DIALOGUE

EXAMINING STATE CLIMATE SUPERFUND LEGISLATION

SUMMARY

There has been an influx of "climate superfund" bills introduced and adopted in state legislatures across the country. Modeled after the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), these laws are designed to recover costs from large emitters of greenhouse gases (GHGs) to pay for climate adaptation infrastructure. Following CERCLA's strict liability framework, major polluters in New York and Vermont would be required to pay into state-managed funds in proportion to their shares of total GHG emissions; California, Maryland, Massachusetts, New Jersey, and Oregon have proposed similar bills. On March 19, 2025, the Environmental Law Institute hosted a panel of experts to discuss state climate superfund bills generally and the nuances of the Vermont and New York laws. Below, we present a transcript of that discussion, which has been edited for style, clarity, and space considerations.

Madison Calhoun is Senior Manager of Educational Programs at the Environmental Law Institute.
Rachel Rothschild (moderator) is an Assistant Professor of Law at the University of Michigan Law School.
Jonathan Binder was formerly Deputy Commissioner for Climate Change, Air Resources, and Energy at the New York State Department of Environmental Conservation.
Elena Mihaly is Vice President of the Conservation Law Foundation in Vermont.
Justin Mankin is an Associate Professor at Dartmouth and Director of the Climate Modeling and Impacts Group.
Ben Lippard is a Partner at Vinson & Elkins.
Mary Wood is the Philip H. Knight Professor at the University of Oregon School of Law.

Madison Calhoun: I'll introduce today's moderator, Rachel Rothschild, who is an assistant professor of law at the University of Michigan Law School. Rachel received her J.D. from New York University School of Law, where she was a Furman academic scholar, and her Ph.D. in history from Yale University, where she was a National Science Foundation graduate research fellow. She has an article, "State Climate Superfunds," forthcoming in the *Columbia Law Review*,[1] and is author of the book *Poisonous Skies: Acid Rain and the Globalization of Pollution*.[2]

Rachel Rothschild: I would like to start by talking a bit about the background to this legislation, why these bills gained traction in state legislatures, and what the bills are hoping to accomplish. They are meant to address the need for additional funding for climate adaptation, given the significant costs that are going to be associated with trying both to adapt our infrastructure and respond to natural disasters, as well as perhaps to ameliorate some of the problems of increasing greenhouse gas (GHG) emissions through projects that actively remove carbon dioxide (CO_2) and other GHGs from the atmosphere.

The costs of natural disasters are quite significant. Flooding, hurricanes, wildfires, and other events have put enormous pressure on state budgets over the past several years in particular. Regardless of which administration is in the White House, these costs are expected to increase significantly and put a lot of pressure on states to respond.

But certainly, under the current Donald Trump Administration, I and many others expect that these burdens on state budgets are only going to get worse. President Trump has called for reducing responses through the Federal Emergency Management Agency. That increases the need even more for states to take additional responsibility for funding climate adaptation.

Editor's Note: Professor Rothschild gave these remarks in her personal capacity only and not as a representative of her institution or anyone involved with state climate superfund legislation. She has provided pro bono advice on state climate superfund legislation to government officials and legislators in Massachusetts, New York, Oregon, and Vermont, as well as to New York PIRG, Vermont PIRG, Massachusetts 350, the Center for Biological Diversity, and the Rockefeller Family Fund. While she was working as a legal fellow at the Institute for Policy Integrity immediately prior to her professorship, the Institute received funding from the Rockefeller Family Fund to provide legal advice about state climate superfund legislation. That grant was for $50,000.

1. Rachel Rothschild, *State Climate Superfunds*, 126 Columbia L. Rev. 4 (forthcoming 2026).
2. Rachel E. Rothschild, Poisonous Skies: Acid Rain and the Globalization of Pollution (Univ. Chicago Press 2019).

What these bills are trying to do is to help redistribute some of those costs onto the companies that are most responsible for our current situation and that have profited the most from climate change through the sale and production of fossil fuels. The bills thus far have been designed to have special limits that would only impose liability on the largest fossil fuel companies. They have not sought to recoup all potential climate adaptation costs, but to impose what state legislatures feel is the fair share that these companies should be responsible for under the doctrine known as the polluter-pays principle.

