3M lawsuit

From:	Alexandra Klass <aklass@umn.edu>
To:	Alyssa Johl <alyssa@climateintegrity.org>
Sent:	March 4, 2019 2:47:28 PM CST
Received:	March 4, 2019 2:47:30 PM CST

Hi Alyssa, the 3M case settled on the courthouse steps on the first day of trial for $850 million.

http://www.startribune.com/jury-selection-in-3m-trial-begins-today/474581573/

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 Mar 4, 2019, at 6:02 AM, Alyssa Johl <alyssa@climateintegrity.org> wrote:

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On Tue, Feb 26, 2019 at 10:46 AM [redacted] wrote:

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Best regards,

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"Longer" memorandum in both Word and PDF
"Shorter" memorandum in both Word and PDF
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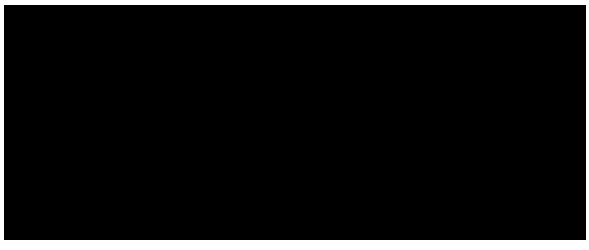

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Re: shorter memo

From: Alexandra Klass <aklass@umn.edu>
To: Judith Enck <judith@climateintegrity.org>
Cc: alyssa@climateintegrity.org, Michael Noble <noble@fresh-energy.org>
Sent: March 4, 2019 5:53:08 PM CST
Received: March 4, 2019 5:53:10 PM CST

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Sent: March 4, 2019 7:24:01 PM CST
Received: March 4, 2019 7:24:05 PM CST

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Revised Climate Change Memorandum

From:	Alexandra Klass <aklass@umn.edu>
To:	Alyssa Johl <alyssa@climateintegrity.org>, Michael Noble <Noble@fresh-energy.org>, Judith Enck <judith@climateintegrity.org>
Cc:	[redacted]
Sent:	March 11, 2019 8:20:18 AM CDT
Attachments:	Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (UMN Edits).docx

Dear Alyssa and Judith: I attach the revised climate change memorandum. Please let me know if we have addressed all your proposed changes. Also, do you want to do a call about next steps later this week? If so, Wednesday morning or Thursday or Friday afternoons would work for me.

Best,

Alex

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Type:	application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size:	108 KB (111,450 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

[redacted] Minnesota Law Class of 2020
[redacted] Minnesota Law Class of 2020
[redacted] Minnesota Law Class of 2020
[redacted] Minnesota Law Class of 2019

DATE: March 11, 2019

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

INTRODUCTION

The State of Minnesota has already suffered harm associated with climate change resulting from the use of fossil fuels. These harms will increase in future years, resulting in additional, significant costs and damages to the State. These harms 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;

- 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.[1]

As a means to recover the costs that have been incurred and will be incurred by the State of Minnesota, this Memorandum describes potential causes of action that the State of Minnesota could bring against the largest, investor-owned fossil fuel companies to establish liability for their contributions to climate-related harms in Minnesota. Such a lawsuit would likely be brought in Minnesota District Court, modeled after complaints filed by several municipalities, one state, and one industry trade association against the fossil fuel companies for damages.

Part I of this memorandum provides an overview of the climate damages lawsuits brought in other states as well as 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 consumer protection claims, product liability claims (design defect and

[1] The nature of the harms summarized here are set forth in detail in the separate Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy.

failure to warn), and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

As in other climate damages cases, the defendants would likely include the largest, investor-owned fossil fuel companies, such as BP, Chevron, ConocoPhillips, ExxonMobil, and Shell. Despite their long-standing knowledge of the risks associated with their products, these companies extracted, produced, promoted, and sold fossil fuel products that released massive amounts of CO_2 into the atmosphere. Based on peer-reviewed research referred to as the "Carbon Majors" report, 90 fossil fuel producers and cement manufacturers are known to be responsible for 63% of cumulative CO_2 and methane emissions 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). Twenty-eight companies are responsible for 25% of emissions since 1965. *Id.* In each of the climate damages lawsuits, plaintiffs have sued some set of defendants identified in the Carbon Majors report—for example, in the San Mateo lawsuit, described in in Part I.A., Plaintiffs sued twenty-three named oil, gas, and other fossil fuel companies and their subsidiaries, which the Plaintiffs allege are responsible for 20.3% of total CO_2 emissions between 1965 and 2015.

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides an overview of the recent climate damages lawsuits brought by several municipalities, one state, and one trade association against fossil fuel companies seeking damages for

climate-related harms.[2] This section will also discuss the positions of Attorneys Generals who have expressed their support or opposition to the climate damages lawsuits.

A. Damages Lawsuits for Climate-Related Harms

In 2017 and 2018, several governmental actors and one private brought lawsuits seeking damages for climate-related harms caused by the extraction, production, promotion, and sale of fossil fuel products. The complaints assert statutory and common law claims including consumer protection, public nuisance, private nuisance, trespass, and products liability. At the core of these lawsuits, Plaintiffs allege 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. 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." Complaint, *County of San Mateo v. Chevron Corp.,* No. 17CIV03222 (Cal. Super. Ct. July 17, 2017).[3]

These lawsuits are the second generation of tort lawsuits against fossil fuel companies for climate-related harms. The first lawsuits, filed in the early 2000s, sought relief in federal court

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[2] Other related actions include the lawsuit brought by the New York Attorney General against ExxonMobil for investor fraud, the investigation by the Massachusetts Attorney General as to whether ExxonMobil misled consumers and investors, and other climate lawsuits (such as *Juliana v. U.S.*, in which 21 youth plaintiffs have brought constitutional and public trust claims against the U.S. federal government in order to establish a national climate recovery plan). However, this Memorandum focuses solely on the lawsuits brought by governmental and private entities seeking damages for climate-related harms, and therefore does not address these other actions.

[3] A common argument among defendants is that federal court is the proper venue, and that the Clean Air Act displaces the state law claims. Therefore, 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.

under federal common law public nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. *See Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("*AEP*"); *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 recent second-generation climate damage litigation using state law to hold fossil fuel companies accountable for climate-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 plaintiffs' federal common law claims because the statute directly authorizes the EPA to regulate CO_2 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 Ninth Circuit 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*, recent litigation against fossil fuel companies to recover for climate-related 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 fossils fuels rather than emissions of GHGs. These second-generation

climate damage lawsuits relying on state law are in early stages of litigation. In every case filed in state court, Defendants have attempted to remove the action to federal court. As detailed below, some of these cases have been dismissed on the merits, others are awaiting rulings on remand motions, and others are on appeal to the Ninth and Second Circuits. Whether Plaintiffs' state law claims are necessarily governed by federal common law and are displaced by the Clean Air Act pursuant to *AEP* is subject to dispute in various courts, as set forth below.[4]

1. Lawsuits where plaintiffs were granted remand to state court, or where remand motions are pending

In the cases described in this section, the Plaintiffs have either succeeded in having the claims remanded to state court or motions for remand are pending.

a. San Mateo v. Chevron

In 2017, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed separate lawsuits 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). In addition to public nuisance, the Plaintiffs 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

[4] Fundamentally important to this analysis are several Supreme Court opinions. In *Illinois v. City of Milwaukee*, the Supreme Court reasoned "[f]ederal common law and not the varying common law of the individual States is. . . necessary. . . for dealing with. . . environmental rights of a State against improper impairment by sources outside its domain. . . until the field has been made the subject of comprehensive legislation or authorized administrative standards." 406 U.S. 91, 107 n.9 (1972). The Supreme Court reaffirmed this principle in *AEP*: "federal common law includes the general subject of environmental law and specifically includes ambient or interstate air and water pollution." 564 U.S. at 421. *See also Int'l Paper Company v. Ouellette*, 479 U.S. 481, 491 (1987) (explaining that state common law for transboundary environmental harms would be available when federal common law is displaced by statute if congress did not also intend to preempt state common law); *Milwaukee v. Illinois*, 451 U.S. 304, 314 (1981) ("[W]hen Congress addresses a question previously governed by a decision rested on federal common law the need for such an unusual exercise of lawmaking by federal courts disappears.").

the known hazards of those products, and their championing of anti-regulation and anti-science campaigns, actually and proximately caused" injuries to Plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. *Id* at 4. Among other remedies, Plaintiffs requested compensatory and punitive damages, and abatement of nuisances. *Id* at i.

Defendants asserted that the claims were necessarily federal common law claims and removed the actions to federal court. Judge Chhabria of the U.S. District Court for the Northern District of California remanded to state court. Judge Chhabria held "federal common law is displaced by the Clean Air Act . . . [when plaintiffs] seek damages for a defendant's contribution to global warming." *Cty. of San Mateo v. Chevron Corp.*, 294 F. Supp. 3d 934, 937 (N.D. Cal. 2018). However, the court went on to state 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*," because federal common that does not provide a cause of action does not provide federal jurisdiction. *Id*. at 937 (emphasis added).

In remanding the case to state court, Judge Chhabria expressly disagreed with Judge Alsup's reasoning discussed below in Section I.A.2.a. 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 with 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). Briefing is now complete in the Ninth Circuit.

b. Rhode Island v. Chevron

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court, and a remand hearing was held on February 6, 2019. 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 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 as opposed to a municipality. The parties are currently waiting for the court's remand decision.

c. Baltimore v. BP

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought suit in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and *San Mateo*, Baltimore alleged that through Defendants' extraction, production, promotion, and 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. Defendants removed the case to federal court, and Baltimore has moved for remand.

d. Pacific Coast Federation of Fishermen's Association v. Chevron

In November 2018, a fishing industry trade group represented by Sher Edling filed a climate damages suit against 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, and the case was assigned to Judge Chhabria who remanded *San Mateo* from federal court to state court.

e. 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, EarthRights International, and the Niskanen Center which is 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 the case to federal court. Plaintiffs moved to remand, and a hearing is scheduled for May 30, 2019.

2. Lawsuits where federal courts considered and dismissed plaintiffs' claims

Defendant fossil fuel companies have universally removed these lawsuits to federal court, although one lawsuit—brought by the City of New York—was originally filed in federal court. Defendants assert, among other things, that Plaintiffs' claims are necessarily governed by federal common law, and the claims must be dismissed according to *AEP*. The cases discussed below are pending in federal district courts or have been dismissed by those courts and are on appeal.

a. City of Oakland v. BP

The cities of San Francisco and Oakland brought separate 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 the 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 lawsuit 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.

After holding a climate science tutorial[5] and oral argument on the motion to dismiss, Judge Alsup dismissed the consolidated 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:

> Plaintiffs' claims. . . though pled as state-law claims, depend on a global complex of geophysical cause and effect involving all nations. . . It demands to be governed by as universal a rule. . . governed by federal common law. . . Congress has vested in the EPA the problem of greenhouse gases and has given it plenary authority to solve the problem at the point of emissions. . . because plaintiffs' nuisance claims centered on defendants' placement of fossil fuels into the flow of international commerce, and because foreign emissions are out of the EPA and Clean Air Act's reach, the Clean Air Act did not necessarily displace plaintiffs' federal common law claims. Nevertheless, these claims are foreclosed by the need for federal courts to defer to the legislative and executive branches when it comes to such international problems. . . question of how to appropriately

[5] *See City of Oakland v. BP,* 325 F. Supp. 3d 1017, 1022 (N.D. Cal. 2018) ("All parties agree that fossil fuels have led to global warming and ocean rise and will continue to do so and that eventually the navigable waters of the United States will intrude upon Oakland and San Francisco.").

> 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 1017, 21, 24–26. Plaintiffs appealed to the Ninth Circuit. Briefing is expected to be complete in early May 2019.

b. 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). Outside counsel includes Hagen Berman and Seeger Weiss. Judge Keenan dismissed for largely similar reasons as Judge Alsup, discussed above:

> [R]egardless of the manner in which the City frames its claims. . . the City is seeking damages for. . . greenhouse gas emissions, and not only the production of Defendants' fossil fuels. . . if ever a problem cried out for a uniform and comprehensive solution, it is the geophysical problem described by the complaints.

City of N.Y. v. BP, 325 F. Supp. 3d 466, 472 (S.D.N.Y. 2018). New York City appealed to the Second Circuit. Briefing is expected to be completed in March 2019.

c. King County v. Chevron

In May 2018, King County of Washington, with outside counsel from Hagens Berman, filed a suit for public nuisance and trespass in Washington state court against 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 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.

B. State Attorneys General taking a Position on Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of Plaintiffs bringing climate damages claims. 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.[6] In support of the fossil fuel companies were Attorney 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), Morrisey (WV), Schimel (WS), and Michael (WY).[7] In *Oakland v. BP*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA) supported the Plaintiffs.[8] In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP.*[9] On January 29, 2019, several Attorneys General filed an amicus brief in the Ninth Circuit supporting the *San Mateo* Plaintiffs by arguing the lower court property remanded to state court. The Amicus Brief was signed by

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[6] *See City of New York v. BP*, COLUMBIA UNIVERSITY SABIN CENTER FOR CLIMATE CHANGE LAW, http://climatecasechart.com/case/city-new-york-v-bp-plc/ (last visited Jan. 1, 2018) (discussing state amicus brief asserting that that the district court's reasoning was inconsistent with states' authority to address environmental harms and that the City's claims were not displaced by federal common law or barred by the Clean Air Act).

[7] *See id.* (state amicus brief in support of motion to dismiss signed by fifteen states, which argued that claims raised nonjusticiable political questions, jeopardized the U.S.'s system of cooperative federalism, threatened extraterritorial regulation and were displaced by federal common law). The states also argued that federal statutes had displaced federal common law.

[8] *See City of Oakland v. BP,* COLUMBIA UNIVERSITY SABIN CENTER FOR CLIMATE CHANGE LAW http://climatecasechart.com/case/people-state-california-v-bp-plc-oakland/ (last visited Jan. 1, 2018).

[9] *See id.*

Attorneys General Becerra (CA), Frosh (MD), Grewal (NJ), James (NY), Rosenblum (OR), Donovan (VT), Neronha (RI), and Ferguson (WA).[10]

Additionally, several other Attorneys General are likely to support climate damage actions based on recent statements. They include Letitia James (NY),[11] Josh Shapiro (PA),[12] Josh Kaul (WS), Dana Nessel (MI),[13] Phil Weiser (CO),[14] Josh Stine (NC),[15] and Kwame Raoul (IL).[16]

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 pending climate damage lawsuits discussed in Part I.

One issue that is relevant to multiple potential claims under Minnesota law is knowledge of harm by the fossil fuel companies. For instance a duty to warn consumers of a risk associated with a product is present in cases where a manufacturer "knew or should have known about an

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[10] *See County of San Mateo v. Chevron,* COLUMBIA UNIVERSITY SABIN CENTER FOR CLIMATE CHANGE LAW http://climatecasechart.com/case/county-san-mateo-v-chevron-corp/ (last visited Jan. 1, 2018) (arguing that removal is not warranted because the Clean Air Act is a model of cooperative federalism).

[11] *See* Marianne Lavelle, *New York's Next Attorney General Inherits Some Big Climate and Energy Cases*, INSIDE CLIMATE NEWS (Sept. 14, 2018), https://insideclimatenews.org/news/14092018/letitia-james-new-york-attorney-general-primary-exxon-investigation-divestment-fossil-fuels-climate-change (last visited Jan 20, 2019). ("[James] led a fossil fuel divestment campaign as New York City's public advocate and has a history of speaking out on environmental justice issues.").

[12] *See Josh Shapiro: Attorney General,* OFFICE OF ATTORNEY GENERAL, https://www.attorneygeneral.gov/?s=climate+change, (last visited Jan. 20, 2019).

[13] *See Michigan Withdraws from Clean Air Act Cases,* DEPARTMENT OF ATTORNEY GENERAL (Jan. 22, 2019), https://www.michigan.gov/ag/0,4534,7-359-82916_81983_47203-487942--,00.html ("'Under my watch,' said Nessel, 'Michigan will not be a party to lawsuits that challenge the reasonable regulations aimed at curbing climate change and protecting against exposure to mercury and other toxic substances.'").

[14] *But see* Andrew Kaufman, *Wins By Democratic Attorney Generals Threaten to Multiply Climate Suits Against Big Oil*, HUFFPOST (Nov. 11, 2018), https://www.huffingtonpost.com/entry/midterms-democrats-attorney-general-climate-lawsuits_us_5be5f199e4b0e8438897aa58 ("During the campaign, Weiser... said he was "uncomfortable" with suing Exxon for its role in causing climate change. . . suggesting it would make more legal sense to sue coal companies.").

[15] *See Attorney General Josh Stein Urges Trump EPA To Withdraw Plans to Gut Clean Power Plan And Clean Car Standards,* ATTORNEY GENERAL JOSH STINE (Dec. 11, 2018), https://ncdoj.gov/News-and-Alerts/News-Releases-and-Advisories/Attorney-General-Josh-Stein-Urges-Trump-EPA-to-Wit.aspx.

[16] *On the Issues*, KWAME FOR ATTORNEY GENERAL, https://kwameraoul.com/ontheissues/ (last visited Jan. 20, 2019) ("Kwame supports bold action on climate change.").

alleged defect or danger, and should have reasonably foreseen that the defect or danger would cause injury." *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (citing *Seefeld v. Crown, Cork, & Seal Co.*, 779 F. Supp. 461, 464 (D. Minn. 1991); *Harmon Contract Glazing, Inc. v. Libby-Owens-Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). Likewise, the Minnesota Unlawful Trade Practices Act ("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.

Fossil fuel companies have been aware of the risks associated with fossil fuel products for decades. Research into the effects of CO_2 in the atmosphere was conducted as early as 1954, and scientists working for oil companies published studies linking fossil fuel consumption to increases in atmospheric CO_2. *See* Brief for Center for Climate Integrity et al. as Amici Curiae Supporting Plaintiffs, County of San Mateo v. Chevron Corp., No. 18-15499 at 3 (9th Cir. 2019). The dangers of excess CO_2 levels and their impact on global climate—including rising sea levels—were discussed in a 1959 petroleum industry symposium. *Id.* at 4–5. By 1965, the president of the American Petroleum Institute warned that fossil fuels would cause catastrophic global warming by the end of the century. *Id.* at 5–6. These dire warnings were confirmed again and again by scientific study, much of it funded and presented by the oil industry, which led research efforts. *Id.* at 6–8. The risks of fossil fuel combustion, atmospheric CO_2, and climate change were presented as unequivocal by the oil industry in these years. *Id.* at 9–16.

By 1988, however, members of the oil industry began to conduct a coordinated, proactive effort to emphasize uncertainty in scientific conclusions regarding fossil fuel combustion and climate change—all while simultaneously recognizing a need for the corporations to prepare for the catastrophic changes that would be brought about by climate change. *Id.* at 18–20. As part of

the "Global Climate Coalition," Defendants insisted that climate change was caused by natural atmospheric fluctuations and that the human impact was minimal. *Id.* at 20. Defendants took part in a campaign to confuse the public, cast doubt upon the veracity of scientific consensus, and attack the notion that climate change itself would result in no significant harm. *Id.* at 22. Defendants spent millions of dollars paying scientists and outside organizations to promote invalid and misleading theories to the public. *Id.* at 26–28. All the while, Defendants took deliberate steps to protect their own assets from the climate impacts they had publicly discredited. *Id.* at 30.

The remainder of this Part evaluates specific claims under Minnesota law that could be brought against fossil fuel companies for climate-related damages in Minnesota. 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 relevant to these claims.

A. Consumer Protection Claims

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act ("CFA"), the Unlawful Trade Practices Act ("UTPA"), the False Statement in Advertising Act ("FSAA"), and the Uniform Deceptive Trade Practices Act ("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. Two of the existing climate change damages lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations.

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.[17] 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.[18]

The Attorney General is responsible for "investigat[ing] offenses" and "assist[ing] in enforcement" of the CFA, UTPA, and the FSAA. *See* Minn. Stat. § 8.31, subd. 1. Statutory law gives clear authority to the Attorney General to seek damages and equitable remedies for CFA,

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[17] The Minnesota Supreme Court has stated "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. . .").

[18] 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* note 18 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.

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).

Any claims under Minnesota consumer protection statutes for climate-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, 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 of Minnesota and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare providers. Wilson & Gillmer, *supra* note 18, at 570-76. While specific individual reliance was not required, at least six types of evidence were used to establish "legal nexus" causation: (1) 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. *Id.* at 608-624.

Based on 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 consumers, regulators, media and the general public in Minnesota and other states about the risks associated with their fossil fuel products through advertisements, public statements, and funded research. 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, and 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* Wilson & Gillmer, *supra* note 18, at 613-16 ("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).

The plaintiffs in both the Maryland and Colorado lawsuits allege that the development of "dirtier" sources of fuel shows oil companies' blatant disregard of climate data. *See, e.g.,* Colorado Complaint ¶¶ 83, 384 ("Exxon's business plans include . . . development of more carbon-intensive fossil fuels, such as shale oil and tar sands. . . . despite its knowledge of the grave threats . . . as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to . . . atmospheric CO_2"). In addition, the industry's

expenditures on advertising may be used to establish the companies' intent that their public statements would be relied on by consumers. Wilson & Gillmer, *supra* note 18 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 conspiracy claims in Colorado's 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 Claims

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. These lawsuits include Baltimore, Rhode Island, Richmond,

Santa Cruz, and Pacific Coast Federation of Fisherman's Association.[19] 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 fossils 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 evolved, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrock v. Marshalltown Mfg. Co., 4*73 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));

[19] *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*").

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 defects that may occur in a discrete number of product units during the manufacturing process rather than a defect contained in all units of the product as a result of a defect in the design. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases looks at the condition of the product and compares any defects found with the flawless product). In the case of fossil fuels, all units of the product on the market result in a dangerous condition—increased CO_2 emissions resulting in climate change—and thus any claims for damages would be based on a design defect or failure to warn rather than a manufacturing defect.

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." *Bilotta*, 346 N.W.2d 616; *see also Schweich v. Ziegler, Inc*., 463 N.W.2d 722, 731 (Minn. 1990). A manufacturer's duty "arises from the probability or foreseeability of injury to the plaintiff." *Domagala v. Rolland*, 805 N.W.2d 14, 26 (Minn. 2011). To determine the foreseeability of injury in products liability actions, Minnesota courts "look to the defendant's conduct and ask whether it was objectively reasonable to expect the specific danger causing the plaintiff's injury." *Montemayor v. Sebright Products, Inc.*, 898 N.W.2d 623 (Minn. 2017).

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). 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 used in *Bilotta*. 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. Courts and juries often 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, 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 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 exist at the time the products are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, 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 CO_2 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. As previously discussed, ninety fossil fuel producers and cement manufacturers are responsible for 63% of the cumulative industrial CO_2 and methane emissions worldwide between 1751 and 2010. Several climate attribution studies and reports link these anthropogenic GHG emissions to climate change and its damages. EKWURZEL, ET AL., UNION OF CONCERNED SCIENTISTS, THE RISE IN GLOBAL ATMOSPHERIC CO_2, SURFACE TEMPERATURE, AND SEA LEVEL FROM EMISSIONS TRACED TO MAJOR CARBON PRODUCERS 479 (2017), https://link.springer.com/content/pdf/10.1007%2Fs10584-017-1978-0.pdf (quantifying the

contribution of historical and recent carbon emissions from ninety major industrial carbon producers to "the historical rise in global atmospheric CO_2, surface temperature, and sea level.").

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).

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.

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). It is important to note that California's substantial factor test is broader than Minnesota's, requiring that defendant's conduct only be a "very minor force" to making a finding of substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102.

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 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.

Joint and Several Liability and Market Share Liability: Even if 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 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.

Minnesota courts continue to apply joint and several liability within a comparative fault regime. *See Hosley v. Armstrong Cork Co.*, 383 N.W.2d 289 (Minn. 1986). In general, parties whose negligence combines 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 where two or more persons act in a common scheme or plan that results in injury, or a person commits an intentional tort. Minn. Stat. § 604.02, subds. 1–3 (2018). However, a plaintiff would still be required to show that each defendant's conduct was a substantial factor in causing its harm. *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.[20] 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 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

[20] *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*").

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. 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 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 indivisible harm rule, and joint and several liability.

Finally, a "market share liability" theory that some states have applied to cases involving DES and lead paint 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 in DES case and apportioning liability based on the relative market share of each of the liable defendants); *Collins v. Eli Lilly Co*., 342 N.W2d 37, 4 9 (Wis. 1984) (adopting version of market share liability in DES case known as "risk

contribution theory"); *Thomas v. Mallett*, 701 N.W.2d 523 (Wis. 2005) (applying risk contribution theory from *Collins* to lead paint claims).

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.

If Minnesota were to adopt a market share liability theory, there are good arguments that the facts of a climate damage lawsuit against fossil fuel companies would support its application. 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 data available regarding 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. 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).

This knowledge on the part of the manufacturer can be actual or constructive, and "a duty to warn may exist if a manufacturer has reason to believe a user or operator of it might so use it as to increase the risk of injury, particularly if the manufacturer has no reason to believe that the users will comprehend the risk." *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987). Manufacturers have an added responsibility of "keeping informed of current scientific knowledge," which is relevant to the question of whether a manufacturer knew or should have known of its product's risks. *Harmon*, 493 N.W.2d at 151. Any "manufacturer who has actual or constructive knowledge of dangers to users of his product has the duty to give warning of such dangers." *Westerberg v. School Dist. No. 792, Todd County*, 148 N.W.2d 312 (Minn. 1967).

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). 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).

As discussed earlier, 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, oil and gas companies provided no warning, let alone an adequate one, to consumers.

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). 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.

C. 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*.

In 2010, Minnesota Attorney General Lori Swanson brought "common law nuisance" claims against 3M Company to recover damages from the release of 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 (Minn. Dist. Ct., 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. On February 20, 2018—the day that the jury trial was

scheduled to begin in the case—3M and the State of Minnesota settled the lawsuit for $850 million.[21]

Beyond the 3M lawsuit, 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. Those that exist generally recognize a valid cause of action. For instance, 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 Supreme 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. *See also State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545, 546 (Minn. 1911) (recognizing 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.").

[21] *See* Minn. Pollution Control Agency, *3M and PFCs: 2018 Settlement*, https://www.pca.state.mn.us/waste/3m-and-pfcs-2018-settlement; Bob Shaw, *Minnesota, 3M Reach Settlement Ending $5 Billion Lawsuit*, PIONEER PRESS (Feb. 20, 2018), https://www.twincities.com/2018/02/20/minnesota-3m-reach-settlement-ending-5-billion-lawsuit/.

Although statutory public nuisance claims appear 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). Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. Notably, in 2014, a district court in Minnesota appeared to reject the continuing role of common law public nuisance in the state. *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."). Nevertheless, that decision was an unpublished district court decision and was dicta, as the court did not reach a decision on the issue.

D. 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 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*, 817 N.W.2d 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. Based on *Highview*, the *Johnson* court remanded the plaintiffs' claims to the district court to take evidence on the plaintiffs' allegations that they suffered from "cotton mouth, swollen throat and headaches" because they were exposed to pesticide drift. *Johnson*, 817 N.W.2d at 713. According to the *Johnson* court, 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 potentially justify an award of damages. *Id.*

E. 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.

Although, as stated above, the Minnesota Attorney General's lawsuit against 3M was settled on the day of trial, the Attorney General 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 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.

F. Strict Liability for Abnormally Dangerous Activities

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 Eight 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.

G. Other Claims—MERA and MERLA

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 particularly, 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.

H. 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: Revised Climate Change Memorandum

From: Judith Enck <judith@climateintegrity.org>
To: Alexandra Klass <aklass@umn.edu>
Cc: Alyssa Johl <alyssa@climateintegrity.org>, Michael Noble <Noble@fresh-energy.org>, [redacted]

Sent: March 11, 2019 9:36:40 AM CDT
Received: March 11, 2019 9:36:44 AM CDT

Tx Alex. Let's do a call this Friday at 1 or 5 (ny time) if that works for everyone Best, Judith Enck

Sent from my iPhone

On Mar 11, 2019, at 9:20 AM, Alexandra Klass <aklass@umn.edu> wrote:

> Dear Alyssa and Judith: I attach the revised climate change memorandum. Please let me know if we have addressed all your proposed changes. Also, do you want to do a call about next steps later this week? If so, Wednesday morning or Thursday or Friday afternoons would work for me.
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> Best,
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> Alex
>
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> 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
>
>
> <Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (UMN Edits).docx>

Re: Revised Climate Change Memorandum

From: Alyssa Johl <alyssa@climateintegrity.org>
To: Judith Enck <judith@climateintegrity.org>
Cc: Alexandra Klass <aklass@umn.edu>, Michael Noble <Noble@fresh-energy.org>, [redacted]
Sent: March 11, 2019 9:46:07 AM CDT
Received: March 11, 2019 9:46:20 AM CDT

Thanks Alex and all.

1 pm EDT / 12 pm CDT works for me.

On Mon, Mar 11, 2019 at 10:36 AM Judith Enck <judith@climateintegrity.org> wrote:
Tx Alex. Let's do a call this Friday at 1 or 5 (ny time) if that works for everyone Best, Judith Enck

Sent from my iPhone

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--
Alyssa Johl
Legal Counsel
Center for Climate Integrity
T: +1-510-435-6892 | E: alyssa@climateintegrity.org

Re: Revised Climate Change Memorandum

From: Alexandra Klass <aklass@umn.edu>
To: Alyssa Johl <alyssa@climateintegrity.org>
Cc: Judith Enck <judith@climateintegrity.org>, Michael Noble <Noble@fresh-energy.org> [redacted]
Sent: March 11, 2019 9:53:26 AM CDT
Received: March 11, 2019 9:53:27 AM CDT

12 pm CT/1 pm ET is good for me too.

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 Mar 11, 2019, at 10:46 AM, Alyssa Johl <alyssa@climateintegrity.org> wrote:

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--
Alyssa Johl
Legal Counsel
Center for Climate Integrity
T: +1-510-435-6892 | E: alyssa@climateintegrity.org

Re: Revised Climate Change Memorandum

From: Michael Noble <Noble@fresh-energy.org>
To: Judith Eck <judith@climateintegrity.org>, Alexandra Klass <aklass@umn.edu>
Cc: Alyssa Johl <alyssa@climateintegrity.org>, [redacted]
Sent: March 11, 2019 9:55:20 AM CDT
Received: March 11, 2019 9:55:24 AM CDT

I will be out and not grid-connected through next Tuesday.

If you do meet, I could put another key person on the call, but if you are just going to be talking legal, maybe you have everyone you need.

If you want me personally on the call, it has to be next week.

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: Monday, March 11, 2019 9:36 AM
To: Alexandra Klass
Cc: Alyssa Johl; Michael Noble; [redacted]
Subject: Re: Revised Climate Change Memorandum

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From: Michael Noble <Noble@fresh-energy.org>
To: Judith Eck <judith@climateintegrity.org>
Cc: Alexandra Klass <aklass@umn.edu>, Kate Knuth <kate.knuth@gmail.com>
Sent: March 11, 2019 5:25:51 PM CDT
Received: March 11, 2019 5:25:54 PM CDT

The two other documents in the process —-an impacts document and an organizing document—-are in good shape, near final, and are being polished by a trusted colleague/vendor Kate Knuth, who I am cc'ing here. From this Tues through next Tues I do not believe I will have email access or phone access.

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: Monday, March 11, 2019 5:09 PM
To: Michael Noble
Cc: Alexandra Klass; Alyssa Johl; [redacted]
Subject: Re: Revised Climate Change Memorandum

Let's do the call this Friday March 15 at 1pm New York time to finalize the legal memo Mike we can run the final final by you next week. We will have some new polling data by then to include in the memo or as a cover memo. This Friday plz call; [redacted] Code. [redacted]

Sent from my iPhone

On Mar 11, 2019, at 10:55 AM, Michael Noble <Noble@fresh-energy.org> wrote:

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> University of Minnesota Law School
> 229-19th Avenue South
> Minneapolis, MN 55455
> aklass@umn.edu
> Bio: https://www.law.umn.edu/profiles/alexandra-klass
>
> <Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (UMN Edits).docx>

Re: Revised Climate Change Memorandum

From: Kate Knuth <kate.knuth@gmail.com>
To: Michael Noble <Noble@fresh-energy.org>
Cc: Judith Eck <judith@climateintegrity.org>, Alexandra Klass <aklass@umn.edu>
Sent: March 11, 2019 6:37:44 PM CDT
Received: March 11, 2019 6:37:57 PM CDT

Hello All,

The organizing memo is basically a proofread away from being done. I have a call with one of the scientific reviewers at noon Wednesday to go through any lingering questions I have on the impacts memo, and it will be finished soon after that.

