas v. Mallet*, 285 Wis. 2d 236, 256 (Wis. 2005). Because many victims of lead poisoning would be denied an adequate remedy for harm, and Thomas’ case was factually similar enough to *Collins*, the Wisconsin Supreme Court agreed that the *Collins* risk-contribution theory should be extended to white lead carbonate claims. *Id.* at 293, 306 (explaining that lead poisoning plaintiffs are severely harmed by a substance they had no control over without an ability to prove with certainty which manufacturer produced or promoted the white lead carbonate that caused the injury).

In sum, both California’s market share liability theory or Wisconsin’s risk-contribution theory provide viable theories of recovery in Minnesota courts against fossil fuel companies for climate change harm in Minnesota. Fossil fuel companies’ actions and the damages in Minnesota stemming from the use of their products closely resemble the factual circumstances of cases involving DES and lead paint. Fossil fuel products are fungible, the fossil fuel companies breached a legally recognized duty by failing to design their products in a reasonably safe manner, fossil fuel companies continued to market and produce their products despite knowledge

of this danger, and the use of these fossil fuel products caused Minnesota's injuries. Moreover, in the case of fossil fuel companies, there is significant data on the percentage of GHG emissions related to each fossil fuel company's extraction, production, refining, and sales, making this arguably a stronger case for market share liability or risk-contribution theory than either the DES or lead paint cases.

C. Products Liability Failure to Warn

In Minnesota “[g]enerally stated, a failure to warn claim has three elements: ‘(1) whether there exists a duty to warn about the risk in question; (2) whether the warning given was inadequate; and (3) whether the lack of a warning was a cause of plaintiff’s injuries.’” *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (quoting *Seefeld v. Crown, Cork & Seal Co., Inc.*, 779 F. Supp. 461, 464 (D. Minn.1991)).

Duty to warn: The first element of a failure to warn claim is whether or not a duty exists. “The duty to warn arises when a manufacturer knew or should have known about an alleged defect or danger, and should have reasonably foreseen that the defect or danger would cause injury.” *Id.* (citing *Seefeld*, 779 F. Supp. at 464; *Harmon Contract Glazing, Inc. v. Libby–Owens–Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). The duty extends to all reasonably foreseeable users. *Whiteford v. Yamaha Motor Corp.*, 582 N.W.2d 916, 918 n.6 (Minn. 1998). The knowledge of an alleged defect or danger can be either actual or constructive. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987) (allowing recovery where the plaintiff either knew of the danger or *should* have known). Because a manufacturer has duty to keep informed of all current scientific knowledge, courts in Minnesota will look to current/past scientific knowledge to help determine whether a manufacturer *should* have known of the risks

in its products. *Harmon Contract Glazing, Inc. v. Libby-Owens Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992).

Fossil fuel companies had both actual and constructive knowledge, particularly in light of scientific knowledge generally accepted at the time, that their fossil fuel products were dangerous due to their emissions of GHGs. It was also reasonably foreseeable that climate change damages would result from these emissions and thus fossil fuel companies had a duty to warn potential users of the foreseeable dangers.

However, a manufacturer has no duty to warn of dangers that are obvious to anyone using the product. *See Drager v. Aluminum Indus. Corp.*, 495 N.W.2d 879, 884 (Minn. Ct. App. 1993). “A failure to warn ‘is not the proximate cause of injury if the user is aware of the danger posed by the device in issue.’” *Shovein v. SGM Group USA, Inc.*, 2008 WL 11348494, at *6 (D. Minn. 2008) (citing *Mix v. MTD Products, Inc.*, 393 N.W.2d 18, 19 (Minn. App. 1986)). For example, in *Mix v. MTD*, the Minnesota Court of Appeals held that MTD did not have a duty to warn of the danger that could result from attempting to reattach a belt while the lawnmower’s engine was in neutral because the danger was obvious to most potential users. *Mix v. MTD Prods., Inc.*, 393 N.W.2d 18, 20 (Minn. Ct. App. 1986). Because of fossil fuel companies’ protracted and intensive denialist campaign, the dangers of using fossil fuel products were not obvious to the public.

Adequate warning: Second, if a warning was issued it must be adequate. “To be legally adequate, a product supplier’s warning to a user of any foreseeable dangers associated with the product’s intended use should (1) attract the attention of those that the product could harm; (2) explain the mechanism and mode of injury; and (3) provide instructions on ways to safely use the product to avoid injury.” *Gray v. Badger Min. Corp.*, 676 N.W.2d 268, 274 (Minn. 2004).

Consumers of fossil fuel products were prevented from recognizing the risk that fossil fuel products would cause grave climate changes because the companies “individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.” Complaint at ¶ 318, *County of Santa Cruz v. Chevron Corp.* (Cal. Super. Ct. 2018). Therefore, any warnings that may have publicized the danger to the public or Minnesota were undermined and rendered ineffective because of the companies’ public relations materials and campaigns. *Id.*

Causation: In order to recover under a failure to warn theory, the plaintiff must show a causal connection between the inadequate warning or failure to warn and the injuries he or she sustained. *Rients v. Int’l Harvester Co.*, 346 N.W.2d 359, 362 (Minn. Ct. App. 1984). Minnesota courts have interpreted this as requiring the plaintiff to show that *had* adequate warnings been provided, the injury would not have occurred. *See Hauenstein v. Loctite Corp.*, 347 N.W.2d 272, 276 (Minn. 1984) (explaining that causation is not met when the accident would have occurred whether or not there was a warning). While many states have adopted a “heeding presumption”—a rebuttable presumption that if warnings had been provided, they would have been read and heeded—the Minnesota Supreme Court specifically declined to do so in a failure to warn case. *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99–100 (Minn. 1987); *see also Tuttle v. Lorillard Tobacco Co.*, 377 F.3d 917, 925 (8th Cir. 2004) (predicting that Minnesota courts would not adopt the heeding presumption). Furthermore, when a plaintiff requested the Minnesota Court of Appeals to adopt the heeding presumption in *Montemayor v. Sebright Products, Inc.* (unpublished case) the Court found that it was not its role “to extend the law.” 2017 WL 5560180, at *3 (Minn. Ct. App. 2017).

However, the U.S. Court of Appeals for the Eighth Circuit has noted that to establish causation in Minnesota failure to warn cases “it is sufficient to present testimony that purchasers would have avoided the risk of harm had they been told of the relevant danger.” *In re Levaquin Products Liability Litigation*, 700 F.3d 1161, 1168 (8th Cir. 2012) (citing *Erickson v. American Honda Motor Co., Inc.*, 455 N.W.2d 74, 77 (Minn. Ct. App. 1990)). This type of testimony can be rebutted by evidence that the plaintiff knew of the danger or disregarded other dangers or ignored other warnings. 27 Minn. Prac. Series § 4.11 (2018). This was at issue in *Tuttle v. Lorillard Tobacco Co.* because Tuttle passed away from oral cancer (caused by defendant’s smokeless tobacco product) before he could testify that he would have avoided the risk of harm if he had been told of the danger. 377 F.3d at 925 (8th Cir. 2004). Furthermore, the Court reasoned that because Tuttle continued to use smokeless tobacco until 1993, even after the Smokeless Tobacco Act required warnings in advertising and on packaging as early as February 1987, that “Tuttle’s actions undercuts any ‘heeding presumption’ and any reasonable reliance arguments.” *Id.* at 927 n.6.

Had Minnesota been adequately warned of the significance of danger that fossil fuel consumption and use presented to the state and the public, it would have heeded said warnings and either consumed fewer fossil fuel products or began to transition away from a fossil fuel dependent economy much sooner.

D. Public Nuisance

Under Minnesota law, public nuisance is a misdemeanor offense, defined in Minn. Stat. § 609.74:

[w]hoever by an act or failure to perform a legal duty intentionally does any of the following is guilty of maintaining a public nuisance, which is a misdemeanor:

- (1) maintains or permits a condition which unreasonably annoys, injures or endangers the safety, health, morals, comfort, or repose of any considerable number of members of the public; or
- (2) interferes with, obstructs, or renders dangerous for passage, any public highway or right-of-way, or waters used by the public; or
- (3) is guilty of any other act or omission declared by law to be a public nuisance and for which no sentence is specifically provided.

Minn. Stat. § 609.74 (2018). Under Minn. Stat. § 609.745, “[w]hoever having control of real property permits it to be used to maintain a public nuisance or lets the same knowing it will be so used is guilty of a misdemeanor.” Minn. Stat. § 609.745 (2018). Statutory public nuisance violations brought under § 609.74 are enforced through criminal prosecution. However, it is unlikely that a claim for damages could be sought under the criminal statute, and instead this statute would provide a means for injunctive relief or abatement. *See* Minn. Stat. § 617.80 et seq. Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. *But see Doe 30 v. Diocese of New Ulm*, No. 62-CV-14-871, 2014 WL 10936509 at *9 (Minn. Dist. Ct. 2014) (“While plaintiff’s Complaint asserts a common-law public nuisance claim, it is evident from Minnesota’s public-nuisance jurisprudence that common-law claims either no longer exist or are synonymous with section 609.74 claims.”).

Common law public nuisance claims in Minnesota appear to be rare; the majority of public nuisance claims seem to be brought primarily under municipal nuisance ordinances or the state public nuisance statute. For example, in *State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545 (Minn. 1911), the Minnesota Supreme Court considered the validity of a Minneapolis city ordinance that declared the emission of smoke from locomotives a public nuisance, prohibiting the use of soft coal. The court recognized that although the Legislature

cannot prevent a lawful use of property by prohibiting non-nuisance uses, “it is equally clear that acts or conditions which are detrimental to the comfort and health of the community may be effectively declared nuisances by the Legislature, and in the exercise of that power specified acts or conditions may be declared a nuisance, although not so determined at common law.” *Id.* at 546.

Likewise, in *State v. Lloyd A. Fry Roofing Co.*, 246 N.W.2d 692 (Minn. 1976), the Minnesota Supreme Court held that:

[T]he general rule regarding nuisances is that “it is immaterial how innocent the intent was[,] for the element of motive or intent does not enter into the question of nuisance,” so a state legislature may declare certain acts to be nuisances regardless of the intent with which they are carried out and even though they were not such at common law, or the legislature may delegate this authority to a municipal corporation.

Id. at 538 (citing Joyce, *Law of Nuisance*, § 43 at 77 & §§ 81, 84). On the subject of common law public nuisance, the court cites Dean Prosser’s work on tort law and notes that intent and failure to act reasonably are not essential elements of common-law nuisance violations, and “are even less relevant to nuisances that are codified in statutes or ordinances.” *Id.* at 539.

Although statutory public nuisance claims seem to make up the vast majority of cases in Minnesota, common law public nuisance may still resemble the Restatement approach: interference with public property or a right common to the public. *See* Restatement (Second) of Torts § 821B(1). Although the court in *Doe 30 v. Diocese of New Ulm* considered the matter, it is a district court decision and the analysis is dicta because the court did not reach a decision on the issue.

Significantly, in 2010, Minnesota Attorney General Lori Swanson brought “common law nuisance” claims against 3M Company over chemicals it produced known as perfluorochemicals (PFCs). *See* Complaint, *State v. 3M Co.*, No. 27-CV-10-28862, 2010 WL 5395085 at ¶¶ 83–89,

90–97 (D. Minn. Dec. 30, 2010). In particular, the complaint alleged damages for common law nuisance for contamination of surface water, groundwater, and sediments by PFCs released by 3M. The Attorney General claimed that the “use, enjoyment and existence of the State’s groundwater, surface water and sediments, free from interference, is a *common right* to citizens of the state.” *Id.* at ¶ 84 (emphasis added). 3M’s alleged contamination of groundwater, surface water, and sediments with PFCs “materially and substantially interferes with State citizens’ free enjoyment of these natural resources, and constitutes a public nuisance.” *Id.* at ¶ 85.

E. Private Nuisance

Minnesota’s statutory private nuisance law is covered by Minn. Stat. § 561.01:

Anything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.

Minn. Stat. § 561.01 (2018).

A private nuisance requires interference with another’s use of property. *See Uland v. City of Winstead*, 570 F. Supp. 2d 1114, 1120 (D. Minn. 2008). There must be some type of conduct that causes the alleged nuisance harm, and that conduct must be “wrongful.” *See Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65, 70–71 (Minn. 1982) (citing *Randall v. Village of Excelsior*, 103 N.W.2d 131, 134 (1960)). This wrongful conduct varies, and may be characterized as, for example, intentional conduct, negligence, ultrahazardous activity, violation of a statute, or some other type of tortious activity. *Id.*

Minnesota’s nuisance statute appears to provide a broader cause of action than common law nuisance under the Restatement (Second) of Torts, as § 561.01 does not require that the

action be intentional or unreasonable. The Minnesota Supreme Court has found that Minnesota's nuisance statute "defines a nuisance in terms of the *resultant harm* rather than in terms of the kind of conduct by a defendant which causes the harm . . . Where pollutants cause the harm, such as where sewage is deposited on plaintiff's property, the wrongful conduct appears to be self-evident." *Id.* (emphasis added). The Minnesota Supreme Court has likewise declined to consider an application of the Restatement nuisance test, preferring instead to use § 561.01 and Minnesota case law. *Id.*

In addition to nuisance abatement, a successful plaintiff may recover damages sustained as a result of the activity. Minn. Stat. § 561.01. Minnesota courts have found a variety of activity to be private nuisances. *Heller v. American Range Corp.*, 234 N.W. 316 (Minn. 1931) (industrial plants transferring dust to adjacent residential property); *Brede v. Minnesota Crushed Stone Co.*, 179 N.W. 638 (Minn. 1920) (limestone quarries giving off noise, fumes, and odors); *Fagerlie v. City of Wilmar*, 435 N.W.2d 641 (Minn. App. 1989) (wastewater treatment plant odors); *Schrupp v. Hanson*, 235 N.W.2d 822 (Minn. 1975) (poultry and hog farm odors); *Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65 (Minn. 1982) (water and sewage runoff).

In *Johnson v. Paynesville Farmers Union Co-op Oil Co.*, 817 N.W.2d 693, 706 (Minn. 2012), the Minnesota Supreme Court considered the state's approach to private nuisance in an action brought by an organic farmer against a co-op alleged to have caused pesticides to drift onto the organic farm. Citing Minn. Stat. § 561.01, the supreme court found that an action that seeks an injunction or to recover damages can be brought under the statute by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance. The plaintiff must show that the defendant's conduct caused an interference with the use or enjoyment of the plaintiff's property. *Id.* As an equitable cause of action, the court stated that §

561.01 “implicitly recognized a need to balance the social utility of defendants’ actions with the harm to the plaintiff.” *Highview North Apartments v. County of Ramsey*, 323 N.W.2d 65, 71 (Minn. 1982).

In deciding the issue of nuisance, the *Johnson* court cited *Highview North Apartments v. County of Ramsey*, in which the Minnesota Supreme Court held that “disruption and inconvenience” caused by a nuisance are actionable damages. *Johnson v. Paynesville Farmers Union* at 713 (citing *Highview North Apts.*, 323 N.W.2d at 73). In *Highview* a plaintiff sued multiple municipalities over harm that consisted of groundwater seeping into two apartment building basements, a condition that the court found to be “ongoing, injurious to the premises, substantial, and likely to worsen.” *Highview North Apts.*, 323 N.W.2d at 71. Applying the *Highview* ruling, the *Johnson* court remanded the plaintiffs’ allegations that they suffered from “cotton mouth, swollen throat and headaches” because they were exposed to pesticide drift. *Id.* The court held that the inconvenience and adverse health effects, if proven, would affect the plaintiffs’ ability to use and enjoy their land and thereby constitute a nuisance, and so the issue was remanded for further fact-finding, including an assessment of damages. *Id.*

F. Trespass

In Minnesota, “[t]respass encompasses any unlawful interference with one’s person, property, or rights, and requires only two essential elements: a rightful possession in the plaintiff and unlawful entry upon such possession by the defendant.” *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003), *review denied* (Minn. Aug. 5, 2003). Minnesota courts have described trespass as “an invasion of the plaintiff’s right to exercise exclusive possession of the land” while “nuisance is an interference with the plaintiff’s use and enjoyment of the land.” *Fagerlie v. City of Willmar*, 435 N.W.2d 641, 644 n.2 (Minn. Ct App. 1989); *see also Johnson v.*

Paynesville Farmers Union Coop Oil Co., 817 N.W.2d 693, 701 (Minn. 2010) (stating that unlawful entry “must be done by means of some physical, tangible agency in order to constitute a trespass.”). Actual damages are not an element of the tort of trespass. *Johnson v. Paynesville Farmers Union* at 701 (citing *Greenwood v. Evergreen Mines Co.*, 19 N.W.2d 726, 734–35 (Minn. 1945)). In the absence of actual damages, the trespasser is liable for nominal damages. *Id.* (citing *Sime v. Jensen*, 7 N.W.2d 325, 328 (Minn. 1942)). Because trespass is an intentional tort, reasonableness on the part of the defendant is not a defense to trespass liability. *Id.* (citing *H. Christiansen & Sons, Inc. v. City of Duluth*, 31 N.W.2d 270, 273–74 (Minn. 1948)).

In *Johnson v. Paynesville Farmers Union Co-op. Oil Co.*, the Minnesota Supreme Court considered the question of whether particulate matter, such as pesticide drift can result in a trespass. *Id.* (noting that the “particulate matter” has been defined as “material suspended in the air in the form of minute solid particles or liquid droplets, especially when considered as an atmospheric pollutant.”). The Supreme Court found that Minnesota case law is consistent with a traditional formulation of trespass that has recognized trespasses when a person or a tangible object enters the plaintiff’s land and interferes with rights of exclusive possession. *Id.* According to the court, “disruption to the landowner’s exclusive possessory interest is not the same when the invasion is committed by an intangible agency, such as the particulate matter [pesticides] at issue here.” *Id.* at 702. “Such invasions,” the court continued, “may interfere with the landowner’s use and enjoyment of her land, but those invasions do not require that the landowner share possession of her land in the way that invasions by physical objects do.” *Id.*; see also *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003) (noting that Minnesota “has not recognized trespass by particulate matter” and rejecting a trespass claim over offensive odors). The court declined to abandon traditional distinctions between trespass and

nuisance law, and noted that the public policy concerns that compelled other jurisdictions to blur the lines between trespass and nuisance (e.g. statutes of limitations) are not present in Minnesota. *Id.* at 704–05. “In summary, trespass claims address tangible invasions of the right to exclusive possession of land, and nuisance claims address invasions of the right to use and enjoyment of land.” *Id.* at 705.

The Minnesota Attorney General lawsuit against 3M claimed trespass damages against the state’s public trust resources. Complaint, *State of Minnesota v. 3M Company*, No. 27-CV-10-28862, 2010 WL 5395085 (D. Minn. 2010). Much of the state’s suit was focused on direct groundwater and surface water pollution, issues which are unlikely to be present when dealing with oil refineries, emissions, and climate change damages. However, the effects of climate change can impact surface and groundwater in other ways that are not as direct, such as harm to aquatic organisms and plants through warmer waters, increased flooding and erosion from more severe storms and precipitation, drought, algae blooms, etc. Thus, a trespass claim against fossil fuel companies for climate change damages would be based on indirect invasions of property.

G. Strict Liability for Abnormally Dangerous Activity

The Second Restatement of Torts on Strict Liability for Abnormally Dangerous Activities is not controlling law in Minnesota, though Minnesota courts have discussed §§ 519–520. Restatement (Second) of Torts § 519–520 (1977); *see, e.g., Mahowald v. Minnesota Gas Co.*, 344 N.W.2d 856, 860–61 (Minn. 1984); *Cairly v. City of St. Paul*, 268 N.W.2d 908 (Minn. 1978); *Ferguson v. Northern States Power Co.*, 239 N.W.2d 190 (Minn. 1976); *Quigley v. Village of Hibbing*, 129 N.W.2d 765 (Minn. 1964). For example, in *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993), the Minnesota Court of Appeals noted that “[a]lthough this Restatement section is not controlling law in Minnesota, because the supreme

court has recognized it in other cases, *see, e.g., Mahowald v. Minnesota Gas Co.* . . . we believe the trial court’s use of it was appropriate.” *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993).

However, the Minnesota Supreme Court has been careful to note that while “we have recognized the applicability of [the Restatement §§ 519 and 520] in other contexts, that is all we did—recognize the existence of those two sections. In none of these cases did we apply those sections, nor has our attention been directed to any other case where we did apply them.” *Mahowald*, 344 N.W.2d at 861. The Minnesota Supreme Court has explicitly rejected applying Restatement §§ 519–520 in strict liability cases for accidents arising out of escaping gas from lines maintained in public streets. *Id.*

Nevertheless, applying strict liability without proof of negligence is consistent with a long line of Minnesota cases involving abnormally dangerous activities. *See, e.g., Sachs v. Chiat*, 162 N.W.2d 243 (1968) (pile driving abnormally dangerous activity that requires liability without fault); *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924) (waterworks operated by municipal corporation requires liability without fault); *Wiltse v. City of Red Wing*, 109 N.W. 114 (Minn. 1906) (collapse of reservoir destroying plaintiff’s house requires liability without fault); *Berger v. Minneapolis Gaslight Co.*, 62 N.W. 336 (Minn. 1895) (petroleum that escaped from gas company’s tanks, damaging wells and cellars, requires liability without fault); *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (Minn. 1871) (tunnel collapse under property lessee’s land requires liability without negligence in its construction or maintenance).

The Minnesota Supreme Court was one of the first American jurisdictions to adopt the famous English tort law ruling on strict liability, *Rylands v. Fletcher*. *See, e.g., Minnesota Mining & Mfg. Co. v. Travelers Indem. Co.*, 457 N.W.2d 175, 183 (Minn. 1990). In *Rylands*,

defendant owners of a mill built a reservoir to supply their mill with water. *Rylands v. Fletcher*, LR 3 H.L. 330 (1868). The plaintiff leased coal mines on neighboring land between the reservoir and the mill. Water from the reservoir burst into old, unused mine shafts, and flooded the mine. When the defendants appealed, arguing that they did not know that the flooded shafts were connected to the mine, the House of Lords held that the plaintiff did not need to prove negligence, because “the person who, for his own purposes, brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril.” *Id.* at 339. On the relationship of obligation between neighbors, the *Ryland* court found that:

[I]t seems but reasonable and just that the neighbour who has brought something on his own property (which was not naturally there), harmless to others so long as it is confined to his own property, but which he knows will be mischievous if it gets on his neighbour's, should be obliged to make good the damage which ensues if he does not succeed in confining it to his own property.

Id. at 340.

In *Kennedy Building Associates v. Viacom, Inc.*, the U.S. Court of Appeals for the Eighth Circuit found that Minnesota has “not limited the *Rylands* cause of action to cases in which the plaintiff and defendant were neighboring landowners,” citing *Hannem v. Pence*, a case in which a plaintiff was injured by falling ice while walking past a defendant's building. *Kennedy Building Associates v. Viacom, Inc.*, 375 F.3d 731, 740 (8th Cir. 2004) (citing *Hannem v. Pence*, 41 N.W. 657 (Minn. 1889)). The Minnesota Supreme Court has also applied the *Rylands* rule to defendants that do not own the land on which they created a hazard. See *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (1871). Under Minnesota's strict liability rule, it makes no difference that a defendant is no longer in possession of control of the instrumentality that caused a hazard. *Id.*

Minnesota has also applied strict liability for abnormally dangerous activity to enterprises that ultimately benefit the community. Although these activities may be useful to society, the

court has found that as times change and large-scale industrial activity increases, the responsibility for damages from useful operations should not fall on harmed individuals. *Bridgeman-Russell Co. v. City of Duluth* involved a waterworks operated by a municipal corporation that discharged water, damaging the plaintiff's property. *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924). The Minnesota Supreme Court imposed strict liability, without requiring proof of negligence, stating that:

Congestion of population in large cities is on the increase. This calls for water systems on a vast scale either by the cities themselves or by strong corporations. Water in immense quantities must be accumulated and held where none of it existed before. If a break occurs in the reservoir itself, or in the principal mains, the flood may utterly ruin an individual financially. In such a case, even though negligence be absent, natural justice would seem to demand that the enterprise, or what really is the same thing, the whole community benefited by the enterprise, should stand the loss rather than the individual. It is too heavy a burden upon one.

Id. at 972.

In light of this Minnesota case law expressing a fairly expansive view of strict liability, even in the case of activities that have social value, a claim by Minnesota against fossil fuel companies for climate change damages would appear to fit squarely within a claim for strict liability for abnormally dangerous activities.

H. Other Claims

Minnesota could also consider claims under the Minnesota Environmental Rights Act, Minn. Stat. ch. 116B ("MERA"), and the Minnesota Environmental Response, Compensation, and Liability Act, Minn. Stat. ch. 115B ("MERLA"). In particular, the Minnesota Attorney General lawsuit against 3M discussed earlier contained a MERLA claim. The applicability of these claims to a potential lawsuit against fossil fuel companies for climate change damages is not discussed in this Memorandum but could be subject to further investigation.

I. Applicable Statutes of Limitations for All Claims

The statute of limitations for violations of the consumer protection laws is six years. Minn. Stat. § 541.05(2). Fraud allegations are also subject to a six-year statute of limitations under Minn. Stat. § 541.05(6), which begins upon “discovery by the aggrieved party of the facts constituting the fraud.” The statute of limitations may be suspended for fraudulent concealment if the facts which establish the cause of action are fraudulently concealed. *Hydra-Mac, Inc. v. Onan Corp.*, 450 N.W.2d 913, 918–19 (Minn. 1990). Antitrust claims in Minnesota are subject to a four-year statute of limitations, although “a cause of action for a continuing violation is deemed to arise at any time during the period of the violation.” Minn. Stat. § 325D.64, subd. 1.

For the product liability claims, a four-year statute of limitations applies to strict products liability claims, while a six-year statute of limitations applies to negligence claims. *See* Minn. Stat. § 541.05, subds. 1–2. However, because Minnesota courts have merged negligence and strict products liability theories into one single recovery for design defect and failure to warn claims, it is arguable that the six-year negligence statute of limitations would apply. For example, in *Klempka v. G.D. Searle & Co.* the U.S. Court of Appeals for the Eighth Circuit applied Minnesota law to hold that the statute of limitations was six years for a products liability claim. 63 F.2d 168, 170 (8th Cir. 1992).

For the common law tort claims of strict liability for abnormally dangerous activities, public nuisance, and private nuisance, and trespass, it is likely that a six-year statute of limitations would apply as such claims fall under the general six-year statute of limitations found in Minn. Stat. § 541.05, subd. 1(2). *See e.g., Citizens for a Safe Grant v. Lone Oak Sportsmen’s Club, Inc.*, 624 N.W.2d 796 (Minn. Ct. App. 2001) (six-year limitations period applied to

trespass and nuisance actions brought by neighborhood organization against gun club operating outdoor shooting ranges).

Two elements must be satisfied before a cause of action accrues for any of the common law claims: “(1) a cognizable physical manifestation of the disease or injury, and (2) evidence of a causal connection between the injury or disease and the defendant’s product, act, or omission.” *Narum v. Eli Lilly and Co.*, 914 F. Supp 317, 319 (D. Minn. 1996). Under Minnesota law, “[a] plaintiff who is aware of both her injury and the likely cause of her injury is not permitted to circumvent the statute of limitations by waiting for a more serious injury to develop.” *Klempka v. G.D. Searle & Co.*, 963 F.2d 168, 170 (8th Cir. 1992).

Fossil fuel company defendants may allege that Minnesota’s claims are time barred because the first cognizable physical manifestation of climate change damages occurred longer than six years ago. However, Minnesota also recognizes the continuing violation doctrine. *Brotherhood of Ry. and S.S. Clerks, Freight Handlers & Station Employees v. State by Balfour*, 229 N.W.2d 3, 193 (Minn. 1975). That doctrine holds that when a violation is ongoing, the statute of limitations does not run from the initial wrongful action, but rather begins to run only when the wrong ceases. *N. States Power Co. v. Franklin*, 122 N.W.2d 26, 30-31 (Minn. 1963). For example, in *Hempel v. Creek House Train*, the Minnesota Supreme Court found that the defendant’s continuing negligence tolled the limitations period. *Hempel v. Creek House Tr.*, 743 N.W.2d 305, 312 (Minn. 2007).

While there have been a number of cases where courts applying Minnesota law have found that the continuing violation doctrine did not apply based on the facts of the case, these were not categorical exclusions of the doctrine in Minnesota. *See e.g., Union Pac. R.R. Co. v. Reilly Indus., Inc.*, 4 F. Supp. 2d 860, 867 (D. Minn. 1998) (holding that the continuing wrong

doctrine did not apply because there was no “leakage from storage tanks or basins,” and that any “leakage” ceased before the relevant limitations period expired). Because the fossil fuel companies’ extraction, production, marketing, and sale of fossil fuel products has continued, the continuing violation doctrine would apply, and the claims would not be barred by the statute of limitations.

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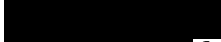
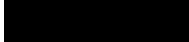

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MEMORANDUM

TO: Keith Ellison
Minnesota Attorney General

FROM: Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School

 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Minnesota Law Class of 2020
 Minnesota Law Class of 2019

DATE: January 31, 2019

RE: Potential Lawsuit against Fossil Fuel Companies for Minnesota Climate Change Damages

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INTRODUCTION

This memorandum sets forth possible claims for damages by the State of Minnesota against major oil, gas, and coal companies for their contribution to climate change-related damages in Minnesota. Such a lawsuit would be likely be filed in Minnesota District Court and would be similar to pending lawsuits that states, counties, and cities in other parts country have filed against the fossil fuel companies for damages. The remaining sections of this Memorandum discuss the status of the climate change damages lawsuits filed to date in other states and the potential claims that could be brought in a Minnesota lawsuit. These include statutory consumer protection and antitrust claims, strict liability design defect and strict liability failure to warn claims, and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

Part I surveys the climate change lawsuits in other states and the Attorneys General who have supported them. Part II evaluates Minnesota law governing consumer protection claims; product liability claims of defective design and failure to warn; and common law tort claims of

public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

The defendants in the lawsuit could include BP, Chevron, ConocoPhillips, Exxon Mobil, Shell, and other oil, gas, and coal companies. These companies extracted, produced, designed, and sold fossil fuel products that emitted massive tons of CO₂ into the atmosphere upon their use. For example, 90 producers of oil, natural gas, coal, and cement are responsible for 63% of cumulative industrial CO₂ and methane emissions worldwide from 1751-2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (NOV. 22, 2013). Just 28 companies are responsible for 25% of all emissions since 1965. *Id.*¹ As CO₂ is a relatively stable compound, most of these molecules will remain in the atmosphere for centuries. The increase in CO₂ emissions resulting from fossil fuel use has contributed to and accelerated the greenhouse effect, causing climate change damages ranging from drought, flooding, change in weather patterns, loss of species biodiversity, sea level rise, and increases in invasive species, with average annual temperatures over the contiguous United States already increasing by 1.8°F since 1895.

The nature of the damages Minnesota could seek to recover in a lawsuit are set forth in detail in the accompanying Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy. These damages are costs the state has already incurred or will incur as a result of climate change caused by fossil fuel companies and include:

- Costs associated with flooding, including costs of damage to state property and costs to mitigate and remediate the flooding related impacts to property and public health;

¹ In the Santa Clara County lawsuit, described in more detail in Part I.A., the plaintiffs sued approximately 40 fossil fuel companies, which the plaintiffs alleged were responsible for 227.6 gigatons of CO₂ emissions between 1965 and 2015, representing 20.3% of total emissions of CO₂ during that period.

- Costs associated with damages to tourism and outdoor recreation, including mitigating climate-related stress to plant and animal species and ecological systems in the state;
- Costs associated with damages to agricultural yields, management and mitigation of crop diseases and crop pests, and costs of adopting to less fertile soils;
- Costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure, increased asthma attacks, and exposure to vector-borne disease as well as mitigation measures and public education programs to reduce the occurrence of these impacts;
- Costs associated with responding to, managing, and repairing damages from climate change to Minnesota forest lands, including impacts on state-run hunting and fishing industries;
- Costs of analyzing and evaluating the impacts of climate change on infrastructure, including transportation, water supply, wastewater treatment, and the power system and the costs of mitigating, adapting to, and remediating those impacts;
- Costs of responding to, managing, and repairing damage to Minnesota fisheries from climate change, including extinction of cool and cold-water fish species and the impacts of the spread of aquatic invasive species; and
- Costs associated with the threats to indigenous communities from disruptions to their livelihoods, health, and cultural identities.

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides a brief history and current status of the recent climate change lawsuits brought by states and local governments against fossil fuel companies seeking damages for climate-change related harms. Other related lawsuits include suits against Exxon Mobil for investor fraud brought by the Attorneys General of New York and Massachusetts, countersuits by Exxon Mobil against those states filed in Texas courts, and public trust and constitutional claims for climate change harm brought by the group “Our Children’s Trust” against the federal government, states, and fossil fuel companies to compel limits on greenhouse gas (“GHG”) emissions. This memorandum will focus solely on the lawsuits by governmental entities seeking damages for climate-change related harms and

will not discuss the other lawsuits noted above. This section will also discuss the positions of Attorneys General around the country in support of or in opposition to the lawsuits for climate change damages.

A. State Law Damages Suits for Climate Change Related Harms

In 2017 and 2018, several government entities across the country (e.g., cities, counties and states) brought lawsuits seeking damages against major fossil fuel companies for climate change-related harm caused by the extraction, promotion, and sale of fossil fuels. The complaints assert state statutory and common law causes of action including public nuisance, private nuisance, trespass, products liability, and consumer protection. A common argument among each plaintiff is that the fossil fuel companies knew or should have known about the hazards associated with the extraction, promotion, and sale of fossil fuels, but the fossil fuel companies obscured the hazards from the public and regulators. A common argument among defendants is that federal court is the proper venue, and that the Clean Air Act displaces the state law claims and thus the lawsuits should be dismissed. All the lawsuits are described in detail at the Sabin Center for Climate Change Law's U.S. Climate Change Litigation Database, available at <http://climatecasechart.com/case-category/common-law-claims/>. For each case, the database has a summary of the case, its current status, and links to all pleadings filed in the lawsuit.

These lawsuits are the second round of lawsuits by governmental entities against fossil fuel companies for climate change-related harm. The first major climate change lawsuits, filed in the early 2000s, sought relief in federal court under federal common law nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. In *Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("AEP"), the U.S. Supreme Court held that the federal Clean Air Act displaced federal common law claims against

defendants for GHG emissions. *See also Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849 (9th Cir. 2012), *cert. denied*, 569 U.S. 1000 (2013). These rulings serve as a backdrop for the recent wave of litigation using state law to hold fossil fuel companies accountable for climate change related harms.

In *AEP*, several states and private land trusts brought federal public nuisance claims against the five largest GHG emitting facilities in the United States. *AEP*, 564 U.S. at 418. Plaintiffs sought an injunction against each defendant “to cap its carbon dioxide emissions and then reduce them by a specified percentage each year for at least a decade.” *Id.* at 419. The Court determined that the Clean Air Act displaced the plaintiffs’ claims because the statute directly authorized the U.S. EPA Administrator to regulate the emission of pollutants from stationary sources. *Id.* at 424 (citing 42 U.S.C. § 7411).

In *Kivalina*, an Alaskan village brought a public nuisance action against several fossil fuel companies and energy producers for sea level rise and erosion due to climate change caused by defendants’ GHG emissions. *Kivalina*, 696 F.3d at 854. In contrast to *AEP*, the plaintiffs in *Kivalina* sought damages rather than an injunction. *Id.* at 857. Relying on *AEP*, the U.S. Court of Appeals for the Ninth Circuit reasoned that the Clean Air Act displaces federal common law claims for harms caused by GHG emissions regardless of the relief sought. *Id.* In response to *AEP* and *Kivalina*, the more recent litigation against fossil fuel companies to recover for climate change damages discussed below has attempted to avoid Clean Air Act displacement by bringing state law claims in state courts, and by focusing on the extraction, promotion, and sale of fossils fuels rather than emissions of GHGs.

1. The California Cases: San Mateo v. Chevron, and California v. BP

Most damages suits utilizing state law claims against fossil fuel companies for climate change harms are in their infancy. In these cases, government plaintiffs seek relief in state court and the defendants attempt to remove the action to federal court. Two cases brought in California state court—*County of San Mateo v. Chevron*, and *California v. BP*—highlight two emerging schools of thought on whether state or federal court is the appropriate venue. The plaintiffs in each case brought similar claims against numerous fossil fuel companies. However, in *County of San Mateo v. Chevron*, Judge Chhabria remanded the case to state court while in *California v. BP*, Judge Alsup denied the request for remand and dismissed the plaintiffs’ claims. Both cases are on appeal to the Ninth Circuit. Notably, both judges sit on the U.S. District for the Northern District of California. In each case, outside counsel for the local governments is Sher Edling LLP in San Francisco.

In *California v. BP*, the cities of San Francisco and Oakland brought state public nuisance claims against BP, Chevron, ConocoPhillips, Exxon Mobil and Shell for damages caused by climate change. Complaint, *California v. BP*, No. 17-561370 (Cal. Super. Ct. Sept. 19, 2017) (referencing the San Francisco Complaint); Complaint, *California v. BP*, No. 17-1785889 (Cal. Super. Ct. Sept. 19, 2017) (referencing the Oakland Complaint). Plaintiffs requested relief in the form of an abatement fund to provide for infrastructure necessary to adapt to global warming impacts such as sea level rise, as well as other relief. Plaintiffs argued the defendants promoted the use of fossil fuels despite being aware that their use would cause severe climate change, and that harms were already being felt and would intensify. Defendants removed the case to federal court and Judge Alsup of the Northern District of California denied the cities’ motion for remand. Judge Alsup held that the suit was “necessarily governed by federal common law” and

that “a patchwork of fifty different answers to the same fundamental global issue would be unworkable.” *California v. BP*, 2018 U.S. Dist. LEXIS 32990, at *5, 10 (N.D. Cal., Feb. 27, 2018).

Plaintiffs then filed an amended complaint, which included a federal public nuisance claim, and defendants moved to dismiss. The Attorneys General of Indiana, Alabama, Arkansas, Colorado, Georgia, Kansas, Louisiana, Nebraska, Oklahoma, Texas, Utah and West Virginia, and Wyoming, as well as the United States of America filed amicus briefs in favor of dismissal. Opposing dismissal, as amici, were the Attorneys General of California, Washington and New Jersey.

The court dismissed all the claims. *City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017, 1019 (N.D. Cal. 2018). The court held that *AEP* and *Kivalina*’s Clean Air Act displacement rule applied even though plaintiffs styled their claims as based on the extraction, production, and sale of fossil fuels rather than emissions. *Id.* at 1024 (“If an oil producer cannot be sued under the federal common law for their own emissions, a fortiori they cannot be sued for someone else’s.”). The court also grounded its holding in the doctrine of separation of powers and judicial restraint, finding that:

questions of how to appropriately balance these worldwide negatives against the worldwide positives of the energy itself, and of how to allocate the pluses and minuses among the nations of the world, demand the expertise of our environmental agencies, our diplomats, our Executive, and at least the Senate. Nuisance suits in various United States judicial districts regarding conduct worldwide are far less likely to solve the problem and, indeed, could interfere with reaching a worldwide consensus.

Id. at 1024–1026. Plaintiffs’ appeal to the Ninth Circuit is pending.

In a separate action in California, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed similar suits in California Superior Court against

numerous fossil fuel companies. *See e.g.*, Complaint, *County of San Mateo v. Chevron Corp.*, No. 17CIV03222 (Cal. Super. Ct. July 17, 2017). However, in addition to public nuisance, the plaintiffs also claimed strict liability for failure to warn, strict liability for design defect, private nuisance, negligence, negligent failure to warn, and trespass. Plaintiffs alleged that the fossil fuel companies’ “production, promotion, marketing, and use of fossil fuel products, simultaneous concealment of the known hazards of those products, and their championing of anti-regulation and anti-science campaigns, actively and proximately caused” injuries to plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. Among other relief, Plaintiffs requested compensatory and punitive damages, and abatement of nuisances. Defendants removed the actions to federal court, and the three actions were then consolidated into one action.

Judge Chhabria of the U.S. District Court for the Northern District of California remanded the case to state court. Judge Chhabria expressly disagreed with Judge Alsup’s ruling in the San Francisco and Oakland suit. Judge Chhabria held that “[b]ecause federal common law does not govern the plaintiffs’ claims, it also does not preclude them from asserting the state law claims in these lawsuits. Simply put, *these cases should not have been removed to federal court on the basis of federal common law that no longer exists.*” *Id.* at 2 (emphasis added). The defendants appealed the remand order to the Ninth Circuit. The Ninth Circuit then consolidated the three remand actions brought by the County of San Mateo, County of Marin, City of Imperial Beach, as well as others stemming from similar suits brought by the County of Santa Cruz, City of Santa Cruz, and City of Richmond. Order, *Cty. of San Mateo v. Chevron Corp.*, No. 18-15499 (9th Cir. 2018). In November 2018, the U.S. Chamber of Commerce filed an amicus brief in opposition to the remand order. Briefing is ongoing in the Ninth Circuit.

2. *Rhode Island v. Chevron*

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling LLP as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court. The parties are awaiting the federal court's remand decision. Like the California cases, Rhode Island seeks to hold numerous fossil fuel companies liable for current and future injuries to state owned or operated facilities and property as well as for other harms. Complaint, *State of Rhode Island v. Chevron Corp.*, No. PC-2018-4716 (R.I. Super. Ct. 2018). Rhode Island seeks, among other relief, compensatory and punitive damages, and abatement of nuisances under state law claims for public nuisance, strict liability for failure to warn, strict liability for design defect, negligent design defect, negligent failure to warn, trespass, impairment of public trust resources and state Environmental Rights Act—Equitable Relief Action. To date, this is the only climate change damage lawsuit brought by a State Attorney General as opposed to a city or county.

3. *Baltimore v. BP*

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought a claim in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and the California suits, Baltimore alleged that through the defendants' production, promotion and marketing of fossil fuels, defendants concealed the hazards of their products and disseminated information intended to mislead consumers, customers, and regulators regarding the known and foreseeable risks of climate change caused by their products. Complaint at 116, *Mayor and City Council of Baltimore v. BP*, No. 24-C-18-004219 (Md. Cir. Ct. 2018). Alleged damages include more severe and frequent storms and floods, increased sea level, heat waves, droughts, and harms to public health. Baltimore is seeking compensatory and punitive

damages, and equitable relief among other remedies for public nuisance, private nuisance, strict liability failure to warn, strict liability design defect, negligent, design defect, negligent failure to warn, trespass, and violations of Maryland's Consumer Protection Act. The defendants removed the case to federal court and Baltimore has moved for remand.

4. *King County v. Chevron*

In May 2018, King County in Washington, with outside counsel from Hagens Berman LLP, filed a similar suit for public nuisance and trespass in Washington state court against numerous fossil fuel companies. Complaint at ii, *King Cty. v. BP*, 2:18-cv-00758-RSL (Wash. Super. Ct. 2018). Plaintiffs sought compensatory damages and the establishment of an abatement fund to pay for a climate change adaptation program. Defendants removed the case to federal court and moved for dismissal. Plaintiff moved for and was granted a stay until the Ninth Circuit issues a decision in *City of Oakland v. BP*. The stay is currently in place.

5. *Pacific Coast Federation of Fishermen's Association v. Chevron*

In November 2018, a fishing industry trade group represented by Sher Edling LLP filed a climate change damage suit against the fossil fuel companies in California state court. The trade group is relying on California state nuisance and products liability law to hold the defendants liable for closures to crab fisheries caused by climate change. *Pacific Coast Federation of Fishermen's Association v. Chevron Corp.*, No. CGC-18-571285 (Cal. Super. Ct. 2018). Specifically, Plaintiffs assert that warming ocean temperatures caused by climate change has led to an increase in a plankton species, *Pseudo-nitzschia*, responsible for causing "amnesic shellfish poisoning" through the release of the toxin domoic acid. Plaintiffs seek compensatory and punitive damages and equitable relief. In December 2018, defendants filed a notice of removal.

6. *Boulder County v. Suncor Energy*

In April 2018, three Colorado local government entities—the City of Boulder and the Counties of Boulder and San Miguel—filed suit against fossil fuel companies seeking damages and other relief for the companies’ role in causing climate change. Outside counsel includes Hannon Law Firm LLP, EarthRights International, and the Niskanen Center, a libertarian think tank. Plaintiffs brought claims under public and private nuisance, trespass, the Colorado Consumer Protection Act, and civil conspiracy. In an effort to avoid federal jurisdiction and *AEP*-like displacement, Plaintiffs’ complaint stated:

[Plaintiffs] do not seek to impose liability, restrain or interfere with Defendants ability to participate in public debates about climate change, or otherwise interfere with Defendants’ speech. . . [and] do not seek to enjoin any oil and gas operations or sales in the State of Colorado, or elsewhere, or to enforce emissions controls of any kind. Plaintiffs do not seek damages or abatement relief for injuries to or occurring on federal lands. Plaintiffs do not seek damages or any relief based on any activity by Defendants that could be considered lobbying or petitioning of federal, state or local governments.

Complaint at 123, *Cty. of Boulder v. Suncor Energy Inc.*, No. 2018CV030349 (Colo. D. Ct. 2018). Defendants removed to federal court. Plaintiffs moved to remand. That motion is pending.

7. *City of New York v. BP*

In January 2018, New York City filed suit for damages and equitable relief in federal court against fossil fuel companies asserting public nuisance, private nuisance, and trespass claims under New York State law against fossil fuel companies. Complaint at i, 63. *City of New York v. BP*, No. 1:18-cv-00182-JFK (S.D.N.Y. 2018). In contrast to the suits discussed above, New York filed in federal court rather than in state court. Outside counsel includes Hagen Berman LLP and Seeger Weiss LLP. The Niskanen Center filed an amicus brief in support of New York City. In support of Defendants, fifteen states led by Indiana filed an amicus brief in favor of dismissal. The court dismissed, and New York City appealed. On appeal to the U.S.

Court of Appeals for the Second Circuit, Attorneys General of New York, California, Maryland, New Jersey, Oregon, Rhode Island, Vermont, Washington, and the District of Columbia have filed an amicus brief in support of New York. Other amicus briefs in support of New York include ones from law professors, environmental justice groups, and the National League of Cities. Briefing is ongoing.

B. State Attorneys General Supporting Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of plaintiffs bringing damages claims for climate change-related harms to state resources and infrastructure. For example, in *New York City v. BP* Attorneys General Underwood (NY), Becerra (CA), Kilmartin (RI), Frosh (MD), Donovan (VT), Grewal (NJ), Ferguson (WA), Rosenblum (OR), and Racine (D.C.) signed an amicus in support of New York City's claim. In support of the fossil fuel companies were Attorneys General Fisher (IL), Hill (IN), Marshall (AL), Rutledge (AR), Coffman (CO), Carr (GA), Schmidt (KS), Landry (LA), Peterson (NE), Hunter (OK), Wilson (SC), Paxton (TX), Reyes (UT), Morrissey (WV), Schimel (WS), and Michael (WY). In *Oakland v. Chevron*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA) supported the plaintiffs. In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP*. Additionally, several other Attorneys General are likely or potentially supportive of actions against fossil fuel companies for climate change-related harms based on recent campaign statements. They include Letitia James (NY), Josh Shapiro (PA), Josh Kaul (WI), Dana Nessel (MI), Phil Weiser (CO), Josh Stine (NC), and Kwame Raoul (IL).

II. Potential Claims Against Fossil Fuel Companies Under Minnesota Law

This Part discusses potential claims the Minnesota Attorney General could bring against fossil fuel companies for climate change-related damages in Minnesota. These claims build off the claims in the existing lawsuits discussed in Part I. The claims discussed below are: (1) consumer protection claims, including the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”), the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”), and antitrust claims under Minn. Stat. §§ 325D.49-325D.66; (2) product liability claims, including design defect and failure to warn; and (3) common law tort claims, including public nuisance, private nuisance, trespass and strict liability for abnormally dangerous activities. This Part also discusses the statutes of limitations potentially applicable to these claims.

A. Consumer Protection Claims

Two of the existing climate change lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations. The Colorado plaintiffs also allege conspiracy claims. Both cases were removed to federal court and motions to remand are pending. The complaints in these cases and the possibility of similar claims under Minnesota law are discussed below.

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”) and the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”). Minnesota and Blue Cross Blue Shield used these laws to sue the tobacco companies in the 1990s, leading to a \$6.6 billion settlement in 1998.

The Minnesota Supreme Court has “cited its prior statements that the CFA should be liberally construed in favor of protecting consumers and that the CFA reflected ‘a clear legislative policy encouraging aggressive prosecution of statutory violations.’” Prentiss Cox, *Goliath Has The Slingshot: Public Benefit And Private Enforcement Of Minnesota Consumer Protection Laws*, 33 WM. MITCHELL L. REV. 163, 178 (2006) (citing *Ly v. Nystrom*, 602 N.W.2d 644, 308 (Minn. Ct. App. 1999) (citing *State v. Philip Morris, Inc.*, 551 N.W.2d 490, 495-96 (Minn. 1996)). See also Gary L. Wilson & Jason A. Gillmer, *Minnesota’s Tobacco Case: Recovering Damages Without Individual Proof of Reliance Under Minnesota’s Consumer Protection Statutes*, 25 WM. MITCHELL L. REV. 567, 590 (1999) (“Minnesota consumer protection statutes present one example in which the legislature has made a policy decision to make it easier to sue for a consumer protection violation than it would be under the common law. The legislature did so by relaxing the requirement of causation. . .”).

The Attorney General has express responsibility to “investigate offenses” and “assist in enforcement” of the CFA, UTPA, and the FSAA in Minn. Stat. § 8.31, subd. 1. Subdivision 3(a) of § 8.31 gives clear authority to the Attorney General to seek damages and equitable remedies for CFA, UTPA and FSAA violations, providing that “[i]n any action brought by the attorney general pursuant to this section, the court may award any of the remedies allowable under this subdivision,” which include “damages . . . costs and disbursements, including costs of investigation and reasonable attorney’s fees, and . . . other equitable relief.” Minn. Stat. § 8.31(3)(a).

The CFA forbids “[t]he act, use, or employment by any person of any fraud, false pretense, false promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any

person has in fact been misled, deceived, or damaged thereby. . .” Minn. Stat. § 325F.69, subd. 1. The UTPA provides that “[n]o person shall, in connection with the sale of merchandise, knowingly misrepresent, directly or indirectly, the true quality, ingredients or origin of such merchandise.” Minn. Stat. § 325D.13. The FSAA prohibits a broad range of advertising and other activities designed to “increase the consumption” of merchandise that “contain[] any material assertion, representation, or statement of fact which is untrue, deceptive, or misleading . . .” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.²

Any claims under Minnesota consumer protection statutes for climate change-related damages should be brought by the Attorney General as a direct action on behalf of the state, rather than a subrogation action on behalf of state citizens. *See State v. Minnesota School of Business, Inc.*, 915 N.W.2d 903, 910 (2018) (denying restitution to individuals that did not testify at trial). In actions seeking damages, the Minnesota Supreme Court held that Minn. Stat. § 8.31, subd. 3(a) demands:

[T]hat there must be some “legal nexus” between the injury and the defendants’ wrongful conduct. . . where the plaintiffs’ damages are alleged to be caused by a lengthy course of prohibited conduct that affected a large number of consumers, the showing of reliance that must be made to prove a causal nexus need not include direct evidence of reliance by individual consumers of defendants’ products. Rather, the causal nexus and its reliance component may be established by other direct or circumstantial evidence. . .

Grp. Health Plan, Inc. v. Philip Morris Inc., 621 N.W.2d 2, 15 (Minn. 2001).

The Minnesota tobacco case was a direct action in which the state and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare

² The UDTPA is not expressly mentioned in Minn. Stat. § 8.31, so “[t]here is a question whether damages are available for violations.” Wilson & Gillmer, *supra* at 588. The court did not allow a UDTPA action for damages in the tobacco litigation; however, some argue that damages may be available pursuant to § 8.31(3)(a). *Id.* at 588-589.

providers. Wilson & Gillmer, *supra* at 570-576. While specific individual reliance was not required, at least six types of evidence made effective “legal nexus” causation arguments: (1) evidence of the defendants’ intentional misconduct, (2) addiction of the defendants’ customers; (3) the defendants’ exploitation of smokers; (4) the defendants’ reassurance of smokers through advertising; (5) the defendants’ youth marketing strategies; and (6) the defendants’ intent that their conduct be relied upon. Wilson & Gillmer, *supra* at 608-624.

Based on the publicly available information, there is a wealth of similar facts the Attorney General can rely on in a case against the fossil fuel companies for climate change damages. As with the tobacco companies, the fossil fuel companies intentionally deceived Minnesota, other states, and the public about the long-term risks of continued fossil fuel use through advertisements, public statements, and funded research. Much of this disinformation campaign has come to light only recently.

There is also evidence that the fossil fuel companies have encouraged a public “addiction” to oil and created hostility toward cleaner fuels. These actions are similar to the tobacco companies’ efforts to increase individuals’ nicotine intake—despite their ability to lower nicotine content. *See id.* at 613-616 (“The tobacco industry has the technological capability of removing most of the nicotine from cigarettes. However, evidence suggests the tobacco industry maintains nicotine at certain levels because the companies know that nicotine is the addictive substance. . .”) (citation omitted); *see also* Peter Teigland, *Petroleum Refining in Minnesota*, NORTH STAR POLICY INST. (May 10, 2018) (explaining that much of the oil flowing into and through Minnesota comes from the Bakken shale and Canadian tar sands).

The plaintiffs in both the Maryland and Colorado lawsuits allege that developing “dirtier” sources of fuel shows oil companies’ blatant disregard of climate data. *See, e.g.*, Colorado

Complaint ¶ 384 (“Moreover, and despite its knowledge of the grave threats fossil fuels pose to the climate as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to the concentration of atmospheric CO₂.”) In addition, evidence of the industry’s significant spending on advertising and correlating sales may be used to show causation by establishing the companies’ intention that their publications be relied on by consumers. *Wilson & Gillmer, supra* at 601, 617 (“Even without a showing of intentional conduct, vast promotional expenditures give rise to a presumption that consumers have been deceived . . . The industry conceded that success in the marketplace is evidence of consumer reliance on the industry’s words and actions.”).

The Attorney General may also bring antitrust claims against the fossil fuel companies, similar to the claims in the Colorado lawsuit. The prohibitions in the Minnesota Antitrust Law of 1971, Minn. Stat. §§ 325D.49-325D.66, include conspiracy and seeking/exercising monopoly power. According to the Minnesota Supreme Court, “Minnesota antitrust law is generally interpreted consistently with federal antitrust law.” Brent A. Olson, *MINN. PRAC., BUSINESS LAW DESKBOOK* § 22A:1 (2018) (citation omitted). As such, “antitrust claims are *not* subject to a heightened standard of specificity in pleading . . .” *In re Milk Indirect Purchaser Antitrust Litig.*, 588 N.W.2d 772, 775 (Minn. Ct. App. 1999). The court may assess significant penalties: “Any person, any governmental body. . . injured directly or indirectly by a violation of sections 325D.49 to 325D.66, shall recover three times the actual damages sustained . . .” Minn. Stat. § 325D.57. The Attorney General has express authority to investigate and commence appropriate legal action seeking damages for violation of the statutory provisions. Minn. Stat. § 325D.59.

B. Products Liability Design Defect

Six lawsuits filed in state courts against fossil fuel companies for their products' contribution to climate change damages have alleged design defect and failure to warn claims arising under state common law. *See Mayor & City Council of Baltimore v. B.P.*, 24-C-18-004219 (Md. Cir. Ct. 2018); *Rhode Island v. Chevron Corp.*, PC-2018-4716 (R.I. Super. Ct. 2018); *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). All of these lawsuits allege both negligent design defect and failure to warn and strict liability design defect and failure to warn. *Id.* Minnesota could allege similar products liability claims against fossil fuel companies related to their extraction, production, marketing, and sale of fossil fuel products.

Minnesota adopted strict liability in tort for products liability cases in 1967. *See McCormack v. Hanksraft Co.*, 154 N.W.2d 488 (Minn. 1967). The Minnesota Supreme Court found that public policy necessitated protecting consumers from the risk of harm that arose from "mass production and complex marketing." *Id.* at 500. Adopting the strict liability theory, manufacturers are liable for the cost of injuries that result from their defective product regardless of negligence or privity of contract. *Id.* In *McCormack*, the Court reasoned that strict liability should apply as the makers of the product are in the best position to "most effectively reduce or eliminate the hazard to life and health, and absorb and pass on such costs [to consumers]." *Id.*

Since *McCormack* products liability law has expanded in Minnesota to cover three different theories of defective products: (1) manufacturing defects that arise from flaws in the

way the product was made; (2) design defects that result from an unreasonably safe product design; and (3) failure to warn of reasonably foreseeable dangers from a products use. *See* Rest. (Third) of Torts: Products Liability § 2 (1998). As products liability law in Minnesota continued to evolve, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrook v. Marshalltown Mfg. Co.*, 473 N.W.2d 352 (Minn. Ct. App. 1991) (“*Bilotta* merged strict liability, negligence, and implied warranty remedies into a single products liability theory.”) (referencing *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 623 (Minn. 1984)); *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (“Toyota correctly notes that [in Minnesota] in the product liability context, strict liability and negligence theories merge into one unified theory, sharing the same elements and burden of proof.”).

Of the three products liability claims alleged in the other lawsuits against the fossil fuel companies, only design defect and failure to warn claims would apply in Minnesota. Manufacturing defect claims cover faulty or defective products that arise despite a reasonably safe design—e.g., defects that may occur to a discrete number of products during the manufacturing process. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases looks at the condition of the product and compare any defects found with the flawless product). In contrast, all fossil fuel products on the market result in a dangerous condition—increased CO₂ emissions/climate change—*because* of the products unreasonably safe design. *See id.* (in a design defect case the “defect” lies in the consciously chosen design and the product is in the condition intended by the manufacturer).

1. Design defect

In Minnesota, a manufacturer has a nondelegable duty to design a reasonably safe product. *Bilotta*, 346 N.W.2d 616; *see also Schweich v. Ziegler, Inc.*, 463 N.W.2d 722, 731

(Minn. 1990) (“Caterpillar is duty bound to use reasonable care in designing the DH6 to protect users from unreasonable risk of harm while using it in a foreseeable manner.”). If a manufacturer breaches this duty and the defect proximately causes the plaintiff’s injury, it is liable in tort under a design defect theory. *Farr v. Armstrong Rubber Co.*, 288 Minn. 83, 90 (Minn. 1970). Therefore, to recover against a manufacturer for a design defect a plaintiff must show that: “(1) a product was in a defective condition unreasonably dangerous for its intended use; (2) the defect existed at the time the product left the defendant’s control; and (3) the defect proximately caused the plaintiff’s injury.” *Duxbury v. Spex Feeds, Inc.*, 681 N.W.2d 380, 393 (Minn. Ct. App. 2004). *See also Adams v. Toyota Motor Corp.*, 867 F.3d 902, 916–17 (8th Cir. 2017) (applying Minnesota law).

Unreasonably dangerous condition: To determine whether the design of a product is unreasonably dangerous, Minnesota courts employ the reasonable care balancing test adopted from Florida and New York courts in *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 624 (Minn. 1984). This test looks at the totality of circumstances including: “a balancing of the likelihood of harm, and the gravity of harm if it happens, against the burden of the precaution which would be effective to avoid the harm.” *Id.* It is an objective standard that “focuses on the conduct of the manufacturer in evaluating whether its choice of design struck an acceptable balance among several competing factors.” *Id.* at 622. Often considered by courts and juries employing the reasonable care balancing test is whether or not there existed, or the plaintiff can prove, a practical alternative design. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 96 (Minn. 1987) (holding that existence of a practical alternative design is a factor, but not an element of a *prima facie* case, in design defect claims).

Fossil fuel products were, and continue to be, in a defective condition unreasonably dangerous for their intended use. The emission of GHGs resulting from the use of fossil fuel products causes severe and grave harms in the form of global warming, increased severity of dangerous weather patterns, rising sea level, increased drought, increased weather patterns, serious public health concerns particularly to low income and minority communities, and overall climate change damages. The fossil fuel companies were well aware of the gravity of this harm, as well as the extremely high likelihood that this harm would occur from their continued extraction, production, use, and marketing of fossil fuel products as early as 1965. This is particularly true in light of generally accepted scientific knowledge that unfettered anthropogenic GHG emissions would result in catastrophic impacts. The burden of precaution necessary to avoid the harms was significantly lower when the companies first became aware of the risk their fossil fuel products posed and has only grown since.

Defect existed at the time it left defendants' control: The second element of a design defect claim is that “the defect existed at the time the product left the defendant’s control” *Duxbury*, 681 N.W.2d at 393. GHGs emitted from the combustion/use of fossil fuel products exists at the time they are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, individual and aggregate fossil fuel products reached the consumer in a condition substantially unchanged from that in which it left the companies’ control—and “were used in the manner in which they were intended to be used . . . by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.” Complaint at ¶ 212, *PCFFA v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018). Therefore, the defect existed at the time fossil fuel products left the fossil fuel companies’ control.

Defect proximately caused the plaintiff's injury: Finally, the plaintiff must prove that the design defect proximately caused the plaintiff's injury. *Duxbury*, 681 N.W.2d at 393. "Proximate cause exists if the defendant's conduct, without intervening or superseding events, was a substantial factor in creating the harm." *Thompson v. Hirano Tecseed Co., Ltd.*, 456 F.3d 805, 812 (8th Cir. 2006) (applying Minnesota law). A substantial factor has also been described as a "material element" in the happening of the injury. *Draxton v. Katzmarek*, 280 N.W. 288, 289 (Minn. 1938).

But-for causation is still necessary for a substantial factor causation analysis, because "if the harm would have occurred even without the negligent act, the act could not have been a substantial factor in bringing about the harm." *George v. Estate of Baker*, 724 N.W.2d 1, 11 (Minn. 2006) (citing Rest. (Second) of Torts § 432 (1965)). However, if there are concurring acts that together cause the plaintiff's injury and act contemporaneously, or so nearly together that there is no break in the chain of causation, this is sufficient to meet the causation analysis even if the injury would not have resulted in the absence of either one. *Roemer v. Martin*, 440 N.W.2d 122, 123, n.1 (Minn. 1989). If there are concurrent acts of negligence, both parties are liable for the whole unless the resulting damage is "clearly separable." *See Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970). Before a particular factor can be said to be a concurrent cause, it must, first of all, be established that it is a cause. *Roemer*, 440 N.W.2d at 123.

The fossil fuel companies' extraction, production, refining, marketing, and sale of fossil fuels was and will continue to be a substantial factor in creating Minnesota's harm from climate change. Ninety producers of oil and gas are responsible for 63% of the cumulative industrial CO₂ and methane emissions worldwide between 1751 and 2010. Rich Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122

CLIMATIC CHANGE 229 (Nov. 22, 2013). Abundant scientific studies and reports link these anthropogenic GHG emissions to climate change and its damages.

California has similarly adopted the substantial factor test to determine proximate causation. *People v. Atlantic Richfield Co.*, 2013 WL 6687953, at *16 (Cal. Super. Ct. 2013) (“Under this test, independent tortfeasors are liable so long as their conduct was a “substantial factor” in bringing about the injury.”), *aff’d sub nom. People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51 (Cal. Ct. App. 2017). However, it is important to note that California’s substantial factor test appears to be broader than Minnesota’s, requiring the defendant’s conduct to only be “a very minor force” to find it was a substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102. Despite this, *People v. Atlantic Richfield Co.*, still provides a useful analogy for determining whether multiple manufacturers of a product were each a “substantial factor” in creating the plaintiff’s injury and may act as persuasive authority in Minnesota. 2013 WL 6687963 at *1, *aff’d sub nom. ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 169 (affirming holding of liability against lead paint manufacturers but limiting scope of abatement remedy to pre-1951 homes).

In *Atlantic Richfield Co.*, counties in California brought a public nuisance action against five lead paint manufacturers seeking abatement of the public nuisance created by the lead paint manufactured and sold by defendants in ten jurisdictions in California. Three of the paint manufacturers, ConAgra, NL Industries, and Sherwin Williams, were found to have created or assisted in the creation of the public nuisance and, as a result, the Court held their conduct was a substantial factor in bringing about the public nuisance. *Id.* at *54.

ConAgra was a large producer and supplier of lead, operated to a major degree within the jurisdictions that brought suit, and continued to sell lead paint until 1958 and therefore the Court

found their conduct was a substantial factor in creating the public nuisance. *Id.* at *52. NL Industries (formerly known as National Lead Company) was the largest manufacturer, promoter, and seller of lead pigments for use in house paint and was an active participant in campaigns to promote lead paint. Based on this, the Court found NL to be a substantial factor in causing the public nuisance. *Id.* at *53. Finally, Sherwin Williams’ conduct was found to have been a substantial factor in the public nuisance despite testimony offered by SW’s expert witness Dr. Van Liere who estimated that Sherwin William’s lead paint contributed a mere 0.1% of the total lead consumed in California from 1894 to 2009. *Id.* at *39. This was because the company had two plants, stores, and dealers selling lead paint within the jurisdictions bringing suit and it transported millions of pounds of lead paints to its warehouses and factories during the first four decades of the 20th century. *Id.* at *53.

The California Court of Appeals upheld the trial court findings, further emphasizing that all three defendants’ marketing campaigns promoting lead paint as safe for use in residential homes and on doors and windows frames played at least a *minor* role in creating the public nuisance and therefore met the “substantial factor” test. *People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51, 102–03 (Cal. Ct. App. 2017). Minnesota can use the California courts’ reasoning to establish that each individual fossil fuel company named as defendant was a substantial factor in causing Minnesota’s climate damages.

Lastly, not only must the design defect be a substantial factor, or material element, in bringing about plaintiff’s injuries—there cannot be a “superseding” event that breaks the causal chain between the defendants’ conduct and the plaintiff’s injury:

A cause is “superseding” if four elements are established: (1) Its harmful effects must have occurred after the original negligence; (2) it must not have been brought about by the original negligence; (3) it must actively work to bring about

a result which would not otherwise have followed from the original negligence; and (4) it must not have been reasonably foreseeable by the original wrongdoer.

Regan v. Stromberg, 285 N.W.2d 97, 100 (Minn. 1979). There were no intervening or superseding events that caused Minnesota’s climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between the fossil fuel companies’ conduct and Minnesota’s injuries and damages, or superseded the fossil fuel companies’ breach of its duty to design a reasonable safe product.

2. *Joint and several liability and market share liability*

Notably, although an individual oil or gas company may claim that its extraction, production, and sale of fossil fuel products was not a substantial factor or the “but-for” cause of Minnesota’s climate change damages, Minnesota can rely on two liability structures to overcome the causation burden: concurring causes and the indivisible injury rule which impose joint and several liability and market share liability.

In general, parties whose negligence concurs to cause an indivisible injury are jointly and severally liable, even if not acting in concert. *Maday v. Yellow Taxi Co.*, 311 N.W.2d 849 (Minn. 1981); *see also Rowe v. Munye*, 702 N.W.2d 729, 736 (Minn. 2005) (“[M]ultiple defendants are jointly and severally liable when they, through independent consecutive acts of negligence closely related in time, cause indivisible injuries to the plaintiff.”). A harm is indivisible if “it is not reasonably possible to make a division of the damage caused by the separate acts of negligence.” *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970) (quotation omitted). When two or more persons are jointly liable, contributions to awards shall be in proportion to the percentage of fault attributable to each, except that each is jointly and severally liable for the whole award. Minn. Stat. § 604.02, subd. 1 (2018). However, a plaintiff would still be required

to show that each defendant's conduct was a substantial factor in causing its harming. *Jenson v. Eveleth Taconite Co.*, 130 F.3d 1287, 1294 (8th Cir. 1997).

At least four other state lawsuits have alleged fossil fuel companies' acts and omissions were indivisible causes to the plaintiffs' injuries and damages because it is not possible to determine the source of any particular GHG molecule from anthropogenic sources. *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). Joint and several liability would also apply in a lawsuit against fossil fuel companies for damages resulting from climate change in Minnesota. Minnesota is experiencing a single indivisible injury caused by multiple fossil fuel companies' independent consecutive actions closely related in time. *See Jenson*, 130 F.3d at 1305 n.9 (explaining how the single indivisible injury rule imposes joint and several liability). Because Minnesota's harm is indivisible, each fossil fuel company would be liable for the entire harm. *Id.*

If the fossil fuel companies argue that Minnesota's harms are divisible, they each may be able to limit their liability. However, the defendant asserting divisibility bears the burden of proving apportionment. *See e.g., Jenson*, 130 F.3d at 1294 (explaining that "plaintiffs bear no burden to prove apportionment" because apportionment is akin to an affirmative defense). Fossil fuel companies could attempt to prove apportionment based on the amount of GHG their fossil fuel products emitted.

People of the State of California v. Atlantic Richfield Co. once again provides reference for how oil and gas companies may be jointly and severally liable and can act as persuasive

authority in Minnesota's courts. 2013 WL 6687953, 44 (Cal. Super. Ct. 2013). Under California law, when multiple tortfeasors are each a substantial factor in creating a public nuisance, they are jointly and severally liable for that nuisance. *Id.* at * 44 (quoting *Am. Motorcycle Assn v. Superior Court*, 20 Cal. 3d 578, 586 (1978)). Similar to Minnesota, if the injury is indivisible each actor whose conduct was a substantial factor in causing the damages is legally responsible for the whole. *Id.* California has found that this joint and several liability theory applies when multiple sources of contamination result in a single nuisance. *Id.* (quoting *State v. Allstate Ins. Co.*, 45 Cal. 4th 1008, 1036 (2009)). Because of this, the California Superior Court found that the three lead paint manufacturers who were found to be substantial factors in causing the public nuisance were all jointly and severally liable. *Id.* A similar theory of recovery could be used in Minnesota against fossil fuel companies applying Minnesota's version of concurrent harms, the invisible harm rule, and joint and several liability.

Finally, the market share liability theory allows a plaintiff to recover damages against defendants based on their proportion of the market share at the time the injury was caused if the defendants all produced an identical, or fungible product, and the plaintiff is unable to identify which manufacturer produced the product that caused their injuries. *See Sindell v. Abbott Labs.*, 607 P.2d 924 (Cal. 1980) (establishing market share liability theory and apportioning liability based on the relative market share of each of the liable defendants). The Minnesota Supreme Court has not explicitly accepted or rejected the market share liability theory. *See Bixler v. J.C. Penney Co.*, 376 N.W.2d 209, 214 n.1 (Minn. 1985) ("We express no opinion as to whether we would adopt such a rule [market share liability], particularly where the product involved is not entirely fungible with similar products on the market."). Because the Minnesota Supreme Court

has not categorically ruled out the market share liability theory, it is possible that under the right set of facts, that theory of recovery may be available.

Minnesota can allege a market share liability theory if it is unable to prove which fossil fuel company caused its injuries because each fossil fuel company's products are fungible with regard to their GHG emissions. The Wisconsin Supreme Court adopted a version of the market share liability theory known as the "risk contribution theory" in *Collins v. Eli Lilly Co.*, the state's first DES case. 342 N.W.2d 37, 49 (Wis. 1984). In *Collins*, the Wisconsin Supreme Court recognized that the plaintiff would face an insurmountable obstacle if she had to prove which defendant manufactured the DES that her mother ingested based on the lack of records and pharmaceutical practices at that time. *Id.* at 44–45. Despite this, the Court found that Collins was entitled to a remedy at law for her injuries under the Wisconsin Constitution and therefore took the task of fashioning an adequate remedy. *See Id.* at 45 ("When an adequate remedy or forum does not exist to resolve disputes or provide due process, the courts, under the Wisconsin Constitution, can fashion an adequate remedy."). Compare WIS. CONST. art. 1, § 9 ("Every person is entitled to a certain remedy in the laws for all injuries, or wrongs which he may receive in his person, property, or character.") with MINN. CONST. art. 1, § 8 ("Every person is entitled to a certain remedy in the laws for all injuries or wrongs which he may receive to his person, property or character . . .").

In *Collins*, the Wisconsin Supreme Court held that for cases seeking recovery for harms associated with DES, and situations factually similar to DES cases, "the plaintiff need only allege and prove that the defendant drug company produced or marketed the drug DES for use in preventing miscarriages during pregnancy." *Id.* at 50. In order to protect defendant drug companies that could not have contributed to Collins injury, the Court held that a defendant

could escape liability if it could prove by a preponderance of evidence that the DES it produced or marketed could not have reached the plaintiffs mother. *Id.* at 197–98. The defendants could apportion liability using the comparative negligence theory, with the jury determining each company’s liability based on a number of factors including whether the company tested DES for safety, sought FDA approval, issued warnings about DES, produced or marketed DES after it knew of possible risks, and whether it took affirmative steps to reduce risk of injury to public. *Id.* at 199–200.

The Wisconsin Supreme Court later extended the risk contribution theory to a plaintiff who suffered lead poisoning but could not identify the paint manufacturer that had caused his injury. *See Thomas v. Mallet*, 285 Wis. 2d 236, 256 (Wis. 2005). Because many victims of lead poisoning would be denied an adequate remedy for harm, and Thomas’ case was factually similar enough to *Collins*, the Wisconsin Supreme Court agreed that the *Collins* risk-contribution theory should be extended to white lead carbonate claims. *Id.* at 293, 306 (explaining that lead poisoning plaintiffs are severely harmed by a substance they had no control over without an ability to prove with certainty which manufacturer produced or promoted the white lead carbonate that caused the injury).

In sum, both California’s market share liability theory or Wisconsin’s risk-contribution theory provide viable theories of recovery in Minnesota courts against fossil fuel companies for climate change harm in Minnesota. Fossil fuel companies’ actions and the damages in Minnesota stemming from the use of their products closely resemble the factual circumstances of cases involving DES and lead paint. Fossil fuel products are fungible, the fossil fuel companies breached a legally recognized duty by failing to design their products in a reasonably safe manner, fossil fuel companies continued to market and produce their products despite knowledge

of this danger, and the use of these fossil fuel products caused Minnesota's injuries. Moreover, in the case of fossil fuel companies, there is significant data on the percentage of GHG emissions related to each fossil fuel company's extraction, production, refining, and sales, making this arguably a stronger case for market share liability or risk-contribution theory than either the DES or lead paint cases.

C. Products Liability Failure to Warn

In Minnesota “[g]enerally stated, a failure to warn claim has three elements: ‘(1) whether there exists a duty to warn about the risk in question; (2) whether the warning given was inadequate; and (3) whether the lack of a warning was a cause of plaintiff’s injuries.’” *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (quoting *Seefeld v. Crown, Cork & Seal Co., Inc.*, 779 F. Supp. 461, 464 (D. Minn.1991)).

Duty to warn: The first element of a failure to warn claim is whether or not a duty exists. “The duty to warn arises when a manufacturer knew or should have known about an alleged defect or danger, and should have reasonably foreseen that the defect or danger would cause injury.” *Id.* (citing *Seefeld*, 779 F. Supp. at 464; *Harmon Contract Glazing, Inc. v. Libby–Owens–Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). The duty extends to all reasonably foreseeable users. *Whiteford v. Yamaha Motor Corp.*, 582 N.W.2d 916, 918 n.6 (Minn. 1998). The knowledge of an alleged defect or danger can be either actual or constructive. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987) (allowing recovery where the plaintiff either knew of the danger or *should* have known). Because a manufacturer has duty to keep informed of all current scientific knowledge, courts in Minnesota will look to current/past scientific knowledge to help determine whether a manufacturer *should* have known of the risks

in its products. *Harmon Contract Glazing, Inc. v. Libby-Owens Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992).

Fossil fuel companies had both actual and constructive knowledge, particularly in light of scientific knowledge generally accepted at the time, that their fossil fuel products were dangerous due to their emissions of GHGs. It was also reasonably foreseeable that climate change damages would result from these emissions and thus fossil fuel companies had a duty to warn potential users of the foreseeable dangers.

However, a manufacturer has no duty to warn of dangers that are obvious to anyone using the product. *See Drager v. Aluminum Indus. Corp.*, 495 N.W.2d 879, 884 (Minn. Ct. App. 1993). “A failure to warn ‘is not the proximate cause of injury if the user is aware of the danger posed by the device in issue.’” *Shovein v. SGM Group USA, Inc.*, 2008 WL 11348494, at *6 (D. Minn. 2008) (citing *Mix v. MTD Products, Inc.*, 393 N.W.2d 18, 19 (Minn. App. 1986)). For example, in *Mix v. MTD*, the Minnesota Court of Appeals held that MTD did not have a duty to warn of the danger that could result from attempting to reattach a belt while the lawnmower’s engine was in neutral because the danger was obvious to most potential users. *Mix v. MTD Prods., Inc.*, 393 N.W.2d 18, 20 (Minn. Ct. App. 1986). Because of fossil fuel companies’ protracted and intensive denialist campaign, the dangers of using fossil fuel products were not obvious to the public.

Adequate warning: Second, if a warning was issued it must be adequate. “To be legally adequate, a product supplier’s warning to a user of any foreseeable dangers associated with the product’s intended use should (1) attract the attention of those that the product could harm; (2) explain the mechanism and mode of injury; and (3) provide instructions on ways to safely use the product to avoid injury.” *Gray v. Badger Min. Corp.*, 676 N.W.2d 268, 274 (Minn. 2004).

Consumers of fossil fuel products were prevented from recognizing the risk that fossil fuel products would cause grave climate changes because the companies “individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.” Complaint at ¶ 318, *County of Santa Cruz v. Chevron Corp.* (Cal. Super. Ct. 2018). Therefore, any warnings that may have publicized the danger to the public or Minnesota were undermined and rendered ineffective because of the companies’ public relations materials and campaigns. *Id.*

Causation: In order to recover under a failure to warn theory, the plaintiff must show a causal connection between the inadequate warning or failure to warn and the injuries he or she sustained. *Rients v. Int’l Harvester Co.*, 346 N.W.2d 359, 362 (Minn. Ct. App. 1984). Minnesota courts have interpreted this as requiring the plaintiff to show that *had* adequate warnings been provided, the injury would not have occurred. *See Hauenstein v. Loctite Corp.*, 347 N.W.2d 272, 276 (Minn. 1984) (explaining that causation is not met when the accident would have occurred whether or not there was a warning). While many states have adopted a “heeding presumption”—a rebuttable presumption that if warnings had been provided, they would have been read and heeded—the Minnesota Supreme Court specifically declined to do so in a failure to warn case. *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99–100 (Minn. 1987); *see also Tuttle v. Lorillard Tobacco Co.*, 377 F.3d 917, 925 (8th Cir. 2004) (predicting that Minnesota courts would not adopt the heeding presumption). Furthermore, when a plaintiff requested the Minnesota Court of Appeals to adopt the heeding presumption in *Montemayor v. Sebright Products, Inc.* (unpublished case) the Court found that it was not its role “to extend the law.” 2017 WL 5560180, at *3 (Minn. Ct. App. 2017).