Madison Calhoun: Our first speaker is Jon Binder, who is the [then-]deputy commissioner for climate change, air resources, and energy at the New York State Department of Environmental Conservation (DEC), and oversees DEC's Division of Air Resources and its Office of Climate Change. He's responsible for the development and execution of a wide range of efforts to reduce air pollutant emissions and to help achieve the state's climate and clean energy policies. He's also responsible for DEC's regulatory and permitting activities under the federal Clean Air Act (CAA) and leads participation in the Regional Greenhouse Gas Initiative.

Jonathan Binder: It's great to be part of this panel and to be talking about climate change Superfund bills—but in New York, it's now an act since we have enacted legislation. I'm going to give a quick overview of the statute that has been enacted in New York and some of the elements of the law, and what the next steps are in DEC's implementation. I'll call it the Climate Change Superfund Act, although the official title is the Climate Change Adaptation Cost Recovery Program.[3]

The law was signed by Gov. Kathy Hochul on December 26 of last year. It was a wonderful late Christmas present. When it was signed by Governor Hochul, it was signed with the understanding that there would be what we call chapter amendments. There's a process in New York where the governor can sign legislation that's been passed by both houses with a recognition or a gentlepersons' agreement that there are changes forthcoming. That's what happened here.

There were chapter amendments introduced to the Climate Change Superfund Act that would have since been passed by the legislature. I mention that because, if you're looking at the December 26, 2024, version of the Act, that is no longer the operative version of the law. The fully enacted version of the Act, which incorporates the subsequent changes to the statute from the chapter amendments, was passed and signed by the governor on February 28, 2025.

Most critically, the statute adds a new Article 76 to the state's Environmental Conservation Law. That's the main body of law that DEC is charged with implementing. It also incorporates provisions of the State Finance Law specific to the Climate Change Adaptation Fund. This is the fund into which monies will be coming from cost assessments and out of which we will then be spending money. DEC is charged with this legislation, with, I would say, the central role in implementing the statute along with other state agency partners.

Rachel gave an overview of what some of these bills and laws look like across the various states. As she mentioned, the idea is to seek to recover some of the climate change damages that we know are happening. With this particular law in New York, it's seeking to recover a total assessment of $75 billion. That figure was directly in the legislation, and it's seeking to recover that amount from responsible parties over 25 years.

Rachel mentioned how these laws tend to have thresholds to get at the highest-polluting and most responsible entities. In the case of the New York Climate Change Superfund Act, there is a one billion metric ton threshold for GHG emissions. If you know anything about GHGs and climate change, you know that is a very significant amount of emissions that has contributed significantly to climate change.

The Climate Change Superfund Act is focused on responsible parties that were engaged in the extraction or refining of fossil fuels that have attributed to emissions exceeding that threshold over a covered period, from 2000 to 2024. The covered period was one of the things that was changed from the initial version of the bill to the final act through the chapter amendments.

Again, when we are talking about covered emissions, we are talking about those attributable to the total amount of fossil fuels that have been extracted or refined worldwide. We translate those to GHG emissions using emission factors to see whether an entity is over that one billion metric ton threshold. Like most of these bills that you'll hear about today, this is based on a standard of strict liability.

We determine the cost recovery amount for each individual responsible party on a proportional basis. We already know the $75 billion total damages amount that the statute is seeking to recover. What DEC will have to do is come up with the proportional share of that overall dollar amount and attribute it to each individual responsible party.

We'll do that by coming up with the overall total of GHG emissions, the covered amount of GHG emissions from all of the responsible parties, and dividing that up proportionally over the covered period. In order to do that, we use emission factors. We are able to utilize GHG emission factors that are consistent with those in our state Climate Leadership and Community Protection Act (Climate Act).[4]

The Climate Act is our overall state statute that charges us with reducing emissions—40% by 2030 and 85% by 2050, on a going-forward basis. It also has some rather

3. Press Release, Governor Kathy Hochul, Governor Hochul Signs Landmark Legislation Creating New Climate Superfund (Dec. 26, 2024), https://www.governor.ny.gov/news/governor-hochul-signs-landmark-legislation-creating-new-climate-superfund.

4. S. 6599 (N.Y. 2019).

unique GHG accounting methodologies. We utilize those emission factors to help determine how much GHG emissions each entity is responsible for.