Please let me know if there is any polling data you'd like me to include in a cover letter.

Thanks,

Kate Knuth

On Mon, Mar 11, 2019 at 5:25 PM Michael Noble <Noble@fresh-energy.org> wrote:

> The two other documents in the process —-an impacts document and an organizing document—-are in good shape, near final, and are being polished by a trusted colleague/vendor Kate Knuth, who I am cc'ing here.
> From this Tues through next Tues I do not believe I will have email access or phone access.
> 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:** Monday, March 11, 2019 5:09 PM
> **To:** Michael Noble
> **Cc:** Alexandra Klass; Alyssa Johl; [redacted]
> **Subject:** Re: Revised Climate Change Memorandum
>
> Let's do the call this Friday March 15 at 1pm New York time to finalize the legal memo Mike we can run the final final by you next week. We will have some new polling data by then to include in the memo or as a cover memo. This Friday plz call; [redacted]. Code. [redacted]
>
> Sent from my iPhone
>
> On Mar 11, 2019, at 10:55 AM, Michael Noble <Noble@fresh-energy.org> wrote:
>
> > I will be out and not grid-connected through next Tuesday.
> > If you do meet, I could put another key person on the call, but if you are just going to be talking legal, maybe you have everyone you need.
> > If you want me personally on the call, it has to be next week.
> > 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: Monday, March 11, 2019 9:36 AM
To: Alexandra Klass
Cc: Alyssa Johl; Michael Noble; [redacted]
Subject: Re: Revised Climate Change Memorandum

Tx Alex. Let's do a call this Friday at 1 or 5 (ny time) if that works for everyone Best, Judith Enck

Sent from my iPhone

On Mar 11, 2019, at 9:20 AM, Alexandra Klass <aklass@umn.edu> wrote:

> Dear Alyssa and Judith: I attach the revised climate change memorandum. Please let me know if we have addressed all your proposed changes. Also, do you want to do a call about next steps later this week? If so, Wednesday morning or Thursday or Friday afternoons would work for me.
> Best,
> Alex
>
> Alexandra B. Klass
> Distinguished McKnight University Professor
> University of Minnesota Law School
> 229-19th Avenue South
> Minneapolis, MN 55455
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Re: Revised Climate Change Memorandum

From: Judith Enck <judith@climateintegrity.org>
To: Michael Noble <Noble@fresh-energy.org>
Cc: Alexandra Klass <aklass@umn.edu>, Kate Knuth <kate.knuth@gmail.com>
Sent: March 11, 2019 7:52:22 PM CDT
Received: March 11, 2019 7:52:27 PM CDT

Enjoy your break. We can hold off on finalizing those documents until when you are back

Sent from my iPhone

On Mar 11, 2019, at 6:25 PM, Michael Noble <Noble@fresh-energy.org> wrote:

> The two other documents in the process —-an impacts document and an organizing document—-are in good shape, near final, and are being polished by a trusted colleague/vendor Kate Knuth, who I am cc'ing here.
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> Best,
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> Bio: https://www.law.umn.edu/profiles/alexandra-klass
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> <Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (UMN Edits).docx>

Re: Possible presentation with the MSBA PUC Section

From: Alexandra Klass <aklass@umn.edu>
To: Allen Gleckner <gleckner@fresh-energy.org>
Sent: March 13, 2019 8:49:23 PM CDT

Hi Allen -- I'm actually leaving for Uppsala, Sweden on 3/27 for 3 months to teach in our faculty exchange program at Uppsala University. I'll be teaching an Introduction to American Law course to European law students. So March won't work but I would love to present that paper or any other paper of interest to the group once I get back at the end of June.

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, Mar 13, 2019 at 10:56 AM Allen Gleckner <gleckner@fresh-energy.org> wrote:

> Hi Alex! I wanted to see if the paper we reviewed or other research might be at the presentation stage? The presentation last year was super interesting and I think everyone really enjoyed it and we have a couple openings for CLE presentation, so wanted to reach out.
>
> Apologies for this, but the scheduling is wonky. We've been planning on doing a "Meet the New PUC Commissioner" as the program for a couple months now, but the appointment is taking so long! As of now, we're planning on having that topic on March 27th, but it's getting a little tight with the lack of an appointment announcement. If we don't get an appointment, is there any chance you'd have a presentation you're already given that you might be able to do that day? If we do get an appointment, we're also planning for our mid-September meeting, so if we did get a PUC appointment in the next week or so, that would be the other option.
>
> Totally understand if this is too complicated and sorry for the last minute outreach.
>
> Thanks!
>
> Allen
>
> Allen Gleckner
>
> Director, Energy Markets

Fresh Energy

Phone 651 726 7570; 612 554 3291 (mobile)

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

Practical policy. Brighter future. ***Support our work today****.*

RE: Possible presentation with the MSBA PUC Section

From:	Allen Gleckner <gleckner@fresh-energy.org>
To:	Alexandra Klass <aklass@umn.edu>
Sent:	March 14, 2019 9:13:41 AM CDT
Received:	March 14, 2019 9:13:44 AM CDT

Wow! That sounds amazing!

September would be the next meeting to shoot for (since we don't do them over the summer and have a program planned for the spring), but really glad yo'd be open to it. Will let you know!

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, March 13, 2019 8:49 PM
To: Allen Gleckner <gleckner@fresh-energy.org>
Subject: Re: Possible presentation with the MSBA PUC Section

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Alex

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Re: Possible presentation with the MSBA PUC Section

From: Alexandra Klass <aklass@umn.edu>
To: Allen Gleckner <gleckner@fresh-energy.org>
Sent: March 14, 2019 9:42:19 AM CDT
Received: March 14, 2019 9:42:21 AM CDT

Ok, great. Once you have a date, let me know and I'll put it on my calendar.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
aklass@umn.edu
612-625-0155

On Mar 14, 2019, at 9:13 AM, Allen Gleckner <gleckner@fresh-energy.org> wrote:

> Wow! That sounds amazing!
>
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> Allen Gleckner
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>
> **From:** Alexandra Klass <aklass@umn.edu>
> **Sent:** Wednesday, March 13, 2019 8:49 PM
> **To:** Allen Gleckner <gleckner@fresh-energy.org>
> **Subject:** Re: Possible presentation with the MSBA PUC Section
>
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Fresh Energy
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www.fresh-energy.org | twitter.com/freshenergy

RE: Possible presentation with the MSBA PUC Section

From: Allen Gleckner <gleckner@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu>
Sent: March 14, 2019 9:46:40 AM CDT
Received: March 14, 2019 9:46:45 AM CDT

Sounds good!

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: Thursday, March 14, 2019 9:42 AM
To: Allen Gleckner <gleckner@fresh-energy.org>
Subject: Re: Possible presentation with the MSBA PUC Section

Ok, great. Once you have a date, let me know and I'll put it on my calendar.

Alex

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School
aklass@umn.edu
612-625-0155

On Mar 14, 2019, at 9:13 AM, Allen Gleckner <gleckner@fresh-energy.org> wrote:

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>
> *Practical policy. Brighter future.* ***Support our work today****.*

Re: Call tomorow Friday

From: Alexandra Klass <aklass@umn.edu>
To: Judith Enck <judith@climateintegrity.org>
Cc: alyssa@climateintegrity.org
Sent: March 14, 2019 5:00:14 PM CDT
Received: March 14, 2019 5:00:15 PM CDT

Yep, talk to you soon.

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 Mar 14, 2019, at 4:07 PM, Judith Enck <judith@climateintegrity.org> wrote:

1pm New York time. Invite anyone else you wish. Mike is out of town. Call [redacted]. Code. [redacted] Tx. Judith

Sent from my iPhone

Re: Call tomorow Friday

From: Alexandra Klass <aklass@umn.edu>
To: Judith Enck <judith@climateintegrity.org>
Cc: Alyssa Johl <alyssa@climateintegrity.org>
Sent: March 15, 2019 12:03:11 PM CDT

This is strange. My cell phone is saying the number is "outside my plan" and I will incur charges for going forward. This has never happened before. Can we use another call number? I can send one around.

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, Mar 14, 2019 at 4:08 PM Judith Enck <judith@climateintegrity.org> wrote:

> 1pm New York time. Invite anyone else you wish. Mike is out of town. Call [redacted]. Code. [redacted] Tx. Judith
>
> Sent from my iPhone

Re: Call tomorow Friday

From: Alexandra Klass <aklass@umn.edu>
To: Alyssa Johl <alyssa@climateintegrity.org>
Cc: Judith Enck <judith@climateintegrity.org>
Sent: March 15, 2019 12:04:45 PM CDT

Can we use this number?

Conference Dial-in Number: [redacted]
Participant Access Code: [redacted]

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 Fri, Mar 15, 2019 at 12:00 PM Alyssa Johl <alyssa@climateintegrity.org> wrote:
The code is not correct above. Use this:

[redacted]

On Thu, Mar 14, 2019 at 6:00 PM Alexandra Klass <aklass@umn.edu> wrote:
> Yep, talk to you soon.
>
> Alex
>
> Alexandra B. Klass
> Distinguished McKnight University Professor
> University of Minnesota Law School
> aklass@umn.edu
> 612-625-0155
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> >
> > Sent from my iPhone

--
Alyssa Johl
Legal Counsel
Center for Climate Integrity
T: +1-510-435-6892 | E: alyssa@climateintegrity.org

Revised Memo

From: Alexandra Klass <aklass@umn.edu>
To: Alyssa Johl <alyssa@climateintegrity.org>, Judith Enck <judith@climateintegrity.org>
Cc: [redacted]
Sent: March 16, 2019 11:53:05 AM CDT
Attachments: Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (UMN Edits).docx

Dear Alyssa and Judith -- I have added footnote 2 on page 3 of the memo to address the personal jurisdiction issue.

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. Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (UMN Edits).docx

Type:	application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size:	110 KB (113,164 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

[redacted] Minnesota Law Class of 2020
[redacted] Minnesota Law Class of 2020
[redacted] Minnesota Law Class of 2020
[redacted] Minnesota Law Class of 2019

DATE: March 16, 2019

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

INTRODUCTION

The State of Minnesota has already suffered harm associated with climate change resulting from the use of fossil fuels. These harms will increase in future years, resulting in additional, significant costs and damages to the State. These harms 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;

- 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.[1]

As a means to recover the costs that have been incurred and will be incurred by the State of Minnesota, this Memorandum describes potential causes of action that the State of Minnesota could bring against the largest, investor-owned fossil fuel companies to establish liability for their contributions to climate-related harms in Minnesota. Such a lawsuit would likely be brought in Minnesota District Court, modeled after complaints filed by several municipalities, one state, and one industry trade association against the fossil fuel companies for damages.

Part I of this memorandum provides an overview of the climate damages lawsuits brought in other states as well as 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 consumer protection claims, product liability claims (design defect and

[1] The nature of the harms summarized here are set forth in detail in the separate Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy.

failure to warn), and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

As in other climate damages cases, the defendants would likely include the largest, investor-owned fossil fuel companies, such as BP, Chevron, ConocoPhillips, ExxonMobil, and Shell.[2] Despite their long-standing knowledge of the risks associated with their products, these companies extracted, produced, promoted, and sold fossil fuel products that released massive amounts of CO_2 into the atmosphere. Based on peer-reviewed research referred to as the "Carbon Majors" report, 90 fossil fuel producers and cement manufacturers are known to be responsible for 63% of cumulative CO_2 and methane emissions 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). Twenty-eight companies are responsible for 25% of emissions since 1965. *Id.* In each of the climate damages lawsuits, plaintiffs have sued some set of defendants identified in the Carbon Majors report—for example, in the San Mateo lawsuit, described in in Part I.A., Plaintiffs sued twenty-three named oil, gas, and other fossil fuel companies and their subsidiaries, which the Plaintiffs allege are responsible for 20.3% of total CO_2 emissions between 1965 and 2015.

---

[2] An issue not addressed in this Memorandum but that will require further research is the nature of each fossil fuel company Defendant's contacts with Minnesota. In many of the existing climate damage lawsuits, discussed below, Defendants have challenged personal jurisdiction on grounds that Plaintiffs did not adequately link Defendants' contacts in each state with the alleged harm. Minnesota law on personal jurisdiction is based on Minn. Stat. § 543.19 (Minnesota's long-arm statute) as well as the Minnesota Supreme Court's decision in *Money Mutual v. Rilley*, 884 N.W.2d 321 (Minn. 2016), *cert. denied*, 137 S. Ct. 1331 (2017) (interpreting Minn. Stat. § 543.19). *See also* Minn. Stat. § 116B.11 (allowing court to exercise personal jurisdiction for Minnesota Environmental Rights Act ("MERA") claims over any person or corporation who commits any act in the state *or outside the state* which would "impair, pollute, or destroy the air, water, land, or other natural resources located within the state" or engages in any activities specified in Minn. Stat. § 543.19). Notably, many fossil fuel companies have significant contacts with Minnesota. For instance, Koch Industries owns the Pine Bend Refinery in Rosemount, Minnesota through its Flint Hills Resources subsidiary, where it employs over 1,000 persons. There are also over 4,000 miles of crude oil and refined petroleum pipelines in the state owned and operated by Koch, Marathon, Enbridge, Amoco, and other oil and gas companies. *See, e.g.,* MINNESOTA INTERAGENCY REPORT ON PIPELINES 2 (Dec. 2015), https://www.eqb.state.mn.us/sites/default/files/documents/Interagency%20Report%20on%20Oil%20Pipelines4_0.pdf (2.7 million barrels of crude oil from the Bakken oil fields and from Canada move across the state by pipeline every day).

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides an overview of the recent climate damages lawsuits brought by several municipalities, one state, and one trade association against fossil fuel companies seeking damages for climate-related harms.[3] This section will also discuss the positions of Attorneys Generals who have expressed their support or opposition to the climate damages lawsuits.

A. Damages Lawsuits for Climate-Related Harms

In 2017 and 2018, several governmental actors and one private brought lawsuits seeking damages for climate-related harms caused by the extraction, production, promotion, and sale of fossil fuel products. The complaints assert statutory and common law claims including consumer protection, public nuisance, private nuisance, trespass, and products liability. At the core of these lawsuits, Plaintiffs allege 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. 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

[3] Other related actions include the lawsuit brought by the New York Attorney General against ExxonMobil for investor fraud, the investigation by the Massachusetts Attorney General as to whether ExxonMobil misled consumers and investors, and other climate lawsuits (such as *Juliana v. U.S.*, in which 21 youth plaintiffs have brought constitutional and public trust claims against the U.S. federal government in order to establish a national climate recovery plan). However, this Memorandum focuses solely on the lawsuits brought by governmental and private entities seeking damages for climate-related harms, and therefore does not address these other actions.

the impacts of their fossil fuel pollution." Complaint, *County of San Mateo v. Chevron Corp.,* No. 17CIV03222 (Cal. Super. Ct. July 17, 2017).[4]

These lawsuits are the second generation of tort lawsuits against fossil fuel companies for climate-related harms. The first lawsuits, filed in the early 2000s, sought relief in federal court under federal common law public nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. *See Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("*AEP*"); *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 recent second-generation climate damage litigation using state law to hold fossil fuel companies accountable for climate-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 plaintiffs' federal common law claims because the statute directly authorizes the EPA to regulate CO_2 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 Ninth Circuit

[4] A common argument among defendants is that federal court is the proper venue, and that the Clean Air Act displaces the state law claims. Therefore, 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.

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*, recent litigation against fossil fuel companies to recover for climate-related 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 fossils fuels rather than emissions of GHGs. These second-generation climate damage lawsuits relying on state law are in early stages of litigation. In every case filed in state court, Defendants have attempted to remove the action to federal court. As detailed below, some of these cases have been dismissed on the merits, others are awaiting rulings on remand motions, and others are on appeal to the Ninth and Second Circuits. Whether Plaintiffs' state law claims are necessarily governed by federal common law and are displaced by the Clean Air Act pursuant to *AEP* is subject to dispute in various courts, as set forth below.[5]

1. Lawsuits where plaintiffs were granted remand to state court, or where remand motions are pending

In the cases described in this section, the Plaintiffs have either succeeded in having the claims remanded to state court or motions for remand are pending.

[5] Fundamentally important to this analysis are several Supreme Court opinions. In *Illinois v. City of Milwaukee*, the Supreme Court reasoned "[f]ederal common law and not the varying common law of the individual States is. . . necessary. . . for dealing with. . . environmental rights of a State against improper impairment by sources outside its domain. . . until the field has been made the subject of comprehensive legislation or authorized administrative standards." 406 U.S. 91, 107 n.9 (1972). The Supreme Court reaffirmed this principle in *AEP*: "federal common law includes the general subject of environmental law and specifically includes ambient or interstate air and water pollution." 564 U.S. at 421. *See also Int'l Paper Company v. Ouellette*, 479 U.S. 481, 491 (1987) (explaining that state common law for transboundary environmental harms would be available when federal common law is displaced by statute if congress did not also intend to preempt state common law); *Milwaukee v. Illinois*, 451 U.S. 304, 314 (1981) ("[W]hen Congress addresses a question previously governed by a decision rested on federal common law the need for such an unusual exercise of lawmaking by federal courts disappears.").

a. San Mateo v. Chevron

In 2017, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed separate lawsuits 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). In addition to public nuisance, the Plaintiffs 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 products, and their championing of anti-regulation and anti-science campaigns, actually and proximately caused" injuries to Plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. *Id* at 4. Among other remedies, Plaintiffs requested compensatory and punitive damages, and abatement of nuisances. *Id* at i.

Defendants asserted that the claims were necessarily federal common law claims and removed the actions to federal court. Judge Chhabria of the U.S. District Court for the Northern District of California remanded to state court. Judge Chhabria held "federal common law is displaced by the Clean Air Act . . . [when plaintiffs] seek damages for a defendant's contribution to global warming." *Cty. of San Mateo v. Chevron Corp.*, 294 F. Supp. 3d 934, 937 (N.D. Cal. 2018). However, the court went on to state 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*," because federal common that does not provide a cause of action does not provide federal jurisdiction. *Id*. at 937 (emphasis added).

In remanding the case to state court, Judge Chhabria expressly disagreed with Judge Alsup's reasoning discussed below in Section I.A.2.a. 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 with 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). Briefing is now complete in the Ninth Circuit.

b. Rhode Island v. Chevron

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court, and a remand hearing was held on February 6, 2019. 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 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 as opposed to a municipality. The parties are currently waiting for the court's remand decision.

c. Baltimore v. BP

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought suit in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and *San Mateo*, Baltimore alleged that through Defendants' extraction, production,

promotion, and 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. Defendants removed the case to federal court, and Baltimore has moved for remand.

d. Pacific Coast Federation of Fishermen's Association v. Chevron

In November 2018, a fishing industry trade group represented by Sher Edling filed a climate damages suit against 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, and the case was assigned to Judge Chhabria who remanded *San Mateo* from federal court to state court.

e. 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, EarthRights International, and the Niskanen Center which is 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 the case to federal court. Plaintiffs moved to remand, and a hearing is scheduled for May 30, 2019.

2. Lawsuits where federal courts considered and dismissed plaintiffs' claims

Defendant fossil fuel companies have universally removed these lawsuits to federal court, although one lawsuit—brought by the City of New York—was originally filed in federal court. Defendants assert, among other things, that Plaintiffs' claims are necessarily governed by federal common law, and the claims must be dismissed according to *AEP*. The cases discussed below are pending in federal district courts or have been dismissed by those courts and are on appeal.

a. City of Oakland v. BP

The cities of San Francisco and Oakland brought separate 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 the 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 lawsuit 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.

After holding a climate science tutorial[6] and oral argument on the motion to dismiss, Judge Alsup dismissed the consolidated 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

[6] *See City of Oakland v. BP,* 325 F. Supp. 3d 1017, 1022 (N.D. Cal. 2018) ("All parties agree that fossil fuels have led to global warming and ocean rise and will continue to do so and that eventually the navigable waters of the United States will intrude upon Oakland and San Francisco.").

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:

> Plaintiffs' claims. . . though pled as state-law claims, depend on a global complex of geophysical cause and effect involving all nations. . . It demands to be governed by as universal a rule. . . governed by federal common law. . . Congress has vested in the EPA the problem of greenhouse gases and has given it plenary authority to solve the problem at the point of emissions. . . because plaintiffs' nuisance claims centered on defendants' placement of fossil fuels into the flow of international commerce, and because foreign emissions are out of the EPA and Clean Air Act's reach, the Clean Air Act did not necessarily displace plaintiffs' federal common law claims. Nevertheless, these claims are foreclosed by the need for federal courts to defer to the legislative and executive branches when it comes to such international problems. . . question 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 1017, 21, 24–26. Plaintiffs appealed to the Ninth Circuit. Briefing is expected to be complete in early May 2019.

b. 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). Outside counsel includes Hagen Berman and Seeger Weiss. Judge Keenan dismissed for largely similar reasons as Judge Alsup, discussed above:

> [R]egardless of the manner in which the City frames its claims. . . the City is seeking damages for. . . greenhouse gas emissions, and not only the production of Defendants' fossil fuels. . . if ever a problem cried out for a uniform and comprehensive solution, it is the geophysical problem described by the complaints.

City of N.Y. v. BP, 325 F. Supp. 3d 466, 472 (S.D.N.Y. 2018). New York City appealed to the Second Circuit. Briefing is expected to be completed in March 2019.

c. King County v. Chevron

In May 2018, King County of Washington, with outside counsel from Hagens Berman, filed a suit for public nuisance and trespass in Washington state court against 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 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.

B. State Attorneys General taking a Position on Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of Plaintiffs bringing climate damages claims. 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.[7] In support of the fossil fuel companies were Attorney 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), Morrisey (WV), Schimel (WS), and Michael (WY).[8] In *Oakland v. BP*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA)

[7] *See City of New York v. BP*, COLUMBIA UNIVERSITY SABIN CENTER FOR CLIMATE CHANGE LAW, http://climatecasechart.com/case/city-new-york-v-bp-plc/ (last visited Jan. 1, 2018) (discussing state amicus brief asserting that that the district court's reasoning was inconsistent with states' authority to address environmental harms and that the City's claims were not displaced by federal common law or barred by the Clean Air Act).

[8] *See id.* (state amicus brief in support of motion to dismiss signed by fifteen states, which argued that claims raised nonjusticiable political questions, jeopardized the U.S.'s system of cooperative federalism, threatened extraterritorial regulation and were displaced by federal common law). The states also argued that federal statutes had displaced federal common law.

supported the Plaintiffs.[9] In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP.*[10] On January 29, 2019, several Attorneys General filed an amicus brief in the Ninth Circuit supporting the *San Mateo* Plaintiffs by arguing the lower court property remanded to state court. The Amicus Brief was signed by Attorneys General Becerra (CA), Frosh (MD), Grewal (NJ), James (NY), Rosenblum (OR), Donovan (VT), Neronha (RI), and Ferguson (WA).[11]

Additionally, several other Attorneys General are likely to support climate damage actions based on recent statements. They include Letitia James (NY),[12] Josh Shapiro (PA),[13] Josh Kaul (WS), Dana Nessel (MI),[14] Phil Weiser (CO),[15] Josh Stine (NC),[16] and Kwame Raoul (IL).[17]

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[9] *See City of Oakland v. BP,* COLUMBIA UNIVERSITY SABIN CENTER FOR CLIMATE CHANGE LAW http://climatecasechart.com/case/people-state-california-v-bp-plc-oakland/ (last visited Jan. 1, 2018).
[10] *See id.*

[11] *See County of San Mateo v. Chevron,* COLUMBIA UNIVERSITY SABIN CENTER FOR CLIMATE CHANGE LAW http://climatecasechart.com/case/county-san-mateo-v-chevron-corp/ (last visited Jan. 1, 2018) (arguing that removal is not warranted because the Clean Air Act is a model of cooperative federalism).
[12]*See* Marianne Lavelle, *New York's Next Attorney General Inherits Some Big Climate and Energy Cases*, INSIDE CLIMATE NEWS (Sept. 14, 2018), https://insideclimatenews.org/news/14092018/letitia-james-new-york-attorney-general-primary-exxon-investigation-divestment-fossil-fuels-climate-change (last visited Jan 20, 2019). ("[James] led a fossil fuel divestment campaign as New York City's public advocate and has a history of speaking out on environmental justice issues.").
[13] *See Josh Shapiro: Attorney General,* OFFICE OF ATTORNEY GENERAL, https://www.attorneygeneral.gov/?s=climate+change, (last visited Jan. 20, 2019).
[14] *See Michigan Withdraws from Clean Air Act Cases,* DEPARTMENT OF ATTORNEY GENERAL (Jan. 22, 2019), https://www.michigan.gov/ag/0,4534,7-359-82916_81983_47203-487942--,00.html ("'Under my watch,' said Nessel, 'Michigan will not be a party to lawsuits that challenge the reasonable regulations aimed at curbing climate change and protecting against exposure to mercury and other toxic substances.'").
[15] *But see* Andrew Kaufman, *Wins By Democratic Attorney Generals Threaten to Multiply Climate Suits Against Big Oil*, HUFFPOST (Nov. 11, 2018), https://www.huffingtonpost.com/entry/midterms-democrats-attorney-general-climate-lawsuits_us_5be5f199e4b0e8438897aa58 ("During the campaign, Weiser... said he was "uncomfortable" with suing Exxon for its role in causing climate change. . . suggesting it would make more legal sense to sue coal companies.").
[16] *See Attorney General Josh Stein Urges Trump EPA To Withdraw Plans to Gut Clean Power Plan And Clean Car Standards,* ATTORNEY GENERAL JOSH STINE (Dec. 11, 2018), https://ncdoj.gov/News-and-Alerts/News-Releases-and-Advisories/Attorney-General-Josh-Stein-Urges-Trump-EPA-to-Wit.aspx.
[17] *On the Issues*, KWAME FOR ATTORNEY GENERAL, https://kwameraoul.com/ontheissues/ (last visited Jan. 20, 2019) ("Kwame supports bold action on climate change.").

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 pending climate damage lawsuits discussed in Part I.

One issue that is relevant to multiple potential claims under Minnesota law is knowledge of harm by the fossil fuel companies. For instance a duty to warn consumers of a risk associated with a product is present in cases where 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." *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (citing *Seefeld v. Crown, Cork, & Seal Co.*, 779 F. Supp. 461, 464 (D. Minn. 1991); *Harmon Contract Glazing, Inc. v. Libby-Owens-Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). Likewise, the Minnesota Unlawful Trade Practices Act ("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.

Fossil fuel companies have been aware of the risks associated with fossil fuel products for decades. Research into the effects of CO_2 in the atmosphere was conducted as early as 1954, and scientists working for oil companies published studies linking fossil fuel consumption to increases in atmospheric CO_2. *See* Brief for Center for Climate Integrity et al. as Amici Curiae Supporting Plaintiffs, County of San Mateo v. Chevron Corp., No. 18-15499 at 3 (9th Cir. 2019). The dangers of excess CO_2 levels and their impact on global climate—including rising sea levels—were discussed in a 1959 petroleum industry symposium. *Id.* at 4–5. By 1965, the president of the American Petroleum Institute warned that fossil fuels would cause catastrophic global warming by the end of the century. *Id.* at 5–6. These dire warnings were confirmed again

and again by scientific study, much of it funded and presented by the oil industry, which led research efforts. *Id.* at 6–8. The risks of fossil fuel combustion, atmospheric CO_2, and climate change were presented as unequivocal by the oil industry in these years. *Id.* at 9–16.

By 1988, however, members of the oil industry began to conduct a coordinated, proactive effort to emphasize uncertainty in scientific conclusions regarding fossil fuel combustion and climate change—all while simultaneously recognizing a need for the corporations to prepare for the catastrophic changes that would be brought about by climate change. *Id.* at 18–20. As part of the "Global Climate Coalition," Defendants insisted that climate change was caused by natural atmospheric fluctuations and that the human impact was minimal. *Id.* at 20. Defendants took part in a campaign to confuse the public, cast doubt upon the veracity of scientific consensus, and attack the notion that climate change itself would result in no significant harm. *Id.* at 22. Defendants spent millions of dollars paying scientists and outside organizations to promote invalid and misleading theories to the public. *Id.* at 26–28. All the while, Defendants took deliberate steps to protect their own assets from the climate impacts they had publicly discredited. *Id.* at 30.

The remainder of this Part evaluates specific claims under Minnesota law that could be brought against fossil fuel companies for climate-related damages in Minnesota. 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 relevant to these claims.

A. Consumer Protection Claims

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act ("CFA"), the Unlawful Trade Practices Act ("UTPA"), the False Statement in Advertising Act ("FSAA"), and the Uniform Deceptive Trade Practices Act ("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. Two of the existing climate change damages lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations.

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.[18] 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 .

[18] The Minnesota Supreme Court has stated "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. . .").

. .” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.[19]

The Attorney General is responsible for “investigat[ing] offenses” and “assist[ing] in enforcement” of the CFA, UTPA, and the FSAA. *See* Minn. Stat. § 8.31, subd. 1. Statutory law 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).

Any claims under Minnesota consumer protection statutes for climate-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, 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).

[19] 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* note 18 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.

The Minnesota tobacco case was a direct action in which the State of Minnesota and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare providers. Wilson & Gillmer, *supra* note 18, at 570-76. While specific individual reliance was not required, at least six types of evidence were used to establish "legal nexus" causation: (1) 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. *Id.* at 608-624.

Based on 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 consumers, regulators, media and the general public in Minnesota and other states about the risks associated with their fossil fuel products through advertisements, public statements, and funded research. 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, and 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* Wilson & Gillmer, *supra* note 18, at 613-16 ("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).

The plaintiffs in both the Maryland and Colorado lawsuits allege that the development of "dirtier" sources of fuel shows oil companies' blatant disregard of climate data. *See, e.g.,* Colorado Complaint ¶¶ 83, 384 ("Exxon's business plans include . . . development of more carbon-intensive fossil fuels, such as shale oil and tar sands. . . . despite its knowledge of the grave threats . . . as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to . . . atmospheric CO_2"). In addition, the industry's expenditures on advertising may be used to establish the companies' intent that their public statements would be relied on by consumers. Wilson & Gillmer, *supra* note 18 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 conspiracy claims in Colorado's 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 Claims

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. These lawsuits include Baltimore, Rhode Island, Richmond, Santa Cruz, and Pacific Coast Federation of Fisherman's Association.[20] 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 fossils 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

[20] *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*").

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 evolved, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrock v. Marshalltown Mfg. Co., 4*73 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 defects that may occur in a discrete number of product units during the manufacturing process rather than a defect contained in all units of the product as a result of a defect in the design. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases looks at the condition of the product and compares any defects found with the flawless product). In the case of fossil fuels, all units of the product on the market result in a dangerous condition—increased CO_2 emissions resulting in climate change—and thus any claims for damages would be based on a design defect or failure to warn rather than a manufacturing defect.

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." *Bilotta*,

346 N.W.2d 616; *see also Schweich v. Ziegler, Inc*., 463 N.W.2d 722, 731 (Minn. 1990). A manufacturer's duty "arises from the probability or foreseeability of injury to the plaintiff." *Domagala v. Rolland*, 805 N.W.2d 14, 26 (Minn. 2011). To determine the foreseeability of injury in products liability actions, Minnesota courts "look to the defendant's conduct and ask whether it was objectively reasonable to expect the specific danger causing the plaintiff's injury." *Montemayor v. Sebright Products, Inc.*, 898 N.W.2d 623 (Minn. 2017).

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). 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 used in *Bilotta*. 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. Courts and juries often 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, 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 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 exist at the time the products are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, 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 CO_2 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. As previously discussed, ninety fossil fuel producers and cement manufacturers are

responsible for 63% of the cumulative industrial CO_2 and methane emissions worldwide between 1751 and 2010. Several climate attribution studies and reports link these anthropogenic GHG emissions to climate change and its damages. EKWURZEL, ET AL., UNION OF CONCERNED SCIENTISTS, THE RISE IN GLOBAL ATMOSPHERIC CO_2, SURFACE TEMPERATURE, AND SEA LEVEL FROM EMISSIONS TRACED TO MAJOR CARBON PRODUCERS 479 (2017), https://link.springer.com/content/pdf/10.1007%2Fs10584-017-1978-0.pdf (quantifying the contribution of historical and recent carbon emissions from ninety major industrial carbon producers to "the historical rise in global atmospheric CO_2, surface temperature, and sea level.").