However, the U.S. Court of Appeals for the Eighth Circuit has noted that to establish causation in Minnesota failure to warn cases “it is sufficient to present testimony that purchasers would have avoided the risk of harm had they been told of the relevant danger.” *In re Levaquin Products Liability Litigation*, 700 F.3d 1161, 1168 (8th Cir. 2012) (citing *Erickson v. American Honda Motor Co., Inc.*, 455 N.W.2d 74, 77 (Minn. Ct. App. 1990)). This type of testimony can be rebutted by evidence that the plaintiff knew of the danger or disregarded other dangers or ignored other warnings. 27 Minn. Prac. Series § 4.11 (2018). This was at issue in *Tuttle v. Lorillard Tobacco Co.* because Tuttle passed away from oral cancer (caused by defendant’s smokeless tobacco product) before he could testify that he would have avoided the risk of harm if he had been told of the danger. 377 F.3d at 925 (8th Cir. 2004). Furthermore, the Court reasoned that because Tuttle continued to use smokeless tobacco until 1993, even after the Smokeless Tobacco Act required warnings in advertising and on packaging as early as February 1987, that “Tuttle’s actions undercuts any ‘heeding presumption’ and any reasonable reliance arguments.” *Id.* at 927 n.6.

Had Minnesota been adequately warned of the significance of danger that fossil fuel consumption and use presented to the state and the public, it would have heeded said warnings and either consumed fewer fossil fuel products or began to transition away from a fossil fuel dependent economy much sooner.

D. Public Nuisance

Under Minnesota law, public nuisance is a misdemeanor offense, defined in Minn. Stat. § 609.74:

[w]hoever by an act or failure to perform a legal duty intentionally does any of the following is guilty of maintaining a public nuisance, which is a misdemeanor:

- (1) maintains or permits a condition which unreasonably annoys, injures or endangers the safety, health, morals, comfort, or repose of any considerable number of members of the public; or
- (2) interferes with, obstructs, or renders dangerous for passage, any public highway or right-of-way, or waters used by the public; or
- (3) is guilty of any other act or omission declared by law to be a public nuisance and for which no sentence is specifically provided.

Minn. Stat. § 609.74 (2018). Under Minn. Stat. § 609.745, “[w]hoever having control of real property permits it to be used to maintain a public nuisance or lets the same knowing it will be so used is guilty of a misdemeanor.” Minn. Stat. § 609.745 (2018). Statutory public nuisance violations brought under § 609.74 are enforced through criminal prosecution. However, it is unlikely that a claim for damages could be sought under the criminal statute, and instead this statute would provide a means for injunctive relief or abatement. *See* Minn. Stat. § 617.80 et seq. Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. *But see Doe 30 v. Diocese of New Ulm*, No. 62-CV-14-871, 2014 WL 10936509 at *9 (Minn. Dist. Ct. 2014) (“While plaintiff’s Complaint asserts a common-law public nuisance claim, it is evident from Minnesota’s public-nuisance jurisprudence that common-law claims either no longer exist or are synonymous with section 609.74 claims.”).

Common law public nuisance claims in Minnesota appear to be rare; the majority of public nuisance claims seem to be brought primarily under municipal nuisance ordinances or the state public nuisance statute. For example, in *State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545 (Minn. 1911), the Minnesota Supreme Court considered the validity of a Minneapolis city ordinance that declared the emission of smoke from locomotives a public nuisance, prohibiting the use of soft coal. The court recognized that although the Legislature

cannot prevent a lawful use of property by prohibiting non-nuisance uses, “it is equally clear that acts or conditions which are detrimental to the comfort and health of the community may be effectively declared nuisances by the Legislature, and in the exercise of that power specified acts or conditions may be declared a nuisance, although not so determined at common law.” *Id.* at 546.

Likewise, in *State v. Lloyd A. Fry Roofing Co.*, 246 N.W.2d 692 (Minn. 1976), the Minnesota Supreme Court held that:

[T]he general rule regarding nuisances is that “it is immaterial how innocent the intent was[,] for the element of motive or intent does not enter into the question of nuisance,” so a state legislature may declare certain acts to be nuisances regardless of the intent with which they are carried out and even though they were not such at common law, or the legislature may delegate this authority to a municipal corporation.

Id. at 538 (citing Joyce, *Law of Nuisance*, § 43 at 77 & §§ 81, 84). On the subject of common law public nuisance, the court cites Dean Prosser’s work on tort law and notes that intent and failure to act reasonably are not essential elements of common-law nuisance violations, and “are even less relevant to nuisances that are codified in statutes or ordinances.” *Id.* at 539.

Although statutory public nuisance claims seem to make up the vast majority of cases in Minnesota, common law public nuisance may still resemble the Restatement approach: interference with public property or a right common to the public. *See* Restatement (Second) of Torts § 821B(1). Although the court in *Doe 30 v. Diocese of New Ulm* considered the matter, it is a district court decision and the analysis is dicta because the court did not reach a decision on the issue.

Significantly, in 2010, Minnesota Attorney General Lori Swanson brought “common law nuisance” claims against 3M Company over chemicals it produced known as perfluorochemicals (PFCs). *See* Complaint, *State v. 3M Co.*, No. 27-CV-10-28862, 2010 WL 5395085 at ¶¶ 83–89,

90–97 (D. Minn. Dec. 30, 2010). In particular, the complaint alleged damages for common law nuisance for contamination of surface water, groundwater, and sediments by PFCs released by 3M. The Attorney General claimed that the “use, enjoyment and existence of the State’s groundwater, surface water and sediments, free from interference, is a *common right* to citizens of the state.” *Id.* at ¶ 84 (emphasis added). 3M’s alleged contamination of groundwater, surface water, and sediments with PFCs “materially and substantially interferes with State citizens’ free enjoyment of these natural resources, and constitutes a public nuisance.” *Id.* at ¶ 85.

E. Private Nuisance

Minnesota’s statutory private nuisance law is covered by Minn. Stat. § 561.01:

Anything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.

Minn. Stat. § 561.01 (2018).

A private nuisance requires interference with another’s use of property. *See Uland v. City of Winstead*, 570 F. Supp. 2d 1114, 1120 (D. Minn. 2008). There must be some type of conduct that causes the alleged nuisance harm, and that conduct must be “wrongful.” *See Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65, 70–71 (Minn. 1982) (citing *Randall v. Village of Excelsior*, 103 N.W.2d 131, 134 (1960)). This wrongful conduct varies, and may be characterized as, for example, intentional conduct, negligence, ultrahazardous activity, violation of a statute, or some other type of tortious activity. *Id.*

Minnesota’s nuisance statute appears to provide a broader cause of action than common law nuisance under the Restatement (Second) of Torts, as § 561.01 does not require that the

action be intentional or unreasonable. The Minnesota Supreme Court has found that Minnesota's nuisance statute "defines a nuisance in terms of the *resultant harm* rather than in terms of the kind of conduct by a defendant which causes the harm . . . Where pollutants cause the harm, such as where sewage is deposited on plaintiff's property, the wrongful conduct appears to be self-evident." *Id.* (emphasis added). The Minnesota Supreme Court has likewise declined to consider an application of the Restatement nuisance test, preferring instead to use § 561.01 and Minnesota case law. *Id.*

In addition to nuisance abatement, a successful plaintiff may recover damages sustained as a result of the activity. Minn. Stat. § 561.01. Minnesota courts have found a variety of activity to be private nuisances. *Heller v. American Range Corp.*, 234 N.W. 316 (Minn. 1931) (industrial plants transferring dust to adjacent residential property); *Brede v. Minnesota Crushed Stone Co.*, 179 N.W. 638 (Minn. 1920) (limestone quarries giving off noise, fumes, and odors); *Fagerlie v. City of Wilmar*, 435 N.W.2d 641 (Minn. App. 1989) (wastewater treatment plant odors); *Schrupp v. Hanson*, 235 N.W.2d 822 (Minn. 1975) (poultry and hog farm odors); *Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65 (Minn. 1982) (water and sewage runoff).

In *Johnson v. Paynesville Farmers Union Co-op Oil Co.*, 817 N.W.2d 693, 706 (Minn. 2012), the Minnesota Supreme Court considered the state's approach to private nuisance in an action brought by an organic farmer against a co-op alleged to have caused pesticides to drift onto the organic farm. Citing Minn. Stat. § 561.01, the supreme court found that an action that seeks an injunction or to recover damages can be brought under the statute by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance. The plaintiff must show that the defendant's conduct caused an interference with the use or enjoyment of the plaintiff's property. *Id.* As an equitable cause of action, the court stated that §

561.01 “implicitly recognized a need to balance the social utility of defendants’ actions with the harm to the plaintiff.” *Highview North Apartments v. County of Ramsey*, 323 N.W.2d 65, 71 (Minn. 1982).

In deciding the issue of nuisance, the *Johnson* court cited *Highview North Apartments v. County of Ramsey*, in which the Minnesota Supreme Court held that “disruption and inconvenience” caused by a nuisance are actionable damages. *Johnson v. Paynesville Farmers Union* at 713 (citing *Highview North Apts.*, 323 N.W.2d at 73). In *Highview* a plaintiff sued multiple municipalities over harm that consisted of groundwater seeping into two apartment building basements, a condition that the court found to be “ongoing, injurious to the premises, substantial, and likely to worsen.” *Highview North Apts.*, 323 N.W.2d at 71. Applying the *Highview* ruling, the *Johnson* court remanded the plaintiffs’ allegations that they suffered from “cotton mouth, swollen throat and headaches” because they were exposed to pesticide drift. *Id.* The court held that the inconvenience and adverse health effects, if proven, would affect the plaintiffs’ ability to use and enjoy their land and thereby constitute a nuisance, and so the issue was remanded for further fact-finding, including an assessment of damages. *Id.*

F. Trespass

In Minnesota, “[t]respass encompasses any unlawful interference with one’s person, property, or rights, and requires only two essential elements: a rightful possession in the plaintiff and unlawful entry upon such possession by the defendant.” *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003), *review denied* (Minn. Aug. 5, 2003). Minnesota courts have described trespass as “an invasion of the plaintiff’s right to exercise exclusive possession of the land” while “nuisance is an interference with the plaintiff’s use and enjoyment of the land.” *Fagerlie v. City of Willmar*, 435 N.W.2d 641, 644 n.2 (Minn. Ct App. 1989); *see also Johnson v.*

Paynesville Farmers Union Coop Oil Co., 817 N.W.2d 693, 701 (Minn. 2010) (stating that unlawful entry “must be done by means of some physical, tangible agency in order to constitute a trespass.”). Actual damages are not an element of the tort of trespass. *Johnson v. Paynesville Farmers Union* at 701 (citing *Greenwood v. Evergreen Mines Co.*, 19 N.W.2d 726, 734–35 (Minn. 1945)). In the absence of actual damages, the trespasser is liable for nominal damages. *Id.* (citing *Sime v. Jensen*, 7 N.W.2d 325, 328 (Minn. 1942)). Because trespass is an intentional tort, reasonableness on the part of the defendant is not a defense to trespass liability. *Id.* (citing *H. Christiansen & Sons, Inc. v. City of Duluth*, 31 N.W.2d 270, 273–74 (Minn. 1948)).

In *Johnson v. Paynesville Farmers Union Co-op. Oil Co.*, the Minnesota Supreme Court considered the question of whether particulate matter, such as pesticide drift can result in a trespass. *Id.* (noting that the “particulate matter” has been defined as “material suspended in the air in the form of minute solid particles or liquid droplets, especially when considered as an atmospheric pollutant.”). The Supreme Court found that Minnesota case law is consistent with a traditional formulation of trespass that has recognized trespasses when a person or a tangible object enters the plaintiff’s land and interferes with rights of exclusive possession. *Id.* According to the court, “disruption to the landowner’s exclusive possessory interest is not the same when the invasion is committed by an intangible agency, such as the particulate matter [pesticides] at issue here.” *Id.* at 702. “Such invasions,” the court continued, “may interfere with the landowner’s use and enjoyment of her land, but those invasions do not require that the landowner share possession of her land in the way that invasions by physical objects do.” *Id.*; see also *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003) (noting that Minnesota “has not recognized trespass by particulate matter” and rejecting a trespass claim over offensive odors). The court declined to abandon traditional distinctions between trespass and

nuisance law, and noted that the public policy concerns that compelled other jurisdictions to blur the lines between trespass and nuisance (e.g. statutes of limitations) are not present in Minnesota. *Id.* at 704–05. “In summary, trespass claims address tangible invasions of the right to exclusive possession of land, and nuisance claims address invasions of the right to use and enjoyment of land.” *Id.* at 705.

The Minnesota Attorney General lawsuit against 3M claimed trespass damages against the state’s public trust resources. Complaint, *State of Minnesota v. 3M Company*, No. 27-CV-10-28862, 2010 WL 5395085 (D. Minn. 2010). Much of the state’s suit was focused on direct groundwater and surface water pollution, issues which are unlikely to be present when dealing with oil refineries, emissions, and climate change damages. However, the effects of climate change can impact surface and groundwater in other ways that are not as direct, such as harm to aquatic organisms and plants through warmer waters, increased flooding and erosion from more severe storms and precipitation, drought, algae blooms, etc. Thus, a trespass claim against fossil fuel companies for climate change damages would be based on indirect invasions of property.

G. Strict Liability for Abnormally Dangerous Activity

The Second Restatement of Torts on Strict Liability for Abnormally Dangerous Activities is not controlling law in Minnesota, though Minnesota courts have discussed §§ 519–520. Restatement (Second) of Torts § 519–520 (1977); *see, e.g., Mahowald v. Minnesota Gas Co.*, 344 N.W.2d 856, 860–61 (Minn. 1984); *Cairly v. City of St. Paul*, 268 N.W.2d 908 (Minn. 1978); *Ferguson v. Northern States Power Co.*, 239 N.W.2d 190 (Minn. 1976); *Quigley v. Village of Hibbing*, 129 N.W.2d 765 (Minn. 1964). For example, in *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993), the Minnesota Court of Appeals noted that “[a]lthough this Restatement section is not controlling law in Minnesota, because the supreme

court has recognized it in other cases, *see, e.g., Mahowald v. Minnesota Gas Co.* . . . we believe the trial court’s use of it was appropriate.” *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993).

However, the Minnesota Supreme Court has been careful to note that while “we have recognized the applicability of [the Restatement §§ 519 and 520] in other contexts, that is all we did—recognize the existence of those two sections. In none of these cases did we apply those sections, nor has our attention been directed to any other case where we did apply them.” *Mahowald*, 344 N.W.2d at 861. The Minnesota Supreme Court has explicitly rejected applying Restatement §§ 519–520 in strict liability cases for accidents arising out of escaping gas from lines maintained in public streets. *Id.*

Nevertheless, applying strict liability without proof of negligence is consistent with a long line of Minnesota cases involving abnormally dangerous activities. *See, e.g., Sachs v. Chiat*, 162 N.W.2d 243 (1968) (pile driving abnormally dangerous activity that requires liability without fault); *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924) (waterworks operated by municipal corporation requires liability without fault); *Wiltse v. City of Red Wing*, 109 N.W. 114 (Minn. 1906) (collapse of reservoir destroying plaintiff’s house requires liability without fault); *Berger v. Minneapolis Gaslight Co.*, 62 N.W. 336 (Minn. 1895) (petroleum that escaped from gas company’s tanks, damaging wells and cellars, requires liability without fault); *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (Minn. 1871) (tunnel collapse under property lessee’s land requires liability without negligence in its construction or maintenance).

The Minnesota Supreme Court was one of the first American jurisdictions to adopt the famous English tort law ruling on strict liability, *Rylands v. Fletcher*. *See, e.g., Minnesota Mining & Mfg. Co. v. Travelers Indem. Co.*, 457 N.W.2d 175, 183 (Minn. 1990). In *Rylands*,

defendant owners of a mill built a reservoir to supply their mill with water. *Rylands v. Fletcher*, LR 3 H.L. 330 (1868). The plaintiff leased coal mines on neighboring land between the reservoir and the mill. Water from the reservoir burst into old, unused mine shafts, and flooded the mine. When the defendants appealed, arguing that they did not know that the flooded shafts were connected to the mine, the House of Lords held that the plaintiff did not need to prove negligence, because “the person who, for his own purposes, brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril.” *Id.* at 339. On the relationship of obligation between neighbors, the *Ryland* court found that:

[I]t seems but reasonable and just that the neighbour who has brought something on his own property (which was not naturally there), harmless to others so long as it is confined to his own property, but which he knows will be mischievous if it gets on his neighbour’s, should be obliged to make good the damage which ensues if he does not succeed in confining it to his own property.

Id. at 340.

In *Kennedy Building Associates v. Viacom, Inc.*, the U.S. Court of Appeals for the Eighth Circuit found that Minnesota has “not limited the *Rylands* cause of action to cases in which the plaintiff and defendant were neighboring landowners,” citing *Hannem v. Pence*, a case in which a plaintiff was injured by falling ice while walking past a defendant’s building. *Kennedy Building Associates v. Viacom, Inc.*, 375 F.3d 731, 740 (8th Cir. 2004) (citing *Hannem v. Pence*, 41 N.W. 657 (Minn. 1889)). The Minnesota Supreme Court has also applied the *Rylands* rule to defendants that do not own the land on which they created a hazard. See *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (1871). Under Minnesota’s strict liability rule, it makes no difference that a defendant is no longer in possession of control of the instrumentality that caused a hazard. *Id.*

Minnesota has also applied strict liability for abnormally dangerous activity to enterprises that ultimately benefit the community. Although these activities may be useful to society, the

court has found that as times change and large-scale industrial activity increases, the responsibility for damages from useful operations should not fall on harmed individuals. *Bridgeman-Russell Co. v. City of Duluth* involved a waterworks operated by a municipal corporation that discharged water, damaging the plaintiff's property. *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924). The Minnesota Supreme Court imposed strict liability, without requiring proof of negligence, stating that:

Congestion of population in large cities is on the increase. This calls for water systems on a vast scale either by the cities themselves or by strong corporations. Water in immense quantities must be accumulated and held where none of it existed before. If a break occurs in the reservoir itself, or in the principal mains, the flood may utterly ruin an individual financially. In such a case, even though negligence be absent, natural justice would seem to demand that the enterprise, or what really is the same thing, the whole community benefited by the enterprise, should stand the loss rather than the individual. It is too heavy a burden upon one.

Id. at 972.

In light of this Minnesota case law expressing a fairly expansive view of strict liability, even in the case of activities that have social value, a claim by Minnesota against fossil fuel companies for climate change damages would appear to fit squarely within a claim for strict liability for abnormally dangerous activities.

H. Other Claims

Minnesota could also consider claims under the Minnesota Environmental Rights Act, Minn. Stat. ch. 116B ("MERA"), and the Minnesota Environmental Response, Compensation, and Liability Act, Minn. Stat. ch. 115B ("MERLA"). In particular, the Minnesota Attorney General lawsuit against 3M discussed earlier contained a MERLA claim. The applicability of these claims to a potential lawsuit against fossil fuel companies for climate change damages is not discussed in this Memorandum but could be subject to further investigation.

I. Applicable Statutes of Limitations for All Claims

The statute of limitations for violations of the consumer protection laws is six years. Minn. Stat. § 541.05(2). Fraud allegations are also subject to a six-year statute of limitations under Minn. Stat. § 541.05(6), which begins upon “discovery by the aggrieved party of the facts constituting the fraud.” The statute of limitations may be suspended for fraudulent concealment if the facts which establish the cause of action are fraudulently concealed. *Hydra-Mac, Inc. v. Onan Corp.*, 450 N.W.2d 913, 918–19 (Minn. 1990). Antitrust claims in Minnesota are subject to a four-year statute of limitations, although “a cause of action for a continuing violation is deemed to arise at any time during the period of the violation.” Minn. Stat. § 325D.64, subd. 1.

For the product liability claims, a four-year statute of limitations applies to strict products liability claims, while a six-year statute of limitations applies to negligence claims. *See* Minn. Stat. § 541.05, subds. 1–2. However, because Minnesota courts have merged negligence and strict products liability theories into one single recovery for design defect and failure to warn claims, it is arguable that the six-year negligence statute of limitations would apply. For example, in *Klempka v. G.D. Searle & Co.* the U.S. Court of Appeals for the Eighth Circuit applied Minnesota law to hold that the statute of limitations was six years for a products liability claim. 63 F.2d 168, 170 (8th Cir. 1992).

For the common law tort claims of strict liability for abnormally dangerous activities, public nuisance, and private nuisance, and trespass, it is likely that a six-year statute of limitations would apply as such claims fall under the general six-year statute of limitations found in Minn. Stat. § 541.05, subd. 1(2). *See e.g., Citizens for a Safe Grant v. Lone Oak Sportsmen’s Club, Inc.*, 624 N.W.2d 796 (Minn. Ct. App. 2001) (six-year limitations period applied to

trespass and nuisance actions brought by neighborhood organization against gun club operating outdoor shooting ranges).

Two elements must be satisfied before a cause of action accrues for any of the common law claims: “(1) a cognizable physical manifestation of the disease or injury, and (2) evidence of a causal connection between the injury or disease and the defendant’s product, act, or omission.” *Narum v. Eli Lilly and Co.*, 914 F. Supp 317, 319 (D. Minn. 1996). Under Minnesota law, “[a] plaintiff who is aware of both her injury and the likely cause of her injury is not permitted to circumvent the statute of limitations by waiting for a more serious injury to develop.” *Klempka v. G.D. Searle & Co.*, 963 F.2d 168, 170 (8th Cir. 1992).

Fossil fuel company defendants may allege that Minnesota’s claims are time barred because the first cognizable physical manifestation of climate change damages occurred longer than six years ago. However, Minnesota also recognizes the continuing violation doctrine. *Brotherhood of Ry. and S.S. Clerks, Freight Handlers & Station Employees v. State by Balfour*, 229 N.W.2d 3, 193 (Minn. 1975). That doctrine holds that when a violation is ongoing, the statute of limitations does not run from the initial wrongful action, but rather begins to run only when the wrong ceases. *N. States Power Co. v. Franklin*, 122 N.W.2d 26, 30-31 (Minn. 1963). For example, in *Hempel v. Creek House Train*, the Minnesota Supreme Court found that the defendant’s continuing negligence tolled the limitations period. *Hempel v. Creek House Tr.*, 743 N.W.2d 305, 312 (Minn. 2007).

While there have been a number of cases where courts applying Minnesota law have found that the continuing violation doctrine did not apply based on the facts of the case, these were not categorical exclusions of the doctrine in Minnesota. *See e.g., Union Pac. R.R. Co. v. Reilly Indus., Inc.*, 4 F. Supp. 2d 860, 867 (D. Minn. 1998) (holding that the continuing wrong

doctrine did not apply because there was no “leakage from storage tanks or basins,” and that any “leakage” ceased before the relevant limitations period expired). Because the fossil fuel companies’ extraction, production, marketing, and sale of fossil fuel products has continued, the continuing violation doctrine would apply, and the claims would not be barred by the statute of limitations.

APPENDIX A

Appendix A sets forth model claims against fossil fuel companies for Minnesota climate change damages. These are claims under Minnesota law for: (1) violation of Minnesota consumer protection and antitrust statutes; (2) products liability design defect; (3) products liability failure to warn; (4) public nuisance; (5) private nuisance; (6) trespass; and (7) strict liability for abnormally dangerous activities. The legal analysis for each of these claims is contained in the Memorandum to Attorney General Keith Ellison dated January 31, 2019.

I. Violation of Minnesota Consumer Protection and Antitrust Statutes

The claims below are based on Minnesota consumer protection and antitrust statutes. They also draw from the Maryland and Colorado lawsuits against fossil fuel companies for climate change-related damages and the Minnesota tobacco litigation that was settled for \$6.6 billion, *State of Minnesota v. Philip Morris Inc.*, No. C1-94-8565 (Ramsey Co. Dist. Ct. 1998).

Prevention of Consumer Fraud Act, Minn. Stat. § 325F.68-70:

1. Defendants, in connection with the sale of merchandise, knowingly misrepresented, and continue to misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to fossil fuel use and climate change, including knowing misrepresentations that there is no causal connection between fossil fuel use and climate change, efforts to spread doubt about the link between fossil fuel use and climate change, and disparagement of the work of others that show the connection between fossil fuel use and climate change;
 - Defendants' fraudulent concealment of information relating to fossil fuel use and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use, including: the true cost and harms from their products, the damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.

3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

False Statement in Advertising, Minn. Stat. §325F.67:

1. Defendants, intending to sell and increase consumption of their products, knowingly caused and continue to cause to be made and placed before the public in Minnesota advertisements regarding their products which contained material assertions, representations and/or statements of fact that were untrue, deceptive, and/or misleading. *See* Minn. Stat. § 325F.67.
2. Defendants' wrongful conduct includes, by way of example:
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that make intentional, material misrepresentations, such as that there is no causal connection between fossil fuel use and climate change and publications and advertisements that advance false theories refuting the connection between fossil fuel use and climate change;
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that intentionally omit material information about the connection between fossil fuel use and climate change and existing and likely impacts of climate change on society.
3. As a direct and proximate result of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unlawful Trade Practices Act, Minn. Stat. §§ 325D.09-16:

1. Defendants, in connection with the sale of merchandise, including fossil fuels, knowingly misrepresented, and continue to knowingly misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations that there is no causal connection between fossil fuels and climate change, efforts to spread doubt about the link between fossil fuels and climate change, and disparagement of the work of others that showed the connection between fossil fuels and climate change;
 - Defendants' misrepresentations that they would or did conduct and disclose objective research on the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations;

- Defendants' fraudulent concealment of information relating to fossil fuel use/extraction and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use/extraction, the true cost and harms from their products, the likely damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.
3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unreasonable Restraint of Trade and Commerce, Minn. Stat. § 325D.51:

1. For several decades and continuing today, Defendants entered into a contract, combination, or conspiracy between two or more persons aiming to unreasonably restrain trade and commerce in Minnesota's energy and transportation sectors. The energy and transportation markets are inextricably linked with Minnesota's interests in those fields and in other fields including but not limited to: health care, real estate, tourism and natural resources.
2. Defendants and their co-conspirators had a meeting of the minds to accomplish their goals to maintain and/or to increase fossil fuel usage at levels they knew were sufficient to alter the climate, and to withhold material information concerning the continuing and increasing harm caused by their fossil fuel activities, specifically concerning the damage to the climate that the use of their goods and services would cause and the impacts of the use of their fossil fuels and fossil fuel-derived products and services on Plaintiff's property, social services and infrastructure.
3. This contract, combination, or conspiracy had the purpose and effect of restraining competition in the energy and transportation markets in Minnesota and controlling those markets in Minnesota through restraining and suppressing research on the causal connection between fossil fuel extraction/use and climate change and the harms of climate change, restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
4. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Monopolization of the Transportation/Energy/Petroleum Market in Minnesota, Minn. Stat. § 325D.52:

1. Defendants collectively and with co-conspirators have for at least several decades, and to this day maintained and used, or attempted to establish, maintain, or use monopoly power over trade and commerce to affect competition and/or control, fix or maintain prices in the oil market and other related markets. *See* Minn. Stat. § 325D.52.
2. Defendants, through their acts and omissions described above, maintained and used their monopoly power to affect competition by restraining and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use; and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
3. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Civil Conspiracy, Minn. Stat. § 325D.53:

1. Beginning at least as early as the 1950s and continuing until the present day, Defendants entered into a conspiracy with the intentional and unlawful purpose and effect of restraining and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel combustion/use; engaging in affirmative misrepresentations on the harmful effects of fossil fuel combustion/use; and restraining and suppressing the research, development, production, and marketing of better alternatives. In furtherance of defendants' conspiracy, defendants lent encouragement, substantial assistance, and otherwise aided and abetted each other with respect to these wrongful acts.
2. As a direct and proximate result of Defendants' unlawful conspiracy, Plaintiff has suffered and will continue to suffer substantial injuries and damages, including but not limited to (see damages list above).

II. Products Liability Design Defect

Below is an example of a claim alleging defective design for fossil fuel products in Minnesota. The language and sources are adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted, refined, formulated, designed, packaged, distributed, tested, constructed, marketed, promoted and sold fossil fuel products intended to be burned for energy, refined into petrochemicals, and/or refined/incorporated into petrochemical products including fuels and products.
2. The emissions of GHGs from the intended use of Defendants' fossil fuel products is a defective condition that makes the product unreasonably dangerous because GHG emissions cause numerous global and local changes to Earth's climate.
 - Fossil fuel combustion and industrial processes are responsible for the majority of emissions that have caused GHG concentrations to reach hazardous and unprecedented levels, contributing roughly 78% of total GHG emission increases from 1970 to 2011.
 - As a result of GHG emissions caused and contributed to by Defendants' fossil fuel activities, atmospheric CO₂ now stands at 408 parts per million (ppm), a level which is unprecedented in human history.
 - Once CO₂ enters the atmosphere, a significant portion of it remains there, with a warming influence that lasts for hundreds (if not thousands) of years. It also cannot be feasibly removed from the atmosphere with existing technology, committing the world to some degree of irreversible warming and associated climate change resulting from emissions to date.
 - These anthropogenic increases in CO₂ and GHG emissions act like a greenhouse in the atmosphere, trapping heat inside the Earth and leading to a warming atmosphere, oceans, and changing climate.
 - Minnesota's winters are warming thirteen times faster than its summers and Minneapolis and Mankato are the second and third fastest-warming cities respectively in the United States. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).
3. Based on the totality of the circumstances, balancing the likelihood of harm and the gravity of the harm if it occurred, against the burden of the precaution that would be effective to avoid the harm, the design of fossil fuel products was unreasonably dangerous.
4. The gravity of potential harms is extreme.
 - Potential harms arising from fossil fuel products unreasonably dangerous design include global warming, extreme high temperature events, extreme precipitation events, droughts, significant public health impacts, and more.
 - Public health impacts of climatological changes are likely to be disproportionately borne by communities made vulnerable by geographic, racial, or income disparities including low-income communities, some communities of color, immigrant groups,

indigenous peoples, children and pregnant woman, other adults, and others. Janet Gamble, U.S. EPA, John Balbus, Nat'l Inst. of Health, *The Impacts of Climate Change on Human Health in the United States* 249 (Apr. 2016).

- In Minnesota, invasive species and diseases like Asian soybean rust may be able to survive Minnesota's warmer winters threatening Minnesota crops. Pine woods could retreat north changing Minnesota's tree population and warmer winters could even drive out Minnesota's state bird, the common loon. Jennifer BJORHUS, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).
- Minnesota will have more precipitation, but late summer conditions will be drier and warmer. *Id.* August rainfall could drop by up to 60 percent in some parts of the state by the end of the century. *Id.*
- Other Minnesota specific damages arising from climate change include:
 - Damages to agriculture including reduced yields, increases in pesticide and insecticide application to maintain yields, loss in soil agriculture, loss of yield in animal agriculture (pigs, cows, chickens, milk, egg, and pork production are lost when temperatures stay above 90 degrees), reduced fruit agriculture yields, particularly apples (apples need a certain number of chilling days per fall), and the cost to educate farmers on these changes and steps to mitigate damages by state agencies.
 - Current hydrologic damages including flooding on farmlands, excessive floods that fall under the compensation threshold by FEMA, increase in heavy storms. Future hydrological damages include an increase in prolonged droughts and flooding events.
 - Significant health impacts, particularly to low income and communities of color, including increased asthma attacks, allergens, hay fever, toxic algal blooms, heat stress and heat related illness (many low to medium income housing units do not have air conditioners), vector borne diseases (West Nile virus, tick borne diseases), flood damages and mold in homes (cost to remediate, mental health impacts, etc.)
 - Damages to Minnesota's lakes including toxic algal blooms, loss of cold-water species as we move to from cold-water lakes to cool water lakes, cost for state agencies to restock fisheries/lakes.
 - Damages to Minnesota's forests ranging from loss of wildlife habitat and species (including moose, common loon, and other iconic species).
 - A large tract of tamarack trees in Northeastern Minnesota has already been lost to eastern larch beetles, which are able to survive longer and cause more damage due to the warming climate. *See* Josephine Marcotty, *As Climate*

Warms, an Exploding Larch Beetle Population is Transforming Minnesota's Forests, STAR TRIBUNE (Aug. 13, 2017) (“‘It’s a fantastic example of climate change in action,’ said Brian Aukema, a University of Minnesota professor who studies larch beetles and other forest insects. ‘That insect is telling us that tamarack no longer belongs here.’”)

- Costs to transportation infrastructure including flood damages to bridges and roads.
 - Other infrastructure damages including stormwater systems, sewer systems, power sector constraints, increased burden on emergency management and need to retrofit state operated buildings with air conditioning.
5. Defendants not only *knew* of the significant potential likelihood that harm would occur from continued use of their fossil fuel products as early as 1965, they actively worked to obscure public knowledge and create uncertainty regarding climate science.
 6. The cost to society of each ton of CO₂ emitted into the atmosphere increases as total global emissions increase, so that with each extraction/consumption of fossil fuel product the gravity of harm and likelihood increases.
 7. The cost to society from climate change damages greatly outweighs the social benefit from unchecked extraction and consumption of fossil fuel.
 8. Oil and gas companies were in a position to create, develop, and design alternative technologies, energy sources, and businesses practices that would have eased the transition to a lower carbon economy, reduced GHG emissions, and mitigated the harms associated with climate change.
 9. Defendants could have mitigated the burden of the precautionary measures necessary to reduce GHG emissions by investing time and resources into developing alternative forms of energy.
 10. Instead, these same companies spent decades and vast resources on a concerted campaign to discredit climate change science and warnings despite internal knowledge that “it would be unwise and potentially dangerous to ignore the mounting concern.” John Browne, BP Climate Change Speech to Stanford, Climate Files (May 19, 1997), <http://climatefiles.com/bp/bp-climate-change-speech-to-stanford/>.
 11. Defendants also invested heavily in lobbying campaigns to avoid GHG regulation and international treaties addressing climate change.
 12. Defendants’ individual and aggregate fossil fuel products reached the consumer in a condition substantially unchanged from that in which it left Defendants’ control—and were used in the manner in which they were intended to be used by individual and corporate

consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.

13. Defendants' design of fossil fuel products led to an unreasonably dangerous defect that was the direct and proximate cause of substantial climate change damages in Minnesota.
14. The emission of GHGs, a defective condition in fossil fuel products, is and will continue to be a substantial factor causing climate change damages in Minnesota.
15. Defendants' individual and collective acts and omissions were actual, substantial causes of increased average temperatures, spread of invasive species, drought, flooding and related consequences, including Minnesota's injuries and damages set forth herein.
16. There were no intervening or superseding events that caused Minnesota's climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between oil and gas companies' conduct and Minnesota's injuries and damages, or superseded Defendants' breach of their duties to design a reasonable safe product.
17. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions. *See supra*.
18. Defendants' acts and omissions as alleged herein are indivisible causes of Minnesota's injuries and damages as alleged herein, because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly diffuse and commingle in the atmosphere.
19. Defendants are jointly and severally liable for Minnesota's indivisible injuries stemming from climate change damages.

III. Products Liability Failure to Warn

Below is an example of a model claim alleging failure to warn against fossil fuel companies for harm caused by their products and is largely adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted produced, distributed, marketed, and placed into the stream of commerce fossil fuel products including oil, coal, and natural gas.

2. Defendants had at all times a duty to issue adequate warnings to Minnesota, the public, consumers, and public officials of the reasonably foreseeable danger and risks posed by their fossil fuel products.
3. Defendants had actual and constructive knowledge, in light of the current scientific knowledge generally accepted at that time and the information passed to them from internal research divisions, that fossil fuel products were defective and dangerous based on the climate effects inherently caused by their normal use and operation.
 - a. Internal research divisions and affiliates passed adequate information to oil and gas companies warning of the dangers GHG emissions from their fossil fuel products could cause.
 - b. Furthermore, the international scientific community was well aware of, and made public, scientific knowledge regarding the significant and damaging climate effects that past and continued use and operation of fossil fuel products would cause.
 - c. This knowledge included the likelihood and likely severity of global warming, global and local sea level rise, more frequent and extreme droughts, more frequent and extreme precipitation events, more frequent and extreme heat waves, and the associated consequences of those physical and environmental changes, including Minnesota's injuries and damages.
4. Based on this information, defendants knew or should have known that the climate effects described herein rendered their fossil fuel products dangerous, or likely to be dangerous, when used as intended.
5. Defendants should have reasonably foreseen that the danger from use of their fossil fuel products would cause significant injuries to the public.
 - a. Because releasing GHGs into the atmosphere inevitably causes, *inter alia*, global warming, sea level rise, more frequent and extreme heat waves, and the associated consequences of those physical and environmental damages, it was reasonably foreseeable that fossil fuel product use would cause injury.
 - b. The emission of GHGs from fossil fuel products was and will continue to be a substantial factor causing climate change damages in Minnesota.
 - c. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions.
6. It was not obvious to consumers or the public that the use of fossil fuel products presented significant dangers of an unprecedented magnitude to public health, publicly owned infrastructure, real property, public trust resources, and rights of Minnesota and its citizens.

- a. Consumers were prevented from recognizing the risk that fossil fuel products would cause grave climate change-related damages because Defendants individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.
 - b. Any warnings that may have disseminated were undermined and rendered ineffective because of Defendants' public relations materials and campaigns that prevented reasonable consumers from recognizing the risks that fossil fuel products posed.
7. Throughout the times at issue, Defendants breached their duty of care by failing to provide *any* warning, let alone an adequate warning, to customers, consumers, regulators, and the general public of the known and foreseeable risks that inevitably flow from the intended use of their fossil fuel products.
8. Defendants failed to issue warnings to consumers or any other party of the climate effects that are posed by the continued use of their fossil fuel products.
9. Defendants' failure to warn the public and Plaintiff of the dangers stemming from fossil fuel extraction, production, and use is causally connected to the injuries Minnesota has and will continue to sustain from climate change.
10. Had Defendants provided adequate warnings the climate change injuries to Minnesota would not have occurred.
 - a. Purchasers of fossil fuels, including Plaintiff, would have avoided the risk of harm if Defendants had warned them of the severity and extent of danger their products caused.
 - b. Because of Defendants' disinformation campaigns, the general public, consumers, and regulators did not have adequate knowledge of the danger fossil fuel products posed, and therefore did not disregard the dangers or ignore other warnings.
11. Minnesota has sustained and will sustain other substantial expenses and damages set forth in this Complaint, including damage to public owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.

IV. Public Nuisance

A public nuisance claim under Minnesota law could be adapted from public nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from public nuisance claims brought by the Rhode Island Attorney General against a number of fossil fuel companies, including Chevron, Exxon Mobil, and BP, among others. *See*

Complaint, *Bd. Cty. Comm'rs. of Boulder Cty. v. Suncor Energy, Inc.*, No. 2018-CV-30349 (June 11, 2018); Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018).

1. In Minnesota, the public is entitled by right to the protection, preservation, and enhancement of the air, water, land, and other natural resources located within the State, and it is the policy of the State to create and maintain within the State conditions under which man and nature can exist in productive harmony in order that present and future generations may enjoy clean air and water, productive land, and other natural resources with which the State has been endowed.
2. Defendants' affirmative acts, omissions, and fossil fuel activities—i.e. knowingly producing, promoting, refining, marketing, and selling a substantial amount of fossil fuels at levels sufficient to alter the climate, and misrepresenting the dangers associated with their use—have caused, created, contributed to, and/or exacerbated dangerous alterations in the climate.
3. The alterations in the climate substantially caused and contributed to by Defendants constitute a present and continuing nuisance in Plaintiff's communities. Plaintiff must mitigate the impacts and severity of the public nuisances caused and contributed to by the levels of Defendants' fossil fuel activities, including, but not limited to: increasing frequency and intensity of extreme heat days in the State; increasing frequency and intensity of extreme precipitation events in the State and associated flooding, erosion, damage to infrastructure; the spread of pests, disease, and increasing threats to public health by, among other things, increasing allergens and ozone, as well as diminishing air quality.
4. Plaintiff is specially injured by the public nuisance brought about by Defendants' actions, which altered the climate. This is due to Plaintiff's special responsibility to respond to and abate the hazards brought by the climate alteration caused by Defendants' climate-altering activities, and because Plaintiff and its property and assets are especially vulnerable to the impacts of climate change, including, specifically, but not exclusively, its:
 - transportation infrastructure, including roads, bridges, and culverts;
 - flood, stormwater, and water supply infrastructure;
 - agricultural and open space lands; and
 - lakes, rivers, streams, and associated plant and wildlife that Plaintiff holds in trust for its citizens.
5. The public nuisance created and contributed to by Defendants unreasonably endangers and injures the property, health, peace, comfort, safety, and welfare of the general public and the natural resources of the State of Minnesota, interfering with the comfort and convenience of communities state-wide, as well as with the State's *parens patriae* ability to protect, conserve, and manage the water, land, and wildlife of the state, which are by law precious and invaluable public resources.

6. The harms caused by Defendants are and will continue to be borne by Plaintiff and residents of Plaintiff's communities in the form of damage to property; impairment of public health; obstructed movement within the state; the loss of use and enjoyment of public property, the environment, and local eco-systems and infrastructure; as well as added costs to protect, repair, and remediate the harms caused by Defendants' alteration of the climate.
7. Defendants have contributed to and continue to contribute to the creation and exacerbation of the public nuisance, in that the intended and foreseeable combustion of Defendants' fossil fuels at the levels at which they were being used has produced and will continue to produce a substantial amount of GHG emissions, measured in billions of excess tons of CO₂ and other GHGs. Those excess tons have caused, contributed to, and/or exacerbated the impacts of climate change, including in Plaintiff's communities. Additionally, Defendants' fossil fuel activities and concealment and/or misrepresentation of the risk, known to Defendants, of the intended use of fossil fuels has also resulted in a substantial amount of excess GHG emissions, which caused, contributed to, and/or exacerbated the impacts of climate change.
8. Defendants intentionally, negligently and/or recklessly created the interference incurred by Plaintiff and the Plaintiff's communities caused by climate change. For decades, Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff and Plaintiff's communities—were substantially certain to result when they produced, promoted, refined, marketed and sold fossil fuels intending that they would be combusted at significant rates. Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff communities—were substantially certain to result when they concealed and affirmatively misrepresented the truth about climate change and the negative impacts of fossil fuel use to the public and their consumers.
9. Defendants' interference with public rights is unreasonable. For decades, Defendants have internalized the benefits of fossil fuel use—i.e., their profits—and externalized their costs—i.e., the impacts of climate change—onto communities such as Plaintiff's. Defendants knew or should have known the costs to Plaintiff and its communities of their fossil fuel activities, and have not compensated Plaintiff for those foreseen harms. Defendants continue to produce, promote, refine, market and sell fossil fuels at levels that cause and contribute to alteration of the climate, continue to profit from rising sales and continue to not compensate Plaintiff or its communities for the continued and added impacts that it and they suffer and will continue to suffer from as a direct and proximate result of Defendants' nuisance.
10. Defendants specifically created, contributed to, assisted in creating, and/or were a substantial contributing factor in the creation of the public nuisance by, *inter alia*:
 - a. Controlling every step of the fossil fuel product supply chain, including the extraction of raw fossil fuel products, including crude oil, coal, and natural gas

from the Earth; the refining and marketing of those fossil fuel products, and the placement of those fossil fuel products into the stream of commerce;

- b. Affirmatively and knowingly promoting the sale and use of fossil fuel products which Defendants knew to be hazardous and knew would cause or exacerbate global warming and related consequences, including, but not limited to, drought, extreme precipitation events, extreme heat events, and changing and increasingly severe weather patterns;
 - c. Affirmatively and knowingly concealing the hazards that Defendants knew would result from the normal use of their fossil fuel products by misrepresenting and casting doubt on the integrity of scientific information related to climate change;
 - d. Disseminating and funding the dissemination of information intended to mislead customers, consumers, and regulators regarding the known and foreseeable risk of climate change and its consequences, which follow from the normal use of Defendants' fossil fuel products;
 - e. Affirmatively and knowingly campaigning against the regulation of Defendants' fossil fuel products, despite knowing the hazards and climate effects associated with the normal use of those products, in order to continue profiting from the regular use of those products by externalizing those costs onto the public, the environment, and communities; and failing to warn the public about the hazards associated with the use of fossil fuel products.
11. Plaintiff and its residents have been damaged, including in their exercise of public and common rights, as a direct and proximate result of the public nuisance created by Defendants. Plaintiff has spent and will have to spend substantial sums to mitigate this interference. The ultimate nature of the harm is the destruction of real and personal property, the loss of natural resources, and actual threats to public health, rather than mere annoyance. Plaintiff's damages and losses include, but are not limited to:
- costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;
 - costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;

- costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;
 - costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
12. These damages and losses are the direct and proximate result of the public nuisance—climate alteration—that Defendants caused and contributed to.
13. Defendants’ acts and omissions as alleged herein are indivisible causes of Plaintiff State of Minnesota’s injuries and damage as alleged herein because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly commingle in the atmosphere.

V. Private Nuisance

This model private nuisance claim has been adapted from common law and statutory nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims for environmental contamination brought against 3M by the

Minnesota Attorney General discussed in the January 31, 2019 Memorandum. Although these claims may be brought under either a common law or statutory nuisance cause of action, Minnesota's statutory nuisance provision, Minn. Stat. § 561.01, may be broader and more favorable to Minnesota than common law nuisance. As such, both common law and statutory nuisance claims are addressed below:

1. Minn. Stat. § 561.01 provides that: “[a]nything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.”
2. The use, enjoyment, and existence of the State's natural resources is a right common to the people of the State.
3. Plaintiff owns, leases, occupies, manages, controls, and/or is otherwise in lawful possession of extensive real property within its jurisdiction.
4. As a direct and proximate result of Defendants' conduct, as set forth above, Plaintiff's property rights and interests, including its rights to the free and unthreatened use and enjoyment of that property as well as the free and unthreatened use and enjoyment of that property by communities within the State of Minnesota, have been and will be unreasonably interfered with and otherwise injuriously affected.
5. Defendants, and each of them, by causing and/or contributing to climate change through their acts and omissions described above, have created conditions on and/or set in motion forces that cause interference with and injuriously affected Plaintiff's real property, and permitted those conditions and forces to persist, which constitute a nuisance.
6. Plaintiff's property has been and/or will be substantially harmed by the effects of climate change. The conditions and forces Defendants created substantially and unreasonably interfere with, injuriously affect, and will substantially interfere with, and injuriously affect, Plaintiff's use and quiet enjoyment of rights to and interests in its real property, including by increasing the frequency and intensity of flooding and erosion, storms, extreme heat events, and the spread of invasive species.
7. The harms to and interference with Plaintiff's property have become and/or will continue to be regular and severe.

8. Plaintiff has not consented to Defendants' conduct in creating the condition that has interfered with and injuriously affected Plaintiff's property.
9. All of its harms will actually be borne by Plaintiff as loss of use and enjoyment of public property and infrastructure. The burden on Plaintiff to mitigate, repair, remediate and prevent further grave interferences with and injury to its property is significant and severe.
10. Defendants' conduct was and is negligent, reckless, and intentional because Defendants knew or should have known their actions were substantially certain to interfere with and injure Plaintiff's property rights and interests. Defendants have known for decades, and/or reasonably should have known, that their conduct was substantially certain to alter or contribute to alterations in the climate and is exacerbating climate change.
11. Defendants' conduct was and is unreasonable because they have created and are creating the interference with Plaintiff's property rights and injury to Plaintiff's property rights without compensating Plaintiff for the harm they knowingly, recklessly, or negligently created or will create.
12. Defendants' conduct is continuing and has produced and will produce ongoing injurious effects.
13. Defendants' actions are a direct and proximate cause of Plaintiff's damages and losses.
14. Plaintiff's real property has been damaged and its use and enjoyment of that property has been threatened by the nuisance created by Defendants; Plaintiff has spent and will have to spend substantial dollars to mitigate this interference. Plaintiff's damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;
 - costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;
 - costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure

to vector-born disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;

- costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
- costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
- costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
- costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
- costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
- loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;

15. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

16. Wherefore, Plaintiff prays for an award of damages and restitution of its costs to abate the nuisance.

VI. Trespass

This model trespass claim has been adapted from claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims for environmental contamination brought against 3M by the Minnesota Attorney General and discussed in the January 31, 2019 Memorandum.

1. Plaintiff is the owner, in lawful possession, of real property.
2. Defendants have intentionally engaged in conduct that has caused and contributed to climate change which, in the usual course of events, has caused and will cause flood waters, hail, rain, snow, wind, pests, and invasive species to enter Plaintiff's property.

3. Defendants knew, with substantial certainty, that their fossil fuel activities would cause and contribute to climate change, and thus cause these invasions of Plaintiff's property.
4. This trespass is recurring and will continue into the future.
5. Plaintiff did not give Defendants permission for these invasions of Plaintiff's property.
6. Defendants' trespasses are the direct and proximate cause of damages and losses to the Plaintiff.
7. Defendants' actions are and have been a cause of the injuries and damages to Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' trespasses, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by the trespasses. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;
 - costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiffs;
 - costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;

- loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public's ability to use Plaintiff's properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

VII. Strict Liability for Abnormally Dangerous Activity

This model claim for strict liability for abnormally dangerous activity was adopted from claims brought by the Rhode Island Attorney General against a number of fossil fuel companies, including Chevron, Exxon Mobil, and BP. *See* Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018). It also draws on Minnesota case law adopting the English case of *Rylands v. Fletcher*, LR, 3 H.L. 330 (1868). *See Minnesota Mining & Mfg. Co. v. Travelers Indem. Co.*, 475 N.W.2d 175, 183 (Minn. 1990).

1. There is overwhelming scientific evidence linking fossil fuel combustion to climate change.
2. Defendants knew or should have known of the climate effects inherently caused by the normal use and operation of their fossil fuel products, including the likelihood and likely severity of global and local climate change and its consequences, and including injuries to Plaintiff, its citizens, and its natural resources, as described herein.
3. Defendants' activities in extracting, refining, formulating, designing, packaging, distributing, testing, constructing, fabricating, analyzing, recommending, merchandizing, advertising, promoting, and selling fossil fuel products, intended by Defendants to be burned for energy, refined into petrochemicals, and reined and/or incorporated into petrochemical products including but not limited to fuels and plastics brought substantial amounts of fossil fuels onto Defendants' properties which were not naturally there.
4. Defendants knew that substantial amounts of fossil fuels not naturally on their properties, when released, would cause significant damages to, *inter alia*, Plaintiff, Plaintiff's property, and Plaintiff's citizens due to the effects of climate change.
5. Defendants' activities constituted an abnormally dangerous activity and/or created abnormally dangerous conditions.
6. As a direct and proximate result of Defendants' actions and omissions, Plaintiff has sustained and will sustain substantial expenses and damages, including damage to

publicly owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.

7. Defendants are strictly liable for the damages resulting as a natural consequence from the release of fossil fuels and GHGs from their properties, including response costs incurred by Plaintiff to respond to the effect of these releases on Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' abnormally dangerous activities, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by these activities. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;
 - costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiff;
 - costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;
 - loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public's ability to use Plaintiff's properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

APPENDIX A

Appendix A sets forth model claims against fossil fuel companies for Minnesota climate change damages. These are claims under Minnesota law for: (1) violation of Minnesota consumer protection and antitrust statutes; (2) products liability design defect; (3) products liability failure to warn; (4) public nuisance; (5) private nuisance; (6) trespass; and (7) strict liability for abnormally dangerous activities. The legal analysis for each of these claims is contained in the Memorandum to Attorney General Keith Ellison dated January 31, 2019.

I. Violation of Minnesota Consumer Protection and Antitrust Statutes

The claims below are based on Minnesota consumer protection and antitrust statutes. They also draw from the Maryland and Colorado lawsuits against fossil fuel companies for climate change-related damages and the Minnesota tobacco litigation that was settled for \$6.6 billion, *State of Minnesota v. Philip Morris Inc.*, No. C1-94-8565 (Ramsey Co. Dist. Ct. 1998).

Prevention of Consumer Fraud Act, Minn. Stat. § 325F.68-70:

1. Defendants, in connection with the sale of merchandise, knowingly misrepresented, and continue to misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to fossil fuel use and climate change, including knowing misrepresentations that there is no causal connection between fossil fuel use and climate change, efforts to spread doubt about the link between fossil fuel use and climate change, and disparagement of the work of others that show the connection between fossil fuel use and climate change;
 - Defendants' fraudulent concealment of information relating to fossil fuel use and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use, including: the true cost and harms from their products, the damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.

3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

False Statement in Advertising, Minn. Stat. §325F.67:

1. Defendants, intending to sell and increase consumption of their products, knowingly caused and continue to cause to be made and placed before the public in Minnesota advertisements regarding their products which contained material assertions, representations and/or statements of fact that were untrue, deceptive, and/or misleading. *See* Minn. Stat. § 325F.67.
2. Defendants' wrongful conduct includes, by way of example:
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that make intentional, material misrepresentations, such as that there is no causal connection between fossil fuel use and climate change and publications and advertisements that advance false theories refuting the connection between fossil fuel use and climate change;
 - Untrue, deceptive, and misleading statements and practices relating to fossil fuel use and climate change, including publications and other advertisements placed before the public in Minnesota that intentionally omit material information about the connection between fossil fuel use and climate change and existing and likely impacts of climate change on society.
3. As a direct and proximate result of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unlawful Trade Practices Act, Minn. Stat. §§ 325D.09-16:

1. Defendants, in connection with the sale of merchandise, including fossil fuels, knowingly misrepresented, and continue to knowingly misrepresent, directly and indirectly, the true quality, ingredients or characteristics of such merchandise. *See* Minn. Stat. § 325D.13.
2. Defendants' wrongful conduct includes, by way of example:
 - Defendants' misrepresentations relating to the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations that there is no causal connection between fossil fuels and climate change, efforts to spread doubt about the link between fossil fuels and climate change, and disparagement of the work of others that showed the connection between fossil fuels and climate change;
 - Defendants' misrepresentations that they would or did conduct and disclose objective research on the issue of fossil fuel use/extraction and climate change, including knowing misrepresentations;

- Defendants' fraudulent concealment of information relating to fossil fuel use/extraction and climate change and failure to disclose material facts, including knowing concealment and failure to disclose information relating to fossil fuel use/extraction, the true cost and harms from their products, the likely damage to the climate and to Plaintiff's property, social services and infrastructure that Defendants were aware the use of their merchandise would cause.
3. Defendants intended that Plaintiff rely on their misrepresentations, and as a direct and proximate cause of defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Unreasonable Restraint of Trade and Commerce, Minn. Stat. § 325D.51:

1. For several decades and continuing today, Defendants entered into a contract, combination, or conspiracy between two or more persons aiming to unreasonably restrain trade and commerce in Minnesota's energy and transportation sectors. The energy and transportation markets are inextricably linked with Minnesota's interests in those fields and in other fields including but not limited to: health care, real estate, tourism and natural resources.
2. Defendants and their co-conspirators had a meeting of the minds to accomplish their goals to maintain and/or to increase fossil fuel usage at levels they knew were sufficient to alter the climate, and to withhold material information concerning the continuing and increasing harm caused by their fossil fuel activities, specifically concerning the damage to the climate that the use of their goods and services would cause and the impacts of the use of their fossil fuels and fossil fuel-derived products and services on Plaintiff's property, social services and infrastructure.
3. This contract, combination, or conspiracy had the purpose and effect of restraining competition in the energy and transportation markets in Minnesota and controlling those markets in Minnesota through restraining and suppressing research on the causal connection between fossil fuel extraction/use and climate change and the harms of climate change, restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
4. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Monopolization of the Transportation/Energy/Petroleum Market in Minnesota, Minn. Stat. § 325D.52:

1. Defendants collectively and with co-conspirators have for at least several decades, and to this day maintained and used, or attempted to establish, maintain, or use monopoly power over trade and commerce to affect competition and/or control, fix or maintain prices in the oil market and other related markets. *See* Minn. Stat. § 325D.52.
2. Defendants, through their acts and omissions described above, maintained and used their monopoly power to affect competition by restraining and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel extraction/use; and restraining and suppressing the research, development, production, and marketing of alternative renewable fuel sources and products. This has resulted in the combustion of billions of gallons of fossil fuels and the release of many million metric tons of GHGs into the atmosphere that could otherwise have been avoided, causing adverse effects to the state of Minnesota, including but not limited to environmental damages, property damages, and increased health care costs.
3. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff has suffered and will continue to suffer injuries and damages, including but not limited to (see damages list above).

Antitrust: Civil Conspiracy, Minn. Stat. § 325D.53:

1. Beginning at least as early as the 1950s and continuing until the present day, Defendants entered into a conspiracy with the intentional and unlawful purpose and effect of restraining and suppressing research on the harmful effects of fossil fuel extraction/use; restraining and suppressing the dissemination of information on the harmful effects of fossil fuel combustion/use; engaging in affirmative misrepresentations on the harmful effects of fossil fuel combustion/use; and restraining and suppressing the research, development, production, and marketing of better alternatives. In furtherance of defendants' conspiracy, defendants lent encouragement, substantial assistance, and otherwise aided and abetted each other with respect to these wrongful acts.
2. As a direct and proximate result of Defendants' unlawful conspiracy, Plaintiff has suffered and will continue to suffer substantial injuries and damages, including but not limited to (see damages list above).

II. Products Liability Design Defect

Below is an example of a claim alleging defective design for fossil fuel products in Minnesota. The language and sources are adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted, refined, formulated, designed, packaged, distributed, tested, constructed, marketed, promoted and sold fossil fuel products intended to be burned for energy, refined into petrochemicals, and/or refined/incorporated into petrochemical products including fuels and products.
2. The emissions of GHGs from the intended use of Defendants' fossil fuel products is a defective condition that makes the product unreasonably dangerous because GHG emissions cause numerous global and local changes to Earth's climate.
 - Fossil fuel combustion and industrial processes are responsible for the majority of emissions that have caused GHG concentrations to reach hazardous and unprecedented levels, contributing roughly 78% of total GHG emission increases from 1970 to 2011.
 - As a result of GHG emissions caused and contributed to by Defendants' fossil fuel activities, atmospheric CO₂ now stands at 408 parts per million (ppm), a level which is unprecedented in human history.
 - Once CO₂ enters the atmosphere, a significant portion of it remains there, with a warming influence that lasts for hundreds (if not thousands) of years. It also cannot be feasibly removed from the atmosphere with existing technology, committing the world to some degree of irreversible warming and associated climate change resulting from emissions to date.
 - These anthropogenic increases in CO₂ and GHG emissions act like a greenhouse in the atmosphere, trapping heat inside the Earth and leading to a warming atmosphere, oceans, and changing climate.
 - Minnesota's winters are warming thirteen times faster than its summers and Minneapolis and Mankato are the second and third fastest-warming cities respectively in the United States. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).
3. Based on the totality of the circumstances, balancing the likelihood of harm and the gravity of the harm if it occurred, against the burden of the precaution that would be effective to avoid the harm, the design of fossil fuel products was unreasonably dangerous.
4. The gravity of potential harms is extreme.
 - Potential harms arising from fossil fuel products unreasonably dangerous design include global warming, extreme high temperature events, extreme precipitation events, droughts, significant public health impacts, and more.
 - Public health impacts of climatological changes are likely to be disproportionately borne by communities made vulnerable by geographic, racial, or income disparities including low-income communities, some communities of color, immigrant groups,

indigenous peoples, children and pregnant woman, other adults, and others. Janet Gamble, U.S. EPA, John Balbus, Nat'l Inst. of Health, *The Impacts of Climate Change on Human Health in the United States* 249 (Apr. 2016).

- In Minnesota, invasive species and diseases like Asian soybean rust may be able to survive Minnesota's warmer winters threatening Minnesota crops. Pine woods could retreat north changing Minnesota's tree population and warmer winters could even drive out Minnesota's state bird, the common loon. Jennifer Bjorhus, *U Scientists: Minnesota is One of Nation's Fastest-Warming States*, STAR TRIBUNE (Jan. 16, 2019).
- Minnesota will have more precipitation, but late summer conditions will be drier and warmer. *Id.* August rainfall could drop by up to 60 percent in some parts of the state by the end of the century. *Id.*
- Other Minnesota specific damages arising from climate change include:
 - Damages to agriculture including reduced yields, increases in pesticide and insecticide application to maintain yields, loss in soil agriculture, loss of yield in animal agriculture (pigs, cows, chickens, milk, egg, and pork production are lost when temperatures stay above 90 degrees), reduced fruit agriculture yields, particularly apples (apples need a certain number of chilling days per fall), and the cost to educate farmers on these changes and steps to mitigate damages by state agencies.
 - Current hydrologic damages including flooding on farmlands, excessive floods that fall under the compensation threshold by FEMA, increase in heavy storms. Future hydrological damages include an increase in prolonged droughts and flooding events.
 - Significant health impacts, particularly to low income and communities of color, including increased asthma attacks, allergens, hay fever, toxic algal blooms, heat stress and heat related illness (many low to medium income housing units do not have air conditioners), vector borne diseases (West Nile virus, tick borne diseases), flood damages and mold in homes (cost to remediate, mental health impacts, etc.)
 - Damages to Minnesota's lakes including toxic algal blooms, loss of cold-water species as we move from cold-water lakes to cool water lakes, cost for state agencies to restock fisheries/lakes.
 - Damages to Minnesota's forests ranging from loss of wildlife habitat and species (including moose, common loon, and other iconic species).
 - A large tract of tamarack trees in Northeastern Minnesota has already been lost to eastern larch beetles, which are able to survive longer and cause more damage due to the warming climate. *See* Josephine Marcotty, *As Climate*

Warms, an Exploding Larch Beetle Population is Transforming Minnesota's Forests, STAR TRIBUNE (Aug. 13, 2017) (“‘It’s a fantastic example of climate change in action,’ said Brian Aukema, a University of Minnesota professor who studies larch beetles and other forest insects. ‘That insect is telling us that tamarack no longer belongs here.’”)

- Costs to transportation infrastructure including flood damages to bridges and roads.
 - Other infrastructure damages including stormwater systems, sewer systems, power sector constraints, increased burden on emergency management and need to retrofit state operated buildings with air conditioning.
5. Defendants not only *knew* of the significant potential likelihood that harm would occur from continued use of their fossil fuel products as early as 1965, they actively worked to obscure public knowledge and create uncertainty regarding climate science.
 6. The cost to society of each ton of CO₂ emitted into the atmosphere increases as total global emissions increase, so that with each extraction/consumption of fossil fuel product the gravity of harm and likelihood increases.
 7. The cost to society from climate change damages greatly outweighs the social benefit from unchecked extraction and consumption of fossil fuel.
 8. Oil and gas companies were in a position to create, develop, and design alternative technologies, energy sources, and businesses practices that would have eased the transition to a lower carbon economy, reduced GHG emissions, and mitigated the harms associated with climate change.
 9. Defendants could have mitigated the burden of the precautionary measures necessary to reduce GHG emissions by investing time and resources into developing alternative forms of energy.
 10. Instead, these same companies spent decades and vast resources on a concerted campaign to discredit climate change science and warnings despite internal knowledge that “it would be unwise and potentially dangerous to ignore the mounting concern.” John Browne, BP Climate Change Speech to Stanford, Climate Files (May 19, 1997), <http://climatefiles.com/bp/bp-climate-change-speech-to-stanford/>.
 11. Defendants also invested heavily in lobbying campaigns to avoid GHG regulation and international treaties addressing climate change.
 12. Defendants’ individual and aggregate fossil fuel products reached the consumer in a condition substantially unchanged from that in which it left Defendants’ control—and were used in the manner in which they were intended to be used by individual and corporate

consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.

13. Defendants' design of fossil fuel products led to an unreasonably dangerous defect that was the direct and proximate cause of substantial climate change damages in Minnesota.
14. The emission of GHGs, a defective condition in fossil fuel products, is and will continue to be a substantial factor causing climate change damages in Minnesota.
15. Defendants' individual and collective acts and omissions were actual, substantial causes of increased average temperatures, spread of invasive species, drought, flooding and related consequences, including Minnesota's injuries and damages set forth herein.
16. There were no intervening or superseding events that caused Minnesota's climate change damages. No other act, omission, or natural phenomenon intervened in the chain of causation between oil and gas companies' conduct and Minnesota's injuries and damages, or superseded Defendants' breach of their duties to design a reasonable safe product.
17. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions. *See supra*.
18. Defendants' acts and omissions as alleged herein are indivisible causes of Minnesota's injuries and damages as alleged herein, because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly diffuse and comeingle in the atmosphere.
19. Defendants are jointly and severally liable for Minnesota's indivisible injuries stemming from climate change damages.

III. Products Liability Failure to Warn

Below is an example of a model claim alleging failure to warn against fossil fuel companies for harm caused by their products and is largely adapted from the *Rhode Island v. Chevron Corp.* and *PCFFA v. Chevron Corp.* complaints, filed by Sher Edling LLP, to fit Minnesota law.

1. Defendants extracted produced, distributed, marketed, and placed into the stream of commerce fossil fuel products including oil, coal, and natural gas.

2. Defendants had at all times a duty to issue adequate warnings to Minnesota, the public, consumers, and public officials of the reasonably foreseeable danger and risks posed by their fossil fuel products.
3. Defendants had actual and constructive knowledge, in light of the current scientific knowledge generally accepted at that time and the information passed to them from internal research divisions, that fossil fuel products were defective and dangerous based on the climate effects inherently caused by their normal use and operation.
 - a. Internal research divisions and affiliates passed adequate information to oil and gas companies warning of the dangers GHG emissions from their fossil fuel products could cause.
 - b. Furthermore, the international scientific community was well aware of, and made public, scientific knowledge regarding the significant and damaging climate effects that past and continued use and operation of fossil fuel products would cause.
 - c. This knowledge included the likelihood and likely severity of global warming, global and local sea level rise, more frequent and extreme droughts, more frequent and extreme precipitation events, more frequent and extreme heat waves, and the associated consequences of those physical and environmental changes, including Minnesota's injuries and damages.
4. Based on this information, defendants knew or should have known that the climate effects described herein rendered their fossil fuel products dangerous, or likely to be dangerous, when used as intended.
5. Defendants should have reasonably foreseen that the danger from use of their fossil fuel products would cause significant injuries to the public.
 - a. Because releasing GHGs into the atmosphere inevitably causes, *inter alia*, global warming, sea level rise, more frequent and extreme heat waves, and the associated consequences of those physical and environmental damages, it was reasonably foreseeable that fossil fuel product use would cause injury.
 - b. The emission of GHGs from fossil fuel products was and will continue to be a substantial factor causing climate change damages in Minnesota.
 - c. The climate change damages to Minnesota were reasonably foreseeable because Defendants had actual and constructive knowledge of the harm fossil fuel products could cause based on their GHG emissions.
6. It was not obvious to consumers or the public that the use of fossil fuel products presented significant dangers of an unprecedented magnitude to public health, publicly owned infrastructure, real property, public trust resources, and rights of Minnesota and its citizens.

- a. Consumers were prevented from recognizing the risk that fossil fuel products would cause grave climate change-related damages because Defendants individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.
 - b. Any warnings that may have disseminated were undermined and rendered ineffective because of Defendants' public relations materials and campaigns that prevented reasonable consumers from recognizing the risks that fossil fuel products posed.
7. Throughout the times at issue, Defendants breached their duty of care by failing to provide *any* warning, let alone an adequate warning, to customers, consumers, regulators, and the general public of the known and foreseeable risks that inevitably flow from the intended use of their fossil fuel products.
8. Defendants failed to issue warnings to consumers or any other party of the climate effects that are posed by the continued use of their fossil fuel products.
9. Defendants' failure to warn the public and Plaintiff of the dangers stemming from fossil fuel extraction, production, and use is causally connected to the injuries Minnesota has and will continue to sustain from climate change.
10. Had Defendants provided adequate warnings the climate change injuries to Minnesota would not have occurred.
 - a. Purchasers of fossil fuels, including Plaintiff, would have avoided the risk of harm if Defendants had warned them of the severity and extent of danger their products caused.
 - b. Because of Defendants' disinformation campaigns, the general public, consumers, and regulators did not have adequate knowledge of the danger fossil fuel products posed, and therefore did not disregard the dangers or ignore other warnings.
11. Minnesota has sustained and will sustain other substantial expenses and damages set forth in this Complaint, including damage to public owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.

IV. Public Nuisance

A public nuisance claim under Minnesota law could be adapted from public nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from public nuisance claims brought by the Rhode Island Attorney General against a number of fossil fuel companies, including Chevron, Exxon Mobil, and BP, among others. *See*

Complaint, *Bd. Cty. Comm'rs. of Boulder Cty. v. Suncor Energy, Inc.*, No. 2018-CV-30349 (June 11, 2018); Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018).

1. In Minnesota, the public is entitled by right to the protection, preservation, and enhancement of the air, water, land, and other natural resources located within the State, and it is the policy of the State to create and maintain within the State conditions under which man and nature can exist in productive harmony in order that present and future generations may enjoy clean air and water, productive land, and other natural resources with which the State has been endowed.
2. Defendants' affirmative acts, omissions, and fossil fuel activities—i.e. knowingly producing, promoting, refining, marketing, and selling a substantial amount of fossil fuels at levels sufficient to alter the climate, and misrepresenting the dangers associated with their use—have caused, created, contributed to, and/or exacerbated dangerous alterations in the climate.
3. The alterations in the climate substantially caused and contributed to by Defendants constitute a present and continuing nuisance in Plaintiff's communities. Plaintiff must mitigate the impacts and severity of the public nuisances caused and contributed to by the levels of Defendants' fossil fuel activities, including, but not limited to: increasing frequency and intensity of extreme heat days in the State; increasing frequency and intensity of extreme precipitation events in the State and associated flooding, erosion, damage to infrastructure; the spread of pests, disease, and increasing threats to public health by, among other things, increasing allergens and ozone, as well as diminishing air quality.
4. Plaintiff is specially injured by the public nuisance brought about by Defendants' actions, which altered the climate. This is due to Plaintiff's special responsibility to respond to and abate the hazards brought by the climate alteration caused by Defendants' climate-altering activities, and because Plaintiff and its property and assets are especially vulnerable to the impacts of climate change, including, specifically, but not exclusively, its:
 - transportation infrastructure, including roads, bridges, and culverts;
 - flood, stormwater, and water supply infrastructure;
 - agricultural and open space lands; and
 - lakes, rivers, streams, and associated plant and wildlife that Plaintiff holds in trust for its citizens.
5. The public nuisance created and contributed to by Defendants unreasonably endangers and injures the property, health, peace, comfort, safety, and welfare of the general public and the natural resources of the State of Minnesota, interfering with the comfort and convenience of communities state-wide, as well as with the State's *parens patriae* ability to protect, conserve, and manage the water, land, and wildlife of the state, which are by law precious and invaluable public resources.

6. The harms caused by Defendants are and will continue to be borne by Plaintiff and residents of Plaintiff's communities in the form of damage to property; impairment of public health; obstructed movement within the state; the loss of use and enjoyment of public property, the environment, and local eco-systems and infrastructure; as well as added costs to protect, repair, and remediate the harms caused by Defendants' alteration of the climate.
7. Defendants have contributed to and continue to contribute to the creation and exacerbation of the public nuisance, in that the intended and foreseeable combustion of Defendants' fossil fuels at the levels at which they were being used has produced and will continue to produce a substantial amount of GHG emissions, measured in billions of excess tons of CO₂ and other GHGs. Those excess tons have caused, contributed to, and/or exacerbated the impacts of climate change, including in Plaintiff's communities. Additionally, Defendants' fossil fuel activities and concealment and/or misrepresentation of the risk, known to Defendants, of the intended use of fossil fuels has also resulted in a substantial amount of excess GHG emissions, which caused, contributed to, and/or exacerbated the impacts of climate change.
8. Defendants intentionally, negligently and/or recklessly created the interference incurred by Plaintiff and the Plaintiff's communities caused by climate change. For decades, Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff and Plaintiff's communities—were substantially certain to result when they produced, promoted, refined, marketed and sold fossil fuels intending that they would be combusted at significant rates. Defendants knew or should have known that climate change impacts—including those affecting the Plaintiff communities—were substantially certain to result when they concealed and affirmatively misrepresented the truth about climate change and the negative impacts of fossil fuel use to the public and their consumers.
9. Defendants' interference with public rights is unreasonable. For decades, Defendants have internalized the benefits of fossil fuel use—i.e., their profits—and externalized their costs—i.e., the impacts of climate change—onto communities such as Plaintiff's. Defendants knew or should have known the costs to Plaintiff and its communities of their fossil fuel activities, and have not compensated Plaintiff for those foreseen harms. Defendants continue to produce, promote, refine, market and sell fossil fuels at levels that cause and contribute to alteration of the climate, continue to profit from rising sales and continue to not compensate Plaintiff or its communities for the continued and added impacts that it and they suffer and will continue to suffer from as a direct and proximate result of Defendants' nuisance.
10. Defendants specifically created, contributed to, assisted in creating, and/or were a substantial contributing factor in the creation of the public nuisance by, *inter alia*:
 - a. Controlling every step of the fossil fuel product supply chain, including the extraction of raw fossil fuel products, including crude oil, coal, and natural gas

from the Earth; the refining and marketing of those fossil fuel products, and the placement of those fossil fuel products into the stream of commerce;

- b. Affirmatively and knowingly promoting the sale and use of fossil fuel products which Defendants knew to be hazardous and knew would cause or exacerbate global warming and related consequences, including, but not limited to, drought, extreme precipitation events, extreme heat events, and changing and increasingly severe weather patterns;
 - c. Affirmatively and knowingly concealing the hazards that Defendants knew would result from the normal use of their fossil fuel products by misrepresenting and casting doubt on the integrity of scientific information related to climate change;
 - d. Disseminating and funding the dissemination of information intended to mislead customers, consumers, and regulators regarding the known and foreseeable risk of climate change and its consequences, which follow from the normal use of Defendants' fossil fuel products;
 - e. Affirmatively and knowingly campaigning against the regulation of Defendants' fossil fuel products, despite knowing the hazards and climate effects associated with the normal use of those products, in order to continue profiting from the regular use of those products by externalizing those costs onto the public, the environment, and communities; and failing to warn the public about the hazards associated with the use of fossil fuel products.
11. Plaintiff and its residents have been damaged, including in their exercise of public and common rights, as a direct and proximate result of the public nuisance created by Defendants. Plaintiff has spent and will have to spend substantial sums to mitigate this interference. The ultimate nature of the harm is the destruction of real and personal property, the loss of natural resources, and actual threats to public health, rather than mere annoyance. Plaintiff's damages and losses include, but are not limited to:
- costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;
 - costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;

- costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;
 - costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
12. These damages and losses are the direct and proximate result of the public nuisance—climate alteration—that Defendants caused and contributed to.
13. Defendants’ acts and omissions as alleged herein are indivisible causes of Plaintiff State of Minnesota’s injuries and damage as alleged herein because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO₂ in the atmosphere attributable to anthropogenic sources because such GHG molecules do not bear markers that permit tracing them to their source, and because GHGs quickly commingle in the atmosphere.

V. Private Nuisance

This model private nuisance claim has been adapted from common law and statutory nuisance claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims for environmental contamination brought against 3M by the

Minnesota Attorney General discussed in the January 31, 2019 Memorandum. Although these claims may be brought under either a common law or statutory nuisance cause of action, Minnesota's statutory nuisance provision, Minn. Stat. § 561.01, may be broader and more favorable to Minnesota than common law nuisance. As such, both common law and statutory nuisance claims are addressed below:

1. Minn. Stat. § 561.01 provides that: “[a]nything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.”
2. The use, enjoyment, and existence of the State's natural resources is a right common to the people of the State.
3. Plaintiff owns, leases, occupies, manages, controls, and/or is otherwise in lawful possession of extensive real property within its jurisdiction.
4. As a direct and proximate result of Defendants' conduct, as set forth above, Plaintiff's property rights and interests, including its rights to the free and unthreatened use and enjoyment of that property as well as the free and unthreatened use and enjoyment of that property by communities within the State of Minnesota, have been and will be unreasonably interfered with and otherwise injuriously affected.
5. Defendants, and each of them, by causing and/or contributing to climate change through their acts and omissions described above, have created conditions on and/or set in motion forces that cause interference with and injuriously affected Plaintiff's real property, and permitted those conditions and forces to persist, which constitute a nuisance.
6. Plaintiff's property has been and/or will be substantially harmed by the effects of climate change. The conditions and forces Defendants created substantially and unreasonably interfere with, injuriously affect, and will substantially interfere with, and injuriously affect, Plaintiff's use and quiet enjoyment of rights to and interests in its real property, including by increasing the frequency and intensity of flooding and erosion, storms, extreme heat events, and the spread of invasive species.
7. The harms to and interference with Plaintiff's property have become and/or will continue to be regular and severe.

8. Plaintiff has not consented to Defendants' conduct in creating the condition that has interfered with and injuriously affected Plaintiff's property.
9. All of its harms will actually be borne by Plaintiff as loss of use and enjoyment of public property and infrastructure. The burden on Plaintiff to mitigate, repair, remediate and prevent further grave interferences with and injury to its property is significant and severe.
10. Defendants' conduct was and is negligent, reckless, and intentional because Defendants knew or should have known their actions were substantially certain to interfere with and injure Plaintiff's property rights and interests. Defendants have known for decades, and/or reasonably should have known, that their conduct was substantially certain to alter or contribute to alterations in the climate and is exacerbating climate change.
11. Defendants' conduct was and is unreasonable because they have created and are creating the interference with Plaintiff's property rights and injury to Plaintiff's property rights without compensating Plaintiff for the harm they knowingly, recklessly, or negligently created or will create.
12. Defendants' conduct is continuing and has produced and will produce ongoing injurious effects.
13. Defendants' actions are a direct and proximate cause of Plaintiff's damages and losses.
14. Plaintiff's real property has been damaged and its use and enjoyment of that property has been threatened by the nuisance created by Defendants; Plaintiff has spent and will have to spend substantial dollars to mitigate this interference. Plaintiff's damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration—requiring the diversion of tax dollars away from other public services—the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts, as the interference with the public's rights is expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the State;
 - costs of responding to, managing, and repairing damage from pest infestations, requiring the diversion of tax dollars away from other public services;
 - costs associated with increased drought conditions, including alternate planting and increased landscape maintenance costs;
 - costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure

to vector-born disease, mitigation measures, and public education programs to reduce the occurrence of such health impacts, requiring the diversion of tax dollars away from other public services;

- costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage, requiring the diversion of tax dollars away from other public services;
 - costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration, requiring the diversion of tax dollars away from other public services;
 - costs associated with alteration and repair of bridge structures to retain safety due to increases in streamflow rates, requiring the diversion of tax dollars away from other public services;
 - costs of repair of physical damage to buildings owned by Plaintiffs, requiring the diversion of tax dollars away from other public services;
 - costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
 - loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
15. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.
16. Wherefore, Plaintiff prays for an award of damages and restitution of its costs to abate the nuisance.