To give you more detail about the actual cost recovery process that the Climate Change Superfund Act envisions, we're going to be requiring some of these responsible parties to provide information to us based on some of their past practices. That's going to include things like production, extraction, refining, and GHG emissions information.

Under the law, we have to make that information publicly available to the maximum extent practicable. That will enable us to then issue responsible party cost recovery demands. That's what we will issue to each entity to say, this is the amount of covered GHG emissions over the covered period you're responsible for and this is the amount of cost recovery that equates to.

The law envisions an administrative appeals process by which responsible parties are able to submit to the agency a request for reconsideration, including some grounds and supporting documentation for that request. If that leads to some changes, we can reallocate cost recovery amounts. There are options in legislation for payment installation and for penalties for unpaid amounts of cost recovery.

So, what is the money going to be used for? DEC will be issuing these cost recovery demands to responsible parties and will begin to collect money under the statute that will be deposited into the Climate Change Adaptation Fund, as established by the State Finance Law. That can be utilized for a range of qualifying expenditures, all focused on things related to climate change and adaptation-related infrastructure projects.

One of DEC's responsibilities under the law will be to develop a climate change adaptation and resiliency plan that will guide investments from the fund. It will also require additional action by our legislature for subsequent appropriations. Just like we have in our existing Climate Act, the Climate Change Superfund Act envisions, from an equity perspective, that at least 35% of the qualifying expenditures from the fund will go to projects that benefit disadvantaged communities.

Disadvantaged communities are identified in the state through an existing process under the Climate Act. There are also provisions in the statute for labor and job standards and worker protection. Projects that are receiving a certain amount of funds from the Climate Change Adaptation Fund are required to have some of these standards built in.

To give you a sense of next steps, the law became effective in New York on December 26. With the chapter amendments that I spoke about, DEC is charged with promulgating regulations by June 26, 2027.

That's following the standard public notice-and-comment process that we follow in New York. The regulations are going to address things like what information has to be submitted to the agency for us to be able to calculate the proportional share of responsible entity GHG emissions and what is the cost recovery amount. They are going to determine the methodologies to be used for determining whether or not a responsible party exceeds the threshold of one billion tons and what is their applicable share of GHG emissions, and thus their cost recovery amount.

We're going to talk about what publicly available databases we might utilize to help inform that process and talk about some other procedures. That'll be coming a couple of years from now. After that, we will initiate the process to actually issue the notices of cost recovery demand to each responsible party; we'll do that by June 2028. At the same time, we will be working on the adaptation and resilience plan that I mentioned, which will inform how we spend money out of the fund. Then, the end of December 2028 is when actual payments will be due from responsible parties.

Rachel Rothschild: Our next speaker, Elena Mihaly, is vice president of Conservation Law Foundation (CLF) in Vermont, where she leads a team of attorneys and advocates on initiatives related to climate, water quality, public health, and environmental justice. Elena has been with CLF since 2013. She holds a J.D. and a master's degree in environmental law and policy from Vermont Law and Graduate School and a bachelor's degree in environmental science from Colorado College. Elena will be talking to us about the Vermont legislation.

Elena Mihaly: For those of you who are not familiar with CLF, we are a New England-wide environmental advocacy organization working in the six New England states on using law and policy and markets to build our clean energy future, combat climate change, and safeguard our communities.

We were one of the lead advocacy organizations in Vermont, working on the ground to advance a climate Superfund law there, and are working on helping the state with implementation efforts. CLF writ large has been working on advancing similar climate Superfund bills in Connecticut, Maine, Massachusetts, and Rhode Island.

The summer before the climate Superfund law was enacted, Vermont's state capital of Montpelier was flooded. CLF's basement was flooded; the waters were pretty much licking the steps of the Vermont State House.

This storm across Vermont caused more than $1 billion in damage. Many, many towns were impacted. There was about seven feet of water in some of the storefronts. You can imagine the lost merchandise and the costs associated with that. On top of that, Rebuild by Design's Atlas of Disaster reports that over a 14-year span, Vermont has been hit by 25 federally declared climate disasters, and was ranked the fourth-highest per capita in terms of spending on climate disasters.[5]

I share that because it helps paint the picture of the motivation among the state's lawmakers. The Vermont General Assembly—particularly members of the Legislature's Climate Solutions Caucus—felt a real sense of urgency and an imperative to think through potential revenue sources to

5. Rebuild by Design, Vermont Atlas of Disaster 6-7, https://rebuildbydesign.org/wp-content/uploads/2023/08/VERMONT.pdf.

help pay for these massive costs that were imposed and will continue to be imposed by an altering climate.