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).

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.

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). It is important to note that California's substantial factor test is broader than Minnesota's, requiring that defendant's conduct only be a "very minor force" to making a finding of substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102.

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 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.

Joint and Several Liability and Market Share Liability: Even if 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 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.

Minnesota courts continue to apply joint and several liability within a comparative fault regime. *See Hosley v. Armstrong Cork Co.*, 383 N.W.2d 289 (Minn. 1986). In general, parties whose negligence combines 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 where two or more persons act in a common scheme or plan that results in injury, or a person commits an intentional tort. Minn. Stat. § 604.02, subds. 1–3 (2018). However, a plaintiff would still be required to show that each defendant's conduct was a substantial factor in causing its harm. *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.[21] 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 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.*

[21] *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*").

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. 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 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 indivisible harm rule, and joint and several liability.

Finally, a "market share liability" theory that some states have applied to cases involving DES and lead paint 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 in DES case and apportioning liability based on the relative market share of each of the liable defendants); *Collins v. Eli Lilly Co*., 342 N.W2d 37, 4 9 (Wis. 1984) (adopting version of market share liability in DES case known as "risk contribution theory"); *Thomas v. Mallett*, 701 N.W.2d 523 (Wis. 2005) (applying risk contribution theory from *Collins* to lead paint claims).

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.

If Minnesota were to adopt a market share liability theory, there are good arguments that the facts of a climate damage lawsuit against fossil fuel companies would support its application. 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 data available regarding 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. 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).

This knowledge on the part of the manufacturer can be actual or constructive, and "a duty to warn may exist if a manufacturer has reason to believe a user or operator of it might so use it as to increase the risk of injury, particularly if the manufacturer has no reason to believe that the users will comprehend the risk." *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987). Manufacturers have an added responsibility of "keeping informed of current scientific knowledge," which is relevant to the question of whether a manufacturer knew or should have known of its product's risks. *Harmon*, 493 N.W.2d at 151. Any "manufacturer who has actual or constructive knowledge of dangers to users of his product has the duty to give warning of such dangers." *Westerberg v. School Dist. No. 792, Todd County*, 148 N.W.2d 312 (Minn. 1967).

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). 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).

As discussed earlier, 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, oil and gas companies provided no warning, let alone an adequate one, to consumers.

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). 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.

C. 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*.

In 2010, Minnesota Attorney General Lori Swanson brought "common law nuisance" claims against 3M Company to recover damages from the release of 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 (Minn. Dist. Ct., 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. On February 20, 2018—the day that the jury trial was scheduled to begin in the case—3M and the State of Minnesota settled the lawsuit for $850 million.[22]

Beyond the 3M lawsuit, 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. Those that exist generally recognize a valid cause of action. For instance, 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 Supreme 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. *See also State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545, 546 (Minn. 1911) (recognizing 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

[22] *See* Minn. Pollution Control Agency, *3M and PFCs: 2018 Settlement*, https://www.pca.state.mn.us/waste/3m-and-pfcs-2018-settlement; Bob Shaw, *Minnesota, 3M Reach Settlement Ending $5 Billion Lawsuit*, PIONEER PRESS (Feb. 20, 2018), https://www.twincities.com/2018/02/20/minnesota-3m-reach-settlement-ending-5-billion-lawsuit/.

Legislature, and in the exercise of that power specified acts or conditions may be declared a nuisance, although not so determined at common law.").

Although statutory public nuisance claims appear 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). Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. Notably, in 2014, a district court in Minnesota appeared to reject the continuing role of common law public nuisance in the state. *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."). Nevertheless, that decision was an unpublished district court decision and was dicta, as the court did not reach a decision on the issue.

D. 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 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*, 817 N.W.2d 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. Based on *Highview*, the *Johnson* court remanded the plaintiffs' claims to the district court to take evidence on the plaintiffs' allegations that they suffered from "cotton mouth, swollen throat and headaches" because they were exposed to pesticide drift. *Johnson*, 817 N.W.2d at 713. According to the *Johnson* court, 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 potentially justify an award of damages. *Id.*

E. 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.

Although, as stated above, the Minnesota Attorney General's lawsuit against 3M was settled on the day of trial, the Attorney General 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 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.

F. Strict Liability for Abnormally Dangerous Activities

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 Eight 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.

G. Other Claims—MERA and MERLA

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 particularly, 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.

H. 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: Revised Memo

From: Judith Enck <judith@climateintegrity.org>
To: Alexandra Klass <aklass@umn.edu>
Sent: March 16, 2019 5:04:51 PM CDT
Received: March 16, 2019 5:04:55 PM CDT

Thanks !!!

Sent from my iPhone

On Mar 16, 2019, at 12:53 PM, Alexandra Klass <aklass@umn.edu> wrote:

> Dear Alyssa and Judith -- I have added footnote 2 on page 3 of the memo to address the personal jurisdiction issue.
>
> 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
>
> <Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (UMN Edits).docx>

Automatic reply: From Climatewire -- COURTS: D.C. girds for Exxon climate battle

From:	Michael Noble <Noble@fresh-energy.org>
To:	Alexandra Klass <aklass@umn.edu>
Sent:	March 18, 2019 10:50:47 AM CDT
Received:	March 18, 2019 10:50:50 AM CDT

Thanks for contacting me. I am out of the office and will have limited email access until Wednesday March 15.

For scheduling a call or meeting, contact Jillian Theuer at Theuer[at]fresh-energy.org.

If its not time-sensitive, its best to email again on 3/15 rather than having your important email be adrift in the inbox sea.

Re: From Climatewire -- COURTS: D.C. girds for Exxon climate battle

From: [redacted]
To: [redacted]
Cc: Alexandra Klass <aklass@umn.edu>, Michael Noble <Noble@fresh-energy.org>, [redacted]
Sent: March 18, 2019 6:28:43 PM CDT
Received: March 18, 2019 6:28:56 PM CDT

Hi all,

Alyssa referenced the podcast "Drilled" in her edits; I checked it out and recommend it. It's described as a "true crime podcast about climate change":

https://itunes.apple.com/us/podcast/drilled/id1439735906?mt=2
or at
https://drilled.libsyn.com/

Thanks,

[redacted]

On Mon, Mar 18, 2019 at 1:35 PM [redacted] wrote:

> Dominoes are falling.
>
> I look forward to learning who these bold attorneys will be - "The plan calls for a senior climate lawyer, a junior lawyer and a paralegal on a five-year contract with options to extend. They won't get paid unless Exxon coughs up cash in a legal judgment, settlement or arbitration."
>
> On Mon, Mar 18, 2019 at 10:50 AM Alexandra Klass <aklass@umn.edu> wrote:

COURTS
D.C. girds for Exxon climate battle

Ellen M. Gilmer, E&E News reporter
Published: Monday, March 18, 2019

District of Columbia Democratic Attorney General Karl Racine (center) is hiring outside climate counsel to work on matters related to an Exxon investigation. Karl Racine/Facebook

The District of Columbia's top lawyer is preparing for a potential courtroom fight against one of the biggest oil companies in the world.

Washington, D.C., Attorney General Karl Racine (D) last week revealed plans to hire climate lawyers to focus on an investigation and potential litigation against Exxon Mobil Corp. over the company's public disclosures regarding climate change.

Racine **tweeted** about the climate team Friday, linking to a D.C. government website with a **document** that for the first time confirms his office's plans to launch a formal inquiry into Exxon's business practices.

Despite the company's research on the issue, "Exxon has failed to inform consumers about the effects of its fossil fuel products on climate change," the document says. "Exxon has also engaged or funded efforts to mislead DC consumers and others about the potential impacts of climate change."

The Democrat has been eyeing Exxon at least since 2016 when he joined a coalition of state attorneys general vowing to investigate fossil fuel companies for allegedly misleading the public and investors on climate impacts.

New York, Massachusetts and the Virgin Islands have launched high-profile public investigations of the oil giant in recent years, but other jurisdictions tend to keep such proceedings under wraps.

The document Racine shared Friday requests proposals for "outside legal counsel for climate change litigation," specifying that the lawyers will focus on Exxon's "potential violations of the Consumer Protection Procedures Act (CPPA) or other District laws in connection with Exxon's statements or omissions about the effects of its fossil fuel products on climate change."

The D.C. consumer protection law prohibits various deceptive business practices.

Exxon's climate research

Racine's efforts are the latest in a high-stakes climate fight already playing out in courts, Capitol Hill and the media. Exxon is accused of misleading the public about climate change by concealing in-house research on the impacts of burning fossil fuels.

The company denies the allegations, touting its own efforts to slow warming. It didn't respond to a request for comment on the D.C. investigation.

Racine's new climate counsel job posting outlines his office's appraisal of Exxon's behavior: "Since at least the 1970s, Exxon has been aware that its fossil fuel products were significantly contributing to climate change, and that climate change would accelerate and lead to significant harms to the environment in the twenty-first century."

But, it says, the company failed to inform consumers, including D.C. drivers buying gasoline at Exxon stations in the city.

The office "has determined this conduct should the subject of an investigation or litigation against Exxon to secure injunctive relief stopping violations of the CPPA or other District law, as well as securing consumer restitution, penalties and the costs of any litigation," the document concludes.

The plan calls for a senior climate lawyer, a junior lawyer and a paralegal on a five-year contract with options to extend. They won't get paid unless Exxon coughs up cash in a legal judgment, settlement or arbitration.

Racine's office already has at least one dedicated environmental lawyer, a position funded by New York University's State Energy & Environmental Impact Center. The climate counsel team will not be affiliated with that group.

E&E News
122 C Street NW 7th Floor Washington, DC 20001
Phone: 202-628-6500 Fax: 202-737-5299
www.eenews.net

--

Thinking of you every day . . . .

From: Alexandra Klass <aklass@umn.edu>
To: J. Drake Hamilton <Hamilton@fresh-energy.org>, Patrick Hamilton <hamilton@smm.org>
Sent: March 19, 2019 9:15:02 AM CDT

[redacted]

Now it is (almost) spring. Spring brings so much promise, particularly this year.

Next week [redacted] and I leave for Uppsala, Sweden for 3 months where I'll be teaching on our law school faculty exchange program at Uppsala University (we send a professor there every spring to teach an Introduction to American Law course and they send a professor to us to teach an EU-related law course). I will continue to follow your progress from Sweden and hope to see you both when we return at the end of June.

All my 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

Automatic reply: Thinking of you every day . . . .

From:	J. Drake Hamilton <Hamilton@fresh-energy.org>
To:	Alexandra Klass <aklass@umn.edu>
Sent:	March 19, 2019 9:15:36 AM CDT
Received:	March 19, 2019 9:15:39 AM CDT

[redacted]

If you need to contact someone at Fresh Energy, please contact the front desk: info@fresh-energy.org or 651-225-0878.

Fwd: Revised Memo

From:	Alexandra Klass <aklass@umn.edu>
To:	Michael Noble <noble@fresh-energy.org>
Sent:	March 22, 2019 8:58:15 AM CDT
Received:	March 22, 2019 8:58:18 AM CDT
Attachments:	Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (UMN Edits).docx, untitled

FYI

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

Begin forwarded message:

From: Alexandra Klass <aklass@umn.edu>
Date: March 16, 2019 at 11:53:05 AM CDT
To: Alyssa Johl <alyssa@climateintegrity.org>, Judith Enck <judith@climateintegrity.org>
Cc: [redacted]
Subject:Revised Memo

Dear Alyssa and Judith -- I have added footnote 2 on page 3 of the memo to address the personal jurisdiction issue.

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. Memo (without model claims) to AG Ellison on Climate Change Litigation 1 2019 (UMN Edits).docx

Type:	application/vnd.openxmlformats-officedocument.wordprocessingml.document
Size:	110 KB (113,164 bytes)

2. untitled

Type:	text/html
Size:	178 bytes

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MEMORANDUM

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DATE: March 16, 2019

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

INTRODUCTION

The State of Minnesota has already suffered harm associated with climate change resulting from the use of fossil fuels. These harms will increase in future years, resulting in additional, significant costs and damages to the State. These harms 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;

- 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.[1]

As a means to recover the costs that have been incurred and will be incurred by the State of Minnesota, this Memorandum describes potential causes of action that the State of Minnesota could bring against the largest, investor-owned fossil fuel companies to establish liability for their contributions to climate-related harms in Minnesota. Such a lawsuit would likely be brought in Minnesota District Court, modeled after complaints filed by several municipalities, one state, and one industry trade association against the fossil fuel companies for damages.

Part I of this memorandum provides an overview of the climate damages lawsuits brought in other states as well as 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 consumer protection claims, product liability claims (design defect and

[1] The nature of the harms summarized here are set forth in detail in the separate Memorandum of J. Drake Hamilton, Science Policy Director at Fresh Energy.

failure to warn), and common law claims for public nuisance, private nuisance, trespass, and strict liability for abnormally dangerous activities.

As in other climate damages cases, the defendants would likely include the largest, investor-owned fossil fuel companies, such as BP, Chevron, ConocoPhillips, ExxonMobil, and Shell.[2] Despite their long-standing knowledge of the risks associated with their products, these companies extracted, produced, promoted, and sold fossil fuel products that released massive amounts of CO_2 into the atmosphere. Based on peer-reviewed research referred to as the "Carbon Majors" report, 90 fossil fuel producers and cement manufacturers are known to be responsible for 63% of cumulative CO_2 and methane emissions 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). Twenty-eight companies are responsible for 25% of emissions since 1965. *Id.* In each of the climate damages lawsuits, plaintiffs have sued some set of defendants identified in the Carbon Majors report—for example, in the San Mateo lawsuit, described in in Part I.A., Plaintiffs sued twenty-three named oil, gas, and other fossil fuel companies and their subsidiaries, which the Plaintiffs allege are responsible for 20.3% of total CO_2 emissions between 1965 and 2015.

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[2] An issue not addressed in this Memorandum but that will require further research is the nature of each fossil fuel company Defendant's contacts with Minnesota. In many of the existing climate damage lawsuits, discussed below, Defendants have challenged personal jurisdiction on grounds that Plaintiffs did not adequately link Defendants' contacts in each state with the alleged harm. Minnesota law on personal jurisdiction is based on Minn. Stat. § 543.19 (Minnesota's long-arm statute) as well as the Minnesota Supreme Court's decision in *Money Mutual v. Rilley*, 884 N.W.2d 321 (Minn. 2016), *cert. denied*, 137 S. Ct. 1331 (2017) (interpreting Minn. Stat. § 543.19). *See also* Minn. Stat. § 116B.11 (allowing court to exercise personal jurisdiction for Minnesota Environmental Rights Act ("MERA") claims over any person or corporation who commits any act in the state *or outside the state* which would "impair, pollute, or destroy the air, water, land, or other natural resources located within the state" or engages in any activities specified in Minn. Stat. § 543.19). Notably, many fossil fuel companies have significant contacts with Minnesota. For instance, Koch Industries owns the Pine Bend Refinery in Rosemount, Minnesota through its Flint Hills Resources subsidiary, where it employs over 1,000 persons. There are also over 4,000 miles of crude oil and refined petroleum pipelines in the state owned and operated by Koch, Marathon, Enbridge, Amoco, and other oil and gas companies. *See, e.g.,* MINNESOTA INTERAGENCY REPORT ON PIPELINES 2 (Dec. 2015), https://www.eqb.state.mn.us/sites/default/files/documents/Interagency%20Report%20on%20Oil%20Pipelines4_0.pdf (2.7 million barrels of crude oil from the Bakken oil fields and from Canada move across the state by pipeline every day).

DISCUSSION

I. Climate Change Lawsuits—Current Status

This section provides an overview of the recent climate damages lawsuits brought by several municipalities, one state, and one trade association against fossil fuel companies seeking damages for climate-related harms.[3] This section will also discuss the positions of Attorneys Generals who have expressed their support or opposition to the climate damages lawsuits.

A. Damages Lawsuits for Climate-Related Harms

In 2017 and 2018, several governmental actors and one private brought lawsuits seeking damages for climate-related harms caused by the extraction, production, promotion, and sale of fossil fuel products. The complaints assert statutory and common law claims including consumer protection, public nuisance, private nuisance, trespass, and products liability. At the core of these lawsuits, Plaintiffs allege 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. 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

[3] Other related actions include the lawsuit brought by the New York Attorney General against ExxonMobil for investor fraud, the investigation by the Massachusetts Attorney General as to whether ExxonMobil misled consumers and investors, and other climate lawsuits (such as *Juliana v. U.S.*, in which 21 youth plaintiffs have brought constitutional and public trust claims against the U.S. federal government in order to establish a national climate recovery plan). However, this Memorandum focuses solely on the lawsuits brought by governmental and private entities seeking damages for climate-related harms, and therefore does not address these other actions.

the impacts of their fossil fuel pollution." Complaint, *County of San Mateo v. Chevron Corp.,* No. 17CIV03222 (Cal. Super. Ct. July 17, 2017).[4]

These lawsuits are the second generation of tort lawsuits against fossil fuel companies for climate-related harms. The first lawsuits, filed in the early 2000s, sought relief in federal court under federal common law public nuisance, ultimately resulting in dismissal by the U.S. Supreme Court and the U.S. Court of Appeals for the Ninth Circuit. *See Am. Elec. Power Co v. Connecticut*, 564 U.S. 410 (2011) ("*AEP*"); *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 recent second-generation climate damage litigation using state law to hold fossil fuel companies accountable for climate-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 plaintiffs' federal common law claims because the statute directly authorizes the EPA to regulate CO_2 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 Ninth Circuit

[4] A common argument among defendants is that federal court is the proper venue, and that the Clean Air Act displaces the state law claims. Therefore, 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.

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*, recent litigation against fossil fuel companies to recover for climate-related 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 fossils fuels rather than emissions of GHGs. These second-generation climate damage lawsuits relying on state law are in early stages of litigation. In every case filed in state court, Defendants have attempted to remove the action to federal court. As detailed below, some of these cases have been dismissed on the merits, others are awaiting rulings on remand motions, and others are on appeal to the Ninth and Second Circuits. Whether Plaintiffs' state law claims are necessarily governed by federal common law and are displaced by the Clean Air Act pursuant to *AEP* is subject to dispute in various courts, as set forth below.[5]

1. Lawsuits where plaintiffs were granted remand to state court, or where remand motions are pending

In the cases described in this section, the Plaintiffs have either succeeded in having the claims remanded to state court or motions for remand are pending.

[5] Fundamentally important to this analysis are several Supreme Court opinions. In *Illinois v. City of Milwaukee*, the Supreme Court reasoned "[f]ederal common law and not the varying common law of the individual States is. . . necessary. . . for dealing with. . . environmental rights of a State against improper impairment by sources outside its domain. . . until the field has been made the subject of comprehensive legislation or authorized administrative standards." 406 U.S. 91, 107 n.9 (1972). The Supreme Court reaffirmed this principle in *AEP*: "federal common law includes the general subject of environmental law and specifically includes ambient or interstate air and water pollution." 564 U.S. at 421. *See also Int'l Paper Company v. Ouellette*, 479 U.S. 481, 491 (1987) (explaining that state common law for transboundary environmental harms would be available when federal common law is displaced by statute if congress did not also intend to preempt state common law); *Milwaukee v. Illinois*, 451 U.S. 304, 314 (1981) ("[W]hen Congress addresses a question previously governed by a decision rested on federal common law the need for such an unusual exercise of lawmaking by federal courts disappears.").

a. San Mateo v. Chevron

In 2017, three local governments—San Mateo County, Marin County, and the City of Imperial Beach—filed separate lawsuits 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). In addition to public nuisance, the Plaintiffs 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 products, and their championing of anti-regulation and anti-science campaigns, actually and proximately caused" injuries to Plaintiffs including increased frequency and severity of flooding and sea level rise that jeopardized infrastructure, beaches, schools and communities. *Id* at 4. Among other remedies, Plaintiffs requested compensatory and punitive damages, and abatement of nuisances. *Id* at i.

Defendants asserted that the claims were necessarily federal common law claims and removed the actions to federal court. Judge Chhabria of the U.S. District Court for the Northern District of California remanded to state court. Judge Chhabria held "federal common law is displaced by the Clean Air Act . . . [when plaintiffs] seek damages for a defendant's contribution to global warming." *Cty. of San Mateo v. Chevron Corp.*, 294 F. Supp. 3d 934, 937 (N.D. Cal. 2018). However, the court went on to state 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*," because federal common that does not provide a cause of action does not provide federal jurisdiction. *Id*. at 937 (emphasis added).

In remanding the case to state court, Judge Chhabria expressly disagreed with Judge Alsup's reasoning discussed below in Section I.A.2.a. 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 with 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). Briefing is now complete in the Ninth Circuit.

b. Rhode Island v. Chevron

In July 2018, Rhode Island Attorney General Peter Kilmartin, with Sher Edling as outside counsel, brought a similar suit against fossil fuel companies in Rhode Island state court. Defendants removed the case to federal court, and a remand hearing was held on February 6, 2019. 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 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 as opposed to a municipality. The parties are currently waiting for the court's remand decision.

c. Baltimore v. BP

In July 2018, the Mayor and City Council of Baltimore, with Sher Edling as outside counsel, brought suit in Maryland state court against numerous fossil fuel companies. Similar to *Rhode Island* and *San Mateo*, Baltimore alleged that through Defendants' extraction, production,

promotion, and 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. Defendants removed the case to federal court, and Baltimore has moved for remand.

d. Pacific Coast Federation of Fishermen's Association v. Chevron

In November 2018, a fishing industry trade group represented by Sher Edling filed a climate damages suit against 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, and the case was assigned to Judge Chhabria who remanded *San Mateo* from federal court to state court.

e. 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, EarthRights International, and the Niskanen Center which is 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 the case to federal court. Plaintiffs moved to remand, and a hearing is scheduled for May 30, 2019.

2. Lawsuits where federal courts considered and dismissed plaintiffs' claims

Defendant fossil fuel companies have universally removed these lawsuits to federal court, although one lawsuit—brought by the City of New York—was originally filed in federal court. Defendants assert, among other things, that Plaintiffs' claims are necessarily governed by federal common law, and the claims must be dismissed according to *AEP*. The cases discussed below are pending in federal district courts or have been dismissed by those courts and are on appeal.

a. City of Oakland v. BP

The cities of San Francisco and Oakland brought separate 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 the 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 lawsuit 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.

After holding a climate science tutorial[6] and oral argument on the motion to dismiss, Judge Alsup dismissed the consolidated 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

[6] *See City of Oakland v. BP,* 325 F. Supp. 3d 1017, 1022 (N.D. Cal. 2018) ("All parties agree that fossil fuels have led to global warming and ocean rise and will continue to do so and that eventually the navigable waters of the United States will intrude upon Oakland and San Francisco.").

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:

> Plaintiffs' claims. . . though pled as state-law claims, depend on a global complex of geophysical cause and effect involving all nations. . . It demands to be governed by as universal a rule. . . governed by federal common law. . . Congress has vested in the EPA the problem of greenhouse gases and has given it plenary authority to solve the problem at the point of emissions. . . because plaintiffs' nuisance claims centered on defendants' placement of fossil fuels into the flow of international commerce, and because foreign emissions are out of the EPA and Clean Air Act's reach, the Clean Air Act did not necessarily displace plaintiffs' federal common law claims. Nevertheless, these claims are foreclosed by the need for federal courts to defer to the legislative and executive branches when it comes to such international problems. . . question 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 1017, 21, 24–26. Plaintiffs appealed to the Ninth Circuit. Briefing is expected to be complete in early May 2019.

b. 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). Outside counsel includes Hagen Berman and Seeger Weiss. Judge Keenan dismissed for largely similar reasons as Judge Alsup, discussed above:

> [R]egardless of the manner in which the City frames its claims. . . the City is seeking damages for. . . greenhouse gas emissions, and not only the production of Defendants' fossil fuels. . . if ever a problem cried out for a uniform and comprehensive solution, it is the geophysical problem described by the complaints.

City of N.Y. v. BP, 325 F. Supp. 3d 466, 472 (S.D.N.Y. 2018). New York City appealed to the Second Circuit. Briefing is expected to be completed in March 2019.

c. King County v. Chevron

In May 2018, King County of Washington, with outside counsel from Hagens Berman, filed a suit for public nuisance and trespass in Washington state court against 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 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.

B. State Attorneys General taking a Position on Climate Change Litigation

Numerous state Attorneys General have filed amicus briefs in favor of Plaintiffs bringing climate damages claims. 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.[7] In support of the fossil fuel companies were Attorney 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), Morrisey (WV), Schimel (WS), and Michael (WY).[8] In *Oakland v. BP*, Attorneys General Becerra (CA), Grewal (NJ), and Ferguson (WA)

[7] *See City of New York v. BP*, COLUMBIA UNIVERSITY SABIN CENTER FOR CLIMATE CHANGE LAW, http://climatecasechart.com/case/city-new-york-v-bp-plc/ (last visited Jan. 1, 2018) (discussing state amicus brief asserting that that the district court's reasoning was inconsistent with states' authority to address environmental harms and that the City's claims were not displaced by federal common law or barred by the Clean Air Act).

[8] *See id.* (state amicus brief in support of motion to dismiss signed by fifteen states, which argued that claims raised nonjusticiable political questions, jeopardized the U.S.'s system of cooperative federalism, threatened extraterritorial regulation and were displaced by federal common law). The states also argued that federal statutes had displaced federal common law.

supported the Plaintiffs.[9] In support of the fossil fuel companies were the same group of Attorneys General who supported them in *New York City v. BP.*[10] On January 29, 2019, several Attorneys General filed an amicus brief in the Ninth Circuit supporting the *San Mateo* Plaintiffs by arguing the lower court property remanded to state court. The Amicus Brief was signed by Attorneys General Becerra (CA), Frosh (MD), Grewal (NJ), James (NY), Rosenblum (OR), Donovan (VT), Neronha (RI), and Ferguson (WA).[11]

Additionally, several other Attorneys General are likely to support climate damage actions based on recent statements. They include Letitia James (NY),[12] Josh Shapiro (PA),[13] Josh Kaul (WS), Dana Nessel (MI),[14] Phil Weiser (CO),[15] Josh Stine (NC),[16] and Kwame Raoul (IL).[17]

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[9] *See City of Oakland v. BP,* COLUMBIA UNIVERSITY SABIN CENTER FOR CLIMATE CHANGE LAW http://climatecasechart.com/case/people-state-california-v-bp-plc-oakland/ (last visited Jan. 1, 2018).
[10] *See id.*

[11] *See County of San Mateo v. Chevron,* COLUMBIA UNIVERSITY SABIN CENTER FOR CLIMATE CHANGE LAW http://climatecasechart.com/case/county-san-mateo-v-chevron-corp/ (last visited Jan. 1, 2018) (arguing that removal is not warranted because the Clean Air Act is a model of cooperative federalism).
[12]*See* Marianne Lavelle, *New York's Next Attorney General Inherits Some Big Climate and Energy Cases*, INSIDE CLIMATE NEWS (Sept. 14, 2018), https://insideclimatenews.org/news/14092018/letitia-james-new-york-attorney-general-primary-exxon-investigation-divestment-fossil-fuels-climate-change (last visited Jan 20, 2019). ("[James] led a fossil fuel divestment campaign as New York City's public advocate and has a history of speaking out on environmental justice issues.").
[13] *See Josh Shapiro: Attorney General,* OFFICE OF ATTORNEY GENERAL, https://www.attorneygeneral.gov/?s=climate+change, (last visited Jan. 20, 2019).
[14] *See Michigan Withdraws from Clean Air Act Cases,* DEPARTMENT OF ATTORNEY GENERAL (Jan. 22, 2019), https://www.michigan.gov/ag/0,4534,7-359-82916_81983_47203-487942--,00.html ("'Under my watch,' said Nessel, 'Michigan will not be a party to lawsuits that challenge the reasonable regulations aimed at curbing climate change and protecting against exposure to mercury and other toxic substances.'").
[15] *But see* Andrew Kaufman, *Wins By Democratic Attorney Generals Threaten to Multiply Climate Suits Against Big Oil*, HUFFPOST (Nov. 11, 2018), https://www.huffingtonpost.com/entry/midterms-democrats-attorney-general-climate-lawsuits_us_5be5f199e4b0e8438897aa58 ("During the campaign, Weiser... said he was "uncomfortable" with suing Exxon for its role in causing climate change. . . suggesting it would make more legal sense to sue coal companies.").
[16] *See Attorney General Josh Stein Urges Trump EPA To Withdraw Plans to Gut Clean Power Plan And Clean Car Standards,* ATTORNEY GENERAL JOSH STINE (Dec. 11, 2018), https://ncdoj.gov/News-and-Alerts/News-Releases-and-Advisories/Attorney-General-Josh-Stein-Urges-Trump-EPA-to-Wit.aspx.
[17] *On the Issues*, KWAME FOR ATTORNEY GENERAL, https://kwameraoul.com/ontheissues/ (last visited Jan. 20, 2019) ("Kwame supports bold action on climate change.").

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 pending climate damage lawsuits discussed in Part I.

One issue that is relevant to multiple potential claims under Minnesota law is knowledge of harm by the fossil fuel companies. For instance a duty to warn consumers of a risk associated with a product is present in cases where 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." *Block v. Toyota Motor Corp.*, 5 F. Supp. 3d 1047 (D. Minn. 2014) (citing *Seefeld v. Crown, Cork, & Seal Co.*, 779 F. Supp. 461, 464 (D. Minn. 1991); *Harmon Contract Glazing, Inc. v. Libby-Owens-Ford Co.*, 493 N.W.2d 146, 151 (Minn. Ct. App. 1992)). Likewise, the Minnesota Unlawful Trade Practices Act ("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.

Fossil fuel companies have been aware of the risks associated with fossil fuel products for decades. Research into the effects of CO_2 in the atmosphere was conducted as early as 1954, and scientists working for oil companies published studies linking fossil fuel consumption to increases in atmospheric CO_2. *See* Brief for Center for Climate Integrity et al. as Amici Curiae Supporting Plaintiffs, County of San Mateo v. Chevron Corp., No. 18-15499 at 3 (9th Cir. 2019). The dangers of excess CO_2 levels and their impact on global climate—including rising sea levels—were discussed in a 1959 petroleum industry symposium. *Id.* at 4–5. By 1965, the president of the American Petroleum Institute warned that fossil fuels would cause catastrophic global warming by the end of the century. *Id.* at 5–6. These dire warnings were confirmed again

and again by scientific study, much of it funded and presented by the oil industry, which led research efforts. *Id.* at 6–8. The risks of fossil fuel combustion, atmospheric CO_2, and climate change were presented as unequivocal by the oil industry in these years. *Id.* at 9–16.

By 1988, however, members of the oil industry began to conduct a coordinated, proactive effort to emphasize uncertainty in scientific conclusions regarding fossil fuel combustion and climate change—all while simultaneously recognizing a need for the corporations to prepare for the catastrophic changes that would be brought about by climate change. *Id.* at 18–20. As part of the "Global Climate Coalition," Defendants insisted that climate change was caused by natural atmospheric fluctuations and that the human impact was minimal. *Id.* at 20. Defendants took part in a campaign to confuse the public, cast doubt upon the veracity of scientific consensus, and attack the notion that climate change itself would result in no significant harm. *Id.* at 22. Defendants spent millions of dollars paying scientists and outside organizations to promote invalid and misleading theories to the public. *Id.* at 26–28. All the while, Defendants took deliberate steps to protect their own assets from the climate impacts they had publicly discredited. *Id.* at 30.

The remainder of this Part evaluates specific claims under Minnesota law that could be brought against fossil fuel companies for climate-related damages in Minnesota. 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 relevant to these claims.

A. Consumer Protection Claims

Minnesota law codifies a broad range of consumer protections in the Prevention of Consumer Fraud Act ("CFA"), the Unlawful Trade Practices Act ("UTPA"), the False Statement in Advertising Act ("FSAA"), and the Uniform Deceptive Trade Practices Act ("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. Two of the existing climate change damages lawsuits—in Colorado and in Maryland—allege statutory consumer protection violations.

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.[18] 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 .

[18] The Minnesota Supreme Court has stated "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. . .").

. .” Minn. Stat. §325F.67. The UDTPA prohibits several kinds of conduct, including misrepresenting the standard, quality, or grade of goods. Minn. Stat. § 325D.44.[19]

The Attorney General is responsible for “investigat[ing] offenses” and “assist[ing] in enforcement” of the CFA, UTPA, and the FSAA. *See* Minn. Stat. § 8.31, subd. 1. Statutory law 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).