VI. Trespass

This model trespass claim has been adapted from claims brought by county commissioners in Colorado against Suncor Energy and Exxon Mobil, and from claims for environmental contamination brought against 3M by the Minnesota Attorney General and discussed in the January 31, 2019 Memorandum.

1. Plaintiff is the owner, in lawful possession, of real property.
2. Defendants have intentionally engaged in conduct that has caused and contributed to climate change which, in the usual course of events, has caused and will cause flood waters, hail, rain, snow, wind, pests, and invasive species to enter Plaintiff's property.

3. Defendants knew, with substantial certainty, that their fossil fuel activities would cause and contribute to climate change, and thus cause these invasions of Plaintiff's property.
4. This trespass is recurring and will continue into the future.
5. Plaintiff did not give Defendants permission for these invasions of Plaintiff's property.
6. Defendants' trespasses are the direct and proximate cause of damages and losses to the Plaintiff.
7. Defendants' actions are and have been a cause of the injuries and damages to Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' trespasses, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by the trespasses. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;
 - costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiffs;
 - costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;

- loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public's ability to use Plaintiff's properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

VII. Strict Liability for Abnormally Dangerous Activity

This model claim for strict liability for abnormally dangerous activity was adopted from claims brought by the Rhode Island Attorney General against a number of fossil fuel companies, including Chevron, Exxon Mobil, and BP. *See* Complaint, *State of Rhode Island v. Chevron*, No. PC-2018-4716 (July 2, 2018). It also draws on Minnesota case law adopting the English case of *Rylands v. Fletcher*, LR, 3 H.L. 330 (1868). *See Minnesota Mining & Mfg. Co. v. Travelers Indem. Co.*, 475 N.W.2d 175, 183 (Minn. 1990).

1. There is overwhelming scientific evidence linking fossil fuel combustion to climate change.
2. Defendants knew or should have known of the climate effects inherently caused by the normal use and operation of their fossil fuel products, including the likelihood and likely severity of global and local climate change and its consequences, and including injuries to Plaintiff, its citizens, and its natural resources, as described herein.
3. Defendants' activities in extracting, refining, formulating, designing, packaging, distributing, testing, constructing, fabricating, analyzing, recommending, merchandizing, advertising, promoting, and selling fossil fuel products, intended by Defendants to be burned for energy, refined into petrochemicals, and reined and/or incorporated into petrochemical products including but not limited to fuels and plastics brought substantial amounts of fossil fuels onto Defendants' properties which were not naturally there.
4. Defendants knew that substantial amounts of fossil fuels not naturally on their properties, when released, would cause significant damages to, *inter alia*, Plaintiff, Plaintiff's property, and Plaintiff's citizens due to the effects of climate change.
5. Defendants' activities constituted an abnormally dangerous activity and/or created abnormally dangerous conditions.
6. As a direct and proximate result of Defendants' actions and omissions, Plaintiff has sustained and will sustain substantial expenses and damages, including damage to

publicly owned infrastructure and real property, and injuries to public trust resources that interfere with the rights of the State and its citizens.

7. Defendants are strictly liable for the damages resulting as a natural consequence from the release of fossil fuels and GHGs from their properties, including response costs incurred by Plaintiff to respond to the effect of these releases on Plaintiff's property.
8. Plaintiff's real property has been and will be damaged by Defendants' abnormally dangerous activities, and Plaintiff has spent and will spend substantial dollars to mitigate the damage caused by these activities. Such damages and losses include, but are not limited to:
 - costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts, and the costs of mitigating, adapting to, or remediating those impacts;
 - costs associated with flood response, management, and mitigation;
 - costs of responding to, managing, and repairing damage from invasive species and pest infestations;
 - costs of repair, maintenance, mitigation, and the rebuilding and replacement of road systems to respond to the impacts of climate alteration;
 - costs associated with repairing and replacing existing flood control, drainage, and stormwater measures, and repairing flood damage;
 - costs associated with the alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
 - costs of repair of physical damage to buildings owned by Plaintiff;
 - costs of analysis of alternative building design and construction, and costs to implement such alternative design and construction, to account for the effects of climate alteration;
 - loss of income from property owned by Plaintiff due to reduced agricultural productivity or lease or rental income while property is unusable;
 - loss of income from tourism and recreation associated with property owned by Plaintiff due to injured and destroyed natural resources, resulting in a loss of the public's ability to use Plaintiff's properties for their normal and designated uses
9. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

RE: Article Draft -- Regulating the Energy "Free Riders"

From: Allen Gleckner <gleckner@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu>
Sent: February 5, 2019 1:27:58 PM CST
Received: February 5, 2019 1:28:05 PM CST
Attachments: Regulating the Free Riders Draft 1 14 2019_AG.docx

Hi Alex – sorry this took so long. Hopefully it's still helpful. In the attached are a few details edits, let me know if you have any questions on them.

Overall I think it's a really interesting thing to compare and I really like your recommendation. The precautionary principle approach also made me think of some of our recent battles against new nat gas plants, and how the uncertainty of fuel-price volatility, the pipeline infrastructure and the risk that they might be stranded assets are not accounted for in the "cost-effective" analysis we're forced to compete in. There are HUGE financial considerations, yet we have to treat them as add-on, qualitative benefits of a fuel-free alternative package.

Allen Gleckner

Director, Energy Markets

Fresh Energy

Phone 651 726 7570; 612 554 3291 (mobile)

www.fresh-energy.org | twitter.com/freshenergy

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From: Alexandra Klass <aklass@umn.edu>
Sent: Tuesday, January 15, 2019 7:03 PM
To: Allen Gleckner <gleckner@fresh-energy.org>
Subject: Re: Article Draft -- Regulating the Energy "Free Riders"

If you haven't started reading the article yet, here's the new and improved version.

Best,

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
229-19th Avenue South
Minneapolis, MN 55455
aklass@umn.edu
Bio: <https://www.law.umn.edu/profiles/alexandra-klass>

On Wed, Jan 9, 2019 at 12:18 PM Alexandra Klass <aklass@umn.edu> wrote:

Thank you!

Alex

Alexandra B. Klass

Distinguished McKnight University Professor
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On Wed, Jan 9, 2019 at 12:17 PM Allen Gleckner <gleckner@fresh-energy.org> wrote:

Hi Alex – I'd be glad to! Thanks for thinking of me.

Allen Gleckner

Director, Energy Markets

Fresh Energy

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www.fresh-energy.org | twitter.com/freshenergy

Practical policy. Brighter future. [Support our work today.](#)

From: Alexandra Klass <aklass@umn.edu>

Sent: Wednesday, January 9, 2019 11:27 AM

To: Allen Gleckner <gleckner@fresh-energy.org>

Subject: Article Draft -- Regulating the Energy "Free Riders"

Dear Allen -- Happy new year! I hope all is well. I was hoping you might have time to read an early draft of a new article that discusses free riding arguments in state public utility commission proceedings involving energy efficiency, distributed solar, and EV charging. It is very rough, and I would love your comments/suggestions to make it better!

Best,

Alex

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1. Regulating the Free Riders Draft 1 14 2019_AG.docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 209 KB (214,554 bytes)

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REGULATING THE ENERGY “FREE RIDERS”

Alexandra B. Klass*

This Article explores “free rider” arguments in energy policy. It focuses on how state public utility commissions have addressed free rider arguments in three different types of contemporary ratemaking proceedings: ratepayer funded energy efficiency programs; utility compensation for customer-generated rooftop solar energy; and utility investments in electric vehicle (“EV”) charging infrastructure. In doing so, this Article considers the impacts of the “free riding” label on policymaking in each area, and considers the weight policymakers should give to free rider concerns. It claims that regulators should consider both the present and future benefits of the program in question, particularly for programs designed to bring about major energy transition shifts. In other words, if the goal of the program is to build infrastructure required to shift to cleaner energy resources or reduce overall energy demand, program evaluators should consider future program beneficiaries in addition to current program beneficiaries. Moreover, regulators should use a range of tools to develop appropriate metrics to determine cost-effectiveness of programs supporting both distributed solar energy and EV charging investments, building on work done over the past decades in the energy efficiency context. Finally, this Article suggests that regulators can and should use the precautionary principle in developing these programs. Use of the precautionary principle is justified due to the potential for significant harm associated with continued reliance on fossil fuels in the energy sector and the potential for significant benefits to utility customers and the public resulting from a long term energy transition.

I. INTRODUCTION

As state regulators, electric utilities, and other interested parties attempt to develop programs to encourage a range of beneficial consumer behavior with regard to energy use, critics often are quick to argue that the beneficiaries of these programs are “free riders.”¹ In its simplest terms, free riding is the receipt of a public good

* Distinguished McKnight University Professor, University of Minnesota Law School. Scott Dewey, Connie Lenz, and Hudson Peters provided excellent research assistance.

¹ See, e.g., Charles E. Bayless, *Piggybacking on the Grid*, PUB. UTILS. FORT. (July 2015), <https://perma.cc/SH9U-KJTD> (comparing rooftop solar to “Piggyback Air,” a mythical airline that works by attaching its engineless planes to the roofs of its competitors’ aircraft); Prosper Org, *Ice Cream for Fairness*, YOUTUBE (Oct. 21, 2013), https://www.youtube.com/watch?reload=9&v=zJ8tToIcQ_U (electric utility-funded television advertisement suggesting that utility net metering programs are akin to a man bringing his own ice cream to an ice cream truck to take advantage of the free toppings provided with the ice cream sold at the truck, thus causing the owner to raise prices on ice cream for everyone else); Herman K. Trabish, *NV Energy CEO: Solar has Gotten a ‘Free Ride’ on the Grid*, GTM, (Aug. 19, 2013).

REGULATING THE ENERGY “FREE RIDERS”

without paying for its associated costs.² This Article will examine the use of free riding arguments in contemporary energy regulation. In particular, it will examine how state public utility commissions address arguments regarding free riding in three specific contexts: ratepayer funded energy efficiency programs; electric utility compensation for customer generated rooftop solar energy (also referred to as “net metering”); and electric utility investments in electric vehicle (“EV”) charging infrastructure.

This Article claims that regulators should exercise caution in evaluating free riding arguments. In particular, regulators should always consider which parties are making free riding arguments, what their motivations might be, and consider a full range of costs and benefits associated with the policy under consideration before reaching a conclusion that free riding is occurring, that an unreasonable shift of costs between customer classes is taking place, or that the policy fails to meet a statutory requirement that it be “just and reasonable.”³

Equally important, regulators need to be cognizant of the information asymmetries that permeate the utility regulatory proceedings involving claims of free riding. In many of the proceedings, “hard” data on program costs and benefits either is not available or is developed by the electric utility in question, at least at the start of the program. In the face of incomplete information, who should bear the burden of proving that a program such as energy efficiency, rooftop solar, or EV charging provides system-wide benefits and extent of those benefits? What if present-day benefits are modest but long-term benefits have the potential to be significant and measurable? These are important questions regulatory commissions are forced to answer in the early stages of customer-funded utility programs and labels of free riding or cross subsidies can limit or stall programs with potentially significant future system-wide benefits if the burden of providing information is misplaced.

The regulatory applications explored in this Article—energy efficiency programs, utility compensation for customer-generated rooftop solar energy, and utility investment in EV charging infrastructure—were chosen for two primary reasons. First each application involves the development of a state policy governing electric

² Garrett Cullity, *Moral Free Riding*, 24 PHIL. & PUB. AFF., 3, 7 (1995) (“a free rider is someone whose failure to pay for nonrival goods . . . makes her conduct unfair.”).

³ Most state statutes governing public utilities require that utility rates and charges be “just and reasonable” and that state public utility commissions ensure that rates are just and reasonable through the rate regulation process. See JIM LAZAR, ELECTRICITY REGULATION IN THE US: A GUIDE 49-61 (2d ed. 2016); Ari Peskoe, *Unjust, Unreasonable, and Unduly Discriminatory: Electric Utility Rates and the Campaign Against Rooftop Solar*, 11 Tex. J. Oil, Gas & Energy L. 101 & n.77 (2016) (citing state statutes).

utilities within a regulated monopoly system.⁴ This means that for each policy, the state public utility commission requires the electric utility to implement a program that will be paid for by all utility customers (also known as “ratepayers”) but that may not provide identical benefits to all customers. This understandably leads to arguments by the utilities, various customer classes, or other interested parties that one group of customers is “free riding” off of the program to the detriment of other groups of customers or that there is a “cross-subsidy”—the idea that one group of customers (e.g., EV drivers, rooftop solar owners) is being subsidized by another group of customers and such a result is “unfair” or does not result in “just and reasonable” rates.⁵

Second, these applications provide helpful case studies because electric utilities as a group have taken different positions with regard to their support or opposition to the program in question. With regard to energy efficiency, in the early stages of these programs in the 1980s, utilities often opposed such programs because they would reduce utility revenues due to lost electricity sales. However, as state legislatures and public utility commissions developed programs to “decouple” utility revenues from energy sales, and to otherwise compensate utilities for implementing energy efficiency programs, utility opposition declined and free riding concerns became more a function of measuring the cost-effectiveness of particular program designs rather than opposition to energy efficiency programs in general.⁶

As for rooftop solar, utilities have attempted to impose significant limits on state “net metering” programs that require utilities to compensate electricity customers for the energy their solar panels produce at retail electricity rates.⁷ Such required purchases reduce utility revenues by reducing the amount of electric energy net metering customers purchase from the utility. In opposing net metering policies, utilities often raise free riding arguments—namely, that customers with solar panels

⁴ For a discussion of how the states regulate electric and gas utilities as regulated monopolies through the state public utility ratemaking process, see, e.g. LINCOLN L. DAVIES ET AL., ENERGY LAW AND POLICY Ch. 4 (West Academic Publishing 2d ed. 2018); Alexandra B. Klass, *Public Utilities and Transportation Electrification*, 104 IOWA L. REV. 545, 567-69 (2019) (discussing basic of electric utility ratemaking); Melissa Whited, *The Ratemaking Process* (Synapse Energy Economics, July 2017), <http://www.synapse-energy.com/sites/default/files/Ratemaking-Fundamentals-FactSheet.pdf> (summarizing the fundamentals of utility ratemaking and rate design).

⁵ See *infra* note ___ and accompanying text (discussing electric utility laws and ratemaking procedures).

⁶ See *infra* notes ___ - ___ and accompanying text.

⁷ See *infra* notes ___ - ___ and accompanying text.

REGULATING THE ENERGY “FREE RIDERS”

are paying less than their “fair share” of the costs to support the electric grid.⁸ Because solar panel owners pay less for electricity each month but still use the electric grid when the sun is not shining, utilities argue that the costs of supporting the grid are unfairly shifted to non-solar customers, who are often less affluent. The extent of this “cross-subsidy” is a matter of significant controversy in state legislatures and state public utility commissions.

With regard to utility investment in EV charging infrastructure, utilities generally support these policies as they create an investment opportunity to build new infrastructure for which they can recover not only their costs but also a rate of return. As a result, in this context it is the oil companies, not electric utilities, who stand to lose from program adoption and have raised free riding arguments in regulatory proceedings.⁹ They contend that requiring all utility customers to pay for such utility investments to support transportation electrification is an unfair “cross subsidy” between EV owners and non-EV owners, despite a growing body of evidence that greater use of EVs will, at least in the future, benefit all utility customers through overall reductions in electricity rates due to more efficient use of electric grid resources.¹⁰

Notably, environmental groups generally support all three types of policies as they all potentially lead to reduced reliance on fossil fuels to generate electricity. Likewise, consumer advocacy groups often oppose all three policies because they can lead to higher (or at least disproportionate) costs on lower income customers in the short term. Thus, utilities in some cases invoke free riding and cross subsidy arguments on behalf of certain customer classes and in some cases do not, mostly depending on whether the utility itself stands to benefit financially from the policy.

These differences in the free riding and cross subsidy arguments in each of applications allows for greater insights into the evaluation of free riding arguments. They also provide a window into the motivations of the regulated utilities and third parties making the free riding and cross-subsidy arguments in the first place. Moreover, it is important to recognize that the identification and evaluation of free riders is a longstanding and well-recognized metric used in evaluating the cost-effectiveness of utility-funded energy efficiency programs. In the rooftop solar and

⁸ See, e.g., Hiroko Tabuchi, *Rooftop Solar Dims Under Pressure from Utility Lobbyists*, N.Y. TIMES, July 8, 2017 (“Utilities argue that net metering, in place in over 40 states, turns many homeowners into free riders on the grid, giving them an unfair advantage over customers who do not want or cannot afford solar panels. The utilities say that means fewer ratepayers cover the huge costs of traditional power generation.”).

⁹ See *infra* notes ___ - ___ and accompanying text.

¹⁰ *Id.*

EV charging contexts, however, opponents of those programs have used the concept of free riding to attack the programs themselves rather than as metric for program improvement. This Article urges regulators to borrow from the cost-effectiveness metrics developed in the energy efficiency context, including the role of free riders, and adapt them for use in the rooftop solar and EV charging contexts.

Part II sets forth various definitions of free riding from multiple academic disciplines. It then surveys some common free riding arguments in both legal scholarship and case law outside the energy policy field. This review shows that both scholars and courts use the concept free riding to encompass two different concerns to be addressed through law and regulation: (1) the inefficiency and ineffectiveness of policies that would subsidize desired conduct that would have occurred even without the subsidy and (2) the “unfairness” of certain groups receiving a greater benefit from programs and investments paid for by everyone, resulting in a “cross subsidy” and rates that are “unjust and unreasonable” under applicable law.¹¹

Part III turns to regulatory and judicial treatment of free riding arguments in energy law and policy. After exploring how federal regulators and courts have responded to free rider concerns in energy policy in the past, this Part evaluates more closely the use of free riding and cross subsidy arguments in the three contemporary state public utility ratemaking challenges described above: (1) ratepayer funded energy efficiency programs; (2) utility compensation for customer-generated rooftop solar energy; and (3) utility investment in EV charging infrastructure. In each case, state public utility regulators must evaluate free riding arguments and determine how much weight to give them in setting policies to govern these programs. In each situation, regulator decision-making is complicated by rapid technological developments, uncertainties regarding program impacts, concerns associated with future environmental harms such as climate change, and limited ability to assess program effectiveness now for benefits that may not accrue until years into the future.

Part IV claims that regulators should consider both the present and future costs and benefits of the program in question when evaluating free riding arguments. In other words, if a goal of the program is to build infrastructure for a long-term policy goal, such as a shift to cleaner energy resources or reducing overall energy demand, program evaluators should consider future program beneficiaries in addition to current program beneficiaries. This has already been recognized to some extent for energy efficiency policies, where utilities and regulators realize that reduced energy

¹¹ See *supra* note ___ (discussing state legislative mandates that utility rates be “just and reasonable”); *infra* note ___ (same).

demand means that utilities need not invest in new energy generation plants, including fossil fuel plants, in order to meet customer demand in the future. With a few exceptions,¹² the debate in the energy efficiency realm has shifted away from whether utilities should implement energy efficiency programs at all and instead focuses on developing appropriate evaluation, measurement, and verification metrics to design programs that are cost-effective and incentivize behavior that would not occur in the absence of the program.

This shift has not yet occurred in the context of utility compensation for rooftop solar or utility investment in EV charging infrastructure. In both cases, opponents of those programs—electric utilities in the case of rooftop solar and oil companies in the case of EV charging—are relying on free riding and cross subsidy arguments to question the very existence of the policy in question and focusing on alleged unfair cost shifts with regard to different classes of current customers. Supporters of both types of programs are marshaling evidence to rebut arguments that an unreasonable cost shift among customer classes will occur, with mixed success.

In the face of incomplete information that exists at the start of a new program with the potential for significant public benefits, regulators should be cautious in concluding that free riding or cross subsidy concerns should defeat the project in question.¹³ Instead, in those circumstances, it may be more reasonable to use free riding and cross subsidy concerns to place limits on subsidies for particular investments, such as rebates for residential or commercial EV charging stations, but to allow investments in longer term grid improvements that may benefit all utility customers in the long run. Doing so would be consistent with the precautionary principle, which is applicable in this context due to the significant risks associated

¹² For exceptions to this general statement, see *infra* notes ___ - __ and accompanying text (discussing legislative rollbacks of energy efficiency programs).

¹³ Scholars have raised a similar concern in recent years in the context of utility arguments regarding “fairness” and cross subsidies in the context of rooftop solar compensation. See, e.g., Shelley Welton, *Clean Electrification*, 88 U. COLO. L. REV. 571, 605 (2017) (“The fact that utilities so frequently filter their protectionist concerns through discussions of equity . . . serves to underscore its importance in electricity law; utilities make these arguments because they are aware that regulators care about the equities of clean energy policies.”); Ari Peskoe, *Unjust, Unreasonable, and Unduly Discriminatory: Electric Utility Rates and the Campaign Against Rooftop Solar*, 11 TEX. J. OIL, GAS & ENERGY L. 101, 108-09 (2016) (contending that the utility “focus on supposed cost shifts among individual ratepayers is self-serving, and that [public utility commissions] have routinely allowed or ignored potential cross-subsidization among individual ratepayers, particularly when subsidies benefit the utility system.”); Troy Rule, *Solar Energy, Utilities, and Fairness*, 6 SAN DIEGO J. CLIMATE & ENERGY L. 115 (2014-15) (cataloguing different fairness and cross-subsidy arguments utilities make in the context of rooftop solar compensation).

REGULATING THE ENERGY “FREE RIDERS”

with continued reliance on fossil fuels in the energy sector and the potential significant long-term benefits to utility customers and the public associated with energy transition. Moreover, this approach allows regulators and electric utilities to build on metrics already used in the energy efficiency context to develop appropriate programs in the rooftop solar and EV charging infrastructure contexts.

II. FREE RIDING DEFINITIONS AND APPLICATIONS

The concept of free riding originates in moral philosophy, and arguably dates back to Plato’s Republic.¹⁴ In moral philosophy, free riding hinges on the unfairness of the receipt of a benefit without paying its associated costs.¹⁵ In defining “fairness,” John Rawls states:

a person is [morally] required to do his part as defined by the rules of an institution when two conditions are met: first, the institution is just (or fair), that is, it satisfies the two principles of justice; and second, one has voluntarily accepted the benefits of the arrangement or taken advantage of the opportunities it offers to further one’s interests.¹⁶

In economics, free riding is a broadly defined principle that concerns the receipt of unpaid-for benefits.¹⁷ Concerns over free riding often focus on “public goods.”¹⁸

¹⁴ *The Free Rider Problem*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (May 21, 2003), <https://plato.stanford.edu/entries/free-rider/> (citing PLATO, THE REPUBLIC bk. 2, 360b–c (C.D.C. Reeve, trans., Hackett, 2004)) (noting Glaucon’s argument to disobey the law when one cannot be caught). See also Hossein Haeri & M. Sawi Kawaja, *The Trouble With Free Riders*, PUB. UTIL. FORTNIGHTLY 34 (Mar. 2012) (discussing origins of the concept of free riding dating back to Plato’s Republic; 18th and 19th century political philosophers, including Hume and Mill; and later Paul Samuelson and Mancur Olson in the 1950s and 1960s).

¹⁵ Garrett Cullity, *Moral Free Riding*, 24 PHIL. & PUB. AFF., 3, 7 (1995) (“a free rider is someone whose failure to pay for nonrival goods under conditions C makes her conduct unfair.”).

¹⁶ JOHN RAWLS, A THEORY OF JUSTICE 111–12 (1971). Rawls’ two principles of justice mandate (1) equal access to universal basic liberties and (2) social and economic inequalities are arranged to the benefit of the least well-off. *Id.* at 26.

¹⁷ DONALD RUTHERFORD, *Free Rider*, in ROUTLEDGE DICTIONARY OF ECON. 233 (1995) (“An individual who does not pay for the goods or services he or she consumes.”). See also JAMES R. KEARL, PRINCIPLES OF ECONOMICS 441 (1993) (“Free riding occurs when a person benefits from or uses a valuable good or service without having to pay for it.”).

¹⁸ Definitions of a “public good” vary, but in general a public good is defined as one that is available to everyone if anyone has access (jointness in supply), no one can be excluded from its use without excessive cost (nonexcludability), use by one person doesn’t diminish the amount available for consumption by others (jointness in consumption), enjoyment by

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In other words, markets and regulation should be designed to prevent a party (the “free rider”) from receiving the benefit of a public good without contributing to its cost.¹⁹ Classic public goods include national defense, street lighting, and environmental protection.²⁰ Economists and regulators attempt to design markets and regulations to avoid free riding to ensure sufficient investment in public goods and avoid overconsumption of public goods.

Free riding arguments appear across a broad range of contexts, from the auto industry, to voting, to international trade negotiations, or to any area where someone contends that unpaid-for benefits have been accrued.²¹ In his classic 1965 work *The Logic of Collective Action: Public Goods and the Theory of Groups*, Mancur Olson Jr. brought the economic theory of free riding into the public policy realm, with his application of the concept to the social science issue of collective action.²² Though he didn’t explicitly refer to free riding, Olson described the collective action problem that individuals are more likely to free ride as group size increases.²³ Because individuals are able to derive most, if not all, of the benefits of a public good regardless of their individual contributions, and because the comparative value of any individual contribution decreases as group size increases, it is rational for individuals to free ride off the contributions of other group members.

one person of the good does not diminish the benefits available to others (nonrivalness), no one can avoid using the good if anyone does (compulsoriness), everyone receives the same amount of the good (equality), and each user of the good consumes its total output (indivisibility). See Cullity, *supra* note 15, at 2; see also William Nordhaus, *Climate Clubs: Overcoming Free-riding in International Climate Policy*, 105 AM. ECON. REV. 1339, 1339 (2015).

¹⁹ Cullity, *supra* note 15, at 3–4; R. HARDIN, COLLECTIVE ACTION 17 (1982); D. MUELLER, PUBLIC CHOICE 14 (1954); Paul A. Samuelson, *The Pure Theory of Public Expenditure*, 36 REV. ECON. & STATISTICS 387 (1954).

²⁰ Thomas W. Merrill, *The Economics of Public Use*, 72 CORNELL L. REV. 61, 73, n.45 (2006).

²¹ Compare Ellen Sewell & Charles Bodkin, *The Internet’s Impact on Competition, Free Riding and the Future of Sales Service in Retail Automobile Markets*, 35 EASTERN ECON. J. 96, (2009) (discussing ability of online car dealers to free ride on physical services of brick-and-mortar dealers), with Rodney D. Ludema & Anna Maria Mayda, *Do Countries Free Ride on MFN?*, 77 J. INT’L ECON. 137 (2009) (discussing ability of countries to free ride on efforts of other countries’ negotiations in international trade deals); Björn Tyrefors Hinnerich, *Do Merging Local Governments Free Ride on Their Counterparts When Facing Boundary Reform?*, 93 J. Pub. Econ. 721 (2009) (applying economic free riding analysis to politics).

²² MANCUR OLSON JR., THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS 14 (1965).

²³ Olson, *supra* note 22, at 35; see also Vincent Anesi, *Moral Hazard and Free Riding in Collective Action*, 32 SOC. CHOICE & WELFARE 197, 197–98 (2009).

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Equally important for social science scholarship of free riding was Anthony Downs’ 1957 book *An Economic Theory of Democracy*, which applied free riding concepts to democratic voting habits.²⁴ Downs found that once voting has at least some costs associated with it, it is individually rational for some people to not vote because they can still derive the benefits of their preferred policies being implemented without incurring those voting costs. Thus, social science tends to rely on a game theoretical approach, and recontextualizes free riding from the perspective of the free rider.²⁵

Considerations of free riding in the environmental protection context can be traced back to Garrett Hardin’s 1968 article *The Tragedy of the Commons*.²⁶ Hardin’s work stems from the social science model of free riding, as it focuses on the selfish following of one’s own interests to inefficient results. In categorizing the environment as a public good, he observed that it is individually rational for environmental polluters to not incur the costs of preventing pollution because they are greater than any damage suffered as an individual user of the environment. Other scholars have built on Hardin’s work to suggest either allocating property rights in resources, enacting regulations prohibiting resource destruction, or a combination of both approaches as a solution to this dilemma.²⁷ At the same time, however, the traditional articulation of free riding—obtaining a public good without sharing the costs—is also a focus of evaluating environmental policies such as waste reduction programs and climate policy.²⁸ As a result, both of these articulations of free riding can be found in the environmental policy context.

²⁴ ANTHONY DOWNS, AN ECONOMIC THEORY OF DEMOCRACY 260–74 (1957). Downs described why there is individual incentive not to vote despite the presumed benefits. Downs’ book predates the game theoretical analysis of free riding, and instead uses an economic-style definition.

²⁵ Cullity, *supra* note 15, at 4.

²⁶ Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968) (considering the collective action problem of joint public use of the environment and concluding that there is incentive for each individual to exploit it because the amount of benefit received outweighs the aggregate cost incurred).

²⁷ See, e.g., ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTIONS 1-3 (2003 ed.); William W. Buzbee, *Recognizing the Regulatory Commons: A Theory of Regulatory Gaps*, 89 IOWA L. REV. 1 (2003) (discussing scholarship in the area); Carol Rose, *Retinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1 (1991) (same).

²⁸ See, e.g., Magali Delmas & Arturo Keller, *Free Riding in Voluntary Environmental Programs: The Case of the U.S. EPA WasteWise Program*, 38 POL. SCI. 91, 91 (2005) (“Free riding occurs when one firm benefits from the actions of another without sharing the costs.”); Nordhaus, *supra* note **Error! Bookmark not defined.**, at 1339 (“Free-riding occurs when a party receives the benefits of a public good without contributing to the costs.”).

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Notably, questions of “fairness” often arise in conjunction with free riding arguments. In the legal academy, what role “fairness” should play in developing legal policy remains highly contested, as illustrated by the work of Professors Steven Shavell, Louis Kaplow, and other scholars.²⁹ The merits of this debate are beyond the scope of this Article but serve as an important backdrop to the discussion that follows, namely, how advocates in energy utility proceedings use both free riding and fairness arguments to promote their interests and particularly how advocates use free riding arguments as a proxy for fairness arguments, and vice versa.

III. FREE RIDING DEBATES IN CONTEMPORARY ENERGY POLICY

Free riding arguments are often raised in the context of energy law and policy proceedings, where regulators routinely determine who will bear the costs and benefits of energy investments, rates, and charges. This occurs in “ratemaking” proceedings before the Federal Energy Regulatory Commission (“FERC”) and state public utility commissions as well as in court proceedings reviewing federal and state regulatory decisions.³⁰ These decisions use free riding arguments in the various forms discussed in Part II, although often in a far broader sense than the classic economics definition focused on public goods. They include the situation where advocates in a proceeding involving a utility subsidy program argue that participants in the program are being paid for actions or conduct they would have engaged in anyway without the subsidy, thus rendering the program inefficient or “unjust and unreasonable” under governing law. They also include arguments over cross-subsidies—that a group of industry actors or customer classes are obtaining excess benefits from costs shared by all industry actors or customer classes and correspondingly, some industry

²⁹ See, e.g., LOUIS KAPLOW & STEVEN SHAVELL, *FAIRNESS VERSUS WELFARE* (Harv. U. Press 2002) (arguing that “notions of fairness like corrective justice should receive no independent weight in the assessment of legal rules” and that, instead, a “welfare-based normative approach” should be used exclusively instead); Louis Kaplow & Steven Shavell, *Fairness v. Welfare*, 114 HARV. L. REV. 961 (2001) (same); FAIRNESS IN LAW AND ECONOMICS (Lee Anne Fennell & Richard H. McAdams, eds., Edward Elgar Pub. 2013); Troy A. Rule, *Solar Energy, Utilities, and Fairness*, 6 SAN DIEGO J. OF CLIMATE & ENERGY L. 115 (2014-15) (relying on Kaplow and Shavell to argue that claims of “fairness” to oppose compensation for rooftop solar energy should be viewed with skepticism and discussing the role of fairness in legal policy more broadly).

³⁰ See, e.g., Melissa Whited, *The Ratemaking Process* (Synapse Energy Economics, July 2017) (summarizing the fundamentals of utility ratemaking and rate design); LINCOLN L. DAVIES ET AL., *ENERGY LAW AND POLICY*, Ch. 4 (West Academic Publishing, 2d ed. 2018) (discussing federal and state ratemaking processes and judicial review of same); REG. ASSISTANCE PROJECT, *REVENUE REGULATION AND DECOUPLING: A GUIDE TO THEORY AND APPLICATION* 3-8 (Nov. 2016) (describing traditional rate regulation).

actors or customer classes are overpaying or underpaying for the benefits they receive.

For instance, in the context of FERC proceedings, parties—often investor-owned electric utilities—argue for or against a change in FERC policy on the grounds that it permits or even encourage free riding. As an example, in 2011, in Order 1000, FERC imposed new regional transmission planning requirements and cost allocation rules on utilities.³¹ In response, some utilities argued that other utilities and their customers were free riding by not paying a proportional amount of the associated costs associated with new electric transmission lines covered by the Order and that the new lines would be benefit some utility customers more than others.³² Those utilities criticizing the rule argued that FERC must follow the “cost-causation principle,” a requirement derived from the Federal Power Act’s mandate that rates be “just and reasonable.” The utilities argued that the cost-causation principle requires that FERC can only approve rates that charge consumers roughly proportionally to the benefits they receive.³³

As one federal court put it, the “cost causation principle targets something called the ‘free rider problem,’ which FERC acknowledged that it sought to ‘address through its cost allocation reforms’ in Order No. 1000.”³⁴ Although the facial challenges to FERC Order 1000 were not successful, both the Order itself, in which FERC referenced free riding issues, as well as the court decisions evaluating Order

³¹ Order No. 1000-A, ¶ 578, 77 Fed. Reg. at 32,274 (defining “free riders” as “entities who are being subsidized by those who pay the costs of the benefits that free riders receive for nothing” and that in the electric transmission line context, free riders “do not bear cost responsibility for benefits that they receive in their use of the transmission grid. . . .” *Id.* at ¶ 576, 77 Fed. Reg. at 32,273; *El Paso Elec. Co. v. FERC*, 832 F.3d 495, 499 (5th Cir. 2016). *See also* Herman K. Trabish, *Has FERC’s Landmark Transmission Planning Effort Made Transmission Harder to Build?*, UTILITY DIVE, July 17, 2018 (discussing Order 1000).

³² *See* Order No. 1000-A, 139 FERC 61,132, ¶ 498, 77 Fed. Reg. at 32,274 (May 17, 2012).

³³ *See* *Ill. Commerce Comm’n v. F.E.R.C.*, 576 F.3d 470, 476 (7th Cir. 2009) (quoting *KN Energy, Inc. v. FERC*, 968 F.2d 1295, 1300 (D.C.Cir.1992)) (“FERC is not authorized to approve a pricing scheme that requires a group of utilities to pay for facilities from which its members derive no benefits, or benefits that are trivial in relation to the costs sought to be shifted to its members. ‘[A]ll approved rates [must] reflect to some degree the costs actually caused by the customer who must pay them.’”).

³⁴ *El Paso Elec. Co. v. FERC*, 832 F.3d 495 (5th Cir. 2016) (quoting Order No. 1000-A ¶ 562, 77 Fed. Reg. at 32,271).

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1000, recognized the potential for free riding in federal transmission planning and cost allocation.³⁵

Utilities have also raised free riding arguments in context of who should pay for upgrades to existing transmission lines.³⁶ There, utilities have argued that individuals might be forced to subsidize the upgrades of others by paying the cost while others also derive the benefits.³⁷ Free riding arguments have also arisen in a compliance context, when utilities are punished for previous illegal behavior by having to disgorge past profits.³⁸ There, utilities complained that a company that would receive the refunds was a free rider because it had not pursued a complaint against them when others had.³⁹ Lastly, free riding arguments can arise in transmission rate cases for individual utilities.⁴⁰ Utilities have argued that customers can free ride by misrepresenting their actual energy demand because charges are calculated on an annual basis using a snapshot of demand at a single point in time.⁴¹ Utilities worry that customers can intentionally lower demand for that short time to derive unjust benefits for the whole year.

At the state level, public utility commissions and public service commissions frequently address free riding arguments in the context of commissions setting rates for electric, gas, and telecommunications utilities. For example, in the early 2000s, telecommunications companies in Illinois and Michigan argued that their competitors were free riding on their phone infrastructure when the competitors used that infrastructure to offer local call pricing for longer distance calls.⁴² For electric and gas utilities, most state statutes direct utility commission to ensure that utility rates, charges, and programs are “just and reasonable.”⁴³ Thus, free riding arguments associated with one class of ratepayers cross subsidizing another class of ratepayers is an argument that a particular rate, program, or charge is unjust and unreasonable or, in a broader sense “unfair.”⁴⁴

³⁵ See, e.g., *South Carolina Pub. Serv. Auth. v. FERC*, 762 F.3d 41 (D.C. Cir. 2014) (upholding challenges to FERC Order 1000); *supra* note __ (discussing Order 1000 and references to free riding).

³⁶ See, e.g., *Sw. Power Pool, Inc.*, 163 FERC ¶ 61092 (May 4, 2018).

³⁷ See *id.* at ¶ 22.

³⁸ See, e.g., *San Diego Gas & Elec. Co.*, 163 FERC ¶ 61080 (May 3, 2018).

³⁹ *Id.* at ¶ 34. FERC declared this a non-issue and sided with the company.

⁴⁰ See, e.g., *PJM Interconnection, L.L.C.*, 162 FERC ¶ 61136 (Feb. 16, 2018).

⁴¹ *Id.* at ¶ 2.

⁴² *In Re Focal Comm. Corp.*, 00-0027, 2001 WL 902639 (Ill. C.C.) (May 8, 2001); *In Re Coast to Coast Telecom, Inc.*, U-12382, 2000 WL 1409759 (Mich. P.S.C.) (Aug. 17, 2000).

⁴³ See *supra* note __, and accompanying text (discussing state statutes).

⁴⁴ See, e.g., *Peskoe*, *supra* note __ at 123 (discussing state court decisions reviewing public utility commission rate design issues surrounding cost shifts between customer classes and

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When it comes to utility-funded energy efficiency programs, the question is often whether utilities or government actors are subsidizing conduct, such as residential or commercial customer energy efficiency investments (e.g., weatherproofing, energy efficient light bulbs, energy efficient boilers), that would have been undertaken even absent the subsidy.⁴⁵ The idea is that if conduct that would have otherwise occurred is being subsidized, the program causes an unreasonable cost shift among different customer classes. This is because all utility customers pay the utility for administering the program (at a rate determined by the state utility commission), those customers who would have invested in energy efficiency even absent the program are receiving a subsidy paid for by others, and thus those investments shouldn’t “count” as program benefits because they would have occurred anyway. Because of these concerns, which most energy efficiency experts characterize as free riding, government regulators, utilities, and industry experts have created a range of metrics and conducted empirical studies to evaluate the cost-effectiveness of these programs and determine the level of free riding.⁴⁶

In other energy-related contexts, such as utility compensation for customer-generated rooftop solar and utility investments in EV charging infrastructure, free riding is described somewhat differently. In these cases, rather than labeling behavior

concluding that most courts defer to commissions so long as such allocation in rate design is reasonable).

⁴⁵ See, e.g., Marie-Laure Nauleau, *Free-Riding on Tax Credits for Home Insulation in France: An Econometric Assessment Using Panel Data*, 46 ENERGY ECON. 78, 79 (2014) (“free-ridership, which is defined as behavior occurring when the agents targeted by the policy take the incentives but would have made the investment anyway.”) (internal quotations omitted); Nicholas Rivers & Leslie Shiell, *Free Riding on Energy Efficiency Subsidies: The Case for Natural Gas Furnaces in Canada* Abstract (Univ. of Ottawa, Working Paper No. 1404E, 2015) (“We assess the extent to which subsidies for home energy efficiency improvements in Canada have been paid to households that would have undertaken the improvements anyway—the so-called free rider rate”); Kenneth E. Train, *Estimation of Net Savings From Energy-Conservation Programs*, 19 ENERGY 423, 424 (1994) (“The customers who implemented measures under a program even though they would have installed the measures without the program (for example, customers who received rebates for measures that they would have installed anyway) are called “free riders.”).

⁴⁶ See Matthew Collins & John Curtis, *Willingness-to-Pay and Free-Riding in a National Energy Efficiency Retrofit Grand Scheme: A Revealed Preference Approach* 7 (ESRI, Working Paper No. 551, 2016), <http://www.esri.ie/pubs/WP551.pdf> (using empirical definition of “comparison of the total cost of the completed retrofit, the cost to the household of the retrofit following the award of grant aid, and the total willingness-to-pay of each household for that retrofit.”); Peter Grösche & Colin Vance, *Willingness-to-Pay for Energy Conservation and Free-Ridership on Subsidization: Evidence from Germany*, 30 ENERGY J. 135 (2009); Nauleau, *supra* note __; Rivers & Shiell, *supra* note __.

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that would have occurred even in the absence of a program subsidy as free riding, the claim centers more directly on a certain class of utility customers paying “less than their fair share” for a benefit provided by the utility. For instance, rooftop solar owners are labeled as free riders because they pay less in utility bills than customers without rooftop solar—because solar owners receive bill credits for the solar energy they generate—but solar owners still use the electric grid when the sun is not shining.⁴⁷ Likewise, if all utility customers pay for the utility to install EV charging stations within the utility’s service territory, but only some customers own EVs and benefit from the charging station, then non-EV owners are subsidizing EV owners and EV owners are free riders. These alleged cost shifts between customer classes are often targeted as unfair and, as a legal matter, “unjust and unreasonable.”

Of course, in all three instances, if the public benefits to all utility customers associated with the energy efficiency upgrades, rooftop solar energy generation, or use of EVs is above some determined threshold, the claims of free riding are neutralized. The difficulty, though is determining the nature and amount of the benefits these programs provide on both a near-term basis and a long-term basis. How interested parties, experts, and state utility commissions evaluate these issues is the topic of the remainder of this Article.

A. Energy Efficiency Programs

Energy efficiency is a means of reducing energy consumption by using less energy to attain the same output.⁴⁸ Energy efficiency is divided into three broad categories—(1) buildings (reducing electricity and space heating needs in buildings through new appliances, technologies, increased insulation, and the like); (2) transportation (increasing the efficiency of vehicles and vehicle fuels); and (3) industrial energy use. In the United States, energy use has become significantly more efficient over the past few decades, allowing energy consumption to remain flat even in the face of economic growth.⁴⁹ Programs to improve energy efficiency include vehicle fuel economy standards and appliance efficiency standards at the federal

⁴⁷ See Tabuchi, *supra* note __ (discussing utility claims of free riding in context of rooftop solar).

⁴⁸ Although “energy efficiency” is often used interchangeably with “energy conservation,” they are different concepts. Energy efficiency involves “accomplishing an objective—such as heating a room to a certain temperature—while using less energy” while energy conservation involves changing behavior to use less energy such as turning down the thermostat in the winter. NAT’L ACADEMY OF SCIENCES, ET AL., REAL PROSPECTS FOR ENERGY EFFICIENCY IN THE UNITED STATES 21 n.1 (Nat’l Academies Press 2010).

⁴⁹ LINCOLN L. DAVIES ET AL., ENERGY LAW AND POLICY 137-38 (West Academic Press, 2d ed. 2018).

level, as well as a range of local and state policies to promote energy efficiency in buildings and appliances through mandates and tax incentives.⁵⁰

Energy efficiency in residential and commercial buildings is particularly significant as it represents a low cost opportunity to reduce U.S. energy usage as well as the associated greenhouse gas (“GHG”) emissions. In 2017, the electric power sector consumed 38% of total U.S. energy, the residential and commercial sector consumed 11%, the transportation sector consumed 29%, and the industrial sector consumed 22%.⁵¹ With regard to greenhouse gas (“GHG”) emissions, in 2016, the transportation sector and electric power sector both represented 28% of U.S. emissions, with the commercial/residential sector representing 11%, industry 22%, and agriculture 9%.⁵² Notably, in 2017, residential and commercial buildings, which require energy for electricity and for space heating, consumed approximately 40% of U.S. energy and represented approximately the same percentage of U.S. CO₂ emissions.⁵³ In large urban centers such as New York City and Chicago, buildings constitute over 70% of energy use.⁵⁴

Thus, to the extent the United States can reduce energy use in residential and commercial buildings through energy efficiency, there will be significant cost savings and environmental benefits.⁵⁵ Indeed, experts show that, when treated as an energy resource (i.e., as an equivalent to generating power), energy efficiency is the third

⁵⁰ *Id.*

⁵¹ U.S. Energy Info. Admin., U.S. Energy Facts, Explained, https://www.eia.gov/energyexplained/?page=us_energy_home.

⁵² U.S. EPA, Source of Greenhouse Gas Emissions, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

⁵³ U.S. Energy Info. Admin., How Much Energy is Consumed in U.S. Residential and Commercial Buildings? (last updated May 3, 2018), <https://www.eia.gov/tools/faqs/faq.php?id=86&t=1>; Alliance to Save Energy, *Overview*, <https://www.ase.org/initiatives/buildings> (“Buildings—offices, homes, and stores—use 40% of our energy and 70% of our electricity. Buildings also emit over one-third of U.S. greenhouse gas emissions, which is more than any other sector of the economy.”). *See also* U.S. Green Building Council, Benefits of Green Buildings (updated May 2018), <https://www.usgbc.org/articles/green-building-facts> (U.S. buildings account for 40% of U.S. CO₂ emissions, more than the transportation and industrial sectors).

⁵⁴ Iain Campbell & Coben Calhoun, *Old Buildings are U.S. Cities’ Biggest Sustainability Challenge*, HARV. BUS. REVIEW (Jan. 21, 2016).

⁵⁵ *See, e.g.*, Alexandra B. Klass & Elizabeth J. Wilson, *Remaking Energy: The Critical Role of Energy Consumption Data*, 104 CAL. L. REV. 1095, 1098-99 (2016) (citing statistics from McKinsey & Co. estimating that “investing \$520 billion in nontransportation energy efficiency by 2020 could generate energy savings worth \$1.2 trillion, reduce end-use energy demand by 23 percent compared to current projection, and eliminate over 1.1 gigatons of

largest U.S. energy resources (behind coal and natural gas and in front of nuclear energy) and is also the lowest cost resource.⁵⁶ As a result of these potential savings and other benefits, there has been a significant emphasis on policymaking at the state level to support energy efficiency programs in general and utility funded energy efficiency programs in particular.

1. *Utility-funded energy efficiency programs*

Since the 1980s, utilities have offered energy efficiency programs to customers either voluntarily or as a result of state mandates. Today, such programs exist in one form or another in all 50 states and the District of Columbia and include “financial incentives, such as rebates and loans; technical services, such as audits, retrofits, and training for architects, engineers, and building owners; behavioral strategies; and educational campaigns about the benefits of energy efficiency improvements.”⁵⁷ States spent nearly \$8 billion on energy efficiency programs in the utility sector in 2017, paid for by utility customers through their monthly electric and gas bills.⁵⁸ According to the American Council for an Energy-Efficiency Economy (“ACEEE”),

greenhouse gas emissions annually.”) (citing MCKINSEY & CO., UNLOCKING ENERGY EFFICIENCY IN THE U.S. ECONOMY iii (July 2009)).

⁵⁶ AMERICAN COUNCIL FOR AN ENERGY-EFFICIENCY ECONOMY, THE GREATEST ENERGY STORY YOU HAVEN’T HEARD: HOW INVESTING IN ENERGY EFFICIENCY CHANGED THE US POWER SECTOR AND GAVE US A TOOL TO TACKLE CLIMATE CHANGE 5-6 (Oct. 2016), <https://aceee.org/sites/default/files/publications/researchreports/u1604.pdf>; Annie Gilleo, *New Data, Same Results—Saving Energy is Still Cheaper than Making Energy*, ACEEE, Dec. 1, 2017, <https://aceee.org/blog/2017/12/new-data-same-results-saving-energy> (showing cost comparisons of energy efficiency with other energy resources).

⁵⁷ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD vi (Oct. 2018). *See also* Joseph Eto, THE PAST, PRESENT, AND FUTURE OF U.S. UTILITY DEMAND-SIDE MANAGEMENT PROGRAMS 2 (Lawrence Berkeley Nat’l Lab., Dec. 1996) (detailing different types of utility-funded energy efficiency programs, such as: “(1) general information to increase customer awareness of energy use and of opportunities to save energy; (2) technical information, including energy audits, which identify specific recommendations for improvements in energy use; (3) financial assistance in the form of loans or direct payments to lower the first cost of energy-efficient technologies; (4) direct or free installation of energy-efficient technologies; (5) performance contracting, in which a third party contracts with both the utility and a customer and guarantees energy performance”).

⁵⁸ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD vi (Oct. 2018). *See also* SEE ACTION GUIDE FOR STATES: EVALUATION, MEASUREMENT, AND VERIFICATION FRAMEWORKS—GUIDANCE FOR ENERGY EFFICIENCY PORTFOLIOS FUNDED BY UTILITY CUSTOMERS 10 (Jan. 2018) (describing utility-funded energy efficiency programs).

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these programs resulted in over 27 million megawatt hours of electricity saved in 2017.

The U.S. EPA describes the benefits of energy efficiency in the context of electric and gas utility programs as including environmental benefits, such as lowering GHG emissions and decreasing water use; economic benefits associated with reduced energy costs and boosting the local economy; utility system benefits by lowering baseload and peak energy demand and reducing the need for new generation plants and transmission lines; and risk management through diversifying utility resource portfolios.⁵⁹

As Michael Vandenberg and Jim Rossi have noted, the utility is a critical player in efforts to reduce electricity demand through energy efficiency measures:

[T]he distribution utility serves as an intermediary and gatekeeper between the consumer and the electric grid. A utility that has incentives to reduce household or other demand for electricity can play its information, service, and access roles in ways that will induce widespread uptake of efficiency and conservation measures. A utility that does not can discourage widespread uptake of these measures and can do so in a variety of nontransparent ways, whether by increasing consumers' transaction costs (e.g., by requiring numerous or slow approvals for household solar photovoltaic installation, by understaffing key positions necessary for promotion of efficiency and conservation programs, and by imposing stringent requirements on grid access), or by limiting the extent or efficacy of information provided to consumers (e.g., by not making prompt, in-home energy use feedback easily available).⁶⁰

For decades, policymakers have attempted to design programs to align the interests of electric utilities with the goals of energy efficiency. Because utility revenues were historically tied to volumetric sales of electricity, energy efficiency programs resulted in reduced utility revenues.⁶¹ Not surprisingly then, in the early

⁵⁹ U.S. EPA, Energy Resources for State and Local Governments, <https://www.epa.gov/statelocalenergy/state-energy-efficiency-benefits-and-opportunities>.

⁶⁰ Michael P. Vandenberg & Jim Rossi, *Good for You, Bad for Us: The Financial Disincentive for Net Demand Reduction*, 65 VAND. L. REV. 1527, 1544-45 (2012).

⁶¹ American Council for an Energy Efficient Economy, *Incentivizing Utility-Led Energy Efficiency Programs*, <https://aceee.org/sector/state-policy/toolkit/utility-programs> ("it is widely recognized that spending on energy efficiency programs has a detrimental effect on utility revenues, by reducing sales of the utility's core product, electricity or gas. The

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days of energy efficiency programs, utilities argued against such programs on grounds they led to free riding and unfair cross subsidies among customer classes.⁶² State legislatures and public utility commissions have put in place a variety of mechanisms to minimize or eliminate the adverse financial impact on utilities from energy efficiency programs. The most common mechanisms are: (1) allowing the utility to recover from ratepayers the direct costs of energy efficiency programs; (2) lost margin recovery or “decoupling” programs that ensure that “[a]ctual utility earnings are . . . brought in line with earnings authorized by the governing body, removing—or at least mitigating—the utility’s disincentive to invest in energy efficiency programs due to reduced sales”; and (3) performance incentives that allow the utility to earn a return on investments in energy efficiency, similar to the return on investment it earns for earned for building a power plant or transmission infrastructure.⁶³

In general, these programs have succeeded in reducing utility opposition to energy efficiency programs, leaving arguments about free riding, evaluation of program performance metrics, and the like to a range of economists and other experts.⁶⁴ That does not mean free riding arguments are absent from energy

reasoning is straightforward: while a utility’s variable costs change in proportion to sales volume, fixed costs associated with distribution and customer service do not. Therefore, a reduction in sales due to efficiency improvements leads to a reduction in revenue that is larger than the costs avoided. This net lost revenue affects the utility’s balance sheet, reducing the return to its investors and providing a strong incentive for utilities not to invest in programs that help their customers use energy more efficiently.”). *See also* Vandenberg & Rossi, *supra* note __, at 1546 (“To the extent the dominant approach to utility rate structures favors volumetric rates, utilities are encouraged to offer low per-unit rates while increasing their total sales. This allows them to recoup the business costs associated with their capital investments in base load power and transmission, and to increase net revenues over the long term.”); Will Nissen & Samantha Williams, *The Link Between Decoupling and Success in Utility-Led Energy Efficiency*, 29 *ELECTRICITY J.* 59, 62 (2016) (discussing benefits of decoupling and noting that as of January 2016, 15 states had implemented electricity decoupling with proposals pending in eight additional states).

⁶² *See, e.g.*, Peskoe, *supra* note __, at 181 (“In the 1970s and 1980s, it was the [utilities] that raised concerns about intra-class subsidization. The ‘paradox of conservation’ was that ratepayer-subsidized programs to reduce consumption — in contrast to earlier subsidies designed to increase [utility] sales—could harm non-participating consumers by raising overall rates.”).

efficiency policy debates. On the contrary, they are front and center. The difference, however, is that it is not generally the utility making the free riding argument.⁶⁵

2. *Free riding as a metric for determining cost effectiveness of energy efficiency programs*

According to the U.S. Department of Energy, "[f]ree-ridership issues are by no means peculiar to energy efficiency; they arise in many policy areas, whenever economic agents are paid an incentive to do what they might have done anyway."⁶⁶ The reason free-ridership is important in this context is to ensure that the utility makes "prudent use of energy efficiency dollars."⁶⁷ In other words:

If program dollars are spent on people who would have taken the actions anyway, without program support, then those people are free riders, and those dollars were perhaps misspent. Evaluators are tasked with studying how much of a program's resources were spent

⁶³ American Council for an Energy-Efficient Economy, *supra* note __. See also American Council for an Energy-Efficient Economy, *Lost Margin Recovery*, <https://aceee.org/sector/state-policy/toolkit/utility-programs/lost-margin-recovery> (describing decoupling programs); REG. ASSISTANCE PROJECT, *supra* note __, at 8-13 (same).

⁶⁴ See *infra* note __ and accompanying text. See also Martin Kushler, et al., *Aligning Utility Interests with Energy Efficiency Objectives: A Review of Recent Efforts at Decoupling and Performance Incentives*, Report No. U061 (ACEEE, Oct. 2006) (concluding that state regulatory approaches to overcoming utility disincentives to promote energy efficiency such as decoupling and performance incentives are effective in the states in which they are used); Eto, *supra* note __, at 10 (These new ratemaking procedures were instrumental in stimulating aggressive utility pursuit of DSM energy-efficiency programs. The success of these new regulatory approaches has often been cited as a key factor in changing utilities' perception of their role, from providing an energy commodity to one of providing energy services.').

⁶⁵ This is not to say that utilities have become strong supporters of energy efficiency programs. Indeed, as Professors Vandenberg and Rossi have stated, "so long as volumetric pricing and guaranteed cost recovery through regulated rates leads utilities to view efficiency

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on free riders, and what the program savings were, net of free riders. . . .⁶⁸

Or, as stated by one energy expert:

One of the most vexing problems surrounding the issues of free-ridership is definitional. To the economic purist, the textbook definition of free-ridership is a person who consumes a good without paying for it. For a variety of reasons, the working definition of free-ridership as it pertains to public benefits and utility energy-efficiency programs is significantly different. In this case, a free rider is someone who would install an energy-efficiency measure without any program incentives because of the return on investment of the measure, but receives a financial incentive or rebate anyway. This definition has been adopted by utilities, program directors, and regulatory bodies that are currently discussing energy-efficiency programs.⁶⁹

and conservation as revenue erosion, they will have incentives to create an appearance of demand reduction (e.g., to maintain reputation, satisfy regulators' demands, etc.), but under the existing approach neither utilities nor customers can be expected to be firmly committed to reducing the aggregate usage of electricity." Vandenbergh & Rossi, *supra* note __, at 1548. See also Peskoe, *supra* note __, at 153 (detailing arguments of the Edison Electric Institute, the trade association for investor-owned utilities, that decoupling efforts remain insufficient to address the "transformative threats" to the utility industry model and that energy efficiency programs continue to act as "cross subsidies" between those customers who directly benefit from energy efficiency programs and those who do not).

⁶⁶ U.S. DEPT OF ENERGY, SEE ACTION, ENERGY EFFICIENCY PROGRAM IMPACT EVALUATION GUIDE, CH. 5, DETERMINING NET ENERGY SAVINGS 5-8 (Dec. 2012), https://www4.eere.energy.gov/seeaction/system/files/documents/emv_ee_program_impact_guide_0.pdf.

⁶⁷ *Id.*

⁶⁸ *Id.* See also CARL BLUMSTEIN, CENTER FOR STUDY OF ENERGY MARKETS, PROGRAM EVALUATION AND INCENTIVES FOR ADMINISTRATORS OF ENERGY-EFFICIENCY PROGRAMS: CAN EVALUATION SOLVE THE PRINCIPAL/AGENT PROBLEM? 5 (Oct. 2010) ("It is not desirable to reward IOUs for the energy savings of free riders for two reasons: (1) the payments are unearned and (2) payments for free-rider savings would bias IOU programs in favor of programs in which consumers already had a strong predilection to participate."); U.S. EPA, MODEL ENERGY EFFICIENCY PROGRAM IMPACT EVALUATION GUIDE 5-1-5-3 (Nov. 2007) (defining free ridership, spillover effects, and other factors to consider to differentiate gross savings and net savings from energy efficiency programs).

⁶⁹ Stephen Heins, *Energy Efficiency and the Specter of Free-Ridership*, 2006 ACEEE Summer Study on Energy Efficiency in Buildings 12-64 (2006), https://www.eceee.org/library/conference_proceedings/ACEEE_buildings/2006/Panel_12/p12_8/.

Thus, there is a long history in the energy realm of using the concept of free riding not only in its traditional economic sense but also to include cross subsidy concerns.

Energy efficiency experts have developed specific tests to evaluate the cost-effectiveness of utility-funded energy efficiency programs. The most common ones are: (1) Total Resource Cost Test, ("TRC") which compares benefits to society as a whole (avoided supply-side cost benefits, additional resource savings benefits) with cost to participants of installing the measure plus cost of program administration; (2) Societal Cost Test ("SCT"), which is similar to the TRC except that it "explicitly quantifies externality benefits such as pollutant emissions not represented in market prices and other non-energy benefits (e.g., improved health/productivity)"; (3) Program Administrator Cost Test ("PACT") (also known as the Utility Cost Test ("UCT"), which compares the utility's avoided costs benefits with program expenditures (both the incentives and the administrative costs); (4) Participant Cost Test ("PCT"), which compares "participant benefits (incentives plus bill savings with participant costs (incremental or capital cost, installation O&M, etc.)"; and (5) Ratepayer Impact Measure Test ("RIM"), which "compares the utility's avoided cost benefits with the cost of administering energy efficiency programs plus lost revenue from reductions in customer energy consumption."⁷⁰

According to the U.S. EPA, "there is no single best test for evaluating the cost-effectiveness of energy-efficiency."⁷¹ Many states use multiple tests to evaluate cost-effectiveness of energy efficiency programs for a more comprehensive approach as each test "provides different information about the impacts of energy efficiency programs from distinct vantage points in the energy system." The EPA states:

The most common primary measurement of energy efficiency cost-effectiveness is the TRC, followed closely by the SCT. A positive TRC result indicates that the program will produce a net reduction in energy costs in the utility service territory over the lifetime of the program. The distributional tests (PCT, PACT, and RIM) are then used to indicate how different stakeholders are affected. Historically, reliance on the RIM test has limited energy efficiency investment, as it is the most restrictive of the five cost-effectiveness tests.⁷²

⁷⁰ ENERGY EFFICIENCY GUIDEBOOK FOR PUBLIC POWER COMMUNITIES 30 (Oct. 2009), <https://www.seventhwave.org/sites/default/files/guidebook.pdf>.

⁷¹ U.S. EPA, UNDERSTANDING COST-EFFECTIVENESS OF ENERGY EFFICIENCY PROGRAMS, BEST PRACTICES, TECHNICAL METHODS, AND EMERGING ISSUES FOR POLICYMAKERS, ES-1-2 (Nov. 2008).

⁷² *Id.* See also ENERGY EFFICIENCY GUIDEBOOK FOR PUBLIC POWER COMMUNITIES, *supra* note __, at 30; Elizabeth Daykin, et al., The Cadmus Group, *Whose Perspective? The*

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Many states require utilities to collect data and provide analysis from more than one test to determine cost effectiveness of energy efficiency programs.⁷³

Across all these tests, energy efficiency programs are generally evaluated for cost-effectiveness to account for both free riders and “spillovers,” with spillovers defined as “additional reductions in energy consumption or demand that are due to program influences beyond those directly associated with program participation.”⁷⁴ According to the U.S. Environmental Protection Agency (“EPA”) this is done through evaluating the “net-to-gross ratio” (“NTG ratio”) across all program tests, which “deducts energy savings that would have been achieved without the efficiency program (e.g., ‘free-riders’) and increases savings for any ‘spillover’ effect that occurs as an indirect result of the program.”⁷⁵

In its evaluation of cost-effectiveness metrics, the National Renewable Energy Laboratory recognizes three different types of free riders in the context of energy efficiency programs: (1) total free riders (who would invested in the program measure or practice even in the absence of the program); (2) partial free riders (who would have implemented a lesser amount or lower level of efficiency than that provided by the program); and (3) deferred free riders (who would have

Impact of the Utility Cost Test, Association of Energy Services National Conference (2012) (discussing different cost-effectiveness tests); NATIONAL EFFICIENCY SCREENING PROJECT, NAT’L STANDARD PRACTICE MANUAL, FOR ASSESSING COST-EFFECTIVENESS OF ENERGY EFFICIENCY RESOURCES, Edition 1, Executive Summary (Spring 2017), https://nationalefficiencyscreening.org/wp-content/uploads/2017/05/NSPM_Exec_Summary_5-17-17.pdf (explaining cost-effectiveness tests).

⁷³ See Nat’l Standard Practice Manual, Database of State Efficiency Screening Practices, <https://nationalefficiencyscreening.org/state-database-desp/> (showing tests used in all 50 states). See also SEE ACTION, *supra* note __ (describing frameworks and best practices for defining evaluation, measurement, and verification for utility-funded energy efficiency programs)

⁷⁴ Nat’l Renewable Energy Lab., Estimating Net Savings: Common Practices, Ch. 17, at 3 (Sept. 2014), <https://www.energy.gov/sites/prod/files/2015/01/f19/UMPChapter17-Estimating-Net-Savings.pdf>. Experts also attempt to evaluate the “rebound effect” associated with energy efficiency programs, which refers to changes in consumer behavior to increase the use of energy such as raising the thermostat in the winter, using more air conditioning in the summer, driving more often or longer distances because of technical improvements in energy efficiency that result in lower energy costs to consumers. Although

implemented the measure or practice sometime after the program timeframe).⁷⁶ Likewise, with regard to spillovers, there are different types of spillovers that result in benefits that should not be attributed to the program under review, including additional program-induced actions at the project site, energy efficiency measures program participants take at project sites not enrolled in the program, and energy efficiency actions taken by non-program participants that were influenced by the program.⁷⁷ Of course, identifying the impact of both free riders and spillovers is extremely difficult, and there is a large body of literature discussing various methods to obtain this information through surveys and other data collection methods that is beyond the scope of this Article.⁷⁸

3. Criticisms of energy efficiency programs and state legislative action

As stated above, virtually all evaluations of utility-funded energy efficiency programs attempt to evaluate the role of free riders and spillovers in determining the cost-effectiveness of the program. Debates over the cost-effectiveness of energy efficiency programs will undoubtedly continue and experts will continue to refine the methodological approaches to evaluating free riders. Moreover, in recent years, some state legislatures have increased utility funded energy efficiency programs while others have scaled them back.

experts agree that the direct rebound effect is real, there are significant debates over its magnitude. *See, e.g.*, HOWARD GELLER & SOPHIE ATTALI, THE EXPERIENCE WITH ENERGY EFFICIENCY POLICIES AND PROGRAMMES IN IEA COUNTRIES: LEARNING FROM THE CRITICS 5 (Int'l Energy Agency Aug. 2005) (explaining rebound effect in energy efficiency and summarizing studies); U.S. EPA, MODEL ENERGY EFFICIENCY PROGRAM IMPACT EVALUATION GUIDE 5-2 (Nov. 2007) ("Rebound is a change in energy-using behavior that increases the level of service and results from an energy efficient action.").

⁷⁵ U.S. EPA, *supra* note __, AT ES-3. *See also* AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD 18 (Oct. 2018) ("Net savings are those attributable to the program, typically estimated by subtracting savings from free riders (program participants who would have implemented or installed the measures without the incentive, or with a lesser incentive), and adding in estimates of savings from free riders (nonparticipants who implemented or installed the measure due to the program).").

⁷⁶ Nat'l Renewable Energy Lab., *supra* note __ at 3. *See also* William P. Saxonis, *Free Ridership and Spillover: A Regulatory Dilemma*, 2007 Energy Program Evaluation Conference, Chicago at p. 533 (2007) (reviewing studies and literature on evaluating free ridership and spillovers and reviewing data in New York on same).

⁷⁷ *Id.* at 4. *See also* CARL BLUMSTEIN, CENTER FOR STUDY OF ENERGY MARKETS, PROGRAM EVALUATION AND INCENTIVES FOR ADMINISTRATORS OF ENERGY-EFFICIENCY PROGRAMS: CAN EVALUATION SOLVE THE PRINCIPAL/AGENT PROBLEM? 5 (Oct. 2010) ("Spillover" is the other side of the free rider issue. Spillover occurs when the effects of an energy-efficiency program spill over to affect other behavior. Examples of spillover would be a consumer taking action as the result of an energy-efficiency program

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For instance in Illinois, in 2016, the legislature enacted the Future Energy Jobs Act which contained, among other provisions, significant additional funding for utility-sponsored energy efficiency programs, including the ability of utilities to earn a rate of return on investments in energy efficiency programs.⁷⁹ Other states have also strengthened utility funded energy efficiency programs, with total spending in those programs approaching \$8 billion in 2017 nationwide, up from approximately \$4 billion in 2010.⁸⁰ According to the American Council for an Energy-Efficient Economy (“ACEEE”), “[e]nergy efficiency remains the nation’s third-largest electricity resource, employing 2.25 million Americans and typically providing the lowest-cost way to meet customers’ energy needs.”⁸¹

Other states, however, have used free riding concerns to scale back existing energy efficiency programs. For instance, in 2018, the Iowa legislature significantly scaled back what had been a long-term and robust energy efficiency program, primarily on grounds that it was too expensive and resulted in unfair cost shifts. As detailed by ACEEE, the law imposed a new spending cap on efficiency programs; removed efficiency program requirements on municipal utilities and electric cooperatives; and allowed customers “to opt-out of paying for efficiency programs that fail to satisfy the ratepayer impact [measurement] (“RIM”) test, a cost-effectiveness measure rejected by most states as inequitable.”⁸² During the legislative debates over the law, one senator criticized the fact that customers pay for these

but not receiving any of the incentives offered by the program (non-participant spillover) or a program participant stimulated to pursue additional energy saving actions that are not subsidized by the program (participant spillover).”)

⁷⁸ See, e.g., PWP, INC., CURRENT METHODS IN FREE RIDERSHIP AND SPILLOVER POLICY AND ESTIMATION (Feb. 2017), https://www.energytrust.org/wp-content/uploads/2017/07/FR_Spillover_170206.pdf; SEE ACTION, SEE ACTION GUIDE FOR THE STATES: EVALUATION, MEASUREMENT, AND VERIFICATION FRAMEWORKS—GUIDANCE FOR ENERGY EFFICIENCY PORTFOLIOS FUNDED BY UTILITY CUSTOMERS (Jan. 2018), https://www4.eere.energy.gov/seeaction/system/files/documents/EMV-Framework_Jan2018.pdf; Berkeley Lab, Electricity, Policy, and Markets Group, Utility Customer-Funded Programs <https://emp.lbl.gov/projects/utility-customer-funded> (“The EMP Group tracks and analyzes trends in utility ratepayer-funded energy efficiency programs and enabling policies, and provides technical and policy support to regional authorities, state regulatory commissions, and program administrators by analyzing current practices and projected future spending and savings for efficiency programs.”); American Council for an Energy-Efficient Economy (“ACEEE”), Energy Efficiency Programs, <https://aceee.org/portal/programs> (discussing founding of ACEEE in 1980, during the early period of energy efficiency programs, to provide research and policy development for utility energy efficiency); U.S. Dep’t of Energy, Office of Energy Efficiency and Renewable Energy, <https://www.energy.gov/eere/slsc/evaluation-measurement-and-verification-energy-data> (discussing the importance of evaluation, measurement, and verification (EM&V) data to “inform recommendations for improvements in [energy efficiency] program performance.”); U.S. DEP’T OF ENERGY, SEE ACTION, *supra* note __, Ch. 5

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programs but the amounts aren’t shown as a separate line item on utility bills and that “if you don’t take advantage of the program, guess what, you’re paying in and somebody else gets it.”⁸³ The law passed despite opponents of the bill who focused their arguments on the total savings to all customers and citing “\$400 million a year in net savings to customers” associated with energy efficiency programs.⁸⁴

In addition to legislative program cutbacks, scholars continue to question the scale of overall benefits of utility-sponsored energy efficiency programs. As early as the 1990s, Professors Paul Joskow and Donald Marron argued that data from utility companies did not bear out the grand claims of overall cost savings from utility-funded energy efficiency programs because of the failure to account for free riding.⁸⁵ These criticisms led to significant changes in the measurement and evaluation of the effectiveness of energy efficiency programs to address these and other concerns and to ensure the cost-effectiveness of such programs.⁸⁶ More recently, in 2016, Professor Arik Levinson has argued that despite forty years of experience with energy efficiency programs, program benefits continue to be overstated, particularly in the context of state energy building codes.⁸⁷

(defining free riding, spillovers, net savings in context of determining cost-effectiveness of utility-funded energy efficiency programs).

⁷⁹ See Commonwealth Edison Press Release, *New Energy Efficiency Benefits Coming to Illinois Consumers*, June 28, 2017; Future Energy Jobs Act, *About*, <https://www.futureenergyjobsact.com/about>; Kari Lydersen, *Q&A: Going Beyond Decoupling to Drive Utility Investments in Energy Efficiency*, MIDWEST ENERGY NEWS, Sept. 18, 2017, (discussing ability of utility to place energy efficiency investments in rate base and earn rate of return in Illinois as well as several other states, including Maryland and Utah).

⁸⁰ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD 24 (Oct. 2018).

⁸¹ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD vi (Oct. 2018); AM. COUNCIL FOR AN ENERGY-EFFICIENCY ECONOMY, THE GREATEST ENERGY STORY YOU HAVEN’T HEARD, *supra* note __, at 5-6.

Nevertheless, because of decades with experience with energy efficiency programs, and a general recognition that energy efficiency programs can provide benefits for all ratepayers when designed properly, the debate has shifted toward how to identify free riders to improve the cost-effectiveness of programs rather than using free riding concerns as a reason to not have a program in the first place.

The same cannot be said for solar net metering programs and utility investment in EV charging infrastructure. Utility subsidies for these programs are subject to significant debate, with the role of free riders, “fairness” and cross subsidies at the center of arguments over whether these programs should exist at all. The next Sections turn to these issues.

B. Net Metering: Utility Compensation for Customer-Generated Rooftop Solar Energy

One of the most frequent, contemporary uses of free riding arguments in energy policy involves utility compensation for customer-generated rooftop solar energy, also referred to as “distributed generation,” “distributed energy,” or “distributed solar.”⁸⁸ Beginning as early as the 1980s, states adopted policies requiring electric utilities to compensate rooftop solar panel owners for the electricity generated by the solar panels that is sent back to the grid in order to incentivize the adoption of rooftop solar.⁸⁹ Such policies are often referred to as “net metering” or “net energy

⁸² AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD x, 15, 44 (Oct. 2018).

⁸³ Testimony of Iowa Sen. Breitbach, Senate Proceedings of March 6, 2018, timestamp 9:15:30–9:18:00, <http://www.legis.state.ia.us/dashboard?view=video&chamber=S&clip=s20180306203727440&dt=2018-03-06>.

⁸⁴ Testimony of Iowa Sen. Bolkcom, Senate Proceedings of March 6, 2018, timestamp 9:18:00–9:21:00, <http://www.legis.state.ia.us/dashboard?view=video&chamber=S&clip=s20180306203727440&dt=2018-03-06>.

⁸⁵ Paul L. Joskow & Donald B. Marron, *What Does a Negawatt Really Cost? Evidence from Utility Conservation Programs*, 13 ENERGY J. 41 (1992); Paul L. Joskow & Donald B. Marron, *What Does a Negawatt Really Cost?, Further Thoughts and Evidence*, 6 ELECTRICITY J. 14 (1993) (responding to criticisms of earlier paper). *But see* Eto, *supra* note __, at 11-12 (finding more savings attributable to energy efficiency programs that reported by Joskow & Marron but acknowledging not all utilities were effective at running such programs).

⁸⁶ *See, e.g.*, Geller & Attali, *supra* note __ at 18-19 (discussing program design to account for free rider and spillover effects as a result of criticisms by Joskow, Marron, and others).

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metering” because the electricity meter on the home or commercial building now runs two ways: it meters electric energy flowing to the customer when the solar panels are not providing all the necessary electricity to the building and also meters the electricity flowing back to the utility and the electric grid when the solar panels are producing more electricity than the building requires.⁹⁰ Over a monthly or yearly billing period, the customer pays the “net” of the electricity the building uses and produces, resulting in significantly lower electricity bills for the customer, and in some cases, a net profit for the customer.⁹¹

In the Energy Policy Act of 2005, Congress provided additional support for state net metering policies by encouraging states to adopt them and also to provide tax benefits to customers installing solar generation.⁹² Although one can argue that a sale of electric energy by a utility customer to the utility is a wholesale sale of electricity subject to Federal Energy Regulatory Commission (“FERC”) jurisdiction under the Federal Power Act, both the Energy Policy Act of 2005 and numerous FERC decisions have disclaimed federal jurisdiction over net metering and instead have encouraged states to regulate the practice as a matter of state jurisdiction over retail sales.⁹³

As of 2017, thirty-eight states and Washington, D.C. offer some form of net metering and utilities in some of the remaining states have adopted net metering

⁸⁷ Arik Levinson, *How Much do Energy Building Codes Save? Evidence from California Houses*, 106 AM. ECON. REV. 2867 (2016); Arik Levinson, *Energy Efficiency Standards are More Regressive Than Energy Taxes: Theory and Evidence*, Georgetown University and NBER (May 8, 2018), <http://faculty.georgetown.edu/aml6/pdfs&ziips/RegressiveMandates.pdf>. See also David S. Loughran & Jonathan Kulick, *Demand Side Management and Energy Efficiency in the United States*, 25 ENERGY L.J. 19 (2004) (reviewing data and finding that actual electricity savings resulting from energy efficiency program were less than that reported by utilities).

⁸⁸ See Richard L. Revesz & Burcin Unel, *Managing the Future of the Electric Grid: Distributed Generation and Net Metering*, 41 HARV. ENVTL. L. REV. 43, 44 (2017) (“‘Distributed generation’ is a term used to describe electricity that is produced at or near the location where it is used. Distributed generation systems, also known as ‘distributed energy resources,’ can rely on a variety of energy sources, such as solar, wind, fuel cells, and combined heat and power. Distributed solar energy is produced by photovoltaic cells, popularly referred to as solar panels, which can be placed on rooftops or mounted on the ground.”).

⁸⁹ Revesz & Unel, *supra* note __, at 59-64 (describing history of net metering programs).

⁹⁰ JIM LAZAR, *ELECTRICITY REGULATION IN THE US: A GUIDE* 78-79 (2d ed. 2016); ALEXANDRA B. KLASS & HANNAH J. WISEMAN, *ENERGY LAW* 153-54 (Foundation Press 2017).

programs on a voluntary basis.⁹⁴ “Conventional” net metering compensates customers with solar panels at the retail electricity rate—the price the customers pays to buy electricity from the utility.⁹⁵ A few other states have compensation rules that are not considered to be “net metering” because they compensate customers at something other than the retail rate, such as a lower, wholesale rate, or they have a so-called “buy all, sell all” program where there is one meter for the customer’s purchases of electricity and another meter for the customer’s sale of electricity to the utility.⁹⁶ As discussed in more detail below,⁹⁷ Minnesota has adopted a “Value of Solar Tariff” for designated utility purchases of certain types of distributed solar generation that attempts to value the full costs and benefits of solar energy on the grid, and to avoid the bluntness of compensating customer-generated solar energy based on a retail or wholesale electricity rate.

Beyond the rate of compensation, states vary considerably with regard to other aspects of net metering programs. Many states have capacity limits on individual customer solar systems, such as a 20 kilowatt (kW), 1 megawatt (MW), or 10 MW size limit on the system, with twenty-three jurisdictions imposing a size limit below 100 kW.⁹⁸ Other states place limits on capacity based on the customer’s total electricity load, such as Arizona’s limit of 125% of the customer’s total load. States also have imposed limits on aggregate installed solar capacity within a utility’s service territory or within a state. For instance, Georgia limits solar installations to .2% of a

⁹¹ KCLASS & WISEMAN, *supra* note __, at 153-54. For a more detailed description of various types of net metering, along with diagrams, see Minn. Pub. Utils. Comm’n, Net Metering & Compensation, <https://mn.gov/puc/energy/distributed-energy/net-metering/>.