Similar to Jon, I'm going to walk through the elements of Vermont's climate Superfund law.[6] You'll see some similarities. There's one significant difference that I'll get to. Similar to New York, this law created a fund, the Climate Superfund Cost Recovery Program Fund, that will secure compensatory payments from responsible parties based on a standard of strict liability to provide a source of revenue for climate adaptation projects within the state.

Responsible parties under Vermont's law are defined similarly to those in New York. There is the one billion metric tons of GHGs requirement. One distinction is that Vermont's covered period is a little bit longer. It's closer to 30 years as opposed to New York's 25 years. Vermont's definition does have a nexus requirement to make sure that the responsible party has a jurisdictional nexus to Vermont.

How does the Climate Superfund Cost Recovery Program Fund fill up? Through similar means as New York's fund. Cost recovery demands will come from the state, where they will seek proportional cost recovery from responsible parties based on the total cost assessment completed by the Treasurer, which I will get to, and that is the distinction in Vermont's law. Similar to New York, there are appeal rights written into the law. There's an administrative appeal avenue that involves requesting reconsideration from the Secretary of the Agency of Natural Resources. But then if a responsible party continues to be aggrieved, they may challenge that notice through state superior court.

Looking at the purpose of the Treasurer's cost report, Vermont wasn't as far along as New York in terms of analyzing comprehensive costs from climate damages to the state. The cost report was the path lawmakers chose to gather that evidence, which I think many people in the state understood, separate and apart from this law, was really important data for the state to comprehend. The Treasurer's report will consider what damages and what likely costs the state and its citizens will have to spend to adapt and respond to climate change.

What the report does is assess the historical and projected costs to Vermont and Vermont residents because of changes in climate attributable to covered GHG emissions. An example would be, in thinking through the July 2023 flood that I mentioned, calculating the costs to the state, homeowners, farmers, and businesses associated with the flood.

It enables the state to understand the economic damages that Vermont sustained and will likely sustain as climate alteration continues. Ultimately, it provides a basis to raise revenue to pay for those costs from responsible parties that bear a significant responsibility for the pollution that caused the climate change in the first place.

In terms of implementation timeline, on the near-term horizon, the first thing that occurred was a report back to the legislature on feasibility.[7] Vermont's law went into effect in July 2024. The report came about six months later, after the state had wrestled a bit with what the law required.

The next items on the horizon are two things that state agencies are responsible for. The first is that the Agency of Natural Resources is adopting what's called a resilience implementation strategy. This is similar to what Jon was referring to for New York, in terms of there being an overall plan highlighting where adaptation needs are the strongest in the state and helping guide where monies in the cost recovery fund will be directed and prioritized.

Second, the Treasurer needs to submit the cost assessment to the legislature. And later on, the Agency of Natural Resources will adopt rules that include the methodology that it is using to identify responsible parties and to determine their fair share of covered GHG emissions.

Six months after that rulemaking is when the first cost recovery demands will go out. We have a similar method of installment payments if desired. The distributions will be made consistent with the Agency of Natural Resources' resilience implementation plan, and then the fund will be audited starting in 2031.

I should say, in terms of those distributions from the fund, Vermont has an Environmental Justice Law that governs distribution of state dollars.[8] That law adopts a state version of Justice40,[9] whereby covered agencies (i.e., the Agency of Natural Resources) must have a goal of directing environmental benefit investments proportionately in environmental justice focus populations.[10]

Finally, as for the Treasurer's cost report, I want to report on its progress so far. The Treasurer and the Agency of Natural Resources issued a joint nationwide request for information (RFI) in the fall of 2024. The report that the two offices submitted to the legislature in January summarizes the RFI results. It affirmed that the tasks the law asks the Agency of Natural Resources and the Treasurer's Office to do are feasible with the support of experts in climate attribution science and other relevant fields. We have the pleasure of hearing from one of those experts; he is presenting after me. But as a next step, the expectation is that the Treasurer will soon be issuing a request for proposals to actually get going with the cost assessment work.