Any claims under Minnesota consumer protection statutes for climate-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, 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).

[19] 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* note 18 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.

The Minnesota tobacco case was a direct action in which the State of Minnesota and Blue Cross Blue Shield sued on their own behalf for the increased costs they incurred as public healthcare providers. Wilson & Gillmer, *supra* note 18, at 570-76. While specific individual reliance was not required, at least six types of evidence were used to establish "legal nexus" causation: (1) 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. *Id.* at 608-624.

Based on 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 consumers, regulators, media and the general public in Minnesota and other states about the risks associated with their fossil fuel products through advertisements, public statements, and funded research. 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, and 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* Wilson & Gillmer, *supra* note 18, at 613-16 ("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).

The plaintiffs in both the Maryland and Colorado lawsuits allege that the development of "dirtier" sources of fuel shows oil companies' blatant disregard of climate data. *See, e.g.,* Colorado Complaint ¶¶ 83, 384 ("Exxon's business plans include . . . development of more carbon-intensive fossil fuels, such as shale oil and tar sands. . . . despite its knowledge of the grave threats . . . as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to . . . atmospheric CO_2"). In addition, the industry's expenditures on advertising may be used to establish the companies' intent that their public statements would be relied on by consumers. Wilson & Gillmer, *supra* note 18 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 conspiracy claims in Colorado's 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 Claims

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. These lawsuits include Baltimore, Rhode Island, Richmond, Santa Cruz, and Pacific Coast Federation of Fisherman's Association.[20] 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 fossils 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

[20] *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*").

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 evolved, the courts merged strict liability and negligence theories for design defect and failure to warn claims. *See Westbrock v. Marshalltown Mfg. Co., 4*73 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 defects that may occur in a discrete number of product units during the manufacturing process rather than a defect contained in all units of the product as a result of a defect in the design. *See Bilotta*, 346 N.W.2d at 622 (explaining that manufacturing flaw cases looks at the condition of the product and compares any defects found with the flawless product). In the case of fossil fuels, all units of the product on the market result in a dangerous condition—increased CO_2 emissions resulting in climate change—and thus any claims for damages would be based on a design defect or failure to warn rather than a manufacturing defect.

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." *Bilotta*,

346 N.W.2d 616; *see also Schweich v. Ziegler, Inc*., 463 N.W.2d 722, 731 (Minn. 1990). A manufacturer's duty "arises from the probability or foreseeability of injury to the plaintiff." *Domagala v. Rolland*, 805 N.W.2d 14, 26 (Minn. 2011). To determine the foreseeability of injury in products liability actions, Minnesota courts "look to the defendant's conduct and ask whether it was objectively reasonable to expect the specific danger causing the plaintiff's injury." *Montemayor v. Sebright Products, Inc.*, 898 N.W.2d 623 (Minn. 2017).

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). 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 used in *Bilotta*. 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. Courts and juries often 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, 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 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 exist at the time the products are extracted, refined, distributed, marketed, and sold for use by fossil fuel companies. Furthermore, 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 CO_2 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. As previously discussed, ninety fossil fuel producers and cement manufacturers are

responsible for 63% of the cumulative industrial CO_2 and methane emissions worldwide between 1751 and 2010. Several climate attribution studies and reports link these anthropogenic GHG emissions to climate change and its damages. EKWURZEL, ET AL., UNION OF CONCERNED SCIENTISTS, THE RISE IN GLOBAL ATMOSPHERIC CO_2, SURFACE TEMPERATURE, AND SEA LEVEL FROM EMISSIONS TRACED TO MAJOR CARBON PRODUCERS 479 (2017), https://link.springer.com/content/pdf/10.1007%2Fs10584-017-1978-0.pdf (quantifying the contribution of historical and recent carbon emissions from ninety major industrial carbon producers to "the historical rise in global atmospheric CO_2, surface temperature, and sea level.").

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).

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.

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). It is important to note that California's substantial factor test is broader than Minnesota's, requiring that defendant's conduct only be a "very minor force" to making a finding of substantial factor. *ConAgra Grocery Products Co.*, 17 Cal. App. 5th at 102.

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 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.

Joint and Several Liability and Market Share Liability: Even if 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 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.

Minnesota courts continue to apply joint and several liability within a comparative fault regime. *See Hosley v. Armstrong Cork Co.*, 383 N.W.2d 289 (Minn. 1986). In general, parties whose negligence combines 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 where two or more persons act in a common scheme or plan that results in injury, or a person commits an intentional tort. Minn. Stat. § 604.02, subds. 1–3 (2018). However, a plaintiff would still be required to show that each defendant's conduct was a substantial factor in causing its harm. *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.[21] 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 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.*

[21] *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*").

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. 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 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 indivisible harm rule, and joint and several liability.

Finally, a "market share liability" theory that some states have applied to cases involving DES and lead paint 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 in DES case and apportioning liability based on the relative market share of each of the liable defendants); *Collins v. Eli Lilly Co*., 342 N.W2d 37, 4 9 (Wis. 1984) (adopting version of market share liability in DES case known as "risk contribution theory"); *Thomas v. Mallett*, 701 N.W.2d 523 (Wis. 2005) (applying risk contribution theory from *Collins* to lead paint claims).

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.

If Minnesota were to adopt a market share liability theory, there are good arguments that the facts of a climate damage lawsuit against fossil fuel companies would support its application. 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 data available regarding 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. 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).

This knowledge on the part of the manufacturer can be actual or constructive, and "a duty to warn may exist if a manufacturer has reason to believe a user or operator of it might so use it as to increase the risk of injury, particularly if the manufacturer has no reason to believe that the users will comprehend the risk." *Kallio v. Ford Motor Co.*, 407 N.W.2d 92, 99 (Minn. 1987). Manufacturers have an added responsibility of "keeping informed of current scientific knowledge," which is relevant to the question of whether a manufacturer knew or should have known of its product's risks. *Harmon*, 493 N.W.2d at 151. Any "manufacturer who has actual or constructive knowledge of dangers to users of his product has the duty to give warning of such dangers." *Westerberg v. School Dist. No. 792, Todd County*, 148 N.W.2d 312 (Minn. 1967).

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). 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).

As discussed earlier, 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, oil and gas companies provided no warning, let alone an adequate one, to consumers.

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). 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.

C. 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*.

In 2010, Minnesota Attorney General Lori Swanson brought "common law nuisance" claims against 3M Company to recover damages from the release of 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 (Minn. Dist. Ct., 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. On February 20, 2018—the day that the jury trial was scheduled to begin in the case—3M and the State of Minnesota settled the lawsuit for $850 million.[22]

Beyond the 3M lawsuit, 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. Those that exist generally recognize a valid cause of action. For instance, 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 Supreme 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. *See also State v. Chicago, Milwaukee & St. Paul R.R. Co.*, 130 N.W. 545, 546 (Minn. 1911) (recognizing 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

[22] *See* Minn. Pollution Control Agency, *3M and PFCs: 2018 Settlement*, https://www.pca.state.mn.us/waste/3m-and-pfcs-2018-settlement; Bob Shaw, *Minnesota, 3M Reach Settlement Ending $5 Billion Lawsuit*, PIONEER PRESS (Feb. 20, 2018), https://www.twincities.com/2018/02/20/minnesota-3m-reach-settlement-ending-5-billion-lawsuit/.

Legislature, and in the exercise of that power specified acts or conditions may be declared a nuisance, although not so determined at common law.").

Although statutory public nuisance claims appear 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). Minnesota does not appear to explicitly adopt the Restatement approach to public nuisance, nor has the state explicitly rejected the restatement approach. Notably, in 2014, a district court in Minnesota appeared to reject the continuing role of common law public nuisance in the state. *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."). Nevertheless, that decision was an unpublished district court decision and was dicta, as the court did not reach a decision on the issue.

D. 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 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*, 817 N.W.2d 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. Based on *Highview*, the *Johnson* court remanded the plaintiffs' claims to the district court to take evidence on the plaintiffs' allegations that they suffered from "cotton mouth, swollen throat and headaches" because they were exposed to pesticide drift. *Johnson*, 817 N.W.2d at 713. According to the *Johnson* court, 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 potentially justify an award of damages. *Id.*

E. 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.

Although, as stated above, the Minnesota Attorney General's lawsuit against 3M was settled on the day of trial, the Attorney General 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 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.

F. Strict Liability for Abnormally Dangerous Activities

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 Eight 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.

G. Other Claims—MERA and MERLA

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 particularly, 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.

H. 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).

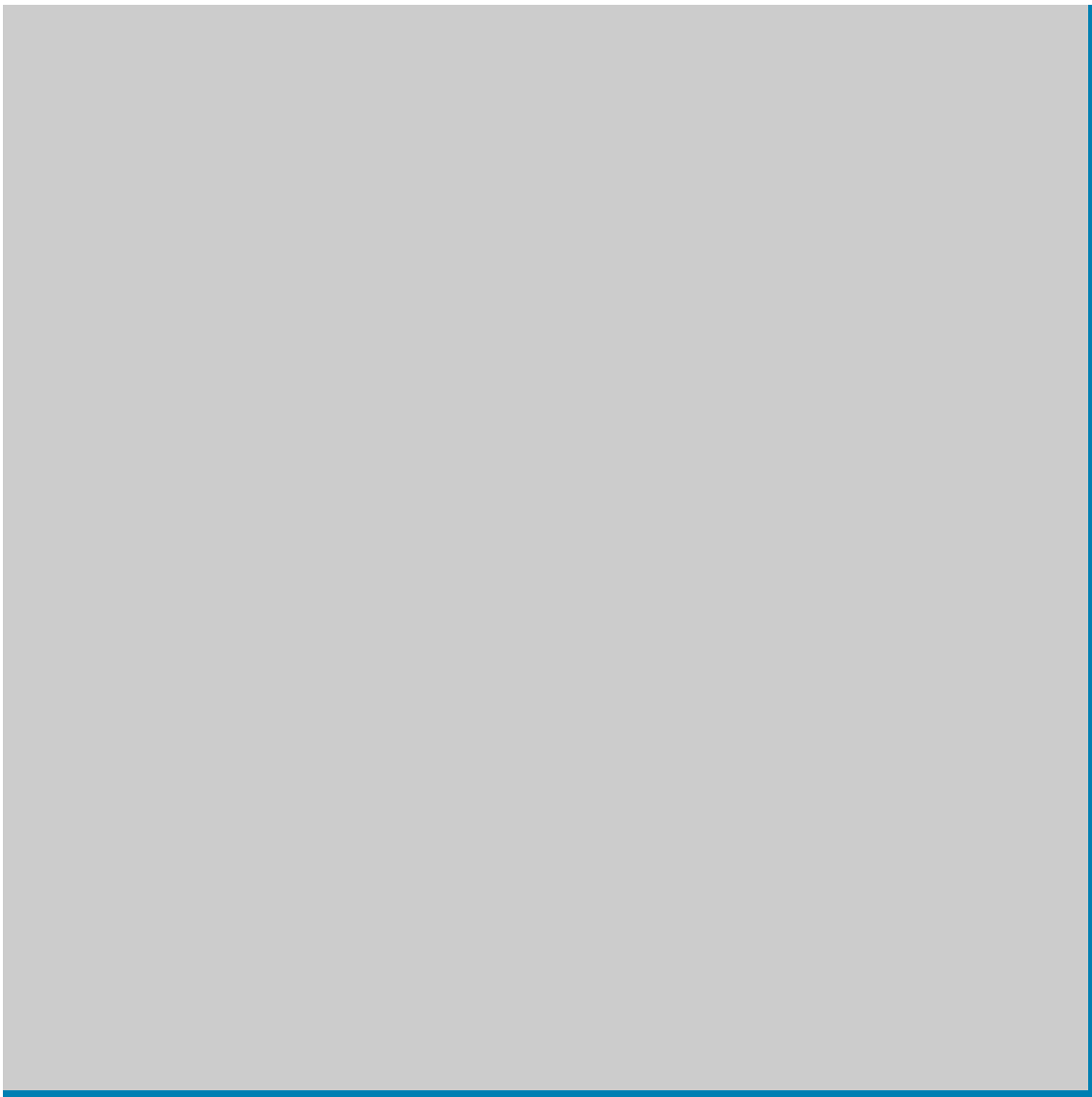
Fossil fuel company defendants may allege that Minnesota's claims are time barred because the first cognizable physical manifestation of climate change damages occurred longer than six years ago. However, Minnesota also recognizes the continuing violation doctrine. *Brotherhood of Ry. and S.S. Clerks, 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.

Everybody loves it... even the mayor.

From:	Michael Noble <info@fresh-energy.org>
To:	Alexandra <aklass@umn.edu>
Sent:	March 26, 2019 3:00:14 PM CDT
Received:	March 26, 2019 3:00:28 PM CDT



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Fresh Energy is committed to ensuring that utility programs are successful in creating healthy, efficient housing options for all Minnesotans. Learn how a Saint Paul real estate developer worked with Xcel Energy to embed leading-edge efficiency measures into their latest affordable housing development— saving their tenants thousands of dollars.

Dinner party download on 100 percent

100 percent carbon-free energy in Minnesota by 2050: what does it mean exactly? Our senior policy associate, Laura Hannah, shares her insights following a dinner chat with her dad. Learn what happens when the wind isn't blowing and the sun isn't shining plus other can't-miss-'em answers on clean energy.

Beer + bees + solar farms = <3

2019 Solarama Crush is out and coming to a liquor store near you! This delicious, hazy IPA is brewed with honey from pollinator-friendly solar arrays and Kerzna, a deep-rooted perennial grain. Nearly 200 bee lovers turned out last week (including the mayor of Minneapolis, Jacob Frey!) and raised one for our hard-working pollinator friends.

What's been happening at the Capitol?

It's been an action-packed month for Fresh Energy staff this legislative session! We've pushed for progress on major policy priorities and provided expert testimony on several bills. Get the full update from our government affairs director, Justin Fay.

J. Drake Hamilton wins Environmental Initiative award

We are thrilled to share that J. Drake Hamilton, our science policy director (currently out on medical leave), has won the Critical Collaborator award from Environment Initiative. A large group of supporters at Xcel Energy nominated her for this prestigious honor. Read what they had to say about J.

Action alert: your support needed

100 percent clean, equitable energy is on the table at the legislature right now. And your voice is important! Please contact your legislator and ask them to support 100 percent clean energy in Minnesota ▶ https://bit.ly/2USEa2A

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 February. Click here to see the full list.

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Climate Change Research

From:	Alexandra Klass <aklass@umn.edu>
To:	Michael Noble <Noble@fresh-energy.org>
Sent:	March 29, 2019 3:51:17 PM CDT
Attachments:	Alex Klass-RA's.xlsx

Dear Michael: As you know, we allocated $3,000 for the climate change research back in January. The final hours for the project have now come in (for January and February with part February being the follow up work requested during our conference call after the initial memo) and the total amount for the project (not included my time which I provided pro bono) was $4,579.12 (see attached). Would it be possible for Fresh Energy to provide the addition funds of $1,579.12? If that's a problem, let me know and I'll take it out of some of my own funding.

[redacted] and I arrived in Uppsala yesterday and [redacted]. I start teaching my class (Introduction to American Law) on Tuesday!

Best,

ABK

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. Alex Klass-RA's.xlsx

Type:	application/vnd.openxmlformats-officedocument.spreadsheetml.sheet
Size:	8 KB (8,785 bytes)

[redacted]

1/7/19-1/20/19	51.5	990.86
1/20/19-2/3/19	17.5	336.70
2/4/19-2/17/19	101	1943.24
1/21/19-2/3/19	30	577.20
1/21/19-2-3-19	38	731.12
		4579.12

Re: Climate Change Research

From: Michael Noble <Noble@fresh-energy.org>
To: Alexandra Klass <aklass@umn.edu>
Sent: March 29, 2019 5:24:46 PM CDT
Received: March 29, 2019 5:24:50 PM CDT

Checking...

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

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Sent: Friday, March 29, 2019 3:51:17 PM
To: Michael Noble
Subject: Climate Change Research

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hope on the climate protection front- how you can help and provide counsel

From: John Topping <jtoppingjr@yahoo.com>

To: Ron Schram <cschram1@aol.com>, R. Bradford Evans <r.bradford.evans@morganstanley.com>, Sadhana W. Hall <sadhana.hall@dartmouth.edu>, William H. Neukom <bill.neukom@klgates.com>, William Fitzhugh <fitzhugh@si.edu>, Bruce Duthu <bruce.duthu@dartmouth.edu>, Ross A. Virginia <ross.a.virginia@dartmouth.edu>, Anthony Desir <desir@netfront.net>, erich.c.osterberg@dartmouth.edu, Elizabeth Wilson <elizabeth.j.wilson@dartmouth.edu>, Alexandra Klass <aklass@umn.edu>, Fritz Corrigan <fwcorrigan@mac.com>, Daniel Bornstein <danielbornstein1210@gmail.com>, Robert Davidson <rhdavidsonjr@gmail.com>, Alexis Mantzaris <alexman@alum.mit.edu>, Wendy Gale <weag11@gmail.com>, Dennis Posadas <dennisramonposadas@gmail.com>, Christopher Philipp <christopher.philipp@gmail.com>, Tuck <ltuckwilson@gmail.com>, Mark Trexler <mctrexler@gmail.com>, J. David Foster <dafoster@aol.com>, Christopher Bayley <ctb@dylanbay.com>, Ray Chambers <rbcllc@cox.net>, Walter Vergara <wvergara@wri.org>, Karl Hausker <khausker@wri.org>, Linda Schade <lmschade@gmail.com>, Bobbie Kilberg <bkilberg@nvtc.org>, Stephen Kurzman <skurzman1@gmail.com>, Pat Goldman <pagoldman87@gmail.com>, Sasha Earnheart-Gold <sasha.earnheart.gold@gmail.com>, Scott Sklar <solarsklar@aol.com>, Samuel Sherer <samuel.sherer@gmail.com>, Mark Goldberg <mgoldberg@climate.org>, Brian Fowler <fowlerbrian@outlook.com>, Quentin Topping <qtopping@google.com>, Brandon Topping <brandontopping@gmail.com>, James Selover <drjcsel@gmail.com>, Michael Anzilotti <mjanzilo77@gmail.com>, John-Michael Cross <jmcross@eesi.org>, Corinne Kisner <corinne.kisner@gmail.com>, Michael MacCracken <mmaccrac@comcast.net>, Bill R. Harris <wm.r.harris@gmail.com>, Bill Drayton <wdrayton@gmail.com>, Charles Bayless <ceb1618@aol.com>, David Hawkins <dhawkins@nrdc.org>, David Doniger <ddoniger@nrdc.org>, Stan Rhodes <srhodes@scsglobalservices.com>, Emil Frankel <emil.frankel@gmail.com>, Jerry Taylor <jtaylor@niskanencenter.org>, Berna Huebner <bernahuebner@aol.com>, Magali Devic <magali.devic@gmail.com>, Reid Detchon <rdetchon@unfoundation.org>

Sent: April 17, 2019 1:45:24 PM CDT

Received: April 17, 2019 1:47:53 PM CDT

Dear Climate Protection Friends,

Like me you have possibly lost a little sleep at night mulling over the political dysfunction on both sides of the Atlantic with a resurgent populism in Brazil, North America and Europe both inflaming the politics and diverting attention from a growing climate crisis. Wildfires and mudslides in the American West, floods and tornadoes and signs of coral loss on iconic sites like the Great Barrier Reef may be harbingers of a very dystopian future we may be bequeathing to our children and grandkids and fellow sojourners on our planet.

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Meanwhile the Climate Institute involved in cutting edge work in several areas to identify some innovative and sometimes out of the box solutions of turning around a climate crisis that seems to be outpacing the ability of humans and natural ecosystems to adapt. These developments include:

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Climate Institute Co Chair Charles Bayless is speaking on the North American Supergrid at a September 10-11, 2019 Global Grid Summit in Vancouver, Canada.

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Mike MacCracken has advanced these ideas since then in a number of well received presentations to diverse audiences including the Union of Concerned Scientists, The DC Dartmouth Bridges Program, a student environmental group at Mike's alma mater, Princeton, and most recently to a group of visiting faculty members from a number of West Virginia universities.

5) The Institute has melded this aggressive science advocacy and outreach effort with an effort through work by research interns and graduate fellows in tandem with senior staff and advisors on such topics as how albedo enhancement can be integrated into climate adaptation planning and how enhancing natural defenses may be an effective alternative to or complement to hard engineering strategies to protect vulnerable coastal areas. Sarah Pearl, a Climate Institute Institute Intern and Physics and Environmental Studies Intern at Dartmouth, has explored Albedo Enhancement: Localized Climate Change Adaptation with Substantial Co-Benefits. http://climate.org/albedo-enhancement-localized-climate-change-adaptation-with-substantial-co-benefits/ As roughly half the world' s population lives in urban areas with two thirds likely by mid-century, urban heat island abatement measures such as brightening roofs and pavements , applying reflective coating and planting vegetation, may increase comfort, while reducing heat stress and energy costs and greenhouse emissions associated with air conditioning. Some studies have shown there are cost effective measures available that can reduce local urban temperatures as much as 6-8 degrees C. Two other possible innovative climate adaptation strategies, both more experimental, hold promise in enhancing albedo, affecting local climate with some small additional effect on reducing radiative forcing-development of crop hybrids that are more productive, heat resistant and that produce heightened albedo and "microbubbles" that reduce evaporation of freshwater supplies in reservoirs and lakes. Henry Hausmann, a Climate Institute Intern and Physics Major at Carnegie Mellon University, has been examining strategies to enhance natural defenses against sea level rise and storm damage , e.g. rebuilding oyster beds and planting mangroves, as well as how sea weed and other vegetation might reduce acidification around vulnerable coral.

6) Some of the best of these ideas are being integrated into climate games under development. Angela Li , a Dartmouth Computer Science Major, while serving as a Climate Institute Intern, has begun development of Climate Odyssey, a role playing game for use on computers that would highlight climate risks and clever strategies that might climate warming and its most adverse effects. Manuel Preckler Alonso, a Climate Institute Graduate Research Fellow from Canary Islands, Spain, has been examining how HVDC Supergrids might be employed to reduce power sector greenhouse emissions and grid vulnerability not only in North America but worldwide. These innovative strategies may be not only highlighted in climate games and web postings of the Climate Institute, they will factor into the regional policymaker briefings now being planned. The Climate Institute and its Mexican Partner group, Instituto del Clima, have collaborated over the last decade in the creation of 19 Tickell Network Climate Theatres- 18 in Mexico and one in Children's City Museum of Dubai. Each of these has used the NOAA Science On a Sphere projection technology invented by Alexander MacDonald. Although work is still quite preliminary, several Climate Institute fellows interns, Board members and project partners have examined the possibility of using virtual reality technologies for climate theatres, simulations and even games.

7) Just as we tapped into the six year NOAA study led by NOAA Lab Director Alexander MacDonald on potential of an HVDC overlay linking three major US Transmission Networks to develop a proposal for the North American Supergrid the Climate Institute seeks to draw upon its access both to largely twenty something student interns and fellows and pro bono senior advisors and partners to promote research , discussion and sometimes action on out of the box ideas that might enable us to meet the Climate Challenge. A number of you have links to researchers in such areas as Arctic climate, coastal protection , water resource planning, urban design and energy transformation. We value your counsel on how we might help identify and catalyze some of the best of these ideas.

Best wishes to each of you, whatever your faith, in this Holy Week of many of the world's great religions and our condolences to the People of France as they work to recover and rebuild after the tragic fire at Notre Dame Cathedral, John

John C. Topping, Jr.
President
Climate Institute
1201 New York Ave NW Suite 400
Washington D.C. 20005
Tel. W 202-552-0163
Cell 202-841-9432

Re: hope on the climate protection front- how you can help and provide counsel

From:	John Topping <jtoppingjr@yahoo.com>
To:	Ron Schram <cschram1@aol.com>, R. Bradford Evans <r.bradford.evans@morganstanley.com>, Sadhana W. Hall <sadhana.hall@dartmouth.edu>, William H. Neukom <bill.neukom@klgates.com>, William Fitzhugh <fitzhugh@si.edu>, Bruce Duthu <bruce.duthu@dartmouth.edu>, Ross A. Virginia <ross.a.virginia@dartmouth.edu>, Anthony Desir <desir@netfront.net>, erich.c.osterberg@dartmouth.edu, Elizabeth Wilson <elizabeth.j.wilson@dartmouth.edu>, Alexandra Klass <aklass@umn.edu>, Fritz Corrigan <fwcorrigan@mac.com>, Daniel Bornstein <danielbornstein1210@gmail.com>, Robert Davidson <rhdavidsonjr@gmail.com>, Alexis Mantzaris <alexman@alum.mit.edu>, Wendy Gale <weag11@gmail.com>, Dennis Posadas <dennisramonposadas@gmail.com>, Christopher Philipp <christopher.philipp@gmail.com>, Tuck <ltuckwilson@gmail.com>, Mark Trexler <mctrexler@gmail.com>, J. David Foster <dafoster@aol.com>, Christopher Bayley <ctb@dylanbay.com>, Ray Chambers <rbcllc@cox.net>, Walter Vergara <wvergara@wri.org>, Karl Hausker <khausker@wri.org>, Linda Schade <lmschade@gmail.com>, Bobbie Kilberg <bkilberg@nvtc.org>, Stephen Kurzman <skurzman1@gmail.com>, Pat Goldman <pagoldman87@gmail.com>, Sasha Earnheart-Gold <sasha.earnheart.gold@gmail.com>, Scott Sklar <solarsklar@aol.com>, Samuel Sherer <samuel.sherer@gmail.com>, Mark Goldberg <mgoldberg@climate.org>, Brian Fowler <fowlerbrian@outlook.com>, Quentin Topping <qtopping@google.com>, Brandon Topping <brandontopping@gmail.com>, James Selover <drjcsel@gmail.com>, Michael Anzilotti <mjanzilo77@gmail.com>, John-Michael Cross <jmcross@eesi.org>, Corinne Kisner <corinne.kisner@gmail.com>, Michael MacCracken <mmaccrac@comcast.net>, Bill R. Harris <wm.r.harris@gmail.com>, Bill Drayton <wdrayton@gmail.com>, Charles Bayless <ceb1618@aol.com>, David Hawkins <dhawkins@nrdc.org>, David Doniger <ddoniger@nrdc.org>, Stan Rhodes <srhodes@scsglobalservices.com>, Emil Frankel <emil.frankel@gmail.com>, Jerry Taylor <jtaylor@niskanencenter.org>, Berna Huebner <bernahuebner@aol.com>, Magali Devic <magali.devic@gmail.com>, Reid Detchon <rdetchon@unfoundation.org>
Sent:	April 18, 2019 9:05:15 AM CDT
Received:	April 18, 2019 9:06:27 AM CDT
Attachments:	MacCracken-Dartmouth Presentation-2019-03-20reduced.pdf

Yesterday as the world focused on the response of the People of France to the tragic fire at Notre Dame Cathedral I sent each of you an update on how the Climate Institute is dealing with a growing climate crisis and a *cri de coeur*, a plea for help and counsel as we search for clever solutions, some very much out of the box, that might give human civilization and natural ecosystems reasonable hope of weathering the climate challenge.

Today April18, 2019 is not only the date of the release of a slightly redacted version of the Mueller Report it is also my 76th birthday and the 244th anniversary of the famous midnight ride of Paul Revere.

I am taking this occasion to send each of you a remarkably compelling and also somewhat unnerving slide presentation by the Climate Institute's chief scientist for climate change programs,

Mike MacCracken, a member of the class of 1964 at Princeton, which may be a warning as consequential to victory in the climate wars as Paul Revere's was to the success of the rebels at Lexington and Concord . Mike MacCracken, delivered this to the Dartmouth Bridges group, after I introduced him and gave some description of our links to Dartmouth and other schools. Mike has subsequently given similar presentations at Princeton and most recently to a group of professors we hosted from a number of West Virginia Universities. This presentation was so significant that our class officers decided to post it on the Dartmouth class of 1964 website. Mike indicates that in addition to a remarkable range of energy innovation measures, reforestation, and carbon capture and reuse or storage, we may need to integrate into our strategies enhancement of albedo, i.e. surface reflectivity. This week we posted a very enlightening paper, written by Sarah Pearl, a combined major in Physics and Environmental Studies at Dartmouth while she was a Climate Institute intern (http://climate.org/albedo-enhancement-localized-climate-change-adaptation-with-substantial-co-benefits/American Revoloution required the help of some from abroad, such as Lafayette, Kosciuszko, Pulaski, and von Steuben, restoration of global climate health will require drawing on lessons from abroad. Israel has been a pioneer in agriculture, urban design, and water conservation, and Australia has some of the world's iconic and vulnerable sites, such as the Great Barrier Reef. Several copied here have close ties to those who've pioneered in research in these and similarly crucial areas such as the Arctic and Antarctic. I've taking the liberty of copying the class Listserv of my Yale Law 1967 Class to promote a dialogue on this issue and am hoping to elicit further ideas from this mailing . These challenges may be equally challenging but less enervating, than focusing on the tragic events at the Notre Dame Cathedral.

Best wishes, John.

John C. Topping, Jr.
President
Climate Institute
1201 New York Ave NW Suite 400
Washington D.C. 20005
Tel. W 202-552-0163
Cell 202-841-9432

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Mike MacCracken has advanced these ideas since then in a number of well received presentations to diverse audiences including the Union of Concerned Scientists, The DC Dartmouth Bridges Program, a student environmental group at Mike's alma mater, Princeton, and most recently to a group of visiting faculty members from a number of West Virginia universities.

5) The Institute has melded this aggressive science advocacy and outreach effort with an effort through work by research interns and graduate fellows in tandem with senior staff and advisors on such topics as how albedo enhancement can be integrated into climate adaptation planning and how enhancing natural defenses may be an effective alternative to or complement to hard engineering strategies to protect vulnerable coastal areas. Sarah Pearl, a Climate Institute Institute Intern and Physics and Environmental Studies Intern at Dartmouth, has explored Albedo Enhancement: Localized Climate Change Adaptation with Substantial Co-Benefits. http://climate.org/albedo-enhancement-localized-climate-change-adaptation-with-substantial-co-benefits/ As roughly half the world' s population lives in urban areas with two thirds likely by mid-century, urban heat island abatement measures such as brightening roofs and pavements , applying reflective coating and planting vegetation, may increase comfort, while reducing heat stress and energy costs and greenhouse emissions associated with air conditioning. Some studies have shown there are cost effective measures available that can reduce local urban temperatures as much as 6-8 degrees C. Two other possible innovative climate adaptation strategies, both more experimental, hold promise in enhancing albedo, affecting local climate with some small additional effect on reducing radiative forcing-development of crop hybrids that are more productive, heat resistant and that produce heightened albedo and "microbubbles" that reduce evaporation of freshwater supplies in reservoirs and lakes. Henry Hausmann, a Climate Institute Intern and Physics Major at Carnegie Mellon University, has been examining strategies to enhance natural defenses against sea level rise and storm damage , e.g. rebuilding oyster beds and planting mangroves, as well as how sea weed and other vegetation might reduce acidification around vulnerable coral.

6) Some of the best of these ideas are being integrated into climate games under development. Angela Li , a Dartmouth Computer Science Major, while serving as a Climate Institute Intern, has begun development of Climate Odyssey, a role playing game for use on computers that would highlight climate risks and clever strategies that might climate warming and its most adverse effects. Manuel Preckler Alonso, a Climate Institute Graduate Research Fellow from Canary Islands, Spain, has been examining how HVDC Supergrids might be employed to reduce power sector greenhouse emissions and grid vulnerability not only in North America but worldwide. These innovative strategies may be not only highlighted in climate games and web postings of the Climate Institute, they will factor into the regional policymaker briefings now being planned. The Climate Institute and its Mexican Partner group, Instituto del Clima, have collaborated over the last decade in the creation of 19 Tickell Network Climate Theatres- 18 in Mexico and one in Children's City Museum of Dubai. Each of these has used the NOAA Science On a Sphere projection technology invented by Alexander MacDonald. Although work is still quite preliminary, several Climate Institute fellows interns, Board members and project partners have examined the possibility of using virtual reality technologies for climate theatres, simulations and even games.