⁹² Revesz & Unel, *supra* note __, at 59-60; U.S. Dep’t of Energy, Residential Renewable Energy Tax Credit, ENERGY.GOV, <https://www.energy.gov/savings/residential-renewable-energy-tax-credit>.

⁹³ See Revesz, *supra* note __, at 59-60; David Raskin, *The Regulatory Challenge of Distributed Generation*, 4 HARV. BUS. L. REV. 38, 42-45 (2013) (criticizing net metering as an unfair subsidy and arguing for federal jurisdiction over net metering); State Power Project, *Net Metering and Federal State Jurisdiction*, <https://statepowerproject.files.wordpress.com/2015/05/net-metering-policy-maker-summary1.pdf>; Jim Rossi, *Federalism and the Net Metering Alternative*, 29 ELEC. J. 13 (January-February 2016) (disagreeing with Raskin and arguing for continued state jurisdiction over net metering).

⁹⁴ National Council of State Legislatures, State Net Metering Policies, Nov. 2017; DSIRE, Net Metering Map, Nov. 2017, http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2017/11/DSIRE_Net_Metering_November2017.pdf.

⁹⁵ Retail electricity rates—the price end use customers pay to the utility—are always higher than wholesale electricity rates—the price at which the utility buys or sells electricity to or from another wholesale provider of electricity such as a neighboring utility, a utility-scale wind farm, a natural gas generator, etc. Wholesale electricity rates vary significantly based on supply and demand and also based on the type of resource producing the

utility’s peak demand, California has a cap of 5% of the utility’s peak demand, Vermont has an aggregate capacity of limit of 15% of the state’s peak demand, and Utah’s limit is 20% of state peak demand.⁹⁹ States also vary in how long customers can maintain bill credits (e.g., next monthly billing period, 12-month period, indefinitely) and whether the rate of compensation is uniform across all systems in the state or varies based on system size.

When solar panels were few and far between, net metering was fairly uncontroversial. However, as tax incentives, net metering, and a growing desire for renewable energy encouraged more electricity customers to install solar panels, utilities began to express concerns regarding lost revenues and sought regulatory relief from state public utility commissions and legislative reform from state legislatures. One of the central arguments utilities made in this context is that non-solar owners are subsidizing solar owners. Because the utility’s fixed costs associated with maintaining the electric grid are primarily recovered from customers through volumetric rates, if solar owners are now purchasing 50-80% less electricity each year, but the utility still needs to maintain the same level of grid service for when the sun is not shining, the utility will need to raise rates since they are selling less power overall. When those rates, go up, the increase will be disproportionately born by non-solar owners. Thus, non-solar owners will now be shouldering a greater amount

electricity—natural gas, coal, nuclear, wind, or solar energy. By contrast, retail electricity rates are set by state public utility commissions and generally do not vary based on scarcity or resources, with some exceptions such as when a customer enrolls in a “time of use” program that ties retail rates to low and high peak demand times of day. In most states, the “avoided cost rate” (the cost of the utility to purchase energy as wholesale or generate the energy itself) are much lower than retail electricity rates. *See* Revesz & Unel, *supra* note __, at 60-61 (comparing avoided costs rates in Wisconsin in 2015 of \$0.03 to \$0.04 per kWh compared to retail rates of \$0.11 to \$0.14 per kWh). *See also* FERC v. Elec. Power Supply Ass’n, 136 S. Ct. 760, 769 (2016) (discussing price fluctuations in wholesale rates based on demand and fact that state regulators generally insulate retail customers from such rate fluctuations).

⁹⁶ LAZAR, *supra* note __, at 134-35 (discussing net metering in the states); Revesz & Unel, *supra* note __, at 47, 59-71 (discussing different state approaches to net metering and distributed energy compensation); Nat’l Conference of State Legislatures, *supra* note __; Database of State Incentives for Renewable Energy, Net Metering Policies—Customer Credits for Monthly Net Excess Generation (NEG) Under Net Metering, July 2016, <http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2014/11/NEG-1.20161.pdf>.

⁹⁷ *See infra* Part III.B.3.

⁹⁸ For comparison sake, 3 kW is common among residential systems and 10 MW is common among commercial and industrial systems, with lots of variation across both types of systems. Revesz & Unel, *supra* note __, at 62-63.

⁹⁹ Revesz & Unel, *supra* note __, at 63; Database of State Incentives for Renewable Energy, *supra* note __.

of those fixed costs, resulting in a “cross-subsidy” to solar owners and solar owners “free riding” on the grid.

It is important to note that cross-subsidies between different types of retail customers are ubiquitous in the utility world.¹⁰⁰ Customers who live in rural areas require more transmission infrastructure to connect to the electric grid, so urban customers who require less transmission infrastructure are arguably paying more than their “fair share” of transmission line costs.¹⁰¹ Low-income customers often receive rate discounts through state programs and industrial customers receive favorable rates from public utility commissions if those customers are successful in arguments that they need those lower rates to remain competitive.¹⁰² In each of those cases, there is a cross subsidy from one class of customers to the other. As a legal matter, however, the question is whether that cross subsidy is “unjust and unreasonable” or discriminatory under state law.¹⁰³

Since approximately 2015, the “net metering wars” taking place in state public utility commissions and state legislatures across the country have resulted in many state commissions reducing the benefits associated with net metering by placing new fixed charges and “demand” charges on solar customers, compensating solar customers at something less than the retail rate, or imposing new aggregate capacity limits on solar installations.¹⁰⁴ In 2018, forty-five states and the District of Columbia took some action with regard to distributed solar, whether it be changes to net

Commented [AG1]: I think you’re referring to distribution infrastructure in this section

¹⁰⁰ See Rule, *supra* note __, at 131-34 (discussing common cross subsidies in utility rate design); Revesz & Unel, *supra* note __, at 76 (same); Peskoe, *supra* note __, at 121-29, 169-72 (explaining how cross-subsidies have always been embedded in the utility rate design).

¹⁰¹ Rule, *supra* note __, at 131-34.

¹⁰² *Id.* There are also cross subsidies between customers who use more electricity during peak demand times and those customers who do not. See Ian Schneider & Cass Sunstein, *Behavioral Considerations for Effective Time-Varying Electricity Prices*, Discussion Paper No. 891, John Olin Center for Law, Economics & Business, Harv. L. School 4 (Nov. 2016). Moving to “time of use” rates for all electricity customers minimizes or eliminates that cross subsidy, but time of use rates are still rare among residential utility customers in the United States. See *supra* note __; Ahmad Faruqui, *Residential Rates for the Utility of the Future*, May 13, 2016 (Powerpoint presentation on cross subsidies associated with flat retail electricity rates).

Such cross subsidies would be minimized or eliminated if all retail customers were moved to “time of use” rates. For a discussion of time of use rates, see *supra* note __.

¹⁰³ See Peskoe, *supra* note __, at 118-23 (discussing “just and reasonable” standard in utility ratemaking).

¹⁰⁴ See, e.g., Peskoe, *supra* note __, at 150 (noting that in arguments before public utility commissions, utilities “have launched a nationwide campaign against cross subsidies, in the name of consumer protection. They argue that rate structures that have allowed PV to gain traction are ‘unfair,’ ‘misleading’ to consumers, and ‘regressive.’ IOUs have also funded media campaigns that have painted PV adopters as thieves who steal their neighbors’ money

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metering, fixed charges, minimum bill increases, or community solar policies.¹⁰⁵ In addition to efforts by utilities to reduce the financial benefits of rooftop solar in state commissions, utilities worked closely with the American Legislative Exchange Council (“ALEC”) to introduce model legislation in states across the country to ban or severely limit net metering or to impose large fixed fees on owners of solar panels.¹⁰⁶

In these proceedings, investor-owned electric utilities and ratepayer advocacy groups virtually always argue in favor of limiting or eliminating net metering for rooftop solar. They argue that rooftop reduces overall utility revenues (through lost electricity sales) without also lowering utility fixed costs and will thus lead to increased electricity rates for customers to cover those fixed costs. In turn, they argue, those higher rates will fall disproportionately on non-solar owners who tend to be less wealthy than solar owners. The players on the other side of the debate include (1) the rooftop solar industry—companies like Sunrun and SolarCity¹⁰⁷—which benefit financially from the increased financial incentives net metering provides for rooftop solar installations and (2) environmental groups, which support the growth of rooftop solar because it increases the penetration of renewable, distributed energy into the electric grid, reduces reliance on fossil fuels, and reduces GHG emissions and other fossil-fuel related pollutants.¹⁰⁸

Commented [AG2]: Now Tesla

In a 2017 article on distributed solar and net metering, Richard Revesz and Burcin Unel surveyed many of the public benefits and costs associated with distributed solar.¹⁰⁹ The benefits to the electric grid include reducing the utility system’s peak demand; reduced fuel and transmission expenses; lower transmission distribution line power losses because distributed energy is closer to the end-user; long-term costs savings to the system by enabling deferral or complete avoidance of the cost of new power plants; and resiliency benefits during storms and other power outages. The benefits to the public include climate change benefits and health benefits through the displacement of fossil fuels as well as more general

while out-of-state billionaires reap the profits.”) (citing proceedings); Revesz & Unel, *supra* note __, at 64-71 (discussing challenges in numerous states to net metering); Welton, *supra* note __, at 592-97 (discussing contentious state utility commission proceedings over net metering and opponents’ “nationwide assault on the policy”).

¹⁰⁵ N.C. CLEAN ENERGY TECH. CTR., THE 50 STATES OF SOLAR Q3 2018 QUARTERLY REPORT, Executive Summary 5 (Oct. 2018).

¹⁰⁶ Revesz & Unel, *supra* note __, at 65.

¹⁰⁷ See Jacob Marsh, *Solar Power Companies in the U.S.: Which Should You Choose?*, ENERGYSAGE, June 28, 2018.

¹⁰⁸ See generally Revesz & Unel, *supra* note __, at 48-49 (discussing net metering battles); Peskoe, *supra* note __, at 154-55 (same).

¹⁰⁹ Revesz & Unel, *supra* note __, at 79-93.

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environmental protection benefits associated with water quality and land use benefits.¹¹⁰

Not surprisingly, free riding and cross subsidy arguments arise frequently in the regulatory proceedings over distributed solar energy as illustrated below. Here is where a comparison to the use of free riding in the energy efficiency context becomes helpful. Free riding concerns in energy efficiency programs have been present for many decades, and economists and other experts have developed various ways of addressing them. One can certainly question how accurate our ability to evaluate free riders is in the energy efficiency context, but experts have at least developed metrics to measure free riders and, even if they aren't perfect, they provide a platform for analysis and debate.

Regulators and experts are at a much earlier stage of data collection and analysis when it comes to free rider concerns in the rooftop solar context. The question then becomes how much to support rooftop solar as these metrics are being developed. Opponents of rooftop solar, including many investor-owned electric utilities, argue that states should eliminate net metering in favor of much lower payments for rooftop solar energy because the public benefits provided are limited. Supporters argue that states should continue with net metering until we can more fully calculate the full system-wide and public benefits provided by rooftop solar because we know they exist and should encourage development of this energy resource.

Commented [AG3]: In Minnesota, Co-ops and Munis have been more vigorous opponents of NEM than IOUs

A review of proceedings in Arizona, Nevada, and Minnesota surrounding compensation for rooftop solar generation shows a range of approaches to this question. In Arizona, the lack of information on the public benefits provided by rooftop solar caused regulators and utilities to downplay the benefits of rooftop solar and reduce net metering benefits. In Nevada, the utility commission first followed suit but then reconsidered its decision and used the lack of information as a reason to continue net metering until improved metrics could be developed. And in Minnesota, the state legislature required the state utility commission to adopt a "value of solar tariff" or VOST, to reduce the information asymmetry between the electric utility and the public and to begin to develop the types of metrics that exist in the energy efficiency context.

1. *Arizona*

¹¹⁰ *Id.* at 79-81. Costs to the grid include the costs of new meter installations grid interconnection, mismatches in power supply and demand that the utility cannot yet easily control, and responding to the variability of distributed resources that cannot be turned off and on with a switch on demand. *Id.* at 81-84.

In Arizona, in 2013, the Arizona Public Service Commission became one of the first state utility commissions to revise a state net metering program to reduce the value of rooftop solar in response to a utility claim of an unfair cost shift between residential customers with solar panels and residential customers without solar panels. The utility, Arizona Public Service (“APS”), filed an “Application for Approval of Net Metering Cost Shift Solution” as “a solution to the cross-subsidization of customers with Net-Metering DG [distributed generation] systems by those customers without such systems.”¹¹¹ Notably, in its filing, APS contended “that the issue is one of fairness for all customers and is not related to a loss of revenue by APS because of [net metering].”¹¹² Prior to its filing, APS hosted a technical conference to gather information and propose various solutions, which it presented to the Commission with its application.¹¹³

In its order ruling on the APS application, the Commission summarized the commission staff analysis of the issue, and found that “integral to the discussion of DG is the question of what *value* DG offers to APS’s electric system and thereby to the customers served by that system.”¹¹⁴ Staff found two values inherent in DG systems: (1) objective value, which consist of “measurable” benefits such as avoided fuel costs to the utility, although it recognized that “[e]ven objective value can be difficult to predict in future time periods; and (2) subjective value, which “requires the subjective assignment of monetary values to anticipated future benefit that are not easily measurable” and can include “increased grid security and air quality improvements.”¹¹⁵ The Commission, based on the staff report, recognized that several studies existed that attempted to quantify both objective and subjective value of DG, that subjective value “is a public policy issue” that requires “a subjective assignment of values consistent with policy goals,” and that both objective value and subjective value would need to be addressed in the next general rate case proceeding for the utility to quantify and value the costs and benefits of DG and then “allocate[] these costs and benefits equitably among customers [as] a matter of rate design.”¹¹⁶

As an interim measure, however, the Commission agreed with APS that some additional costs and fees on solar customers were appropriate. It did not place new fees on customers who already had installed solar panels but did place a \$.70 per kW monthly interim charge on all DG customers with installations after December 31,

¹¹¹ In re Arizona Public Service Company’s Application for Approval of Net Metering Cost Shift Solution, Order at 2, ¶ 10 (Ariz. Pub. Serv. Co., Dec. 3, 2013) [hereinafter “APS Order”].

¹¹² APS Order at 2, ¶ 11.

¹¹³ *Id.* at 2, ¶ 12.

¹¹⁴ *Id.* at 5, ¶ 24 (emphasis in original).

¹¹⁵ *Id.* at 5, ¶¶ 25-26.

¹¹⁶ *Id.* at 6, ¶¶ 30-32.

2013 to “ameliorate the impact of the cost shift on residential non DG customers.”¹¹⁷ This amount, which constituted the first approval of fixed charges on solar customers in the United States, was significantly lower than the \$3.00 per kW per month amount it believed could be supported APS’s data (equivalent to an additional \$21 per month for a customer system of 7 kW) and the \$70 per month APS said was warranted by the “cost shift issue” in a later proceeding on the same issue.¹¹⁸

Contentious battles over how to value and compensative rooftop solar generation continue in Arizona, with APS arguing that its customers “are bearing the brunt of the unfair cost shift” associated with continued net metering and arguing for higher fixed fees on solar customers.¹¹⁹ What is important for purposes of analysis here, is the position of APS that there is an “unfair” cost shift between customers with solar panels and customers without solar panels despite the fact that all parties recognized in the proceeding that it was very difficult to value the benefits to the overall system associated with distributed solar. If that value is high, then any current cost shift may not be unfair to any customers and, in fact, may benefit all customers. This is particularly true if the “value” of distributed solar includes creating markets for developing solar technologies that can result in reduced carbon emissions, greater grid security through distributed generation, and financial value from reducing the need to build more fossil-fuel generation once energy storage technologies develop sufficiently to support distributed solar. APS and other utilities may not “value” those benefits because they may result in reduced revenues for the utility in the short term, but that does not necessarily mean they are an unfair cost shift on utility customers without solar panels or that customers with solar panels are free riding on the utility system.

2. Nevada

The analysis was somewhat different in Nevada a few years later in 2016. In early 2016, the Public Utilities Commission of Nevada issued a “Modified Final Order” that phased out net metering for residential customers in Nevada with existing solar systems and tripled the “fixed charges” for those customers over a period of years.¹²⁰ This decreased the amount the utility paid customers for rooftop solar from the 11 cents per kWh retail rate to a 2 cents per kWh wholesale rate. It also resulted in an

¹¹⁷ *Id.* at 21.

¹¹⁸ *See id.* at 17, ¶ 84. *See also* In re Arizona Public Service Company’s Application for Approval of Net Metering Cost Shift Solution, Docket No. E-01345A-13-0248, Order at ¶¶ 106, 162 (Ariz. Pub. Serv. Co., Aug. 31, 2015).

¹¹⁹ *Id.* at ¶ 102.

¹²⁰ Pub. Util. Comm’n of Nevada, Modified Final Order, Docket Nos. 15-07041 and 15-07042 (Feb. 17, 2016).

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increase in fixed monthly charges on solar customers from \$12.75 per month to \$38.50 per month.¹²¹ This action resulted in SolarCity and other solar installation companies pulling their operations out of the state entirely with a commensurate loss of solar-related jobs in the state. According to the commission itself, the Modified Final Order “all but crushed the rooftop solar industry in Northern Nevada, reducing the booming industry from 983 applications by residential homeowners and small commercial businesses in Sierra Pacific Power service territory in 2015 to 41 applications in 2016.”¹²²

A significant driver of the Commission’s Modified Final Order eliminating net metering was a 2015 statute enacted by the Nevada legislature, SB 374,¹²³ in which the legislature directed the commission to address solar cost shift issues. The relevant provisions of the statute provided that the commission may establish different rate classes for customers with distributed solar, may establish terms and conditions for participating in net metering, including limits on enrollment in net metering “to further the public interest,” may allow a utility to “establish just and reasonable rates and charges to avoid, reduce, or eliminate *an unreasonable shifting of costs* from customer-generators to other customers of the utility,” and shall not authorize rates or charges for net metering “that *unreasonably shift costs* from customer-generators to other customers of the utility.”¹²⁴

In its order revisiting its decision, the Commission evaluated the record before it with regard to the extent of any unfair cost shift from net metering customers to non-net metering customers.¹²⁵ It found the record “replete with conflicting evidence regarding the existence of a cost shift” with some studies showing the costs between customers classes will be “very nearly neutral” and total benefits of \$36 million over the lifetime of an average rooftop solar system.¹²⁶ Other studies, however, showed exactly the opposite, with a significant cost shift based in large part on the differential in price between utility scale solar and rooftop solar, with utility scale solar available at significantly lower rates.¹²⁷

With this conflicting evidence before it, the Commission stated that what it found most significant about the evidence submitted was that “credible and well-educated” economists, engineers, attorneys, and businesses failed to agree on

¹²¹ See Revesz & Unel, *supra* note ___, at 66 (citing news reports).

¹²² In re Application of Sierra Pacific Power Co., Docket No. 16-06006, 16-06007, 16-06008, 16-06009, Order at 27, 2016 WL 7635932 (Nev. PUC, Dec. 28, 2016).

¹²³ NV S.B. 374, *codified* at NRS 704.7735, *repealed*, NV A.B. 405

¹²⁴ Sierra Pacific Power, *supra* note ___, Order at 28.

¹²⁵ *Id.* at 29.

¹²⁶ *Id.* at 31-32.

¹²⁷ *Id.*

fundamental facts and methodologies relevant to the proceeding.¹²⁸ The Commission considered that this was “[p]erhaps due to Nevada being at a crossroads where traditional thinking is colliding with new technology and disruptive business models—new ways of looking at old energy problems are emerging.”¹²⁹ The Commission also considered that these divergent views may also “be because the facts regarding energy valuation, in many ways like the price of other commodities, change and continually evolve. What a cost prohibitive energy resource is today could very well be a fantastic value tomorrow.”¹³⁰ The Commission continued:

Jumping to a premature conclusion for the mere sake of having a resolution while the conversation and technology is evolving would not serve the public interest and Nevada. No certain answer at this time is better than the wrong one. More information, time, and analysis are necessary to find the appropriate balance for Nevada. The statement above is all-the-more true in the valuation of [net energy metering] NEM rooftop solar, as it impacts the overall cost-shift analysis.¹³¹

The Commission then stated that in its prior order eliminating net metering, it had recognized that the relevant factors for analyzing the positive and negative effects of net metering included avoided energy, avoided capacity, reduced energy losses/line losses, avoided CO₂ emissions, avoided criteria pollutant emissions, fuel hedging, utility integration and interconnected costs, and utility administration costs.¹³² In that earlier order, according to the Commission, it had “bound those factors to only those things which are ‘known and measurable’ but, in doing so “failed to fully account for other facts and policies—even those difficult or impossible to objectively quantify—which should also be included in a comprehensive NEM valuation analysis.”¹³³ Moreover:

Until a universally-acceptable formula can be settled upon to determine an appropriate value for . . . rooftop solar generation in Nevada, questions regarding the existence of a cost-shift will remain unresolved. More than “known and measurable” costs need to be included in this analysis. However, how is monetary value to be placed on the prevention of climate change? Clean air? Encouraging

¹²⁸ *Id.* at 32.

¹²⁹ *Id.*

¹³⁰ *Id.*

¹³¹ *Id.* at 33.

¹³² *Id.*

¹³³ *Id.*

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job growth? Grid diversity? Energy choice and independence?
Building a “New Nevada” for our children? . . .¹³⁴

The Commission went on to find that even assuming the facts support a cost shift from non-solar customers to solar customers, the relevant statute only prohibited the Commission from approving an “unreasonable” cost shift.¹³⁵ It found that no unreasonable cost shift would occur because there would be no “discernable cost increase” on the average monthly bill for customers without distributed solar (approximately \$0.26 per month) and that most customers would experience a net decrease in the average monthly bill.¹³⁶ The Commission also noted that its determination of reasonableness in this case was guided by the Nevada Legislature’s stated policies supporting renewable energy, including solar energy as a “mainstream alternative for homes.”¹³⁷ Notably, within a year after the Commission’s order, the Nevada legislature ratified the order by repealing its earlier legislation—SB 374—and replacing it with provisions grandfathering in existing customers with full net metering and reducing the rate only slightly when certain installed capacity thresholds are met (e.g., 95% of the retail rate in the first 80 MW of installed capacity, with decreases for every additional 80 MW installed until it flattens at a 75% rate of compensation.¹³⁸

As detailed in Part IV, what is notable about the Nevada Commission’s order is its treatment of the present-day uncertainties regarding the valuation of costs and benefits of rooftop solar as compared with the Arizona Commission. In the face of the absence of “hard” data regarding present-day and long-term benefits of rooftop solar, the Arizona Commission accepted the utility’s arguments and assumed an unreasonable cost shift while the Nevada Commission did exactly the opposite. The Nevada Commission presumed that benefits to all customers associated with increased solar generation may exist now and would likely increase in the future. It found no existing cost shift between customer classes that was unreasonable based on the evidence before it, and relied on state legislative policies supporting renewable energy to allow the market for rooftop solar to develop and thrive in the state. By contrast, in Arizona, the commission saw its role more narrowly—to address the utility’s petition to address cost shifts taking place using the utility’s existing rate design which recovers both fixed and variable costs through volumetric electricity sales. It did not use the proceedings as an opportunity to question the rate design or

¹³⁴ *Id.* at 34, 36.

¹³⁵ *Id.* at 36.

¹³⁶ *Id.* at 36-37.

¹³⁷ *Id.* at 38 (quoting NRS § 701B.190).

¹³⁸ See Nev. A.B. 405, June 4, 2017; Julia Pyper, *Nevada’s New Solar Law is About Much More than Net Metering*, GREENTECH MEDIA, June 16, 2017.

to support a growing market for a form of energy generation that posed a direct threat to the utility’s existing business model.

3. Minnesota

Unlike Arizona and Nevada, where the commissions relied on more general statutory language regarding just and reasonable rates in the context of rooftop solar, in Minnesota the legislature directed the Commission to develop a new method to compensate distributed solar energy. Specifically, in 2013, in addition to using traditional net metering to compensate solar owners for systems ~~between 40 kW and up to~~ 1 MW, the legislature allowed investor-owned utilities to compensate such customers based on “an alternative tariff that compensates customers through a bill credit mechanism for the value to the utility, its customers, and society for operating distributed solar photovoltaic resources interconnected to the utility system and operated by customers primarily for meeting their own energy needs.”¹³⁹

The legislature required that this alternative tariff, known as the “Value of Solar” tariff (also referred to as the “VOS rate” or “VOST”) be developed by the Minnesota Department of Commerce no later than January 31, 2014 and be approved, rejected, or modified with the Department’s consent by the Minnesota Public Utilities Commission within 60 days of submission.¹⁴⁰ In developing the VOST, the Department of Commerce was required to “consult stakeholders with experience and expertise in power systems, solar energy, and electric utility ratemaking regarding the proposed methodology, underlying assumptions, and preliminary data.”¹⁴¹ The VOST must “at a minimum, account for the value of energy and its delivery, generation capacity, transmission capacity, transmission and distribution line losses, and environmental value.” The Department of Commerce was also authorized, although not required, consider “known and measurable evidence of the cost or benefit of solar operation to the utility” and incorporate “other values into the methodology, including credit for locally manufactured or assembled energy systems, systems installed at high-value locations on the distribution grid, or other factors.”¹⁴²

The legislature also required the state’s largest utility, Xcel Energy, to create a program for “community solar gardens” defined as facilities that generate electricity “by means of a ground-mounted or roof-mounted solar photovoltaic device whereby subscribers receive a bill credit for the electricity generated in proportion to the size

¹³⁹ MINN. STAT. § 216B.164, subd. 3a (net metering); Minn. Stat. § 216B.164, subd. 10(a) (alternative tariff).

¹⁴⁰ MINN. STAT. § 216B.164, subd. 10(e).

¹⁴¹ MINN. STAT. § 216B.164, subd. 10(e).

¹⁴² MINN. STAT. § 216B.164, subd. 10(f).

of their subscription.”¹⁴³ The other two investor-owned utilities in the state are allowed, but not required to offer a solar garden program.¹⁴⁴ Solar gardens must be at a capacity of no more than 1 MW, and each subscription “shall be sized to represent at least 200 watts of the community solar garden’s generating capacity and to supply, when combined with other distributed generation resources serving the premises, no more than 120 percent of the average annual consumption of electricity by each subscriber at the premises to which the subscription is attributed.”¹⁴⁵ A solar garden must have at least five subscribers and no single subscriber may have more than a 40 percent interest in the garden.¹⁴⁶ Solar gardens may be owned by the utility or by a private solar development that contracts with the utility to sell the output of the solar garden.¹⁴⁷

The purpose of the solar garden statute was to allow residential and commercial utility customers to receive the benefits of solar energy without the need for the up-front capital costs of purchasing solar panels and to encourage the development of a solar industry in Minnesota.¹⁴⁸ Eligible solar gardens must be located “in the service territory of the public utility filing the plan” and subscribers must be retail utility customers located in the same county as the solar garden or a contiguous county.¹⁴⁹ The utility must purchase all energy the community solar garden generates and the purchase shall be at the VOS rate or, until the commission approves the VOS rate, at the applicable retail rate.¹⁵⁰

The Minnesota Public Utilities Commission reviewed and approved the VOST prepared by the Department of Commerce in April 2014.¹⁵¹ In its order, the Commission began by stating that the Department of Commerce “intends for the methodology to avoid cross-subsidies and disincentives for conservation inherent in net metering.”¹⁵² The Department’s methodology included eight relevant components, chosen because they were values “based on known and measureable

¹⁴³ MINN. STAT. § 216B.1641(a).

¹⁴⁴ *Id.*

¹⁴⁵ MINN. STAT. § 216B.1641(b).

¹⁴⁶ MINN. STAT. § 216B.1641(a).

¹⁴⁷ *Id.*

¹⁴⁸ See Bob Eleff, Legislative Analyst, Information Brief, *Xcel Energy’s Minnesota Solar Garden Program* (Updated Oct. 2017), <https://www.house.leg.state.mn.us/hrd/pubs/solargarden.pdf>.

¹⁴⁹ MINN. STAT. § 216B.1641(c).

¹⁵⁰ MINN. STAT. § 216B.1641(d).

¹⁵¹ In re Establishing a Distributed Solar Value Methodology Under Minn. Stat. § 216B.164, subd. 10(e) and (f), Order Approving Distributed Solar Value Methodology (Minn. P.U.C., Apr. 1, 2014) [hereinafter “MPUC Order”].

¹⁵² MPUC Order at 1.

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evidence of the cost or benefit of solar operation to the utility”: avoided fuel costs, avoided fixed plant operations and maintenance, avoided variable plant operations and maintenance, avoided generation capacity cost, avoided reserve capacity cost, avoided transmission capacity cost, avoided distribution capacity cost, and avoided environmental costs. According to the Commission, together, the components “account for the value of energy and its delivery, generation capacity, transmission capacity, transmission and distribution line losses, and environmental value attributable to PV solar.” The Department also included two “placeholder components” for future analysis—avoided voltage control cost and solar integration cost—on grounds that these costs and benefits will be “known and measurable in the future” and thus can be added to the calculation at that time. The Department declined to include as components the “compliance” value of Solar Renewable Energy Credits and the value of economic development on grounds that such values were not known or measurable at that time. The Department anticipated that additional value and cost components would be added in the future, “as more data and analysis becomes available about distributed solar and its costs and benefits.”

The Commission approved the Department’s methodologies with a few modifications relating to fuel price escalator factor, calculating avoided distribution capacity costs, and non-CO₂ avoided environmental costs values.¹⁵³ Pursuant to the statute, the VOST is calculated annually and the utility must use the VOST for community solar gardens but can elect to use VOST or net metering for other types of solar purchases, such as distributed solar, in the utility’s territory. Since the first VOST was established, it has been a few cents less than the retail rate used in traditional net metering. For instance, the VOST in 2016 for Xcel Energy was just under \$.10 per kWh while the retail rate for residential customers was \$.12 per kWh. Under both net metering and VOST, Xcel must offer to purchase the renewable energy credits associated with the solar energy generated.

Commented [AG4]: With VOST, Xcel automatically gets the RECs.

Despite the lower price of VOST, Xcel Energy has opted to continue to use net metering when it can, likely in part because it anticipates that the VOST will rise in value in the future. When the first community solar gardens came on line, the Commission directed Xcel to compensate subscribers using the retail rate with an optional renewable energy credit payment, in order to provide sufficient incentives to get the solar garden program started, and so stakeholders could gain more experience with the program. In 2016, the Commission directed Xcel Energy to transition its solar garden program to VOST because that is what the legislature directed; because VOST will “provide predictable yearly rate increases,” thus improving the ability of solar gardens to obtain financing; and to “address concerns that nonparticipating

¹⁵³ MPUC Order, *supra* note ___, at 15-16.

ratepayers are subsidizing the program.”¹⁵⁴ The Commission also required Xcel beginning with the 2018 VOST to use “location-specific avoided costs in calculating avoided distribution capacity” to ensure that the benefits of solar gardens located near load and the costs of solar gardens further from load are appropriately considered and factored into the benefits associated with reducing peak demand and deferring the need for distribution system upgrades.

Throughout the proceedings, the utilities, consumer advocacy groups, solar developers, and others have disagreed about appropriate inputs, assumptions, and other aspects of Minnesota’s VOST.¹⁵⁵ Nevertheless, VOST provides a framework to address the cost shift and free riding arguments inherent in traditional net metering by creating identifiable inputs, cataloguing which inputs are known and unknown, and allowing for a yearly refinement of the methodology to determine the costs and benefits of solar on the utility’s system as a whole. It also allows an alternative to trying to wedge distributed solar payments into the traditional utility ratemaking process, which was not designed for these types of energy inputs. VOST, of course, is not the only approach. Scholars have proposed numerous other alternatives that include greater use of time-of-use rates, feed-in tariffs, better valuation of environmental benefits associated with distributed energy, and the like. VOST, however, is the primary alternative to net metering that exists today, and thus provides one pathway to get beyond the free riding and cost shift arguments that will always be present in debates over net metering.

C. *Electric Utility Investment in EV Charging Infrastructure*

Utility investment in EV charging infrastructure provides a third illustration of the use of free riding arguments in state energy policy. The debates in this context are more recent than those involving energy efficiency, which have had decades to develop, as well as those involving rooftop solar, which have been in play since approximately 2013, and have reached virtually all states. The debates over utility investment in EV charging infrastructure existed in only a few states prior to 2016, at

¹⁵⁴ In re Petition of Northern States Power Co., dba Xcel Energy, For Approval of its Proposed Community Solar Garden Program, Docket No. E-002/M-13-867, 2016 WL 4701453 (Minn. P.U.C., Sept. 6, 2016).

¹⁵⁵ See, e.g., Laura Hannah, *Xcel Energy’s Community Solar Program Hits Major Milestones in Year Three*, GREENTECH MEDIA, Dec. 21, 2017 (discussing program developments and debates); Comments of Prof. Gabriel Chan on Xcel Energy’s 2019 VOS Calculation and Proposed 2019 Vintage Year Bill Credit Tariff Sheets, Docket No. M-13-867 (Nov. 27, 2018) (raising conceptual errors, conceptual extensions, and process reforms for yearly VOS proceeding); Eleff, *supra* note ___ (discussing a range of disputed issues surrounding VOST and solar gardens since the enactment of the statutory provisions).

which time an increasing number of state commissions began to open dockets on the topic.¹⁵⁶

1. *EV Sales in the United States and the Role of EV Charging Infrastructure*

As an initial matter, although EV sales in the United States have increased significantly in recent years, EVs remain less than 1% of total vehicle sales in the United States, albeit with higher percentages in some states, particularly California, where the percentage of EV sales for several months in 2018 approached 10% of all vehicles sold.¹⁵⁷ The growth of EVs has resulted from improved battery technology as well as mandates that auto companies sell a certain percentage of EVs in some U.S. states (led by California) as well as in the EU and China.¹⁵⁸ As of October 2018, there were 1 million EVs on U.S. roads and analysts project that there will be over 18 million EVs in the United States by 2030.¹⁵⁹ As of 2018, the auto companies have embraced EVs and virtually every major auto company plans to invest heavily in the technology.¹⁶⁰

Environmental groups, along with some U.S. states, strongly support widespread EV adoption because it provides an opportunity to reduce the use of oil and its related GHG emissions and other pollutants in the transportation sector, which, as of 2018, emits more GHG emissions than any other sector.¹⁶¹ Moreover, although fossil fuels still made up nearly 63% of U.S. electricity generation in 2017, that percentage is far less in many states and is declining nationwide as a result of state

¹⁵⁶ See Klass, *supra* note __, at Part IV (discussing state legislative and regulatory action).

¹⁵⁷ *EV Market Share By State*, EV ADOPTION, evadoption.com/ev-market-share/ev-market-share-state/.

¹⁵⁸ See Int'l Energy Agency, *Strong Policy and Falling Battery Costs Drive Another Record Year for Electric Cars*, May 30, 2018 (discussing EV sales in the EU and China, with 580,000 EVs sold in China in 2017, which was a 72% increase from the prior year).

¹⁵⁹ See EDISON ELEC. INST., *ELECTRIC VEHICLE SALES FORECAST AND THE CHARGING INFRASTRUCTURE REQUIRED THROUGH 2030* 1 (Nov. 2018). See also Jeffrey Ryser & Keiron Greenhalgh, *U.S. EV Sales Jump 72.5% on Year in 2018, Top 354,000*, S&P GLOBAL, Jan. 3, 2019 (reporting that 2018 was a “break-out year” for EVs “with sales of more than 354,000 vehicles, or 72.5% more than the 199,000 EVs sold in the US in 2017”).

¹⁶⁰ See, e.g., Mark Matousek, *32 Electric Cars You'll See on the Road by 2025*, BUS. INSIDER, Nov. 28, 2018 (discussing auto companies investments in new models of EVs); Dan Neil, *Think Electric Vehicles are Great Now? Just Wait . . .*, WALL ST. J., Dec. 26, 2018.

¹⁶¹ See Energy & Climate Staff, Rhodium Group, *Preliminary US Emissions Estimates for 2018* (Jan. 18, 2018) (“The transportation sector held its title as the largest source of US [CO₂] emissions for the third year running, as robust growth in demand for diesel and jet fuel offset a modest decline in gasoline consumption.”).

RPSs and declining costs of utility-scale and distributed renewable energy.¹⁶² As a result electrifying transportation is an important component of efforts worldwide to reduce GHG emissions.

As part of its efforts to reduce statewide GHG emissions from the transportations sector, California has enacted a Zero Emission Vehicle (“ZEV”) mandate that requires auto companies to sell a certain percentage of EVs in the state, and nine other states have adopted the ZEV mandate.¹⁶³ Most of these ZEV states have also enacted legislative policies to facilitate the development of widespread EV charging infrastructure to increase consumer demand for EVs and reduce “range anxiety.”¹⁶⁴

Commented [AG5]: Now 11 (that number might include Washington DC)

Because the fuel EVs require is electricity, utilities have the opportunity to play a central role in building out EV charging infrastructure. This infrastructure includes the distribution wires and related equipment necessary to power the charging stations, and the charging stations themselves. With regard to the charging stations, private charging companies such as ChargePoint, Greenlots, Blink, and EVGo have developed a range of business models to support home and business charging. In addition, the Volkswagen (“VW”) emissions cheating scandal resulted in a \$14.7 billion dollar settlement in 2016 that included requiring VW to create a new company, Electrify America, to spend \$2 billion building charging networks on interstates and in cities across the country. The settlement also requires VW to

¹⁶² See *supra* note ___ and accompanying text; U.S. Energy Info. Admin., *U.S. Electricity Generation By Source*, Oct. 29, 2018, <https://www.eia.gov/tools/faqs/faq.php?id=427&t=3>; Nadja Popovich, *How Your State Make Electricity*, N.Y. TIMES, Dec. 31, 2018 (showing over half the electricity in California generated from renewable energy resources, even larger percentages in Idaho, Washington, and Vermont, and nearly 40% of electricity in Iowa generated from wind energy alone).

¹⁶³ See Center for Climate and Energy Solutions, *U.S. Clean Energy Policies*, <https://www.c2es.org/document/zev-program/> (listing Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, and Vermont as “ZEV states” and discussing California’s ZEV program). During the Obama Administration, the U.S. EPA was also a strong supporter of EV adoption but now, under President Trump, the EPA has proposed to eliminate California’s authority to set its own vehicle emissions standards, including its EV mandate, as well as the ability of other states to adopt the California standards. See U.S. EPA and Nat’l Highway Safety Admin., *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks*, 83 Fed. Reg. 42986 (Aug. 24, 2018).

¹⁶⁴ See Camille von Kaenel, *Luring Electric Vehicle Buyers with Swift Charging, Roller-Skating*, GOVERNORS’ WIND & SOLAR ENERGY COAL. (Jan. 17, 2018), <http://governorswindenergycoalition.org/luring-electric-vehicle-buyers-with-swift-charging-roller-skating> (discussing industry, state, and utility efforts to build out public EV charging stations to reduce range anxiety and support EV drivers).

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provide \$2.7 billion in funds for grants to states to support EV charging infrastructure.¹⁶⁵

These provisions of the VW settlement are a recognition that in order for consumers to embrace EVs, sufficient EV charging infrastructure must be built through a combination of EV charging stations in homes, at business locations, on highway corridors, and in public places such as shopping centers, government buildings, and even gas stations.¹⁶⁶ It is well documented that the lack of EV infrastructure can present a “chicken and egg” or “market coordination” problem in which consumers will not want to purchase an EV due to perceived lack of support, while no company will invest in EV infrastructure because it doesn’t see sufficient demand.¹⁶⁷

Who should build this infrastructure and who should pay for it, however, have become hotly contested issues in state public utility regulatory proceedings and state legislatures in recent years. Private charging companies and state commissions were initially opposed to utility investment in EV charging infrastructure, fearing the utilities would stifle competition and overbuild infrastructure in pursuit of profits. That opposition has softened considerably, however, and led the California Public Utilities Commission to reverse its position on the issue when it determined that substantial private infrastructure investment would not emerge until regulated

¹⁶⁵ INGRID MALMGREN & CASSIE POWERS, NAT’L ASS’N OF STATE ENERGY OFFICIALS, VOLKSWAGEN SETTLEMENT: BENEFICIARY MITIGATION PLAN TOOLKIT 4–5 (2017), <https://www.naseo.org/Data/Sites/1/naseo-vw-beneficiary-mitigation-plan-toolkit-final.pdf>; David Ferris, *7 Takeaways From a Wild Year for EVs*, ENERGYWIRE, Dec. 21, 2018 (discussing VW settlement).

¹⁶⁶ Although the major oil companies oppose transportation electrification because of its impact on market share, retail gas stations are beginning to see an opportunity for increased sales of convenience store items if they install EV charging stations because customers will be forced to spend more time at the stores while they wait for the cars to charge. *See, e.g.*, Ken Doyle & Erika Myers, *Why Aren’t More Convenience Stores Installing Electric Vehicle Chargers?*, SMART ELECTRIC POWER ALLIANCE, Nov. 9, 2017 (discussing financial benefits of EV chargers for service stations and convenience stores); Tina Casey, *It’s Over: Oil Giant Shell Doubles Down on EV Charging Stations*, CLEAN TECHNICA, Oct. 16, 2017 (reporting on oil company Royal Dutch Shell decision in install EV charging stations at its gas stations in the EU).

¹⁶⁷ *See, e.g.*, Initial Comments of Fresh Energy, Natural Resources Defense Council, the Sierra Club, and Minnesota Center for Environmental Advocacy, Docket No. E999/CI-17-879, Minn. Pub. Util. Comm’n. at 17 (July 27, 2018), <https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={80FFDC64-0000-CF18-AE69-6C936C279BF4}&documentTitle=20187-145282-01> [Hereinafter “CEO Initial Comments”]

utilities were permitted to enter the market.¹⁶⁸ Other state commissions, as well as state legislatures, have quickly followed suit.¹⁶⁹

2. State Regulatory Proceedings Governing Utility Investment in EV Charging

Regulators, scholars, auto manufacturers, environmental advocacy groups, and electric utilities nationwide are still struggling to determine best practices for cost-effective EV charging infrastructure investment. There appears to be broad consensus that EV adoption has substantial benefits, including “great potential to dramatically reduce local air pollution, greenhouse gas emissions and resulting climate change impacts, and oil use from the transport sector.”¹⁷⁰ Widespread EV adoption could also lead to lower electricity rates, by better allocating grid load to more optimally use all power generated.¹⁷¹ On the other hand, EV adoption is not without potential downsides, especially if EVs spike electricity demand at peak demand times.¹⁷²

As noted above, utilities have been central actors in efforts to expand EV charging infrastructure. Many of the ZEV states have enacted legislation authorizing utilities to recover their costs and receive a rate of return on investments in EV charging infrastructure.¹⁷³ Indeed, state legislatures and regulatory commissions have justified requiring all utility customers to pay for these investments based on

(describing market coordination problem); Adele Peters, *Want Electric Vehicles to Scale? Add Chargers to Gas Stations*, FAST COMPANY, Oct. 8, 2018 (discussing “chicken and egg” problem in the context of EV charging and potential solutions).

¹⁶⁸ David Roberts, *Electric Vehicles Are Gaining Momentum, Despite Trump*, VOX, June 27, 2018; Klass, *supra* note __, at 584.

¹⁶⁹ See Herman K. Trabish, *The Keystone State May Have Found the Key to the Next Wave of Transportation Electrification*, UTILITY DIVE, Jan. 14, 2019 (reporting on stakeholder collaboration for EV charging plan in Pennsylvania that includes major utility and private sector investments); Jeffrey Tomich, *In Car-Loving Michigan, An EV Master Plan Takes Shape*, ENERGYWIRE, Jan. 14, 2019 (discussing approval of Michigan utility investment of \$10 million that was supported by the private charging industry and is designed to “future-proof” the charging network to allow for future technology developments and avoid stranded assets).

¹⁷⁰ DALE HALL & NIC LUTSEY, EMERGING BEST PRACTICES FOR ELECTRIC VEHICLE CHARGING INFRASTRUCTURE at iii (2017), https://www.theicct.org/sites/default/files/publications/EV-charging-best-practices_ICCT-white-paper_04102017_vF.pdf.

¹⁷¹ Lisa Cohn, *Should All Utility Customers Pay for EV Infrastructure and Microgrids*, MICROGRID KNOWLEDGE (June 22, 2018), <https://microgridknowledge.com/ev-infrastructure-rate-based-microgrids/>.

¹⁷² HALL & LUTSEY, *supra* note __, at 24. This could be particularly dangerous as solar power plays an increasingly large role in nationwide grids if EV owners opt to charge their

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evidence of the system-wide public benefits noted above, namely reduced GHG and other air pollutant emissions associated with transportation electrification as well as the potential for reduced electricity rates stemming from more efficient electric grid utilization.¹⁷⁴

State public utility commissions approved major utility investments in EV charging infrastructure in 2018, including nearly \$740 million in California, \$20 million in Massachusetts, and \$10 million in Ohio.¹⁷⁵ Other proposals are pending approval in New York, Maryland, and New Jersey, totaling nearly \$700 million with total proposals filed in the states as of the end of 2018 for review and approval in 2019 totaling \$1.5 billion in 18 states.¹⁷⁶ Each of these proposals would allow utilities to recover a rate of return on their investments, similar to traditional utility investments in electricity generation, transmission, and distribution assets.¹⁷⁷

Although there are familiar free riding arguments in the EV charging infrastructure context, some of the key players in these debates have “switched sides” from the rooftop solar proceedings. Because of the anticipation of increased profits from EV charging infrastructure investments and increased electricity sales,¹⁷⁸

EVs at home, after the sun sets. However, Hall and Lutsey hypothesize that improvements in technology may eliminate this issue. *Id.*

¹⁷³ See Klass, *supra* note __ at 584-89, 592-94. There are three primary regulatory models for utility investment in EV charging infrastructure: (1) the “make-ready model,” where the utility owns the traditional utility infrastructure such as the transformers, utility services, meters, conduits, and wiring that supports the charging station but the “site host” such as a parking lot or shopping mall contracts with a private charging company like ChargePoint or Greenlots for the purchase and maintenance of the station itself; (2) the “end-to-end model,” where the utility owns the charging station itself in addition to the utility infrastructure required to support the station; and (3) a “hybrid model” where the utility has end-to-end ownership in underserved markets such as multi-family housing or low-income areas but only “make-ready” ownership in more competitive arenas such as workplace charging or public charging. See CEO Initial Comments, *infra* note __, at 13-16 (discussing models of utility investment in EV charging infrastructure).

¹⁷⁴ See HALL & LUTSEY, *supra* note __, at 24; *infra* notes __ - __ and accompanying text (discussing evidence in Illinois commission proceeding submitted by environmental groups showing efficiency benefits and lower electricity rates for all electricity customers resulting from transportation electrification).

¹⁷⁵ Ferris, *supra* note __.

¹⁷⁶ *Id.* See also 2018 EV Recap: the Year of the Electric Vehicle and Tesla Prevails, INSIDEEVS, Dec. 31, 2018 (summarizing state commission approval of utility investment in EV charging infrastructure); Gavin Bade, 10 Trends Shaping the Electric Power Sector in 2019, UTILITY DIVE, Jan. 2, 2019 (noting that in the third quarter of 2018 alone, “32 states and D.C. took some action on electric vehicles, including the approval of utility EV charging programs in Massachusetts, Rhode Island, and earlier, in Nevada.”); Additional Comments of the Signatory Parties in Further Support of the Petition for Implementation of a Statewide

utilities generally favor policies encouraging EV adoption and utility-owned EV charging. Thus, utilities are aligned with environmental groups in these proceedings in arguing that such investments will not result in free riding and instead will provide system-wide benefits to all ratepayers, even those who do not currently own EVs. On the other side, many ratepayer advocacy groups oppose utility investment in EV charging infrastructure on grounds that it will result in free riding and unfair cross subsidies by providing financial benefits to EV owners that will be paid for disproportionately by non-EV owners who, like non-solar owners, tend to be lower income. But there are also new advocates making free riding arguments when it comes to EV charging—the oil companies.¹⁷⁹ Like the utilities in the rooftop solar debates, the oil companies are using free riding, cross subsidy, and “fairness” rhetoric to argue that utility customers will be hurt by these programs, and that such programs are not “just and reasonable” as required by state statutes governing utility rates.¹⁸⁰

In the most recent of these proceedings, it is clear that proponents of utility investment in EV charging have learned from the contentious rooftop solar net metering disputes and have marshaled more sophisticated empirical evidence to support system-wide benefits of transportation electrification that requires EV

Electric Vehicle Portfolio, Case No. 9478, pp. 7-11 (Md. Pub. Serv. Comm’n, Aug. 30, 2018) (summarizing utility proposals nationwide for EV charging investments); AP, *Michigan Approves Consumers Energy EV Charging Program*, THE STATE, Jan. 9, 2019) (reporting on approval of utility’s 3-year, \$10 million pilot program that includes a \$500 rebate for consumers who purchase an EV and sign up for the utility’s time-of-use rate to encourage nighttime charging and \$5,000 rebates for purchases of chargers installed in public areas like workplaces and shopping centers).

¹⁷⁷ Klass *supra* note __, at 569.

¹⁷⁸ Utilities only benefit from increased electricity sales due to EV or any other increased load in states that have not “decoupled” utility revenues from electricity sales. *See supra* notes __ - __ and accompanying text (discussing decoupling policies)

¹⁷⁹ *See* Jeffrey Tomich, *Big Oil Looks to Stop Utilities’ Charging Investments*, ENERGYWIRE, Oct. 25, 2018; *2018 EV Recap*, *supra* note __ (discussing how 2018 was the year that the oil companies “stepped up their efforts” in Washington and in the states to oppose policies that support EVs). This recent activity is part of a larger campaign by U.S. oil companies to retain market share in the transportation sector. The New York Times reported in December 2018 that the major U.S. oil companies had worked behind the scenes since the beginning of the Trump Administration to encourage the administration to repeal the Obama Administration’s signature vehicle fuel efficiency and vehicle emission standards, to discourage new states from adopting California’s more stringent vehicle emission standards, and to work to revoke California’s authority to set its own vehicle emission standards for GHG emissions, including the state’s ZEV program. *See* Hiroko Tabuchi, *The Oil Industry’s Covert Campaign to Rewrite American Car Emission Rules*, N.Y. TIMES, Dec. 13, 2018.

¹⁸⁰ *See infra* notes __ - __ and accompanying text.

charging programs. They also have the advantage of the utility supporting the program rather than opposing the program. For instance, in the net metering context, it is generally the utility that files a request with a state commission to eliminate net metering or impose fixed charges on solar customers, putting solar advocates in a defensive posture to justify the continuation of a net metering program. Moreover, supporters of net metering necessarily have more limited information on current costs and benefits of rooftop solar to the electric grid than the utilities possess. By contrast, when it comes to EV charging infrastructure, utilities are aligned with environmental groups and those groups, collectively, are making affirmative requests to state commissions to approve EV charging investment proposals, and providing evidence of public benefits to support the proposals.

The remainder of this section focuses on regulatory proceedings in Illinois, Missouri, and Maryland regarding utility investment in EV charging. These states show a range of arguments and analysis relating to free riding in very recent proceedings—with submission filed in 2018. This group of states also includes both ZEV and non-ZEV states which impacts whether free riding and cross subsidy arguments are used to oppose programs in their entirety or modify them to ensure that any program approved is cost-effective. As a general matter, in non-ZEV states, advocates cannot rely on a specific, state legislative or gubernatorial policy to support EV adoption or utility investment in EV charging infrastructure and instead must rely on more general state law governing “just and reasonable” rates.¹⁸¹ This lack of legislative direction gives opponents of utility investment in EV charging stronger grounds to oppose such programs because there has not been a legislative recognition of the public benefits of EVs and EV charging like in California and other ZEV states.¹⁸²

Finally, the proceedings in Illinois and Missouri highlight a recent development of oil companies and their trade associations beginning to react to the threat of EVs to their business interests, and responding by intervening in state regulatory proceedings and making free riding, fairness, and cross subsidy arguments in the name of utility customers to oppose these programs.¹⁸³ Thus, the oil companies have

¹⁸¹ Some states have adopted California ZEV mandate through legislation while others have done so through gubernatorial action. Many ZEV states have also adopted specific legislation supporting EVs in general and utility investment in EV charging stations in particular. *See* Klass, *supra* note __, at 578, 583-90.

¹⁸² For a discussion of state commission proceedings in ZEV states, see Klass, *supra* note __, at Part IV; David Ferris, *7 Takeaways From a Wild Year for EVs*, ENERGYWIRE, Dec. 21, 2018 (summarizing developments in the states).

¹⁸³ *See, e.g.*, Jeffrey Tomich, *Big Oil Looks to Stop Utilities’ Charging Investments*, ENERGYWIRE, Oct. 25, 2018.

taken on the mantle of protecting the utility customers from programs allegedly rife with free riding, just as the utilities have done in the rooftop solar context.

a. Illinois

In September 2018, the Illinois Commerce Commission approved a Notice of Inquiry proceeding to gather “information and opinions from stakeholders on electric vehicles (EVs) to help the Commission identify issues, potential challenges, and opportunities in EV deployment.”¹⁸⁴ The Commission’s goal was to use the proceeding “for studying and understanding the technical, financial, and policy implications of electric vehicles.”¹⁸⁵ The Notice of Inquiry asked participants to respond to a range of issues including: (1) How EVs contribute to energy efficiency in Illinois by relying on electricity instead of fossil fuels and whether and how EV charging stations will affect overall energy efficiency in the state; (2) whether and how EVs will improve grid reliability and resilience and how best charging practices can impact efficient operation of the grid; (3) existing regulatory barriers to increased transportation electrification and possible solutions; (4) cost and environmental benefits associated with increased EV deployment in the state; (5) whether and how more EV charging stations should be developed in the state and whether utilities should own charging stations; and (6) whether utilities should charge time-of-use rates to incentivize EV penetration and whether charging infrastructure owned by utilities should be included in the utility’s rate base.¹⁸⁶

The Notice of Inquiry prompted a range of comments from the state’s two investor-owned utilities, Ameren Illinois and Commonwealth Edison; environmental and energy efficiency groups; ratepayer advocates; the Illinois Attorney General’s Office; industrial utility customers; an oil company trade association, Americans for Prosperity (a political advocacy group funded by the Koch brothers); EV charging companies; and others.¹⁸⁷

Not surprisingly, the investor-owned utilities in the state—Ameren Illinois and Commonwealth Edison—both supported regulatory policies to encourage transportation electrification and utility investment in EV charging infrastructure,

¹⁸⁴ Notice of Inquiry, Ill. Comm. Comm’n, Docket No. 18-NOI-01 (Sept. 24, 2018), <https://www.icc.illinois.gov/downloads/public/ev/EV%20NOI.pdf>; Electric Vehicles Notice of Inquiry, Ill. Comm. Comm’n, <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx> (describing notice of inquiry and providing links to all comments submitted in the proceeding and relevant news articles).

¹⁸⁵ Electric Vehicles Notice of Inquiry, *supra* note __.

¹⁸⁶ Notice of Inquiry, *supra* note __, at 4-7.

¹⁸⁷ *See* Electric Vehicles Notice of Inquiry, *supra* note __ (providing links to comments).

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along with market approaches that included private EV charging companies.¹⁸⁸ The utilities also focused their comments in large part on how such programs would work in tandem with existing energy efficiency programs in the state to increase grid efficiencies and provide cost and environmental benefits for all utility customers.

Commonwealth Edison cited U.S. Department of Energy statistics showing that conventional vehicles convert only about 17% to 21% of the energy stored in gasoline to vehicle power, while EV convert about 59% to 62% of electric energy from the grid to vehicle power.¹⁸⁹ It also cited potential energy efficiency opportunities of electric buses as compared to diesel buses.¹⁹⁰ The utility was careful to note that it was not using these statistics to argue that transportation electrification contributed to directly to the utility’s energy efficiency program established under the 2016 Future Energy Jobs Act,¹⁹¹ but did state that “additional EV charging stations could directly impact the Company’s Energy Efficiency Program if the Program is able to incent and claim savings from energy efficient charging stations . . .”¹⁹² The remainder of Commonwealth Edison’s comments focused on how pricing signals through time of use rates would encourage EV users to charge at low peak times, resulting in better utilization of grid resources and put “downward pressure on per kWh rates.”¹⁹³ Commonwealth Edison also cited studies showing the environmental benefits of wide scale EV adoption through reductions in GHG emissions, vehicle noise, and other aesthetic benefits.¹⁹⁴ It also stated that utility programs for EV charging could target “low-income communities not currently served by the competitive market” to increase EV adoption in those communities as well as make way for electric buses and trains in underserved neighborhoods.¹⁹⁵

Ameren’s comments were similar, focusing on “the economic benefits that can be socialized to all utility customers, most notably the potential downward rate

¹⁸⁸ Initial Comments of Commonwealth Edison Co., Docket No. 18-NOI-01 at p. 10 (Ill. Commerce Comm’n, Oct. 22, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>; Ameren Illinois Company’s Initial Comments in Response to NOI Questions and Issues, Docket No. 18-NOI-01 at p. 17, (Ill. Commerce Comm’n, Oct. 23, 2018), <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

¹⁸⁹ Initial Comments of Commonwealth Edison Co., *supra* note ___, at 2.

¹⁹⁰ *Id.*

¹⁹¹ *See supra* note ___ and accompanying text (discussing energy efficiency provisions of Illinois Future Energy Jobs Act).

¹⁹² Initial Comments of Commonwealth Edison Co., *supra* note ___, at 3.

¹⁹³ *Id.* at 7.

¹⁹⁴ *Id.* at 7-8.

¹⁹⁵ *Id.* at 9-10.

pressure that can result from EV owners charging their vehicles.”¹⁹⁶ Ameren also stressed the need to combine a sophisticated EV policy with “forward-thinking energy efficiency policy” in order to promote efficient use of electricity, reduce energy consumption on a per/BTU basis, and reduce air emissions which “would benefit Illinois customers under a variety of cost-benefit analyses.”¹⁹⁷ Ameren argued for a program that would provide “a level of standardized savings, evaluation criteria, and costs associated with EV programs and design” that could include “modification of the existing Illinois energy efficiency [technical resource manual] to include EV-related measures, either of which could provide for a standard quantification of energy and environmental benefits—including novel categories of benefits related to bringing EV access to underserved areas, among other things.”¹⁹⁸ To conclude on that issue, Ameren suggested that a “portfolio of EV programs that coordinates information with energy efficiency incentives and supportive public policy has the potential to reduce market barriers and the need for additional peak capacity investment. Such a result would provide benefits to the customers throughout Illinois.”¹⁹⁹

Environmental and energy nonprofit groups focused their comments on expert studies showing that EVs “provide the opportunity for broad-based cost savings for ratepayers” as well as “improved security from reduced dependence on imports of conventional fuels, improved local air quality, and reduced greenhouse gas emissions.”²⁰⁰ They also cited studies showing that increased EV adoption coupled with time of use rates and other “smart charging” program “can actually reduce costs for all ratepayers while benefiting the grid and providing a range of societal benefits.”²⁰¹ The Sierra Club and Natural Resources Defense Council also stressed that transportation electrification is “not at odds with the utilities’ statutorily-defined energy efficiency goals” and EVs themselves “are a form of energy efficiency because they reduce total energy consumption” as compared with conventional

¹⁹⁶ Initial Comments of Ameren Illinois, *supra* note ___, at 1.

¹⁹⁷ *Id.* at 3-4.

¹⁹⁸ *Id.*

¹⁹⁹ *Id.* at 4.

²⁰⁰ Comments of Advanced Energy Economy, Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Oct. 23, 2018), <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>. *See also* Comments of the Union of Concerned Scientists, Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>; Comments of the Sierra Club and Natural Resources Defense Council, Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Oct. 23, 2018), <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²⁰¹ Comments of Advanced Energy Economy, *supra* note __.

vehicles.²⁰² Other groups, including ratepayer advocacy groups, focused on the importance that electric load be managed cost-effectively through time of use rates to ensure that all ratepayers benefit from infrastructure costs.²⁰³ They warned that any program for utility ownership of charging stations be designed in a way to not crowd out private investment and to avoid creating "a profit incentive for utilities to overbuild."²⁰⁴

ChargePoint's comments cited studies showing transportation electrification had the potential to "create value for all ratepayers" because "the expected long-term energy revenues from incremental EV load generally exceeds the costs for the grid to support that load" which will "exert a downward pressure on unit energy costs that can benefit all utility customers regardless of EV ownership."²⁰⁵ It warned, however, that this requires smart charging and other methods of avoiding "high cost 'peak' generation and/or distribution time periods."²⁰⁶ ChargePoint cautiously supported ratepayer funding of utility investment in EV charging, citing specific criteria developed in other jurisdictions and highlighting the need to "maintain customer choice, encourage innovation, and stimulate competition."²⁰⁷

The strongest opposition to ratepayer funded utility investment in EV charging infrastructure came from Americans for Prosperity, a political advocacy group funded by David and Charles Koch of Koch Industries, a \$110 billion private company with major investments in the oil refining and distribution industries.²⁰⁸ It argued that the Commission must "carefully consider the rights and interests of all ratepayers" as it evaluates EV charging programs.²⁰⁹ It stated it was submitting comments "in the interests of protecting ratepayers and consumers from program designs, rules, and regulations that promote unfair and regressive forms of cross-

²⁰² Comments of the Sierra Club and Natural Resources Defense Council, *supra* note ___, at 2, 4.

²⁰³ Initial Comments of Citizens Utility Board and Envtl. Defense Fund, Docket No. 18-NOI-01 at p. 4-5 (Ill. Commerce Comm'n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²⁰⁴ *Id.* at 4.

²⁰⁵ Comments by ChargePoint, Docket No. 18-NOI-01 at p. 1-2 (Ill. Commerce Comm'n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²⁰⁶ *Id.* at 2.

²⁰⁷ *Id.* at 10-11.

²⁰⁸ *See* Koch Industries, FORBES, <https://www.forbes.com/companies/koch-industries/#732c6aa074ce>.

²⁰⁹ Americans for Prosperity Comments, Docket No. 18-NOI-01, at p. 1 (Ill. Commerce Comm'n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

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subsidization that have been enacted in other jurisdictions.”²¹⁰ It warned the Commission that it was “required to prevent discriminatory practices where captive electric utility customers are forced to underwrite a distribution utility incursion into the EV charging infrastructure market” and that “[f]airness dictates that funding of non-public utility service needs to be done with shareholder funds, not through charges imposed on captive ratepayers with guaranteed cost recovery plus a guaranteed rate of return for the utility.”²¹¹ It contended that ratepayer-funded infrastructure is “unfair” because it will only “benefit the wealthiest ratepayers” who own EVs.²¹² In closing, it cited the Commission’s statutory mandate to ensure “just and reasonable” utility rates and charges and to prohibit and declare unlawful any “unjust and unreasonable” charges.²¹³

The American Petroleum Institute-Illinois Petroleum Council expressed similar sentiments, stating that “[c]onsumers and taxpayers should not be forced to pay more in taxes, fees and/or electric utility rates so that someone else can purchase and operate an expensive electric vehicle.”²¹⁴ It stated that EV charging “is currently only used by a small fraction of drivers, many of whom are wealthy enough to afford these more expensive vehicles” and that to allow utility investment in EV charging infrastructure and recover costs from all ratepayers “will result in an unfair shifting of costs onto those who have not opted for this technology.”²¹⁵

In reply comments, the Union for Concerned Scientists specifically singled out the comments of American for Prosperity, the Illinois Petroleum Council, and other commenters that opposed utility investment in EV charging.²¹⁶ In response to the stated concerns regarding wealth transfers from lower income to higher income ratepayers, the Union for Concerned Scientists acknowledged that “[r]egressive wealth transfer” is an important consideration in EV charging program design.²¹⁷ However, it warned that “categorically prohibiting utility investments due to the *possibility* of wealth transfer ignores the potential for programs to actively support

²¹⁰ *Id.*

²¹¹ *Id.* (emphasis omitted).

²¹² *Id.* at 3.

²¹³ *Id.*

²¹⁴ American Petroleum Institute-Illinois Petroleum Council Comments, Docket No. 18-NOI-01, at p. 1 (Ill. Commerce Comm’n, Oct. 22, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx> (emphasis omitted).

²¹⁵ *Id.* at 2.

²¹⁶ Reply Comments of Union of Concerned Scientists (UCS), Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Nov. 9, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²¹⁷ *Id.* at 3.

equity and ensure benefits of transportation electrification to underserved markets.”²¹⁸

These comments show a range of opinions regarding the benefits of transportation electrification and utility investment in EV charging. Most commenters explicitly tied EV charging to energy efficiency, as the Commission had requested in its initial Notice of Inquiry order, and provided guidance on how EV charging could be made consistent with energy efficiency goals even though electricity use would likely increase through EV adoption. With utilities and environmental groups aligned, both groups could benefit from the superior information made available from the Illinois utilities’ expertise with Illinois customer and grid data and the environmental groups’ experience participating in numerous similar proceedings in other states. Whether to focus on current costs and benefits to ratepayers as opposed to future costs and benefits remained a constant theme in these proceedings, similar to the debate in the rooftop solar net metering context. And, once again, the party with the most to lose from the program—here, the oil companies—hid behind ratepayer fairness and cross subsidy arguments just as the utilities have done in the rooftop solar arena. Finally, it is important to note that the Illinois proceeding was a Notice of Inquiry soliciting responses to specific Commission questions, rather than an evaluation of a concrete utility proposal for investment. This means that the discuss was somewhat more general, allowing a broader discussion of potential benefits and concerns, and avoiding the need to delve too deeply into any of the data provided by proponents or opponents.

b. Missouri

Unlike the proceeding in Illinois, the Missouri proceeding involves a specific utility proposal for investment in EV charging infrastructure. In November 2017, Union Electric Company, d/b/a Ameren Missouri (Ameren), filed an “efficient electrification program” tariff case with the Missouri Public Service Commission.²¹⁹ Within this case was “[a] proposal to allow Ameren Missouri to provide incentives to encourage electric vehicle charging stations.”²²⁰ This “Charge Ahead—Electric Vehicles” program would “defray part or all of the cost of installing and operating electric vehicle (‘EV’) charging stations,” and would include workplace, public space,

²¹⁸ *Id.* (emphasis in original).

²¹⁹ Notice of Case Filing, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 15, 2017), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018006603.

²²⁰ *Id.*

multi-family dwelling, and interstate/highway corridor chargers.²²¹ The program would cost \$11 million.²²² Ameren claimed that the program, along with a related program to provide financial incentives for adoption of electric forklifts and other business equipment (called the "Business Solutions Program") would "(a) provide benefits to both Ameren Missouri and its customers, both from the standpoint of lower overall rates, more efficient utilization of the electric grid, and reduced emissions in the areas where those customers work and live; and (b) not negatively affect[] either the Company's customers who are not participants in the program or regulated alternative fuel suppliers competing in the Company's service territory."²²³

Notably, in explaining why the program would benefit all utility customers, Ameren's written testimony relied expressly on various energy efficiency cost-effectiveness tests, including the Ratepayer Impact Measure ("RIM") test.²²⁴ In its Statement of Position supporting the program, Ameren stated that:

The Rate Impact Measure ("RIM") test, a common cost effectiveness test that looks at the impact of a program on customer rates, indicates that the cost of the program will be more than fully offset by the benefits arising from the EVs using the program. The amount above program costs is a contribution to recovery of the fixed costs of the electric system which results in lower rates for all Ameren Missouri customers. Beyond the results of any of the cost effectiveness tests, this program also provides significant environmental benefits.²²⁵

²²¹ Application, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm'n. at 3 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012294.

²²² See The Associated Press, *Ameren Plans \$11 Million Program to Add Charging Stations*, US NEWS & WORLD REPORT, Feb. 22, 2018.

²²³ *Id.* at 4-5.

²²⁴ Direct Testimony of Michael W. Harding, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm'n. at 9-11 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012299; Direct Testimony of Steven M. Wills, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm'n. at 16-40 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012295; Direct Testimony of David K. Pickles, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm'n. at 9-11 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012296.

²²⁵ Ameren Missouri's Statement of Position, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm'n. at 2 (Nov. 27, 2018),

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In making this argument, it is notable that Ameren expressly relied on experience with evaluations of the cost-effectiveness of energy efficiency programs and set out a pathway to integrate investments in EV charging into those existing cost-effectiveness models.²²⁶

However, the Commission’s Staff recommended the rejection of the EV program as proposed, and urged the Commission to “order modification of the Workplace, Multifamily, and Public Area subprograms to minimize free ridership and maximize public policy benefits.”²²⁷ While Staff conceded that all customers would in fact pay lower rates if Ameren could incentivize sufficient EV adoption such that additional revenues would exceed the costs of grid expansion, subsidies, and program costs, it found that Ameren had not provided sufficient evidence that such adoption would occur.²²⁸

Staff claimed it was unable to analyze free riding directly because Ameren failed to adequately connect the tariffed program to the proposed budget.²²⁹ Indeed, Staff warned that, “as designed, these programs are rife with opportunities for free ridership and fail to include provisions to maximize public policy related benefits.”²³⁰ Based on the current proposal, Staff found “Ameren Missouri has made no clear connection between this program and its estimate of an additional 7,500 electric vehicles in the Ameren Missouri service territory for parties to begin to determine what level of adoption is naturally occurring and what would be attributable to the \$11 million ratepayer subsidy.”²³¹

https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007500.

²²⁶ For a discussion of the various tests used for determining cost effectiveness of energy efficiency programs, including the Ratepayer Impact Measure (“RIM”), see *supra* note __, and accompanying text.

²²⁷ Staff Position Statements, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007510.

²²⁸ *Id.* at 3. See also Rebuttal Testimony of Sarah L.K. Lange, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n at 2-13 (Oct. 1, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019004665 (staff testimony criticizing Ameren cost-effectiveness analysis).

²²⁹ Staff Position Statements, *supra* note __, at 5.

²³⁰ *Id.* at 6.

²³¹ *Id.* at 1-2.

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The Office of the Public Counsel²³² was also critical of Ameren’s proposal, but ultimately recommended approval of the program while imposing a performance-based recovery mechanism linking Ameren’s recovery to EV adoption rates in its service territory.²³³ It argued that Ameren had failed to show a need for its program, and that private companies could respond to increased EV demand without utility action.²³⁴ Notably, Office of Public Counsel claimed there was no evidence that further EV infrastructure investment was required to spur EV adoption.²³⁵ It agreed with Staff that Ameren had not shown its program to be cost effective, and essentially offered the performance-based mechanism as a concession to tie the fate of Ameren to the actual efficacy of its program without fully recommending outright rejection.²³⁶

On the other hand, the Sierra Club and Natural Resources Defense Council recommended approval of the program with only minor modifications.²³⁷ They claimed that Ameren had actually been conservative in its estimate of public benefits of EV adoption, and that it should be allowed full recovery of prudently incurred costs.²³⁸ The environmental groups’ position focused on the claim that the public benefits of EVs actually are quite large, and are sufficient to mitigate any cost shift. The Missouri Division of Energy also supported the proposal, but recommended that 10% of the budget be allocated to support EV charging station development in “underserved and low-income communities” as a way to combat cost shifting.²³⁹ The Division claimed that this would “promote more equitable access to electric vehicle

²³² The Missouri legislature created the Office of Public Counsel in 1975 to represent the interests of utility customers in proceedings before the Missouri Public Service Commission. The Office of Public Counsel has its own staff and budget and is independent from the Commission. *See* Missouri Office of Public Counsel, Who We Are, <https://opc.mo.gov/who-we-are.html>.

²³³ Position Statement of the Office of the Public Counsel, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007507.

²³⁴ *Id.* at 1–2.

²³⁵ *Id.* at 2.

²³⁶ *Id.* at 3–7.

²³⁷ Position Statement of Sierra Club and Natural Resources Defense Council, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007488.

²³⁸ *Id.* at 2.

²³⁹ Missouri Division of Energy Statement of Positions, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007494.

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charging and the associated benefits of cost savings resulting from electric vehicle use”²⁴⁰ ChargePoint echoed these calls for approval, claiming that Ameren’s “program design reduces risks to ratepayers, lowers the cost barrier to [EV charging infrastructure] deployment, allows the charging station site host to determine which equipment and services best meet their needs, and builds a sustainable EV charging marketplace to help accelerate EV adoption.”²⁴¹

Notably, after all interested parties had filed their opening testimony, response testimony, and position statements, the Missouri Petroleum Marketers and Convenience Store Association (“MPCA”) sought leave to file an Amicus Curiae Brief in the proceeding.²⁴² It argued that “Because Ameren Missouri seeks to compete with MPCA’s members in the motor fuel market, MPCA is in a unique position to provide a legal perspective and background information to the Commission for its consideration of whether Ameren Missouri has provided sufficient evidence to show the Charge Ahead – [Electric Vehicle and Business Solutions] Programs are needed and cost effective; what, if any, cost recovery mechanisms may be appropriate for these Programs; and whether the Commission should impose any conditions on these Programs.”²⁴³ The Commission granted the request in December 2018.²⁴⁴

The Missouri proceeding, which is still pending before the Commission, showcases many of the same arguments made in the Illinois proceeding, but in the context of a concrete utility proposal for EV charging investment. Although the \$11 million requested for the program is significantly more modest than other programs approved in California, Massachusetts, and other states in 2018, the Missouri Commission will need to act without the benefit of legislative or executive branch direction declaring the public benefits of transportation electrification or utility investment in EV charging. Instead, the parties supporting the program must rely on

²⁴⁰ *Id.*

²⁴¹ Chargepoint, Inc.’s Statement of Position on the Issues, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 2 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007499.

²⁴² Petition of Missouri Petroleum Marketers & Convenience Store Association for Leave to File Amicus Curiae Brief and Request for Expedited Ruling, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n (Nov. 30, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007741.

²⁴³ *Id.* at 2.

²⁴⁴ Order Granting Leave to File Amicus Curiae Brief, Docket No. ET-2018-0132 (Mo. Pub. Serv. Comm’n, Dec. 11, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019008382.

general statutory language regarding just and reasonable rates as well as fit the program within the cost-effectiveness regime that exists for utility-funded energy efficiency programs, which is a potentially a helpful model for other similarly situated states.

3. *Maryland*

In Maryland, in 2018, a coalition of charging companies, environmental groups, four Maryland investor-owned utilities, and other interested parties (referred to as the “Signatory Parties” filed a joint “Proposal to Implement a Statewide Electric Vehicle Portfolio” that included utility investments in EV charging totaling over \$100 million.²⁴⁵ Program components included rebates for residential and commercial EV chargers, utility-owned public charging networks, as well as funding for customer outreach, innovation, and technological development, and implementation of time of use rates to support “smart charging.”²⁴⁶ Most of the rebates for private charging included dollar caps or percentage caps on the cost of the charger. In support of the program, the Signatory Parties cited to state policies supporting EVs and EV charging infrastructure, including “the State’s Greenhouse Gas Reduction Act, the eight-state Zero-Emission Vehicle Memorandum of Understanding, Maryland’s role in the Transportation Climate Initiative, the legislatively-created Electric Vehicle Infrastructure Council, and the Maryland EV Recharging Equipment Rebate Program.”²⁴⁷

Early in the Proposal, the Signatory Parties state “it is not the responsibility of ratepayers to foot the bill for the entirety of the remaining charging infrastructure needed to fill the gap between what exists today and the projected infrastructure build-out necessary to support the State’s ZEV MOU goal of 300,000 electric vehicles on the road by 2025.”²⁴⁸ Instead, they wish to make the case through the Proposal that “that a targeted ratepayer investment facilitated by the Utilities and made in conjunction with private market participants will seed the burgeoning Maryland EV landscape in a manner that will promote a healthy, competitive, and lasting private market moving forward.”²⁴⁹ In support of the Proposal, the Signatory Parties discuss a range of Maryland-specific expert cost-benefit studies to establish the cost-effectiveness of the Proposal and make the case why all utility customers

²⁴⁵ Signatory Parties Proposal to Implement a Statewide Electric Vehicle Portfolio, Case No. 9478 pp. 27-31, 56-60 (Jan. 19, 2018). The docket with links to all filings in the proceeding is at <https://www.psc.state.md.us/search-results/?keyword=9478&x.x=16&x.y=13&search=all&search=case>.

²⁴⁶ *Id.*

²⁴⁷ Proposal to Implement a Statewide Electric Vehicle Portfolio, *supra* note __, at 3-9.

²⁴⁸ *Id.* at 9.

²⁴⁹ *Id.* at 9.

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will benefit from the investment. They also propose an “evaluation, measurement, and verification” strategy similar to the approaches used in the energy efficiency context.²⁵⁰

Numerous participants in the regulatory proceeding raised free riding and cost shift arguments targeted primarily at the rebates for residential and commercial EV chargers. It is this part of the program that most closely resembles energy efficiency programs, in that it is important to determine the extent to which utility customers would have purchased the EV chargers even in the absence of the subsidy. In energy efficiency parlance, those customers are free riders and their actions should not be included as program benefits.

For instance, the Maryland Office of People’s Counsel expressed concern that the utility programs would replace or subsidize private investment in EV charging, resulting in excessive costs for ratepayers and stifling the private market. It found deficiencies in the proposed cost-benefit analyses and suggested that “similar to the evaluation of energy-efficiency programs, an evaluation of the EV Proposal could also include deriving metrics like freeridership and net-to-gross.”²⁵¹ In later comments, the Office of People’s Counsel again stressed free riding concerns, stating that the utilities should use the metrics and data on free riding from their own energy efficiency programs, and finding that the rebates proposed for EV charger were at a much higher percentage than those used in the past for water heaters and other appliances. It warned that “[i]f rebates are set at a level that is higher than what is optimal, then less customers will be able to participate in the program and free ridership will increase.”²⁵² Despite these criticisms, it expressed support that program modifications, along with a full evidentiary hearing, could “bring significant benefits to Maryland’s ratepayers.”²⁵³

Likewise, the Maryland Energy Administration requested a full evidentiary hearing due to the size and scope of the proposal, and found the proposal did not sufficiently make the case why the investment would lead to the increase in EVs needed to meet program goals and achieve system-wide benefits.²⁵⁴ While it supported the time of use rate programs and pilot programs to assess managed charging, it opposed any subsidies or other utility investments in EV charging in

²⁵⁰ *Id.* at 36-39.

²⁵¹ Comments of the Maryland Office of People’s Counsel, Case No. 9478 (Md. Pub. Serv. Comm’n, Mar. 27, 2018).