Rachel Rothschild: I'd like to introduce Justin Mankin, who is an associate professor at Dartmouth and director of Dartmouth's Climate Modeling and Impacts Group. His climate attribution and climate impacts research has been published extensively in leading peer-reviewed journals, including *Science*, *Nature*, and the *Proceedings of the National Academy of Sciences*. He holds degrees from Columbia, where he received a B.A. and M.P.A.; the Lon-

6. Climate Superfund Act, No. 122 (Vt. 2024).

7. Vermont Agency of Natural Resources, Act 122 Climate Superfund Cost Recovery Program Report to the General Assembly January 15, 2025 (2025), https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Documents/2025FeasibilityReportAct122.pdf.

8. Act 154 of 2022 (Vt. 2022).

9. White House Archives, *Justice40*, https://bidenwhitehouse.archives.gov/environmentaljustice/justice40/ (last visited Apr. 23, 2025).

10. 10 V.S.A. §6004(h).

don School of Economics, where he received an M.S.; and Stanford, where he received a Ph.D.

Justin Mankin: I am kind of your resident climate scientist on this panel. What we do in my research group is use observations and models to document and predict both the origins and the consequences of climate change on the things we care about. What I want to do is give you a high-level overview of the state of the science around attribution.

I'm going to make three quick points. First, science can use peer-reviewed consensus-based methods to quantify the losses states have endured from climate change to date. Second, using peer-reviewed consensus-based methods, we can trace those losses fractionally back to particular sets of emissions and even emitters. I think what's really important here is that we can also estimate future damages associated with emissions that have been released, such as those over any particular covered period. Last, I would argue that we are underestimating the actual costs associated with any given set of emissions, owing to the embedded conservative approaches in any of these accounting methodologies.

To orient everybody, when I mention the costs of emissions, I'm really borrowing from colleague Marshall Burke and the logic that the total cost of emissions can be thought of as the sum of three different sets of costs. There are the costs of emissions in terms of how they've manifested impacts to date historically. Then, given that those emissions are going to reside in the atmosphere for thousands of years, there are future costs associated with them, so we can think about the net present value of future damages associated with historical emissions. Then, last, there are the future damages from future emissions. To the extent that those future emissions could be known, certainly one could provide a cost accounting of the damages associated with those. The Vermont law seems to focus on the first two.

In terms of how one might approach this, I think there is a host of rational methods that can be used to estimate any one element in this linear sum to get at the total emissions accounting. In our group, and in particular in collaboration with Chris Callahan, who's now a postdoc at Stanford, we've been focused on developing what's called "end-to-end" attribution, which is one method by which we might do this kind of cost accounting.

To ground everybody a bit in what we're talking about when we're talking about climate attribution, attribution science is a really well-established consensus-based science. It forms synthesis reports like that from the Intergovernmental Panel on Climate Change (IPCC) and the U.S. National Climate Assessment, of which I'm an author. It's been used as a methodology to establish causal links between global warming and various climate hazards at the event scale, whether these are floods like the one mentioned by Elena in 2023 in Montpelier, whether they're droughts, whether they're heat waves, snow loss, tropical cyclones, and other hazards.

The peer-reviewed literature has a tremendous number of attribution studies that have been pursued in thinking about both cumulative losses and individual event losses. The way attribution science establishes causality is akin to how a medical trial might actually test for the efficacy of a drug. In a drug trial, participants are randomly assigned into a treatment or a control group. Essentially, assuming that the randomization process cancels out any meaningful differences among individuals, you can actually test for the efficacy of the drug by comparing outcomes across the two distributions, where the treatment group has maybe less deleterious medical outcome than the control group, who did not receive the treatment.

In climate science, we don't have the benefit of being able to create a randomized control experiment in the same way that we can with people. So, what we tend to do is to rely on physics-based models in order to compare outcomes in a counterfactual world. We live in the "treatment," meaning GHGs have been emitted. That has manifested in altering the radiative balance of our planet and altered weather patterns and weather extremes. Those weather extremes have had impacts on things we care about.