7) Just as we tapped into the six year NOAA study led by NOAA Lab Director Alexander MacDonald on potential of an HVDC overlay linking three major US Transmission Networks to develop a proposal for the North American Supergrid the Climate Institute seeks to draw upon its access both to largely twenty something student interns and fellows and pro bono senior advisors and partners to promote research , discussion and sometimes action on out of the box ideas that might enable us to meet the Climate Challenge. A number of you have links to researchers in such areas as Arctic climate, coastal protection , water resource planning, urban design and energy transformation. We value your counsel on how we might help identify and catalyze some of the best of these ideas.

Best wishes to each of you, whatever your faith, in this Holy Week of many of the world's great religions and our condolences to the People of France as they work to recover and rebuild after the tragic fire at Notre Dame Cathedral, John

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1. MacCracken-Dartmouth Presentation-2019-03-20reduced.pdf

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The Challenge of Controlling Climate Change

Michael MacCracken, Ph.D.
Chief Scientist for Climate Change Programs
Climate Institute
Washington DC

DC Dartmouth Club
March 20, 2019

24 December 1968, Apollo 8 *"Earthrise"*

"To see the Earth as it truly is,
small and blue and beautiful
in that eternal silence where it floats,
is to see ourselves as riders on the Earth together,
brothers on that bright loveliness in the eternal cold—
brothers who know now they are truly brothers."

Archibald MacLeish, American writer and poet, The New York Times, 25 December 1968

24 December 1968, Apollo 8

"Earthrise"

"To see the Earth as it truly is,
small and blue and beautiful
in that eternal silence where it floats,
is to see ourselves as riders on the Earth together,
b

We are no longer just "riders"– we are the drivers;
As Nobelist Paul Crutzen has noted,
we have entered the Anthropocene!

Archibald MacLeish, American writer and poet, The New York Times, 25 December 1968

Understanding and confidently projecting climate change and its impacts is a very difficult scientific challenge

- Earth system behavior is governed by a **complex set of physical, chemical, biological, technological, and sociological relationships**—perfect understanding is not possible
- **There is only one "Earth"**--and we have only a limited record and understanding of the one path of many that it could have taken through time
- To legislate and prepare for future conditions, **projections are needed for decades to a century and more**, and preferably on relatively fine time and space scales
- **The energy issue is central** to the operation and experience of society
- **The situation is upon us**—the longer we wait to gain better understanding, the more costly the actions will need to be

"Uncertainty is inevitable, but risk is certain"--Pittock (2005)

Addressing the issue is complicated by different perspectives, each of which can be effectively argued and has its own perspective on the level of confidence required

Scientific Community	High statistical confidence to ensure long-term credibility; typically give wide range of possibilities
Coal and Oil Producers	High statistical confidence before making the costly conversion to other forms of energy; choose low value
Environmental Groups	Risk of irreversible impacts or loss necessitates a precautionary response; typically choose high value
Developers of New Technologies	Credible indication of risk used as basis to request significant research and incentives on alternatives
Energy Cost Analysts	Using a traditional high discount rate, future impacts have a low present value, so best to wait
Cost-Benefit Analysts	Using a sustainability framework and low discount rate, impacts and risks have high value, so act now
Energy Security Analysts	Environmental uncertainties are secondary to issue of reducing dependence on energy imports
Moral and Ethical Communities (two perspectives)	A. There is no way puny man could affect God's great Earth B. Equity (rich vs. poor, US vs. other nations, present vs. future generations) and stewardship are key

That emissions of CO_2 from generation of energy could alter the climate has a long scientific history

- **1896:** Calculations by Swedish scientist Svante Arrhenius indicate adding CO_2 would exert a strong warming influence on global climate
- **1930s/1940s:** British engineer Guy Callendar claims measurement of an increase in the CO_2 concentration and in temperature
- **1950s/1960s:** Through observations and modeling, scientists resolve the two fundamental scientific criticisms of Arrhenius' hypothesis; Observations of CO_2 begin on Mauna Loa, showing the rise
- **1965:** President's Science Advisory Council advises President Johnson and Congress that CO_2 emissions will warm the world
- **1970s**: US DOE establishes focused research program; UN and international conferences echo their agreement on the science
- **1980s:** National Academy of Sciences and US Department of Energy (DOE) issue major reports on human-induced climate change
- **1990:** Intergovernmental Panel on Climate Change (IPCC) issues its first (of now 5) international scientific assessments, and a special update report in 1992 prior to the UN-convened Earth Summit in Rio

The UN-sponsored Earth Summit in 1992 in Rio took the first international step to limit climate change

Among other actions at the Earth Summit:

- **The UN Framework Convention on Climate Change (UNFCCC)*** was formulated as the umbrella structure under which subsequent agreements (e.g., Kyoto, Copenhagen, Paris) would be negotiated.
- **An initial voluntary commitment was made** by the developed nations to aim to be emitting no more in the year 2000 than they were emitting in 1990
- **A future objective was set** to work toward under the UNFCCC

Within a year, virtually all nations had approved, including the US by a near unanimous vote in the Senate. President George H. W. Bush committed to 'fix the greenhouse effect with the White House effect.'

*The Climate Institute had convened a Washington DC workshop 2 years earlier that actually came up with the approach, drawn from the Montreal Protocol process, that was incorporated into the UNFCCC agreement.

The Objective of the UNFCCC was to stabilize GHG concentrations at a level that would avoid seriously disruptive consequences

Objective 2 of the UNFCCC calls for:

- Stabilization of the greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.
- Such a level should be achieved within a time-frame sufficient
  - to allow ecosystems to adapt naturally to climate change,
  - to ensure that food production is not threatened, and
  - to enable economic development to proceed in a sustainable manner.

Earth Summit, Rio de Janeiro, 1992

(adopted widely by the world community and ratified by the US Senate in 1992)

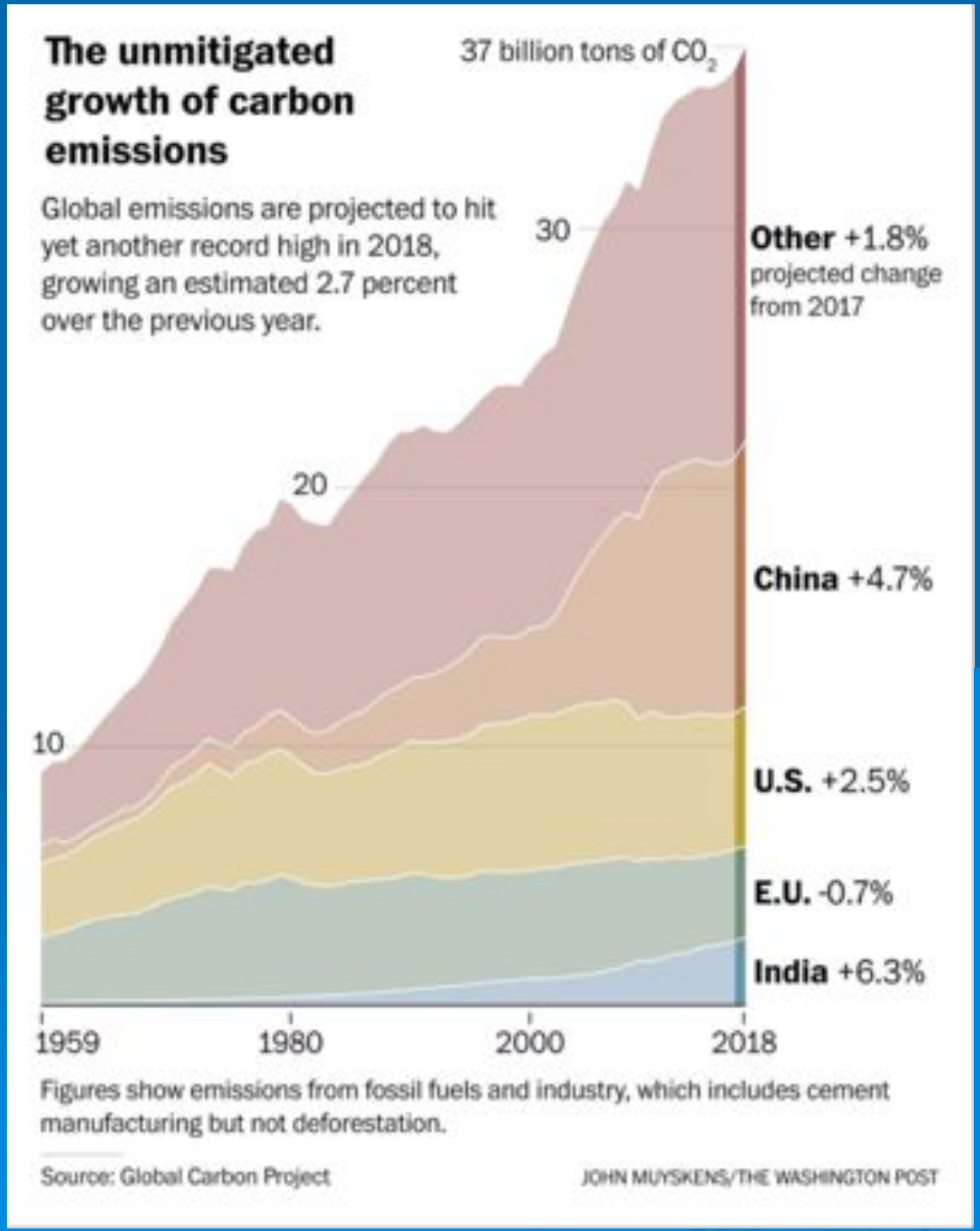
In considering the climate change challenge, there are really only 6 key findings that matter

Insights from the recent and distant past:

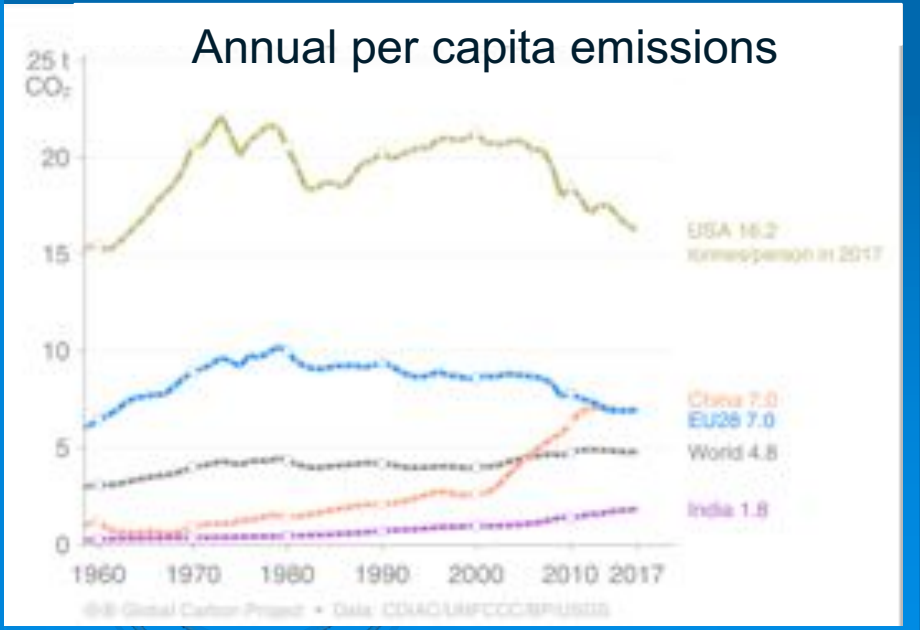
1. Human activities, primarily burning of coal, oil, and natural gas, are changing atmospheric composition;
2. These changes are exerting a significant warming influence on the land-ocean-atmosphere system;
3. Human-induced changes in climate have become the dominant influence since the mid-20th century;

Projecting into the future:

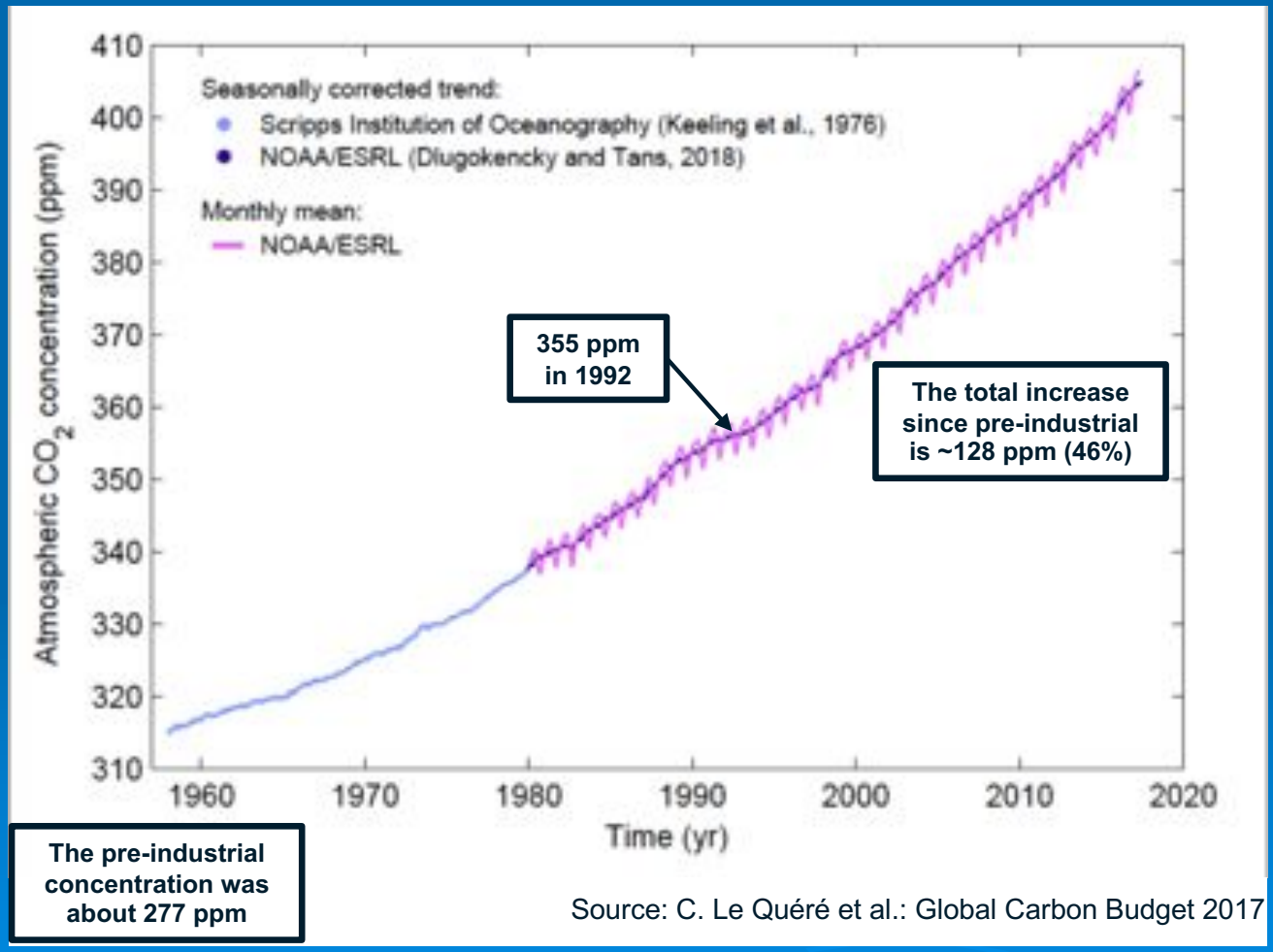
4. The ongoing use of coal, oil, and natural gas in the future will lead to greater and greater climate change;
5. Changes in climate are already having impacts on the environment and sea level, and much more lies ahead;
6. Stopping the changes will require near elimination of global reliance of coal, oil, and natural gas



- **Despite the commitment in Rio and the later conventions in Kyoto and Paris, global CO_2 emissions have continued to increase.**
- **Emissions in some developed nations may be starting to level off or even decrease.**
- **Per capita emissions remain very uneven, with the US very high**

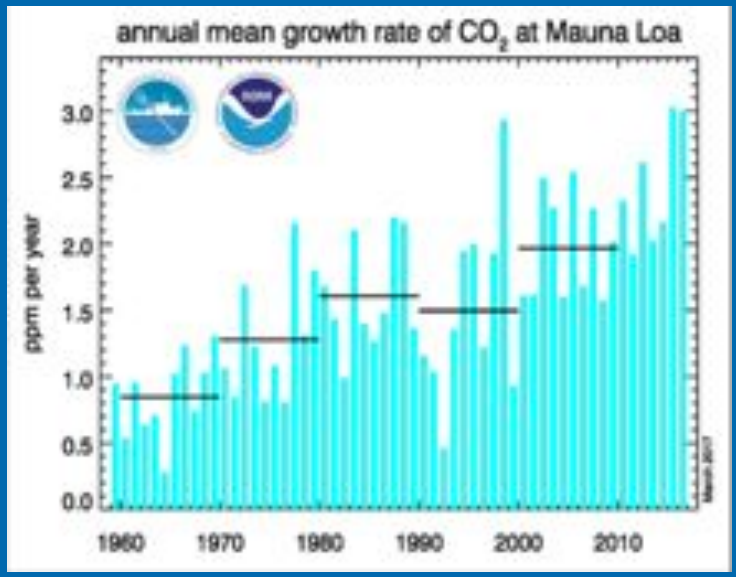


In the ~25 years since the 1992 Earth Summit, the CO_2 concentration has gone from ~355 ppm in 1992 to over 405 ppm, about as much as in the previous ~50 years



The pre-industrial concentration was about 277 ppm

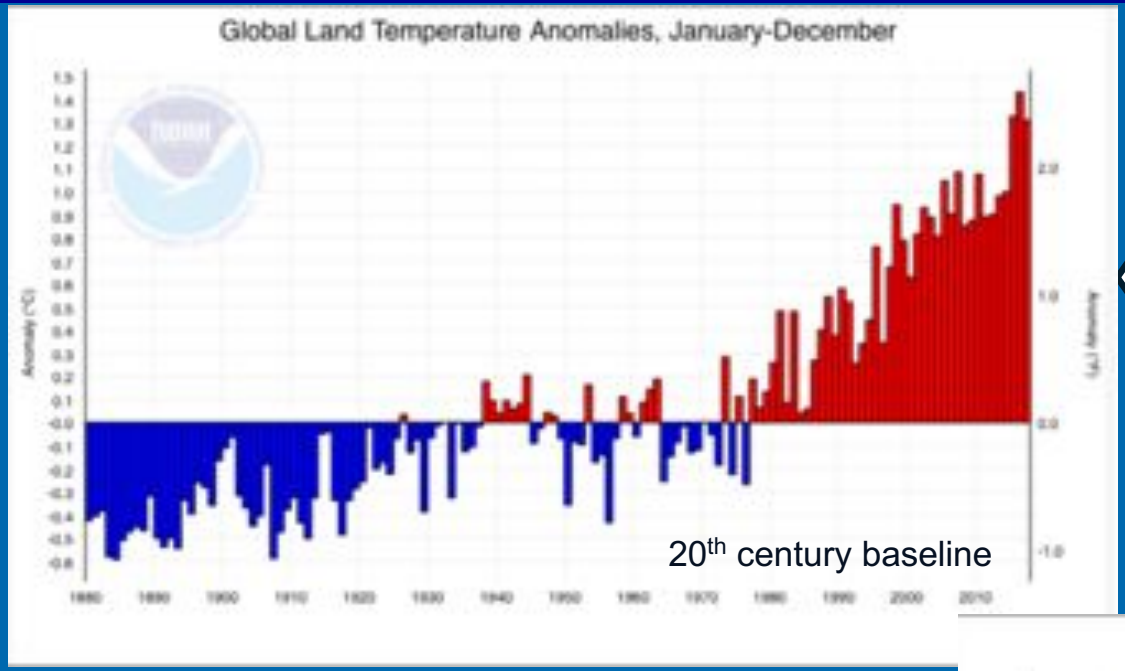
Source: C. Le Quéré et al.: Global Carbon Budget 2017



… and the annual rate of increase has been increasing

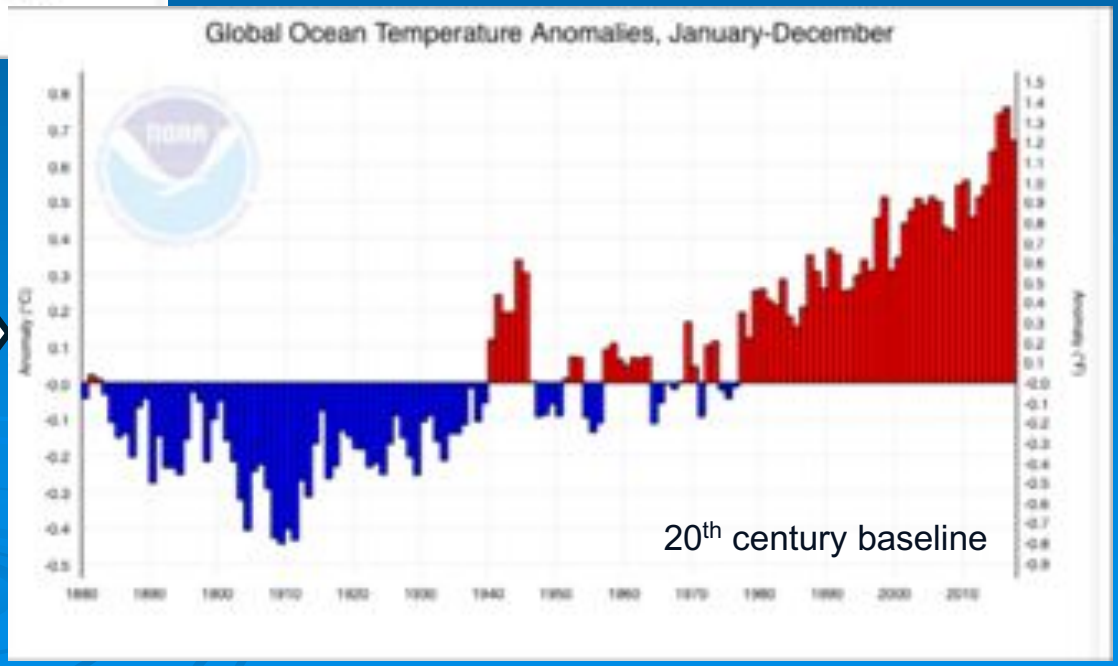
The methane concentration is also up significantly and continuing to increase

Since 1992, the global-average change in annual average temperature has been ~0.5ºC (~0.9ºF). The increase has been larger over land areas, during winter, and at higher latitudes

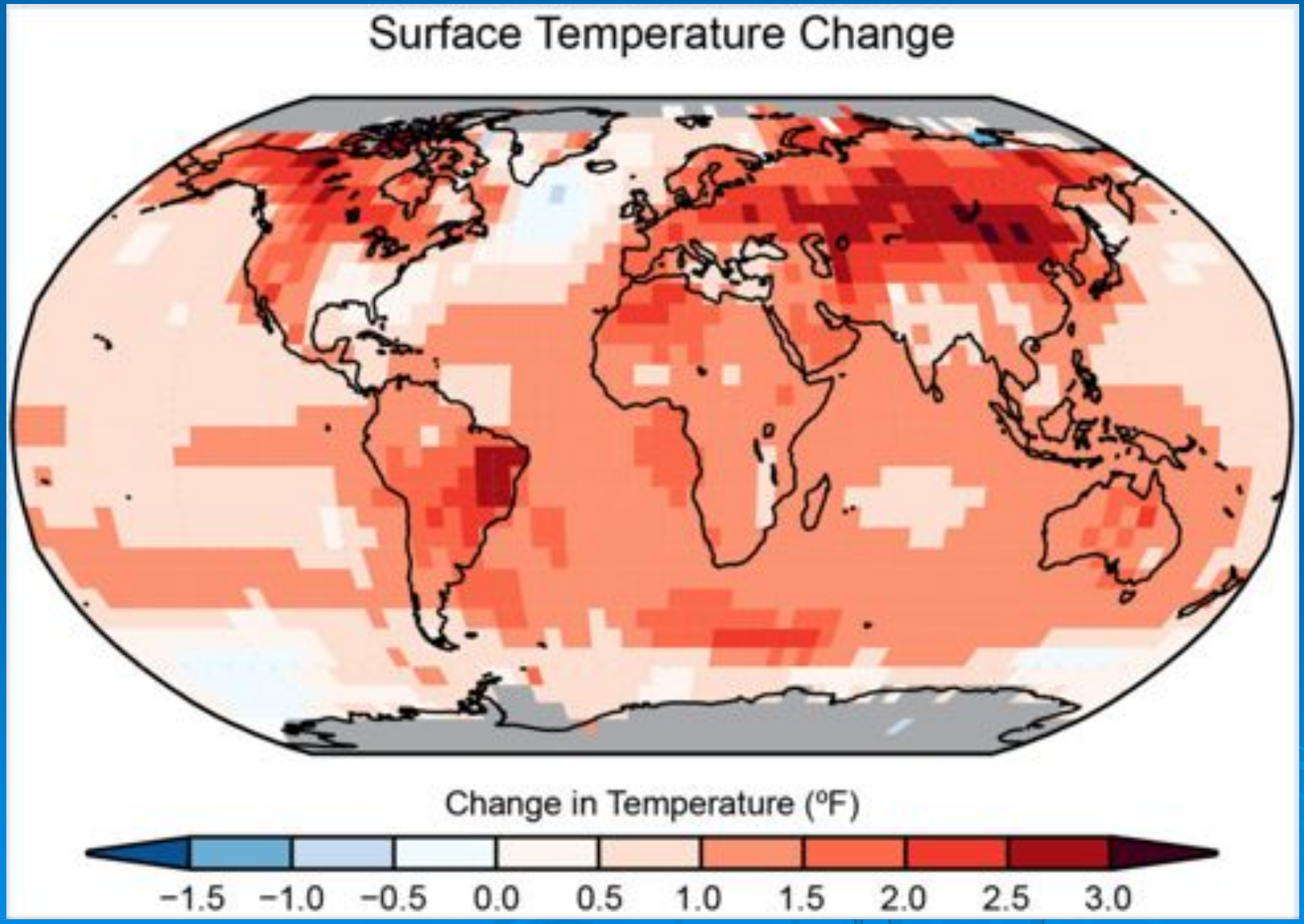


The increase in temperature over the Earth's land areas is already nearly 1.5ºC above the value in the late 19th century, about twice as much warming as measured over the oceans. ***The Arctic is experiencing especially amplified warming due to triggering of the amplifying ice-albedo feedback.***

The increase in the global average ocean temperature is ~0.8ºC since the late 19th century. ***Note the apparent ocean warmth measured during WW II years is likely a remaining bias in observing procedures that has unfortunately led to some confusion about the factors contributing to the warming.***

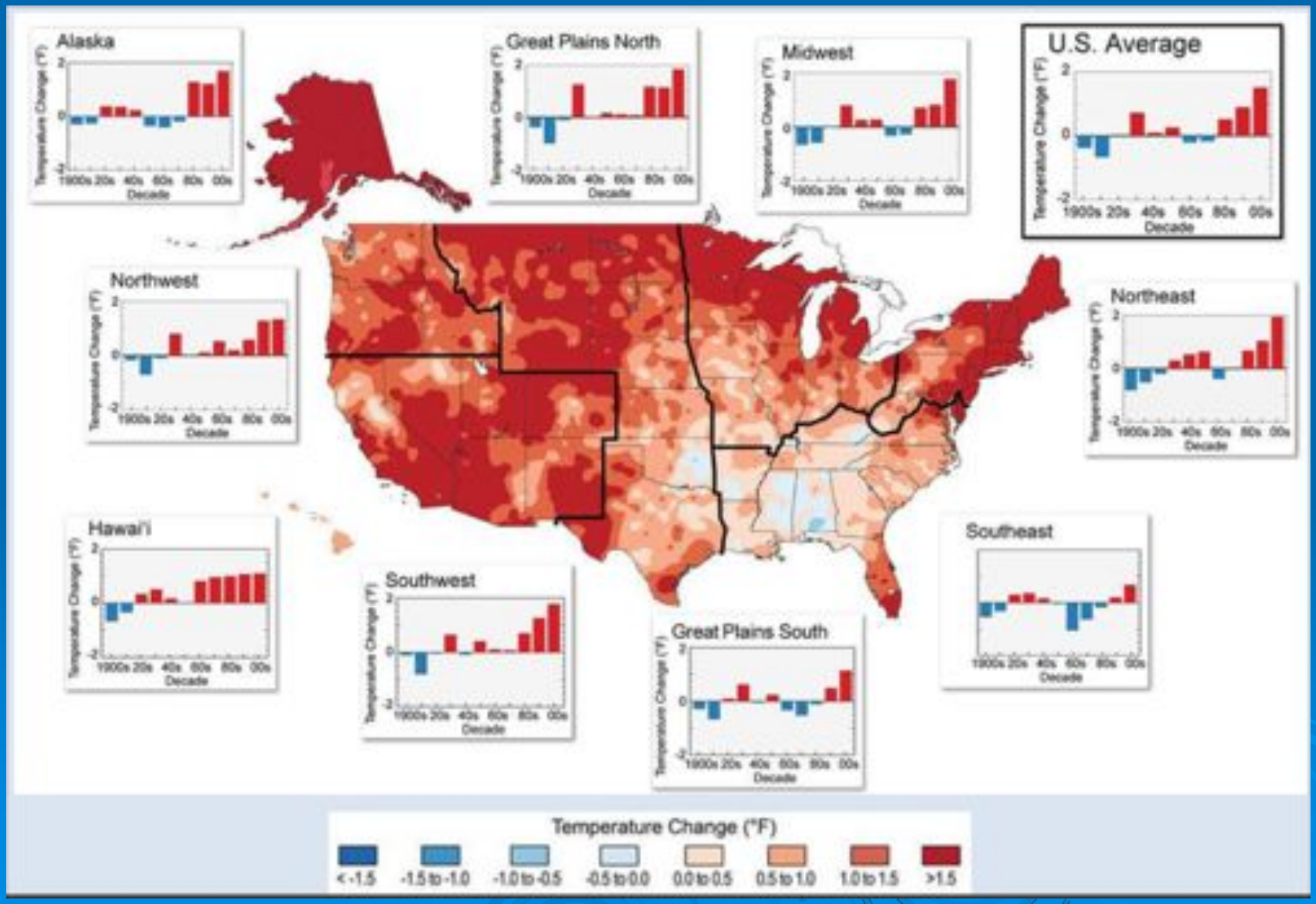


The overall warming since 1901 has been evident over virtually all of the world where observations are available for the whole period (the poles lack data)