²⁵² Comments of the Maryland Office of People’s Counsel, Case No. 9478, p. 6-7 (Md. Pub. Serv. Comm’n, Aug. 30, 2018).

²⁵³ *Id.* at 15.

²⁵⁴ Md. Energy Admin. Comments, Case No. 9478, p. 2-4 (Md. Pub. Serv. Comm’n, Mar. 29, 2018).

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areas that were not publically accessible, which would mean eliminating most of the residential and commercial rebates for EV chargers.²⁵⁵ It cited to regulatory decisions in California, Georgia, and Kentucky where utility investment in EV charging was limited to public locations, workplaces, and multifamily units.²⁵⁶ In later comments, the Administration again warned against allowing subsidies for private EV charging: “Meaningful portions of total program costs . . . represent large transfers to individual households, . . . This, in effect, means that lower-income households could be subsidizing upper-income households without receiving direct benefits, which presents a serious issue of equity for Maryland ratepayers.”²⁵⁷

Finally, the Commission Staff filed comments that included free rider concerns associating with EV charger rebates. It suggested limiting rebates to EV owners who purchased EVs after the start of the program, on the theory that utility customers with EVs before the start of the program would be more likely to purchase an EV charger even without the program subsidy.²⁵⁸ It also urged that the Commission reduce the subsidy amount in order to limit cross subsidization and to forbid utilities from owning public chargers, on the grounds that the private charging market could serve that role and also because of rate design challenges.²⁵⁹ Commission Staff also urged the Commission to require the utilities to file yearly reports of costs and charger usage so it could monitor progress.

Maryland, by contrast, provides an example of state commission proceeding regarding utility investment EV charging where cost-effectiveness tests are used to refine a utility EV charging program, rather than oppose it completely. This is in large part because Maryland is a ZEV state, and has explicit legislative policies supporting transportation electrification and EV charging. Thus, it is far less difficult for opponents to argue that free riding and cross subsidy concerns should result in rejecting a utility program outright. Instead, those arguments are used to refine the program, more similar to how they are used in the energy efficiency context.

IV. MOVING BEYOND FREE RIDING AND CROSS SUBSIDY ARGUMENTS IN ENERGY POLICY: LESSONS FROM THE PRECAUTIONARY PRINCIPLE

²⁵⁵ *Id.* at 5-11.

²⁵⁶ *Id.*

²⁵⁷ Md. Energy Admin. Comments, Case No. 9478, p. 4-5 (Md. Pub. Serv. Comm’n, Aug. 31, 2018).

²⁵⁸ Comments of the Staff of the Md. Pub. Serv. Comm’n, Case No. 9478 (Md. Pub. Serv. Comm’n, Mar. 27, 2018); Comments of the Staff of the Md. Pub. Serv. Comm’n, Case No. 9478 (Md. Pub. Serv. Comm’n, Aug. 31, 2018); Comments of the Staff of the Md. Pub. Serv. Comm’n, Case No. 9478 (Md. Pub. Serv. Comm’n, Sept. 28, 2018).

²⁵⁹ *Id.*

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This Part builds on the previous discussion and suggests approaches for regulators in evaluating free riding, cross subsidy, and fairness arguments in energy ratemaking proceedings addressing “energy transition” issues such as promoting distributed solar or transportation electrification. In doing so, it proposes a long-term view of both costs and benefits for new programs that builds on precautionary principles. More specifically, in the context of distributed solar and EV charging policies, it suggests that regulators adopt principles developed in the energy efficiency context and modify them for current programs.

As discussed in Part III, regulators have decades of experience evaluating utility-funded energy efficiency programs, as well as the system-wide benefits of those programs on a long-term basis. The metrics are far from perfect, as evidenced by continuing debates over the role of energy efficiency programs in reducing energy use,²⁶⁰ but there is at least a general consensus that energy efficiency can have significant present and future benefits to all utility customers, even if the full extent of free riders, spillovers, and other factors remains in dispute. The same cannot be said for the long-term benefits of distributed solar and EV charging. From a regulatory perspective, these programs are in their infancy. As a result, state public utility commissions are reviewing dockets, sometimes with and sometimes without the benefit of specific legislative direction, and making decisions that will impact technological developments, utility experience, and utility customer choices.

In many ways, there are important parallels between these current regulatory challenges and the longstanding debates pitting cost-benefit analysis against the precautionary principle in developing environmental, health, and safety regulations. Cost-benefit analysis “is a well-established, if fallible, methodology for ensuring that regulations enhance, rather than detract from, overall social welfare.”²⁶¹ It does so by attempting to prevent inefficient regulations by comparing the costs and benefits of a particular regulatory action.²⁶² Many scholars criticize cost benefit analysis because its evaluation of costs and benefits are inherently imprecise and subjective.²⁶³ This is particularly true because it is very difficult to place a monetary value on many of the benefits of environmental, health, and safety regulations, such as clean air, clean

²⁶⁰ See *supra* notes ___ - ___ and accompanying text.

²⁶¹ See Daniel H. Cole, *Reconciling Cost-Benefit Analysis with the Precautionary Principle*, *THE REGULATORY REVIEW* (Mar. 5, 2012).

²⁶² *Id.* See also David M. Driesen, *Cost-Benefit Analysis and the Precautionary Principle: Can They Be Reconciled?*, 2013 *MICH. ST. L. REV.* 771, 776-77 (2013); Daniel A. Farber, *Coping with Uncertainty: Cost-Benefit Analysis, the Precautionary Principle, and Climate Change*, 90 *WASH. L. REV.* 1659,

²⁶³ Cole, *supra* note ___.

water, human life and health, scenic and aesthetic values, and plant and animal health.²⁶⁴

Environmental law scholars have long pointed to the “precautionary principle” as a potential alternative approach. The precautionary principle calls for a higher level of regulation—or precaution—when significant but uncertain risks, such as climate change or harm from toxic chemicals, exist.²⁶⁵ One articulation of the precautionary principle from the 1992 Rio Declaration on Environment and Development states that “[w]hen there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”²⁶⁶ Thus, the precautionary principle generally places the burden of proof on those who would limit regulation with the potential to enhance public welfare, particularly environmental health and safety benefits, in the face of uncertainty. By contrast, cost-benefit analysis places the burden of proof on proponents of regulation; if benefits of regulation or risks of harm in the absence of regulation are uncertain or difficult to value, regulation is likely to be deemed inefficient under a cost-benefit test.

The literature supporting and criticizing cost-benefit analysis and the ability to manipulate its inputs is extensive and beyond the scope of this Article. The same is true for scholarly and regulatory debate on the role of the precautionary principle, both as an alternative to cost-benefit analysis or as a principle to integrate into cost-benefit analysis.²⁶⁷ These debates, however, are similar to the concerns raised repeatedly in the regulatory proceedings over how to value the costs and benefits of distributed solar compensation and EV charging investments. In both instances, questions arise over how to weigh current and future costs to non-solar customers and non-EV drivers against system-wide benefits that may not accrue to all utility

²⁶⁴ See, e.g., Center for Progressive Reform, *Cost-Benefit Analysis: Bad Numbers, Bad Decisions*, www.progressivereform.org/costBenefit.cfm (collecting scholarship critical of cost-benefit analysis); Daniel A. Farber, *Rethinking the Role of Cost-Benefit Analysis*, 76 U. CHI. L. REV. 1355 (2009) (discussing extensive literature on cost benefit analysis and precautionary principle).

²⁶⁵ See DOUGLAS A. KYSAR, *REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY* 19 (Yale U. Press 2010) (noting that “precautionary approaches can be defended as being particularly well suited to safeguarding life and the environment under conditions of uncertainty and ignorance, as opposed to the conditions of probabilistic sophistication that are presupposed by proponents of the economic approach.”).

²⁶⁶ Cole, *supra* note __ (citing and quoting 1992 Rio Declaration on Environment and Development). See also Farber, *supra* note __, at 1671-78 (discussing precautionary principle and scholarly criticisms of same).

²⁶⁷ See *supra* notes __ - __.

customers until far into the future, if at all.²⁶⁸ Should the precautionary principle be applied to these regulatory analyses to support higher compensation for distributed solar and rapid EV charging investment? Or should a narrower form of cost-benefit analysis be applied? Does the precautionary principle justify borrowing one of the broader cost-effectiveness tests from the energy efficiency context like the Societal Impact Test in evaluating these programs or should regulators use a more conservative test like the Ratepayer Impact Test?²⁶⁹ The remainder of this Part provides an evaluation of these issues.

A. Addressing Uncertainty in Evaluating Costs and Benefits of Distributed Solar

The regulatory proceedings in Arizona and Nevada illustrate state regulatory commissions struggling to deal with uncertainties over how to monetize, calculate, and weigh future costs and benefits associated with creating incentives for rooftop solar through net metering policies. Both commissions were faced with a similar problem, namely, the absence of reliable data regarding the costs and benefits of a utility subsidy program—net metering—that may provide more obvious benefits for one group of customers now, but may provide overall benefits to all customers both now and in the future, including reduced electricity bills and improved public welfare through reduced GHG emissions and other air pollutants. In both cases, the utility raised free riding, fairness, and cross subsidy arguments and, because of its role in managing the grid and customers, was at an information advantage as compared to solar proponents. One commission, Arizona, was receptive to the utility’s arguments regarding fairness while the other commission, Nevada, looked beyond those arguments to the bigger picture of the overall benefits that rooftop solar could provide to the entire utility system and the state.

In the Arizona proceeding, the Commission found a lack of measurable “objective” and “subjective” values distributed solar provided to the utility system.²⁷⁰ In the absence of hard data showing those values were equitably distributed across all customers, the Commission felt compelled to place at least some additional charges on solar customers.²⁷¹ Even though the fixed charges the Commission imposed

²⁶⁸ See, e.g., KYSAR, *supra* note __, at 64 (“On the precautionary account, environmental, health, and safety regulation is not merely an opportunity to maximize an existing set of individual preferences or interests, but rather a moment to consider the regulating body’s obligations to its present and future members, to other political communities, and to species.”).

²⁶⁹ See *supra* notes __ - __ and accompanying text (explaining different cost-effectiveness tests).

²⁷⁰ See APS Order, *supra* note __, at ¶¶ 25-26.

²⁷¹ See *supra* note __, and accompanying text.

were far less than those requested by the utility, the order assumes there is at least some cross subsidy that must be addressed to ensure just and reasonable rates.

By contrast, in Nevada, the Commission focused on whether there was an “unreasonable” cost shift between customer classes rather than any cost shift at all, based on the applicable statute.²⁷² In finding no unreasonable cost shift, the Commission recognized that the evidence was in conflict, that present and future costs and benefits could not be measured accurately, and stated its intent to “avoid jumping to a premature conclusion for the mere sake of having a resolution while the conversation and technology is evolving . . .”²⁷³ The Commission was concerned that a “wrong answer” was worse than an “uncertain” answer, particularly when the benefits associated with distributed solar were real but “hard to quantify.”²⁷⁴ This analysis has many hallmarks of the application of the precautionary principle, even if the Commission did not use that term. In the face of uncertainty, it chose a policy that would potentially provide environmental and system-wide economic benefits to all utility customers in the future as well as public benefits to the entire state, even if there may be some shifting of costs to certain utility customers in the short term.

Moreover, although neither commission expressly referred to the cost-effectiveness tests from the energy efficiency realm, the debate over whether to use a narrow test looking at current, distributional fairness or a broader test that considers future, societal impacts, could be seen just barely below the surface of the proceedings. Both commissions recognized they were working with incomplete information on costs, benefits, and distributional implications of the policies under consideration. The Arizona Commission appeared to apply a more traditional cost-benefit analysis that heavily weighed the inputs the utility provided while the Nevada Commission took a different approach that more resembled application of the precautionary principle. Both commissions recognized that their results were crude at best and would need to be modified in the future.²⁷⁵

Most experts in the field recognize that solar net metering is a fairly crude approach to compensating a growing energy resource across the country, particularly when the costs of net metering on a kWh basis far exceed those of utility-scale solar and other utility-scale renewable energy resources in wholesale markets.²⁷⁶ By the

²⁷² Sierra Pacific Power Co., *supra* note ___, at 36.

²⁷³ *Id.* at 33.

²⁷⁴ *Id.* at 34.

²⁷⁵ See APS Order, *supra* note ___, at ¶¶ 30-32 (stating the need to quantify both the costs and benefits of distributed solar and then “allocate[] these costs and benefits equitably among customers [as] a matter of rate design.”)

²⁷⁶ See *supra* note ___ and accompanying text (discussing markets for wholesale electricity sales that value energy based on demand and resource).

same token, paying distributed solar customers a rate that is based on wholesale prices for utility-scale wind and solar energy is also not appropriate, as such pricing fails to compensate distributed solar customers for the value of distributed energy, which, if widely adopted, may lead to new markets, technology and investment in micro-grids, battery storage, and the like.

In considering new approaches, however, public utility commissions should be cautious of free riding arguments articulated by utilities in a regulatory forum that cannot fully value the present and future costs and benefits of distributed solar energy on the electric grid.²⁷⁷ More states are beginning to enact legislation and regulations to replace net metering, similar to Minnesota, to avoid the net metering disputes on display in the Arizona and Nevada proceedings.²⁷⁸ Scholars have also suggested an “avoided cost plus social benefit” approach that resembles some of the broader energy efficiency tests discussed in Part III.A in that it expressly values social benefits of distributed solar.²⁷⁹

In the interim, there is value in recognizing that in most areas of the country, penetration levels of distributed solar energy are still extremely small. Regulators have time to develop metrics to evaluate the costs and benefits of distributed solar now and worry about the effects of larger penetration and ultimate rate design later, when more is known about the scale at which solar penetration will have a measurable positive or negative impact on rates, utility costs, and other factors. Using a precautionary approach will allow regulators to put the burden on utilities and others to show that rooftop solar is a problem for system maintenance or that cross subsidies are significant. To assume that is the case now in addressing concerns over net metering risks stifling expansion of an important energy resource with the potential for significant public benefits. This is particularly true because improved metrics will be developed within a regulatory system where cross subsidies have always existed and will continue to exist, often without objection by participants and

²⁷⁷ See, e.g., Welton, *supra* note __, at 595 (“Frustratingly for regulators, empirical evidence does not provide conclusive answers to this debate. Most studies show that average retail rates—at which net-metered customers are credited—approximate the value of solar to the grid, with about half of the studies finding that solar is underpaid and the other half finding that solar is overpaid. These divergent results point to a deeper challenge in framing this equity debate as an empirical question.”).

²⁷⁸ See, e.g., Julia Pyper, *Maine Proposes to Replace Net Metering with a Market Alternative*, GTM, Feb. 26, 2016; New York State, *Value of Distributed Energy Resources*, <https://www.nysderda.ny.gov/All-Programs/Programs/NY-Sun/Contractors/Value-of-Distributed-Energy-Resources> (discussing new regulations for valuing solar in New York State as a replacement to net metering); NYSDERA, *Summary of Value of Distributed Energy Resources*, Oct. 13, 2017 (explaining same).

²⁷⁹ See Revesz & Unel, *supra* note __, at 84-95, 99-101.

regulators. To single out one type of cross subsidy without recognizing the context in which it exists is short sighted.²⁸⁰

B. Using Energy Efficiency Metrics to Develop Frameworks for Utility Investment in EV Charging

In the EV charging context, proponents are approaching state regulatory commissions with increasingly sophisticated analyses of future program benefits, and this time it is the opponents of such programs who are at a relative information disadvantage. This is because in the EV charging context, utilities are aligned, for the most part, with private charging companies and environmental nonprofit groups, reducing some of the information asymmetries on display in the rooftop solar context. Nevertheless, there is still an information deficit because there are many unknowns regarding the extent of climate change damage associated with continuing to drive conventional vehicles, the pace of EV adoption, and the impact of EVs, both positive and negative, on the electric grid. This information will not exist until electric utilities, drivers, car companies, and others can evaluate the impacts of broad-based transportation electrification.

Nevertheless, state regulatory commissions are responding to utility proposals for EV charging investments and participants in these proceedings are making much more explicit use of energy efficiency cost-effectiveness tests than they are in the distributed solar context. This is in part because the parallels between utility investment in energy efficiency programs and utility investment in EV charging are much more obvious, at least in the context of utility rebates for EV chargers, which are a component of many utility proposals. In the energy efficiency context, a major goal of regulatory design is to identify free riders—utility customers who would have purchased a new furnace, energy efficient lighting, new insulation, or the like even in the absence of the utility subsidy. The same should be true for EV chargers in that a utility program to incentivize the purchase of EV chargers is not cost-effective if significant ratepayer funds are being used to subsidize customer purchases of EV chargers that would have occurred even absent the subsidy program.²⁸¹

²⁸⁰ See, e.g., Revesz & Unel, *supra* note __, at 102 (“Cost-recovery and cost-shifting problems are unintended consequences of the current, inefficient retail rate designs, and should not be blamed on net metering policies”); Rule *supra* note __ (discussing cost shifts inherent in the utility ratemaking process).

²⁸¹ Indeed, the National Efficiency Screening Project, a stakeholder organization with a mission to improve cost-effectiveness evaluation of energy efficiency resources, has stated that its metrics designed for energy efficiency programs “can be used to assess the cost-effectiveness of supply-side resources or distributed energy resources (DERs)—including EE, demand response, distributed generation, distributed storage, electric vehicles, and strategic electrification technologies. National Efficiency Screening Project, <https://nationalefficiencyscreening.org/>.

REGULATING THE ENERGY “FREE RIDERS”

For instance in the Illinois Notice of Inquiry proceeding described above, the Commission specifically asked participants to discuss how EVs would contribute to energy efficiency in Illinois through fuel switching and how EV charging stations would affect utility energy efficiency programs.²⁸² Because the Illinois Commission was not considering a specific utility proposal, the participants did not evaluate any cost-effectiveness tests but instead provided general information on how EVs and EV charging would impact utility energy efficiency programs in the state.

In Missouri, by contrast, there was significant testimony regarding whether Ameren’s EV charging proposal would meet the RIM Test, with Ameren contending that it would meet the test as well as “provide significant environmental benefits.”²⁸³ In response, Commission Staff recommended rejection of the EV program because there was insufficient evidence that the program would spur sufficient EV adoption to result in utility revenues at a level that would exceed the costs of the grid expansion, subsidies, and program costs.²⁸⁴ Moreover, Commission Staff found Ameren did not provide sufficient evidence that the subsidy proposed for EV chargers would avoid significant free riding.²⁸⁵ Comments from the Office of Public Counsel were similar, arguing that Ameren had failed to show a need for the program at all and that it had failed to meet its burden of showing was cost-effective.²⁸⁶

Notably, in their comments, opponents of Ameren’s proposal use energy efficiency metrics to oppose the program in its entirety rather than to urge revisions to the program, as would be the case in the energy efficiency context. This is not surprising. Nothing in any of the Missouri filings cites to any legislation or regulation in the state that exists to promote EVs or EV charging, whereas utility-funded energy efficiency program are creatures of state statute. As a result, free riding arguments in non ZEV states can be used in a way that is similar how they have been used are used in the rooftop solar context, which is quite different from how they are used in the energy efficiency context, where they provide an evaluative purpose to refine and improve programs rather than eliminate them. This stands in contrast to Maryland, where free riding arguments were used to attempt to modify the program and to encourage the development of metrics to ensure cost-effectiveness.²⁸⁷

V. CONCLUSION

²⁸² See *supra* note __ and accompanying text.

²⁸³ See *supra* note __ and accompanying text.

²⁸⁴ See *supra* note __ and accompanying text.

²⁸⁵ See *supra* note __ and accompanying text.

²⁸⁶ See *supra* note __ and accompanying text.

²⁸⁷ See *supra* notes __ - __ and accompanying text.

REGULATING THE ENERGY "FREE RIDERS"

There is no doubt a role for free riding and cross subsidy concerns in both the distributed solar EV charging contexts. But it is also clear that opponents of regulatory programs to incentivize distributed solar and EV adoption have used and will continue to use free riding and cross subsidy arguments to block programs that may hurt them financially. Commissions should look beyond these arguments and consider free riding and cross subsidy concerns for purposes of requiring program advocates to develop appropriate metrics to optimize the programs at issue, rather than to impede them before they can provide system-wide benefits. In order to do so, state utility commissions can apply a precautionary approach with regard to evaluating present and future costs and benefits, and urge participants in regulatory proceedings to look to existing energy efficiency metrics as a starting point for analysis and modify these metrics to meet the needs of developing programs.

Re: Article Draft -- Regulating the Energy "Free Riders"

From: Alexandra Klass <aklass@umn.edu>
To: Allen Gleckner <gleckner@fresh-energy.org>
Sent: February 5, 2019 1:40:07 PM CST
Received: February 5, 2019 1:40:09 PM CST

Hi Allen, thanks for this! Not too late at all. Would you mind sending me your redline comments in PDF form? I'm [REDACTED] and only have an iPad with me; no computer. I can read the PDF on my iPad.

Best,

Alex

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[Allen Gleckner](#)

Director, Energy Markets

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Best,

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To: Alexandra Klass <aklass@umn.edu>
Sent: February 5, 2019 1:47:45 PM CST
Received: February 5, 2019 1:47:54 PM CST
Attachments: Regulating the Free Riders Draft 1 14 2019_AG.pdf

No problem. Attached.

[Allen Gleckner](#)

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REGULATING THE ENERGY “FREE RIDERS”

Alexandra B. Klass*

This Article explores “free rider” arguments in energy policy. It focuses on how state public utility commissions have addressed free rider arguments in three different types of contemporary ratemaking proceedings: ratepayer funded energy efficiency programs; utility compensation for customer-generated rooftop solar energy; and utility investments in electric vehicle (“EV”) charging infrastructure. In doing so, this Article considers the impacts of the “free riding” label on policymaking in each area, and considers the weight policymakers should give to free rider concerns. It claims that regulators should consider both the present and future benefits of the program in question, particularly for programs designed to bring about major energy transition shifts. In other words, if the goal of the program is to build infrastructure required to shift to cleaner energy resources or reduce overall energy demand, program evaluators should consider future program beneficiaries in addition to current program beneficiaries. Moreover, regulators should use a range of tools to develop appropriate metrics to determine cost-effectiveness of programs supporting both distributed solar energy and EV charging investments, building on work done over the past decades in the energy efficiency context. Finally, this Article suggests that regulators can and should use the precautionary principle in developing these programs. Use of the precautionary principle is justified due to the potential for significant harm associated with continued reliance on fossil fuels in the energy sector and the potential for significant benefits to utility customers and the public resulting from a long term energy transition.

I. INTRODUCTION

As state regulators, electric utilities, and other interested parties attempt to develop programs to encourage a range of beneficial consumer behavior with regard to energy use, critics often are quick to argue that the beneficiaries of these programs are “free riders.”¹ In its simplest terms, free riding is the receipt of a public good

* Distinguished McKnight University Professor, University of Minnesota Law School. Scott Dewey, Connie Lenz, and Hudson Peters provided excellent research assistance.

¹ See, e.g., Charles E. Bayless, *Piggybacking on the Grid*, PUB. UTILS. FORT. (July 2015), <https://perma.cc/SH9U-KJTD> (comparing rooftop solar to “Piggyback Air,” a mythical airline that works by attaching its engineless planes to the roofs of its competitors’ aircraft); Prosper Org, *Ice Cream for Fairness*, YOUTUBE (Oct. 21, 2013), https://www.youtube.com/watch?reload=9&v=zJ8tT0IeQ_U (electric utility-funded television advertisement suggesting that utility net metering programs are akin to a man bringing his own ice cream to an ice cream truck to take advantage of the free toppings provided with the ice cream sold at the truck, thus causing the owner to raise prices on ice cream for everyone else); Herman K. Trabish, *NV Energy CEO: Solar has Gotten a ‘Free Ride’ on the Grid*, GTM, (Aug. 19, 2013).

REGULATING THE ENERGY “FREE RIDERS”

without paying for its associated costs.² This Article will examine the use of free riding arguments in contemporary energy regulation. In particular, it will examine how state public utility commissions address arguments regarding free riding in three specific contexts: ratepayer funded energy efficiency programs; electric utility compensation for customer generated rooftop solar energy (also referred to as “net metering”); and electric utility investments in electric vehicle (“EV”) charging infrastructure.

This Article claims that regulators should exercise caution in evaluating free riding arguments. In particular, regulators should always consider which parties are making free riding arguments, what their motivations might be, and consider a full range of costs and benefits associated with the policy under consideration before reaching a conclusion that free riding is occurring, that an unreasonable shift of costs between customer classes is taking place, or that the policy fails to meet a statutory requirement that it be “just and reasonable.”³

Equally important, regulators need to be cognizant of the information asymmetries that permeate the utility regulatory proceedings involving claims of free riding. In many of the proceedings, “hard” data on program costs and benefits either is not available or is developed by the electric utility in question, at least at the start of the program. In the face of incomplete information, who should bear the burden of proving that a program such as energy efficiency, rooftop solar, or EV charging provides system-wide benefits and extent of those benefits? What if present-day benefits are modest but long-term benefits have the potential to be significant and measurable? These are important questions regulatory commissions are forced to answer in the early stages of customer-funded utility programs and labels of free riding or cross subsidies can limit or stall programs with potentially significant future system-wide benefits if the burden of providing information is misplaced.

The regulatory applications explored in this Article—energy efficiency programs, utility compensation for customer-generated rooftop solar energy, and utility investment in EV charging infrastructure—were chosen for two primary reasons. First each application involves the development of a state policy governing electric utilities

² Garrett Cullity, *Moral Free Riding*, 24 PHIL. & PUB. AFF., 3, 7 (1995) (“a free rider is someone whose failure to pay for nonrival goods . . . makes her conduct unfair.”).

³ Most state statutes governing public utilities require that utility rates and charges be “just and reasonable” and that state public utility commissions ensure that rates are just and reasonable through the rate regulation process. See JIM LAZAR, ELECTRICITY REGULATION IN THE US: A GUIDE 49-61 (2d ed. 2016); Ari Peskoe, *Unjust, Unreasonable, and Unduly Discriminatory: Electric Utility Rates and the Campaign Against Rooftop Solar*, 11 Tex. J. Oil, Gas & Energy L. 101 & n.77 (2016) (citing state statutes).

within a regulated monopoly system.⁴ This means that for each policy, the state public utility commission requires the electric utility to implement a program that will be paid for by all utility customers (also known as “ratepayers”) but that may not provide identical benefits to all customers. This understandably leads to arguments by the utilities, various customer classes, or other interested parties that one group of customers is “free riding” off of the program to the detriment of other groups of customers or that there is a “cross-subsidy”—the idea that one group of customers (e.g., EV drivers, rooftop solar owners) is being subsidized by another group of customers and such a result is “unfair” or does not result in “just and reasonable” rates.⁵

Second, these applications provide helpful case studies because electric utilities as a group have taken different positions with regard to their support or opposition to the program in question. With regard to energy efficiency, in the early stages of these programs in the 1980s, utilities often opposed such programs because they would reduce utility revenues due to lost electricity sales. However, as state legislatures and public utility commissions developed programs to “decouple” utility revenues from energy sales, and to otherwise compensate utilities for implementing energy efficiency programs, utility opposition declined and free riding concerns became more a function of measuring the cost-effectiveness of particular program designs rather than opposition to energy efficiency programs in general.⁶

As for rooftop solar, utilities have attempted to impose significant limits on state “net metering” programs that require utilities to compensate electricity customers for the energy their solar panels produce at retail electricity rates.⁷ Such required purchases reduce utility revenues by reducing the amount of electric energy net metering customers purchase from the utility. In opposing net metering policies, utilities often raise free riding arguments—namely, that customers with solar panels are paying less

⁴ For a discussion of how the states regulate electric and gas utilities as regulated monopolies through the state public utility ratemaking process, see, e.g. LINCOLN L. DAVIES ET AL., ENERGY LAW AND POLICY Ch. 4 (West Academic Publishing 2d ed. 2018); Alexandra B. Klass, *Public Utilities and Transportation Electrification*, 104 IOWA L. REV. 545, 567-69 (2019) (discussing basic of electric utility ratemaking); Melissa Whited, *The Ratemaking Process* (Synapse Energy Economics, July 2017), <http://www.synapse-energy.com/sites/default/files/Ratemaking-Fundamentals-FactSheet.pdf> (summarizing the fundamentals of utility ratemaking and rate design).

⁵ See *infra* note ___ and accompanying text (discussing electric utility laws and ratemaking procedures).

⁶ See *infra* notes ___ - ___ and accompanying text.

⁷ See *infra* notes ___ - ___ and accompanying text.

than their “fair share” of the costs to support the electric grid.⁸ Because solar panel owners pay less for electricity each month but still use the electric grid when the sun is not shining, utilities argue that the costs of supporting the grid are unfairly shifted to non-solar customers, who are often less affluent. The extent of this “cross-subsidy” is a matter of significant controversy in state legislatures and state public utility commissions.

With regard to utility investment in EV charging infrastructure, utilities generally support these policies as they create an investment opportunity to build new infrastructure for which they can recover not only their costs but also a rate of return. As a result, in this context it is the oil companies, not electric utilities, who stand to lose from program adoption and have raised free riding arguments in regulatory proceedings.⁹ They contend that requiring all utility customers to pay for such utility investments to support transportation electrification is an unfair “cross subsidy” between EV owners and non-EV owners, despite a growing body of evidence that greater use of EVs will, at least in the future, benefit all utility customers through overall reductions in electricity rates due to more efficient use of electric grid resources.¹⁰

Notably, environmental groups generally support all three types of policies as they all potentially lead to reduced reliance on fossil fuels to generate electricity. Likewise, consumer advocacy groups often oppose all three policies because they can lead to higher (or at least disproportionate) costs on lower income customers in the short term. Thus, utilities in some cases invoke free riding and cross subsidy arguments on behalf of certain customer classes and in some cases do not, mostly depending on whether the utility itself stands to benefit financially from the policy.

These differences in the free riding and cross subsidy arguments in each of applications allows for greater insights into the evaluation of free riding arguments. They also provide a window into the motivations of the regulated utilities and third parties making the free riding and cross-subsidy arguments in the first place. Moreover, it is important to recognize that the identification and evaluation of free riders is a longstanding and well-recognized metric used in evaluating the cost-effectiveness of utility-funded energy efficiency programs. In the rooftop solar and EV charging contexts, however, opponents of those programs have used the concept of free riding to

⁸ See, e.g., Hiroko Tabuchi, *Rooftop Solar Dims Under Pressure from Utility Lobbyists*, N.Y. TIMES, July 8, 2017 (“Utilities argue that net metering, in place in over 40 states, turns many homeowners into free riders on the grid, giving them an unfair advantage over customers who do not want or cannot afford solar panels. The utilities say that means fewer ratepayers cover the huge costs of traditional power generation.”).

⁹ See *infra* notes ___ - ___ and accompanying text.

¹⁰ *Id.*

REGULATING THE ENERGY “FREE RIDERS”

attack the programs themselves rather than as metric for program improvement. This Article urges regulators to borrow from the cost-effectiveness metrics developed in the energy efficiency context, including the role of free riders, and adapt them for use in the rooftop solar and EV charging contexts.

Part II sets forth various definitions of free riding from multiple academic disciplines. It then surveys some common free riding arguments in both legal scholarship and case law outside the energy policy field. This review shows that both scholars and courts use the concept free riding to encompass two different concerns to be addressed through law and regulation: (1) the inefficiency and ineffectiveness of policies that would subsidize desired conduct that would have occurred even without the subsidy and (2) the “unfairness” of certain groups receiving a greater benefit from programs and investments paid for by everyone, resulting in a “cross subsidy” and rates that are “unjust and unreasonable” under applicable law.¹¹

Part III turns to regulatory and judicial treatment of free riding arguments in energy law and policy. After exploring how federal regulators and courts have responded to free rider concerns in energy policy in the past, this Part evaluates more closely the use of free riding and cross subsidy arguments in the three contemporary state public utility ratemaking challenges described above: (1) ratepayer funded energy efficiency programs; (2) utility compensation for customer-generated rooftop solar energy; and (3) utility investment in EV charging infrastructure. In each case, state public utility regulators must evaluate free riding arguments and determine how much weight to give them in setting policies to govern these programs. In each situation, regulator decision-making is complicated by rapid technological developments, uncertainties regarding program impacts, concerns associated with future environmental harms such as climate change, and limited ability to assess program effectiveness now for benefits that may not accrue until years into the future.

Part IV claims that regulators should consider both the present and future costs and benefits of the program in question when evaluating free riding arguments. In other words, if a goal of the program is to build infrastructure for a long-term policy goal, such as a shift to cleaner energy resources or reducing overall energy demand, program evaluators should consider future program beneficiaries in addition to current program beneficiaries. This has already been recognized to some extent for energy efficiency policies, where utilities and regulators realize that reduced energy demand means that utilities need not invest in new energy generation plants, including fossil fuel plants, in order to meet customer demand in the future. With a few excep-

¹¹ See *supra* note ___ (discussing state legislative mandates that utility rates be “just and reasonable”); *infra* note ___ (same).

tions,¹² the debate in the energy efficiency realm has shifted away from whether utilities should implement energy efficiency programs at all and instead focuses on developing appropriate evaluation, measurement, and verification metrics to design programs that are cost-effective and incentivize behavior that would not occur in the absence of the program.

This shift has not yet occurred in the context of utility compensation for rooftop solar or utility investment in EV charging infrastructure. In both cases, opponents of those programs—electric utilities in the case of rooftop solar and oil companies in the case of EV charging—are relying on free riding and cross subsidy arguments to question the very existence of the policy in question and focusing on alleged unfair cost shifts with regard to different classes of current customers. Supporters of both types of programs are marshaling evidence to rebut arguments that an unreasonable cost shift among customer classes will occur, with mixed success.

In the face of incomplete information that exists at the start of a new program with the potential for significant public benefits, regulators should be cautious in concluding that free riding or cross subsidy concerns should defeat the project in question.¹³ Instead, in those circumstances, it may be more reasonable to use free riding and cross subsidy concerns to place limits on subsidies for particular investments, such as rebates for residential or commercial EV charging stations, but to allow investments in longer term grid improvements that may benefit all utility customers in the long run. Doing so would be consistent with the precautionary principle, which is applicable in this context due to the significant risks associated with continued reliance on fossil fuels in the energy sector and the potential significant long-term benefits to utility customers and the public associated with energy transi-

¹² For exceptions to this general statement, *see infra* notes ___ - ___ and accompanying text (discussing legislative rollbacks of energy efficiency programs).

¹³ Scholars have raised a similar concern in recent years in the context of utility arguments regarding “fairness” and cross subsidies in the context of rooftop solar compensation. *See, e.g.,* Shelley Welton, *Clean Electrification*, 88 U. COLO. L. REV. 571, 605 (2017) (“The fact that utilities so frequently filter their protectionist concerns through discussions of equity . . . serves to underscore its importance in electricity law; utilities make these arguments because they are aware that regulators care about the equities of clean energy policies.”); Ari Peskoe, *Unjust, Unreasonable, and Unduly Discriminatory: Electric Utility Rates and the Campaign Against Rooftop Solar*, 11 TEX. J. OIL, GAS & ENERGY L. 101, 108-09 (2016) (contending that the utility “focus on supposed cost shifts among individual ratepayers is self-serving, and that [public utility commissions] have routinely allowed or ignored potential cross-subsidization among individual ratepayers, particularly when subsidies benefit the utility system.”); Troy Rule, *Solar Energy, Utilities, and Fairness*, 6 SAN DIEGO J. CLIMATE & ENERGY L. 115 (2014-15) (cataloguing different fairness and cross-subsidy arguments utilities make in the context of rooftop solar compensation).

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tion. Moreover, this approach allows regulators and electric utilities to build on metrics already used in the energy efficiency context to develop appropriate programs in the rooftop solar and EV charging infrastructure contexts.

II. FREE RIDING DEFINITIONS AND APPLICATIONS

The concept of free riding originates in moral philosophy, and arguably dates back to Plato’s Republic.¹⁴ In moral philosophy, free riding hinges on the unfairness of the receipt of a benefit without paying its associated costs.¹⁵ In defining “fairness,” John Rawls states:

a person is [morally] required to do his part as defined by the rules of an institution when two conditions are met: first, the institution is just (or fair), that is, it satisfies the two principles of justice; and second, one has voluntarily accepted the benefits of the arrangement or taken advantage of the opportunities it offers to further one’s interests.¹⁶

In economics, free riding is a broadly defined principle that concerns the receipt of unpaid-for benefits.¹⁷ Concerns over free riding often focus on “public goods.”¹⁸

¹⁴ *The Free Rider Problem*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (May 21, 2003), <https://plato.stanford.edu/entries/free-rider/> (citing PLATO, THE REPUBLIC bk. 2, 360b–c (C.D.C. Reeve, trans., Hackett, 2004)) (noting Glaucon’s argument to disobey the law when one cannot be caught). See also Hossein Haeri & M. Sawi Kawaja, *The Trouble With Free Riders*, PUB. UTIL. FORTNIGHTLY 34 (Mar. 2012) (discussing origins of the concept of free riding dating back to Plato’s Republic; 18th and 19th century political philosophers, including Hume and Mill; and later Paul Samuelson and Mancur Olson in the 1950s and 1960s).

¹⁵ Garrett Cullity, *Moral Free Riding*, 24 PHIL. & PUB. AFF., 3, 7 (1995) (“a free rider is someone whose failure to pay for nonrival goods under conditions C makes her conduct unfair.”).

¹⁶ JOHN RAWLS, A THEORY OF JUSTICE 111–12 (1971). Rawls’ two principles of justice mandate (1) equal access to universal basic liberties and (2) social and economic inequalities are arranged to the benefit of the least well-off. *Id.* at 26.

¹⁷ DONALD RUTHERFORD, *Free Rider*, in ROUTLEDGE DICTIONARY OF ECON. 233 (1995) (“An individual who does not pay for the goods or services he or she consumes.”). See also JAMES R. KEARL, PRINCIPLES OF ECONOMICS 441 (1993) (“Free riding occurs when a person benefits from or uses a valuable good or service without having to pay for it.”).

¹⁸ Definitions of a “public good” vary, but in general a public good is defined as one that is available to everyone if anyone has access (jointness in supply), no one can be excluded from its use without excessive cost (nonexcludability), use by one person doesn’t diminish the amount available for consumption by others (jointness in consumption), enjoyment by one person of the good does not diminish the benefits available to others (nonrivalness), no one can avoid using the good if anyone does (compulsoriness), everyone receives the same

In other words, markets and regulation should be designed to prevent a party (the “free rider”) from receiving the benefit of a public good without contributing to its cost.¹⁹ Classic public goods include national defense, street lighting, and environmental protection.²⁰ Economists and regulators attempt to design markets and regulations to avoid free riding to ensure sufficient investment in public goods and avoid overconsumption of public goods.

Free riding arguments appear across a broad range of contexts, from the auto industry, to voting, to international trade negotiations, or to any area where someone contends that unpaid-for benefits have been accrued.²¹ In his classic 1965 work *The Logic of Collective Action: Public Goods and the Theory of Groups*, Mancur Olson Jr. brought the economic theory of free riding into the public policy realm, with his application of the concept to the social science issue of collective action.²² Though he didn’t explicitly refer to free riding, Olson described the collective action problem that individuals are more likely to free ride as group size increases.²³ Because individuals are able to derive most, if not all, of the benefits of a public good regardless of their individual contributions, and because the comparative value of any individual contribution decreases as group size increases, it is rational for individuals to free ride off the contributions of other group members.

Equally important for social science scholarship of free riding was Anthony Downs’ 1957 book *An Economic Theory of Democracy*, which applied free riding con-

amount of the good (equality), and each user of the good consumes its total output (indivisibility). See Cullity, *supra* note 15, at 2; see also William Nordhaus, *Climate Clubs: Overcoming Free-riding in International Climate Policy*, 105 AM. ECON. REV. 1339, 1339 (2015).

¹⁹ Cullity, *supra* note 15, at 3–4; R. HARDIN, COLLECTIVE ACTION 17 (1982); D. MUELLER, PUBLIC CHOICE 14 (1954); Paul A. Samuelson, *The Pure Theory of Public Expenditure*, 36 REV. ECON. & STATISTICS 387 (1954).

²⁰ Thomas W. Merrill, *The Economics of Public Use*, 72 CORNELL L. REV. 61, 73, n.45 (2006).

²¹ Compare Ellen Sewell & Charles Bodkin, *The Internet’s Impact on Competition, Free Riding and the Future of Sales Service in Retail Automobile Markets*, 35 EASTERN ECON. J. 96, (2009) (discussing ability of online car dealers to free ride on physical services of brick-and-mortar dealers), with Rodney D. Ludema & Anna Maria Mayda, *Do Countries Free Ride on MFN?*, 77 J. INT’L ECON. 137 (2009) (discussing ability of countries to free ride on efforts of other countries’ negotiations in international trade deals); Björn Tyrefors Hinnerich, *Do Merging Local Governments Free Ride on Their Counterparts When Facing Boundary Reform?*, 93 J. Pub. Econ. 721 (2009) (applying economic free riding analysis to politics).

²² MANCUR OLSON JR., THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS 14 (1965).

²³ Olson, *supra* note 22, at 35; see also Vincent Anesi, *Moral Hazard and Free Riding in Collective Action*, 32 SOC. CHOICE & WELFARE 197, 197–98 (2009).

cepts to democratic voting habits.²⁴ Downs found that once voting has at least some costs associated with it, it is individually rational for some people to not vote because they can still derive the benefits of their preferred policies being implemented without incurring those voting costs. Thus, social science tends to rely on a game theoretical approach, and recontextualizes free riding from the perspective of the free rider.²⁵

Considerations of free riding in the environmental protection context can be traced back to Garrett Hardin’s 1968 article *The Tragedy of the Commons*.²⁶ Hardin’s work stems from the social science model of free riding, as it focuses on the selfish following of one’s own interests to inefficient results. In categorizing the environment as a public good, he observed that it is individually rational for environmental polluters to not incur the costs of preventing pollution because they are greater than any damage suffered as an individual user of the environment. Other scholars have built on Hardin’s work to suggest either allocating property rights in resources, enacting regulations prohibiting resource destruction, or a combination of both approaches as a solution to this dilemma.²⁷ At the same time, however, the traditional articulation of free riding—obtaining a public good without sharing the costs—is also a focus of evaluating environmental policies such as waste reduction programs and climate policy.²⁸ As a result, both of these articulations of free riding can be found in the environmental policy context.

²⁴ ANTHONY DOWNS, AN ECONOMIC THEORY OF DEMOCRACY 260–74 (1957). Downs described why there is individual incentive not to vote despite the presumed benefits. Downs’ book predates the game theoretical analysis of free riding, and instead uses an economic-style definition.

²⁵ Cullity, *supra* note 15, at 4.

²⁶ Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968) (considering the collective action problem of joint public use of the environment and concluding that there is incentive for each individual to exploit it because the amount of benefit received outweighs the aggregate cost incurred).

²⁷ See, e.g., ELINOR ÖSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTIONS 1-3 (2003 ed.); William W. Buzbee, *Recognizing the Regulatory Commons: A Theory of Regulatory Gaps*, 89 IOWA L. REV. 1 (2003) (discussing scholarship in the area); Carol Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1 (1991) (same).

²⁸ See, e.g., Magali Delmas & Arturo Keller, *Free Riding in Voluntary Environmental Programs: The Case of the U.S. EPA WasteWise Program*, 38 POL. SCI. 91, 91 (2005) (“Free riding occurs when one firm benefits from the actions of another without sharing the costs.”); Nordhaus, *supra* note **Error! Bookmark not defined.**, at 1339 (“Free-riding occurs when a party receives the benefits of a public good without contributing to the costs.”).

Notably, questions of “fairness” often arise in conjunction with free riding arguments. In the legal academy, what role “fairness” should play in developing legal policy remains highly contested, as illustrated by the work of Professors Steven Shavell, Louis Kaplow, and other scholars.²⁹ The merits of this debate are beyond the scope of this Article but serve as an important backdrop to the discussion that follows, namely, how advocates in energy utility proceedings use both free riding and fairness arguments to promote their interests and particularly how advocates use free riding arguments as a proxy for fairness arguments, and vice versa.

III. FREE RIDING DEBATES IN CONTEMPORARY ENERGY POLICY

Free riding arguments are often raised in the context of energy law and policy proceedings, where regulators routinely determine who will bear the costs and benefits of energy investments, rates, and charges. This occurs in “ratemaking” proceedings before the Federal Energy Regulatory Commission (“FERC”) and state public utility commissions as well as in court proceedings reviewing federal and state regulatory decisions.³⁰ These decisions use free riding arguments in the various forms discussed in Part II, although often in a far broader sense than the classic economics definition focused on public goods. They include the situation where advocates in a proceeding involving a utility subsidy program argue that participants in the program are being paid for actions or conduct they would have engaged in anyway without the subsidy, thus rendering the program inefficient or “unjust and unreasonable” under governing law. They also include arguments over cross-subsidies—that a group of industry actors or customer classes are obtaining excess benefits from costs shared by all industry actors or customer classes and correspondingly, some industry

²⁹ See, e.g., LOUIS KAPLOW & STEVEN SHAVELL, *FAIRNESS VERSUS WELFARE* (Harv. U. Press 2002) (arguing that “notions of fairness like corrective justice should receive no independent weight in the assessment of legal rules” and that, instead, a “welfare-based normative approach” should be used exclusively instead); Louis Kaplow & Steven Shavell, *Fairness v. Welfare*, 114 HARV. L. REV. 961 (2001) (same); *FAIRNESS IN LAW AND ECONOMICS* (Lee Anne Fennell & Richard H. McAdams, eds., Edward Elgar Pub. 2013); Troy A. Rule, *Solar Energy, Utilities, and Fairness*, 6 SAN DIEGO J. OF CLIMATE & ENERGY L. 115 (2014-15) (relying on Kaplow and Shavell to argue that claims of “fairness” to oppose compensation for rooftop solar energy should be viewed with skepticism and discussing the role of fairness in legal policy more broadly).

³⁰ See, e.g., Melissa Whited, *The Ratemaking Process* (Synapse Energy Economics, July 2017) (summarizing the fundamentals of utility ratemaking and rate design); LINCOLN L. DAVIES ET AL., *ENERGY LAW AND POLICY*, Ch. 4 (West Academic Publishing, 2d ed. 2018) (discussing federal and state ratemaking processes and judicial review of same); REG. ASSISTANCE PROJECT, *REVENUE REGULATION AND DECOUPLING: A GUIDE TO THEORY AND APPLICATION* 3-8 (Nov. 2016) (describing traditional rate regulation).

actors or customer classes are overpaying or underpaying for the benefits they receive.

For instance, in the context of FERC proceedings, parties—often investor-owned electric utilities—argue for or against a change in FERC policy on the grounds that it permits or even encourage free riding. As an example, in 2011, in Order 1000, FERC imposed new regional transmission planning requirements and cost allocation rules on utilities.³¹ In response, some utilities argued that other utilities and their customers were free riding by not paying a proportional amount of the associated costs associated with new electric transmission lines covered by the Order and that the new lines would benefit some utility customers more than others.³² Those utilities criticizing the rule argued that FERC must follow the “cost-causation principle,” a requirement derived from the Federal Power Act’s mandate that rates be “just and reasonable.” The utilities argued that the cost-causation principle requires that FERC can only approve rates that charge consumers roughly proportionally to the benefits they receive.³³

As one federal court put it, the “cost causation principle targets something called the ‘free rider problem,’ which FERC acknowledged that it sought to ‘address through its cost allocation reforms’ in Order No. 1000.”³⁴ Although the facial challenges to FERC Order 1000 were not successful, both the Order itself, in which FERC referenced free riding issues, as well as the court decisions evaluating Order

³¹ Order No. 1000-A, ¶ 578, 77 Fed. Reg. at 32,274 (defining “free riders” as “entities who are being subsidized by those who pay the costs of the benefits that free riders receive for nothing” and that in the electric transmission line context, free riders “do not bear cost responsibility for benefits that they receive in their use of the transmission grid. . . .” *Id.* at ¶ 576, 77 Fed. Reg. at 32,273; *El Paso Elec. Co. v. FERC*, 832 F.3d 495, 499 (5th Cir. 2016). *See also* Herman K. Trabish, *Has FERC’s Landmark Transmission Planning Effort Made Transmission Harder to Build?*, UTILITY DIVE, July 17, 2018 (discussing Order 1000).

³² *See* Order No. 1000-A, 139 FERC 61,132, ¶ 498, 77 Fed. Reg. at 32,274 (May 17, 2012).

³³ *See* *Ill. Commerce Comm’n v. F.E.R.C.*, 576 F.3d 470, 476 (7th Cir. 2009) (quoting *KN Energy, Inc. v. FERC*, 968 F.2d 1295, 1300 (D.C.Cir.1992)) (“FERC is not authorized to approve a pricing scheme that requires a group of utilities to pay for facilities from which its members derive no benefits, or benefits that are trivial in relation to the costs sought to be shifted to its members. ‘[A]ll approved rates [must] reflect to some degree the costs actually caused by the customer who must pay them.’”).

³⁴ *El Paso Elec. Co. v. FERC*, 832 F.3d 495 (5th Cir. 2016) (quoting Order No. 1000-A ¶ 562, 77 Fed. Reg. at 32,271).

1000, recognized the potential for free riding in federal transmission planning and cost allocation.³⁵

Utilities have also raised free riding arguments in context of who should pay for upgrades to existing transmission lines.³⁶ There, utilities have argued that individuals might be forced to subsidize the upgrades of others by paying the cost while others also derive the benefits.³⁷ Free riding arguments have also arisen in a compliance context, when utilities are punished for previous illegal behavior by having to disgorge past profits.³⁸ There, utilities complained that a company that would receive the refunds was a free rider because it had not pursued a complaint against them when others had.³⁹ Lastly, free riding arguments can arise in transmission rate cases for individual utilities.⁴⁰ Utilities have argued that customers can free ride by misrepresenting their actual energy demand because charges are calculated on an annual basis using a snapshot of demand at a single point in time.⁴¹ Utilities worry that customers can intentionally lower demand for that short time to derive unjust benefits for the whole year.

At the state level, public utility commissions and public service commissions frequently address free riding arguments in the context of commissions setting rates for electric, gas, and telecommunications utilities. For example, in the early 2000s, telecommunications companies in Illinois and Michigan argued that their competitors were free riding on their phone infrastructure when the competitors used that infrastructure to offer local call pricing for longer distance calls.⁴² For electric and gas utilities, most state statutes direct utility commission to ensure that utility rates, charges, and programs are “just and reasonable.”⁴³ Thus, free riding arguments associated with one class of ratepayers cross subsidizing another class of ratepayers is an argument that a particular rate, program, or charge is unjust and unreasonable or, in a broader sense “unfair.”⁴⁴

³⁵ See, e.g., *South Carolina Pub. Serv. Auth. v. FERC*, 762 F.3d 41 (D.C. Cir. 2014) (upholding challenges to FERC Order 1000); *supra* note __ (discussing Order 1000 and references to free riding).

³⁶ See, e.g., *Sw. Power Pool, Inc.*, 163 FERC ¶ 61092 (May 4, 2018).

³⁷ See *id.* at ¶ 22.

³⁸ See, e.g., *San Diego Gas & Elec. Co.*, 163 FERC ¶ 61080 (May 3, 2018).

³⁹ *Id.* at ¶ 34. FERC declared this a non-issue and sided with the company.

⁴⁰ See, e.g., *PJM Interconnection, L.L.C.*, 162 FERC ¶ 61136 (Feb. 16, 2018).

⁴¹ *Id.* at ¶ 2.

⁴² *In Re Focal Comm. Corp.*, 00-0027, 2001 WL 902639 (Ill. C.C.) (May 8, 2001); *In Re Coast to Coast Telecom, Inc.*, U-12382, 2000 WL 1409759 (Mich. P.S.C.) (Aug. 17, 2000).

⁴³ See *supra* note __, and accompanying text (discussing state statutes).

⁴⁴ See, e.g., *Peskoe*, *supra* note __ at 123 (discussing state court decisions reviewing public utility commission rate design issues surrounding cost shifts between customer classes and

When it comes to utility-funded energy efficiency programs, the question is often whether utilities or government actors are subsidizing conduct, such as residential or commercial customer energy efficiency investments (e.g., weatherproofing, energy efficient light bulbs, energy efficient boilers), that would have been undertaken even absent the subsidy.⁴⁵ The idea is that if conduct that would have otherwise occurred is being subsidized, the program causes an unreasonable cost shift among different customer classes. This is because all utility customers pay the utility for administering the program (at a rate determined by the state utility commission), those customers who would have invested in energy efficiency even absent the program are receiving a subsidy paid for by others, and thus those investments shouldn’t “count” as program benefits because they would have occurred anyway. Because of these concerns, which most energy efficiency experts characterize as free riding, government regulators, utilities, and industry experts have created a range of metrics and conducted empirical studies to evaluate the cost-effectiveness of these programs and determine the level of free riding.⁴⁶

In other energy-related contexts, such as utility compensation for customer-generated rooftop solar and utility investments in EV charging infrastructure, free riding is described somewhat differently. In these cases, rather than labeling behavior

concluding that most courts defer to commissions so long as such allocation in rate design is reasonable).

⁴⁵ See, e.g., Marie-Laure Nauleau, *Free-Riding on Tax Credits for Home Insulation in France: An Econometric Assessment Using Panel Data*, 46 ENERGY ECON. 78, 79 (2014) (“free-ridership, which is defined as behavior occurring when the agents targeted by the policy take the incentives but would have made the investment anyway.”) (internal quotations omitted); Nicholas Rivers & Leslie Shiell, *Free Riding on Energy Efficiency Subsidies: The Case for Natural Gas Furnaces in Canada* Abstract (Univ. of Ottawa, Working Paper No. 1404E, 2015) (“We assess the extent to which subsidies for home energy efficiency improvements in Canada have been paid to households that would have undertaken the improvements anyway—the so-called free rider rate.”); Kenneth E. Train, *Estimation of Net Savings From Energy-Conservation Programs*, 19 ENERGY 423, 424 (1994) (“The customers who implemented measures under a program even though they would have installed the measures without the program (for example, customers who received rebates for measures that they would have installed anyway) are called “free riders.”).

⁴⁶ See Matthew Collins & John Curtis, *Willingness-to-Pay and Free-Riding in a National Energy Efficiency Retrofit Grand Scheme: A Revealed Preference Approach* 7 (ESRI, Working Paper No. 551, 2016), <http://www.esri.ie/pubs/WP551.pdf> (using empirical definition of “comparison of the total cost of the completed retrofit, the cost to the household of the retrofit following the award of grant aid, and the total willingness-to-pay of each household for that retrofit.”); Peter Grösche & Colin Vance, *Willingness-to-Pay for Energy Conservation and Free-Ridership on Subsidization: Evidence from Germany*, 30 ENERGY J. 135 (2009); Nauleau, *supra* note __; Rivers & Shiell, *supra* note __.

that would have occurred even in the absence of a program subsidy as free riding, the claim centers more directly on a certain class of utility customers paying “less than their fair share” for a benefit provided by the utility. For instance, rooftop solar owners are labeled as free riders because they pay less in utility bills than customers without rooftop solar—because solar owners receive bill credits for the solar energy they generate—but solar owners still use the electric grid when the sun is not shining.⁴⁷ Likewise, if all utility customers pay for the utility to install EV charging stations within the utility’s service territory, but only some customers own EVs and benefit from the charging station, then non-EV owners are subsidizing EV owners and EV owners are free riders. These alleged cost shifts between customer classes are often targeted as unfair and, as a legal matter, “unjust and unreasonable.”

Of course, in all three instances, if the public benefits to all utility customers associated with the energy efficiency upgrades, rooftop solar energy generation, or use of EVs is above some determined threshold, the claims of free riding are neutralized. The difficulty, though is determining the nature and amount of the benefits these programs provide on both a near-term basis and a long-term basis. How interested parties, experts, and state utility commissions evaluate these issues is the topic of the remainder of this Article.

A. Energy Efficiency Programs

Energy efficiency is a means of reducing energy consumption by using less energy to attain the same output.⁴⁸ Energy efficiency is divided into three broad categories—(1) buildings (reducing electricity and space heating needs in buildings through new appliances, technologies, increased insulation, and the like); (2) transportation (increasing the efficiency of vehicles and vehicle fuels); and (3) industrial energy use. In the United States, energy use has become significantly more efficient over the past few decades, allowing energy consumption to remain flat even in the face of economic growth.⁴⁹ Programs to improve energy efficiency include vehicle fuel economy standards and appliance efficiency standards at the federal level, as well as a range of

⁴⁷ See Tabuchi, *supra* note __ (discussing utility claims of free riding in context of rooftop solar).

⁴⁸ Although “energy efficiency” is often used interchangeably with “energy conservation,” they are different concepts. Energy efficiency involves “accomplishing an objective—such as heating a room to a certain temperature—while using less energy” while energy conservation involves changing behavior to use less energy such as turning down the thermostat in the winter. NAT’L ACADEMY OF SCIENCES, ET AL., REAL PROSPECTS FOR ENERGY EFFICIENCY IN THE UNITED STATES 21 n.1 (Nat’l Academies Press 2010).

⁴⁹ LINCOLN L. DAVIES ET AL., ENERGY LAW AND POLICY 137-38 (West Academic Press, 2d ed. 2018).

local and state policies to promote energy efficiency in buildings and appliances through mandates and tax incentives.⁵⁰

Energy efficiency in residential and commercial buildings is particularly significant as it represents a low cost opportunity to reduce U.S. energy usage as well as the associated greenhouse gas (“GHG”) emissions. In 2017, the electric power sector consumed 38% of total U.S. energy, the residential and commercial sector consumed 11%, the transportation sector consumed 29%, and the industrial sector consumed 22%.⁵¹ With regard to greenhouse gas (“GHG”) emissions, in 2016, the transportation sector and electric power sector both represented 28% of U.S. emissions, with the commercial/residential sector representing 11%, industry 22%, and agriculture 9%.⁵² Notably, in 2017, residential and commercial buildings, which require energy for electricity and for space heating, consumed approximately 40% of U.S. energy and represented approximately the same percentage of U.S. CO₂ emissions.⁵³ In large urban centers such as New York City and Chicago, buildings constitute over 70% of energy use.⁵⁴

Thus, to the extent the United States can reduce energy use in residential and commercial buildings through energy efficiency, there will be significant cost savings and environmental benefits.⁵⁵ Indeed, experts show that, when treated as an energy

⁵⁰ *Id.*

⁵¹ U.S. Energy Info. Admin., U.S. Energy Facts, Explained, https://www.eia.gov/energyexplained/?page=us_energy_home.

⁵² U.S. EPA, Source of Greenhouse Gas Emissions, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

⁵³ U.S. Energy Info. Admin., How Much Energy is Consumed in U.S. Residential and Commercial Buildings? (last updated May 3, 2018), <https://www.eia.gov/tools/faqs/faq.php?id=86&ct=1>; Alliance to Save Energy, *Overview*, <https://www.ase.org/initiatives/buildings> (“Buildings—offices, homes, and stores—use 40% of our energy and 70% of our electricity. Buildings also emit over one-third of U.S. greenhouse gas emissions, which is more than any other sector of the economy.”). *See also* U.S. Green Building Council, Benefits of Green Buildings (updated May 2018), <https://www.usgbc.org/articles/green-building-facts> (U.S. buildings account for 40% of U.S. CO₂ emissions, more than the transportation and industrial sectors).

⁵⁴ Iain Campbell & Coben Calhoun, *Old Buildings are U.S. Cities’ Biggest Sustainability Challenge*, HARV. BUS. REVIEW (Jan. 21, 2016).

⁵⁵ *See, e.g.*, Alexandra B. Klass & Elizabeth J. Wilson, *Remaking Energy: The Critical Role of Energy Consumption Data*, 104 CAL. L. REV. 1095, 1098-99 (2016) (citing statistics from McKinsey & Co. estimating that “investing \$520 billion in nontransportation energy efficiency by 2020 could generate energy savings worth \$1.2 trillion, reduce end-use energy demand by 23 percent compared to current projection, and eliminate over 1.1 gigatons of

resource (i.e., as an equivalent to generating power), energy efficiency is the third largest U.S. energy resources (behind coal and natural gas and in front of nuclear energy) and is also the lowest cost resource.⁵⁶ As a result of these potential savings and other benefits, there has been a significant emphasis on policymaking at the state level to support energy efficiency programs in general and utility funded energy efficiency programs in particular.

1. *Utility-funded energy efficiency programs*

Since the 1980s, utilities have offered energy efficiency programs to customers either voluntarily or as a result of state mandates. Today, such programs exist in one form or another in all 50 states and the District of Columbia and include “financial incentives, such as rebates and loans; technical services, such as audits, retrofits, and training for architects, engineers, and building owners; behavioral strategies; and educational campaigns about the benefits of energy efficiency improvements.”⁵⁷ States spent nearly \$8 billion on energy efficiency programs in the utility sector in 2017, paid for by utility customers through their monthly electric and gas bills.⁵⁸ According

greenhouse gas emissions annually.”) (citing MCKINSEY & CO., UNLOCKING ENERGY EFFICIENCY IN THE U.S. ECONOMY iii (July 2009)).

⁵⁶ AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE GREATEST ENERGY STORY YOU HAVEN’T HEARD: HOW INVESTING IN ENERGY EFFICIENCY CHANGED THE US POWER SECTOR AND GAVE US A TOOL TO TACKLE CLIMATE CHANGE 5-6 (Oct. 2016), <https://aceee.org/sites/default/files/publications/researchreports/u1604.pdf>; Annie Gilleo, *New Data, Same Results—Saving Energy is Still Cheaper than Making Energy*, ACEEE, Dec. 1, 2017, <https://aceee.org/blog/2017/12/new-data-same-results-saving-energy> (showing cost comparisons of energy efficiency with other energy resources).

⁵⁷ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD vi (Oct. 2018). *See also* Joseph Eto, THE PAST, PRESENT, AND FUTURE OF U.S. UTILITY DEMAND-SIDE MANAGEMENT PROGRAMS 2 (Lawrence Berkeley Nat’l Lab., Dec. 1996) (detailing different types of utility-funded energy efficiency programs, such as: “(1) general information to increase customer awareness of energy use and of opportunities to save energy; (2) technical information, including energy audits, which identify specific recommendations for improvements in energy use; (3) financial assistance in the form of loans or direct payments to lower the first cost of energy-efficient technologies; (4) direct or free installation of energy-efficient technologies; (5) performance contracting, in which a third party contracts with both the utility and a customer and guarantees energy performance”).

⁵⁸ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, THE 2018 ENERGY EFFICIENCY SCORECARD vi (Oct. 2018). *See also* SEE ACTION GUIDE FOR STATES: EVALUATION, MEASUREMENT, AND VERIFICATION FRAMEWORKS—GUIDANCE FOR ENERGY EFFICIENCY PORTFOLIOS FUNDED BY UTILITY CUSTOMERS 10 (Jan. 2018) (describing utility-funded energy efficiency programs).

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to the American Council for an Energy-Efficiency Economy (“ACEEE”), these programs resulted in over 27 million megawatt hours of electricity saved in 2017.

The U.S. EPA describes the benefits of energy efficiency in the context of electric and gas utility programs as including environmental benefits, such as lowering GHG emissions and decreasing water use; economic benefits associated with reduced energy costs and boosting the local economy; utility system benefits by lowering baseload and peak energy demand and reducing the need for new generation plants and transmission lines; and risk management through diversifying utility resource portfolios.⁵⁹

As Michael Vandenberg and Jim Rossi have noted, the utility is a critical player in efforts to reduce electricity demand through energy efficiency measures:

[T]he distribution utility serves as an intermediary and gatekeeper between the consumer and the electric grid. A utility that has incentives to reduce household or other demand for electricity can play its information, service, and access roles in ways that will induce widespread uptake of efficiency and conservation measures. A utility that does not can discourage widespread uptake of these measures and can do so in a variety of nontransparent ways, whether by increasing consumers’ transaction costs (e.g., by requiring numerous or slow approvals for household solar photovoltaic installation, by understaffing key positions necessary for promotion of efficiency and conservation programs, and by imposing stringent requirements on grid access), or by limiting the extent or efficacy of information provided to consumers (e.g., by not making prompt, in-home energy use feedback easily available).⁶⁰

For decades, policymakers have attempted to design programs to align the interests of electric utilities with the goals of energy efficiency. Because utility revenues were historically tied to volumetric sales of electricity, energy efficiency programs resulted in reduced utility revenues.⁶¹ Not surprisingly then, in the early days of ener-

⁵⁹ U.S. EPA, Energy Resources for State and Local Governments, <https://www.epa.gov/statelocalenergy/state-energy-efficiency-benefits-and-opportunities>.

⁶⁰ Michael P. Vandenberg & Jim Rossi, *Good for You, Bad for Us: The Financial Disincentive for Net Demand Reduction*, 65 VAND. L. REV. 1527, 1544-45 (2012).

⁶¹ American Council for an Energy Efficient Economy, *Incentivizing Utility-Led Energy Efficiency Programs*, <https://aceee.org/sector/state-policy/toolkit/utility-programs> (“it is widely recognized that spending on energy efficiency programs has a detrimental effect on utility revenues, by reducing sales of the utility’s core product, electricity or gas. The reasoning is

gy efficiency programs, utilities argued against such programs on grounds they led to free riding and unfair cross subsidies among customer classes.⁶² State legislatures and public utility commissions have put in place a variety of mechanisms to minimize or eliminate the adverse financial impact on utilities from energy efficiency programs. The most common mechanisms are: (1) allowing the utility to recover from ratepayers the direct costs of energy efficiency programs; (2) lost margin recovery or “decoupling” programs that ensure that “[a]ctual utility earnings are . . . brought in line with earnings authorized by the governing body, removing—or at least mitigating—the utility’s disincentive to invest in energy efficiency programs due to reduced sales”; and (3) performance incentives that allow the utility to earn a return on investments in energy efficiency, similar to the return on investment it earns for earned for building a power plant or transmission infrastructure.⁶³

In general, these programs have succeeded in reducing utility opposition to energy efficiency programs, leaving arguments about free riding, evaluation of program performance metrics, and the like to a range of economists and other experts.⁶⁴ That

straightforward: while a utility’s variable costs change in proportion to sales volume, fixed costs associated with distribution and customer service do not. Therefore, a reduction in sales due to efficiency improvements leads to a reduction in revenue that is larger than the costs avoided. This net lost revenue affects the utility’s balance sheet, reducing the return to its investors and providing a strong incentive for utilities not to invest in programs that help their customers use energy more efficiently.”). *See also* Vandenberg & Rossi, *supra* note __, at 1546 (“To the extent the dominant approach to utility rate structures favors volumetric rates, utilities are encouraged to offer low per-unit rates while increasing their total sales. This allows them to recoup the business costs associated with their capital investments in base load power and transmission, and to increase net revenues over the long term.”); Will Nissen & Samantha Williams, *The Link Between Decoupling and Success in Utility-Led Energy Efficiency*, 29 *ELECTRICITY J.* 59, 62 (2016) (discussing benefits of decoupling and noting that as of January 2016, 15 states had implemented electricity decoupling with proposals pending in eight additional states).

⁶² *See, e.g.*, Peskoe, *supra* note __, at 181 (“In the 1970s and 1980s, it was the [utilities] that raised concerns about intra-class subsidization. The ‘paradox of conservation’ was that ratepayer-subsidized programs to reduce consumption — in contrast to earlier subsidies designed to increase [utility] sales—could harm non-participating consumers by raising overall rates.”).

⁶³ American Council for an Energy-Efficient Economy, *supra* note __. *See also* American Council for an Energy-Efficient Economy, *Lost Margin Recovery*, <https://aceee.org/sector/state-policy/toolkit/utility-programs/lost-margin-recovery> (describing decoupling programs); REG. ASSISTANCE PROJECT, *supra* note __, at 8-13 (same).

⁶⁴ *See infra* note __ and accompanying text. *See also* Martin Kushler, et al., *Aligning Utility Interests with Energy Efficiency Objectives: A Review of Recent Efforts at Decoupling and Performance Incentives*, Report No. U061 (ACEEE, Oct. 2006) (concluding that state regulatory approaches to overcoming utility disincentives to promote energy efficiency such as decoupling and

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does not mean free riding arguments are absent from energy efficiency policy debates. On the contrary, they are front and center. The difference, however, is that it is not generally the utility making the free riding argument.⁶⁵

2. *Free riding as a metric for determining cost effectiveness of energy efficiency programs*

According to the U.S. Department of Energy, “[f]ree-ridership issues are by no means peculiar to energy efficiency; they arise in many policy areas, whenever economic agents are paid an incentive to do what they might have done anyway.”⁶⁶ The reason free-ridership is important in this context is to ensure that the utility makes “prudent use of energy efficiency dollars.”⁶⁷ In other words:

If program dollars are spent on people who would have taken the actions anyway, without program support, then those people are free riders, and those dollars were perhaps misspent. Evaluators are tasked with studying how much of a program’s resources were spent on free riders, and what the program savings were, net of free riders. . . .⁶⁸

performance incentives are effective in the states in which they are used); Eto, *supra* note __, at 10 (These new ratemaking procedures were instrumental in stimulating aggressive utility pursuit of DSM energy-efficiency programs. The success of these new regulatory approaches has often been cited as a key factor in changing utilities’ perception of their role, from providing an energy commodity to one of providing energy services.”).

⁶⁵ This is not to say that utilities have become strong supporters of energy efficiency programs. Indeed, as Professors Vandenberg and Rossi have stated, “so long as volumetric pricing and guaranteed cost recovery through regulated rates leads utilities to view efficiency and conservation as revenue erosion, they will have incentives to create an appearance of demand reduction (e.g., to maintain reputation, satisfy regulators’ demands, etc.), but under the existing approach neither utilities nor customers can be expected to be firmly committed to reducing the aggregate usage of electricity.” Vandenberg & Rossi, *supra* note __, at 1548. See also Peskoe, *supra* note __, at 153 (detailing arguments of the Edison Electric Institute, the trade association for investor-owned utilities, that decoupling efforts remain insufficient to address the “transformative threats” to the utility industry model and that energy efficiency programs continue to act as “cross subsidies” between those customers who directly benefit from energy efficiency programs and those who do not).

⁶⁶ U.S. DEP’T OF ENERGY, SEE ACTION, ENERGY EFFICIENCY PROGRAM IMPACT EVALUATION GUIDE, CH. 5, DETERMINING NET ENERGY SAVINGS 5-8 (Dec. 2012), https://www4.eere.energy.gov/seeaction/system/files/documents/emv_ee_program_impact_guide_0.pdf.

⁶⁷ *Id.*

⁶⁸ *Id.* See also CARL BLUMSTEIN, CENTER FOR STUDY OF ENERGY MARKETS, PROGRAM EVALUATION AND INCENTIVES FOR ADMINISTRATORS OF ENERGY-EFFICIENCY PROGRAMS: CAN EVALUATION SOLVE THE PRINCIPAL/AGENT PROBLEM? 5 (Oct. 2010) (“It is

Or, as stated by one energy expert:

One of the most vexing problems surrounding the issues of free-ridership is definitional. To the economic purist, the textbook definition of free-ridership is a person who consumes a good without paying for it. For a variety of reasons, the working definition of free-ridership as it pertains to public benefits and utility energy-efficiency programs is significantly different. In this case, a free rider is someone who would install an energy-efficiency measure without any program incentives because of the return on investment of the measure, but receives a financial incentive or rebate anyway. This definition has been adopted by utilities, program directors, and regulatory bodies that are currently discussing energy-efficiency programs.⁶⁹

Thus, there is a long history in the energy realm of using the concept of free riding not only in its traditional economic sense but also to include cross subsidy concerns.

Energy efficiency experts have developed specific tests to evaluate the cost-effectiveness of utility-funded energy efficiency programs. The most common ones are: (1) Total Resource Cost Test, ("TRC") which compares benefits to society as a whole (avoided supply-side cost benefits, additional resource savings benefits) with cost to participants of installing the measure plus cost of program administration; (2) Societal Cost Test ("SCT"), which is similar to the TRC except that it "explicitly quantifies externality benefits such as pollutant emissions not represented in market prices and other non-energy benefits (e.g., improved health/productivity)"; (3) Program Administrator Cost Test ("PACT") (also known as the Utility Cost Test ("UCT"), which compares the utility's avoided costs benefits with program expenditures (both the incentives and the administrative costs); (4) Participant Cost Test ("PCT"), which compares "participant benefits (incentives plus bill savings with participant costs (incremental or capital cost, installation O&M, etc.)"; and (5) Ratepayer Impact Measure Test ("RIM"), which "compares the utility's avoided cost benefits

not desirable to reward IOUs for the energy savings of free riders for two reasons: (1) the payments are unearned and (2) payments for free-rider savings would bias IOU programs in favor of programs in which consumers already had a strong predilection to participate."); U.S. EPA, MODEL ENERGY EFFICIENCY PROGRAM IMPACT EVALUATION GUIDE 5-1-5-3 (Nov. 2007) (defining free ridership, spillover effects, and other factors to consider to differentiate gross savings and net savings from energy efficiency programs).

⁶⁹ Stephen Heins, *Energy Efficiency and the Specter of Free-Ridership*, 2006 ACEEE Summer Study on Energy Efficiency in Buildings 12-64 (2006), https://www.eceee.org/library/conference_proceedings/ACEEE_buildings/2006/Panel_12/p12_8/.

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with the cost of administering energy efficiency programs plus lost revenue from reductions in customer energy consumption.”⁷⁰

According to the U.S. EPA, “there is no single best test for evaluating the cost-effectiveness of energy-efficiency.”⁷¹ Many states use multiple tests to evaluate cost-effectiveness of energy efficiency programs for a more comprehensive approach as each test “provides different information about the impacts of energy efficiency programs from distinct vantage points in the energy system.” The EPA states:

The most common primary measurement of energy efficiency cost-effectiveness is the TRC, followed closely by the SCT. A positive TRC result indicates that the program will produce a net reduction in energy costs in the utility service territory over the lifetime of the program. The distributional tests (PCT, PACT, and RIM) are then used to indicate how different stakeholders are affected. Historically, reliance on the RIM test has limited energy efficiency investment, as it is the most restrictive of the five cost-effectiveness tests.⁷²

Many states require utilities to collect data and provide analysis from more than one test to determine cost effectiveness of energy efficiency programs.⁷³

Across all these tests, energy efficiency programs are generally evaluated for cost-effectiveness to account for both free riders and “spillovers,” with spillovers defined as “additional reductions in energy consumption or demand that are due to program

⁷⁰ ENERGY EFFICIENCY GUIDEBOOK FOR PUBLIC POWER COMMUNITIES 30 (Oct. 2009), <https://www.seventhwave.org/sites/default/files/guidebook.pdf>.

⁷¹ U.S. EPA, UNDERSTANDING COST-EFFECTIVENESS OF ENERGY EFFICIENCY PROGRAMS, BEST PRACTICES, TECHNICAL METHODS, AND EMERGING ISSUES FOR POLICY-MAKERS, ES-1-2 (Nov. 2008).

⁷² *Id.* See also ENERGY EFFICIENCY GUIDEBOOK FOR PUBLIC POWER COMMUNITIES, *supra* note __, at 30; Elizabeth Daykin, et al., The Cadmus Group, *Whose Perspective? The Impact of the Utility Cost Test*, Association of Energy Services National Conference (2012) (discussing different cost-effectiveness tests); NATIONAL EFFICIENCY SCREENING PROJECT, NAT’L STANDARD PRACTICE MANUAL, FOR ASSESSING COST-EFFECTIVENESS OF ENERGY EFFICIENCY RESOURCES, Edition 1, Executive Summary (Spring 2017), https://nationalefficiencyscreening.org/wp-content/uploads/2017/05/NSPM_Exec_Summary_5-17-17.pdf (explaining cost-effectiveness tests).

⁷³ See Nat’l Standard Practice Manual, Database of State Efficiency Screening Practices, <https://nationalefficiencyscreening.org/state-database-dsesp/> (showing tests used in all 50 states). See also SEE ACTION, *supra* note __ (describing frameworks and best practices for defining evaluation, measurement, and verification for utility-funded energy efficiency programs)

influences beyond those directly associated with program participation.”⁷⁴ According to the U.S. Environmental Protection Agency (“EPA”) this is done through evaluating the “net-to-gross ratio” (“NTG ratio”) across all program tests, which “deducts energy savings that would have been achieved without the efficiency program (e.g., ‘free-riders’) and increases savings for any ‘spillover’ effect that occurs as an indirect result of the program.”⁷⁵

In its evaluation of cost-effectiveness metrics, the National Renewable Energy Laboratory recognizes three different types of free riders in the context of energy efficiency programs: (1) total free riders (who would have invested in the program measure or practice even in the absence of the program); (2) partial free riders (who would have implemented a lesser amount or lower level of efficiency than that provided by the program); and (3) deferred free riders (who would have implemented the measure or practice sometime after the program timeframe).⁷⁶ Likewise, with regard to spillovers, there are different types of spillovers that result in benefits that should not be attributed to the program under review, including additional program-induced actions at the project site, energy efficiency measures program participants take at project sites not enrolled in the program, and energy efficiency actions taken

⁷⁴ Nat’l Renewable Energy Lab., *Estimating Net Savings: Common Practices*, Ch. 17, at 3 (Sept. 2014), <https://www.energy.gov/sites/prod/files/2015/01/f19/UMPChapter17-Estimating-Net-Savings.pdf>. Experts also attempt to evaluate the “rebound effect” associated with energy efficiency programs, which refers to changes in consumer behavior to increase the use of energy such as raising the thermostat in the winter, using more air conditioning in the summer, driving more often or longer distances because of technical improvements in energy efficiency that result in lower energy costs to consumers. Although experts agree that the direct rebound effect is real, there are significant debates over its magnitude. *See, e.g.*, HOWARD GELLER & SOPHIE ATTALI, *THE EXPERIENCE WITH ENERGY EFFICIENCY POLICIES AND PROGRAMMES IN IEA COUNTRIES: LEARNING FROM THE CRITICS 5* (Int’l Energy Agency Aug. 2005) (explaining rebound effect in energy efficiency and summarizing studies); U.S. EPA, *MODEL ENERGY EFFICIENCY PROGRAM IMPACT EVALUATION GUIDE 5-2* (Nov. 2007) (“Rebound is a change in energy-using behavior that increases the level of service and results from an energy efficient action.”).

⁷⁵ U.S. EPA, *supra* note __, at ES-3. *See also* AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, *THE 2018 ENERGY EFFICIENCY SCORECARD 18* (Oct. 2018) (“Net savings are those attributable to the program, typically estimated by subtracting savings from free riders (program participants who would have implemented or installed the measures without the incentive, or with a lesser incentive), and adding in estimates of savings from free riders (nonparticipants who implemented or installed the measure due to the program.”).