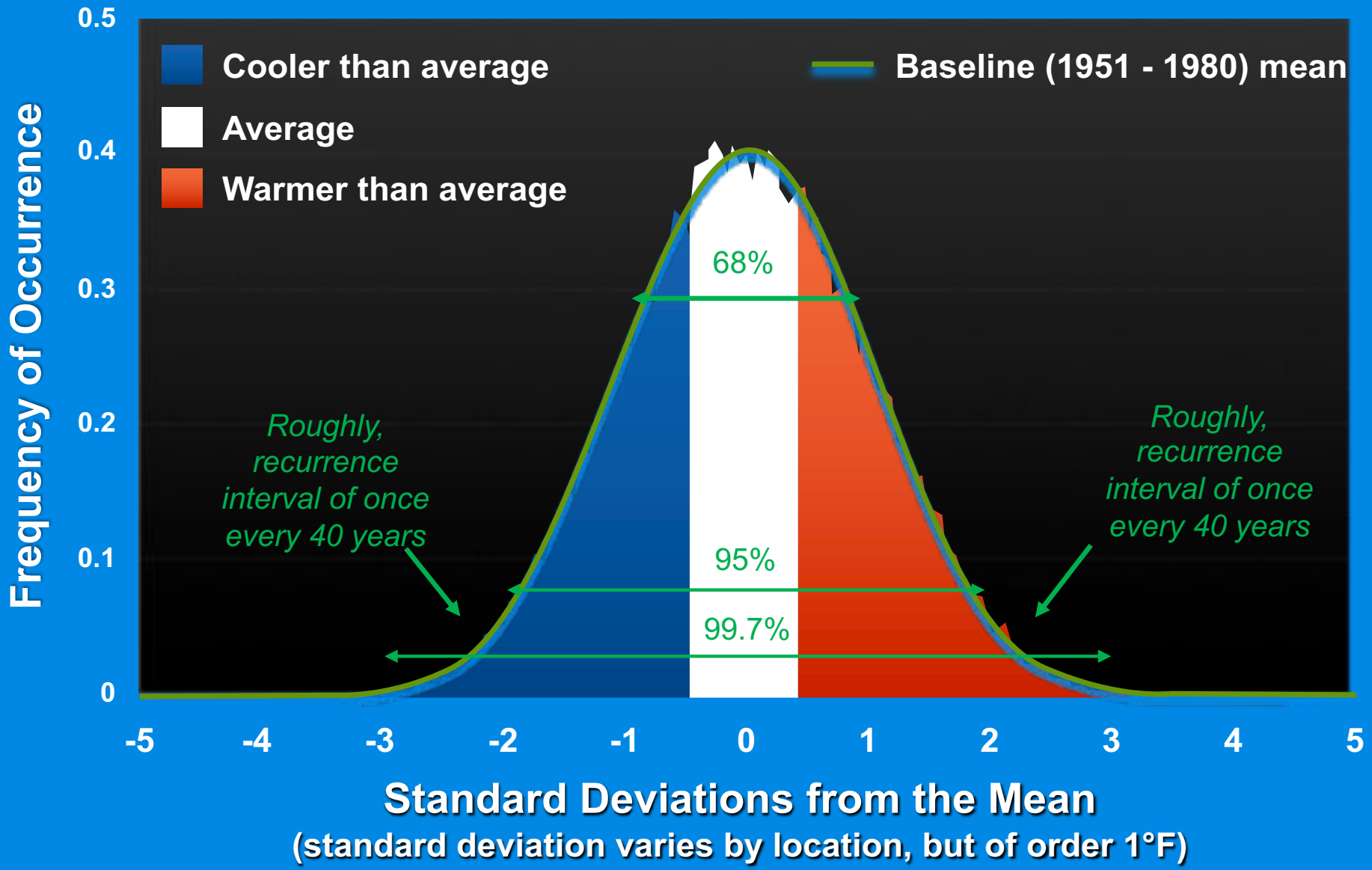
Note: Temperature changes are in degrees Fahrenheit rather than Celsius, so a factor of 1.8 higher

The warming from 1901-2015 has been quite strong over the US, except in some areas that were hot and dry in the 1930s



Note: Temperature changes are in degrees Fahrenheit rather than Celsius, so a factor of 1.8 higher

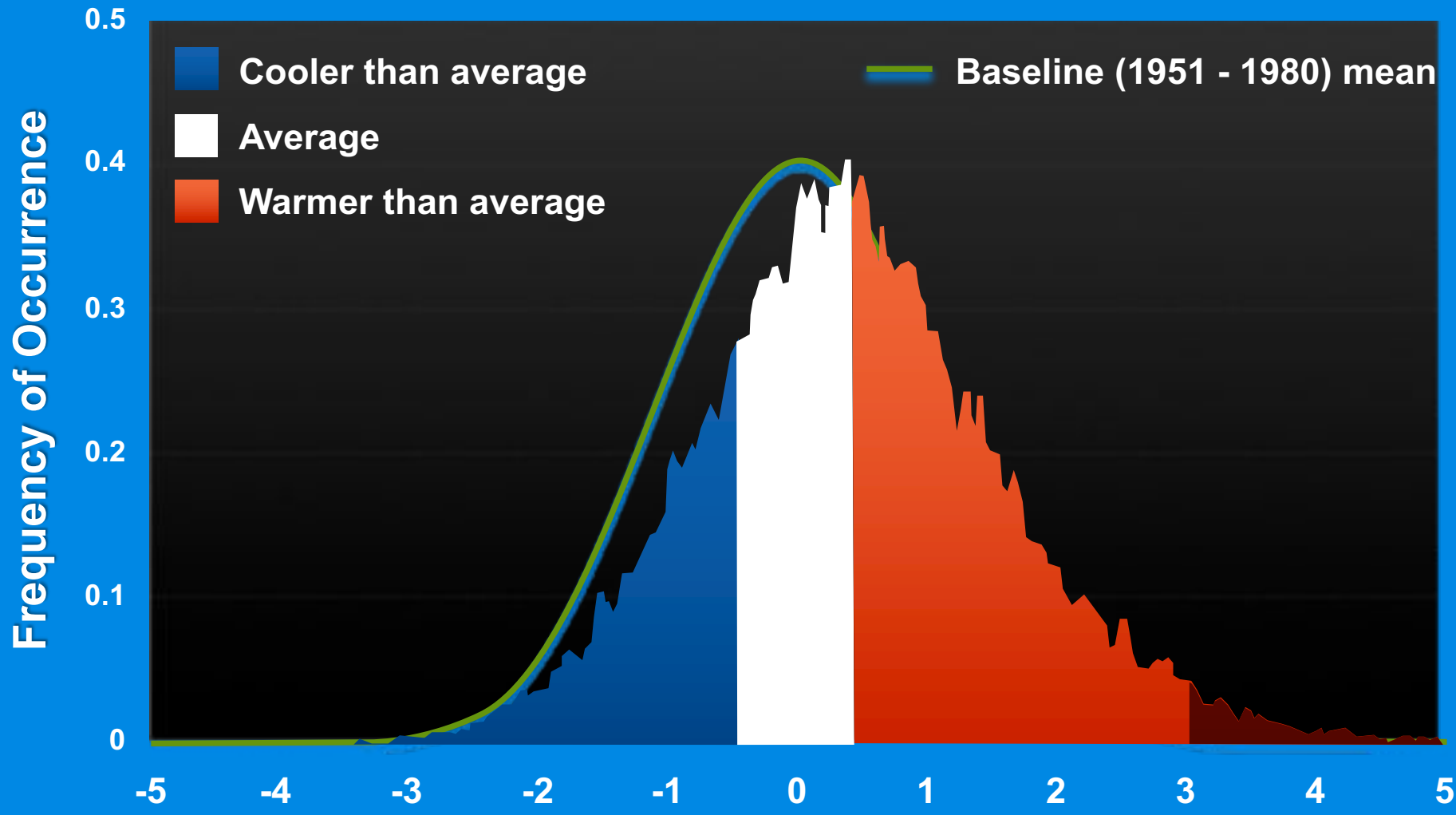
The distribution of departures of average summer temperature from normal conditions at land-based locations (250 km grid) in the Northern Hemisphere



Source: NASA/GISS; Hansen, et al., "Perceptions of Climate Change," *Proc. Natl. Acad. Sci. USA* 10.1073, August 2012

Slide adapted from Climate Reality Project

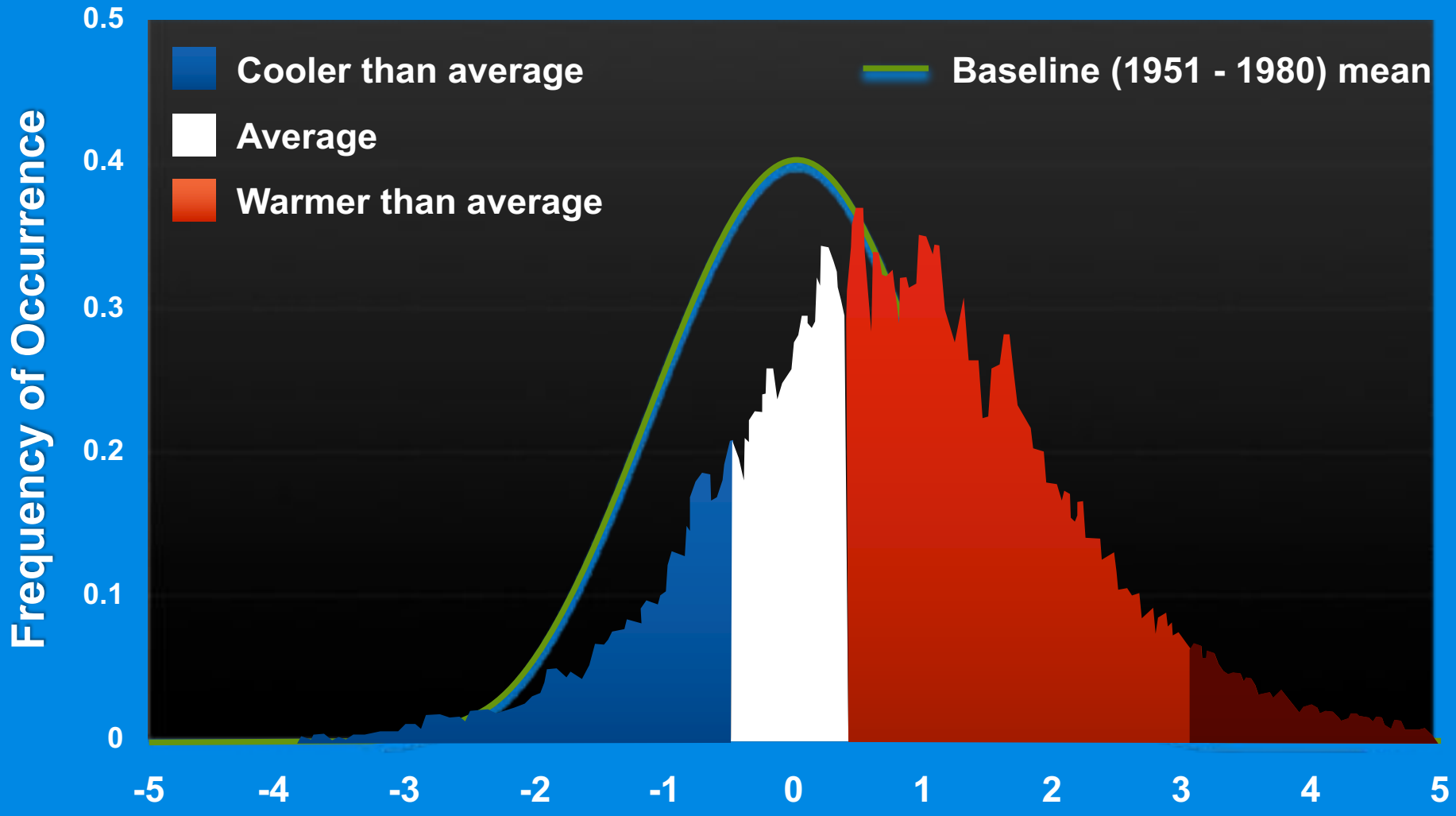
By 1981-90, Hansen et al. found that the observed distribution had shifted to warmer conditions, reducing the number of cool summers and increasing the number of warm/hot summers



Source: NASA/GISS; Hansen, et al., "Perceptions of Climate Change," *Proc. Natl. Acad. Sci. USA* 10.1073, August 2012

Slide adapted from Climate Reality Project

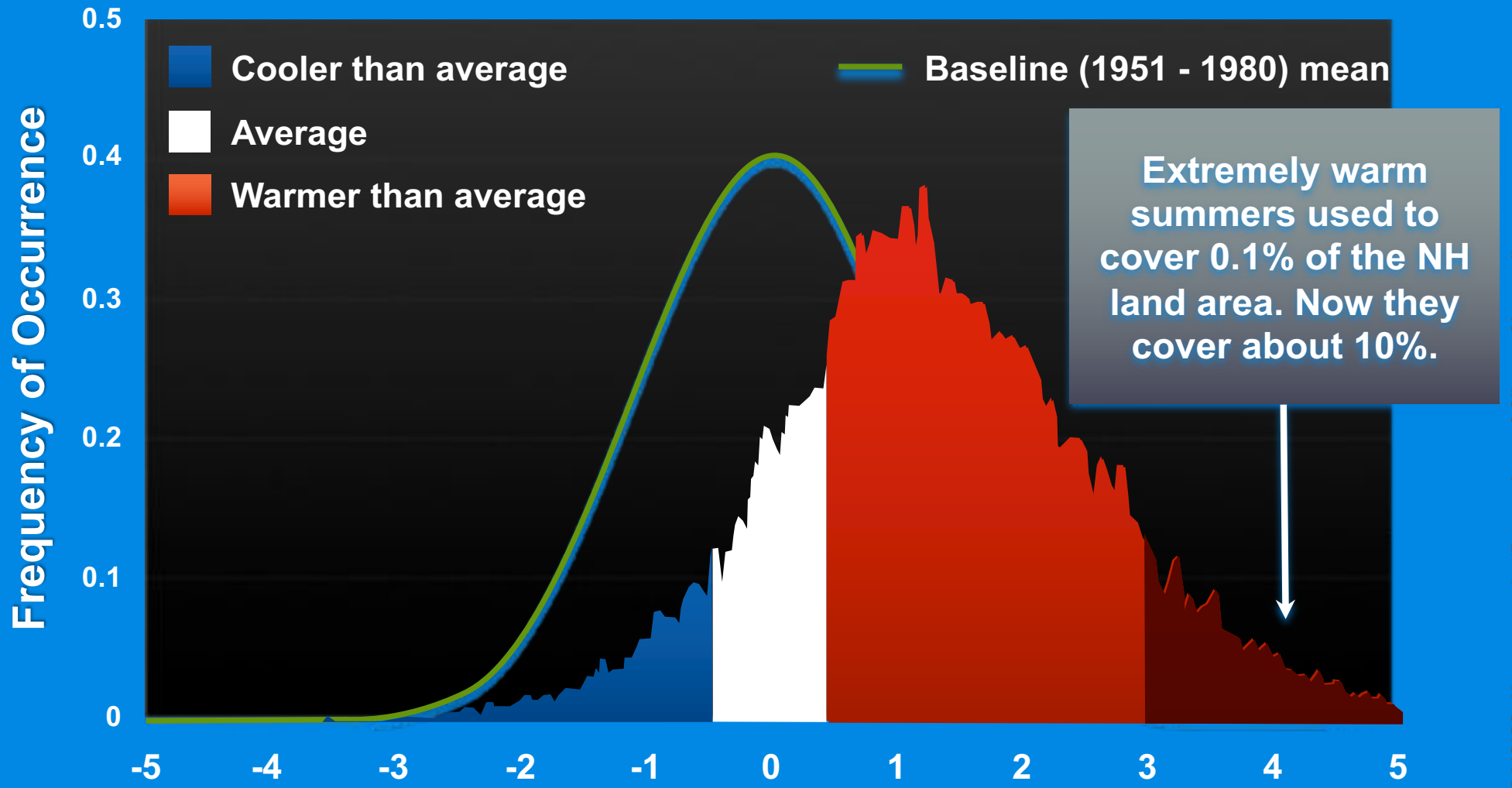
By 1991-2000, the observed distribution had shifted even further to warmer and very warmer conditions and further reducing the likelihood of cooler summers



Source: NASA/GISS; Hansen, et al., "Perceptions of Climate Change," *Proc. Natl. Acad. Sci. USA* 10.1073, August 2012

Slide adapted from Climate Reality Project

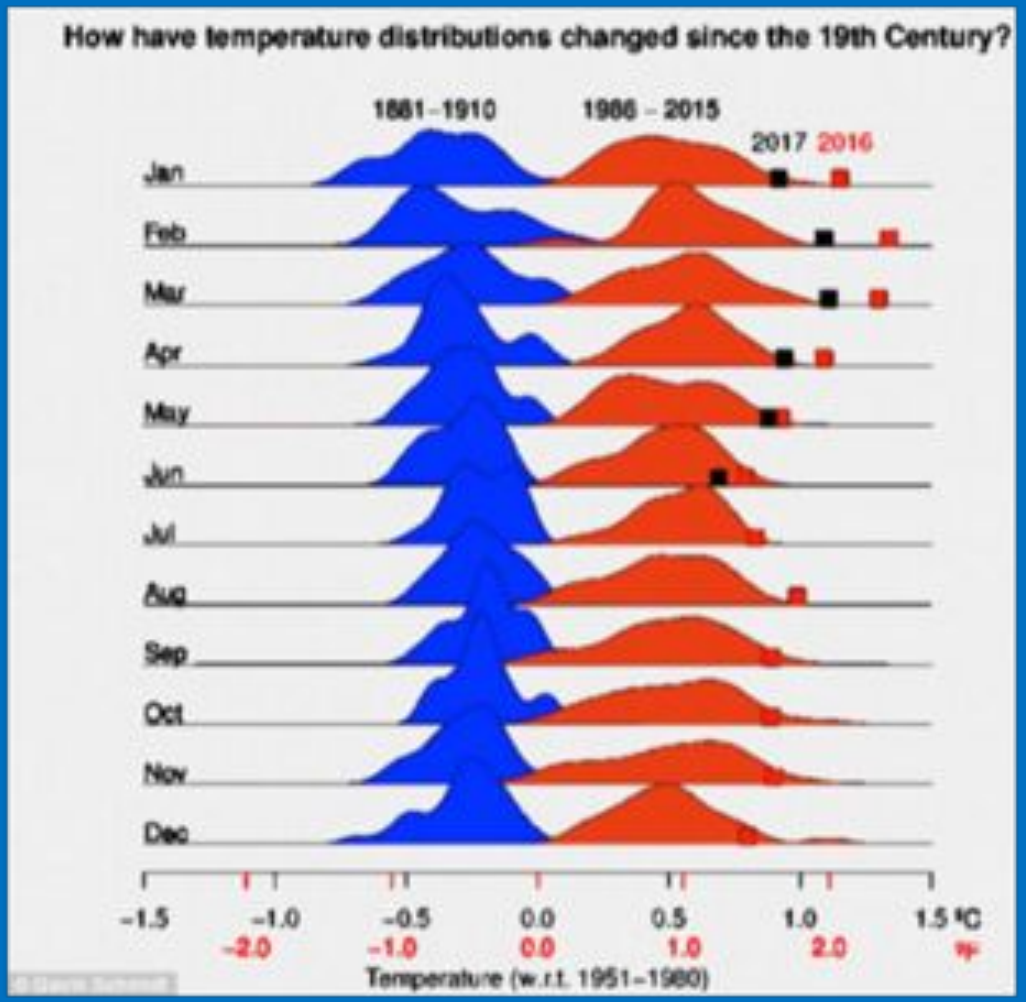
By 2001-10, the observed distribution had shifted even further to warmer and very warmer conditions and further reducing the likelihood of cooler summers (Hansen et al.)



Source: NASA/GISS; Hansen, et al., "Perceptions of Climate Change," *Proc. Natl. Acad. Sci. USA* 10.1073, August 2012

Slide adapted from Climate Reality Project

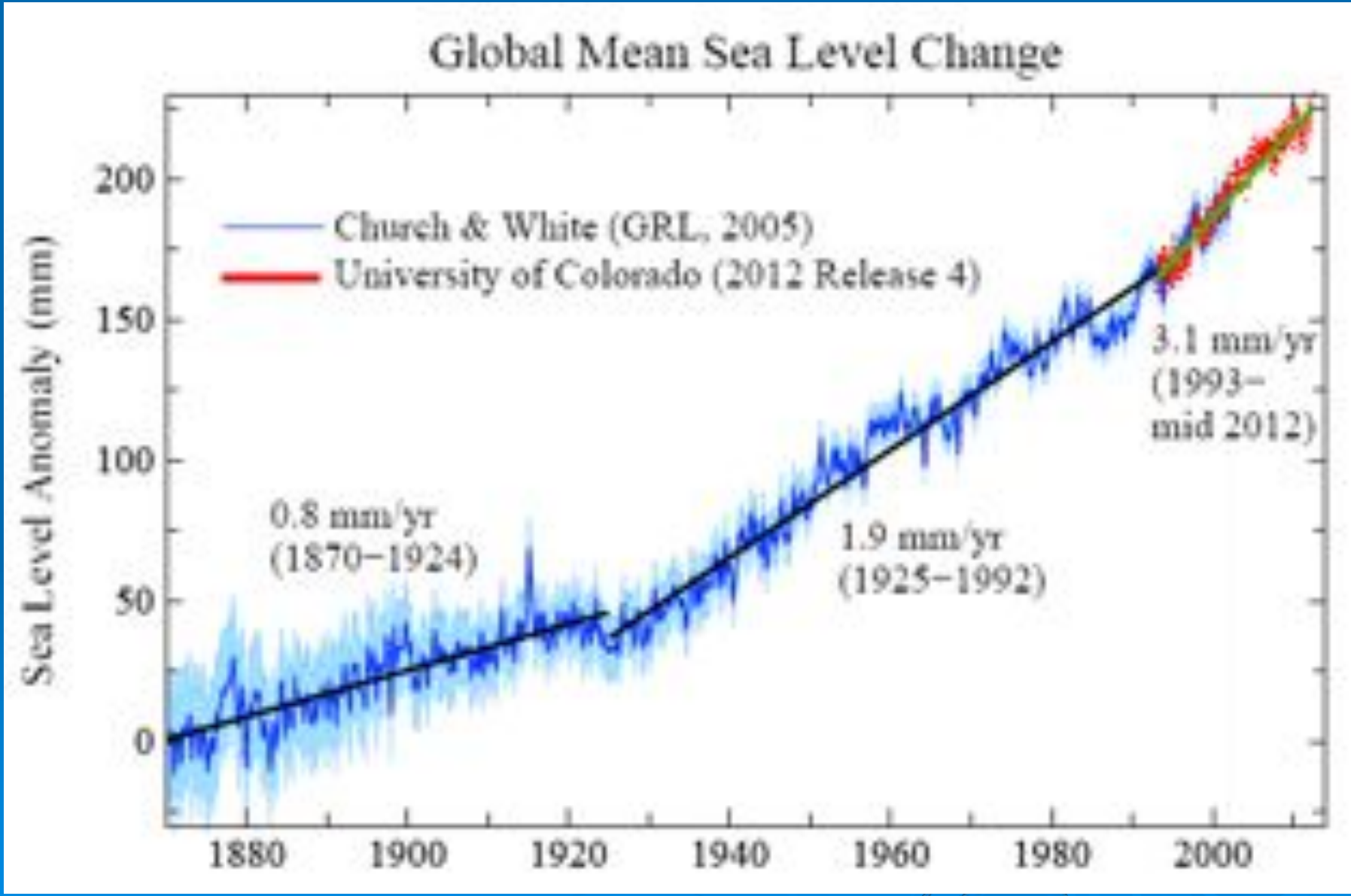
Similar shifts in the monthly departures of global average temperature from their mid-20th century values are occurring in every month of the year



The three-decade distributions of monthly average temperature departure from a common average (1951-80) show that months over recent decades (1986-2015) are significantly warmer than months a century ago (1881-1910), and warming is continuing

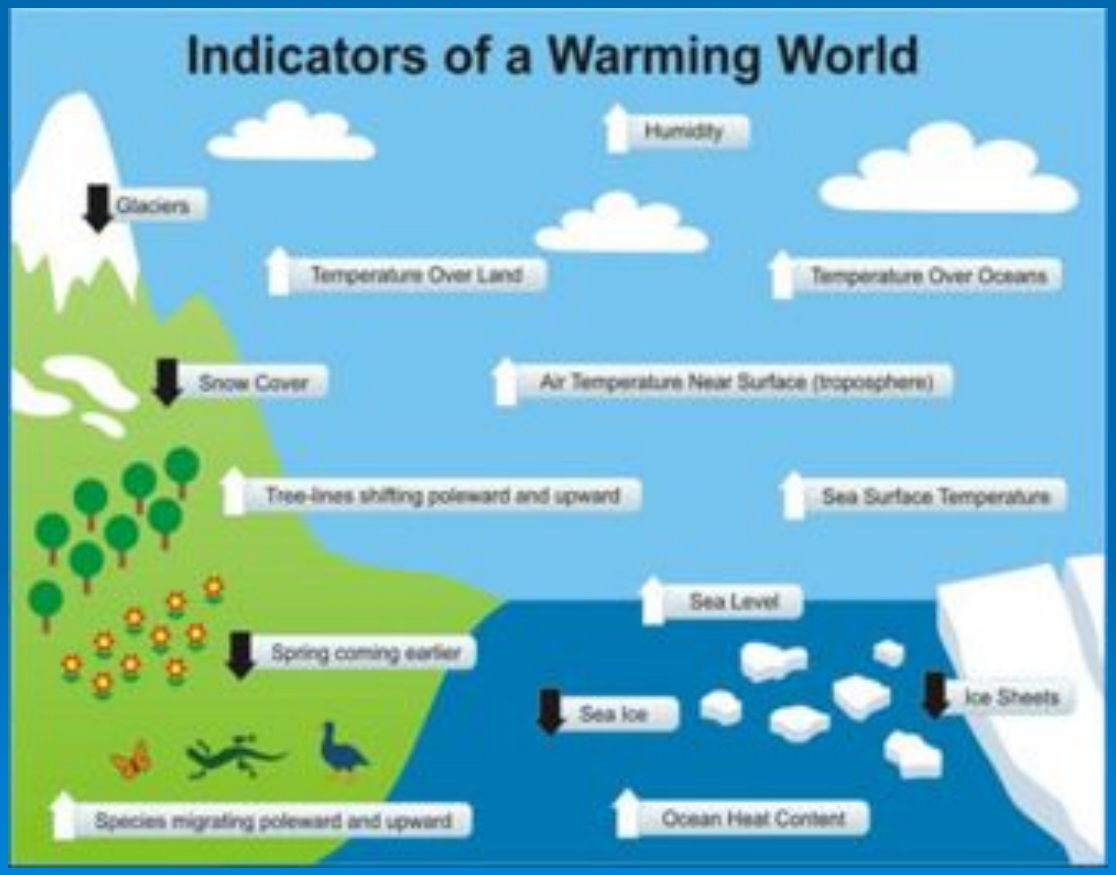
Source: Gavin Schmidt, NASA

After relatively little change for several thousand years, global sea level has been increasing at an accelerating rate



Source of slide: modified from James Hansen
Blue: Sea level change from tide-gauge data (Church J.A. and White N.J., Geophys. Res. Lett. 2006; 33: L01602)
Red: Univ. Colorado sea level analyses in satellite era (http://www.columbia.edu/~mhs119/SeaLevel/).

Determining the causes of the changes involves a process of Detection and Attribution (D ‘n A)



Detection **involves identifying statistically significant changes in various climatic and impact metrics. The focus is generally on indicators of large-scale changes or across many types of species.**

Attribution **involves calculating the temporal and spatial characteristics of each type of natural and human-induced forcing (their modus operandi) and then determining the optimal combination to match the time history and the spatial and seasonal patterns and magnitudes of the observed responses.**

Attribution starts by identifying the potential natural and human-induced influences and their characteristic influence

Natural factors **that can alter the global energy balance and thereby affect the climate:**

On times out to centuries:

- Cyclic variations in solar radiation (e.g., sunspot cycles, etc.)
- Individual or periods of volcanic eruptions
- Cyclic changes in ocean circulation

On times well beyond centuries:

- Changes in the Earth's orbit
- Shifts in the positions of continents
- Upward movement and erosion of mountain ranges; subsidence
- Changes in solar output
- Changes in atmospheric composition
- Development of ice sheets

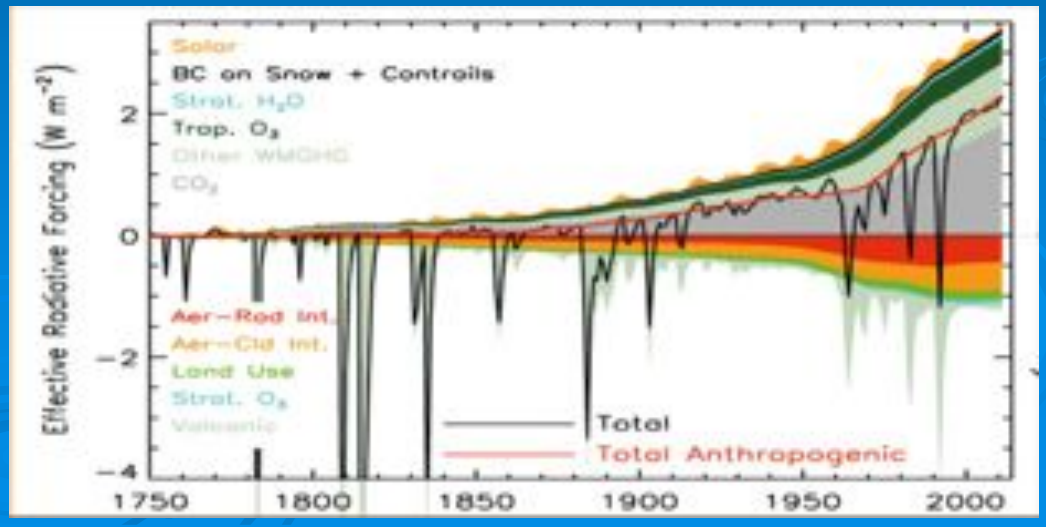
Human-induced factors **that can alter the global energy balance and thereby affect the climate:**

On times of decades to centuries:

- ***Emissions of*** **short-lived greenhouse gases such as methane, pollutants affecting tropospheric and stratospheric ozone, HFCs, etc.**
- **Emissions of air pollutants and species leading to changes in aerosol loadings**
- **Changes in land cover and use, including agriculture and soil disruption**

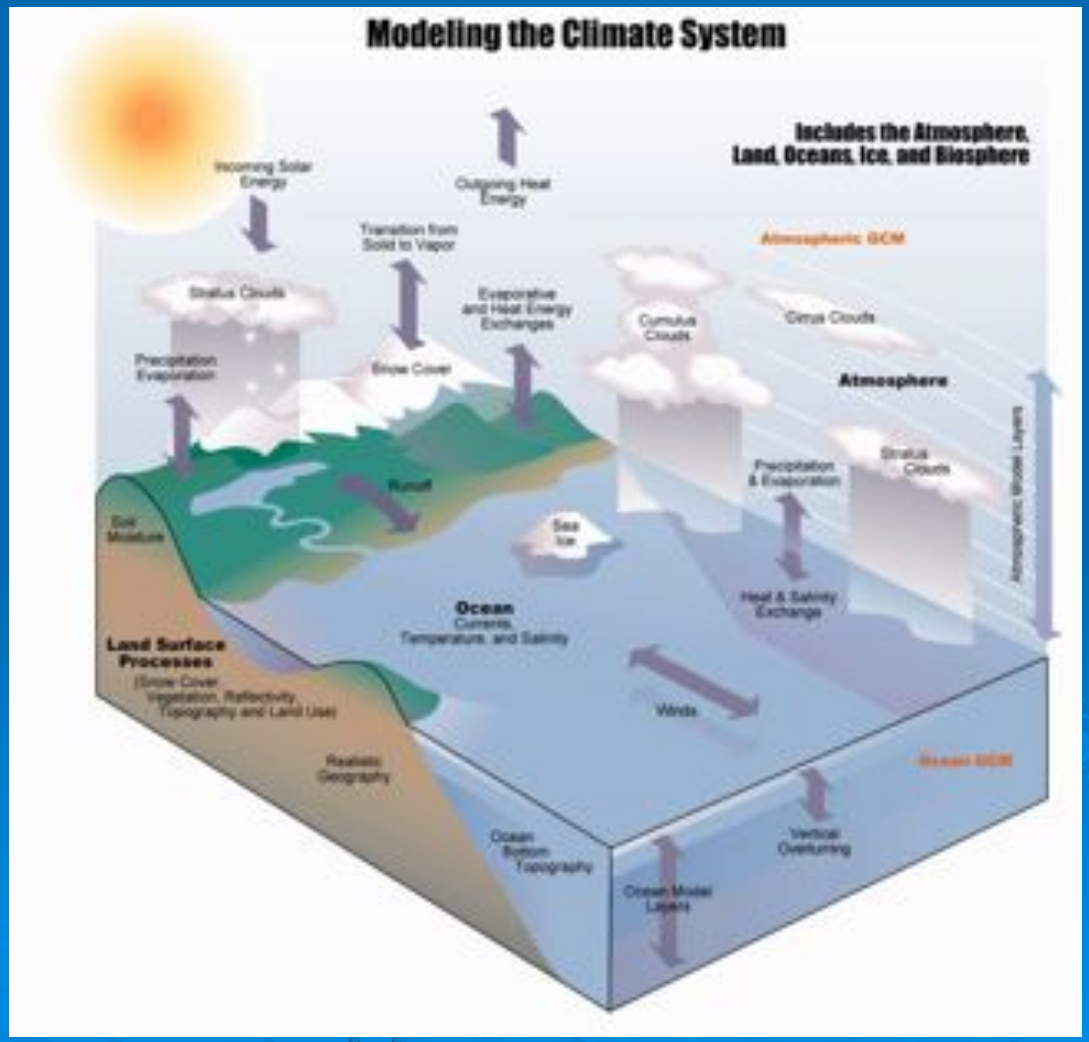
On times to well beyond centuries:

- ***Emissions of CO_2, N_2O, CFCs, etc.***
- **Land cover and land use change**



Although other approaches provide supporting results, only climate models can be used to calculate how future changes in CO_2 emissions and other human activities

- 1. Laboratory and field experiments are too limited
- 2. Mathematical analyses must greatly simplify the Earth system
- 3. Analogs from the past are suggestive, but insufficiently similar to the current situation
- 4. Trend extrapolation is difficult due to natural variability and the uniquely changing conditions
- 5. Numerical models are theoretical constructs, but can treat the expected types of changes



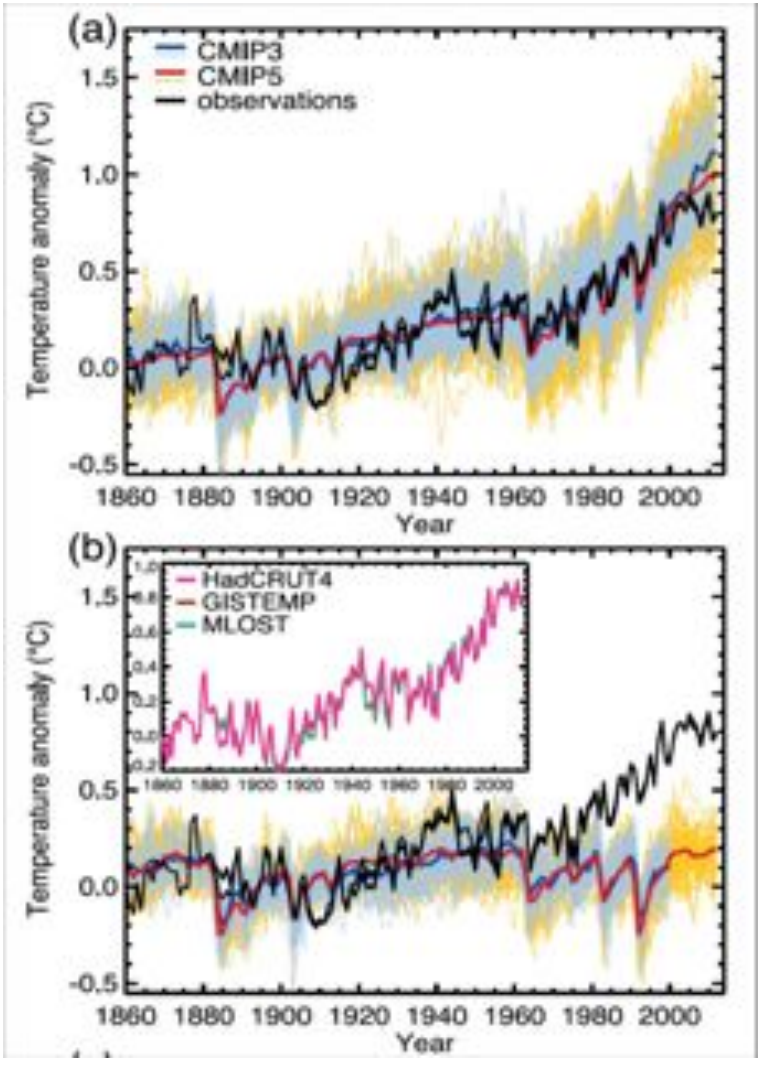
Forecasting the weather versus simulating and projecting the climate

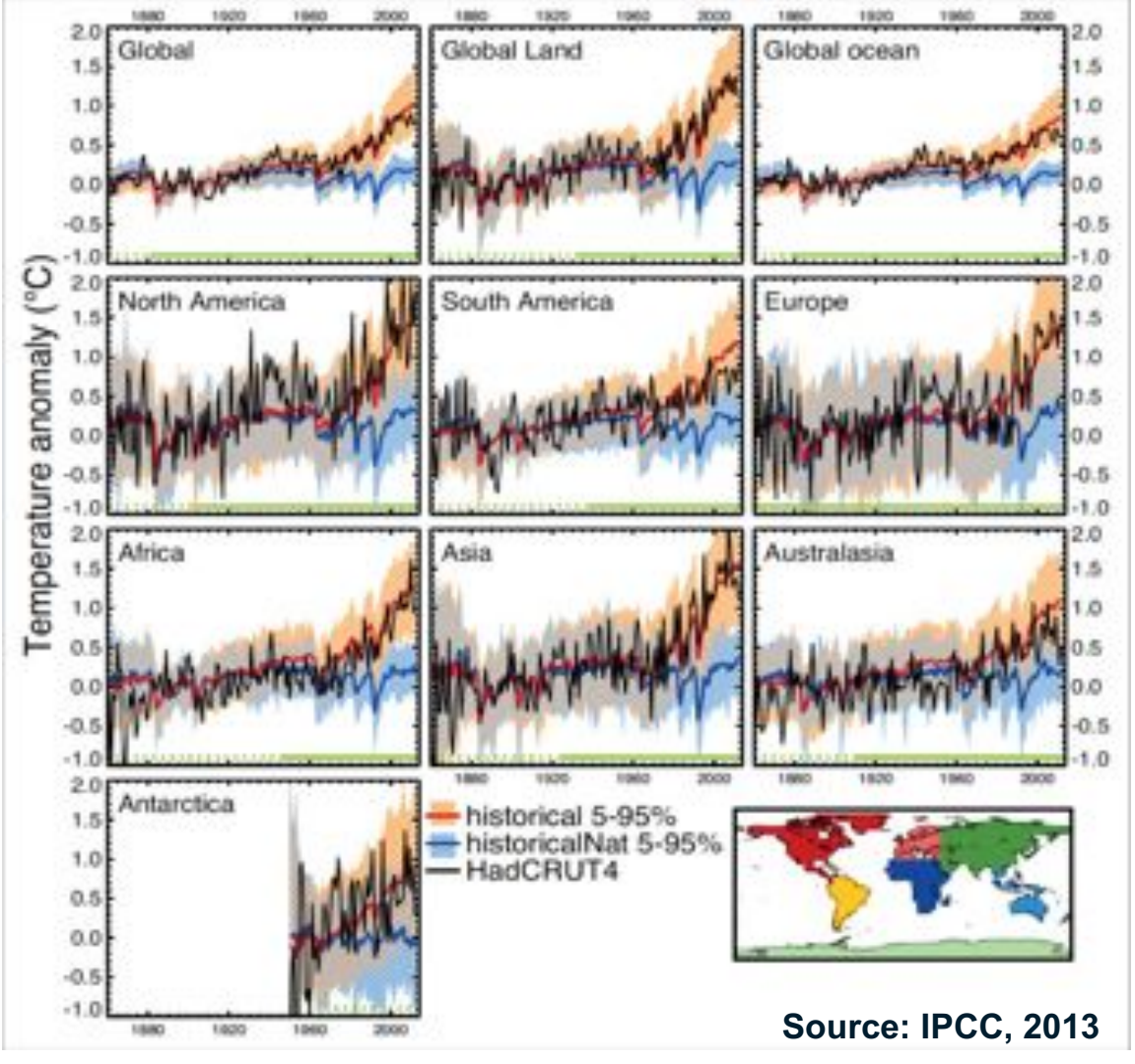
"Weather" is the instantaneous state of the atmosphere (and soils, oceans, and ice). In making a weather forecast, we start with the present conditions (and knowledge of the recent past) and seek to describe the exact state at some specific future time. Because of the chaotic (i.e., non-linear) nature of the atmosphere (and rest of the system), useful weather forecasts can be made out to about a week.

"Climate" is an integrated, statistical description of the weather over few decade period (NOAA uses 30 years). Thus, climate includes measures such as, for example, the average monthly temperature (and high and low), average monthly precipitations, the day-to-day variability, the year-to-year variability, average wind speeds and directions, and more.

Basically, climate is what is expected (i.e., the norm), and weather is what you get (what actually happens). The weather is always changing, the climate is supposed to be more stable. **"Climate change"** thus means that one's expectations of the norm to which society has become adapted and attuned are changing.

To test the models, we first see if the model, starting in 1850, can simulate the changes in global average temperature that have occurred, initially with only natural forcing (panel b) and then also with human-induced forcing (panel a), on global scale (on left) and by continent (on right)





Source: IPCC, 2013

Looking forward, what will happen will be determined by both our past and future choices

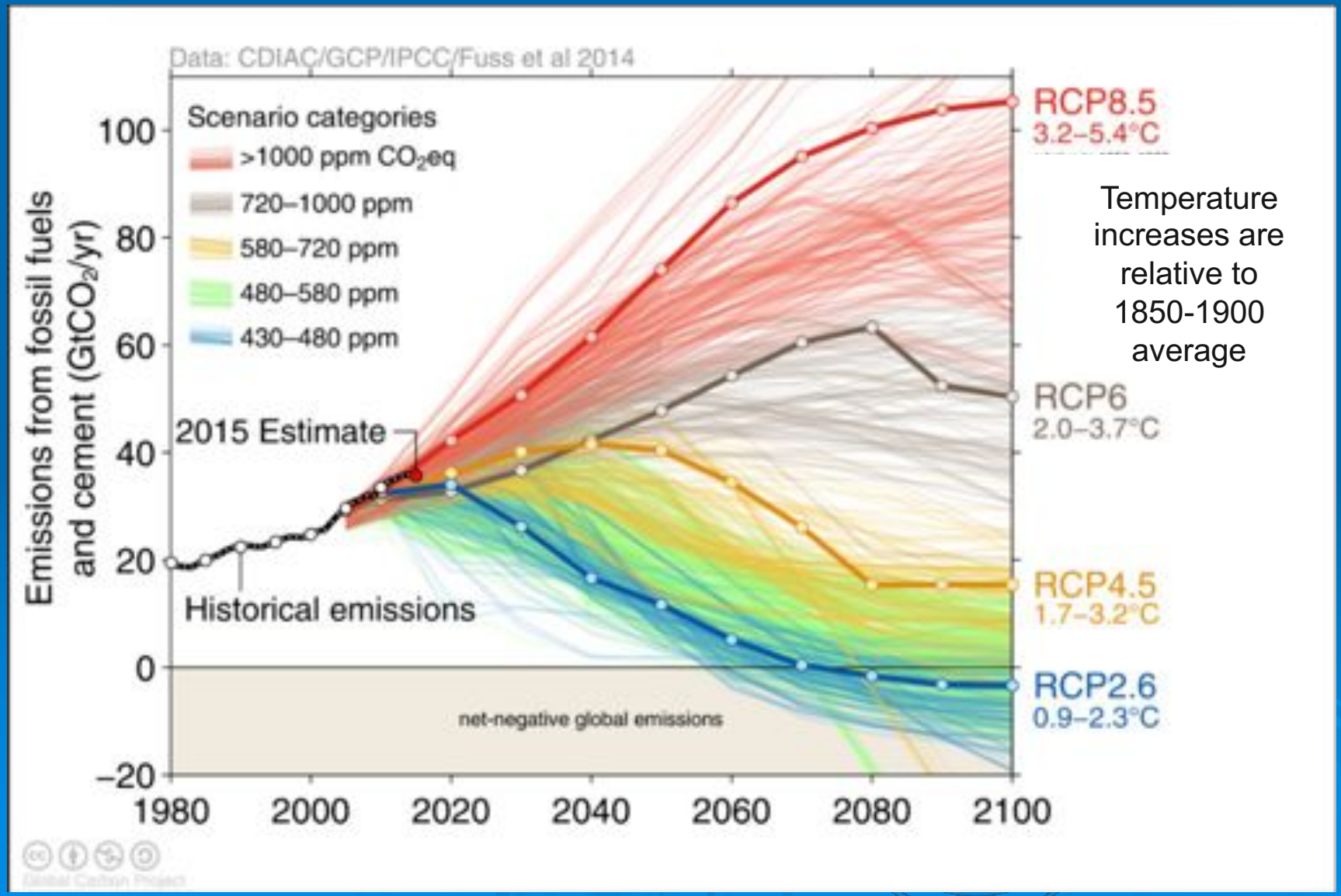
Insights from the recent and distant past:

1. Human activities, primarily burning of coal, oil, and natural gas, are changing atmospheric composition;
2. These changes are exerting a significant warming influence on the land-ocean-atmosphere system;
3. Human-induced changes in climate have become the dominant influence since the mid-20th century;

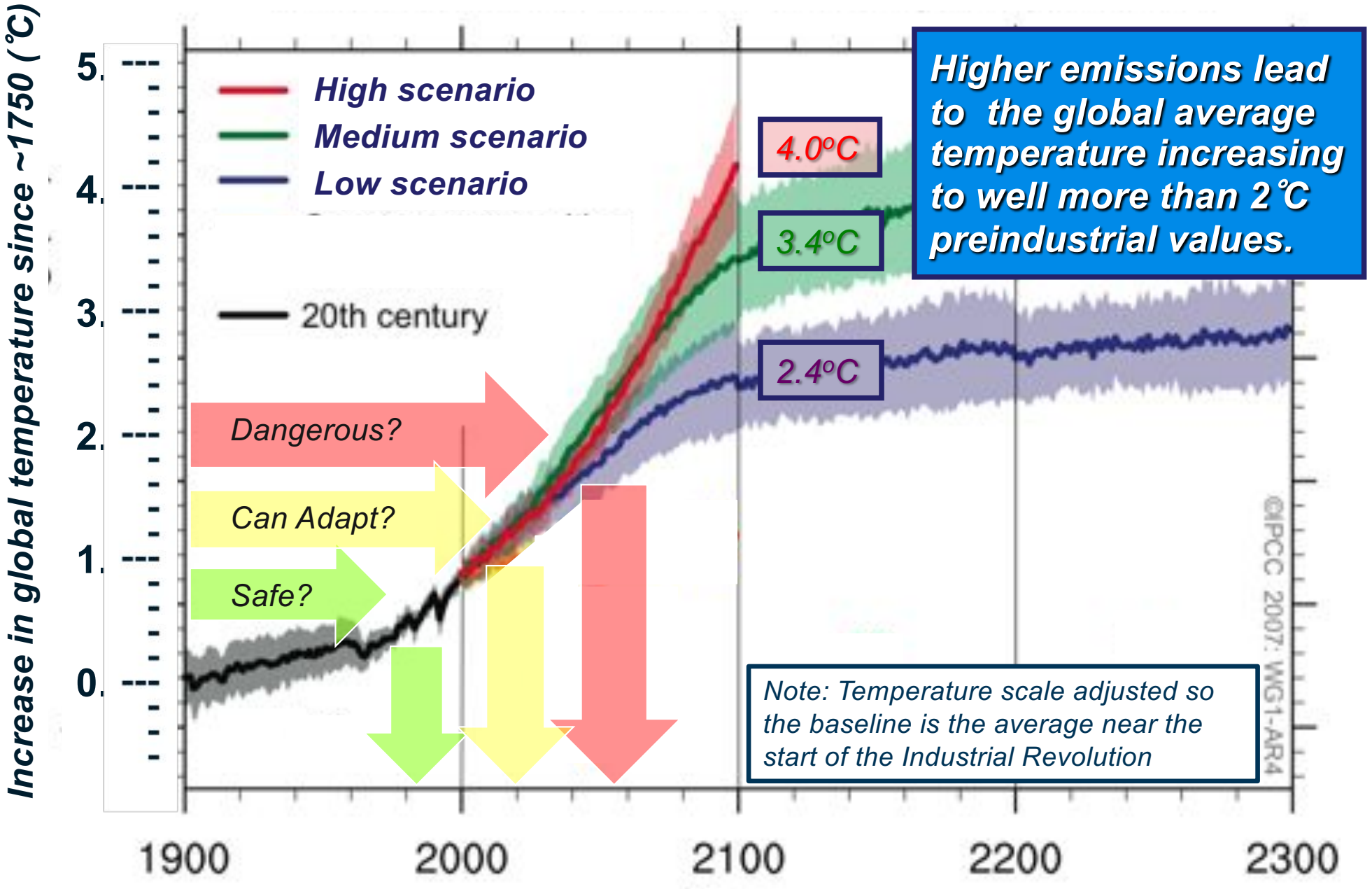
Projecting into the future:

4. The ongoing use of coal, oil, and natural gas in the future will lead to greater and greater climate change;
5. Changes in climate are already having impacts on the environment and sea level, and much more lies ahead;
6. Stopping the changes will require near elimination of global reliance of coal, oil, and natural gas

The increase in the global average temperature will be determined primarily by future emissions, and the potential temperature increases are large

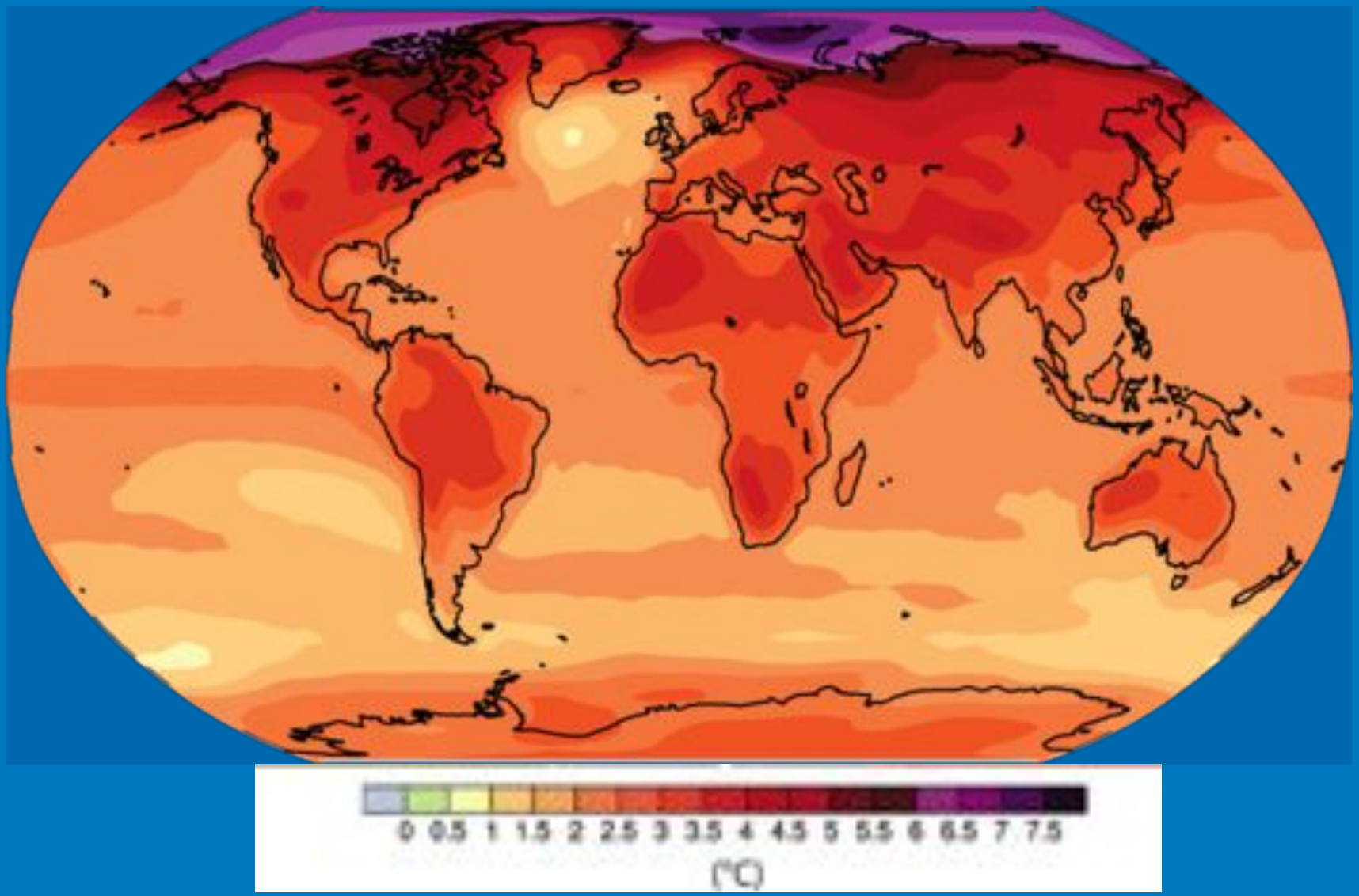


International leaders have set a goal of not exceeding a global average warming of 2°C over preindustrial levels in order to avoid "dangerous interference" with the climate system



Slide prepared by Michael MacCracken, Climate Institute, 2013

Warming is projected to be greatest at high latitudes, over land, during winter, and at night, except where land dries out in summer. Over oceans and low latitudes, evaporation buffers warming



Much of land area warms by ~3-5°C (~5-10°F); Arctic warms by more

Three aspects of human-induced climate change create particular concern

1. The ***amount of warming*** is very large--potentially comparable to roughly half of the shift from glacial maximum to interglacial, or interglacial to warmest ever (comparable to period of dinosaurs)
2. The ***rate of change*** is very high, with the rise in CO_2 concentration occurring over a few centuries, after coming down to glacial-interglacial period over tens of millions of years.
3. The ***duration of the potential change*** is very long, with a significant fraction of the elevated CO_2 concentration likely to persist for many millennia--and a good fraction for even longer—unless the elevated amounts of CO_2 are pulled back out.

Given the sharpness and duration of the change, the risk of crossing a threshold seems *very significant*

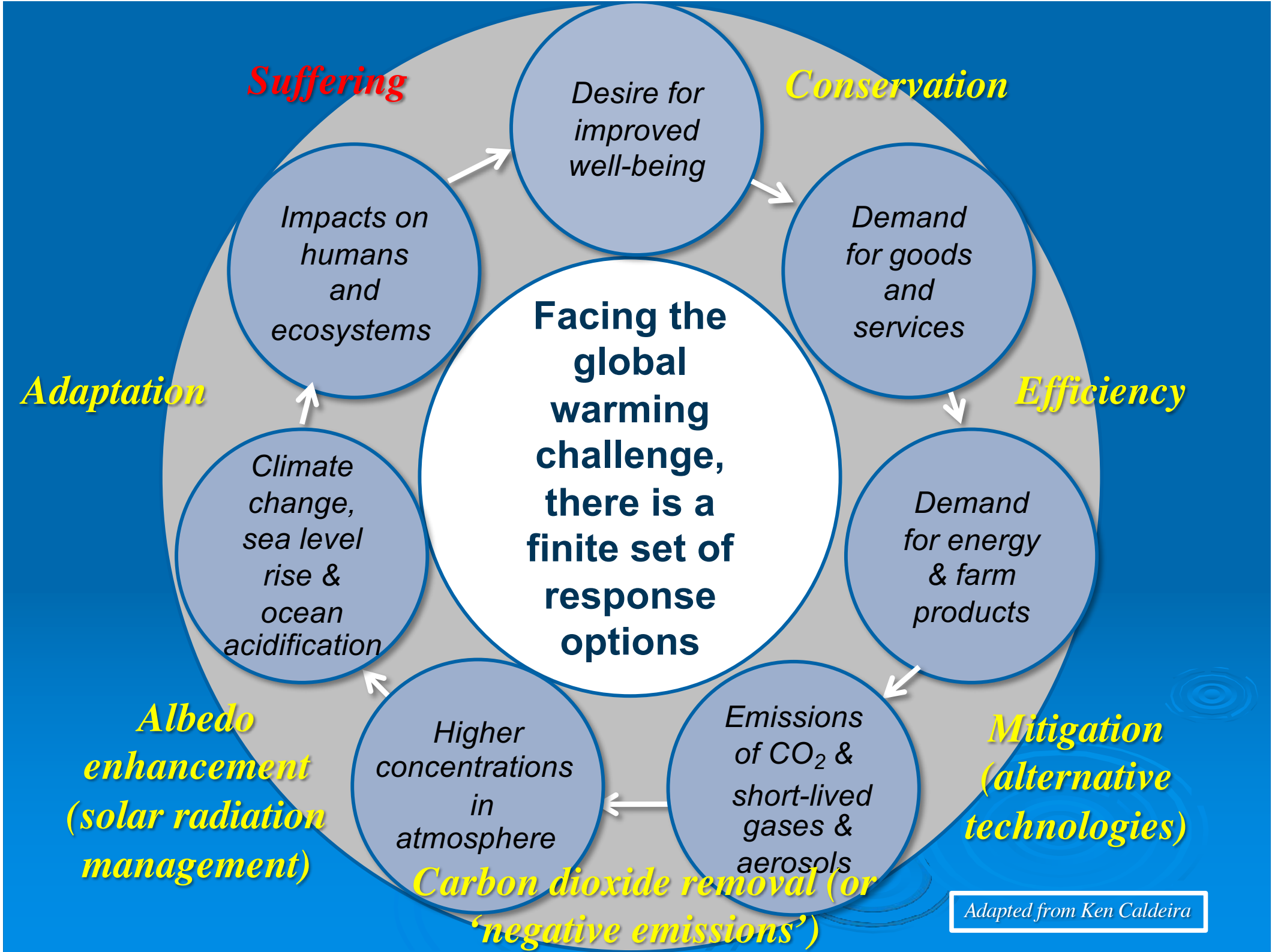
- **Temperature increase:** Greater warming could be caused by accelerated sea ice reduction, release of methane and CO_2 from thawing of permafrost and methane clathrates, and triggering of the natural carbon cycle and methane feedbacks that contributed to amplified ice age cycling.
- **Sea level:** The Greenland and Antarctic Ice Sheets are starting to lose mass; significant melting could inundate coastal cities and vital estuaries and wetlands, and alter the global ocean circulation
- **Water resources:** Mountain glaciers and snowpack are, on average, receding, greatly reducing warm season runoff
- **Tropical cyclones and hurricanes:** Oceans are warming and tropical storms will become stronger because they can draw increased energy from the higher water vapor concentrations

Thus, the world faces a very challenging dilemma

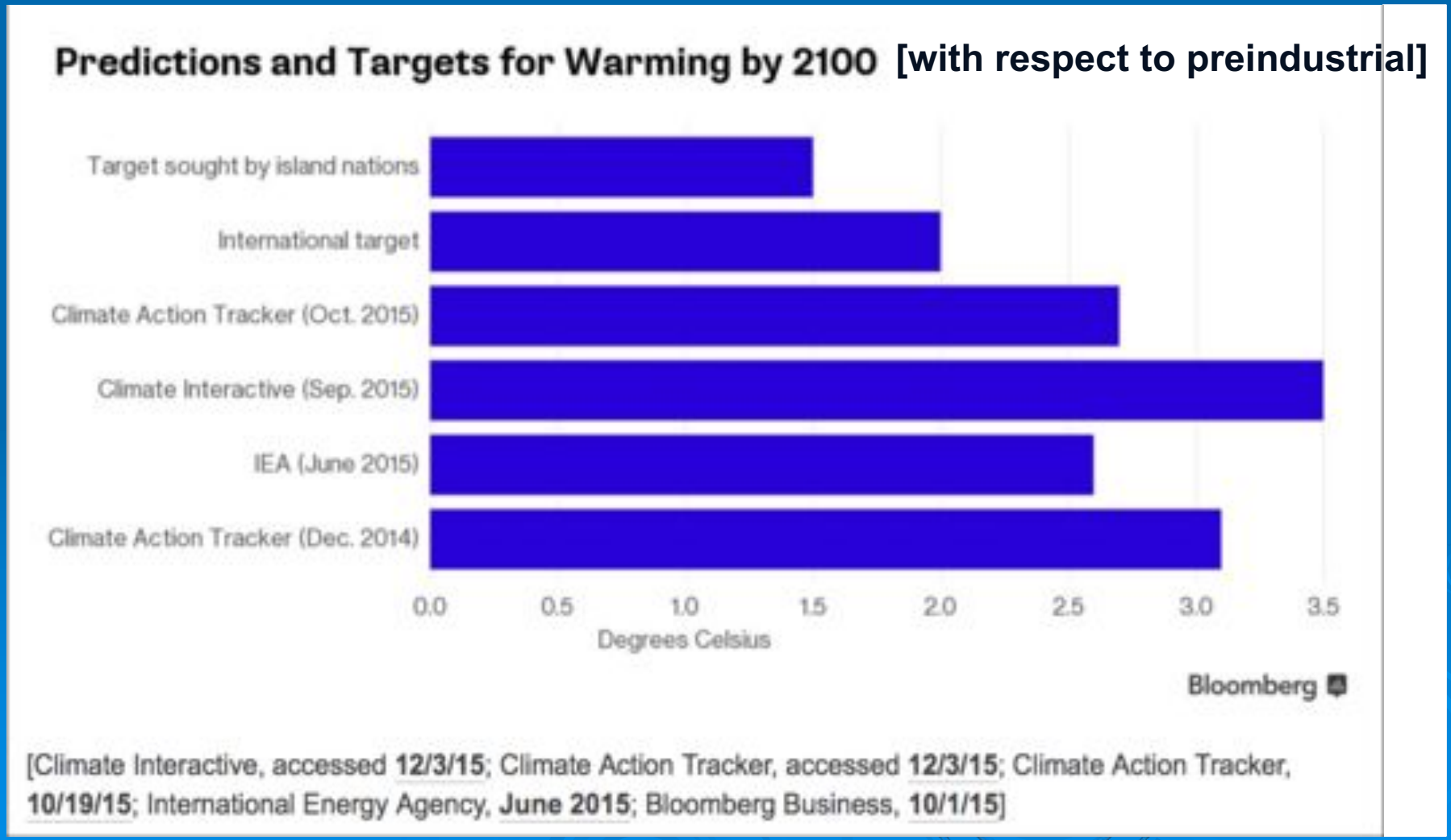
- **Fossil fuels provide tremendous benefits to society**
  - Supply *>80%* of global energy (excluding rural biomass)
  - Global infrastructure is in place
  - Relatively inexpensive
  - Relatively abundant supply (particularly coal)
  - Very transportable and easy to store
  - Available day and night, on demand
- **Fossil fuels, however, have major impacts on the environment**
  - Air pollution (photochemical smog, health and visibility/welfare impacts)
  - Acidification of precipitation
  - Agriculture and ecosystem impacts (and some benefits)
  - Climate change that could lead to 'dangerous' impacts
  - Sea level rise (glacier and ice sheet loss)
  - Ocean acidification

Society's many preferences make resolving this issue very difficult for decision-makers

- We want abundant and inexpensive energy to power our lives
- We want a clean, healthy, and stable environment and climate for us and our children--sustaining our best memories of the past
- We want costs of necessities and life to be low so we can do more with the rest
- We want new technologies to increase comfort and mobility
- We want to believe (or accept) that we are not doing anything wrong, that our way of living is harmful to anyone else
- We are interested in fairness and environmental justice, but really seem to have trouble thinking long-term and global scale
- We want (and depend on) good relations with the world
- We want scientific certainty before changing (even though everything else about our future is uncertain)
- AND We want this problem to just go away because we just can't imagine how we would be able to live doing things differently.