⁷⁶ Nat’l Renewable Energy Lab., *supra* note __ at 3. *See also* William P. Saxonis, *Free Ridership and Spillover: A Regulatory Dilemma*, 2007 Energy Program Evaluation Conference, Chicago at p. 533 (2007) (reviewing studies and literature on evaluating free ridership and spillovers and reviewing data in New York on same).

by non-program participants that were influenced by the program.⁷⁷ Of course, identifying the impact of both free riders and spillovers is extremely difficult, and there is a large body of literature discussing various methods to obtain this information through surveys and other data collection methods that is beyond the scope of this Article.⁷⁸

3. Criticisms of energy efficiency programs and state legislative action

As stated above, virtually all evaluations of utility-funded energy efficiency programs attempt to evaluate the role of free riders and spillovers in determining the cost-effectiveness of the program. Debates over the cost-effectiveness of energy efficiency programs will undoubtedly continue and experts will continue to refine the methodological approaches to evaluating free riders. Moreover, in recent years, some

⁷⁷ *Id.* at 4. See also CARL BLUMSTEIN, CENTER FOR STUDY OF ENERGY MARKETS, PROGRAM EVALUATION AND INCENTIVES FOR ADMINISTRATORS OF ENERGY-EFFICIENCY PROGRAMS: CAN EVALUATION SOLVE THE PRINCIPAL/AGENT PROBLEM? 5 (Oct. 2010) (“‘Spillover’ is the other side of the free rider issue. Spillover occurs when the effects of an energy-efficiency program spill over to affect other behavior. Examples of spillover would be a consumer taking action as the result of an energy-efficiency program but not receiving any of the incentives offered by the program (non-participant spillover) or a program participant stimulated to pursue additional energy saving actions that are not subsidized by the program (participant spillover).”).

⁷⁸ See, e.g., PWP, INC., CURRENT METHODS IN FREE RIDERSHIP AND SPILLOVER POLICY AND ESTIMATION (Feb. 2017), https://www.energytrust.org/wp-content/uploads/2017/07/FR_Spillover_170206.pdf; SEE ACTION, SEE ACTION GUIDE FOR THE STATES: EVALUATION, MEASUREMENT, AND VERIFICATION FRAMEWORKS—GUIDANCE FOR ENERGY EFFICIENCY PORTFOLIOS FUNDED BY UTILITY CUSTOMERS (Jan. 2018), https://www4.eere.energy.gov/seeaction/system/files/documents/EMV-Framework_Jan2018.pdf; Berkeley Lab, Electricity, Policy, and Markets Group, Utility Customer-Funded Programs <https://emp.lbl.gov/projects/utility-customer-funded> (“The EMP Group tracks and analyzes trends in utility ratepayer-funded energy efficiency programs and enabling policies, and provides technical and policy support to regional authorities, state regulatory commissions, and program administrators by analyzing current practices and projected future spending and savings for efficiency programs.”); American Council for an Energy-Efficient Economy (“ACEEE”), Energy Efficiency Programs, <https://aceee.org/portal/programs> (discussing founding of ACEEE in 1980, during the early period of energy efficiency programs, to provide research and policy development for utility energy efficiency); U.S. Dep’t of Energy, Office of Energy Efficiency and Renewable Energy, <https://www.energy.gov/eere/slsc/evaluation-measurement-and-verification-energy-data> (discussing the importance of evaluation, measurement, and verification (EM&V) data to “inform recommendations for improvements in [energy efficiency] program performance.”); U.S. DEP’T OF ENERGY, SEE ACTION, *supra* note __, Ch. 5 (defining free riding, spillovers, net savings in context of determining cost-effectiveness of utility-funded energy efficiency programs).

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state legislatures have increased utility funded energy efficiency programs while others have scaled them back.

For instance in Illinois, in 2016, the legislature enacted the Future Energy Jobs Act which contained, among other provisions, significant additional funding for utility-sponsored energy efficiency programs, including the ability of utilities to earn a rate of return on investments in energy efficiency programs.⁷⁹ Other states have also strengthened utility funded energy efficiency programs, with total spending in those programs approaching \$8 billion in 2017 nationwide, up from approximately \$4 billion in 2010.⁸⁰ According to the American Council for an Energy-Efficient Economy (“ACEEE”), “[e]nergy efficiency remains the nation’s third-largest electricity resource, employing 2.25 million Americans and typically providing the lowest-cost way to meet customers’ energy needs.”⁸¹

Other states, however, have used free riding concerns to scale back existing energy efficiency programs. For instance, in 2018, the Iowa legislature significantly scaled back what had been a long-term and robust energy efficiency program, primarily on grounds that it was too expensive and resulted in unfair cost shifts. As detailed by ACEEE, the law imposed a new spending cap on efficiency programs; removed efficiency program requirements on municipal utilities and electric cooperatives; and allowed customers “to opt-out of paying for efficiency programs that fail to satisfy the ratepayer impact [measurement] (“RIM”) test, a cost-effectiveness measure rejected by most states as inequitable.”⁸² During the legislative debates over the law, one senator criticized the fact that customers pay for these programs but the amounts aren’t shown as a separate line item on utility bills and that “if you don’t take advantage of the program, guess what, you’re paying in and somebody else gets it.”⁸³ The law passed despite opponents of the bill who focused their arguments on

⁷⁹ See Commonwealth Edison Press Release, *New Energy Efficiency Benefits Coming to Illinois Consumers*, June 28, 2017; Future Energy Jobs Act, *About*, <https://www.futureenergyjobsact.com/about>; Kari Lydersen, *Q&A: Going Beyond Decoupling to Drive Utility Investments in Energy Efficiency*, MIDWEST ENERGY NEWS, Sept. 18, 2017, (discussing ability of utility to place energy efficiency investments in rate base and earn rate of return in Illinois as well as several other states, including Maryland and Utah).

⁸⁰ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, *THE 2018 ENERGY EFFICIENCY SCORECARD* 24 (Oct. 2018).

⁸¹ AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, *THE 2018 ENERGY EFFICIENCY SCORECARD* vi (Oct. 2018); AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, *THE GREATEST ENERGY STORY YOU HAVEN’T HEARD*, *supra* note __, at 5-6.

⁸² AM. COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, *THE 2018 ENERGY EFFICIENCY SCORECARD* x, 15, 44 (Oct. 2018).

⁸³ Testimony of Iowa Sen. Breitbach, Senate Proceedings of March 6, 2018, timestamp 9:15:30–9:18:00,

the total savings to all customers and citing “\$400 million a year in net savings to customers” associated with energy efficiency programs.⁸⁴

In addition to legislative program cutbacks, scholars continue to question the scale of overall benefits of utility-sponsored energy efficiency programs. As early as the 1990s, Professors Paul Joskow and Donald Marron argued that data from utility companies did not bear out the grand claims of overall cost savings from utility-funded energy efficiency programs because of the failure to account for free riding.⁸⁵ These criticisms led to significant changes in the measurement and evaluation of the effectiveness of energy efficiency programs to address these and other concerns and to ensure the cost-effectiveness of such programs.⁸⁶ More recently, in 2016, Professor Arik Levinson has argued that despite forty years of experience with energy efficiency programs, program benefits continue to be overstated, particularly in the context of state energy building codes.⁸⁷

Nevertheless, because of decades with experience with energy efficiency programs, and a general recognition that energy efficiency programs can provide benefits for all ratepayers when designed properly, the debate has shifted toward how to identify free riders to improve the cost-effectiveness of programs rather than using free riding concerns as a reason to not have a program in the first place.

<http://www.legis.state.ia.us/dashboard?view=video&chamber=S&clip=s20180306203727440&dt=2018-03-06>.

⁸⁴ Testimony of Iowa Sen. Bolkcom, Senate Proceedings of March 6, 2018, timestamp 9:18:00–9:21:00,

<http://www.legis.state.ia.us/dashboard?view=video&chamber=S&clip=s20180306203727440&dt=2018-03-06>.

⁸⁵ Paul L. Joskow & Donald B. Marron, *What Does a Negawatt Really Cost? Evidence from Utility Conservation Programs*, 13 ENERGY J. 41 (1992); Paul L. Joskow & Donald B. Marron, *What Does a Negawatt Really Cost?, Further Thoughts and Evidence*, 6 ELECTRICITY J. 14 (1993) (responding to criticisms of earlier paper). *But see* Eto, *supra* note __, at 11-12 (finding more savings attributable to energy efficiency programs that reported by Joskow & Marron but acknowledging not all utilities were effective at running such programs).

⁸⁶ *See, e.g.*, Geller & Attali, *supra* note __ at 18-19 (discussing program design to account for free rider and spillover effects as a result of criticisms by Joskow, Marron, and others).

⁸⁷ Arik Levinson, *How Much do Energy Building Codes Save? Evidence from California Houses*, 106 AM. ECON. REV. 2867 (2016); Arik Levinson, *Energy Efficiency Standards are More Regressive Than Energy Taxes: Theory and Evidence*, Georgetown University and NBER (May 8, 2018), <http://faculty.georgetown.edu/aml6/pdfs&zips/RegressiveMandates.pdf>. *See also* David S. Loughran & Jonathan Kulick, *Demand Side Management and Energy Efficiency in the United States*, 25 ENERGY L.J. 19 (2004) (reviewing data and finding that actual electricity savings resulting from energy efficiency program were less than that reported by utilities).

The same cannot be said for solar net metering programs and utility investment in EV charging infrastructure. Utility subsidies for these programs are subject to significant debate, with the role of free riders, “fairness” and cross subsidies at the center of arguments over whether these programs should exist at all. The next Sections turn to these issues.

B. Net Metering: Utility Compensation for Customer-Generated Rooftop Solar Energy

One of the most frequent, contemporary uses of free riding arguments in energy policy involves utility compensation for customer-generated rooftop solar energy, also referred to as “distributed generation,” “distributed energy,” or “distributed solar.”⁸⁸ Beginning as early as the 1980s, states adopted policies requiring electric utilities to compensate rooftop solar panel owners for the electricity generated by the solar panels that is sent back to the grid in order to incentivize the adoption of rooftop solar.⁸⁹ Such policies are often referred to as “net metering” or “net energy metering” because the electricity meter on the home or commercial building now runs two ways: it meters electric energy flowing to the customer when the solar panels are not providing all the necessary electricity to the building and also meters the electricity flowing back to the utility and the electric grid when the solar panels are producing more electricity than the building requires.⁹⁰ Over a monthly or yearly billing period, the customer pays the “net” of the electricity the building uses and produces, resulting in significantly lower electricity bills for the customer, and in some cases, a net profit for the customer.⁹¹

In the Energy Policy Act of 2005, Congress provided additional support for state net metering policies by encouraging states to adopt them and also to provide tax benefits to customers installing solar generation.⁹² Although one can argue that a sale

⁸⁸ See Richard L. Revesz & Burcin Unel, *Managing the Future of the Electric Grid: Distributed Generation and Net Metering*, 41 HARV. ENVTL. L. REV. 43, 44 (2017) (“‘Distributed generation’ is a term used to describe electricity that is produced at or near the location where it is used. Distributed generation systems, also known as ‘distributed energy resources,’ can rely on a variety of energy sources, such as solar, wind, fuel cells, and combined heat and power. Distributed solar energy is produced by photovoltaic cells, popularly referred to as solar panels, which can be placed on rooftops or mounted on the ground.”).

⁸⁹ Revesz & Unel, *supra* note __, at 59-64 (describing history of net metering programs).

⁹⁰ JIM LAZAR, *ELECTRICITY REGULATION IN THE US: A GUIDE* 78-79 (2d ed. 2016); ALEXANDRA B. KLASS & HANNAH J. WISEMAN, *ENERGY LAW* 153-54 (Foundation Press 2017).

⁹¹ KLASS & WISEMAN, *supra* note __, at 153-54. For a more detailed description of various types of net metering, along with diagrams, see Minn. Pub. Utils. Comm’n, *Net Metering & Compensation*, <https://mn.gov/puc/energy/distributed-energy/net-metering/>.

⁹² Revesz & Unel, *supra* note __, at 59-60; U.S. Dep’t of Energy, *Residential Renewable Energy Tax Credit*, ENERGY.GOV, <https://www.energy.gov/savings/residential-renewable-energy-tax-credit>.

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of electric energy by a utility customer to the utility is a wholesale sale of electricity subject to Federal Energy Regulatory Commission (“FERC”) jurisdiction under the Federal Power Act, both the Energy Policy Act of 2005 and numerous FERC decisions have disclaimed federal jurisdiction over net metering and instead have encouraged states to regulate the practice as a matter of state jurisdiction over retail sales.⁹³

As of 2017, thirty-eight states and Washington, D.C. offer some form of net metering and utilities in some of the remaining states have adopted net metering programs on a voluntary basis.⁹⁴ “Conventional” net metering compensates customers with solar panels at the retail electricity rate—the price the customers pays to buy electricity from the utility.⁹⁵ A few other states have compensation rules that are not considered to be “net metering” because they compensate customers at something other than the retail rate, such as a lower, wholesale rate, or they have a so-called “buy all, sell all” program where there is one meter for the customer’s purchases of electricity and another meter for the customer’s sale of electricity to the utility.⁹⁶ As

⁹³ See Revesz, *supra* note __, at 59-60; David Raskin, *The Regulatory Challenge of Distributed Generation*, 4 HARV. BUS. L. REV. 38, 42-45 (2013) (criticizing net metering as an unfair subsidy and arguing for federal jurisdiction over net metering); State Power Project, *Net Metering and Federal State Jurisdiction*, <https://statepowerproject.files.wordpress.com/2015/05/net-metering-policymaker-summary1.pdf>; Jim Rossi, *Federalism and the Net Metering Alternative*, 29 ELEC. J. 13 (January-February 2016) (disagreeing with Raskin and arguing for continued state jurisdiction over net metering).

⁹⁴ National Council of State Legislatures, *State Net Metering Policies*, Nov. 2017; DSIRE, *Net Metering Map*, Nov. 2017, http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2017/11/DSIRE_Net_Metering_November2017.pdf.

⁹⁵ Retail electricity rates—the price end use customers pay to the utility—are always higher than wholesale electricity rates—the price at which the utility buys or sells electricity to or from another wholesale provider of electricity such as a neighboring utility, a utility-scale wind farm, a natural gas generator, etc. Wholesale electricity rates vary significantly based on supply and demand and also based on the type of resource producing the electricity—natural gas, coal, nuclear, wind, or solar energy. By contrast, retail electricity rates are set by state public utility commissions and generally do not vary based on scarcity or resources, with some exceptions such as when a customer enrolls in a “time of use” program that ties retail rates to low and high peak demand times of day. In most states, the “avoided cost rate” (the cost of the utility to purchase energy as wholesale or generate the energy itself) are much lower than retail electricity rates. See Revesz & Unel, *supra* note __, at 60-61 (comparing avoided costs rates in Wisconsin in 2015 of \$0.03 to \$0.04 per kWh compared to retail rates of \$0.11 to \$0.14 per kWh). See also *FERC v. Elec. Power Supply Ass’n*, 136 S. Ct. 760, 769 (2016) (discussing price fluctuations in wholesale rates based on demand and fact that state regulators generally insulate retail customers from such rate fluctuations).

⁹⁶ LAZAR, *supra* note __, at 134-35 (discussing net metering in the states); Revesz & Unel, *supra* note __, at 47, 59-71 (discussing different state approaches to net metering and distributed energy compensation); Nat’l Conference of State Legislatures, *supra* note __; Database of State Incentives for Renewable Energy, *Net Metering Policies—Customer Credits*

discussed in more detail below,⁹⁷ Minnesota has adopted a "Value of Solar Tariff" for designated utility purchases of certain types of distributed solar generation that attempts to value the full costs and benefits of solar energy on the grid, and to avoid the bluntness of compensating customer-generated solar energy based on a retail or wholesale electricity rate.

Beyond the rate of compensation, states vary considerably with regard to other aspects of net metering programs. Many states have capacity limits on individual customer solar systems, such as a 20 kilowatt (kW), 1 megawatt (MW), or 10 MW size limit on the system, with twenty-three jurisdictions imposing a size limit below 100 kW.⁹⁸ Other states place limits on capacity based on the customer's total electricity load, such as Arizona's limit of 125% of the customer's total load. States also have imposed limits on aggregate installed solar capacity within a utility's service territory or within a state. For instance, Georgia limits solar installations to .2% of a utility's peak demand, California has a cap of 5% of the utility's peak demand, Vermont has an aggregate capacity of limit of 15% of the state's peak demand, and Utah's limit is 20% of state peak demand.⁹⁹ States also vary in how long customers can maintain bill credits (e.g., next monthly billing period, 12-month period, indefinitely) and whether the rate of compensation is uniform across all systems in the state or varies based on system size.

When solar panels were few and far between, net metering was fairly uncontroversial. However, as tax incentives, net metering, and a growing desire for renewable energy encouraged more electricity customers to install solar panels, utilities began to express concerns regarding lost revenues and sought regulatory relief from state public utility commissions and legislative reform from state legislatures. One of the central arguments utilities made in this context is that non-solar owners are subsidizing solar owners. Because the utility's fixed costs associated with maintaining the electric grid are primarily recovered from customers through volumetric rates, if solar owners are now purchasing 50-80% less electricity each year, but the utility still needs to maintain the same level of grid service for when the sun is not shining, the utility will need to raise rates since they are selling less power overall. When those rates, go up, the increase will be disproportionately born by non-solar owners. Thus, non-solar

for Monthly Net Excess Generation (NEG) Under Net Metering, July 2016, <http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2014/11/NEG-1.20161.pdf>.

⁹⁷ See *infra* Part III.B.3.

⁹⁸ For comparison sake, 3 kW is common among residential systems and 10 MW is common among commercial and industrial systems, with lots of variation across both types of systems. Revesz & Unel, *supra* note __, at 62-63.

⁹⁹ Revesz & Unel, *supra* note __, at 63; Database of State Incentives for Renewable Energy, *supra* note __.

owners will now be shouldering a greater amount of those fixed costs, resulting in a “cross-subsidy” to solar owners and solar owners “free riding” on the grid.

It is important to note that cross-subsidies between different types of retail customers are ubiquitous in the utility world.¹⁰⁰ Customers who live in rural areas require more transmission infrastructure to connect to the electric grid, so urban customers who require less transmission infrastructure are arguably paying more than their “fair share” of transmission line costs.¹⁰¹ Low-income customers often receive rate discounts through state programs and industrial customers receive favorable rates from public utility commissions if those customers are successful in arguments that they need those lower rates to remain competitive.¹⁰² In each of those cases, there is a cross subsidy from one class of customers to the other. As a legal matter, however, the question is whether that cross subsidy is “unjust and unreasonable” or discriminatory under state law.¹⁰³

Commented [AG1]: I think you’re referring to distribution infrastructure in this section

Since approximately 2015, the “net metering wars” taking place in state public utility commissions and state legislatures across the country have resulted in many state commissions reducing the benefits associated with net metering by placing new fixed charges and “demand” charges on solar customers, compensating solar customers at something less than the retail rate, or imposing new aggregate capacity limits on solar installations.¹⁰⁴ In 2018, forty-five states and the District of Columbia

¹⁰⁰ See Rule, *supra* note __, at 131-34 (discussing common cross subsidies in utility rate design); Revesz & Unel, *supra* note __, at 76 (same); Peskoe, *supra* note __, at 121-29, 169-72 (explaining how cross-subsidies have always been embedded in the utility rate design).

¹⁰¹ Rule, *supra* note __, at 131-34.

¹⁰² *Id.* There are also cross subsidies between customers who use more electricity during peak demand times and those customers who do not. See Ian Schneider & Cass Sunstein, *Behavioral Considerations for Effective Time-Varying Electricity Prices*, Discussion Paper No. 891, John Olin Center for Law, Economics & Business, Harv. L. School 4 (Nov. 2016). Moving to “time of use” rates for all electricity customers minimizes or eliminates that cross subsidy, but time of use rates are still rare among residential utility customers in the United States. See *supra* note __; Ahmad Faruqui, *Residential Rates for the Utility of the Future*, May 13, 2016 (Powerpoint presentation on cross subsidies associated with flat retail electricity rates).

Such cross subsidies would be minimized or eliminated if all retail customers were moved to “time of use” rates. For a discussion of time of use rates, see *supra* note __.

¹⁰³ See Peskoe, *supra* note __, at 118-23 (discussing “just and reasonable” standard in utility ratemaking).

¹⁰⁴ See, e.g., Peskoe, *supra* note __, at 150 (noting that in arguments before public utility commissions, utilities “have launched a nationwide campaign against cross subsidies, in the name of consumer protection. They argue that rate structures that have allowed PV to gain traction are ‘unfair,’ ‘misleading,’ and ‘regressive.’ IOUs have also funded media campaigns that have painted PV adopters as thieves who steal their neighbors’ money while out-of-state billionaires reap the profits.”) (citing proceedings); Revesz & Unel, *supra*

took some action with regard to distributed solar, whether it be changes to net metering, fixed charges, minimum bill increases, or community solar policies.¹⁰⁵ In addition to efforts by utilities to reduce the financial benefits of rooftop solar in state commissions, utilities worked closely with the American Legislative Exchange Council (“ALEC”) to introduce model legislation in states across the country to ban or severely limit net metering or to impose large fixed fees on owners of solar panels.¹⁰⁶

In these proceedings, investor-owned electric utilities and ratepayer advocacy groups virtually always argue in favor of limiting or eliminating net metering for rooftop solar. They argue that rooftop reduces overall utility revenues (through lost electricity sales) without also lowering utility fixed costs and will thus lead to increased electricity rates for customers to cover those fixed costs. In turn, they argue, those higher rates will fall disproportionately on non-solar owners who tend to be less wealthy than solar owners. The players on the other side of the debate include (1) the rooftop solar industry—companies like Sunrun and SolarCity¹⁰⁷—which benefit financially from the increased financial incentives net metering provides for rooftop solar installations and (2) environmental groups, which support the growth of rooftop solar because it increases the penetration of renewable, distributed energy into the electric grid, reduces reliance on fossil fuels, and reduces GHG emissions and other fossil-fuel related pollutants.¹⁰⁸

Commented [AG2]: Now Tesla

In a 2017 article on distributed solar and net metering, Richard Revesz and Burcin Unel surveyed many of the public benefits and costs associated with distributed solar.¹⁰⁹ The benefits to the electric grid include reducing the utility system’s peak demand; reduced fuel and transmission expenses; lower ~~transmission distribution~~ line power losses because distributed energy is closer to the end-user; long-term costs savings to the system by enabling deferral or complete avoidance of the cost of new power plants; and resiliency benefits during storms and other power outages. The benefits to the public include climate change benefits and health benefits

note __, at 64-71 (discussing challenges in numerous states to net metering); Welton, *supra* note __, at 592-97 (discussing contentious state utility commission proceedings over net metering and opponents’ “nationwide assault on the policy”).

¹⁰⁵ N.C. CLEAN ENERGY TECH. CTR., THE 50 STATES OF SOLAR Q3 2018 QUARTERLY REPORT, Executive Summary 5 (Oct. 2018).

¹⁰⁶ Revesz & Unel, *supra* note __, at 65.

¹⁰⁷ See Jacob Marsh, *Solar Power Companies in the U.S.: Which Should You Choose?*, ENERGYSAGE, June 28, 2018.

¹⁰⁸ See generally Revesz & Unel, *supra* note __, at 48-49 (discussing net metering battles); Peskoe, *supra* note __, at 154-55 (same).

¹⁰⁹ Revesz & Unel, *supra* note __, at 79-93.

REGULATING THE ENERGY "FREE RIDERS"

through the displacement of fossil fuels as well as more general environmental protection benefits associated with water quality and land use benefits.¹¹⁰

Not surprisingly, free riding and cross subsidy arguments arise frequently in the regulatory proceedings over distributed solar energy as illustrated below. Here is where a comparison to the use of free riding in the energy efficiency context becomes helpful. Free riding concerns in energy efficiency programs have been present for many decades, and economists and other experts have developed various ways of addressing them. One can certainly question how accurate our ability to evaluate free riders is in the energy efficiency context, but experts have at least developed metrics to measure free riders and, even if they aren't perfect, they provide a platform for analysis and debate.

Regulators and experts are at a much earlier stage of data collection and analysis when it comes to free rider concerns in the rooftop solar context. The question then becomes how much to support rooftop solar as these metrics are being developed. Opponents of rooftop solar, including many investor-owned electric utilities, argue that states should eliminate net metering in favor of much lower payments for rooftop solar energy because the public benefits provided are limited. Supporters argue that states should continue with net metering until we can more fully calculate the full system-wide and public benefits provided by rooftop solar because we know they exist and should encourage development of this energy resource.

Commented [AG3]: In Minnesota, Co-ops and Munis have been more vigorous opponents of NEM than IOUs

A review of proceedings in Arizona, Nevada, and Minnesota surrounding compensation for rooftop solar generation shows a range of approaches to this question. In Arizona, the lack of information on the public benefits provided by rooftop solar caused regulators and utilities to downplay the benefits of rooftop solar and reduce net metering benefits. In Nevada, the utility commission first followed suit but then reconsidered its decision and used the lack of information as a reason to continue net metering until improved metrics could be developed. And in Minnesota, the state legislature required the state utility commission to adopt a "value of solar tariff" or VOST, to reduce the information asymmetry between the electric utility and the public and to begin to develop the types of metrics that exist in the energy efficiency context.

1. *Arizona*

¹¹⁰ *Id.* at 79-81. Costs to the grid include the costs of new meter installations grid interconnection, mismatches in power supply and demand that the utility cannot yet easily control, and responding to the variability of distributed resources that cannot be turned off and on with a switch on demand. *Id.* at 81-84.

In Arizona, in 2013, the Arizona Public Service Commission became one of the first state utility commissions to revise a state net metering program to reduce the value of rooftop solar in response to a utility claim of an unfair cost shift between residential customers with solar panels and residential customers without solar panels. The utility, Arizona Public Service (“APS”), filed an “Application for Approval of Net Metering Cost Shift Solution” as “a solution to the cross-subsidization of customers with Net-Metering DG [distributed generation] systems by those customers without such systems.”¹¹¹ Notably, in its filing, APS contended “that the issue is one of fairness for all customers and is not related to a loss of revenue by APS because of [net metering].”¹¹² Prior to its filing, APS hosted a technical conference to gather information and propose various solutions, which it presented to the Commission with its application.¹¹³

In its order ruling on the APS application, the Commission summarized the commission staff analysis of the issue, and found that “integral to the discussion of DG is the question of what *value* DG offers to APS’s electric system and thereby to the customers served by that system.”¹¹⁴ Staff found two values inherent in DG systems: (1) objective value, which consist of “measurable” benefits such as avoided fuel costs to the utility, although it recognized that “[e]ven objective value can be difficult to predict in future time periods; and (2) subjective value, which “requires the subjective assignment of monetary values to anticipated future benefit that are not easily measurable” and can include “increased grid security and air quality improvements.”¹¹⁵ The Commission, based on the staff report, recognized that several studies existed that attempted to quantify both objective and subjective value of DG, that subjective value “is a public policy issue” that requires “a subjective assignment of values consistent with policy goals,” and that both objective value and subjective value would need to be addressed in the next general rate case proceeding for the utility to quantify and value the costs and benefits of DG and then “allocate[] these costs and benefits equitably among customers [as] a matter of rate design.”¹¹⁶

As an interim measure, however, the Commission agreed with APS that some additional costs and fees on solar customers were appropriate. It did not place new fees on customers who already had installed solar panels but did place a \$.70 per kW monthly interim charge on all DG customers with installations after December 31,

¹¹¹ In re Arizona Public Service Company’s Application for Approval of Net Metering Cost Shift Solution, Order at 2, ¶ 10 (Ariz. Pub. Serv. Co., Dec. 3, 2013) [hereinafter “APS Order”].

¹¹² APS Order at 2, ¶ 11.

¹¹³ *Id.* at 2, ¶ 12.

¹¹⁴ *Id.* at 5, ¶ 24 (emphasis in original).

¹¹⁵ *Id.* at 5, ¶¶ 25-26.

¹¹⁶ *Id.* at 6, ¶¶ 30-32.

2013 to “ameliorate the impact of the cost shift on residential non DG customers.”¹¹⁷ This amount, which constituted the first approval of fixed charges on solar customers in the United States, was significantly lower than the \$3.00 per kW per month amount it believed could be supported APS’s data (equivalent to an additional \$21 per month for a customer system of 7 kW) and the \$70 per month APS said was warranted by the “cost shift issue” in a later proceeding on the same issue.¹¹⁸

Contentious battles over how to value and compensative rooftop solar generation continue in Arizona, with APS arguing that its customers “are bearing the brunt of the unfair cost shift” associated with continued net metering and arguing for higher fixed fees on solar customers.¹¹⁹ What is important for purposes of analysis here, is the position of APS that there is an “unfair” cost shift between customers with solar panels and customers without solar panels despite the fact that all parties recognized in the proceeding that it was very difficult to value the benefits to the overall system associated with distributed solar. If that value is high, then any current cost shift may not be unfair to any customers and, in fact, may benefit all customers. This is particularly true if the “value” of distributed solar includes creating markets for developing solar technologies that can result in reduced carbon emissions, greater grid security through distributed generation, and financial value from reducing the need to build more fossil-fuel generation once energy storage technologies develop sufficiently to support distributed solar. APS and other utilities may not “value” those benefits because they may result in reduced revenues for the utility in the short term, but that does not necessarily mean they are an unfair cost shift on utility customers without solar panels or that customers with solar panels are free riding on the utility system.

2. Nevada

The analysis was somewhat different in Nevada a few years later in 2016. In early 2016, the Public Utilities Commission of Nevada issued a “Modified Final Order” that phased out net metering for residential customers in Nevada with existing solar systems and tripled the “fixed charges” for those customers over a period of years.¹²⁰ This decreased the amount the utility paid customers for rooftop solar from the 11 cents per kWh retail rate to a 2 cents per kWh wholesale rate. It also resulted in an increase in fixed monthly charges on solar customers from \$12.75 per month to

¹¹⁷ *Id.* at 21.

¹¹⁸ *See id.* at 17, ¶ 84. *See also* In re Arizona Public Service Company’s Application for Approval of Net Metering Cost Shift Solution, Docket No. E-01345A-13-0248, Order at ¶¶ 106, 162 (Ariz. Pub. Serv. Co., Aug. 31, 2015).

¹¹⁹ *Id.* at ¶ 102.

¹²⁰ Pub. Util. Comm’n of Nevada, Modified Final Order, Docket Nos. 15-07041 and 15-07042 (Feb. 17, 2016).

\$38.50 per month.¹²¹ This action resulted in SolarCity and other solar installation companies pulling their operations out of the state entirely with a commensurate loss of solar-related jobs in the state. According to the commission itself, the Modified Final Order “all but crushed the rooftop solar industry in Northern Nevada, reducing the booming industry from 983 applications by residential homeowners and small commercial businesses in Sierra Pacific Power service territory in 2015 to 41 applications in 2016.”¹²²

A significant driver of the Commission’s Modified Final Order eliminating net metering was a 2015 statute enacted by the Nevada legislature, SB 374,¹²³ in which the legislature directed the commission to address solar cost shift issues. The relevant provisions of the statute provided that the commission may establish different rate classes for customers with distributed solar, may establish terms and conditions for participating in net metering, including limits on enrollment in net metering “to further the public interest,” may allow a utility to “establish just and reasonable rates and charges to avoid, reduce, or eliminate an *unreasonable shifting of costs* from customer-generators to other customers of the utility,” and shall not authorize rates or charges for net metering “that *unreasonably shift costs* from customer-generators to other customers of the utility.”¹²⁴

In its order revisiting its decision, the Commission evaluated the record before it with regard to the extent of any unfair cost shift from net metering customers to non-net metering customers.¹²⁵ It found the record “replete with conflicting evidence regarding the existence of a cost shift” with some studies showing the costs between customers classes will be “very nearly neutral” and total benefits of \$36 million over the lifetime of an average rooftop solar system.¹²⁶ Other studies, however, showed exactly the opposite, with a significant cost shift based in large part on the differential in price between utility scale solar and rooftop solar, with utility scale solar available at significantly lower rates.¹²⁷

With this conflicting evidence before it, the Commission stated that what it found most significant about the evidence submitted was that “credible and well-educated” economists, engineers, attorneys, and businesses failed to agree on fun-

¹²¹ See Revesz & Unel, *supra* note ___, at 66 (citing news reports).

¹²² In re Application of Sierra Pacific Power Co., Docket No. 16-06006, 16-06007, 16-06008, 16-06009, Order at 27, 2016 WL 7635932 (Nev. PUC, Dec. 28, 2016).

¹²³ NV S.B. 374, *codified* at NRS 704.7735, *repealed*, NV A.B. 405

¹²⁴ Sierra Pacific Power, *supra* note ___, Order at 28.

¹²⁵ *Id.* at 29.

¹²⁶ *Id.* at 31-32.

¹²⁷ *Id.*

damental facts and methodologies relevant to the proceeding.¹²⁸ The Commission considered that this was “[p]erhaps due to Nevada being at a cross-roads where traditional thinking is colliding with new technology and disruptive business models—new ways of looking at old energy problems are emerging.”¹²⁹ The Commission also considered that these divergent views may also “be because the facts regarding energy valuation, in many ways like the price of other commodities, change and continually evolve. What a cost prohibitive energy resource is today could very well be a fantastic value tomorrow.”¹³⁰ The Commission continued:

Jumping to a premature conclusion for the mere sake of having a resolution while the conversation and technology is evolving would not serve the public interest and Nevada. No certain answer at this time is better than the wrong one. More information, time, and analysis are necessary to find the appropriate balance for Nevada. The statement above is all-the-more true in the valuation of [net energy metering] NEM rooftop solar, as it impacts the overall cost-shift analysis.¹³¹

The Commission then stated that in its prior order eliminating net metering, it had recognized that the relevant factors for analyzing the positive and negative effects of net metering included avoided energy, avoided capacity, reduced energy losses/line losses, avoided CO₂ emissions, avoided criteria pollutant emissions, fuel hedging, utility integration and interconnected costs, and utility administration costs.¹³² In that earlier order, according to the Commission, it had “bound those factors to only those things which are ‘known and measurable’ but, in doing so “failed to fully account for other facts and policies—even those difficult or impossible to objectively quantify—which should also be included in a comprehensive NEM valuation analysis.”¹³³ Moreover:

Until a universally-acceptable formula can be settled upon to determine an appropriate value for . . . rooftop solar generation in Nevada, questions regarding the existence of a cost-shift will remain unresolved. More than “known and measurable” costs need to be included in this analysis. However, how is monetary value to be placed on the prevention of climate change? Clean air? Encouraging job

¹²⁸ *Id.* at 32.

¹²⁹ *Id.*

¹³⁰ *Id.*

¹³¹ *Id.* at 33.

¹³² *Id.*

¹³³ *Id.*

growth? Grid diversity? Energy choice and independence? Building a “New Nevada” for our children? . . .¹³⁴

The Commission went on to find that even assuming the facts support a cost shift from non-solar customers to solar customers, the relevant statute only prohibited the Commission from approving an “unreasonable” cost shift.¹³⁵ It found that no unreasonable cost shift would occur because there would be no “discernable cost increase” on the average monthly bill for customers without distributed solar (approximately \$0.26 per month) and that most customers would experience a net decrease in the average monthly bill.¹³⁶ The Commission also noted that its determination of reasonableness in this case was guided by the Nevada Legislature’s stated policies supporting renewable energy, including solar energy as a “mainstream alternative for homes.”¹³⁷ Notably, within a year after the Commission’s order, the Nevada legislature ratified the order by repealing its earlier legislation—SB 374—and replacing it with provisions grandfathering in existing customers with full net metering and reducing the rate only slightly when certain installed capacity thresholds are met (e.g., 95% of the retail rate in the first 80 MW of installed capacity, with decreases for every additional 80 MW installed until it flattens at a 75% rate of compensation).¹³⁸

As detailed in Part IV, what is notable about the Nevada Commission’s order is its treatment of the present-day uncertainties regarding the valuation of costs and benefits of rooftop solar as compared with the Arizona Commission. In the face of the absence of “hard” data regarding present-day and long-term benefits of rooftop solar, the Arizona Commission accepted the utility’s arguments and assumed an unreasonable cost shift while the Nevada Commission did exactly the opposite. The Nevada Commission presumed that benefits to all customers associated with increased solar generation may exist now and would likely increase in the future. It found no existing cost shift between customer classes that was unreasonable based on the evidence before it, and relied on state legislative policies supporting renewable energy to allow the market for rooftop solar to develop and thrive in the state. By contrast, in Arizona, the commission saw its role more narrowly—to address the utility’s petition to address cost shifts taking place using the utility’s existing rate design which recovers both fixed and variable costs through volumetric electricity sales. It did not use the proceedings as an opportunity to question the rate design or to support a growing market for a form of energy generation that posed a direct threat to the utility’s existing business model.

¹³⁴ *Id.* at 34, 36.

¹³⁵ *Id.* at 36.

¹³⁶ *Id.* at 36-37.

¹³⁷ *Id.* at 38 (quoting NRS § 701B.190).

¹³⁸ See Nev. A.B. 405, June 4, 2017; Julia Pyper, *Nevada’s New Solar Law is About Much More than Net Metering*, GREENTECH MEDIA, June 16, 2017.

3. *Minnesota*

Unlike Arizona and Nevada, where the commissions relied on more general statutory language regarding just and reasonable rates in the context of rooftop solar, in Minnesota the legislature directed the Commission to develop a new method to compensate distributed solar energy. Specifically, in 2013, in addition to using traditional net metering to compensate solar owners for systems ~~between 40 kW and up to~~ 1 MW, the legislature allowed investor-owned utilities to compensate such customers based on “an alternative tariff that compensates customers through a bill credit mechanism for the value to the utility, its customers, and society for operating distributed solar photovoltaic resources interconnected to the utility system and operated by customers primarily for meeting their own energy needs.”¹³⁹

The legislature required that this alternative tariff, known as the “Value of Solar” tariff (also referred to as the “VOS rate” or “VOST”) be developed by the Minnesota Department of Commerce no later than January 31, 2014 and be approved, rejected, or modified with the Department’s consent by the Minnesota Public Utilities Commission within 60 days of submission.¹⁴⁰ In developing the VOST, the Department of Commerce was required to “consult stakeholders with experience and expertise in power systems, solar energy, and electric utility ratemaking regarding the proposed methodology, underlying assumptions, and preliminary data.”¹⁴¹ The VOST must “at a minimum, account for the value of energy and its delivery, generation capacity, transmission capacity, transmission and distribution line losses, and environmental value.” The Department of Commerce was also authorized, although not required, consider “known and measurable evidence of the cost or benefit of solar operation to the utility” and incorporate “other values into the methodology, including credit for locally manufactured or assembled energy systems, systems installed at high-value locations on the distribution grid, or other factors.”¹⁴²

The legislature also required the state’s largest utility, Xcel Energy, to create a program for “community solar gardens” defined as facilities that generate electricity “by means of a ground-mounted or roof-mounted solar photovoltaic device whereby subscribers receive a bill credit for the electricity generated in proportion to the size of their subscription.”¹⁴³ The other two investor-owned utilities in the state are al-

¹³⁹ MINN. STAT. § 216B.164, subd. 3a (net metering); Minn. Stat. § 216B.164, subd. 10(a) (alternative tariff).

¹⁴⁰ MINN. STAT. § 216B.164, subd. 10(e).

¹⁴¹ MINN. STAT. § 216B.164, subd. 10(e).

¹⁴² MINN. STAT. § 216B.164, subd. 10(f).

¹⁴³ MINN. STAT. § 216B.1641(a).

lowed, but not required to offer a solar garden program.¹⁴⁴ Solar gardens must be at a capacity of no more than 1 MW, and each subscription “shall be sized to represent at least 200 watts of the community solar garden’s generating capacity and to supply, when combined with other distributed generation resources serving the premises, no more than 120 percent of the average annual consumption of electricity by each subscriber at the premises to which the subscription is attributed.”¹⁴⁵ A solar garden must have at least five subscribers and no single subscriber may have more than a 40 percent interest in the garden.¹⁴⁶ Solar gardens may be owned by the utility or by a private solar development that contracts with the utility to sell the output of the solar garden.¹⁴⁷

The purpose of the solar garden statute was to allow residential and commercial utility customers to receive the benefits of solar energy without the need for the up-front capital costs of purchasing solar panels and to encourage the development of a solar industry in Minnesota.¹⁴⁸ Eligible solar gardens must be located “in the service territory of the public utility filing the plan” and subscribers must be retail utility customers located in the same county as the solar garden or a contiguous county.¹⁴⁹ The utility must purchase all energy the community solar garden generates and the purchase shall be at the VOS rate or, until the commission approves the VOS rate, at the applicable retail rate.¹⁵⁰

The Minnesota Public Utilities Commission reviewed and approved the VOST prepared by the Department of Commerce in April 2014.¹⁵¹ In its order, the Commission began by stating that the Department of Commerce “intends for the methodology to avoid cross-subsidies and disincentives for conservation inherent in net metering.”¹⁵² The Department’s methodology included eight relevant components, chosen because they were values “based on known and measureable evidence of the cost or benefit of solar operation to the utility”: avoided fuel costs, avoided fixed plant operations and maintenance, avoided variable plant operations and mainte-

¹⁴⁴ *Id.*

¹⁴⁵ MINN. STAT. § 216B.1641(b).

¹⁴⁶ MINN. STAT. § 216B.1641(a).

¹⁴⁷ *Id.*

¹⁴⁸ See Bob Eleff, Legislative Analyst, Information Brief, *Xcel Energy’s Minnesota Solar Garden Program* (Updated Oct. 2017), <https://www.house.leg.state.mn.us/hrd/pubs/solargarden.pdf>.

¹⁴⁹ MINN. STAT. § 216B.1641(c).

¹⁵⁰ MINN. STAT. § 216B.1641(d).

¹⁵¹ In re Establishing a Distributed Solar Value Methodology Under Minn. Stat. § 216B.164, subd. 10(e) and (f), Order Approving Distributed Solar Value Methodology (Minn. P.U.C., Apr. 1, 2014) [hereinafter “MPUC Order”].

¹⁵² MPUC Order at 1.

nance, avoided generation capacity cost, avoided reserve capacity cost, avoided transmission capacity cost, avoided distribution capacity cost, and avoided environmental costs. According to the Commission, together, the components “account for the value of energy and its delivery, generation capacity, transmission capacity, transmission and distribution line losses, and environmental value attributable to PV solar.” The Department also included two “placeholder components” for future analysis—avoided voltage control cost and solar integration cost—on grounds that these costs and benefits will be “known and measurable in the future” and thus can be added to the calculation at that time. The Department declined to include as components the “compliance” value of Solar Renewable Energy Credits and the value of economic development on grounds that such values were not known or measurable at that time. The Department anticipated that additional value and cost components would be added in the future, “as more data and analysis becomes available about distributed solar and its costs and benefits.”

The Commission approved the Department’s methodologies with a few modifications relating to fuel price escalator factor, calculating avoided distribution capacity costs, and non-CO₂ avoided environmental costs values.¹⁵³ Pursuant to the statute, the VOST is calculated annually and the utility must use the VOST for community solar gardens but can elect to use VOST or net metering for other types of solar purchases, such as distributed solar, in the utility’s territory. Since the first VOST was established, it has been a few cents less than the retail rate used in traditional net metering. For instance, the VOST in 2016 for Xcel Energy was just under \$.10 per kWh while the retail rate for residential customers was \$.12 per kWh. Under both net metering and VOST, Xcel must offer to purchase the renewable energy credits associated with the solar energy generated.

Commented [AG4]: With VOST, Xcel automatically gets the RECs.

Despite the lower price of VOST, Xcel Energy has opted to continue to use net metering when it can, likely in part because it anticipates that the VOST will rise in value in the future. When the first community solar gardens came on line, the Commission directed Xcel to compensate subscribers using the retail rate with an optional renewable energy credit payment, in order to provide sufficient incentives to get the solar garden program started, and so stakeholders could gain more experience with the program. In 2016, the Commission directed Xcel Energy to transition its solar garden program to VOST because that is what the legislature directed; because VOST will “provide predictable yearly rate increases,” thus improving the ability of solar gardens to obtain financing; and to “address concerns that nonparticipating ratepayers are subsidizing the program.”¹⁵⁴ The Commission also required Xcel be-

¹⁵³ MPUC Order, *supra* note __, at 15-16.

¹⁵⁴ In re Petition of Northern States Power Co., dba Xcel Energy, For Approval of its Proposed Community Solar Garden Program, Docket No. E-002/M-13-867, 2016 WL 4701453 (Minn. P.U.C., Sept. 6, 2016).

ginning with the 2018 VOST to use “location-specific avoided costs in calculating avoided distribution capacity” to ensure that the benefits of solar gardens located near load and the costs of solar gardens further from load are appropriately considered and factored into the benefits associated with reducing peak demand and deferring the need for distribution system upgrades.

Throughout the proceedings, the utilities, consumer advocacy groups, solar developers, and others have disagreed about appropriate inputs, assumptions, and other aspects of Minnesota’s VOST.¹⁵⁵ Nevertheless, VOST provides a framework to address the cost shift and free riding arguments inherent in traditional net metering by creating identifiable inputs, cataloguing which inputs are known and unknown, and allowing for a yearly refinement of the methodology to determine the costs and benefits of solar on the utility’s system as a whole. It also allows an alternative to trying to wedge distributed solar payments into the traditional utility ratemaking process, which was not designed for these types of energy inputs. VOST, of course, is not the only approach. Scholars have proposed numerous other alternatives that include greater use of time-of-use rates, feed-in tariffs, better valuation of environmental benefits associated with distributed energy, and the like. VOST, however, is the primary alternative to net metering that exists today, and thus provides one pathway to get beyond the free riding and cost shift arguments that will always be present in debates over net metering.

C. Electric Utility Investment in EV Charging Infrastructure

Utility investment in EV charging infrastructure provides a third illustration of the use of free riding arguments in state energy policy. The debates in this context are more recent than those involving energy efficiency, which have had decades to develop, as well as those involving rooftop solar, which have been in play since approximately 2013, and have reached virtually all states. The debates over utility investment in EV charging infrastructure existed in only a few states prior to 2016, at which time an increasing number of state commissions began to open dockets on the topic.¹⁵⁶

¹⁵⁵ See, e.g., Laura Hannah, *Xcel Energy’s Community Solar Program Hits Major Milestones in Year Three*, GREENTECH MEDIA, Dec. 21, 2017 (discussing program developments and debates); Comments of Prof. Gabriel Chan on Xcel Energy’s 2019 VOS Calculation and Proposed 2019 Vintage Year Bill Credit Tariff Sheets, Docket No. M-13-867 (Nov. 27, 2018) (raising conceptual errors, conceptual extensions, and process reforms for yearly VOS proceeding); Eleff, *supra* note __ (discussing a range of disputed issues surrounding VOST and solar gardens since the enactment of the statutory provisions).

¹⁵⁶ See Klass, *supra* note __, at Part IV (discussing state legislative and regulatory action).

1. *EV Sales in the United States and the Role of EV Charging Infrastructure*

As an initial matter, although EV sales in the United States have increased significantly in recent years, EVs remain less than 1% of total vehicle sales in the United States, albeit with higher percentages in some states, particularly California, where the percentage of EV sales for several months in 2018 approached 10% of all vehicles sold.¹⁵⁷ The growth of EVs has resulted from improved battery technology as well as mandates that auto companies sell a certain percentage of EVs in some U.S. states (led by California) as well as in the EU and China.¹⁵⁸ As of October 2018, there were 1 million EVs on U.S. roads and analysts project that there will be over 18 million EVs in the United States by 2030.¹⁵⁹ As of 2018, the auto companies have embraced EVs and virtually every major auto company plans to invest heavily in the technology.¹⁶⁰

Environmental groups, along with some U.S. states, strongly support widespread EV adoption because it provides an opportunity to reduce the use of oil and its related GHG emissions and other pollutants in the transportation sector, which, as of 2018, emits more GHG emissions than any other sector.¹⁶¹ Moreover, although fossil fuels still made up nearly 63% of U.S. electricity generation in 2017, that percentage is far less in many states and is declining nationwide as a result of state RPSs and declining costs of utility-scale and distributed renewable energy.¹⁶² As a result electrify-

¹⁵⁷ *EV Market Share By State*, EV ADOPTION, evadoption.com/ev-market-share/ev-market-share-state/.

¹⁵⁸ See Int'l Energy Agency, *Strong Policy and Falling Battery Costs Drive Another Record Year for Electric Cars*, May 30, 2018 (discussing EV sales in the EU and China, with 580,000 EVs sold in China in 2017, which was a 72% increase from the prior year).

¹⁵⁹ See EDISON ELEC. INST., *ELECTRIC VEHICLE SALES FORECAST AND THE CHARGING INFRASTRUCTURE REQUIRED THROUGH 2030 1* (Nov. 2018). See also Jeffrey Ryser & Keiron Greenhalgh, *U.S. EV Sales Jump 72.5% on Year in 2018, Top 354,000*, S&P GLOBAL, Jan. 3, 2019 (reporting that 2018 was a “break-out year” for EVs “with sales of more than 354,000 vehicles, or 72.5% more than the 199,000 EVs sold in the US in 2017”).

¹⁶⁰ See, e.g., Mark Matousek, *32 Electric Cars You'll See on the Road by 2025*, BUS. INSIDER, Nov. 28, 2018 (discussing auto companies investments in new models of EVs); Dan Neil, *Think Electric Vehicles are Great Now? Just Wait . . .*, WALL ST. J., Dec. 26, 2018.

¹⁶¹ See Energy & Climate Staff, Rhodium Group, *Preliminary US Emissions Estimates for 2018* (Jan. 18, 2018) (“The transportation sector held its title as the largest source of US [CO₂] emissions for the third year running, as robust growth in demand for diesel and jet fuel offset a modest decline in gasoline consumption.”).

¹⁶² See *supra* note ___ and accompanying text; U.S. Energy Info. Admin., *U.S. Electricity Generation By Source*, Oct. 29, 2018, <https://www.eia.gov/tools/faqs/faq.php?id=427&t=3>; Nadja Popovich, *How Your State Make Electricity*, N.Y. TIMES, Dec. 31, 2018 (showing over half the electricity in California generated from renewable energy resources, even larger per-

ing transportation is an important component of efforts worldwide to reduce GHG emissions.

As part of its efforts to reduce statewide GHG emissions from the transportation sector, California has enacted a Zero Emission Vehicle (“ZEV”) mandate that requires auto companies to sell a certain percentage of EVs in the state, and nine other states have adopted the ZEV mandate.¹⁶³ Most of these ZEV states have also enacted legislative policies to facilitate the development of widespread EV charging infrastructure to increase consumer demand for EVs and reduce “range anxiety.”¹⁶⁴

Commented [AG5]: Now 11 ☹️ (that number might include Washington DC)

Because the fuel EVs require is electricity, utilities have the opportunity to play a central role in building out EV charging infrastructure. This infrastructure includes the distribution wires and related equipment necessary to power the charging stations, and the charging stations themselves. With regard to the charging stations, private charging companies such as ChargePoint, Greenlots, Blink, and EVGo have developed a range of business models to support home and business charging. In addition, the Volkswagen (“VW”) emissions cheating scandal resulted in a \$14.7 billion dollar settlement in 2016 that included requiring VW to create a new company, Electrify America, to spend \$2 billion building charging networks on interstates and in cities across the country. The settlement also requires VW to provide \$2.7 billion in funds for grants to states to support EV charging infrastructure.¹⁶⁵

centages in Idaho, Washington, and Vermont, and nearly 40% of electricity in Iowa generated from wind energy alone).

¹⁶³ See Center for Climate and Energy Solutions, *U.S. Clean Energy Policies*, <https://www.c2es.org/document/zev-program/> (listing Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, and Vermont as “ZEV states” and discussing California’s ZEV program). During the Obama Administration, the U.S. EPA was also a strong supporter of EV adoption but now, under President Trump, the EPA has proposed to eliminate California’s authority to set its own vehicle emissions standards, including its EV mandate, as well as the ability of other states to adopt the California standards. See U.S. EPA and Nat’l Highway Safety Admin., *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks*, 83 Fed. Reg. 42986 (Aug. 24, 2018).

¹⁶⁴ See Camille von Kaenel, *Luring Electric Vehicle Buyers with Swift Charging, Roller-Skating*, GOVERNORS’ WIND & SOLAR ENERGY COAL. (Jan. 17, 2018), <http://governorswindenergycoalition.org/luring-electric-vehicle-buyers-with-swift-charging-roller-skating> (discussing industry, state, and utility efforts to build out public EV charging stations to reduce range anxiety and support EV drivers).

¹⁶⁵ INGRID MALMGREN & CASSIE POWERS, NAT’L ASS’N OF STATE ENERGY OFFICIALS, *VOLKSWAGEN SETTLEMENT: BENEFICIARY MITIGATION PLAN TOOLKIT 4-5* (2017), <https://www.naseo.org/Data/Sites/1/naseo-vw-beneficiary-mitigation-plan-toolkit-final.pdf>; David Ferris, *7 Takeaways From a Wild Year for EVs*, ENERGYWIRE, Dec. 21, 2018 (discussing VW settlement).

These provisions of the VW settlement are a recognition that in order for consumers to embrace EVs, sufficient EV charging infrastructure must be built through a combination of EV charging stations in homes, at business locations, on highway corridors, and in public places such as shopping centers, government buildings, and even gas stations.¹⁶⁶ It is well documented that the lack of EV infrastructure can present a “chicken and egg” or “market coordination” problem in which consumers will not want to purchase an EV due to perceived lack of support, while no company will invest in EV infrastructure because it doesn’t see sufficient demand.¹⁶⁷

Who should build this infrastructure and who should pay for it, however, have become hotly contested issues in state public utility regulatory proceedings and state legislatures in recent years. Private charging companies and state commissions were initially opposed to utility investment in EV charging infrastructure, fearing the utilities would stifle competition and overbuild infrastructure in pursuit of profits. That opposition has softened considerably, however, and led the California Public Utilities Commission to reverse its position on the issue when it determined that substantial private infrastructure investment would not emerge until regulated utilities were permitted to enter the market.¹⁶⁸ Other state commissions, as well as state legislatures, have quickly followed suit.¹⁶⁹

¹⁶⁶ Although the major oil companies oppose transportation electrification because of its impact on market share, retail gas stations are beginning to see an opportunity for increased sales of convenience store items if they install EV charging stations because customers will be forced to spend more time at the stores while they wait for the cars to charge. *See, e.g.,* Ken Doyle & Erika Myers, *Why Aren’t More Convenience Stores Installing Electric Vehicle Chargers?*, SMART ELECTRIC POWER ALLIANCE, Nov. 9, 2017 (discussing financial benefits of EV chargers for service stations and convenience stores); Tina Casey, *It’s Over: Oil Giant Shell Doubles Down on EV Charging Stations*, CLEAN TECHNICA, Oct. 16, 2017 (reporting on oil company Royal Dutch Shell decision in install EV charging stations at its gas stations in the EU).

¹⁶⁷ *See, e.g.,* Initial Comments of Fresh Energy, Natural Resources Defense Council, the Sierra Club, and Minnesota Center for Environmental Advocacy, Docket No. E999/CI-17-879, Minn. Pub. Util. Comm’n. at 17 (July 27, 2018), <https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={80FFDC64-0000-CF18-AE69-6C936C279BF4}&documentTitle=20187-145282-01> [Hereinafter “CEO Initial Comments”] (describing market coordination problem); Adele Peters, *Want Electric Vehicles to Scale? Add Chargers to Gas Stations*, FAST COMPANY, Oct. 8, 2018 (discussing “chicken and egg” problem in the context of EV charging and potential solutions).

¹⁶⁸ David Roberts, *Electric Vehicles Are Gaining Momentum, Despite Trump*, VOX, June 27, 2018; Klass, *supra* note __, at 584.

¹⁶⁹ *See* Herman K. Trabish, *The Keystone State May Have Found the Key to the Next Wave of Transportation Electrification*, UTILITY DIVE, Jan. 14, 2019 (reporting on stakeholder collaboration for EV charging plan in Pennsylvania that includes major utility and private sector in-

2. State Regulatory Proceedings Governing Utility Investment in EV Charging

Regulators, scholars, auto manufacturers, environmental advocacy groups, and electric utilities nationwide are still struggling to determine best practices for cost-effective EV charging infrastructure investment. There appears to be broad consensus that EV adoption has substantial benefits, including “great potential to dramatically reduce local air pollution, greenhouse gas emissions and resulting climate change impacts, and oil use from the transport sector.”¹⁷⁰ Widespread EV adoption could also lead to lower electricity rates, by better allocating grid load to more optimally use all power generated.¹⁷¹ On the other hand, EV adoption is not without potential downsides, especially if EVs spike electricity demand at peak demand times.¹⁷²

As noted above, utilities have been central actors in efforts to expand EV charging infrastructure. Many of the ZEV states have enacted legislation authorizing utilities to recover their costs and receive a rate of return on investments in EV charging infrastructure.¹⁷³ Indeed, state legislatures and regulatory commissions have justified

vestments); Jeffrey Tomich, *In Car-Loving Michigan, An EV Master Plan Takes Shape*, ENERGYWIRE, Jan. 14, 2019 (discussing approval of Michigan utility investment of \$10 million that was supported by the private charging industry and is designed to “future-proof” the charging network to allow for future technology developments and avoid stranded assets).

¹⁷⁰ DALE HALL & NIC LUTSEY, EMERGING BEST PRACTICES FOR ELECTRIC VEHICLE CHARGING INFRASTRUCTURE at iii (2017), https://www.theicct.org/sites/default/files/publications/EV-charging-best-practices_ICCT-white-paper_04102017_vF.pdf.

¹⁷¹ Lisa Cohn, *Should All Utility Customers Pay for EV Infrastructure and Microgrids*, MICROGRID KNOWLEDGE (June 22, 2018), <https://microgridknowledge.com/ev-infrastructure-rate-based-microgrids/>.

¹⁷² HALL & LUTSEY, *supra* note __, at 24. This could be particularly dangerous as solar power plays an increasingly large role in nationwide grids if EV owners opt to charge their EVs at home, after the sun sets. However, Hall and Lutsey hypothesize that improvements in technology may eliminate this issue. *Id.*

¹⁷³ See Klass, *supra* note __ at 584-89, 592-94. There are three primary regulatory models for utility investment in EV charging infrastructure: (1) the “make-ready model,” where the utility owns the traditional utility infrastructure such as the transformers, utility services, meters, conduits, and wiring that supports the charging station but the “site host” such as a parking lot or shopping mall contracts with a private charging company like ChargePoint or Greenlots for the purchase and maintenance of the station itself; (2) the “end-to-end model,” where the utility owns the charging station itself in addition to the utility infrastructure required to support the station; and (3) a “hybrid model” where the utility has end-to-end ownership in underserved markets such as multi-family housing or low-income areas but only “make-ready” ownership in more competitive arenas such as workplace charging or public charging. See CEO Initial Comments, *infra* note __, at 13-16 (discussing models of utility investment in EV charging infrastructure).

requiring all utility customers to pay for these investments based on evidence of the system-wide public benefits noted above, namely reduced GHG and other air pollutant emissions associated with transportation electrification as well as the potential for reduced electricity rates stemming from more efficient electric grid utilization.¹⁷⁴

State public utility commissions approved major utility investments in EV charging infrastructure in 2018, including nearly \$740 million in California, \$20 million in Massachusetts, and \$10 million in Ohio.¹⁷⁵ Other proposals are pending approval in New York, Maryland, and New Jersey, totaling nearly \$700 million with total proposals filed in the states as of the end of 2018 for review and approval in 2019 totaling \$1.5 billion in 18 states.¹⁷⁶ Each of these proposals would allow utilities to recover a rate of return on their investments, similar to traditional utility investments in electricity generation, transmission, and distribution assets.¹⁷⁷

Although there are familiar free riding arguments in the EV charging infrastructure context, some of the key players in these debates have “switched sides” from the rooftop solar proceedings. Because of the anticipation of increased profits from EV charging infrastructure investments and increased electricity sales,¹⁷⁸ utilities generally favor policies encouraging EV adoption and utility-owned EV charging. Thus, utilities are aligned with environmental groups in these proceedings in arguing that

¹⁷⁴ See HALL & LUTSEY, *supra* note __, at 24; *infra* notes __ - __ and accompanying text (discussing evidence in Illinois commission proceeding submitted by environmental groups showing efficiency benefits and lower electricity rates for all electricity customers resulting from transportation electrification).

¹⁷⁵ Ferris, *supra* note __.

¹⁷⁶ *Id.* See also *2018 EV Recap: the Year of the Electric Vehicle and Tesla Prevails*, INSIDEEVS, Dec. 31, 2018 (summarizing state commission approval of utility investment in EV charging infrastructure); Gavin Bade, *10 Trends Shaping the Electric Power Sector in 2019*, UTILITY DIVE, Jan. 2, 2019 (noting that in the third quarter of 2018 alone, “32 states and D.C. took some action on electric vehicles, including the approval of utility EV charging programs in Massachusetts, Rhode Island, and earlier, in Nevada.”); Additional Comments of the Signatory Parties in Further Support of the Petition for Implementation of a Statewide Electric Vehicle Portfolio, Case No. 9478, pp. 7-11 (Md. Pub. Serv. Comm’n, Aug. 30, 2018) (summarizing utility proposals nationwide for EV charging investments); AP, *Michigan Approves Consumers Energy EV Charging Program*, THE STATE, Jan. 9, 2019 (reporting on approval of utility’s 3-year, \$10 million pilot program that includes a \$500 rebate for consumers who purchase an EV and sign up for the utility’s time-of-use rate to encourage nighttime charging and \$5,000 rebates for purchases of chargers installed in public areas like workplaces and shopping centers).

¹⁷⁷ Klass *supra* note __, at 569.

¹⁷⁸ Utilities only benefit from increased electricity sales due to EV or any other increased load in states that have not “decoupled” utility revenues from electricity sales. See *supra* notes __ - __ and accompanying text (discussing decoupling policies)

such investments will not result in free riding and instead will provide system-wide benefits to all ratepayers, even those who do not currently own EVs. On the other side, many ratepayer advocacy groups oppose utility investment in EV charging infrastructure on grounds that it will result in free riding and unfair cross subsidies by providing financial benefits to EV owners that will be paid for disproportionately by non-EV owners who, like non-solar owners, tend to be lower income. But there are also new advocates making free riding arguments when it comes to EV charging—the oil companies.¹⁷⁹ Like the utilities in the rooftop solar debates, the oil companies are using free riding, cross subsidy, and “fairness” rhetoric to argue that utility customers will be hurt by these programs, and that such programs are not “just and reasonable” as required by state statutes governing utility rates.¹⁸⁰

In the most recent of these proceedings, it is clear that proponents of utility investment in EV charging have learned from the contentious rooftop solar net metering disputes and have marshaled more sophisticated empirical evidence to support system-wide benefits of transportation electrification that requires EV charging programs. They also have the advantage of the utility supporting the program rather than opposing the program. For instance, in the net metering context, it is generally the utility that files a request with a state commission to eliminate net metering or impose fixed charges on solar customers, putting solar advocates in a defensive posture to justify the continuation of a net metering program. Moreover, supporters of net metering necessarily have more limited information on current costs and benefits of rooftop solar to the electric grid than the utilities possess. By contrast, when it comes to EV charging infrastructure, utilities are aligned with environmental groups and those groups, collectively, are making affirmative requests to state commissions to approve EV charging investment proposals, and providing evidence of public benefits to support the proposals.

The remainder of this section focuses on regulatory proceedings in Illinois, Missouri, and Maryland regarding utility investment in EV charging. These states show a

¹⁷⁹ See Jeffrey Tomich, *Big Oil Looks to Stop Utilities’ Charging Investments*, ENERGYWIRE, Oct. 25, 2018; *2018 EV Recap*, *supra* note __ (discussing how 2018 was the year that the oil companies “stepped up their efforts” in Washington and in the states to oppose policies that support EVs). This recent activity is part of a larger campaign by U.S. oil companies to retain market share in the transportation sector. The New York Times reported in December 2018 that the major U.S. oil companies had worked behind the scenes since the beginning of the Trump Administration to encourage the administration to repeal the Obama Administration’s signature vehicle fuel efficiency and vehicle emission standards, to discourage new states from adopting California’s more stringent vehicle emission standards, and to work to revoke California’s authority to set its own vehicle emission standards for GHG emissions, including the state’s ZEV program. See Hiroko Tabuchi, *The Oil Industry’s Covert Campaign to Rewrite American Car Emission Rules*, N.Y. TIMES, Dec. 13, 2018.

¹⁸⁰ See *infra* notes __ - __ and accompanying text.

range of arguments and analysis relating to free riding in very recent proceedings—with submission filed in 2018. This group of states also includes both ZEV and non-ZEV states which impacts whether free riding and cross subsidy arguments are used to oppose programs in their entirety or modify them to ensure that any program approved is cost-effective. As a general matter, in non-ZEV states, advocates cannot rely on a specific, state legislative or gubernatorial policy to support EV adoption or utility investment in EV charging infrastructure and instead must rely on more general state law governing “just and reasonable” rates.¹⁸¹ This lack of legislative direction gives opponents of utility investment in EV charging stronger grounds to oppose such programs because there has not been a legislative recognition of the public benefits of EVs and EV charging like in California and other ZEV states.¹⁸²

Finally, the proceedings in Illinois and Missouri highlight a recent development of oil companies and their trade associations beginning to react to the threat of EVs to their business interests, and responding by intervening in state regulatory proceedings and making free riding, fairness, and cross subsidy arguments in the name of utility customers to oppose these programs.¹⁸³ Thus, the oil companies have taken on the mantle of protecting the utility customers from programs allegedly rife with free riding, just as the utilities have done in the rooftop solar context.

a. Illinois

In September 2018, the Illinois Commerce Commission approved a Notice of Inquiry proceeding to gather “information and opinions from stakeholders on electric vehicles (‘EVs’) to help the Commission identify issues, potential challenges, and opportunities in EV deployment.”¹⁸⁴ The Commission’s goal was to use the proceeding “for studying and understanding the technical, financial, and policy implications of electric vehicles.”¹⁸⁵ The Notice of Inquiry asked participants to respond to a

¹⁸¹ Some states have adopted California ZEV mandate through legislation while others have done so through gubernatorial action. Many ZEV states have also adopted specific legislation supporting EVs in general and utility investment in EV charging stations in particular. See Klass, *supra* note ___, at 578, 583-90.

¹⁸² For a discussion of state commission proceedings in ZEV states, see Klass, *supra* note ___, at Part IV; David Ferris, *7 Takeaways From a Wild Year for EVs*, ENERGYWIRE, Dec. 21, 2018 (summarizing developments in the states).

¹⁸³ See, e.g., Jeffrey Tomich, *Big Oil Looks to Stop Utilities’ Charging Investments*, ENERGYWIRE, Oct. 25, 2018.

¹⁸⁴ Notice of Inquiry, Ill. Comm. Comm’n, Docket No. 18-NOI-01 (Sept. 24, 2018), <https://www.icc.illinois.gov/downloads/public/ev/EV%20NOI.pdf>; Electric Vehicles Notice of Inquiry, Ill. Comm. Comm’n, <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx> (describing notice of inquiry and providing links to all comments submitted in the proceeding and relevant news articles).

¹⁸⁵ Electric Vehicles Notice of Inquiry, *supra* note __.

range of issues including: (1) How EVs contribute to energy efficiency in Illinois by relying on electricity instead of fossil fuels and whether and how EV charging stations will affect overall energy efficiency in the state; (2) whether and how EVs will improve grid reliability and resilience and how best charging practices can impact efficient operation of the grid; (3) existing regulatory barriers to increased transportation electrification and possible solutions; (4) cost and environmental benefits associated with increased EV deployment in the state; (5) whether and how more EV charging stations should be developed in the state and whether utilities should own charging stations; and (6) whether utilities should charge time-of-use rates to incentivize EV penetration and whether charging infrastructure owned by utilities should be included in the utility’s rate base.¹⁸⁶

The Notice of Inquiry prompted a range of comments from the state’s two investor-owned utilities, Ameren Illinois and Commonwealth Edison; environmental and energy efficiency groups; ratepayer advocates; the Illinois Attorney General’s Office; industrial utility customers; an oil company trade association, Americans for Prosperity (a political advocacy group funded by the Koch brothers); EV charging companies; and others.¹⁸⁷

Not surprisingly, the investor-owned utilities in the state—Ameren Illinois and Commonwealth Edison—both supported regulatory policies to encourage transportation electrification and utility investment in EV charging infrastructure, along with market approaches that included private EV charging companies.¹⁸⁸ The utilities also focused their comments in large part on how such programs would work in tandem with existing energy efficiency programs in the state to increase grid efficiencies and provide cost and environmental benefits for all utility customers.

Commonwealth Edison cited U.S. Department of Energy statistics showing that conventional vehicles convert only about 17% to 21% of the energy stored in gasoline to vehicle power, while EV convert about 59% to 62% of electric energy from the grid to vehicle power.¹⁸⁹ It also cited potential energy efficiency opportunities of electric buses as compared to diesel buses.¹⁹⁰ The utility was careful to note that it

¹⁸⁶ Notice of Inquiry, *supra* note __, at 4-7.

¹⁸⁷ See Electric Vehicles Notice of Inquiry, *supra* note __ (providing links to comments).

¹⁸⁸ Initial Comments of Commonwealth Edison Co., Docket No. 18-NOI-01 at p. 10 (Ill. Commerce Comm’n, Oct. 22, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>; Ameren Illinois Company’s Initial Comments in Response to NOI Questions and Issues, Docket No. 18-NOI-01 at p. 17, (Ill. Commerce Comm’n, Oct. 23, 2018), <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

¹⁸⁹ Initial Comments of Commonwealth Edison Co., *supra* note __, at 2.

¹⁹⁰ *Id.*

was not using these statistics to argue that transportation electrification contributed to directly to the utility’s energy efficiency program established under the 2016 Future Energy Jobs Act,¹⁹¹ but did state that “additional EV charging stations could directly impact the Company’s Energy Efficiency Program if the Program is able to incent and claim savings from energy efficient charging stations . . .”¹⁹² The remainder of Commonwealth Edison’s comments focused on how pricing signals through time of use rates would encourage EV users to charge at low peak times, resulting in better utilization of grid resources and put “downward pressure on per kWh rates.”¹⁹³ Commonwealth Edison also cited studies showing the environmental benefits of wide scale EV adoption through reductions in GHG emissions, vehicle noise, and other aesthetic benefits.¹⁹⁴ It also stated that utility programs for EV charging could target “low-income communities not currently served by the competitive market” to increase EV adoption in those communities as well as make way for electric buses and trains in underserved neighborhoods.¹⁹⁵

Ameren’s comments were similar, focusing on “the economic benefits that can be socialized to all utility customers, most notably the potential downward rate pressure that can result from EV owners charging their vehicles.”¹⁹⁶ Ameren also stressed the need to combine a sophisticated EV policy with “forward-thinking energy efficiency policy” in order to promote efficient use of electricity, reduce energy consumption on a per/BTU basis, and reduce air emissions which “would benefit Illinois customers under a variety of cost-benefit analyses.”¹⁹⁷ Ameren argued for a program that would provide “a level of standardized savings, evaluation criteria, and costs associated with EV programs and design” that could include “modification of the existing Illinois energy efficiency [technical resource manual] to include EV-related measures, either of which could provide for a standard quantification of energy and environmental benefits—including novel categories of benefits related to bringing EV access to underserved areas, among other things.”¹⁹⁸ To conclude on that issue, Ameren suggested that a “portfolio of EV programs that coordinates information with energy efficiency incentives and supportive public policy has the potential to reduce market barriers and the need for additional peak capacity investment. Such a result would provide benefits to the customers throughout Illinois.”¹⁹⁹

¹⁹¹ See *supra* note ___ and accompanying text (discussing energy efficiency provisions of Illinois Future Energy Jobs Act).

¹⁹² Initial Comments of Commonwealth Edison Co., *supra* note ___, at 3.

¹⁹³ *Id.* at 7.

¹⁹⁴ *Id.* at 7-8.

¹⁹⁵ *Id.* at 9-10.

¹⁹⁶ Initial Comments of Ameren Illinois, *supra* note ___, at 1.

¹⁹⁷ *Id.* at 3-4.

¹⁹⁸ *Id.*

¹⁹⁹ *Id.* at 4.

REGULATING THE ENERGY “FREE RIDERS”

Environmental and energy nonprofit groups focused their comments on expert studies showing that EVs “provide the opportunity for broad-based cost savings for ratepayers” as well as “improved security from reduced dependence on imports of conventional fuels, improved local air quality, and reduced greenhouse gas emissions.”²⁰⁰ They also cited studies showing that increased EV adoption coupled with time of use rates and other “smart charging” program “can actually reduce costs for all ratepayers while benefiting the grid and providing a range of societal benefits.”²⁰¹ The Sierra Club and Natural Resources Defense Council also stressed that transportation electrification is “not at odds with the utilities’ statutorily-defined energy efficiency goals” and EVs themselves “are a form of energy efficiency because they reduce total energy consumption” as compared with conventional vehicles.²⁰² Other groups, including ratepayer advocacy groups, focused on the importance that electric load be managed cost-effectively through time of use rates to ensure that all ratepayers benefit from infrastructure costs.²⁰³ They warned that any program for utility ownership of charging stations be designed in a way to not crowd out private investment and to avoid creating “a profit incentive for utilities to overbuild.”²⁰⁴

ChargePoint’s comments cited studies showing transportation electrification had the potential to “create value for all ratepayers” because “the expected long-term energy revenues from incremental EV load generally exceeds the costs for the grid to support that load” which will “exert a downward pressure on unit energy costs that can benefit all utility customers regardless of EV ownership.”²⁰⁵ It warned, however, that this requires smart charging and other methods of avoiding “high cost ‘peak’ generation and/or distribution time periods.”²⁰⁶ ChargePoint cautiously supported

²⁰⁰ Comments of Advanced Energy Economy, Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Oct. 23, 2018), <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>. See also Comments of the Union of Concerned Scientists, Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>; Comments of the Sierra Club and Natural Resources Defense Council, Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Oct. 23, 2018), <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²⁰¹ Comments of Advanced Energy Economy, *supra* note __.

²⁰² Comments of the Sierra Club and Natural Resources Defense Council, *supra* note __, at 2, 4.

²⁰³ Initial Comments of Citizens Utility Board and Env’tl. Defense Fund, Docket No. 18-NOI-01 at p. 4-5 (Ill. Commerce Comm’n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²⁰⁴ *Id.* at 4.

²⁰⁵ Comments by ChargePoint, Docket No. 18-NOI-01 at p. 1-2 (Ill. Commerce Comm’n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²⁰⁶ *Id.* at 2.

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ratepayer funding of utility investment in EV charging, citing specific criteria developed in other jurisdictions and highlighting the need to “maintain customer choice, encourage innovation, and stimulate competition.”²⁰⁷

The strongest opposition to ratepayer funded utility investment in EV charging infrastructure came from Americans for Prosperity, a political advocacy group funded by David and Charles Koch of Koch Industries, a \$110 billion private company with major investments in the oil refining and distribution industries.²⁰⁸ It argued that the Commission must “carefully consider the rights and interests of all ratepayers” as it evaluates EV charging programs.²⁰⁹ It stated it was submitting comments “in the interests of protecting ratepayers and consumers from program designs, rules, and regulations that promote unfair and regressive forms of cross-subsidization that have been enacted in other jurisdictions.”²¹⁰ It warned the Commission that it was “required to prevent discriminatory practices where captive electric utility customers are forced to underwrite a distribution utility incursion into the EV charging infrastructure market” and that “[f]airness dictates that funding of non-public utility service needs to be done with shareholder funds, not through charges imposed on captive ratepayers with guaranteed cost recovery plus a guaranteed rate of return for the utility.”²¹¹ It contended that ratepayer-funded infrastructure is “unfair” because it will only “benefit the wealthiest ratepayers” who own EVs.²¹² In closing, it cited the Commission’s statutory mandate to ensure “just and reasonable” utility rates and charges and to prohibit and declare unlawful any “unjust and unreasonable” charges.²¹³

The American Petroleum Institute-Illinois Petroleum Council expressed similar sentiments, stating that “[c]onsumers and taxpayers should not be forced to pay more in taxes, fees and/or electric utility rates so that someone else can purchase and operate an expensive electric vehicle.”²¹⁴ It stated that EV charging “is currently only used by a small fraction of drivers, many of whom are wealthy enough to afford

²⁰⁷ *Id.* at 10-11.

²⁰⁸ *See* Koch Industries, FORBES, <https://www.forbes.com/companies/koch-industries/#732c6aa074ce>.

²⁰⁹ Americans for Prosperity Comments, Docket No. 18-NOI-01, at p. 1 (Ill. Commerce Comm’n, Oct. 23, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²¹⁰ *Id.*

²¹¹ *Id.* (emphasis omitted).

²¹² *Id.* at 3.

²¹³ *Id.*

²¹⁴ American Petroleum Institute-Illinois Petroleum Council Comments, Docket No. 18-NOI-01, at p. 1 (Ill. Commerce Comm’n, Oct. 22, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx> (emphasis omitted).

these more expensive vehicles” and that to allow utility investment in EV charging infrastructure and recover costs from all ratepayers “will result in an unfair shifting of costs onto those who have not opted for this technology.”²¹⁵

In reply comments, the Union for Concerned Scientists specifically singled out the comments of American for Prosperity, the Illinois Petroleum Council, and other commenters that opposed utility investment in EV charging.²¹⁶ In response to the stated concerns regarding wealth transfers from lower income to higher income ratepayers, the Union for Concerned Scientists acknowledged that “[r]egressive wealth transfer” is an important consideration in EV charging program design.²¹⁷ However, it warned that “categorically prohibiting utility investments due to the *possibility* of wealth transfer ignores the potential for programs to actively support equity and ensure benefits of transportation electrification to underserved markets.”²¹⁸

These comments show a range of opinions regarding the benefits of transportation electrification and utility investment in EV charging. Most commenters explicitly tied EV charging to energy efficiency, as the Commission had requested in its initial Notice of Inquiry order, and provided guidance on how EV charging could be made consistent with energy efficiency goals even though electricity use would likely increase through EV adoption. With utilities and environmental groups aligned, both groups could benefit from the superior information made available from the Illinois utilities’ expertise with Illinois customer and grid data and the environmental groups’ experience participating in numerous similar proceedings in other states. Whether to focus on current costs and benefits to ratepayers as opposed to future costs and benefits remained a constant theme in these proceedings, similar to the debate in the rooftop solar net metering context. And, once again, the party with the most to lose from the program—here, the oil companies—hid behind ratepayer fairness and cross subsidy arguments just as the utilities have done in the rooftop solar arena. Finally, it is important to note that the Illinois proceeding was a Notice of Inquiry soliciting responses to specific Commission questions, rather than an evaluation of a concrete utility proposal for investment. This means that the discussion was somewhat more general, allowing a broader discussion of potential benefits and concerns, and avoiding the need to delve too deeply into any of the data provided by proponents or opponents.

b. Missouri

²¹⁵ *Id.* at 2.

²¹⁶ Reply Comments of Union of Concerned Scientists (UCS), Docket No. 18-NOI-01 (Ill. Commerce Comm’n, Nov. 9, 2018), available at <https://www.icc.illinois.gov/Electricity/workshops/evnoi.aspx>.

²¹⁷ *Id.* at 3.

²¹⁸ *Id.* (emphasis in original).

Unlike the proceeding in Illinois, the Missouri proceeding involves a specific utility proposal for investment in EV charging infrastructure. In November 2017, Union Electric Company, d/b/a Ameren Missouri (Ameren), filed an “efficient electrification program” tariff case with the Missouri Public Service Commission.²¹⁹ Within this case was “[a] proposal to allow Ameren Missouri to provide incentives to encourage electric vehicle charging stations.”²²⁰ This “Charge Ahead—Electric Vehicles” program would “defray part or all of the cost of installing and operating electric vehicle (‘EV’) charging stations,” and would include workplace, public space, multi-family dwelling, and interstate/highway corridor chargers.²²¹ The program would cost \$11 million.²²² Ameren claimed that the program, along with a related program to provide financial incentives for adoption of electric forklifts and other business equipment (called the “Business Solutions Program”) would “(a) provide benefits to both Ameren Missouri and its customers, both from the standpoint of lower overall rates, more efficient utilization of the electric grid, and reduced emissions in the areas where those customers work and live; and (b) not negatively affect[] either the Company’s customers who are not participants in the program or regulated alternative fuel suppliers competing in the Company’s service territory.”²²³

Notably, in explaining why the program would benefit all utility customers, Ameren’s written testimony relied expressly on various energy efficiency cost-effectiveness tests, including the Ratepayer Impact Measure (“RIM”) test.²²⁴ In its Statement of Position supporting the program, Ameren stated that:

²¹⁹ Notice of Case Filing, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 15, 2017), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018006603.

²²⁰ *Id.*

²²¹ Application, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 3 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012294.

²²² See The Associated Press, *Ameren Plans \$11 Million Program to Add Charging Stations*, US NEWS & WORLD REPORT, Feb. 22, 2018.

²²³ *Id.* at 4-5.

²²⁴ Direct Testimony of Michael W. Harding, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 9-11 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012299; Direct Testimony of Steven M. Wills, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 16-40 (Feb. 22, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012295; Direct Testimony of David K. Pickles, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 9-11 (Feb. 22, 2018),

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The Rate Impact Measure (“RIM”) test, a common cost effectiveness test that looks at the impact of a program on customer rates, indicates that the cost of the program will be more than fully offset by the benefits arising from the EVs using the program. The amount above program costs is a contribution to recovery of the fixed costs of the electric system which results in lower rates for all Ameren Missouri customers. Beyond the results of any of the cost effectiveness tests, this program also provides significant environmental benefits.²²⁵

In making this argument, it is notable that Ameren expressly relied on experience with evaluations of the cost-effectiveness of energy efficiency programs and set out a pathway to integrate investments in EV charging into those existing cost-effectiveness models.²²⁶

However, the Commission’s Staff recommended the rejection of the EV program as proposed, and urged the Commission to “order modification of the Workplace, Multifamily, and Public Area subprograms to minimize free ridership and maximize public policy benefits.”²²⁷ While Staff conceded that all customers would in fact pay lower rates if Ameren could incentivize sufficient EV adoption such that additional revenues would exceed the costs of grid expansion, subsidies, and program costs, it found that Ameren had not provided sufficient evidence that such adoption would occur.²²⁸

https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2018012296.

²²⁵ Ameren Missouri’s Statement of Position, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 2 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007500.

²²⁶ For a discussion of the various tests used for determining cost effectiveness of energy efficiency programs, including the Ratepayer Impact Measure (“RIM”), see *supra* note __, and accompanying text.

²²⁷ Staff Position Statements, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007510.

²²⁸ *Id.* at 3. See also Rebuttal Testimony of Sarah L.K. Lange, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 2-13 (Oct. 1, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019004665 (staff testimony criticizing Ameren cost-effectiveness analysis).

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Staff claimed it was unable to analyze free riding directly because Ameren failed to adequately connect the tariffed program to the proposed budget.²²⁹ Indeed, Staff warned that, “as designed, these programs are rife with opportunities for free ridership and fail to include provisions to maximize public policy related benefits.”²³⁰ Based on the current proposal, Staff found “Ameren Missouri has made no clear connection between this program and its estimate of an additional 7,500 electric vehicles in the Ameren Missouri service territory for parties to begin to determine what level of adoption is naturally occurring and what would be attributable to the \$11 million ratepayer subsidy.”²³¹

The Office of the Public Counsel²³² was also critical of Ameren’s proposal, but ultimately recommended approval of the program while imposing a performance-based recovery mechanism linking Ameren’s recovery to EV adoption rates in its service territory.²³³ It argued that Ameren had failed to show a need for its program, and that private companies could respond to increased EV demand without utility action.²³⁴ Notably, Office of Public Counsel claimed there was no evidence that further EV infrastructure investment was required to spur EV adoption.²³⁵ It agreed with Staff that Ameren had not shown its program to be cost effective, and essentially offered the performance-based mechanism as a concession to tie the fate of Ameren to the actual efficacy of its program without fully recommending outright rejection.²³⁶

On the other hand, the Sierra Club and Natural Resources Defense Council recommended approval of the program with only minor modifications.²³⁷ They claimed

²²⁹ Staff Position Statements, *supra* note __, at 5.

²³⁰ *Id.* at 6.

²³¹ *Id.* at 1-2.

²³² The Missouri legislature created the Office of Public Counsel in 1975 to represent the interests of utility customers in proceedings before the Missouri Public Service Commission. The Office of Public Counsel has its own staff and budget and is independent from the Commission. See Missouri Office of Public Counsel, Who We Are, <https://opc.mo.gov/who-we-are.html>.

²³³ Position Statement of the Office of the Public Counsel, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007507.

²³⁴ *Id.* at 1-2.

²³⁵ *Id.* at 2.

²³⁶ *Id.* at 3-7.

²³⁷ Position Statement of Sierra Club and Natural Resources Defense Council, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018),

that Ameren had actually been conservative in its estimate of public benefits of EV adoption, and that it should be allowed full recovery of prudently incurred costs.²³⁸ The environmental groups’ position focused on the claim that the public benefits of EVs actually are quite large, and are sufficient to mitigate any cost shift. The Missouri Division of Energy also supported the proposal, but recommended that 10% of the budget be allocated to support EV charging station development in “underserved and low-income communities” as a way to combat cost shifting.²³⁹ The Division claimed that this would “promote more equitable access to electric vehicle charging and the associated benefits of cost savings resulting from electric vehicle use”²⁴⁰ ChargePoint echoed these calls for approval, claiming that Ameren’s “program design reduces risks to ratepayers, lowers the cost barrier to [EV charging infrastructure] deployment, allows the charging station site host to determine which equipment and services best meet their needs, and builds a sustainable EV charging marketplace to help accelerate EV adoption.”²⁴¹

Notably, after all interested parties had filed their opening testimony, response testimony, and position statements, the Missouri Petroleum Marketers and Convenience Store Association (“MPCA”) sought leave to file an Amicus Curiae Brief in the proceeding.²⁴² It argued that “Because Ameren Missouri seeks to compete with MPCA’s members in the motor fuel market, MPCA is in a unique position to provide a legal perspective and background information to the Commission for its consideration of whether Ameren Missouri has provided sufficient evidence to show the Charge Ahead – [Electric Vehicle and Business Solutions] Programs are needed and cost effective; what, if any, cost recovery mechanisms may be appropriate for these

https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007488.

²³⁸ *Id.* at 2.

²³⁹ Missouri Division of Energy Statement of Positions, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 1 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007494.

²⁴⁰ *Id.*

²⁴¹ Chargepoint, Inc.’s Statement of Position on the Issues, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. at 2 (Nov. 27, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007499.

²⁴² Petition of Missouri Petroleum Marketers & Convenience Store Association for Leave to File Amicus Curiae Brief and Request for Expedited Ruling, Docket No. ET-2018-0132, Mo. Pub. Serv. Comm’n. (Nov. 30, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019007741.

Programs; and whether the Commission should impose any conditions on these Programs.”²⁴³ The Commission granted the request in December 2018.²⁴⁴

The Missouri proceeding, which is still pending before the Commission, showcases many of the same arguments made in the Illinois proceeding, but in the context of a concrete utility proposal for EV charging investment. Although the \$11 million requested for the program is significantly more modest than other programs approved in California, Massachusetts, and other states in 2018, the Missouri Commission will need to act without the benefit of legislative or executive branch direction declaring the public benefits of transportation electrification or utility investment in EV charging. Instead, the parties supporting the program must rely on general statutory language regarding just and reasonable rates as well as fit the program within the cost-effectiveness regime that exists for utility-funded energy efficiency programs, which is a potentially a helpful model for other similarly situated states.

3. Maryland

In Maryland, in 2018, a coalition of charging companies, environmental groups, four Maryland investor-owned utilities, and other interested parties (referred to as the “Signatory Parties” filed a joint “Proposal to Implement a Statewide Electric Vehicle Portfolio” that included utility investments in EV charging totaling over \$100 million.²⁴⁵ Program components included rebates for residential and commercial EV chargers, utility-owned public charging networks, as well as funding for customer outreach, innovation, and technological development, and implementation of time of use rates to support “smart charging.”²⁴⁶ Most of the rebates for private charging included dollar caps or percentage caps on the cost of the charger. In support of the program, the Signatory Parties cited to state policies supporting EVs and EV charging infrastructure, including “the State’s Greenhouse Gas Reduction Act, the eight-state Zero-Emission Vehicle Memorandum of Understanding, Maryland’s role in the Transportation Climate Initiative, the legislatively-created Electric Vehicle Infrastructure Council, and the Maryland EV Recharging Equipment Rebate Program.”²⁴⁷

²⁴³ *Id.* at 2.

²⁴⁴ Order Granting Leave to File Amicus Curiae Brief, Docket No. ET-2018-0132 (Mo. Pub. Serv. Comm’n, Dec. 11, 2018), https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019008382.

²⁴⁵ Signatory Parties Proposal to Implement a Statewide Electric Vehicle Portfolio, Case No. 9478 pp. 27-31, 56-60 (Jan. 19, 2018). The docket with links to all filings in the proceeding is at <https://www.psc.state.md.us/search-results/?keyword=9478&x.x=16&x.y=13&search=all&search=case>.

²⁴⁶ *Id.*

²⁴⁷ Proposal to Implement a Statewide Electric Vehicle Portfolio, *supra* note __, at 3-9.

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Early in the Proposal, the Signatory Parties state “it is not the responsibility of ratepayers to foot the bill for the entirety of the remaining charging infrastructure needed to fill the gap between what exists today and the projected infrastructure build-out necessary to support the State’s ZEV MOU goal of 300,000 electric vehicles on the road by 2025.”²⁴⁸ Instead, they wish to make the case through the Proposal that “that a targeted ratepayer investment facilitated by the Utilities and made in conjunction with private market participants will seed the burgeoning Maryland EV landscape in a manner that will promote a healthy, competitive, and lasting private market moving forward.”²⁴⁹ In support of the Proposal, the Signatory Parties discuss a range of Maryland-specific expert cost-benefit studies to establish the cost-effectiveness of the Proposal and make the case why all utility customers will benefit from the investment. They also propose an “evaluation, measurement, and verification” strategy similar to the approaches used in the energy efficiency context.²⁵⁰

Numerous participants in the regulatory proceeding raised free riding and cost shift arguments targeted primarily at the rebates for residential and commercial EV chargers. It is this part of the program that most closely resembles energy efficiency programs, in that it is important to determine the extent to which utility customers would have purchased the EV chargers even in the absence of the subsidy. In energy efficiency parlance, those customers are free riders and their actions should not be included as program benefits.

For instance, the Maryland Office of People’s Counsel expressed concern that the utility programs would replace or subsidize private investment in EV charging, resulting in excessive costs for ratepayers and stifling the private market. It found deficiencies in the proposed cost-benefit analyses and suggested that “similar to the evaluation of energy-efficiency programs, an evaluation of the EV Proposal could also include deriving metrics like freeridership and net-to-gross.”²⁵¹ In later comments, the Office of People’s Counsel again stressed free riding concerns, stating that the utilities should use the metrics and data on free riding from their own energy efficiency programs, and finding that the rebates proposed for EV charger were at a much higher percentage than those used in the past for water heaters and other appliances. It warned that “[i]f rebates are set at a level that is higher than what is optimal, then less customers will be able to participate in the program and free rid-

²⁴⁸ *Id.* at 9.

²⁴⁹ *Id.* at 9.

²⁵⁰ *Id.* at 36-39.

²⁵¹ Comments of the Maryland Office of People’s Counsel, Case No. 9478 (Md. Pub. Serv. Comm’n, Mar. 27, 2018).

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ership will increase.”²⁵² Despite these criticisms, it expressed support that program modifications, along with a full evidentiary hearing, could “bring significant benefits to Maryland’s ratepayers.”²⁵³

Likewise, the Maryland Energy Administration requested a full evidentiary hearing due to the size and scope of the proposal, and found the proposal did not sufficiently make the case why the investment would lead to the increase in EVs needed to meet program goals and achieve system-wide benefits.²⁵⁴ While it supported the time of use rate programs and pilot programs to assess managed charging, it opposed any subsidies or other utility investments in EV charging in areas that were not publicly accessible, which would mean eliminating most of the residential and commercial rebates for EV chargers.²⁵⁵ It cited to regulatory decisions in California, Georgia, and Kentucky where utility investment in EV charging was limited to public locations, workplaces, and multifamily units.²⁵⁶ In later comments, the Administration again warned against allowing subsidies for private EV charging: “Meaningful portions of total program costs . . . represent large transfers to individual households, . . . This, in effect, means that lower-income households could be subsidizing upper-income households without receiving direct benefits, which presents a serious issue of equity for Maryland ratepayers.”²⁵⁷

Finally, the Commission Staff filed comments that included free rider concerns associating with EV charger rebates. It suggested limiting rebates to EV owners who purchased EVs after the start of the program, on the theory that utility customers with EVs before the start of the program would be more likely to purchase an EV charger even without the program subsidy.²⁵⁸ It also urged that the Commission reduce the subsidy amount in order to limit cross subsidization and to forbid utilities from owning public chargers, on the grounds that the private charging market could serve that role and also because of rate design challenges.²⁵⁹ Commission Staff also

²⁵² Comments of the Maryland Office of People’s Counsel, Case No. 9478, p. 6-7 (Md. Pub. Serv. Comm’n, Aug. 30, 2018).

²⁵³ *Id.* at 15.

²⁵⁴ Md. Energy Admin. Comments, Case No. 9478, p. 2-4 (Md. Pub. Serv. Comm’n, Mar. 29, 2018).

²⁵⁵ *Id.* at 5-11.

²⁵⁶ *Id.*

²⁵⁷ Md. Energy Admin. Comments, Case No. 9478, p. 4-5 (Md. Pub. Serv. Comm’n, Aug. 31, 2018).

²⁵⁸ Comments of the Staff of the Md. Pub. Serv. Comm’n, Case No. 9478 (Md. Pub. Serv. Comm’n, Mar. 27, 2018); Comments of the Staff of the Md. Pub. Serv. Comm’n, Case No. 9478 (Md. Pub. Serv. Comm’n, Aug. 31, 2018); Comments of the Staff of the Md. Pub. Serv. Comm’n, Case No. 9478 (Md. Pub. Serv. Comm’n, Sept. 28, 2018).

²⁵⁹ *Id.*

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urged the Commission to require the utilities to file yearly reports of costs and charger usage so it could monitor progress.

Maryland, by contrast, provides an example of state commission proceeding regarding utility investment EV charging where cost-effectiveness tests are used to refine a utility EV charging program, rather than oppose it completely. This is in large part because Maryland is a ZEV state, and has explicit legislative policies supporting transportation electrification and EV charging. Thus, it is far less difficult for opponents to argue that free riding and cross subsidy concerns should result in rejecting a utility program outright. Instead, those arguments are used to refine the program, more similar to how they are used in the energy efficiency context.

IV. MOVING BEYOND FREE RIDING AND CROSS SUBSIDY ARGUMENTS IN ENERGY POLICY: LESSONS FROM THE PRECAUTIONARY PRINCIPLE

This Part builds on the previous discussion and suggests approaches for regulators in evaluating free riding, cross subsidy, and fairness arguments in energy rate-making proceedings addressing “energy transition” issues such as promoting distributed solar or transportation electrification. In doing so, it proposes a long-term view of both costs and benefits for new programs that builds on precautionary principles. More specifically, in the context of distributed solar and EV charging policies, it suggests that regulators adopt principles developed in the energy efficiency context and modify them for current programs.

As discussed in Part III, regulators have decades of experience evaluating utility-funded energy efficiency programs, as well as the system-wide benefits of those programs on a long-term basis. The metrics are far from perfect, as evidenced by continuing debates over the role of energy efficiency programs in reducing energy use,²⁶⁰ but there is at least a general consensus that energy efficiency can have significant present and future benefits to all utility customers, even if the full extent of free riders, spillovers, and other factors remains in dispute. The same cannot be said for the long-term benefits of distributed solar and EV charging. From a regulatory perspective, these programs are in their infancy. As a result, state public utility commissions are reviewing dockets, sometimes with and sometimes without the benefit of specific legislative direction, and making decisions that will impact technological developments, utility experience, and utility customer choices.

In many ways, there are important parallels between these current regulatory challenges and the longstanding debates pitting cost-benefit analysis against the precautionary principle in developing environmental, health, and safety regulations. Cost-benefit analysis “is a well-established, if fallible, methodology for ensuring that

²⁶⁰ See *supra* notes ___ - ___ and accompanying text.

regulations enhance, rather than detract from, overall social welfare.”²⁶¹ It does so by attempting to prevent inefficient regulations by comparing the costs and benefits of a particular regulatory action.²⁶² Many scholars criticize cost benefit analysis because its evaluation of costs and benefits are inherently imprecise and subjective.²⁶³ This is particularly true because it is very difficult to place a monetary value on many of the benefits of environmental, health, and safety regulations, such as clean air, clean water, human life and health, scenic and aesthetic values, and plant and animal health.²⁶⁴

Environmental law scholars have long pointed to the “precautionary principle” as a potential alternative approach. The precautionary principle calls for a higher level of regulation—or precaution—when significant but uncertain risks, such as climate change or harm from toxic chemicals, exist.²⁶⁵ One articulation of the precautionary principle from the 1992 Rio Declaration on Environment and Development states that “[w]hen there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”²⁶⁶ Thus, the precautionary principle generally places the burden of proof on those who would limit regulation with the potential to enhance public welfare, particularly environmental health and safety benefits, in the face of uncertainty. By contrast, cost-benefit analysis places the burden of proof on proponents of regulation; if benefits of regulation or risks of harm in the absence of regulation are uncertain or difficult to value, regulation is likely to be deemed inefficient under a cost-benefit test.

²⁶¹ See Daniel H. Cole, *Reconciling Cost-Benefit Analysis with the Precautionary Principle*, THE REGULATORY REVIEW (Mar. 5, 2012).

²⁶² *Id.* See also David M. Driesen, *Cost-Benefit Analysis and the Precautionary Principle: Can They Be Reconciled?*, 2013 MICH. ST. L. REV. 771, 776-77 (2013); Daniel A. Farber, *Coping with Uncertainty: Cost-Benefit Analysis, the Precautionary Principle, and Climate Change*, 90 WASH. L. REV. 1659,

²⁶³ Cole, *supra* note __.

²⁶⁴ See, e.g., Center for Progressive Reform, *Cost-Benefit Analysis: Bad Numbers, Bad Decisions*, www.progressivereform.org/costBenefit.cfm (collecting scholarship critical of cost-benefit analysis); Daniel A. Farber, *Rethinking the Role of Cost-Benefit Analysis*, 76 U. CHI. L. REV. 1355 (2009) (discussing extensive literature on cost benefit analysis and precautionary principle).

²⁶⁵ See DOUGLAS A. KYSAR, *REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY* 19 (Yale U. Press 2010) (noting that “precautionary approaches can be defended as being particularly well suited to safeguarding life and the environment under conditions of uncertainty and ignorance, as opposed to the conditions of probabilistic sophistication that are presupposed by proponents of the economic approach.”).

²⁶⁶ Cole, *supra* note __ (citing and quoting 1992 Rio Declaration on Environment and Development). See also Farber, *supra* note __, at 1671-78 (discussing precautionary principle and scholarly criticisms of same).

The literature supporting and criticizing cost-benefit analysis and the ability to manipulate its inputs is extensive and beyond the scope of this Article. The same is true for scholarly and regulatory debate on the role of the precautionary principle, both as an alternative to cost-benefit analysis or as a principle to integrate into cost-benefit analysis.²⁶⁷ These debates, however, are similar to the concerns raised repeatedly in the regulatory proceedings over how to value the costs and benefits of distributed solar compensation and EV charging investments. In both instances, questions arise over how to weigh current and future costs to non-solar customers and non-EV drivers against system-wide benefits that may not accrue to all utility customers until far into the future, if at all.²⁶⁸ Should the precautionary principle be applied to these regulatory analyses to support higher compensation for distributed solar and rapid EV charging investment? Or should a narrower form of cost-benefit analysis be applied? Does the precautionary principle justify borrowing one of the broader cost-effectiveness tests from the energy efficiency context like the Societal Impact Test in evaluating these programs or should regulators use a more conservative test like the Ratepayer Impact Test?²⁶⁹ The remainder of this Part provides an evaluation of these issues.

A. Addressing Uncertainty in Evaluating Costs and Benefits of Distributed Solar

The regulatory proceedings in Arizona and Nevada illustrate state regulatory commissions struggling to deal with uncertainties over how to monetize, calculate, and weigh future costs and benefits associated with creating incentives for rooftop solar through net metering policies. Both commissions were faced with a similar problem, namely, the absence of reliable data regarding the costs and benefits of a utility subsidy program—net metering—that may provide more obvious benefits for one group of customers now, but may provide overall benefits to all customers both now and in the future, including reduced electricity bills and improved public welfare through reduced GHG emissions and other air pollutants. In both cases, the utility raised free riding, fairness, and cross subsidy arguments and, because of its role in managing the grid and customers, was at an information advantage as compared to solar proponents. One commission, Arizona, was receptive to the utility’s arguments regarding fairness while the other commission, Nevada, looked beyond those arguments to the bigger picture of the overall benefits that rooftop solar could provide to the entire utility system and the state.

²⁶⁷ See *supra* notes ___ - ___.

²⁶⁸ See, e.g., KYSAR, *supra* note ___, at 64 (“On the precautionary account, environmental, health, and safety regulation is not merely an opportunity to maximize an existing set of individual preferences or interests, but rather a moment to consider the regulating body’s obligations to its present and future members, to other political communities, and to species.”).

²⁶⁹ See *supra* notes ___ - ___ and accompanying text (explaining different cost-effectiveness tests).

In the Arizona proceeding, the Commission found a lack of measurable “objective” and “subjective” values distributed solar provided to the utility system.²⁷⁰ In the absence of hard data showing those values were equitably distributed across all customers, the Commission felt compelled to place at least some additional charges on solar customers.²⁷¹ Even though the fixed charges the Commission imposed were far less than those requested by the utility, the order assumes there is at least some cross subsidy that must be addressed to ensure just and reasonable rates.

By contrast, in Nevada, the Commission focused on whether there was an “unreasonable” cost shift between customer classes rather than any cost shift at all, based on the applicable statute.²⁷² In finding no unreasonable cost shift, the Commission recognized that the evidence was in conflict, that present and future costs and benefits could not be measured accurately, and stated its intent to “avoid jumping to a premature conclusion for the mere sake of having a resolution while the conversation and technology is evolving . . .”²⁷³ The Commission was concerned that a “wrong answer” was worse than an “uncertain” answer, particularly when the benefits associated with distributed solar were real but “hard to quantify.”²⁷⁴ This analysis has many hallmarks of the application of the precautionary principle, even if the Commission did not use that term. In the face of uncertainty, it chose a policy that would potentially provide environmental and system-wide economic benefits to all utility customers in the future as well as public benefits to the entire state, even if there may be some shifting of costs to certain utility customers in the short term.

Moreover, although neither commission expressly referred to the cost-effectiveness tests from the energy efficiency realm, the debate over whether to use a narrow test looking at current, distributional fairness or a broader test that considers future, societal impacts, could be seen just barely below the surface of the proceedings. Both commissions recognized they were working with incomplete information on costs, benefits, and distributional implications of the policies under consideration. The Arizona Commission appeared to apply a more traditional cost-benefit analysis that heavily weighed the inputs the utility provided while the Nevada Commission took a different approach that more resembled application of the precautionary prin-

²⁷⁰ See APS Order, *supra* note __, at ¶¶ 25-26.

²⁷¹ See *supra* note __, and accompanying text.

²⁷² Sierra Pacific Power Co., *supra* note __, at 36.

²⁷³ *Id.* at 33.

²⁷⁴ *Id.* at 34.

ciple. Both commissions recognized that their results were crude at best and would need to be modified in the future.²⁷⁵

Most experts in the field recognize that solar net metering is a fairly crude approach to compensating a growing energy resource across the country, particularly when the costs of net metering on a kWh basis far exceed those of utility-scale solar and other utility-scale renewable energy resources in wholesale markets.²⁷⁶ By the same token, paying distributed solar customers a rate that is based on wholesale prices for utility-scale wind and solar energy is also not appropriate, as such pricing fails to compensate distributed solar customers for the value of distributed energy, which, if widely adopted, may lead to new markets, technology and investment in micro-grids, battery storage, and the like.

In considering new approaches, however, public utility commissions should be cautious of free riding arguments articulated by utilities in a regulatory forum that cannot fully value the present and future costs and benefits of distributed solar energy on the electric grid.²⁷⁷ More states are beginning to enact legislation and regulations to replace net metering, similar to Minnesota, to avoid the net metering disputes on display in the Arizona and Nevada proceedings.²⁷⁸ Scholars have also suggested an “avoided cost plus social benefit” approach that resembles some of the broader energy efficiency tests discussed in Part III.A in that it expressly values social benefits of distributed solar.²⁷⁹

In the interim, there is value in recognizing that in most areas of the country, penetration levels of distributed solar energy are still extremely small. Regulators

²⁷⁵ See APS Order, *supra* note __, at ¶¶ 30-32 (stating the need to quantify both the costs and benefits of distributed solar and then “allocate[] these costs and benefits equitably among customers [as] a matter of rate design.”)

²⁷⁶ See *supra* note __ and accompanying text (discussing markets for wholesale electricity sales that value energy based on demand and resource).

²⁷⁷ See, e.g., Welton, *supra* note __, at 595 (“Frustratingly for regulators, empirical evidence does not provide conclusive answers to this debate. Most studies show that average retail rates—at which net-metered customers are credited—approximate the value of solar to the grid, with about half of the studies finding that solar is underpaid and the other half finding that solar is overpaid. These divergent results point to a deeper challenge in framing this equity debate as an empirical question.”).

²⁷⁸ See, e.g., Julia Pyper, *Maine Proposes to Replace Net Metering with a Market Alternative*, GTM, Feb. 26, 2016; New York State, *Value of Distributed Energy Resources*, <https://www.nyscrda.ny.gov/All-Programs/Programs/NY-Sun/Contractors/Value-of-Distributed-Energy-Resources> (discussing new regulations for valuing solar in New York State as a replacement to net metering); NYSDERA, *Summary of Value of Distributed Energy Resources*, Oct. 13, 2017 (explaining same).

²⁷⁹ See Revesz & Unel, *supra* note __, at 84-95, 99-101.

have time to develop metrics to evaluate the costs and benefits of distributed solar now and worry about the effects of larger penetration and ultimate rate design later, when more is known about the scale at which solar penetration will have a measurable positive or negative impact on rates, utility costs, and other factors. Using a precautionary approach will allow regulators to put the burden on utilities and others to show that rooftop solar is a problem for system maintenance or that cross subsidies are significant. To assume that is the case now in addressing concerns over net metering risks stifling expansion of an important energy resource with the potential for significant public benefits. This is particularly true because improved metrics will be developed within a regulatory system where cross subsidies have always existed and will continue to exist, often without objection by participants and regulators. To single out one type of cross subsidy without recognizing the context in which it exists is short sighted.²⁸⁰

B. Using Energy Efficiency Metrics to Develop Frameworks for Utility Investment in EV Charging

In the EV charging context, proponents are approaching state regulatory commissions with increasingly sophisticated analyses of future program benefits, and this time it is the opponents of such programs who are at a relative information disadvantage. This is because in the EV charging context, utilities are aligned, for the most part, with private charging companies and environmental nonprofit groups, reducing some of the information asymmetries on display in the rooftop solar context. Nevertheless, there is still an information deficit because there are many unknowns regarding the extent of climate change damage associated with continuing to drive conventional vehicles, the pace of EV adoption, and the impact of EVs, both positive and negative, on the electric grid. This information will not exist until electric utilities, drivers, car companies, and others can evaluate the impacts of broad-based transportation electrification.

Nevertheless, state regulatory commissions are responding to utility proposals for EV charging investments and participants in these proceedings are making much more explicit use of energy efficiency cost-effectiveness tests than they are in the distributed solar context. This is in part because the parallels between utility investment in energy efficiency programs and utility investment in EV charging are much more obvious, at least in the context of utility rebates for EV chargers, which are a component of many utility proposals. In the energy efficiency context, a major goal of regulatory design is to identify free riders—utility customers who would have pur-

²⁸⁰ See, e.g., Revesz & Unel, *supra* note __, at 102 (“Cost-recovery and cost-shifting problems are unintended consequences of the current, inefficient retail rate designs, and should not be blamed on net metering policies”); Rule *supra* note __ (discussing cost shifts inherent in the utility ratemaking process).

chased a new furnace, energy efficient lighting, new insulation, or the like even in the absence of the utility subsidy. The same should be true for EV chargers in that a utility program to incentivize the purchase of EV chargers is not cost-effective if significant ratepayer funds are being used to subsidize customer purchases of EV chargers that would have occurred even absent the subsidy program.²⁸¹

For instance in the Illinois Notice of Inquiry proceeding described above, the Commission specifically asked participants to discuss how EVs would contribute to energy efficiency in Illinois through fuel switching and how EV charging stations would affect utility energy efficiency programs.²⁸² Because the Illinois Commission was not considering a specific utility proposal, the participants did not evaluate any cost-effectiveness tests but instead provided general information on how EVs and EV charging would impact utility energy efficiency programs in the state.

In Missouri, by contrast, there was significant testimony regarding whether Ameren’s EV charging proposal would meet the RIM Test, with Ameren contending that it would meet the test as well as “provide significant environmental benefits.”²⁸³ In response, Commission Staff recommended rejection of the EV program because there was insufficient evidence that the program would spur sufficient EV adoption to result in utility revenues at a level that would exceed the costs of the grid expansion, subsidies, and program costs.²⁸⁴ Moreover, Commission Staff found Ameren did not provide sufficient evidence that the subsidy proposed for EV chargers would avoid significant free riding.²⁸⁵ Comments from the Office of Public Counsel were similar, arguing that Ameren had failed to show a need for the program at all and that it had failed to meet its burden of showing was cost-effective.²⁸⁶

Notably, in their comments, opponents of Ameren’s proposal use energy efficiency metrics to oppose the program in its entirety rather than to urge revisions to the program, as would be the case in the energy efficiency context. This is not surprising. Nothing in any of the Missouri filings cites to any legislation or regulation in

²⁸¹ Indeed, the National Efficiency Screening Project, a stakeholder organization with a mission to improve cost-effectiveness evaluation of energy efficiency resources, has stated that its metrics designed for energy efficiency programs “can be used to assess the cost-effectiveness of supply-side resources or distributed energy resources (DERs)—including EE, demand response, distributed generation, distributed storage, electric vehicles, and strategic electrification technologies. National Efficiency Screening Project, <https://nationalefficiencyscreening.org/>.

²⁸² See *supra* note ___ and accompanying text.

²⁸³ See *supra* note ___ and accompanying text.

²⁸⁴ See *supra* note ___ and accompanying text.

²⁸⁵ See *supra* note ___ and accompanying text.

²⁸⁶ See *supra* note ___ and accompanying text.

REGULATING THE ENERGY "FREE RIDERS"

the state that exists to promote EVs or EV charging, whereas utility-funded energy efficiency program are creatures of state statute. As a result, free riding arguments in non ZEV states can be used in a way that is similar how they have been used are used in the rooftop solar context, which is quite different from how they are used in the energy efficiency context, where they provide an evaluative purpose to refine and improve programs rather than eliminate them. This stands in contrast to Maryland, where free riding arguments were used to attempt to modify the program and to encourage the development of metrics to ensure cost-effectiveness.²⁸⁷

V. CONCLUSION

There is no doubt a role for free riding and cross subsidy concerns in both the distributed solar EV charging contexts. But it is also clear that opponents of regulatory programs to incentivize distributed solar and EV adoption have used and will continue to use free riding and cross subsidy arguments to block programs that may hurt them financially. Commissions should look beyond these arguments and consider free riding and cross subsidy concerns for purposes of requiring program advocates to develop appropriate metrics to optimize the programs at issue, rather than to impede them before they can provide system-wide benefits. In order to do so, state utility commissions can apply a precautionary approach with regard to evaluating present and future costs and benefits, and urge participants in regulatory proceedings to look to existing energy efficiency metrics as a starting point for analysis and modify these metrics to meet the needs of developing programs.

²⁸⁷ See *supra* notes ___ - ___ and accompanying text.

J.

From: Alexandra Klass <aklass@umn.edu>
To: Michael Noble <noble@fresh-energy.org>
Sent: February 6, 2019 9:53:30 PM CST
Received: February 6, 2019 9:53:32 PM CST

Hi Michael, I just heard from Elizabeth Wilson about [REDACTED]
[REDACTED]

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
aklass@umn.edu
612-625-0155
Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

Re: J.

From: Michael Noble <Noble@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu>
Sent: February 6, 2019 10:24:21 PM CST
Received: February 6, 2019 10:24:25 PM CST

Hi Alex,

All day, so many warm and loving emails and text messages!

We now have put up a [REDACTED]

Michael Noble

Michael Noble

Executive Director

Fresh Energy

Direct: 651 726-7563

Mobile: 612 963-1268

Web: [Www.fresh-energy.org](http://www.fresh-energy.org)

Twitter: @NobleIdeas

From: Alexandra Klass <aklass@umn.edu>

Sent: Wednesday, February 6, 2019 9:53 PM

To: Michael Noble

Subject: J.

Hi Michael, I just heard from Elizabeth Wilson about [REDACTED]

Alex

Alexandra B. Klass

Distinguished McKnight University Professor

University of Minnesota Law School

aklass@umn.edu

612-625-0155

Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

What questions can I answer?

From: Michael Noble <info@fresh-energy.org>
To: Alexandra <aklass@umn.edu>
Sent: February 11, 2019 1:23:36 PM CST
Received: February 11, 2019 1:23:38 PM CST



Dear Alexandra,

As part of our circle of closest donors, you play an essential role in helping Fresh Energy shape and drive the transition to clean energy in Minnesota. Early last week, we delivered [your latest copy of Fresh Insight](#) featuring our insider perspective on the changes we'll be pushing for in our state—and what we believe is possible.

The 2018 election changed the landscape for progress here in Minnesota and there are many reasons for optimism. As many of you may have heard, this is also a time for challenge at Fresh Energy. Last week our long-term science policy director, J. Drake Hamilton, [sustained a severe head injury](#). J. is in recovery and receiving top-notch medical care by a team of professionals. Many of you have reached out to talk about this situation. We appreciate your thoughts and concern and know that the hundreds of messages J. has received from her supporters, colleagues, and fans will do much to buoy her spirit throughout this recovery process. Please do visit [J.s CaringBridge site](#) for updates on her current health status.

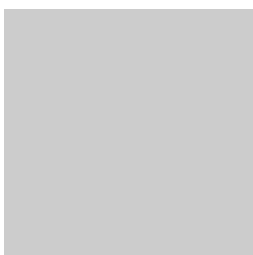
Fresh Energy's work continues onward during this difficult period. We're heartened by the wonderful work happening at the Capitol: just last week, a 100 percent clean energy bill was introduced by Representative Jaime Long and Senator Nick Frenzt. I testified at the hearing and urged the House Energy Committee members to act on climate change while the window of opportunity is still open.

We know you value an inside look and may have some questions. Fresh Energy's director of government affairs, Justin Fay and I will be **recording a podcast** to share exclusively with Power Circle members, featuring our personal take on the work that's happening at the Capitol.

**Send us your questions—
and we will address them in the podcast!**

Kindly click “reply “to this email to directly send me your questions, suggestions, or areas of interest by **February 18**. We'll be sure to cover them.

In times of both optimism and difficulty, community makes all the difference. I warmly look forward to hearing from you.



Michael Noble
Executive Director



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Your Power Circle podcast is live

From: Michael Noble <info@fresh-energy.org>
To: Alexandra <aklass@umn.edu>
Sent: February 20, 2019 10:59:41 AM CST
Received: February 20, 2019 10:59:43 AM CST



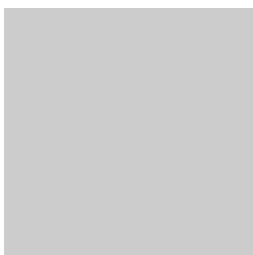
Dear Alexandra,

I'm pleased to share that our first ever [Power Circle podcast](#) is now ready. Fresh Energy's government affairs director, Justin Fay and I had an insightful discussion about top priorities this legislative session. Stream now to hear us tackle your questions on the Green New Deal, electric vehicle infrastructure, tar sands oil, and much more.

[Access the podcast–](#)
password: [REDACTED]

[REDACTED] you play a critical role in helping Fresh Energy shape and drive the transition to clean energy in Minnesota. Thank you for your ongoing and generous commitment to this work. Don't hesitate to email me should you have any follow-up questions. I'd love to hear from you.

My very best,



Michael Noble
Executive Director
noble@fresh-energy.org



Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

From: Alexandra Klass <aklass@umn.edu>
To: Michael Noble <noble@fresh-energy.org>, [REDACTED]
Cc: Alexandra Klass <aklass@umn.edu>
Sent: February 22, 2019 7:11:28 PM CST
Received: February 22, 2019 7:11:32 PM CST

<https://www.vox.com/energy-and-environment/2019/2/22/17140166/climate-change-lawsuit-exxon-juliana-liability-kids>

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
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612-625-0155
Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

Re: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

From: Michael Noble <Noble@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu> [REDACTED]
Cc: Alexandra Klass <aklass@umn.edu>
Sent: February 22, 2019 9:25:03 PM CST
Received: February 22, 2019 9:25:07 PM CST

Saw that! Great piece.

Michael Noble
Executive Director
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Twitter: @NobleIdeas

From: Alexandra Klass <aklass@umn.edu>

Sent: Friday, February 22, 2019 7:11 PM

To: [REDACTED]

Cc: Alexandra Klass

Subject: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

<https://www.vox.com/energy-and-environment/2019/2/22/17140166/climate-change-lawsuit-exxon-juliana-liability-kids>

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Re: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

From: Michael Noble <Noble@fresh-energy.org>

To: Alexandra Klass <aklass@umn.edu>, [REDACTED]

Cc: Alexandra Klass <aklass@umn.edu>

Sent: February 25, 2019 1:54:16 PM CST

Received: February 25, 2019 1:54:20 PM CST

Hi Alex and Alex students,

How are we doing on including/incorporating suggestions from our legal friends in NY?

Is March 1 when Alex is [REDACTED]

Michael Noble

Executive Director

Fresh Energy

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Mobile: 612 963-1268

Web: [Www.fresh-energy.org](http://www.fresh-energy.org)

Twitter: @NobleIdeas

From: Michael Noble <noble@fresh-energy.org>

Sent: Friday, February 22, 2019 9:25 PM

To: Alexandra Klass; [REDACTED]

Cc: Alexandra Klass

Subject: Re: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

Saw that! Great piece.

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Executive Director

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From: Alexandra Klass <aklass@umn.edu>

Sent: Friday, February 22, 2019 7:11 PM

To: Michael Noble; [REDACTED]

Cc: Alexandra Klass

Subject: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

<https://www.vox.com/energy-and-environment/2019/2/22/17140166/climate-change-lawsuit-exxon-juliana-liability-kids>

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Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

Re: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

From: [REDACTED]@umn.edu>
To: Michael Noble <Noble@fresh-energy.org>
Cc: Alexandra Klass <aklass@umn.edu> [REDACTED]
Sent: February 25, 2019 3:43:16 PM CST
Received: February 25, 2019 3:44:58 PM CST

Mr. Noble,

The other students and I have not yet received the revisions to the memo. But, we are ready to address the comments as soon as we receive them. We will follow up with Alyssa, unless you have information on the revisions that we don't have.

I think professor Klass [REDACTED] on March 5th or 6th.

Best,
[REDACTED]

On Mon, Feb 25, 2019 at 1:54 PM Michael Noble <Noble@fresh-energy.org> wrote:

Hi Alex and Alex students,
How are we doing on including/incorporating suggestions from our legal friends in NY?
Is March 1 when Alex [REDACTED]
Michael Noble
Executive Director
Fresh Energy
Direct: 651 726-7563
Mobile: 612 963-1268
Web: www.fresh-energy.org
Twitter: @NobleIdeas

From: Michael Noble <noble@fresh-energy.org>
Sent: Friday, February 22, 2019 9:25 PM
To: Alexandra Klass [REDACTED]
Cc: Alexandra Klass
Subject: Re: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

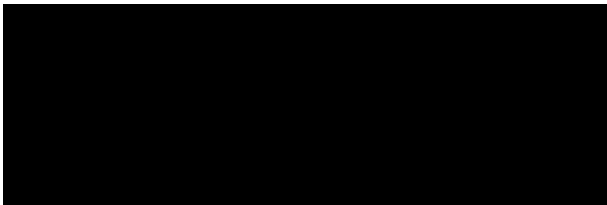
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From: Alexandra Klass <aklass@umn.edu>
Sent: Friday, February 22, 2019 7:11 PM
To: [REDACTED]
Cc: Alexandra Klass
Subject: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

<https://www.vox.com/energy-and-environment/2019/2/22/17140166/climate-change-lawsuit-exxon-juliana-liability-kids>

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Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

--



Re: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

From: Michael Noble <Noble@fresh-energy.org>

To: [REDACTED]@umn.edu

Cc: Alexandra Klass <aklass@umn.edu> [REDACTED]

Sent: February 25, 2019 3:46:45 PM CST

Received: February 25, 2019 3:46:48 PM CST

Ok I'm not impatient, I'm just trying to figure out when it all comes together.

Michael Noble

Executive Director

Fresh Energy

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Web: www.fresh-energy.org

Twitter: @NobleIdeas

From: [REDACTED]

Sent: Monday, February 25, 2019 3:45 PM

To: Michael Noble

Cc: Alexandra Klass; [REDACTED]

Subject: Re: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

Mr. Noble,

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Best,

[REDACTED]

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From: Michael Noble <noble@fresh-energy.org>

Sent: Friday, February 22, 2019 9:25 PM

To: Alexandra Klass; [REDACTED]

Cc: Alexandra Klass

Subject: Re: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

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Sent: Friday, February 22, 2019 7:11 PM

To: Michael Noble; [REDACTED]

Cc: Alexandra Klass

Subject: Climate change lawsuits: why kids, cities, farmers, and fishermen are suing - Vox

<https://www.vox.com/energy-and-environment/2019/2/22/17140166/climate-change-lawsuit-exxon-juliana-liability-kids>

Alexandra B. Klass

Distinguished McKnight University Professor

University of Minnesota Law School

aklass@umn.edu

612-625-0155

Bio: <https://www.law.umn.edu/facultyprofiles/klassa.html>

--

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Re: shorter memo

From: [REDACTED]
To: Alyssa Johl <alyssa@climateintegrity.org>
Cc: Alexandra Klass <aklass@umn.edu>, Judith Enck <judith@climateintegrity.org>, [REDACTED] Michael Noble <Noble@fresh-energy.org>
Sent: February 26, 2019 12:46:41 PM CST
Received: February 26, 2019 12:46:54 PM CST
Hi Alyssa,

I am emailing to follow up on the climate change memo. Professor Klass will be [REDACTED] and we look forward to addressing your comments. Thank you for agreeing to help us.

Best regards,

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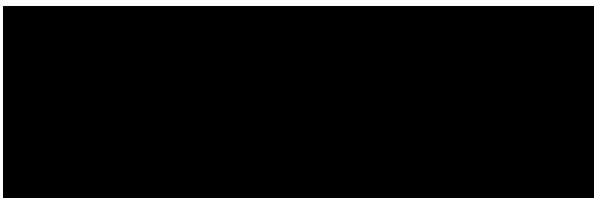
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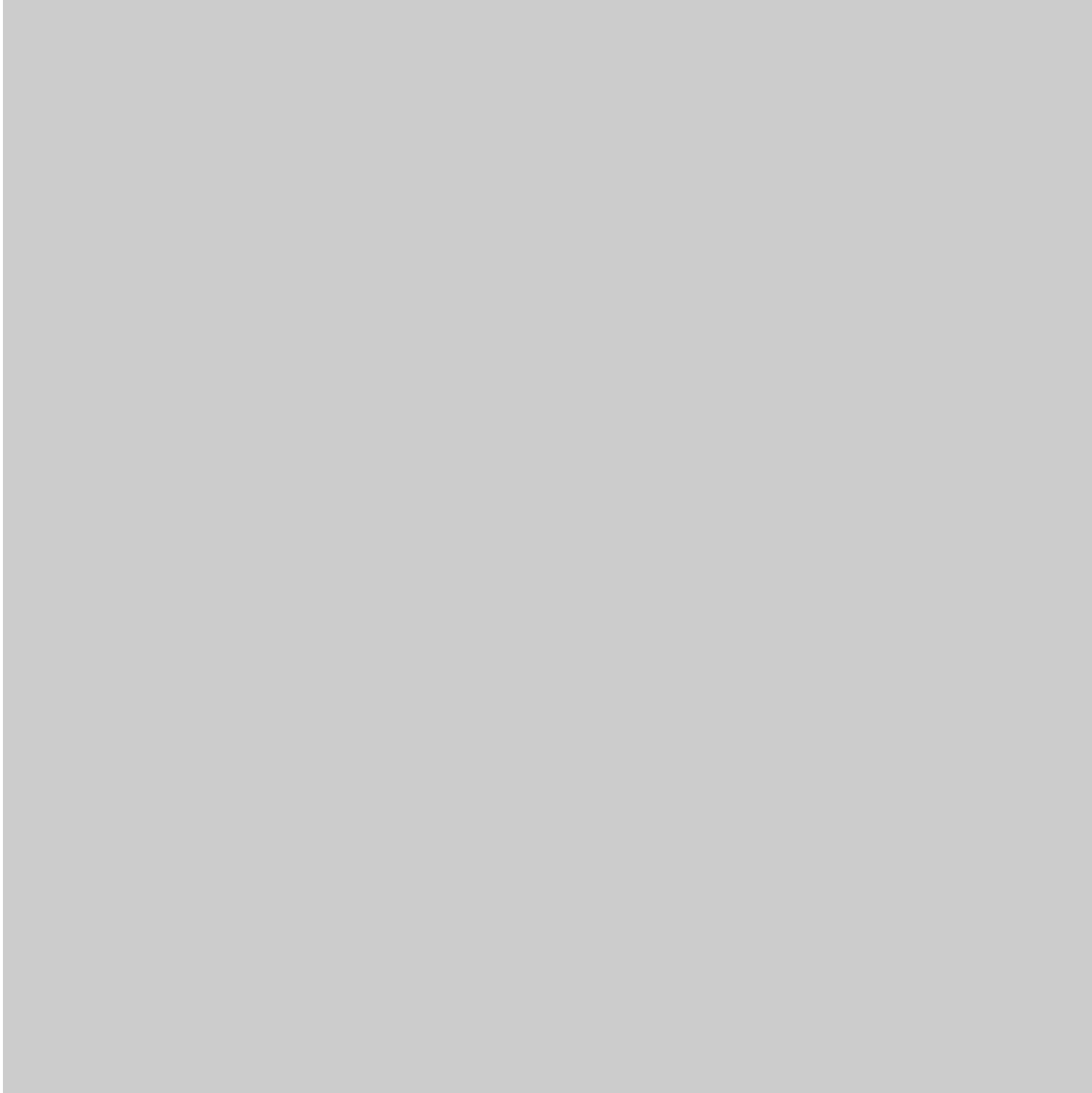
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Yes, you can drive electric in the winter ❄️

From: Michael Noble <info@fresh-energy.org>
To: Alexandra <aklass@umn.edu>
Sent: February 26, 2019 1:04:55 PM CST
Received: February 26, 2019 1:04:59 PM CST

[View this email in your browser](#)

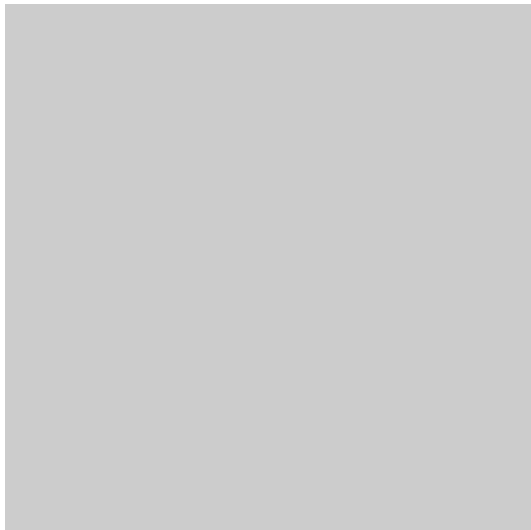




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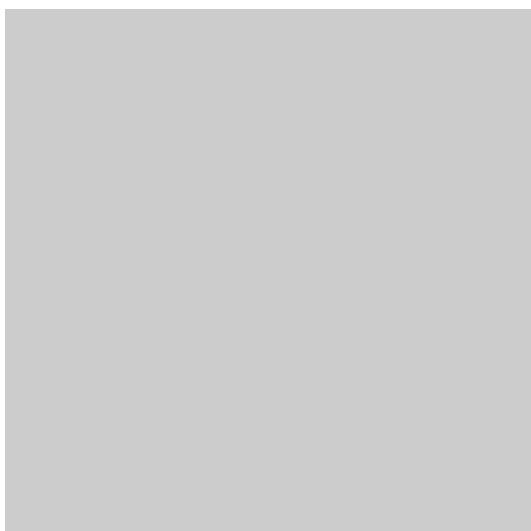
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Grounding our mission in equity...

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Re: shorter memo

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To: [REDACTED]
Cc: Alexandra Klass <aklass@umn.edu>, Judith Enck <judith@climateintegrity.org>, Allie Jo Mitchell [REDACTED] Michael Noble <Noble@fresh-energy.org>
Sent: February 27, 2019 1:29:55 PM CST
Received: February 27, 2019 1:30:09 PM CST
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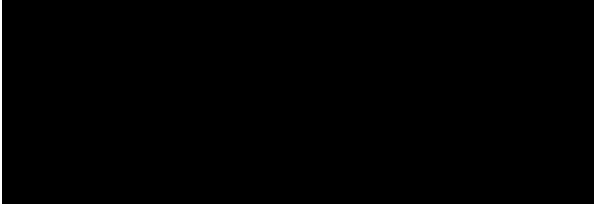
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J. makes promising progress

From: Michael Noble <info@fresh-energy.org>
To: Alexandra <aklass@umn.edu>
Sent: February 28, 2019 11:04:52 AM CST
Received: February 28, 2019 11:04:54 AM CST

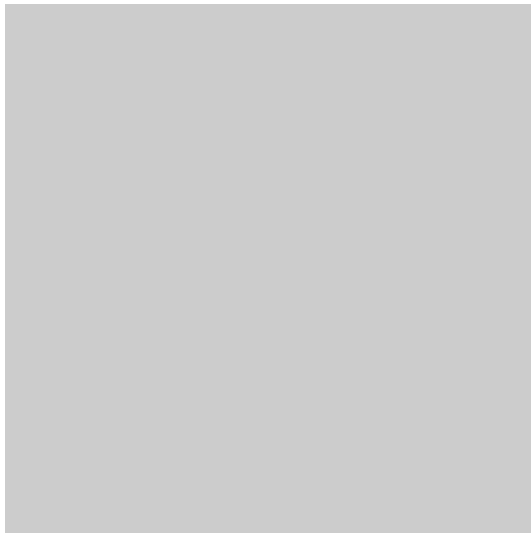




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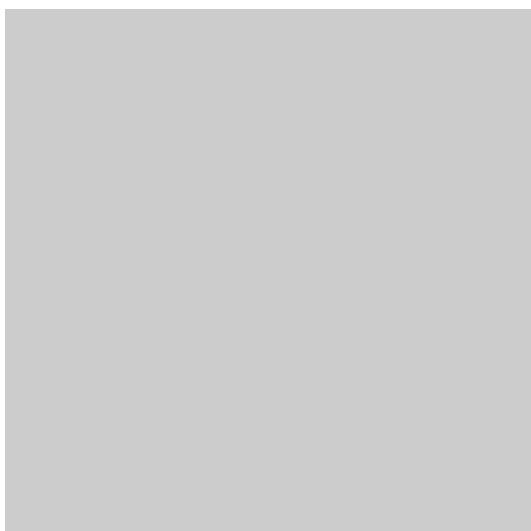
Promising progress for J.

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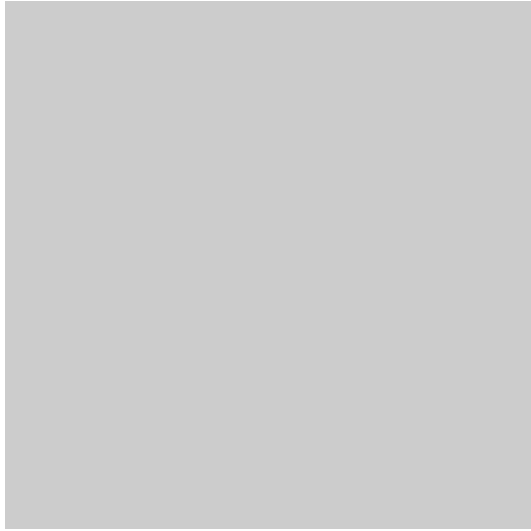
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To continue our work, we rely on the generosity of people like you who care about America's energy future. We are thankful for our recent members and corporate supporters in January. [Click here to see the full list.](#)



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Saint Paul, MN 55102

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Cc: Alexandra Klass <aklass@umn.edu>, Judith Enck <judith@climateintegrity.org>, [REDACTED]
[REDACTED] Michael Noble <Noble@fresh-energy.org>
Sent: March 4, 2019 10:02:09 AM CST
Received: March 4, 2019 10:02:29 AM CST
Attachments: ERI briefing note (Jan 2019).pdf, Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (AJ edits).docx

Dear Alex and all,

I hope this message finds you well. Attached is the shorter of the memos you sent through with comments. I made some proposed editorial changes to the first few paragraphs (using track changes), but otherwise used comments to flag where further analysis/clarification might be useful. I would be happy to jump on a call to discuss and/or review the next draft once you and your team have had a chance to work through it.

Also, I suggested that you spend a bit more time analyzing the Alsup and Keenan decisions in the SF/Oakland and NYC cases respectively. Attached is a briefing note that describes the key arguments and lines of reasoning in those decisions.

Please do not hesitate to reach out with any questions.

Many thanks,
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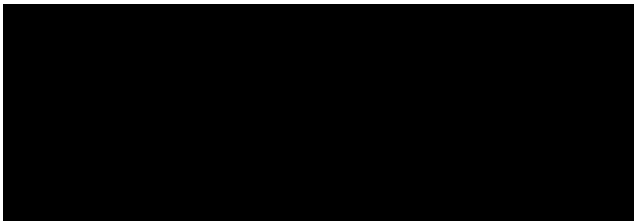
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1. ERI briefing note (Jan 2019).pdf

Type: application/pdf
Size: 219 KB (224,410 bytes)

2. Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (AJ edits).docx

Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size: 125 KB (128,088 bytes)



Briefing Note

The Climate Change “Cost Recovery” Lawsuits

January 2019 Update

Starting in 2017, governments and private citizens around the United States have filed lawsuits asking fossil fuel companies to pay for their share of the costs of adapting to climate change. EarthRights International, along with co-counsel, is representing the City of Boulder, Boulder County and San Miguel County, Colorado, in one of these lawsuits.

The lawsuits allege that the defendants knowingly contributed to the climate crisis by producing, promoting, refining, marketing, and selling fossil fuels, while concealing the dangers. They assert claims, including public nuisance, under state law. All but one was filed in state court, and the companies removed each of them to federal court.

In one set of three cases, the plaintiffs won a remand to California state court for further proceedings; the defendants have appealed that decision to the Ninth Circuit. Two other sets of cases were dismissed by federal judges, and the plaintiffs have appealed those decisions to the Second Circuit and the Ninth Circuit. The remainder are still pending in various district courts.

This briefer will discuss the three sets of cases that are on appeal, with a focus on some of the key errors underlying motion to dismiss rulings.

Background on the cases

San Mateo County, Marin County and the City of Imperial Beach: These California communities were the first to bring climate nuisance cases. They filed separately in state court, suing more than twenty fossil fuel companies for claims including nuisance and products liability. The companies removed the case to federal court, but Judge Vincent Chhabria in the Northern District of California sent the case back to state court. The defendants have appealed the remand decision.

San Francisco and Oakland: These cities also filed separate suits in California state court, pleading a single claim of public nuisance against five companies—Exxon, Chevron, BP, Shell, and ConocoPhillips. The defendants then removed the cases, also to the Northern District of California. Unlike Judge Chhabria, Judge William Alsup concluded—we believe in error—that federal jurisdiction existed because the cities’ claims were necessarily governed by federal common law (and not California

The climate nuisance lawsuits	
San Mateo County, CA Marin County, CA Imperial Beach, CA	Filed July 2017, on appeal from decision remanding to state court
San Francisco, CA Oakland, CA	Filed Sept. 2017, on appeal from dismissal decision
City of Santa Cruz, CA Santa Cruz County, CA	Filed Dec. 2017, <i>ongoing</i>
New York City	Filed Jan. 2018, on appeal from dismissal decision
Richmond, CA	Filed Jan. 2018, <i>ongoing</i>
Boulder County, San Miguel County, & City of Boulder, CO	Filed Apr. 2018, <i>ongoing</i>
King County, WA	Filed May 2018, <i>ongoing</i>
State of Rhode Island	Filed July 2018, <i>ongoing</i>
Baltimore, MD	Filed July 2018, <i>ongoing</i>
Pacific Coast Federation of Fishermen’s Associations, CA	Filed Nov. 2018, <i>ongoing</i>

law). Notably, Judge Alsup initially appeared to reject the defendants' argument that the Clean Air Act displaced federal common law. Judge Alsup later dismissed the case, and the plaintiffs appealed to the Ninth Circuit.

New York City: New York sued the same defendants as San Francisco and Oakland, filing in federal court but invoking only claims under New York law—trespass, private nuisance and public nuisance—without relying on federal law. Proceeding directly to the motion to dismiss stage without needing to rule on contested issues of federal jurisdiction, Judge John Keenan dismissed the claims, and New York appealed to the Second Circuit.

The remand rulings

Judge Chhabria and Judge Alsup, although part of the same federal court, came to very different rulings on federal jurisdiction. Judge Alsup accepted the companies' argument that climate change cases **necessarily** arise under federal common law, even if the plaintiffs plead only state law claims. His decision does not rely on any established removal doctrine. His ruling was also based partly on the misconception that the plaintiffs were seeking to regulate emissions; he found that interstate emissions can only be addressed under federal law. Judge Alsup did not address any of the defendants' other arguments for federal jurisdiction.

Judge Chhabria, however, considered and rejected **each** of the defendants' arguments. He held that the companies could not argue that federal common law provides a basis for jurisdiction, if it did not also provide a cause of action. If federal common law on climate change were displaced by the Clean Air Act (as the defendants argued), it could not provide a basis for federal jurisdiction.

The motion to dismiss rulings

The judges in the San Francisco/Oakland and New York City cases used similar reasoning to dismiss the claims. As discussed below, we believe their reasoning was incorrect:

San Francisco and Oakland Case: Judge Alsup's opinion¹ can be divided in two. The first part addressed liability for domestic greenhouse gas (GHG) emissions. The second part addressed liability for non-U.S. emissions. Both relied on the faulty premise that liability for damages would regulate the use of fossil fuels, i.e., combustion and the resulting emissions.

- Domestic GHG emissions: Judge Alsup ruled that the Clean Air Act displaces federal common law nuisance claims related to domestic GHG emissions, citing the Supreme Court case *AEP v. Connecticut* (2011) and the Ninth Circuit case *Native Village of Kivalina v. ExxonMobil Corp* (2012).
- Foreign GHG emissions: Judge Alsup ruled that while the Clean Air Act does not displace claims that arise from non-U.S. emissions, he would not recognize a federal common law claim out of deference to the political branches (Congress and the Executive Branch).

New York City: Judge Keenan's decision² was nearly identical. First, he held that state law cannot apply. Then he held, as did Judge Alsup, that federal common law liability for domestic emissions was displaced by the Clean Air Act, and that liability for non-U.S. emissions should not exist in deference to the political branches.

¹ Available at <https://www.nytimes.com/interactive/2018/06/26/climate/document-Judge-Dismisses-Climate-Suit-Against-Oil-Companies.html>.

² Available at <https://www.nytimes.com/2018/07/19/climate/climate-lawsuit-new-york.html>.

What do these decisions mean?

These decisions do not bind other courts. Other federal and state court judges are not bound by the Alsup or Keenan opinions. These rulings, moreover, are being appealed. At the moment, it is difficult to assess how persuasive these opinions will be to other judges hearing similar cases.

These courts did not rule that the companies had not committed torts. Neither judge held that the defendants' conduct was innocent, or that they had not substantially caused the plaintiffs' injuries.

These decisions recognize the reality of fossil-fuel caused climate change. Judge Alsup found that "climate scientists are in vast consensus that the combustion of fossil fuels has, in and of itself, materially increased carbon dioxide levels, which in turn has materially increased the median temperature of the planet, which in turn has accelerated ice melt and raised (and continues to raise) the sea level." Similarly, Judge Keenan wrote, "Climate change is a fact of life, as is not contested by Defendants," and he accepted the link between fossil fuel use and global warming.

Flaws in the decisions

There are several critical flaws in the decisions, which will likely be raised on appeal and in the other climate cases currently being litigated.

It is worth noting that in two earlier climate change cases—*Connecticut v. AEP* and *Comer v. Murphy*—the district courts initially dismissed the claims largely due to concerns about interfering with the political branches, only to be reversed by their respective Courts of Appeal.

There are at least five important, related but distinct flaws in these decisions.

These are not interstate pollution cases. Both judges seemed to believe that their rulings would affect or turn on consumers' *use*—combustion—of fossil fuels. This misunderstanding underpins all three of the arguments, i.e., that federal law applies, that the Clean Air Act displaces federal common law, and that these cases will interfere with foreign relations.

While the use of fossil fuels by consumers is a necessary step in connecting the companies' activities to climate impacts, it is not the crux of liability nor would it be affected by the relief requested. The companies' wrongful conduct is creating, feeding and promoting the *collective* over-use of fossil fuels, especially through deceit and concealment of the dangers associated with their use. A decision for the plaintiffs would not imply that every truck driver is unreasonable in using fossil fuels. Put another way, just as the states who sued the tobacco industry were not trying to regulate smokers, the plaintiffs in the climate cases are not trying to regulate emitters.

It is appropriate to look to state law. Both judges misunderstood *why* federal law applies to certain types of interstate pollution cases, and therefore erred in concluding that it applied in these cases.

For years, the Supreme Court has recognized that allowing one state's law to regulate a polluting activity in another state would be problematic, primarily because it might subject the polluter to numerous different and conflicting regulatory regimes for a single act. If Kansas law can shut down a Nebraska power plant, Kansas has extraterritorial and effective veto power over activity in Nebraska. Thus, a uniform body of federal law was needed to govern those types of disputes.

If these cases sought to regulate emissions, like *AEP v. Connecticut*, it might make sense for federal law to control. But these cases are only about paying for damages. If the companies are liable under

California law to pay for climate damages in California, this does not conflict with other states' or countries' actions—Kansas, Nebraska, Ireland and the Ukraine are all free to make their own choices about whether to allow liability for climate injuries. There is no reason to be concerned that one state is being allowed to exclusively regulate conduct in any other place.

The Clean Air Act does not address the conduct at issue in these cases. Because both judges found that federal law governed, neither addressed whether the Clean Air Act preempts the state common law claims. (There are very good reasons why it does not.) But these judges found that the Clean Air Act prohibits federal common law claims for climate change damages.

The judges misapplied the Supreme Court's ruling in *AEP v. Connecticut*. The Supreme Court ruled that because EPA has authority to regulate GHGs, the Clean Air Act displaced federal common law nuisance claims seeking to curb emissions from power plants. But the Clean Air Act does not give EPA authority to limit the volume of fossil fuels that oil companies can produce or sell. The Clean Air Act certainly does not regulate how these companies market fossil fuels or communicate publicly about the dangers of climate change. The statute therefore does not speak to the conduct at issue in these cases, under federal or state law, or displace federal common law claims.

Liability for fossil fuel companies will not interfere with foreign relations or domestic policy and does not involve policy-making. Both judges concluded that these cases would interfere with domestic and foreign policy or require them to engage in policy-making that is better left for the political branches. This was because they mistakenly thought that these cases require them to determine the reasonable level of greenhouse gas emissions (in the U.S. and worldwide) and somehow prescribe limits. But these cases ask no such thing. Critically, all parties and the court recognized that the concentration of GHGs is already too high and poses a threat to people and property. The only question is whether it was or is unreasonable for fossil fuel companies to contribute to that problem without paying for the resulting damages. This is a question well within the bounds of tort law.

Judge Alsup erred in suggesting that forcing fossil fuel companies to pay for their proportional share of the damage caused by fossil fuels would make fossil fuel use “not feasible.” Judge Alsup committed one more error. Avoiding the traditional obligations of courts and the role of tort law, he concluded that “judgments in favor of the plaintiffs . . . would make the continuation of defendants’ fossil fuel production ‘not feasible.’” There is no articulated or plausible basis for this conclusion. And, if somehow paying for the costs of their products would shut the companies down, that would mean that the costs of fossil fuels outweigh the benefits.

Conclusion

Ultimately, the opinions of Judge Alsup and Judge Keenan suggest a reluctance to apply ordinary legal rules to climate change cases. These two judges bought into the defendants’ arguments, but this does not necessarily mean that other judges will follow. Appellate decisions will provide more insight into important questions, such as whether a case seeking monetary recovery for climate damages based on selling and deceptively promoting fossil fuels is about, or interferes with, emission regulations; and whether, if the case is about emissions, it actually interferes with federal or foreign policy. We believe the answer to both questions is no.

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MEMORANDUM

TO: Keith Ellison
Minnesota Attorney General

FROM: Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School

██████████ Minnesota Law Class of 2020
██████████ Minnesota Law Class of 2020
██████████ Minnesota Law Class of 2020
██████████ Minnesota Law Class of 2019

DATE: January 31, 2019

RE: Potential Lawsuit against Fossil Fuel Companies for Minnesota Climate Change Damages

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INTRODUCTION

[add 1-2 sentences describing the situation in Minnesota as a means to give sense of scale of the damages – i.e. what are the current and projected impacts and costs associated with adapting to/preventing the most adverse impacts?] ~~This~~ As a means to recover the costs that have been and will be incurred by the state, this memorandum ~~sets forth possible claims for damages by the~~ describes potential causes of action that the State of Minnesota could bring against ~~major oil, gas, and coal companies~~ the largest, investor-owned fossil fuel companies to establish liability for their contributions to climate-~~change~~-related ~~damages~~ harms in Minnesota. Such a lawsuit would ~~be likely to be filed~~ be brought in Minnesota District Court, ~~and would be similar to pending~~ modeled after complaints filed ~~lawsuits that~~ by several municipalities, one states, ~~counties, and cities~~ and one industry trade association in other parts country ~~have filed~~ against the fossil fuel companies for damages. ~~The remaining sections of this Memorandum discuss the status of the climate change damages lawsuits filed to date in other states and the potential claims that could be brought in a Minnesota lawsuit. These include statutory consumer protection and~~

~~antitrust claims, strict liability design defect and strict liability failure to warn claims, and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.~~

Part I ~~of this memorandum provides an overview of surveys the~~ climate change damages lawsuits brought in other states ~~in other states as well as and~~ the Attorneys General who have supported or opposed them. Part II ~~evaluates potential claims that could be brought to hold polluters accountable under Minnesota state law, specifically evaluates Minnesota law governing consumer protection claims, product liability claims (design defect and failure to warn), and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities. consumer protection claims; product liability claims of defective design and failure to warn; and common law tort claims of public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.~~

As in other damages cases, ~~t~~The defendants in the lawsuit ~~could~~ likely include the largest, investor-owned fossil fuel companies, such as BP, Chevron, ConocoPhillips, Exxon Mobil, and Shell, and other oil, gas, and coal companies. These ~~Despite their long-standing knowledge of the risks associated with their products, these~~ companies extracted, produced, ~~designed~~promoted, and sold fossil fuel products that ~~released-emitted~~ massive ~~tons-amounts~~ of CO₂ into the atmosphere ~~upon their use. For example~~Based on peer-reviewed research referred to as the “Carbon Majors” report, 90 fossil fuel producers of oil, natural gas, coal, and cement and cement manufacturers are known to be responsible for 63% of ~~eumulative industrial~~cumulative CO₂ and methane emissions ~~worldwide from 1751-2010~~since the beginning of the industrial revolution. ~~Richard~~ Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (NOV. 22, 2013).

Commented [AJ1]: You may want to refer to these as “damages” or “torts” cases, in order to distinguish them with the many other climate lawsuits (e.g. constitutional, administrative) out there.

~~Just~~ 28 companies are responsible for 25% of ~~all~~ emissions since 1965. *Id.*⁴ In each of the damages lawsuits, plaintiffs have sued some set of defendants identified in the Carbon Majors report—for example, in the Santa Clara County lawsuit, described in in Part I.A., plaintiffs sued approximately 40 fossil fuel companies, which the plaintiffs allege are responsible for 20.3% of total CO₂ emissions between 1965 and 2015. As CO₂ is a relatively stable compound, most of these molecules will remain in the atmosphere for centuries. The increase in CO₂ emissions resulting from fossil fuel use has contributed to and accelerated the greenhouse effect, causing climate change damages ranging from drought, flooding, change in weather patterns, loss of species biodiversity, sea level rise, and increases in invasive species, with average annual temperatures over the contiguous United States already increasing by 1.8°F since 1895.

Commented [AJ2]: Should this be Santa Cruz or possibly San Mateo? Santa Clara County hasn't filed

Commented [AJ3]: What is the actual number of FF companies?

Commented [AJ4]: I propose deleting

The nature of the ~~damages—harms for which~~ Minnesota could seek to recover ~~in a lawsuit~~ damages are set forth in detail in the accompanying Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy. These ~~damages are costs~~ costs of addressing these ~~harms are ones that~~ the state has already incurred or will incur as a result of climate change ~~caused by fossil fuel companies~~ and include:

- Costs associated with flooding, including costs of damage to state property and costs to mitigate and remediate the flooding related impacts to property and public health;
- Costs associated with damages to tourism and outdoor recreation, including mitigating climate-related stress to plant and animal species and ecological systems in the state;
- Costs associated with damages to agricultural yields, management and mitigation of crop diseases and crop pests, and costs of adopting to less fertile soils;

⁴~~In the Santa Clara County lawsuit, described in more detail in Part I.A., the plaintiffs sued approximately 40 fossil fuel companies, which the plaintiffs alleged were responsible for 227.6 gigatons of CO₂ emissions between 1965 and 2015, representing 20.3% of total emissions of CO₂ during that period.~~

- Costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure, increased asthma attacks, and exposure to vector-borne disease as well as mitigation measures and public education programs to reduce the occurrence of these impacts;
- Costs associated with responding to, managing, and repairing damages from climate change to Minnesota forest lands, including impacts on state-run hunting and fishing industries;
- Costs of analyzing and evaluating the impacts of climate change on infrastructure, including transportation, water supply, wastewater treatment, and the power system and the costs of mitigating, adapting to, and remediating those impacts;
- Costs of responding to, managing, and repairing damage to Minnesota fisheries from climate change, including extinction of cool and cold-water fish species and the impacts of the spread of aquatic invasive species; and
- Costs associated with the threats to indigenous communities from disruptions to their livelihoods, health, and cultural identities.

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides ~~an a-brief-history-and-current-statusoverview~~ of the recent climate ~~change-damages~~ lawsuits brought by ~~states-and-local-governments~~ several municipalities, one state, ~~and one trade association~~ against fossil fuel companies seeking damages for climate-~~change~~-related harms. ~~Other related lawsuits-actions include: lawsuit brought by the New York Attorney General against Exxon-Mobil for investor fraud-; investigation by the Massachusetts Attorney General as to whether ExxonMobil misled consumers and investors; brought by the Attorneys General of New York and Massachusetts, countersuits by Exxon Mobil against those states filed in Texas courts, and other climate lawsuits (such as Juliana v. U.S., in which 21 youth have brought constitutional and public trust claims against the U.S. federal government in order to establish a national climate recovery plan)public-trust-and-constitutional-claims-for-climate-change-harm-brought-by-the-group “Our Children’s Trust” against the federal government, states, and fossil fuel companies to compel~~

~~limits on greenhouse gas (“GHG”) emissions. This. However, this memorandum will focus~~
solely on the lawsuits brought by governmental and private entities seeking damages for climate-
~~change-related harms, and therefore will not discuss the other lawsuits noted above~~does not address
these actions. This section will also discuss the positions of Attorneys General ~~around the country in~~
~~support of or in opposition to the lawsuits for climate change damages~~who have expressed their
support or opposition to the climate damages lawsuits.

Commented [AJ5]: I propose dropping this to a FN

A. ~~State Law Damages~~ Lawsuits for Climate ~~Change~~ -Related Harms

In 2017 and 2018, several governmental (and one private) entities across the country
~~(e.g., cities, counties and states)~~ brought lawsuits seeking damages ~~against major fossil fuel~~
~~companies~~ for climate change-related harms caused by the extraction, production, promotion,
and sale of fossil fuel products. The complaints assert state-statutory and common law ~~causes of~~
~~action~~claims, including public nuisance, private nuisance, trespass, products liability, and
consumer protection. ~~At the core of these lawsuits, plaintiffs allege common argument among~~
~~each plaintiff is~~ that the fossil fuel companies knew or should have known that the unabated
extraction, production, promotion and sale of their fossil fuel products would result in material
dangers to the public~~about the hazards associated with the extraction, promotion, and sale of~~
~~fossil fuels.~~ Instead of disclosing or taking appropriate action on this information, the fossil fuel
companies “engaged in a coordinated, multi-front effort to conceal and deny their own
knowledge of those threats, discredit the growing body of publicly available scientific evidence,
and persistently create doubt in the minds of customers, consumers, regulators, the media,
journalists, teachers, and the public about the reality and consequences of the impacts of their
fossil fuel pollution.”~~but the fossil fuel companies obscured the hazards from the public and~~
~~regulators~~ San Mateo complaint, para. 1. A common argument among defendants is that federal

court is the proper venue, and that the Clean Air Act displaces the state law claims and thus the lawsuits should be dismissed. All the lawsuits are described in detail at the Sabin Center for Climate Change Law's U.S. Climate Change Litigation Database, available at <http://climatecasechart.com/case-category/common-law-claims/>. For each case, the database has a summary of the case, its current status, and links to all pleadings filed in the lawsuit.

Commented [AJ6]: If you want to include a discussion on the defendants' arguments/defenses, I would suggest you dedicate a para or two to this discussion. Otherwise, I propose deleting

Here is a good analysis of the arguments:

Commented [AJ7]: Again, I propose dropping to a FN

These lawsuits are the second ~~round of lawsuits by governmental entities~~ generation of torts lawsuits against fossil fuel companies for climate ~~change~~-related harms. The first ~~major climate change~~ lawsuits, filed in the early 2000s, sought relief in federal court under federal common law of public nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. *See In-Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("AEP", "-"); ~~the U.S. Supreme Court held that the federal Clean Air Act displaced federal common law claims against defendants for GHG emissions. See also~~ *Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849 (9th Cir. 2012), *cert. denied*, 569 U.S. 1000 (2013). These rulings serve as a backdrop for the recent wave of litigation using state law to hold fossil fuel companies accountable for climate change related harms.

~~In~~ More specifically, in AEP, several states and private land trusts brought federal public nuisance claims against the five largest GHG emitting facilities in the United States. *AEP*, 564 U.S. at 418. Plaintiffs sought an injunction against each defendant "to cap its carbon dioxide emissions and then reduce them by a specified percentage each year for at least a decade." *Id.* at 419. The Court determined that the Clean Air Act displaced ~~the~~ plaintiffs' federal common law claims because the statute directly ~~authorized~~ authorizes the U.S. EPA Administrator to regulate ~~the emission of pollutants~~ CO2 emissions from stationary sources. *Id.* at 424 (citing 42 U.S.C. § 7411).

In *Kivalina*, an Alaskan village brought a public nuisance action against several fossil fuel companies and energy producers for sea level rise and erosion due to climate change caused by defendants' GHG emissions. *Kivalina*, 696 F.3d at 854. In contrast to *AEP*, the plaintiffs in *Kivalina* sought damages rather than an injunction. *Id.* at 857. Relying on *AEP*, the ~~U.S. Court of Appeals for the~~ Ninth Circuit ~~reasoned~~ decided that the Clean Air Act displaces federal common law claims for harms caused by GHG emissions regardless of the relief sought. *Id.* In response to *AEP* and *Kivalina*, the more recent litigation against fossil fuel companies to recover for climate change damages discussed below has attempted to avoid Clean Air Act displacement by bringing state law claims in state courts, and by focusing on the extraction, production, promotion, and sale of fossil fuels rather than emissions of GHGs.