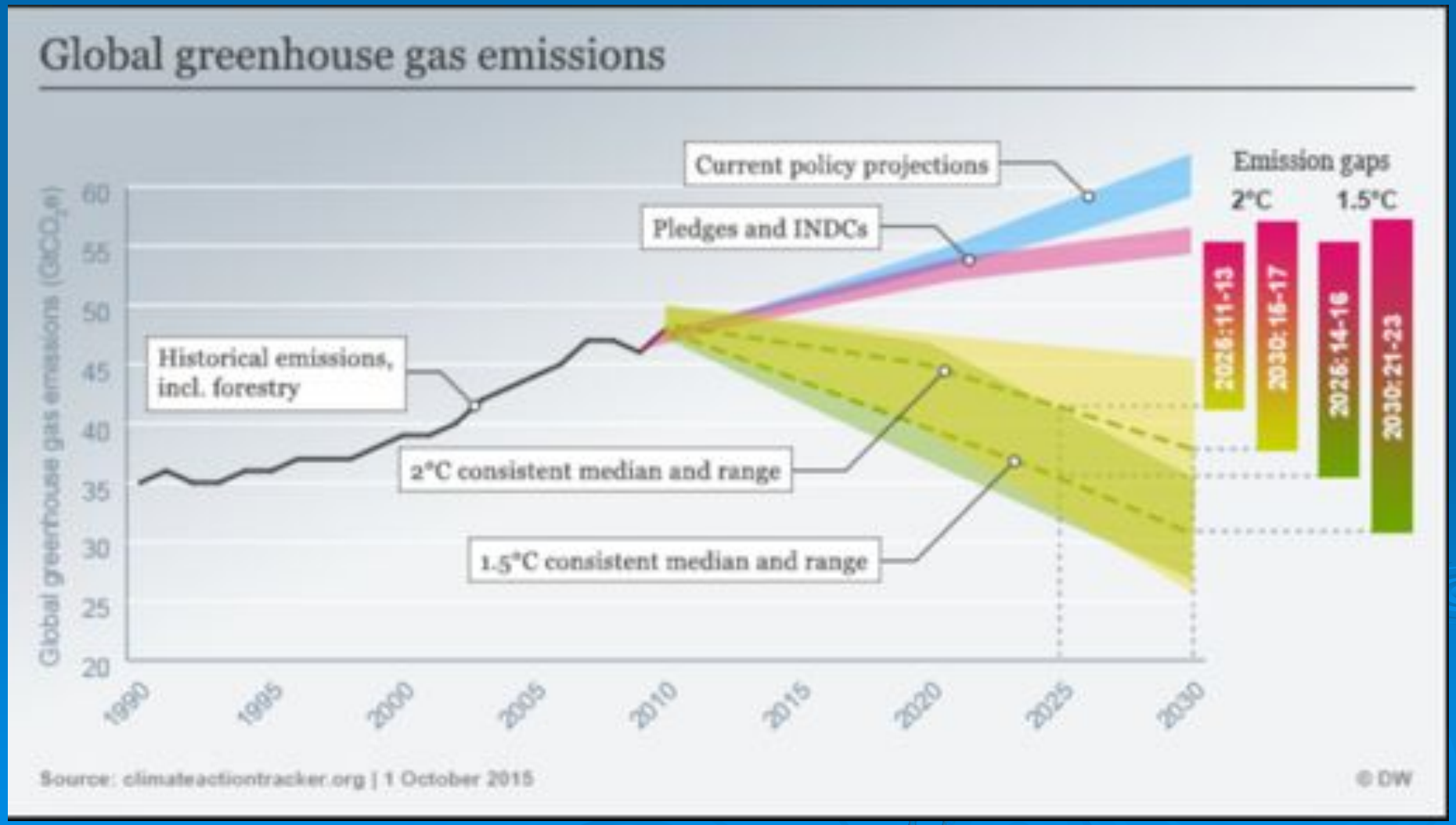

Suffering
Desire for improved well-being
Conservation
Impacts on humans and ecosystems
Demand for goods and services
Adaptation
Efficiency
Facing the global warming challenge, there is a finite set of response options
Climate change, sea level rise & ocean acidification
Demand for energy & farm products
Albedo enhancement (solar radiation management)
Higher concentrations in atmosphere
Emissions of CO_2 & short-lived gases & aerosols
Mitigation (alternative technologies)
Carbon dioxide removal (or 'negative emissions')
Adapted from Ken Caldeira

The UNFCCC negotiation process in Paris led to a target of keeping warming under 2ºC, with island nations winning agreement on an aspirational goal of 1.5ºC. Based on present commitments, warming will reach 3ºC or more (or over three times the present amount of warming!)



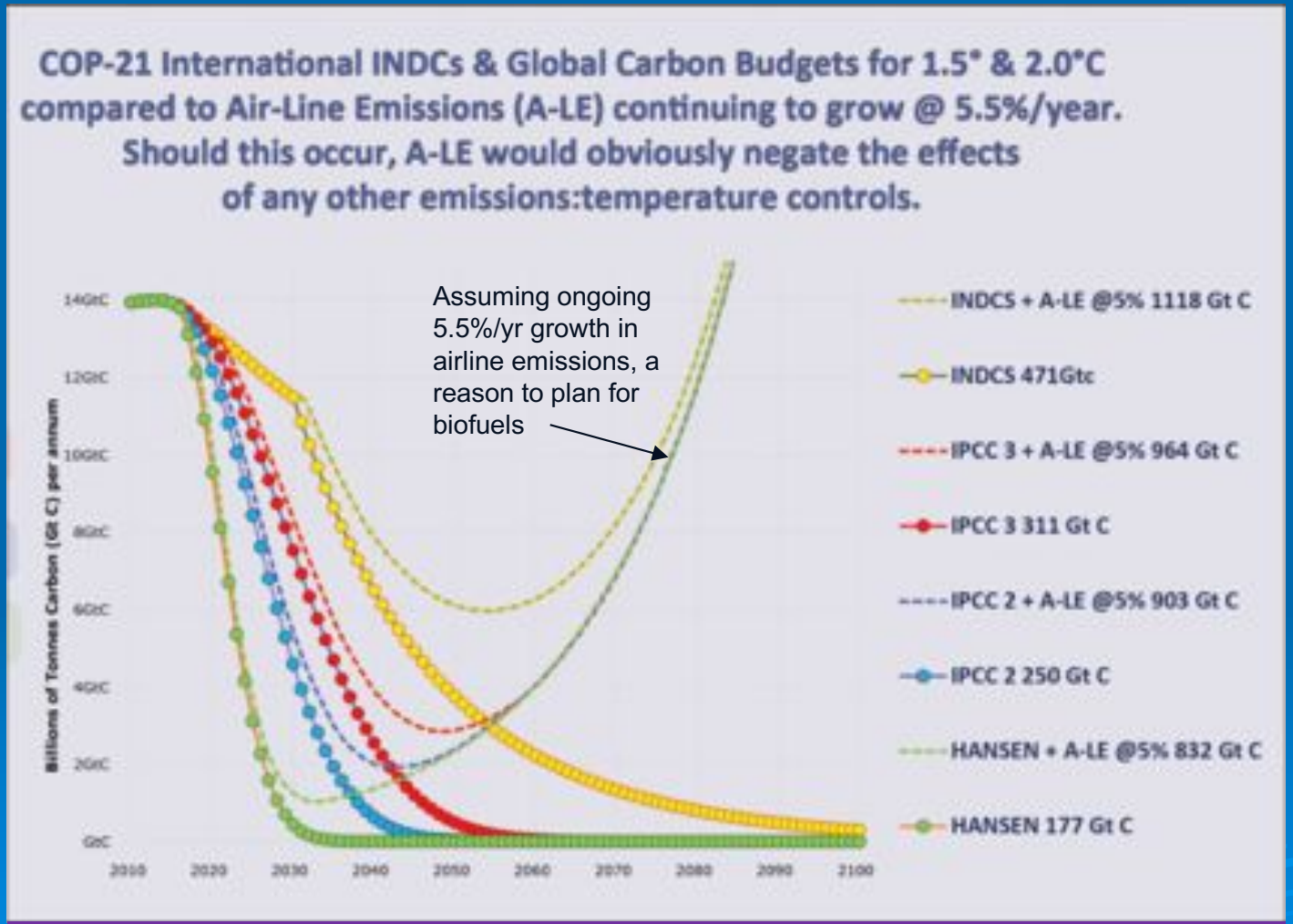
Source: https://www.mediamatters.org/research/2015/12/03/fact-vs-fiction-the-un-climate-talks-in-paris/207185

Even if INDC pledges made at Paris are met, the gap between aspirations to limit warming to 1.5 to 2ºC and reality is very significant



INDC = Intended Nationally Determined Contributions

Getting to 1.5 to 2ºC by reduced emissions alone would require getting near to net-zero emissions in roughly the next one to two decades



Fossil fuels presently provide ~80% of global energy, so a very large transition is needed!!!

Source: https://takvera.blogspot.com/p/global-emissions-gap-scoreboard.html

A key question is whether limiting global warming to 1.5 to 2ºC would actually meet the objectives of the UNFCCC?

- Would a sustained warming of 1.5 to 2ºC reached by 2050 and continued thereafter "allow ecosystems to adapt naturally to climate change"?
- Would a sustained warming of 1.5 to 2ºC reached by 2050 and continued thereafter "ensure that food production is not threatened"? and
- Would a sustained warming of 1.5 to 2ºC reached by 2050 and continued thereafter, along with the associated commitment to sea level rise at rates likely well over 1-2 m/century for a millennium or more* "enable economic development to proceed in a sustainable manner"?

* Paleoclimatic records suggest that each degree increase in global average temperature will lead to a 15-20 meter (!!) increase in sea level at equilibrium (which may take as much as a few millennia). Projected 21st century warming is at a rate ~50 times faster than the warming rate during glacial termination phase as sea level rose an average of 1m/century for 120 centuries!!

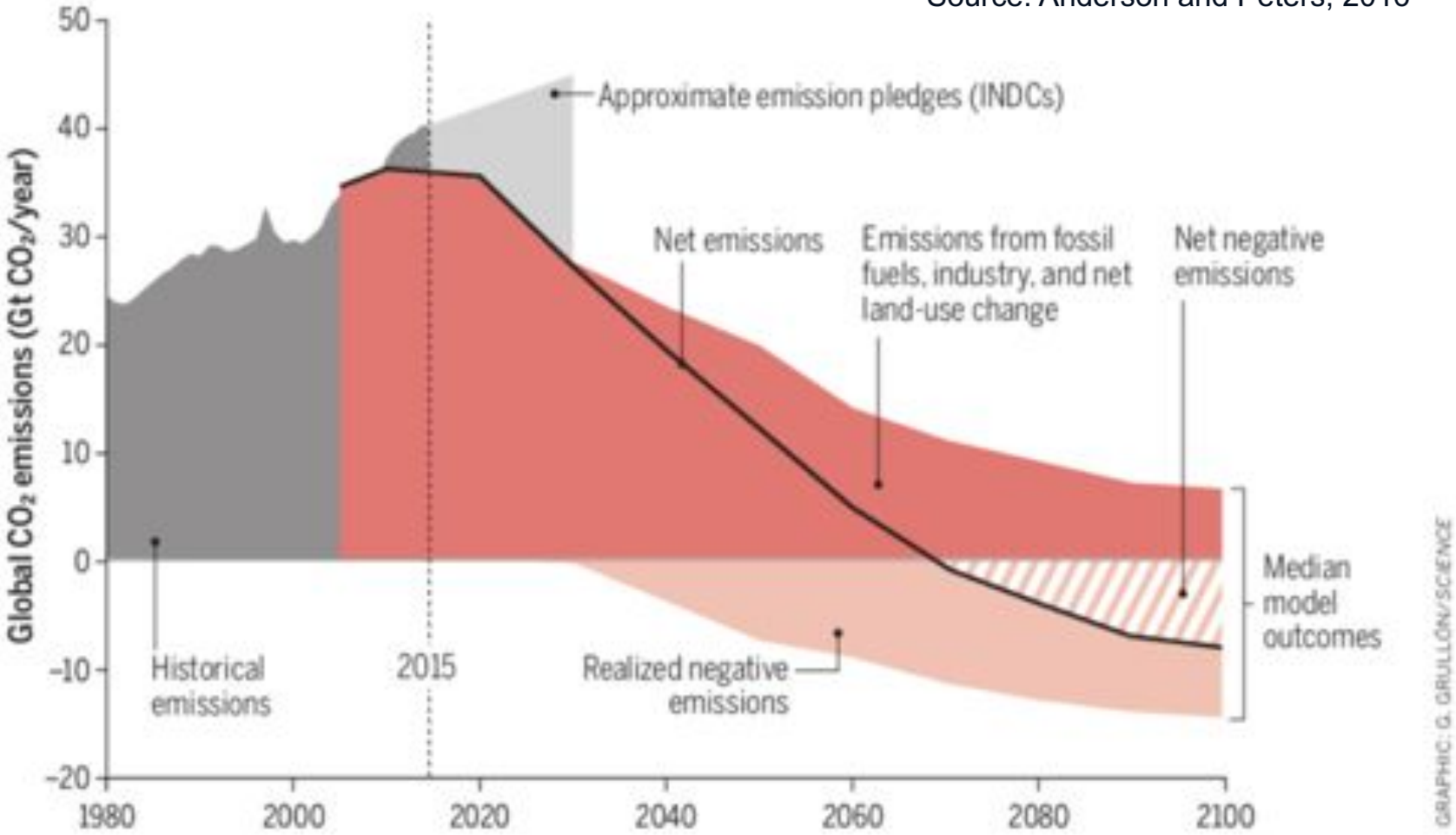
Based on the changes and disruptions that are occurring with present warming of ~1ºC, the answer would seem to be "No"

At a bit more than 1ºC, we are already experiencing:

- More frequent summertime high-temperature extremes
- Increasing occurrence of extreme precipitation
- Spreading aridification and faster drying and transition to drought
- Terrestrial ecosystems are becoming seriously stressed (pests, intense wildfires, coral bleaching, etc.)
- Retreat of snow cover, sea ice cover, and mountain glaciers
- Moving and calving of glacial ice streams on both Greenland and Antarctica
- Sea level rise acceleration, with more frequent coastal inundation during high tides
- Increasing environmental refugee flows

While IPCC found it 'technologically possible' to limit the temperature increase to 1.5-2ºC by pursuing very aggressive conservation, efficiency, and use of renewable energy, significant 'negative' CO_2 emissions would also be required

Source: Anderson and Peters, 2016



There a number of proposed approaches for pulling CO_2 out of the atmosphere (i.e., negative emissions), but none have been proven at scale* and at reasonable cost

Regenerate forests and soils

- Reforestation and afforestation (plus ending deforestation)
- Bury pyrolyzed agricultural and forest waste (biochar)
- Build up soil carbon via gene-modified plants, etc.

Restore ocean carbon and enhance sediment storage of C

- Fertilize iron-poor areas of ocean
- Restore ocean phytoplankton and fisheries
- Accelerate role of weathering reactions by adding materials that would enhance ocean C content (some generate useful byproducts)

Scrub CO_2 from the atmosphere and sequester

- Bio-energy with Carbon Capture and Storage (BECCS)—biomass could be from terrestrial and/or marine sources
- Direct Air Capture and re-use or underground storage (forming rocks)
- Direct Air Capture and conversion into solid materials (aggregate, etc.)

*To pull the CO_2 concentration down to 300-350 ppm in a timely way would require pulling a few tens of billions of tons of CO_2 out of the atmosphere per year—so more than the peak CO_2 emissions level as those emissions are brought down toward zero

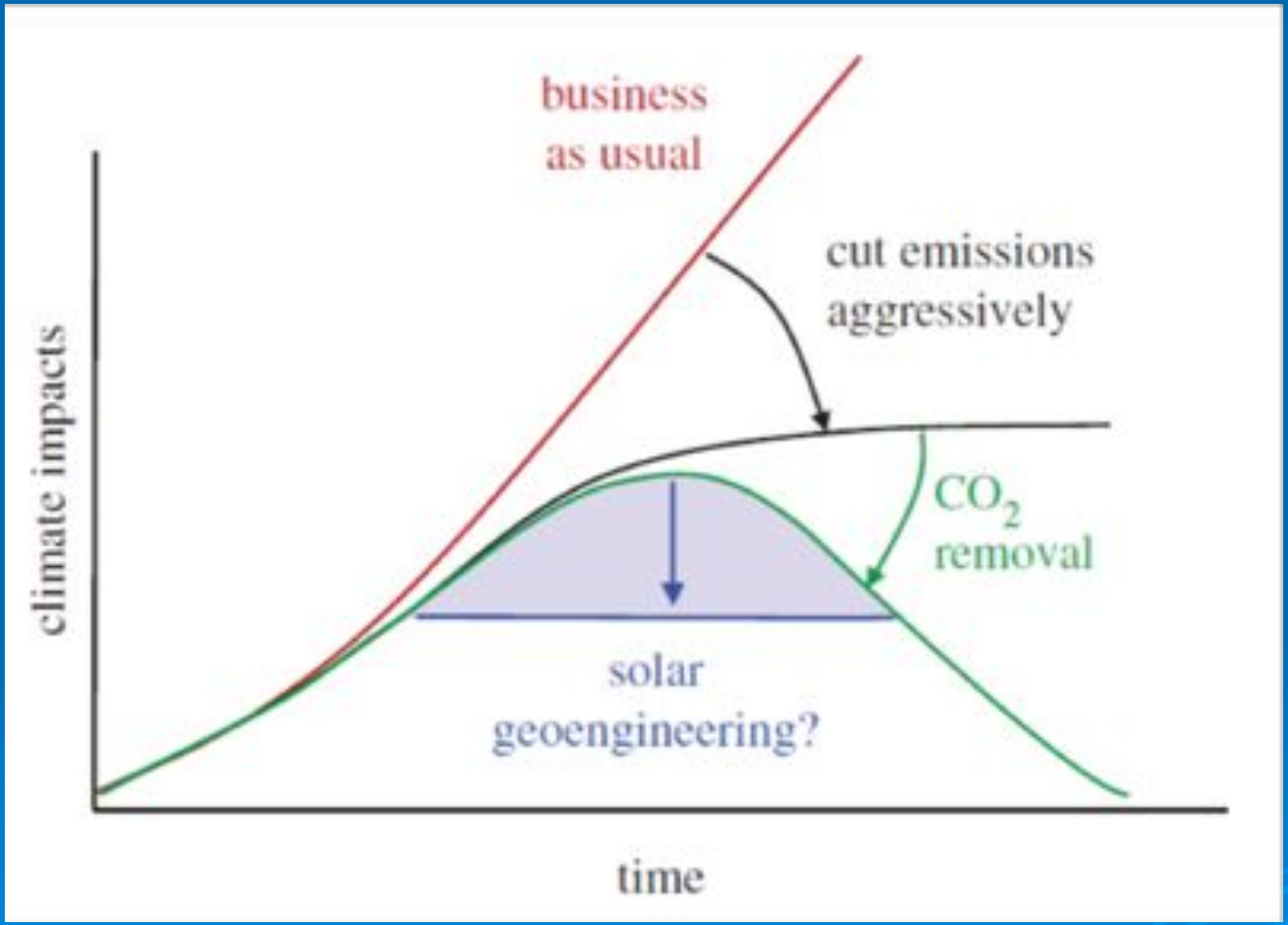
Much more can be done, but 'technologically possible' does not mean 'economically and politically palatable' because the pace of proposed energy system change is unprecedented

Particularly helpful technologies for accelerating the transition and limiting near-term warming include, in my opinion:

- **Generation and distribution of renewable electricity** drawn from the wind, increasingly efficient solar cells, *energy from ocean tides and currents*, and biofuels, moved across countries and continents cost effectively on *high voltage/direct current transmission lines*;
- **Conversion of transportation to electricity**, which will become much more viable and cost effective with solid state (including *ultracapacitor) batteries*;
- **Reductions in emissions of methane** and similar short-lived species'
- **Efficiency improvements** for buildings, industry, appliances, lighting, etc., plus use of roofs and sides of buildings for energy generation
- **Biofuels** for air and ship transport (electric/hybrid planes for short trips seem likely to become possible with solid-state, fast charge batteries);
- **Research on carbon removal** from the atmosphere by industrial processes and storage is needed to demonstrate that the C can, as large scale, be tied up in mineral compounds, underground or as aggregate.

Note: The Climate Institute is involved with the italicized approaches

Realistically, however, present commitments to conservation, efficiency, mitigation, and CO_2 removal seem unlikely to limit warming to 1.5ºC, much less return the climate to less than 0.5ºC warming



Albedo enhancement (solar geoengineering) is likely the only approach able to provide the near-term cooling influence to avoid overshooting 1.5 to 2ºC, and the only way to push warming back below 0.5ºC before 2100.

Without undertaking Albedo Enhancement to offset warming and bring the global average temperature increase to below 0.5ºC, the environmental and societal consequences seem very likely to be disastrous and largely irreversible (!!)

- **The rate of mass loss by ice sheets and concomitant sea level rise** seem likely to be primarily determined by peak warming rather than the long-term stabilized temperature;
- **Displacement and disruption of species and ecosystems** is likely most dependent on peak temperature change; ecosystems deteriorate far faster than they can reassemble.
- **Biodiversity loss** can only be reversed by evolution over the very long term;
- **The thawing of permafrost** and consequent emission of methane and CO_2 will likely be responsive to the peak temperature period, adding to global warmth;
- **Extreme weather, droughts, and precipitation** will likely depend on peak temperature, but have long-term consequences due to wildfires, species loss, erosion, etc.
- With some areas becoming unbearable for outdoor living, the **generation of environmental refugees** will create serious problems

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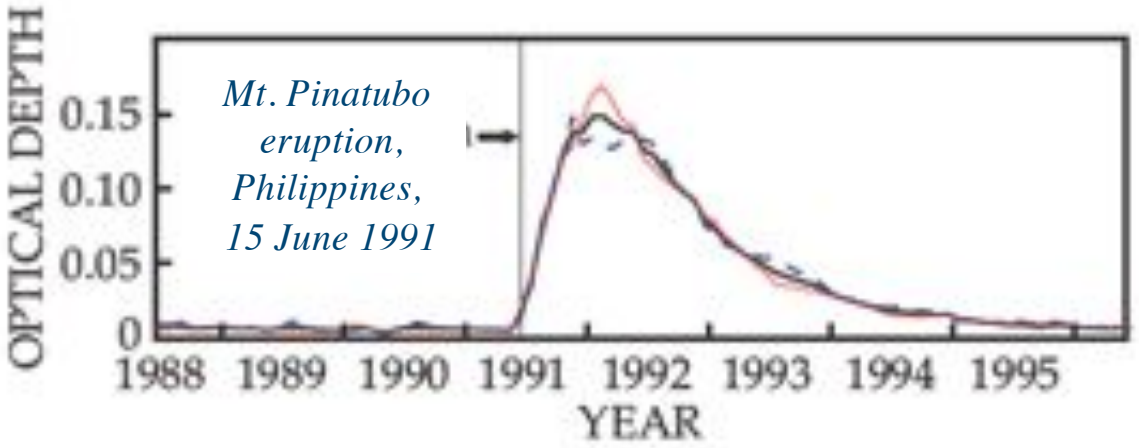
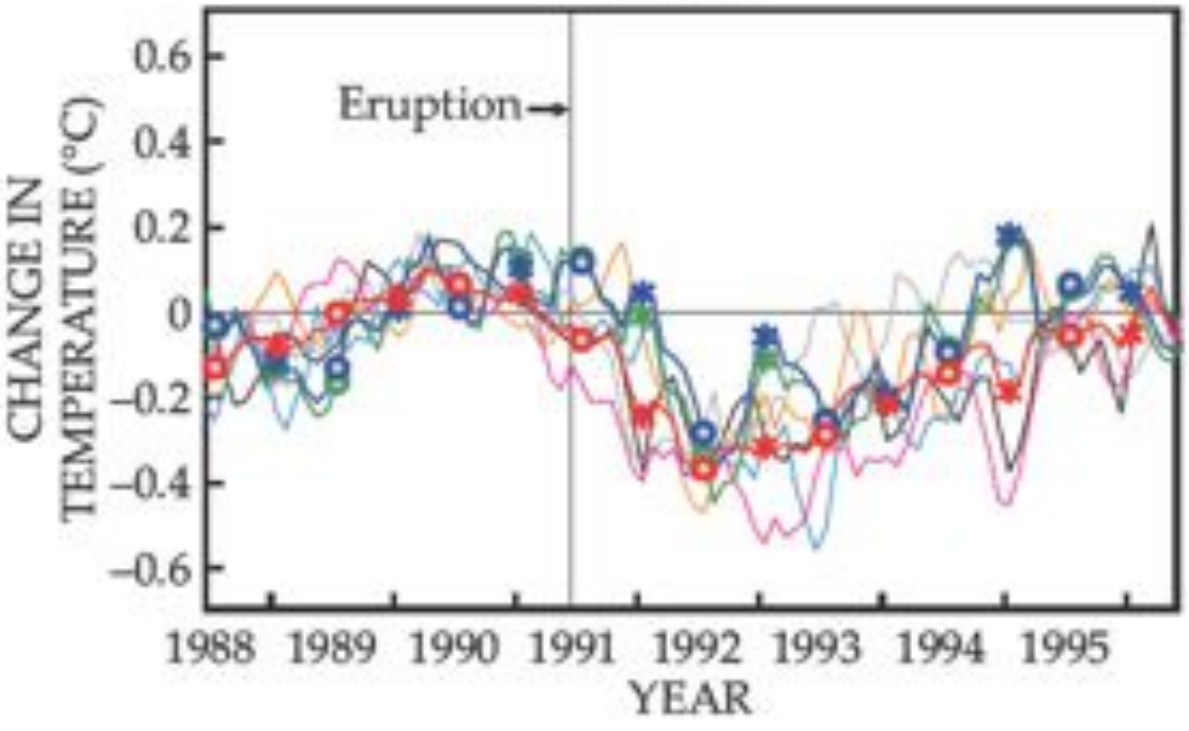
But regional- to global-scale Albedo Enhancement introduces complex issues of governance, hubris, equity, stewardship, environmental justice, timing, etc.; we may well end up waiting until too late for the approach to be usefully applied

Conceptually, Albedo Enhancement is simple; insert reflective particles to reflect back a small fraction of the incoming solar radiation will result in global cooling, thus imitating volcanic aerosols and tropospheric haze





Albedo enhancement would require ongoing actions, and the most effective approaches would do it as high as possible

- **Mirrors in space** would imitate a diminished solar output
- **Stratospheric aerosol enhancement** would imitate the cooling effects of volcanic eruptions, and could grow to equivalent of a major volcanic eruption per year
- **Tropospheric aerosol enhancement** would imitate the cooling influence of the sulfate haze created by coal-fired power plants, but with sea salt or similar materials
- **Enhancement of cloud condensation nuclei (CCN)** in relatively clean areas over the ocean to make clouds brighter
- **Increase reflectivity of the land surface** by whitening cities, roadways, vegetation, etc.
- **Increase reflectivity of the ocean surface** using microbubbles, floating reflectors, etc.)
- **Increase the planet's wintertime loss of heat** in high latitudes by thinning of wintertime cirrus ice clouds

Focused regional (rather than global) climate engineering may have the potential to moderate specific global-warming impacts, possibly with reduced adverse side effects

Particular objectives for which it might make sense to determine if climate engineering technologies can be developed to attempt:

- **Moderating Arctic (and/or Antarctic) warming** (and/or permafrost thawing)
- **Moderating the intensification of tropical cyclones** and hurricanes
- **Nudging storm tracks**
- **Sustaining (or enhancing) the cooling offset of aerosols** as SO_2 emissions decrease
- **Slowing the rate of retreat of outlet ice streams**
- **Shading coral reefs** to limit bleaching (and conceivably adding buffering materials to limit local ocean acidification)
- Other ideas?

The uncertainties associated with reasonably researched regional- to global-scale Albedo Enhancement seem likely to be less than their projected consequences (the NAS is currently organizing a study on this)

- The technological approaches to Albedo Enhancement **generally imitate natural physical processes** that have already been included in climate models and their effects studied;
- The climatic conditions that Albedo Enhancement would be used to induce are generally **within the bounds of recent experience** rather than the unprecedented conditions projected in its absence that are considered sufficiently established to prompt a complete change-over of the global energy system;
- **Delay and eventual failure to invoke Albedo Enhancement will lead to a range of irreversible consequences** that seem far more likely, serious and impactful than the prospect of a hypothetical and arbitrary termination of such efforts;
- **Early deployment can be done gradually and iteratively**, learning as we go and adjusting as appropriate while the effects are likely within the range of natural fluctuations.

Note: Quite distinctly, local albedo enhancement can be used to help reduce urban warming, etc.

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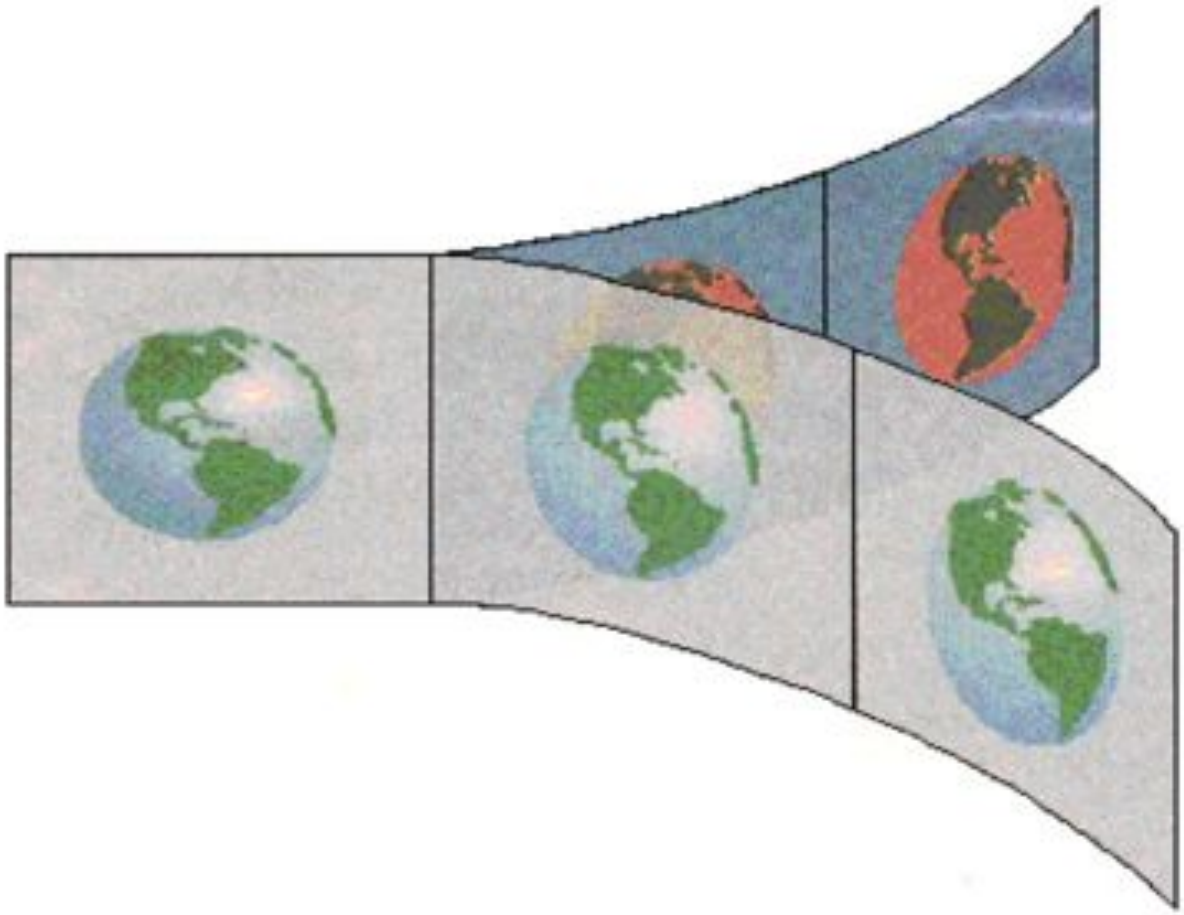
But, again, regional- to global-scale Albedo Enhancement also raises complex issues of governance, hubris, equity, stewardship, environmental justice, timing, effectiveness, and more—the question is if starting at the regional scale might allow for moving faster and thus building public confidence and governmental commitment

Note: Quite distinctly, local albedo enhancement can be used to help reduce urban warming, etc.

We are thus in a situation where Albedo Enhancement increasingly seems likely to be the least bad situation, even though it will need to be carried on for a century or more

- Adoption of available conservation and efficiency measures is going too slowly to be adequate;
- New, non-fossil sources of energy are being developed and coming online too slowly;
- Global energy demand is growing too rapidly to yet reduce the share of global energy from fossil fuels to less than 80%, much less to near zero;
- The prospects for CO_2 removal technologies are too uncertain to depend on to limit warming to 1.5ºC, much less pull back to 0.5ºC;
- The impacts of climate change, extreme weather, sea level rise, biodiversity loss, ecosystem disruption and environmental refugees are increasing too rapidly for adaptation to deal with, as indicated by the rising trend in multi-billion dollar impacts; and
- The risks of additional warming due to positive feedbacks from surface albedo reductions, GHG emissions from thawing permafrost and forest floor warming are too high to ignore and not take actions to avoid.

With emissions reductions seemingly sure to take many decades, humanity faces its gravest ever collective decision



Restricting efforts to reducing emissions, which are indeed the cause of the problem, cannot, even if they succeed, limit 21st century warming to an extent that will avoid very serious societal and environmental impacts and risks

Although introducing many ethical and governance challenges, also pursue as yet unproven climate engineering approaches that can likely slow and even counteract global warming, sea level rise, and overall environmental risk

Modified from Ken Caldeira

With emissions reductions seemingly sure to take many decades, humanity faces its gravest ever collective decision

Humanity's choice will dramatically affect the natural environment and future generations (raising complex moral and political issues intimately tied to consideration of stewardship and equity)

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