1.—The California Cases: San Mateo v. Chevron, and California v. BP

Most damages suits utilizing state law claims against fossil fuel companies for climate change harms are in ~~their infancy~~ early stages of litigation. In ~~these~~ the majority of these cases, ~~government~~ plaintiffs ~~seek relief~~ have filed suit in state court and ~~the~~ defendants ~~attempt to have removed~~ the action to federal court. Two cases brought in California state court—*County of San Mateo v. Chevron*, and *People of the State of California v. BP*—highlight two emerging schools of thought on whether state or federal court is the appropriate venue. The plaintiffs in each case brought similar claims against numerous fossil fuel companies. However, in *County of San Mateo v. Chevron*, Judge Chhabria remanded the case to state court, while in *People of the State of California v. BP*, Judge Alsup denied the request for remand and ultimately dismissed ~~the plaintiffs' claims~~ the case on the merits. Both cases are on appeal to the Ninth Circuit.

Commented [AJ8]: I would suggest structuring this section differently after introducing the procedural context as you've done (trend being that majority—but not all—of cases are being filed in state court, then removed to federal court, then fight over where these cases should proceed)

1) Cases where court is being asked to remand case back to state court (San Mateo, Rhode Island, Baltimore, Colorado, Pacific Coast FFA)

2) Cases where federal courts considered and dismissed claims on the merits, now on appeal before Ninth and Second Circuits (SF/Oakland, New York City). I would suggest that you spend some more time analyzing the Alsup and Keenan decisions here (Keenan decision for the most part mirrors Alsup decision, so it shouldn't require much effort)

You could mention King County in the second category, given that the outcome of the SF/Oakland case will determine how that case proceeds.

So much of what you describe in each of these cases is repetitive, I think it will help streamline and tell the story of where these cases stand procedurally to organize them in this way

1. Cases where plaintiffs have requested remand to get cases back into state court

2. Cases where federal courts considered and dismissed plaintiffs' claims on the merits

~~Notably, both judges sit on the U.S. District for the Northern District of California. In each case, outside counsel for the local governments is Sher Edling LLP in San Francisco.~~

In *People of the State of California v. BP*, the cities of San Francisco and Oakland brought state public nuisance claims against BP, Chevron, ConocoPhillips, Exxon Mobil and Shell for damages caused by climate change. Complaint, *California v. BP*, No. 17-561370 (Cal. Super. Ct. Sept. 19, 2017) (referencing the San Francisco Complaint); Complaint, *California v. BP*, No. 17-1785889 (Cal. Super. Ct. Sept. 19, 2017) (referencing the Oakland Complaint). Plaintiffs requested relief in the form of an abatement fund to provide for infrastructure necessary to adapt to global warming impacts such as sea level rise, as well as other relief. Plaintiffs argued the defendants promoted the use of fossil fuels despite being aware that their use would cause severe climate change, and that harms were already being felt and would intensify. Defendants removed the case to federal court and Judge Alsup of the Northern District of California denied the cities' motion for remand. Judge Alsup held that the suit was "necessarily governed by federal common law" and that "a patchwork of fifty different answers to the same fundamental global issue would be unworkable." *California v. BP*, 2018 U.S. Dist. LEXIS 32990, at *5, 10 (N.D. Cal., Feb. 27, 2018).

Plaintiffs then filed an amended complaint, which included a federal public nuisance claim, and defendants moved to dismiss. ~~The Attorneys General of Indiana, Alabama, Arkansas, Colorado, Georgia, Kansas, Louisiana, Nebraska, Oklahoma, Texas, Utah and West Virginia, and Wyoming, as well as the United States of America filed amicus briefs in favor of dismissal.~~

Commented [AJ9]: If you restructure as I've suggested, this would be in section 2

Opposing dismissal, as amici, were the Attorneys General of California, Washington and New Jersey.

Commented [AJ10]: I suggest deleting here and introducing in the next section with a more nuanced discussion of their positions

After holding a climate science tutorial and oral argument on the motion to dismiss, Judge Alsup~~The court~~ dismissed ~~all the claims~~the case. *City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017, 1019 (N.D. Cal. 2018). The court held that *AEP* and *Kivalina*'s Clean Air Act displacement rule applied even though plaintiffs styled their claims as based on the extraction, production, promotion and sale of fossil fuels rather than emissions. *Id.* at 1024 ("If an oil producer cannot be sued under the federal common law for their own emissions, a fortiori they cannot be sued for someone else's."). The court also grounded its holding in the doctrine of separation of powers and judicial restraint, finding that:

questions of how to appropriately balance these worldwide negatives against the worldwide positives of the energy itself, and of how to allocate the pluses and minuses among the nations of the world, demand the expertise of our environmental agencies, our diplomats, our Executive, and at least the Senate. Nuisance suits in various United States judicial districts regarding conduct worldwide are far less likely to solve the problem and, indeed, could interfere with reaching a worldwide consensus.

Id. at 1024–1026. Plaintiffs' appeal to the Ninth Circuit is pending.

~~In a separate action in California,~~In 2017, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed separate laws~~similar~~ suits in California Superior Court against numerous fossil fuel companies. *See e.g.*, Complaint, *County of San Mateo v. Chevron Corp.*, No. 17CIV03222 (Cal. Super. Ct. July 17, 2017). ~~However, in~~In addition to public nuisance, the plaintiffs ~~also claimed~~brought claims for strict liability for failure to warn, strict liability for design defect, private nuisance, negligence, negligent failure to warn, and trespass. Plaintiffs alleged that the fossil fuel companies' "production, promotion, marketing, and use of fossil fuel products, simultaneous concealment of the known hazards of those

Commented [AJ11]: Section 1

products, and their championing of anti-regulation and anti-science campaigns, actively and proximately caused” injuries to plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. Among other relief remedies, Plaintiffs requested compensatory and punitive damages, and abatement of nuisances. ~~Defendants removed the actions to federal court, and the three actions were then consolidated into one action.~~

Defendants removed the actions to federal court, where they were consolidated into one action. Judge Chhabria of the U.S. District Court for the Northern District of California ~~remanded the case to state court.~~ Judge Chhabria of the U.S. District Court for the Northern District of California expressly disagreed with Judge Alsup’s ruling in the San Francisco ~~and/~~ Oakland suit, and remanded the case to state court. Judge Chhabria held that “[b]ecause federal common law does not govern the plaintiffs’ claims, it also does not preclude them from asserting the state law claims in these lawsuits. Simply put, *these cases should not have been removed to federal court on the basis of federal common law that no longer exists.*” *Id.* at 2 (emphasis added). The defendants appealed the remand order to the Ninth Circuit. The Ninth Circuit then consolidated the three remand actions brought by the County of San Mateo, County of Marin, City of Imperial Beach, as well as ~~others stemming from similar suits actions~~ brought by the County of Santa Cruz, City of Santa Cruz, and City of Richmond. Order, *Cty. of San Mateo v. Chevron Corp.*, No. 18-15499 (9th Cir. 2018). ~~In November 2018, the U.S. Chamber of Commerce filed an amicus brief in opposition to the remand order.~~ Briefing is ongoing in the Ninth Circuit.

2-1. Rhode Island v. Chevron

Commented [AJ12]: The case has now been fully briefed. The court will set a date for oral argument or possibly make a decision on the papers

Commented [AJ13]: Section 1

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling ~~LLP~~ as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court. ~~The parties are awaiting the federal court's remand decision.~~ Like the California cases, Rhode Island seeks to hold numerous fossil fuel companies liable for current and future injuries to state owned or operated facilities and property as well as for other harms. Complaint, *State of Rhode Island v. Chevron Corp.*, No. PC-2018-4716 (R.I. Super. Ct. 2018). Rhode Island seeks, among other relief, compensatory and punitive damages, and abatement of nuisances under state law claims for public nuisance, strict liability for failure to warn, strict liability for design defect, negligent design defect, negligent failure to warn, trespass, impairment of public trust resources and state Environmental Rights Act—Equitable Relief Action. To date, this is the only climate change damage lawsuit brought by a ~~State Attorney General as opposed to a city or county~~ state as opposed to a municipality.

Commented [AJ14]: Remand hearing was on Feb 6, so we are expecting a decision in the next few months

~~3-2.~~ Baltimore v. BP

Commented [AJ15]: Section 1

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought a ~~claims~~ suit in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and the California suits, Baltimore alleged that through the defendants' extraction, production, promotion, and ~~marketing-sale~~ of fossil fuels, defendants concealed the hazards of their products and disseminated information intended to mislead consumers, customers, and regulators regarding the known and foreseeable risks of climate change caused by their products. Complaint at 116, *Mayor and City Council of Baltimore v. BP*, No. 24-C-18-004219 (Md. Cir. Ct. 2018). Alleged damages include more severe and frequent storms and floods, increased sea level, heat waves, droughts, and harms to public health. Baltimore is seeking compensatory and punitive damages, and equitable relief among other remedies for

public nuisance, private nuisance, strict liability failure to warn, strict liability design defect, negligent, design defect, negligent failure to warn, trespass, and violations of Maryland’s Consumer Protection Act. The defendants removed the case to federal court and Baltimore has moved for remand.

4.3. *King County v. Chevron*

Commented [AJ16]: Section 2

In May 2018, King County in Washington, with outside counsel from Hagens Berman LLP, filed a similar suit for public nuisance and trespass in Washington state court against numerous fossil fuel companies. Complaint at ii, *King Cty. v. BP*, 2:18-cv-00758-RSL (Wash. Super. Ct. 2018). Plaintiffs sought compensatory damages and the establishment of an abatement fund to pay for a climate change adaptation program. Defendants removed the case to federal court and moved for dismissal. Plaintiff moved for and was granted a stay until the Ninth Circuit issues a decision in *City of Oakland v. BP*. The stay is currently in place.

5.4. *Pacific Coast Federation of Fishermen’s Association v. Chevron*

Commented [AJ17]: Section 1

In November 2018, a fishing industry trade group represented by Sher Edling LLP filed a climate change-damages suit against the fossil fuel companies in California state court. The trade group is relying on California state nuisance and products liability law to hold the defendants liable for closures to crab fisheries caused by climate change. *Pacific Coast Federation of Fishermen’s Association v. Chevron Corp.*, No. CGC-18-571285 (Cal. Super. Ct. 2018). Specifically, Plaintiffs assert that warming ocean temperatures caused by climate change has led to an increase in a plankton species, *Pseudo-nitzschia*, responsible for causing “amnesic shellfish poisoning” through the release of the toxin domoic acid. Plaintiffs seek compensatory and punitive damages and equitable relief. In December 2018, defendants filed a notice of removal.

Commented [AJ18]: I would imagine that plaintiffs have since filed motion to remand – you may want to check

6.5. ~~Boulder~~ *County v. Suncor Energy*

Commented [AJ19]: Section 1

In April 2018, three Colorado local government entities—the City of Boulder and the Counties of Boulder and San Miguel—filed suit against fossil fuel companies seeking damages and other relief for the companies’ role in causing climate change. Outside counsel includes Hannon Law Firm-LLP, EarthRights International, and the Niskanen Center, a libertarian think tank. Plaintiffs brought claims under public and private nuisance, trespass, the Colorado Consumer Protection Act, and civil conspiracy. In an effort to avoid federal jurisdiction and AEP-like displacement, Plaintiffs’ complaint stated:

[Plaintiffs] do not seek to impose liability, restrain or interfere with Defendants ability to participate in public debates about climate change, or otherwise interfere with Defendants’ speech. . . [and] do not seek to enjoin any oil and gas operations or sales in the State of Colorado, or elsewhere, or to enforce emissions controls of any kind. Plaintiffs do not seek damages or abatement relief for injuries to or occurring on federal lands. Plaintiffs do not seek damages or any relief based on any activity by Defendants that could be considered lobbying or petitioning of federal, state or local governments.

Complaint at 123, *City of Boulder v. Suncor Energy Inc.*, No. 2018CV030349 (Colo. D. Ct. 2018). Defendants removed to federal court. Plaintiffs moved to remand. ~~That motion is pending.~~

Commented [AJ20]: Remand hearing is scheduled for May 30

7.6. ~~City~~ *of New York v. BP*

Commented [AJ21]: Section 2

In January 2018, New York City filed suit for damages and equitable relief in federal court against fossil fuel companies asserting public nuisance, private nuisance, and trespass claims under New York State law against fossil fuel companies. Complaint at i, 63. *City of New York v. BP*, No. 1:18-cv-00182-JFK (S.D.N.Y. 2018). In contrast to the suits discussed above, New York filed in federal court rather than in state court. Outside counsel includes Hagen Berman LLP and Seeger Weiss-LLP. ~~The Niskanen Center filed an amicus brief in support of New York City.~~ In support of Defendants, fifteen states led by Indiana filed an amicus brief in favor of dismissal. The court dismissed ~~on what basis? would be good to include some~~

Commented [AJ22]: Address this in the section below

discussion of the analysis], and New York City appealed. On appeal to the U.S. Court of Appeals for the Second Circuit, Attorneys General of New York, California, Maryland, New Jersey, Oregon, Rhode Island, Vermont, Washington, and the District of Columbia have filed an amicus brief in support of New York. ~~Other amicus briefs in support of New York include ones from law professors, environmental justice groups, and the National League of Cities.~~ Briefing is ongoing.

Commented [AJ23]: Same comment as above

Commented [AJ24]: Appeal will be fully briefed as of March 25. Then to be determined whether court will hold oral argument or decide on the papers.

B. State Attorneys General ~~Supporting~~taking a position on Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of plaintiffs bringing damages claims for climate change-related harms to state resources and infrastructure. For example, in *New York City v. BP*,² Attorneys General Underwood (NY), Becerra (CA), Kilmartin (RI), Frosh (MD), Donovan (VT), Grewal (NJ), Ferguson (WA), Rosenblum (OR), and Racine (D.C.) signed an amicus in support of New York City's claim. In support of the fossil fuel companies were Attorneys General Fisher (IL), Hill (IN), Marshall (AL), Rutledge (AR), Coffman (CO), Carr (GA), Schmidt (KS), Landry (LA), Peterson (NE), Hunter (OK), Wilson (SC), Paxton (TX), Reyes (UT), Morrissey (WV), Schimel (WS), and Michael (WY). In *Oakland v. Chevron*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA) supported the plaintiffs. In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP*. Additionally, several other Attorneys General are likely or potentially supportive of actions against fossil fuel companies for climate change-related harms based on recent campaign statements. They include Letitia James (NY), Josh Shapiro (PA), Josh Kaul (WI), Dana Nessel (MI), Phil Weiser (CO), Josh Stine (NC), and Kwame Raoul (IL).

Commented [AJ25]: I would suggest including links to these briefs as well as more detail on their positions

Briefs were filed during the briefing of the MTD before the district court and on appeal. Here are some, there may be others...

NYC
http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2018/20181115_docket-18-2188_amicus-brief-5.pdf
http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2018/20180530_docket-118-cv-00182_amicus-brief.pdf

SF/Oakland
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II. Potential Claims Against Fossil Fuel Companies Under Minnesota Law

This Part discusses potential claims the Minnesota Attorney General could bring against fossil fuel companies for climate change-related damages in Minnesota. These claims build off the claims in the existing lawsuits discussed in Part I. The claims discussed below are: (1) consumer protection claims, including the Prevention of Consumer Fraud Act, Minn. Stat. §§ 325F.68-70 (“CFA”), the Unlawful Trade Practices Act, Minn. Stat. §§325D.09-16 (“UTPA”), the False Statement in Advertising Act, Minn. Stat. § 325F.67, (“FSAA”), the Uniform Deceptive Trade Practices Act, Minn. Stat. §§ 325D.43-48 (“UDTPA”), and antitrust claims under Minn. Stat. §§ 325D.49-325D.66; (2) product liability claims, including design defect and failure to warn; and (3) common law tort claims, including public nuisance, private nuisance, trespass and strict liability for abnormally dangerous activities. This Part also discusses the statutes of limitations ~~potentially applicable~~relevant to these claims.

A. Fossil fuel industry’s knowledge of risks associated with their products

B. Consumer Protection Claims

Two of the existing climate ~~change-damages~~ lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations. The Colorado plaintiffs also allege conspiracy claims. Both cases were removed to federal court and motions to remand are pending. The complaints in these cases and the possibility of similar claims under Minnesota law are discussed below.

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act, ~~Minn. Stat. §§ 325F.68-70~~ (“CFA”), the Unlawful Trade Practices Act,

Commented [AJ27]: As mentioned by email, I would suggest including a few paras up front that sets the tone re what the industry and when they knew it, how that satisfies the actual knowledge standard that is relevant to many of these claims

I would start by setting forth the standard under MN law and then discussing (or even referencing) the body of evidence (internal industry documents) that would satisfy this requirement. Our amicus brief on this issue may be useful:
http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2019/20190129_docket-18-15499-18-15502-18-15503_amicus-brief-7.pdf

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~~Minn. Stat. §§325D.09-16~~ (“UTPA”), the False Statement in Advertising Act, ~~Minn. Stat. § 325F.67~~, (“FSAA”), and the Uniform Deceptive Trade Practices Act, ~~Minn. Stat. §§ 325D.43-48~~ (“UDTPA”). The State of Minnesota and Blue Cross Blue Shield used these laws to sue the tobacco companies in the 1990s, leading to a \$6.6 billion settlement in 1998.

[The Minnesota Supreme Court has “cited its prior statements that the CFA should be liberally construed in favor of protecting consumers and that the CFA reflected ‘a clear legislative policy encouraging aggressive prosecution of statutory violations.’” Prentiss Cox, *Goliath Has The Slingshot: Public Benefit And Private Enforcement Of Minnesota Consumer Protection Laws*, 33 WM. MITCHELL L. REV. 163, 178 (2006) (citing *Ly v. Nystrom*, 602 N.W.2d 644, 308 (Minn. Ct. App. 1999) (citing *State v. Philip Morris, Inc.*, 551 N.W.2d 490, 495-96 (Minn. 1996)). See also Gary L. Wilson & Jason A. Gillmer, *Minnesota’s Tobacco Case: Recovering Damages Without Individual Proof of Reliance Under Minnesota’s Consumer Protection Statutes*, 25 WM. MITCHELL L. REV. 567, 590 (1999) (“Minnesota consumer protection statutes present one example in which the legislature has made a policy decision to make it easier to sue for a consumer protection violation than it would be under the common law. The legislature did so by relaxing the requirement of causation. . .”).

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The CFA forbids “[t]he act, use, or employment by any person of any fraud, false pretense, false promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any person has in fact been misled, deceived, or damaged thereby. . .” Minn. Stat. § 325F.69, subd. 1. The UTPA provides that “[n]o person shall, in connection with the sale of merchandise, knowingly misrepresent, directly or indirectly, the true quality, ingredients or origin of such merchandise.” Minn. Stat. § 325D.13. The FSAA prohibits a broad range of advertising and

other activities designed to “increase the consumption” of merchandise that “contain[] any material assertion, representation, or statement of fact which is untrue, deceptive, or misleading . . .” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.²

The Attorney General ~~has express responsibility to~~ is responsible for “investigat[ing]e offenses” and “assist[ing] in enforcement” of the CFA, UTPA, and the FSAA ~~in~~ Minn. Stat. § 8.31, subd. 1. ~~Subdivision 3(a) of Statutory law § 8.31~~ gives clear authority to the Attorney General to seek damages and equitable remedies for CFA, UTPA and FSAA violations, providing that “[i]n any action brought by the attorney general pursuant to this section, the court may award any of the remedies allowable under this subdivision,” which include “damages . . . costs and disbursements, including costs of investigation and reasonable attorney’s fees, and . . . other equitable relief.” Minn. Stat. § 8.31(3)(a).

~~The CFA forbids “[t]he act, use, or employment by any person of any fraud, false pretense, false promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any person has in fact been misled, deceived, or damaged thereby. . .” Minn. Stat. § 325F.69, subd. 1. The UTPA provides that “[n]o person shall, in connection with the sale of merchandise, knowingly misrepresent, directly or indirectly, the true quality, ingredients or origin of such merchandise.” Minn. Stat. § 325D.13. The FSAA prohibits a broad range of advertising and other activities designed to “increase the consumption” of merchandise that “contain[] any material assertion, representation, or statement of fact which is untrue, deceptive, or misleading.~~

² The UDTPA is not expressly mentioned in Minn. Stat. § 8.31, so “[t]here is a question whether damages are available for violations.” Wilson & Gillmer, *supra* at 588. The court did not allow a UDTPA action for damages in the tobacco litigation; however, some argue that damages may be available pursuant to § 8.31(3)(a). *Id.* at 588-589.

~~.” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.³~~

Any claims under Minnesota consumer protection statutes for climate-change-related damages should be brought by the Attorney General as a direct action on behalf of the state, rather than a subrogation action on behalf of state citizens. *See State v. Minnesota School of Business, Inc.*, 915 N.W.2d 903, 910 (2018) (denying restitution to individuals that did not testify at trial). ~~With respect to the causation standard in damages cases, in actions seeking damages,~~ the Minnesota Supreme Court held that Minn. Stat. § 8.31, subd. 3(a) demands:

[T]hat there must be some “legal nexus” between the injury and the defendants’ wrongful conduct. . . where the plaintiffs’ damages are alleged to be caused by a lengthy course of prohibited conduct that affected a large number of consumers, the showing of reliance that must be made to prove a causal nexus need not include direct evidence of reliance by individual consumers of defendants’ products. Rather, the causal nexus and its reliance component may be established by other direct or circumstantial evidence. . .

Grp. Health Plan, Inc. v. Philip Morris Inc., 621 N.W.2d 2, 15 (Minn. 2001).

The Minnesota tobacco case was a direct action in which the ~~S~~state and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare providers. *Wilson & Gillmer, supra* at 570-576. While specific individual reliance was not required, at least six types of evidence made effective “legal nexus” causation arguments: (1) evidence of the defendants’ intentional misconduct; (2) addiction of the defendants’ customers; (3) the defendants’ exploitation of smokers; (4) the defendants’ reassurance of smokers through advertising; (5) the defendants’ youth marketing strategies; and (6) the defendants’ intent that their conduct be relied upon. *Wilson & Gillmer, supra* at 608-624.

³The UDTPA is not expressly mentioned in Minn. Stat. § 8.31, so “[t]here is a question whether damages are available for violations.” *Wilson & Gillmer, supra* at 588. The court did not allow a UDTPA action for damages in the tobacco litigation; however, some argue that damages may be available pursuant to § 8.31(3)(a). *Id.* at 588-589.

Based on ~~the~~ publicly available information including the records of existing damages lawsuits, there is a wealth of similar facts the Attorney General can rely on in a case against the fossil fuel companies for climate change damages. As with the tobacco companies, the fossil fuel companies intentionally deceived Minnesota, other states, and consumers, regulators, media and the general public in Minnesota and other states about the long-term risks of continued fossil fuel use associated with their fossil fuel products through advertisements, public statements, and funded research. ~~Much of this disinformation campaign has come to light only recently. Much of this information has only recently come to light due to investigative reports by Inside Climate News, Columbia School of Journalism, L.A. Times, Amy Westervelt’s Drilled podcast, among others.~~

There is also evidence that the fossil fuel companies have encouraged a public “addiction” to oil and created hostility toward cleaner fuels. These actions are similar to the tobacco companies’ efforts to increase individuals’ nicotine intake—despite their ability to lower nicotine content. See ~~id.~~ Wilson & Gillmer at 613-616 (“The tobacco industry has the technological capability of removing most of the nicotine from cigarettes. However, evidence suggests the tobacco industry maintains nicotine at certain levels because the companies know that nicotine is the addictive substance. . .”) (citation omitted); see also Peter Teigland, *Petroleum Refining in Minnesota*, NORTH STAR POLICY INST. (May 10, 2018) (explaining that much of the oil flowing into and through Minnesota comes from the Bakken shale and Canadian tar sands).

The plaintiffs in both the Maryland and Colorado lawsuits allege that developing “dirtier” sources of fuel shows oil companies’ blatant disregard of climate data. See, e.g., Colorado Complaint ¶ 384 (“Moreover, and despite its knowledge of the grave threats fossil fuels pose to

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the climate as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to the concentration of atmospheric CO₂.”) In addition, ~~evidence of the industry’s significant spending on~~ ~~the industry’s expenditures on~~ advertising and ~~correlating sales~~ may be used to ~~show causation by establishing~~ ~~establish the~~ the companies’ ~~intention~~ that their public ~~statements~~ ~~sations~~ would be relied on by consumers. Wilson & Gillmer, *supra* at 601, 617 (“Even without a showing of intentional conduct, vast promotional expenditures give rise to a presumption that consumers have been deceived . . . The industry conceded that success in the marketplace is evidence of consumer reliance on the industry’s words and actions.”).

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The Attorney General may also bring antitrust claims against the fossil fuel companies, similar to the claims in the Colorado lawsuit. The prohibitions in the Minnesota Antitrust Law of 1971, Minn. Stat. §§ 325D.49-325D.66, include conspiracy and seeking/exercising monopoly power. According to the Minnesota Supreme Court, “Minnesota antitrust law is generally interpreted consistently with federal antitrust law.” Brent A. Olson, MINN. PRAC., BUSINESS LAW DESKBOOK § 22A:1 (2018) (citation omitted). As such, “antitrust claims are *not* subject to a heightened standard of specificity in pleading . . .” *In re Milk Indirect Purchaser Antitrust Litig.*, 588 N.W.2d 772, 775 (Minn. Ct. App. 1999). The court may assess significant penalties: “Any person, any governmental body. . . injured directly or indirectly by a violation of sections 325D.49 to 325D.66, shall recover three times the actual damages sustained . . .” Minn. Stat. § 325D.57. The Attorney General has express authority to investigate and commence appropriate legal action seeking damages for violation of the statutory provisions. Minn. Stat. § 325D.59.

C. Products Liability Design Defect

Six lawsuits filed in state courts against fossil fuel companies for their products' contribution to climate change damages have alleged design defect and failure to warn claims arising under state common law. *See Mayor & City Council of Baltimore v. B.P.*, 24-C-18-004219 (Md. Cir. Ct. 2018); *Rhode Island v. Chevron Corp.*, PC-2018-4716 (R.I. Super. Ct. 2018); *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). All of these lawsuits allege both negligent design defect and failure to warn and strict liability design defect and failure to warn. *Id.* Minnesota could allege similar products liability claims against fossil fuel companies related to their extraction, production, marketing, and sale of fossil fuel products.

Minnesota adopted strict liability in tort for products liability cases in 1967. *See McCormack v. Hanksraft Co.*, 154 N.W.2d 488 (Minn. 1967). The Minnesota Supreme Court found that public policy necessitated protecting consumers from the risk of harm that arose from "mass production and complex marketing." *Id.* at 500. Adopting the strict liability theory, manufacturers are liable for the cost of injuries that result from their defective product regardless of negligence or privity of contract. *Id.* In *McCormack*, the Court reasoned that strict liability should apply as the makers of the product are in the best position to "most effectively reduce or eliminate the hazard to life and health, and absorb and pass on such costs [to consumers]." *Id.*

Since *McCormack*, products liability law has expanded in Minnesota to cover three different theories of defective products: (1) manufacturing defects that arise from flaws in the

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These lawsuits include: Baltimore, Rhode Island, etc...

way the product was made; (2) design defects that result from an unreasonably safe product design; and (3) failure to warn of reasonably foreseeable dangers from a products use. *See* Rest. (Third) of Torts: Products Liability § 2 (1998). As products liability law in Minnesota ~~continued~~ ~~to~~-evolved, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrock v. Marshalltown Mfg. Co.*, 473 N.W.2d 352 (Minn. Ct. App. 1991) (“*Bilotta* merged strict liability, negligence, and implied warranty remedies into a single products liability theory.”) (referencing *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 623 (Minn. 1984)); *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (“Toyota correctly notes that [in Minnesota] in the product liability context, strict liability and negligence theories merge into one unified theory, sharing the same elements and burden of proof.”).

Of the three products liability claims alleged in the other lawsuits against the fossil fuel companies, only design defect and failure to warn claims would apply in Minnesota. Manufacturing defect claims cover faulty or defective products that arise despite a reasonably safe design—e.g., defects that may occur to a discrete number of products during the manufacturing process. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases looks at the condition of the product and compare any defects found with the flawless product). In contrast, all fossil fuel products on the market result in a dangerous condition—increased CO₂ emissions/ resulting in climate change—*because* of the products unreasonably safe design. *See id.* (in a design defect case the “defect” lies in the consciously chosen design and the product is in the condition intended by the manufacturer).

1. Design defect

In Minnesota, a manufacturer has a duty to use reasonable care in designing its product “to protect users from unreasonable risk of harm while using it in a foreseeable

~~manner.”nondelegable duty to design a reasonably safe product.~~ *Bilotta*, 346 N.W.2d 616; see also *Schweich v. Ziegler, Inc.*, 463 N.W.2d 722, 731 (Minn. 1990) (“~~Caterpillar is duty bound to use reasonable care in designing the DH6 to protect users from unreasonable risk of harm while using it in a foreseeable manner.”~~). If a manufacturer breaches this duty and the defect proximately causes the plaintiff’s injury, it is liable in tort under a design defect theory. *Farr v. Armstrong Rubber Co.*, 288 Minn. 83, 90 (Minn. 1970). ~~Therefore, to~~To recover against a manufacturer for a design defect a plaintiff must show that: “(1) a product was in a defective condition unreasonably dangerous for its intended use; (2) the defect existed at the time the product left the defendant’s control; and (3) the defect proximately caused the plaintiff’s injury.” *Duxbury v. Spex Feeds, Inc.*, 681 N.W.2d 380, 393 (Minn. Ct. App. 2004). See also *Adams v. Toyota Motor Corp.*, 867 F.3d 902, 916–17 (8th Cir. 2017) (applying Minnesota law).

Unreasonably dangerous condition: To determine whether the design of a product is unreasonably dangerous, Minnesota courts employ the reasonable care balancing test ~~adopted from Florida and New York courts used in *Bilotta v. Kelley Co., Inc.*, 346 N.W.2d 616, 624 (Minn. 1984).~~ This test looks at the totality of circumstances including: “a balancing of the likelihood of harm, and the gravity of harm if it happens, against the burden of the precaution which would be effective to avoid the harm.” *Id.* It is an objective standard that “focuses on the conduct of the manufacturer in evaluating whether its choice of design struck an acceptable balance among several competing factors.” *Id.* at 622. ~~Often considered by courts~~Courts and juries ~~employing the reasonable care balancing test~~often is ~~consider~~ whether or not there existed, or the plaintiff can prove, a practical alternative design. See *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 96 (Minn. 1987) (holding that existence of a practical alternative design is a factor, but not an element of a *prima facie* case, in design defect claims).

Fossil fuel products were, and continue to be, ~~in a defective condition~~designed in a manner that is unreasonably dangerous for their intended use. The emission of GHGs resulting from the use of fossil fuel products causes severe and grave harms in the form of global warming, increased severity of dangerous weather patterns, rising sea level, increased drought, increased weather patterns, serious public health concerns particularly to low income and minority communities, and overall climate change damages. The fossil fuel companies were well aware of the gravity of this harm, as well as the extremely high likelihood that this harm would occur from their continued extraction, production, use, and marketing of fossil fuel products as early as 1965. This is particularly true in light of generally accepted scientific knowledge that ~~unfettered-unabated~~ anthropogenic GHG emissions would result in catastrophic impacts. The burden of precaution necessary to avoid the harms was significantly lower when the companies first became aware of the risk their fossil fuel products posed and has only grown since.

Defect existed at the time it left defendants' control: The second element of a design defect claim is that “the defect existed at the time the product left the defendant’s control” *Duxbury*, 681 N.W.2d at 393. GHGs emitted from the combustion/use of fossil fuel products exists at the time they are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, ~~individual and aggregate~~ fossil fuel products reached the consumer in a condition substantially unchanged from that in which it left the companies’ control—and “were used in the manner in which they were intended to be used . . . by individual and corporate consumers; the result of which was the addition of CO₂ emissions to the global atmosphere with attendant global and local consequences.” Complaint at ¶ 212, *PCFFA v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018). Therefore, the defect existed at the time fossil fuel products left the fossil fuel companies’ control.

Defect proximately caused the plaintiff's injury: Finally, the plaintiff must prove that the design defect proximately caused the plaintiff's injury. *Duxbury*, 681 N.W.2d at 393. "Proximate cause exists if the defendant's conduct, without intervening or superseding events, was a substantial factor in creating the harm." *Thompson v. Hirano Tecseed Co., Ltd.*, 456 F.3d 805, 812 (8th Cir. 2006) (applying Minnesota law). A substantial factor has also been described as a "material element" in the happening of the injury. *Draxton v. Katzmarek*, 280 N.W. 288, 289 (Minn. 1938).

But-for causation is still necessary for a substantial factor causation analysis, because "if the harm would have occurred even without the negligent act, the act could not have been a substantial factor in bringing about the harm." *George v. Estate of Baker*, 724 N.W.2d 1, 11 (Minn. 2006) (citing Rest. (Second) of Torts § 432 (1965)). However, if there are concurring acts that together cause the plaintiff's injury and act contemporaneously, or so nearly together that there is no break in the chain of causation, this is sufficient to meet the causation analysis even if the injury would not have resulted in the absence of either one. *Roemer v. Martin*, 440 N.W.2d 122, 123, n.1 (Minn. 1989). If there are concurrent acts of negligence, both parties are liable for the whole unless the resulting damage is "clearly separable." See *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970). Before a particular factor can be said to be a concurrent cause, it must, first of all, be established that it is a cause. *Roemer*, 440 N.W.2d at 123.

The fossil fuel companies' extraction, production, refining, marketing, and sale of fossil fuels was and will continue to be a substantial factor in creating Minnesota's harm from climate change. ~~Ninety-As previously discussed, 90 fossil fuel producers and cement manufacturers of oil and gas~~ are responsible for 63% of the cumulative industrial CO₂ and methane emissions worldwide between 1751 and 2010. ~~Rieh Heede, *Tracing Anthropogenic Carbon Dioxide and*~~

~~*Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229 (Nov. 22, 2013).~~ ~~Abundant~~ Several scientific-climate attribution studies and reports link these anthropogenic GHG emissions to climate change and its damages.

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California has similarly adopted the substantial factor test to determine proximate causation. *People v. Atlantic Richfield Co.*, 2013 WL 6687953, at *16 (Cal. Super. Ct. 2013) (“Under this test, independent tortfeasors are liable so long as their conduct was a “substantial factor” in bringing about the injury.”), *aff’d sub nom. People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51 (Cal. Ct. App. 2017). However, ~~it~~ is important to note that California’s substantial factor test ~~appears to be~~ broader than Minnesota’s, requiring ~~the-that~~ defendant’s conduct ~~to~~ only be a “a-very minor force” to ~~find it was~~ making a finding of a-substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102. Despite this, *People v. Atlantic Richfield Co.*, ~~still provides a useful analogy for~~ provides useful guidance in determining whether multiple manufacturers of a product were each a “substantial factor” in creating the plaintiff’s injury and ~~may act as persuasive authority in Minnesota.~~ 2013 WL 6687963 at *1, *aff’d sub nom. ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 169 (affirming holding of liability against lead paint manufacturers but limiting scope of abatement remedy to pre-1951 homes).

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Is there anything in the MN tobacco case law that provides insights re how this would be treated under MN law?

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In *Atlantic Richfield Co.*, counties in California brought a public nuisance action against five lead paint manufacturers seeking abatement of the public nuisance created by the lead paint manufactured and sold by defendants in ten jurisdictions in California. Three of the paint manufacturers, ConAgra, NL Industries, and Sherwin Williams, were found to have created or assisted in the creation of the public nuisance and, as a result, the Court held their conduct was a substantial factor in bringing about the public nuisance. *Id.* at *54.

ConAgra was a large producer and supplier of lead, operated to a major degree within the jurisdictions that brought suit, and continued to sell lead paint until 1958 and therefore the Court found their conduct was a substantial factor in creating the public nuisance. *Id.* at *52. NL Industries (formerly known as National Lead Company) was the largest manufacturer, promoter, and seller of lead pigments for use in house paint and was an active participant in campaigns to promote lead paint. Based on this, the Court found NL Industries to be a substantial factor in causing the public nuisance. *Id.* at *53. Finally, Sherwin Williams’ conduct was found to have been a substantial factor in the public nuisance despite testimony offered by SW’s expert witness Dr. Van Liere who estimated that Sherwin William’s lead paint contributed a mere 0.1% of the total lead consumed in California from 1894 to 2009. *Id.* at *39. This was because the company had two plants, stores, and dealers selling lead paint within the jurisdictions bringing suit and it transported millions of pounds of lead paints to its warehouses and factories during the first four decades of the 20th century. *Id.* at *53.

The California Court of Appeals upheld the trial court findings, further emphasizing that all three defendants’ marketing campaigns promoting lead paint as safe for use in residential homes and on doors and windows frames played at least a *minor* role in creating the public nuisance and therefore met the “substantial factor” test. *People v. ConAgra Grocery Products Co.*, 17 Cal. App. 5th 51, 102–03 (Cal. Ct. App. 2017). Minnesota can use the California courts’ reasoning to establish that each individual fossil fuel company named as defendant was a substantial factor in causing Minnesota’s climate damages.

Lastly, not only must the design defect be a substantial factor, or material element, in bringing about plaintiff’s injuries—there cannot be a “superseding” event that breaks the causal chain between the defendants’ conduct and the plaintiff’s injury:

Commented [AJ36]: I think it’s useful to discuss the experience with ConAgra (as it’s the leading case relied on in the CA lawsuits), but I don’t know that MN courts would base their decision on it. I propose deleting this

A cause is “superseding” if four elements are established: (1) Its harmful effects must have occurred after the original negligence; (2) it must not have been brought about by the original negligence; (3) it must actively work to bring about a result which would not otherwise have followed from the original negligence; and (4) it must not have been reasonably foreseeable by the original wrongdoer.

Regan v. Stromberg, 285 N.W.2d 97, 100 (Minn. 1979). There were no intervening or superseding events that caused Minnesota’s climate **change**-damages. No other act, omission, or natural phenomenon intervened in the chain of causation between the fossil fuel companies’ conduct and Minnesota’s injuries and damages, or superseded the fossil fuel companies’ breach of its duty to design a reasonable safe product.

2. *Joint and several liability and market share liability*

Notably, although an individual oil or gas company may claim that its extraction, production, and sale of fossil fuel products was not a substantial factor or the “but-for” cause of Minnesota’s climate **change**-damages, Minnesota can rely on two liability structures to overcome the causation burden: concurring causes and the indivisible injury rule which impose joint and several liability and market share liability.

In general, parties whose negligence concurs to cause an indivisible injury are jointly and severally liable, even if not acting in concert. *Maday v. Yellow Taxi Co.*, 311 N.W.2d 849 (Minn. 1981); *see also Rowe v. Munye*, 702 N.W.2d 729, 736 (Minn. 2005) (“[M]ultiple defendants are jointly and severally liable when they, through independent consecutive acts of negligence closely related in time, cause indivisible injuries to the plaintiff.”). A harm is indivisible if “it is not reasonably possible to make a division of the damage caused by the separate acts of negligence.” *Mathews v. Mills*, 178 N.W.2d 841, 844 (Minn. 1970) (quotation omitted). When two or more persons are jointly liable, contributions to awards shall be in proportion to the percentage of fault attributable to each, except that each is jointly and severally liable for the

whole award. Minn. Stat. § 604.02, subd. 1 (2018). However, a plaintiff would still be required to show that each defendant's conduct was a substantial factor in causing its harming. *Jenson v. Eveleth Taconite Co.*, 130 F.3d 1287, 1294 (8th Cir. 1997).

At least four other state lawsuits have alleged fossil fuel companies' acts and omissions were indivisible causes to the plaintiffs' injuries and damages because it is not possible to determine the source of any particular GHG molecule from anthropogenic sources. *City of Richmond v. Chevron Corp.*, C18-00055 (Cal. Super. Ct. 2018); *City of Santa Cruz v. Chevron Corp.*, 17CV03243 (Cal. Super. Ct. 2017); *County of Santa Cruz v. Chevron Corp.*, 17CV03242 (Cal. Super. Ct. 2017); *Pacific Coast Federation of Fisherman's Association, Inc. v. Chevron Corp.*, CGC-18-571285 (Cal. Super. Ct. 2018) ("*PCFFA v. Chevron*"). Joint and several liability would also apply in a lawsuit against fossil fuel companies for damages resulting from climate change in Minnesota. Minnesota is experiencing a single indivisible injury caused by multiple fossil fuel companies' independent ~~consecutive~~ actions closely related in time. *See Jenson*, 130 F.3d at 1305 n.9 (explaining how the single indivisible injury rule imposes joint and several liability). Because Minnesota's harm is indivisible, each fossil fuel company would be liable for the entire harm. *Id.*

If the fossil fuel companies argue that Minnesota's harms are divisible, they each may be able to limit their liability. However, the defendant asserting divisibility bears the burden of proving apportionment. *See e.g., Jenson*, 130 F.3d at 1294 (explaining that "plaintiffs bear no burden to prove apportionment" because apportionment is akin to an affirmative defense). Fossil fuel companies could attempt to prove apportionment based on the amount of GHG their fossil fuel products emitted.

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People of the State of California v. Atlantic Richfield Co. once again provides reference for how oil and gas companies may be jointly and severally liable ~~and can act as persuasive authority in Minnesota's courts~~. 2013 WL 6687953, 44 (Cal. Super. Ct. 2013). Under California law, when multiple tortfeasors are each a substantial factor in creating a public nuisance, they are jointly and severally liable for that nuisance. *Id.* at * 44 (quoting *Am. Motorcycle Assn v. Superior Court*, 20 Cal. 3d 578, 586 (1978)). Similar to Minnesota, if the injury is indivisible each actor whose conduct was a substantial factor in causing the damages is legally responsible for the whole. *Id.* California has found that this joint and several liability theory applies when multiple sources of contamination result in a single nuisance. *Id.* (quoting *State v. Allstate Ins. Co.*, 45 Cal. 4th 1008, 1036 (2009)). Because of this, the California Superior Court found that the three lead paint manufacturers who were found to be substantial factors in causing the public nuisance were all jointly and severally liable. *Id.* A similar theory of recovery could be used in Minnesota against fossil fuel companies applying Minnesota's version of concurrent harms, the invisible harm rule, and joint and several liability.

Commented [AJ38]: Are there any MN or 8th Circuit cases that address joint and several liability of manufacturers?

Finally, the market share liability theory allows a plaintiff to recover damages against defendants based on their proportion of the market share at the time the injury was caused if the defendants all produced an identical, or fungible product, and the plaintiff is unable to identify which manufacturer produced the product that caused their injuries. See *Sindell v. Abbott Labs.*, 607 P.2d 924 (Cal. 1980) (establishing market share liability theory and apportioning liability based on the relative market share of each of the liable defendants). The Minnesota Supreme Court has not explicitly accepted or rejected the market share liability theory. See *Bixler v. J.C. Penney Co.*, 376 N.W.2d 209, 214 n.1 (Minn. 1985) (“We express no opinion as to whether we would adopt such a rule [market share liability], particularly where the product involved is not

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entirely fungible with similar products on the market.”). Because the Minnesota Supreme Court has not categorically ruled out the market share liability theory, it is possible that under the right set of facts, that theory of recovery may be available.

Minnesota can allege a market share liability theory if it is unable to prove which fossil fuel company caused its injuries because each fossil fuel company’s products are fungible with regard to their GHG emissions. The Wisconsin Supreme Court adopted a version of the market share liability theory known as the “risk contribution theory” in *Collins v. Eli Lilly Co.*, the state’s first DES case. 342 N.W.2d 37, 49 (Wis. 1984). In *Collins*, the Wisconsin Supreme Court recognized that the plaintiff would face an insurmountable obstacle if she had to prove which defendant manufactured the DES that her mother ingested based on the lack of records and pharmaceutical practices at that time. *Id.* at 44–45. Despite this, the Court found that Collins was entitled to a remedy at law for her injuries under the Wisconsin Constitution and therefore took the task of fashioning an adequate remedy. *See Id.* at 45 (“When an adequate remedy or forum does not exist to resolve disputes or provide due process, the courts, under the Wisconsin Constitution, can fashion an adequate remedy.”). Compare WIS. CONST. art. 1, § 9 (“Every person is entitled to a certain remedy in the laws for all injuries, or wrongs which he may receive in his person, property, or character.”) with MINN. CONST. art. 1, § 8 (“Every person is entitled to a certain remedy in the laws for all injuries or wrongs which he may receive to his person, property or character . . .”).

In *Collins*, the Wisconsin Supreme Court held that for cases seeking recovery for harms associated with DES, and situations factually similar to DES cases, “the plaintiff need only allege and prove that the defendant drug company produced or marketed the drug DES for use in preventing miscarriages during pregnancy.” *Id.* at 50. In order to protect defendant drug

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companies that could not have contributed to Collins injury, the Court held that a defendant could escape liability if it could prove by a preponderance of evidence that the DES it produced or marketed could not have reached the plaintiff's mother. *Id.* at 197–98. The defendants could apportion liability using the comparative negligence theory, with the jury determining each company's liability based on a number of factors including whether the company tested DES for safety, sought FDA approval, issued warnings about DES, produced or marketed DES after it knew of possible risks, and whether it took affirmative steps to reduce risk of injury to public. *Id.* at 199–200.

The Wisconsin Supreme Court later extended the risk contribution theory to a plaintiff who suffered lead poisoning but could not identify the paint manufacturer that had caused his injury. *See Thomas v. Mallet*, 285 Wis. 2d 236, 256 (Wis. 2005). Because many victims of lead poisoning would be denied an adequate remedy for harm, and Thomas' case was factually similar enough to *Collins*, the Wisconsin Supreme Court agreed that the *Collins* risk-contribution theory should be extended to white lead carbonate claims. *Id.* at 293, 306 (explaining that lead poisoning plaintiffs are severely harmed by a substance they had no control over without an ability to prove with certainty which manufacturer produced or promoted the white lead carbonate that caused the injury).

In sum, both California's market share liability theory or Wisconsin's risk-contribution theory provide viable theories of recovery in Minnesota courts against fossil fuel companies for climate change harm in Minnesota. Fossil fuel companies' actions and the damages in Minnesota stemming from the use of their products closely resemble the factual circumstances of cases involving DES and lead paint. Fossil fuel products are fungible, the fossil fuel companies breached a legally recognized duty by failing to design their products in a reasonably safe

manner, fossil fuel companies continued to market and produce their products despite knowledge of this danger, and the use of these fossil fuel products caused Minnesota’s injuries. Moreover, in the case of fossil fuel companies, there is significant data on the percentage of GHG emissions related to each fossil fuel company’s extraction, production, refining, and sales, making this arguably a stronger case for market share liability or risk-contribution theory than either the DES or lead paint cases.

D. Products Liability Failure to Warn

In Minnesota, “[g]enerally stated, a failure to warn claim has three elements: ‘(1) whether there exists a duty to warn about the risk in question; (2) whether the warning given was inadequate; and (3) whether the lack of a warning was a cause of plaintiff’s injuries.’” *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (quoting *Seefeld v. Crown, Cork & Seal Co., Inc.*, 779 F. Supp. 461, 464 (D. Minn.1991)).

Duty to warn: The first element of a failure to warn claim is whether or not a duty exists. “The duty to warn arises when a manufacturer knew or should have known about an alleged defect or danger, and should have reasonably foreseen that the defect or danger would cause injury.” *Id.* (citing *Seefeld*, 779 F. Supp. at 464; *Harmon Contract Glazing, Inc. v. Libby–Owens–Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). The duty extends to all reasonably foreseeable users. *Whiteford v. Yamaha Motor Corp.*, 582 N.W.2d 916, 918 n.6 (Minn. 1998). The knowledge of an alleged defect or danger can be either actual or constructive. *See Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987) (allowing recovery where the plaintiff either knew of the danger or *should* have known). Because a manufacturer has duty to keep informed of all current scientific knowledge, courts in Minnesota will look to current/past scientific knowledge to help determine whether a manufacturer *should* have known of the risks

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in its products. *Harmon Contract Glazing, Inc. v. Libby-Owens Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992).

Fossil fuel companies had both actual and constructive knowledge, particularly in light of scientific knowledge generally accepted at the time, that their fossil fuel products were dangerous due to their emissions of GHGs. It was also reasonably foreseeable that climate change damages would result from these emissions and thus fossil fuel companies had a duty to warn potential users of the foreseeable dangers.

However, a manufacturer has no duty to warn of dangers that are obvious to anyone using the product. See *Drager v. Aluminum Indus. Corp.*, 495 N.W.2d 879, 884 (Minn. Ct. App. 1993). “A failure to warn ‘is not the proximate cause of injury if the user is aware of the danger posed by the device in issue.’” *Shovein v. SGM Group USA, Inc.*, 2008 WL 11348494, at *6 (D. Minn. 2008) (citing *Mix v. MTD Products, Inc.*, 393 N.W.2d 18, 19 (Minn. App. 1986)). For example, in *Mix v. MTD*, the Minnesota Court of Appeals held that MTD did not have a duty to warn of the danger that could result from attempting to reattach a belt while the lawnmower’s engine was in neutral because the danger was obvious to most potential users. *Mix v. MTD Prods., Inc.*, 393 N.W.2d 18, 20 (Minn. Ct. App. 1986). Because of fossil fuel companies’ protracted and intensive denialist campaign, the dangers of using fossil fuel products were not obvious to the public.

Adequate warning: Second, if a warning was issued it must be adequate. “To be legally adequate, a product supplier’s warning to a user of any foreseeable dangers associated with the product’s intended use should (1) attract the attention of those that the product could harm; (2) explain the mechanism and mode of injury; and (3) provide instructions on ways to safely use the product to avoid injury.” *Gray v. Badger Min. Corp.*, 676 N.W.2d 268, 274 (Minn. 2004).

Consumers of fossil fuel products were prevented from recognizing the risk that fossil fuel products would cause grave climate changes because the companies “individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, and advanced pseudo-scientific theories of their own.” Complaint at ¶ 318, *County of Santa Cruz v. Chevron Corp.* (Cal. Super. Ct. 2018). ~~Therefore, any~~ warnings that may have publicized the danger to the public or Minnesota were undermined and rendered ineffective because of the companies’ public relations materials and campaigns. *Id.*

Causation: In order to recover under a failure to warn theory, the plaintiff must show a causal connection between the inadequate warning or failure to warn and the injuries he or she sustained. *Rients v. Int’l Harvester Co.*, 346 N.W.2d 359, 362 (Minn. Ct. App. 1984). Minnesota courts have interpreted this as requiring the plaintiff to show that *had* adequate warnings been provided, the injury would not have occurred. *See Hauenstein v. Loctite Corp.*, 347 N.W.2d 272, 276 (Minn. 1984) (explaining that causation is not met when the accident would have occurred whether or not there was a warning). While many states have adopted a “heeding presumption”—a rebuttable presumption that if warnings had been provided, they would have been read and heeded—the Minnesota Supreme Court specifically declined to do so in a failure to warn case. *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99–100 (Minn. 1987); *see also Tuttle v. Lorillard Tobacco Co.*, 377 F.3d 917, 925 (8th Cir. 2004) (~~predicting that Minnesota courts would not adopt the heeding presumption~~). Furthermore, when a plaintiff requested the Minnesota Court of Appeals to adopt the heeding presumption in *Montemayor v. Sebright Products, Inc.* (unpublished case) the Court found that it was not its role “to extend the law.” 2017 WL 5560180, at *3 (Minn. Ct. App. 2017).

Commented [AJ42]: I think it’s safe to say that there were no warnings. Their research programs issued numerous warnings internally re the catastrophic impacts of climate change, while their public affairs offices (and industry-funded scientists and coalitions/third party orgs) actively denied and concealed this information

However, the U.S. Court of Appeals for the Eighth Circuit has noted that to establish causation in Minnesota failure to warn cases “it is sufficient to present testimony that purchasers would have avoided the risk of harm had they been told of the relevant danger.” *In re Levaquin Products Liability Litigation*, 700 F.3d 1161, 1168 (8th Cir. 2012) (citing *Erickson v. American Honda Motor Co., Inc.*, 455 N.W.2d 74, 77 (Minn. Ct. App. 1990)). This type of testimony can be rebutted by evidence that the plaintiff knew of the danger or disregarded other dangers or ignored other warnings. 27 Minn. Prac. Series § 4.11 (2018). This was at issue in *Tuttle v. Lorillard Tobacco Co.* because Tuttle passed away from oral cancer (caused by defendant’s smokeless tobacco product) before he could testify that he would have avoided the risk of harm if he had been told of the danger. 377 F.3d at 925 (8th Cir. 2004). Furthermore, the Court reasoned that because Tuttle continued to use smokeless tobacco until 1993, even after the Smokeless Tobacco Act required warnings in advertising and on packaging as early as February 1987, that “Tuttle’s actions undercuts any ‘heeding presumption’ and any reasonable reliance arguments.” *Id.* at 927 n.6.

Had Minnesota been adequately warned of the significance of danger that fossil fuel consumption and use presented to the state and the public, it would have heeded said warnings and either consumed fewer fossil fuel products or began to transition away from a fossil fuel dependent economy much sooner.

E. Public Nuisance

Under Minnesota law, public nuisance is a misdemeanor offense, defined in Minn. Stat. § 609.74:

[w]hoever by an act or failure to perform a legal duty intentionally does any of the following is guilty of maintaining a public nuisance, which is a misdemeanor:

(1) maintains or permits a condition which unreasonably annoys, injures or endangers the safety, health, morals, comfort, or repose of any considerable number of members of the public; or

(2) interferes with, obstructs, or renders dangerous for passage, any public highway or right-of-way, or waters used by the public; or

(3) is guilty of any other act or omission declared by law to be a public nuisance and for which no sentence is specifically provided.

Minn. Stat. § 609.74 (2018). Under Minn. Stat. § 609.745, “[w]hoever having control of real property permits it to be used to maintain a public nuisance or lets the same knowing it will be so used is guilty of a misdemeanor.” Minn. Stat. § 609.745 (2018). Statutory public nuisance violations brought under § 609.74 are enforced through criminal prosecution. However, it is unlikely that a claim for damages could be sought under the criminal statute, and instead this statute would provide a means for injunctive relief or abatement. *See* Minn. Stat. § 617.80 et seq. Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. *But see Doe 30 v. Diocese of New Ulm*, No. 62-CV-14-871, 2014 WL 10936509 at *9 (Minn. Dist. Ct. 2014) (“While plaintiff’s Complaint asserts a common-law public nuisance claim, it is evident from Minnesota’s public-nuisance jurisprudence that common-law claims either no longer exist or are synonymous with section 609.74 claims.”).

Common law public nuisance claims in Minnesota appear to be rare; the majority of public nuisance claims seem to be brought primarily under municipal nuisance ordinances or the state public nuisance statute. For example, in *State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545 (Minn. 1911), the Minnesota Supreme Court considered the validity of a Minneapolis city ordinance that declared the emission of smoke from locomotives a public nuisance, prohibiting the use of soft coal. The court recognized that although the Legislature

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cannot prevent a lawful use of property by prohibiting non-nuisance uses, “it is equally clear that acts or conditions which are detrimental to the comfort and health of the community may be effectively declared nuisances by the Legislature, and in the exercise of that power specified acts or conditions may be declared a nuisance, although not so determined at common law.” *Id.* at 546.

Likewise, in *State v. Lloyd A. Fry Roofing Co.*, 246 N.W.2d 692 (Minn. 1976), the Minnesota Supreme Court held that:

[T]he general rule regarding nuisances is that “it is immaterial how innocent the intent was[,] for the element of motive or intent does not enter into the question of nuisance,” so a state legislature may declare certain acts to be nuisances regardless of the intent with which they are carried out and even though they were not such at common law, or the legislature may delegate this authority to a municipal corporation.

Id. at 538 (citing Joyce, *Law of Nuisance*, § 43 at 77 & §§ 81, 84). On the subject of common law public nuisance, the court cites Dean Prosser’s work on tort law and notes that intent and failure to act reasonably are not essential elements of common-law nuisance violations, and “are even less relevant to nuisances that are codified in statutes or ordinances.” *Id.* at 539.

Although statutory public nuisance claims seem to make up the vast majority of cases in Minnesota, common law public nuisance may still resemble the Restatement approach: interference with public property or a right common to the public. *See* Restatement (Second) of Torts § 821B(1). Although the court in *Doe 30 v. Diocese of New Ulm* considered the matter, it is a district court decision and the analysis is dicta because the court did not reach a decision on the issue.

Significantly, in 2010, Minnesota Attorney General Lori Swanson brought “common law nuisance” claims against 3M Company over chemicals it produced known as perfluorochemicals (PFCs). *See* Complaint, *State v. 3M Co.*, No. 27-CV-10-28862, 2010 WL 5395085 at ¶¶ 83–89,

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90–97 (D. Minn. Dec. 30, 2010). In particular, the complaint alleged damages for common law nuisance for contamination of surface water, groundwater, and sediments by PFCs released by 3M. The Attorney General claimed that the “use, enjoyment and existence of the State’s groundwater, surface water and sediments, free from interference, is a *common right* to citizens of the state.” *Id.* at ¶ 84 (emphasis added). 3M’s alleged contamination of groundwater, surface water, and sediments with PFCs “materially and substantially interferes with State citizens’ free enjoyment of these natural resources, and constitutes a public nuisance.” *Id.* at ¶ 85.

Commented [AJ45]: This case seems very significant and on point. Has this case been decided? What was the outcome?

F. Private Nuisance

Minnesota’s statutory private nuisance law is covered by Minn. Stat. § 561.01:

Anything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.

Minn. Stat. § 561.01 (2018).

A private nuisance requires interference with another’s use of property. *See Uland v. City of Winstead*, 570 F. Supp. 2d 1114, 1120 (D. Minn. 2008). There must be some type of conduct that causes the alleged nuisance harm, and that conduct must be “wrongful.” *See Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65, 70–71 (Minn. 1982) (citing *Randall v. Village of Excelsior*, 103 N.W.2d 131, 134 (1960)). This wrongful conduct varies, and may be characterized as, for example, intentional conduct, negligence, ultrahazardous activity, violation of a statute, or some other type of tortious activity. *Id.*

Minnesota’s [private](#) nuisance statute appears to provide a broader cause of action than common law nuisance under the Restatement (Second) of Torts, as § 561.01 does not require that

the action be intentional or unreasonable. The Minnesota Supreme Court has found that Minnesota’s nuisance statute “defines a nuisance in terms of the *resultant harm* rather than in terms of the kind of conduct by a defendant which causes the harm . . . Where pollutants cause the harm, such as where sewage is deposited on plaintiff’s property, the wrongful conduct appears to be self-evident.” *Id.* (emphasis added). The Minnesota Supreme Court has likewise declined to consider an application of the Restatement nuisance test, preferring instead to use § 561.01 and Minnesota case law. *Id.*

In addition to nuisance abatement, a successful plaintiff may recover damages sustained as a result of the activity. Minn. Stat. § 561.01. Minnesota courts have found a variety of activity to be private nuisances. *Heller v. American Range Corp.*, 234 N.W. 316 (Minn. 1931) (industrial plants transferring dust to adjacent residential property); *Brede v. Minnesota Crushed Stone Co.*, 179 N.W. 638 (Minn. 1920) (limestone quarries giving off noise, fumes, and odors); *Fagerlie v. City of Wilmar*, 435 N.W.2d 641 (Minn. App. 1989) (wastewater treatment plant odors); *Schrupp v. Hanson*, 235 N.W.2d 822 (Minn. 1975) (poultry and hog farm odors); *Highview North Apts. v. County of Ramsey*, 323 N.W.2d 65 (Minn. 1982) (water and sewage runoff).

In *Johnson v. Paynesville Farmers Union Co-op Oil Co.*, 817 N.W.2d 693, 706 (Minn. 2012), the Minnesota Supreme Court considered the state’s approach to private nuisance in an action brought by an organic farmer against a co-op alleged to have caused pesticides to drift onto the organic farm. Citing Minn. Stat. § 561.01, the ~~supreme~~Supreme court~~Court~~ found that an action that seeks an injunction or to recover damages can be brought under the statute by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance. The plaintiff must show that the defendant’s conduct caused an interference with the use or enjoyment of the plaintiff’s property. *Id.* As an equitable cause of action, the ~~court~~Court

stated that § 561.01 “implicitly recognized a need to balance the social utility of defendants’ actions with the harm to the plaintiff.” *Highview North Apartments v. County of Ramsey*, 323 N.W.2d 65, 71 (Minn. 1982).

In deciding the issue of nuisance, the *Johnson* court cited *Highview North Apartments v. County of Ramsey*, in which the Minnesota Supreme Court held that “disruption and inconvenience” caused by a nuisance are actionable damages. *Johnson v. Paynesville Farmers Union* at 713 (citing *Highview North Apts.*, 323 N.W.2d at 73). In *Highview*, a plaintiff sued multiple municipalities over harm that consisted of groundwater seeping into two apartment building basements, a condition that the court found to be “ongoing, injurious to the premises, substantial, and likely to worsen.” *Highview North Apts.*, 323 N.W.2d at 71. Applying the *Highview* ruling, the *Johnson* court remanded the plaintiffs’ allegations that they suffered from “cotton mouth, swollen throat and headaches” because they were exposed to pesticide drift. *Id.* The court held that the inconvenience and adverse health effects, if proven, would affect the plaintiffs’ ability to use and enjoy their land and thereby constitute a nuisance, and so the issue was remanded for further fact-finding, including an assessment of damages. *Id.*

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G. Trespass

In Minnesota, “[t]respass encompasses any unlawful interference with one’s person, property, or rights, and requires only two essential elements: a rightful possession in the plaintiff and unlawful entry upon such possession by the defendant.” *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003), *review denied* (Minn. Aug. 5, 2003). Minnesota courts have described trespass as “an invasion of the plaintiff’s right to exercise exclusive possession of the land” while “nuisance is an interference with the plaintiff’s use and enjoyment of the land.” *Fagerlie v. City of Willmar*, 435 N.W.2d 641, 644 n.2 (Minn. Ct App. 1989); *see also Johnson v.*

Paynesville Farmers Union Coop Oil Co., 817 N.W.2d 693, 701 (Minn. 2010) (stating that unlawful entry “must be done by means of some physical, tangible agency in order to constitute a trespass.”). Actual damages are not an element of the tort of trespass. *Johnson v. Paynesville Farmers Union* at 701 (citing *Greenwood v. Evergreen Mines Co.*, 19 N.W.2d 726, 734–35 (Minn. 1945)). In the absence of actual damages, the trespasser is liable for nominal damages. *Id.* (citing *Sime v. Jensen*, 7 N.W.2d 325, 328 (Minn. 1942)). Because trespass is an intentional tort, reasonableness on the part of the defendant is not a defense to trespass liability. *Id.* (citing *H. Christiansen & Sons, Inc. v. City of Duluth*, 31 N.W.2d 270, 273–74 (Minn. 1948)).

In *Johnson v. Paynesville Farmers Union Co-op. Oil Co.*, the Minnesota Supreme Court considered the question of whether particulate matter, such as pesticide drift can result in a trespass. *Id.* (noting that the “particulate matter” has been defined as “material suspended in the air in the form of minute solid particles or liquid droplets, especially when considered as an atmospheric pollutant.”). The Supreme Court found that Minnesota case law is consistent with a traditional formulation of trespass that has recognized trespasses when a person or a tangible object enters the plaintiff’s land and interferes with rights of exclusive possession. *Id.* According to the court, “disruption to the landowner’s exclusive possessory interest is not the same when the invasion is committed by an intangible agency, such as the particulate matter [pesticides] at issue here.” *Id.* at 702. “Such invasions,” the court continued, “may interfere with the landowner’s use and enjoyment of her land, but those invasions do not require that the landowner share possession of her land in the way that invasions by physical objects do.” *Id.*; see also *Wendinger v. Forst Farms, Inc.*, 662 N.W.2d 546, 550 (Minn. Ct. App. 2003) (noting that Minnesota “has not recognized trespass by particulate matter” and rejecting a trespass claim over offensive odors). The court declined to abandon traditional distinctions between trespass and

nuisance law, and noted that the public policy concerns that compelled other jurisdictions to blur the lines between trespass and nuisance (e.g. statutes of limitations) are not present in Minnesota. *Id.* at 704–05. “In summary, trespass claims address tangible invasions of the right to exclusive possession of land, and nuisance claims address invasions of the right to use and enjoyment of land.” *Id.* at 705.

The Minnesota Attorney General lawsuit against 3M claimed trespass damages against the state’s public trust resources. [Complaint, *State of Minnesota v. 3M Company*, No. 27-CV-10-28862, 2010 WL 5395085 \(D. Minn. 2010\)](#). Much of the state’s suit was focused on direct groundwater and surface water pollution, issues which are unlikely to be present when dealing with oil refineries, emissions, and climate ~~change~~ damages. However, the effects of climate change can impact surface and groundwater in other ways that are not as direct, such as harm to aquatic organisms and plants through warmer waters, increased flooding and erosion from more severe storms and precipitation, drought, algae blooms, etc. Thus, a trespass claim against fossil fuel companies for climate change damages would be based on indirect invasions of property.

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H. Strict Liability for Abnormally Dangerous Activity

The Second Restatement of Torts on Strict Liability for Abnormally Dangerous Activities is not controlling law in Minnesota, though Minnesota courts have discussed §§ 519–520. Restatement (Second) of Torts § 519–520 (1977); *see, e.g., Mahowald v. Minnesota Gas Co.*, 344 N.W.2d 856, 860–61 (Minn. 1984); *Cairly v. City of St. Paul*, 268 N.W.2d 908 (Minn. 1978); *Ferguson v. Northern States Power Co.*, 239 N.W.2d 190 (Minn. 1976); *Quigley v. Village of Hibbing*, 129 N.W.2d 765 (Minn. 1964). For example, in *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993), the Minnesota Court of Appeals noted that “[a]lthough this Restatement section is not controlling law in Minnesota, because the supreme

court has recognized it in other cases, *see, e.g., Mahowald v. Minnesota Gas Co.* . . . we believe the trial court's use of it was appropriate." *Estrem v. City of Eagan*, 1993 WL 527888 at *1 (Minn. Ct. App. 1993).

However, the Minnesota Supreme Court has been careful to note that while "we have recognized the applicability of [the Restatement §§ 519 and 520] in other contexts, that is all we did—recognize the existence of those two sections. In none of these cases did we apply those sections, nor has our attention been directed to any other case where we did apply them." *Mahowald*, 344 N.W.2d at 861. The Minnesota Supreme Court has explicitly rejected applying Restatement §§ 519–520 in strict liability cases for accidents arising out of escaping gas from lines maintained in public streets. *Id.*

Nevertheless, applying strict liability without proof of negligence is consistent with a long line of Minnesota cases involving abnormally dangerous activities. *See, e.g., Sachs v. Chiat*, 162 N.W.2d 243 (1968) (pile driving abnormally dangerous activity that requires liability without fault); *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924) (waterworks operated by municipal corporation requires liability without fault); *Wiltse v. City of Red Wing*, 109 N.W. 114 (Minn. 1906) (collapse of reservoir destroying plaintiff's house requires liability without fault); *Berger v. Minneapolis Gaslight Co.*, 62 N.W. 336 (Minn. 1895) (petroleum that escaped from gas company's tanks, damaging wells and cellars, requires liability without fault); *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (Minn. 1871) (tunnel collapse under property lessee's land requires liability without negligence in its construction or maintenance).

The Minnesota Supreme Court was one of the first American jurisdictions to adopt the famous English tort law ruling on strict liability, *Rylands v. Fletcher*. *See, e.g., Minnesota Mining & Mfg. Co. v. Travelers Indem. Co.*, 457 N.W.2d 175, 183 (Minn. 1990). In *Rylands*,

defendant owners of a mill built a reservoir to supply their mill with water. *Rylands v. Fletcher*, LR 3 H.L. 330 (1868). The plaintiff leased coal mines on neighboring land between the reservoir and the mill. Water from the reservoir burst into old, unused mine shafts, and flooded the mine. When the defendants appealed, arguing that they did not know that the flooded shafts were connected to the mine, the House of Lords held that the plaintiff did not need to prove negligence, because “the person who, for his own purposes, brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril.” *Id.* at 339.

On the relationship of obligation between neighbors, the *Ryland* court found that:

[I]t seems but reasonable and just that the neighbour who has brought something on his own property (which was not naturally there), harmless to others so long as it is confined to his own property, but which he knows will be mischievous if it gets on his neighbour’s, should be obliged to make good the damage which ensues if he does not succeed in confining it to his own property.

Id. at 340.

In *Kennedy Building Associates v. Viacom, Inc.*, the U.S. Court of Appeals for the Eighth Circuit found that Minnesota has “not limited the *Rylands* cause of action to cases in which the plaintiff and defendant were neighboring landowners,” citing *Hannem v. Pence*, a case in which a plaintiff was injured by falling ice while walking past a defendant’s building. *Kennedy Building Associates v. Viacom, Inc.*, 375 F.3d 731, 740 (8th Cir. 2004) (citing *Hannem v. Pence*, 41 N.W. 657 (Minn. 1889)). The Minnesota Supreme Court has also applied the *Rylands* rule to defendants that do not own the land on which they created a hazard. See *Cahill v. Eastman*, 18 Minn. 324 (Gil. 292) (1871). Under Minnesota’s strict liability rule, it makes no difference that a defendant is no longer in possession of control of the instrumentality that caused a hazard. *Id.*

Minnesota has also applied strict liability for abnormally dangerous activity to enterprises that ultimately benefit the community. Although these activities may be useful to society, the

court has found that as times change and large-scale industrial activity increases, the responsibility for damages from useful operations should not fall on harmed individuals. *Bridgeman-Russell Co. v. City of Duluth* involved a waterworks operated by a municipal corporation that discharged water, damaging the plaintiff's property. *Bridgeman-Russell Co. v. City of Duluth*, 197 N.W. 971 (Minn. 1924). The Minnesota Supreme Court imposed strict liability, without requiring proof of negligence, stating that:

Congestion of population in large cities is on the increase. This calls for water systems on a vast scale either by the cities themselves or by strong corporations. Water in immense quantities must be accumulated and held where none of it existed before. If a break occurs in the reservoir itself, or in the principal mains, the flood may utterly ruin an individual financially. In such a case, even though negligence be absent, natural justice would seem to demand that the enterprise, or what really is the same thing, the whole community benefited by the enterprise, should stand the loss rather than the individual. It is too heavy a burden upon one.

Id. at 972.

In light of this Minnesota case law expressing a fairly expansive view of strict liability, even in the case of activities that have social value, a claim by Minnesota against fossil fuel companies for climate change damages would appear to fit squarely within a claim for strict liability for abnormally dangerous activities.

H. Other Claims

Minnesota could also consider claims under the Minnesota Environmental Rights Act, Minn. Stat. ch. 116B ("MERA"), and the Minnesota Environmental Response, Compensation, and Liability Act, Minn. Stat. ch. 115B ("MERLA"). In particular, the Minnesota Attorney General lawsuit against 3M discussed earlier contained a MERLA claim. The applicability of these claims to a potential lawsuit against fossil fuel companies for climate change damages is not discussed in this Memorandum but could be subject to further investigation.

I. Applicable Statutes of Limitations for All Claims

The statute of limitations for violations of the consumer protection laws is six years. Minn. Stat. § 541.05(2). Fraud allegations are also subject to a six-year statute of limitations under Minn. Stat. § 541.05(6), which begins upon “discovery by the aggrieved party of the facts constituting the fraud.” The statute of limitations may be suspended for fraudulent concealment if the facts which establish the cause of action are fraudulently concealed. *Hydra-Mac, Inc. v. Onan Corp.*, 450 N.W.2d 913, 918–19 (Minn. 1990). Antitrust claims in Minnesota are subject to a four-year statute of limitations, although “a cause of action for a continuing violation is deemed to arise at any time during the period of the violation.” Minn. Stat. § 325D.64, subd. 1.

For the product liability claims, a four-year statute of limitations applies to strict products liability claims, while a six-year statute of limitations applies to negligence claims. *See* Minn. Stat. § 541.05, subds. 1–2. However, because Minnesota courts have merged negligence and strict products liability theories into one single recovery for design defect and failure to warn claims, it is arguable that the six-year negligence statute of limitations would apply. For example, in *Klempka v. G.D. Searle & Co.* the U.S. Court of Appeals for the Eighth Circuit applied Minnesota law to hold that the statute of limitations was six years for a products liability claim. 63 F.2d 168, 170 (8th Cir. 1992).

For the common law tort claims of strict liability for abnormally dangerous activities, public nuisance, and private nuisance, and trespass, it is likely that a six-year statute of limitations would apply as such claims fall under the general six-year statute of limitations found in Minn. Stat. § 541.05, subd. 1(2). *See e.g., Citizens for a Safe Grant v. Lone Oak Sportsmen’s Club, Inc.*, 624 N.W.2d 796 (Minn. Ct. App. 2001) (six-year limitations period applied to

trespass and nuisance actions brought by neighborhood organization against gun club operating outdoor shooting ranges).

Two elements must be satisfied before a cause of action accrues for any of the common law claims: “(1) a cognizable physical manifestation of the disease or injury, and (2) evidence of a causal connection between the injury or disease and the defendant’s product, act, or omission.” *Narum v. Eli Lilly and Co.*, 914 F. Supp 317, 319 (D. Minn. 1996). Under Minnesota law, “[a] plaintiff who is aware of both her injury and the likely cause of her injury is not permitted to circumvent the statute of limitations by waiting for a more serious injury to develop.” *Klempka v. G.D. Searle & Co.*, 963 F.2d 168, 170 (8th Cir. 1992).

Fossil fuel company defendants may allege that Minnesota’s claims are time barred because the first cognizable physical manifestation of climate change damages occurred longer than six years ago. However, Minnesota also recognizes the continuing violation doctrine. *Brotherhood of Ry. and S.S. Clerks, Freight Handlers & Station Employees v. State by Balfour*, 229 N.W.2d 3, 193 (Minn. 1975). That doctrine holds that when a violation is ongoing, the statute of limitations does not run from the initial wrongful action, but rather begins to run only when the wrong ceases. *N. States Power Co. v. Franklin*, 122 N.W.2d 26, 30-31 (Minn. 1963). For example, in *Hempel v. Creek House Train*, the Minnesota Supreme Court found that the defendant’s continuing negligence tolled the limitations period. *Hempel v. Creek House Tr.*, 743 N.W.2d 305, 312 (Minn. 2007).

While there have been a number of cases where courts applying Minnesota law have found that the continuing violation doctrine did not apply based on the facts of the case, these were not categorical exclusions of the doctrine in Minnesota. *See e.g., Union Pac. R.R. Co. v. Reilly Indus., Inc.*, 4 F. Supp. 2d 860, 867 (D. Minn. 1998) (holding that the continuing wrong

doctrine did not apply because there was no “leakage from storage tanks or basins,” and that any “leakage” ceased before the relevant limitations period expired). Because the fossil fuel companies’ extraction, production, marketing, and sale of fossil fuel products has continued, the continuing violation doctrine would apply, and the claims would not be barred by the statute of limitations.

Re: shorter memo

From: [REDACTED]
To: Alyssa Johl <alyssa@climateintegrity.org>
Cc: Alexandra Klass <aklass@umn.edu>, Judith Enck <judith@climateintegrity.org>, [REDACTED] Michael Noble <Noble@fresh-energy.org>
Sent: March 4, 2019 10:46:00 AM CST
Received: March 4, 2019 10:46:14 AM CST

Thank you very much for your extremely thoughtful comments.

On Mon, Mar 4, 2019 at 10:02 AM Alyssa Johl <alyssa@climateintegrity.org> wrote:

Dear Alex and all,

I hope this message finds you well. Attached is the shorter of the memos you sent through with comments. I made some proposed editorial changes to the first few paragraphs (using track changes), but otherwise used comments to flag where further analysis/clarification might be useful. I would be happy to jump on a call to discuss and/or review the next draft once you and your team have had a chance to work through it.

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Please do not hesitate to reach out with any questions.

Many thanks,
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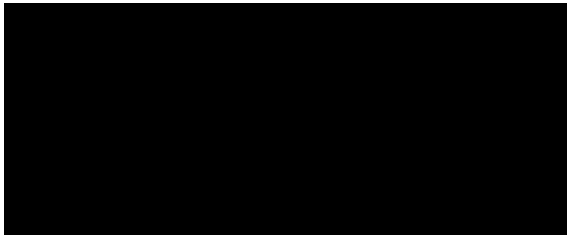
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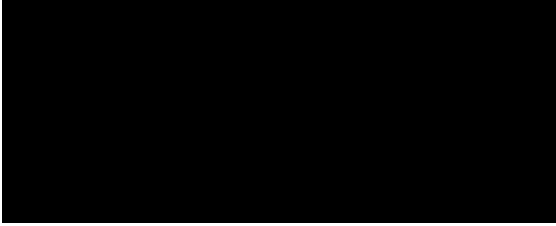
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To: Alyssa Johl <alyssa@climateintegrity.org>

Cc:

[REDACTED] Michael Noble <Noble@fresh-energy.org>

Sent: March 4, 2019 11:42:58 AM CST

Received: March 4, 2019 11:43:07 AM CST

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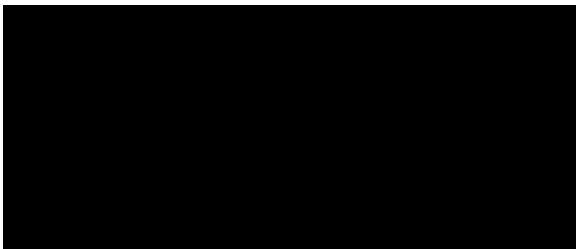
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Cc: Alyssa Johl <alyssa@climateintegrity.org>, [REDACTED]
[REDACTED] Michael Noble
<Noble@fresh-energy.org>
Sent: March 4, 2019 12:17:40 PM CST
Received: March 4, 2019 12:17:42 PM CST

Dear Judith: Yes, we will review the comments/edits received today from Alyssa and revise accordingly.

Best,

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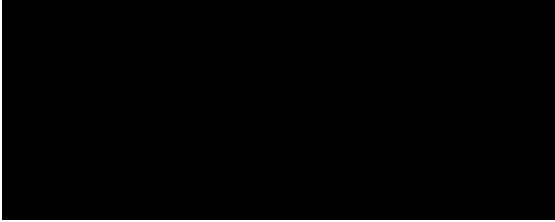
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