The way we construct a counterfactual control distribution is by using earth system models, physics-based models, in order to simulate the world as it would have been absent particular sets of emissions. Then, we can compare the world as it has been to the world as it would have been absent sets of emissions. The difference between those is the attribution of the emissions—whether that's the thermodynamics of climate change itself, a hazard associated with climate change, or even an individual weather event or the damages associated with any of those weather events.

In thinking about the end-to-end attribution side of this, this is the causal chain that the research group here at Dartmouth has been focused on. It's how we go from emissions all the way to damage impact. In our work, this is building on consensus-based peer-reviewed science, as from the IPCC—which won the Nobel Peace Prize for their attribution efforts in 2007—in terms of translating atmospheric CO_2 concentrations into climate change itself, or what is called "physical attribution."

World Weather Attribution, led by Friederike Otto, has pioneered the ability to actually, in near real time, provide robust peer-reviewed attributions of extreme weather phenomena around the world traceable back to the climate change that has occurred.[11] That's called event attribution or hazard attribution.

Climate economics has pioneered the ability to trace the socioeconomic consequences of these changes in extreme weather and climate and its implications for the things we care about, such as our economic growth, mortality burdens, or health outcomes associated with extreme climate events. That's a damage attribution.

To the extent that these different causal links in this full scope attribution chain can be traced back to particular sets of emissions, that would be a source or emitter-based attribution.

11. World Weather Attribution, *Home Page*, https://www.worldweatherattribution.org/ (last visited May 5, 2025).

What Chris and I have spent the last number of years working on is cohering across all of these consensus-based methodologies to provide an end-to-end attribution—providing damages traceable back through particular hazards to particular sets of emissions. We have some work coming out in the next few weeks that does this for extreme heat traceable back to individual companies.[12] We've done this at the national scale as well.[13]

To answer the question of whether we can do this kind of damage attribution, the answer is yes. I would argue that these cost estimates are inherently conservative. I think there's a laundry list of reasons why they're conservative, which I won't go through right now, but these cost estimates are considered low and arguably less costly than the adaptation costs themselves.

Rachel Rothschild: Next, Ben Lippard is a partner at Vinson & Elkins, where he represents clients in complicated environmental disputes and draws on more than 20 years of experience. Ben's practice focuses on matters involving federal environmental statutes like the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), the CAA, and the Clean Water Act, as well as state environmental and regulatory programs. He spends a significant amount of time representing clients in the hard-rock mining industry and in the electric utility and oil and gas industries. He is a member of the firm's climate change practice and counsels clients regarding environmental issues associated with corporate transactions.

Benjamin Lippard: Thanks, Rachel, and thanks to all my co-panelists for a very interesting discussion so far. I guess we've reached the devil's advocate portion of today's presentation. Basically, there are some things about these statutes that are legally problematic. The judicial challenges that are underway to the statutes have raised some significant issues that are going to be dealt with by the courts.

I thought there were two major issues that should be thrown into the mix. The first is, when we talk about climate Superfund laws, there are a lot of differences in how the liability provisions of these new statutes are structured in a way that is quite different from traditional Superfund liability, which is itself quite broad.

This is relevant for a couple of reasons. First, in terms of the advocacy to justify and defend these statutes, one of the principal things I think supporters of these statutes rely on is the idea that the Superfund remedy is reasonably well established in environmental law—that this is really more of the same, so why not have this very broad retroactive liability?

As you start to poke at that issue, you can see there are a lot of pretty significant differences between what's been historically done under Superfund and the kind of liability we're talking about here, which makes a difference both in terms of the advocacy used to defend these statutes and also how reviewing courts are going to think about them when they are tested.

Second, the legal challenges that have been raised by parties that have filed lawsuits, at least in New York, raise a lot of complicated legal issues. You could probably write a long law review article about any of them. But there are a couple of key points that I want to focus on. The first is that certain features of the new climate Superfund statutes really play into some of the themes that some of the challengers have articulated in their lawsuits challenging the rule. In addition, to me it's indisputable that at least at some point in imposing retroactive and joint and several liability, liability for certain actions on only a subset of those parties that contributed to them, that it really does reach the point where it starts to become problematic from a takings or due process perspective. Reasonable people can disagree about where to draw that line, but it's a legitimate issue that needs to be thought through in this context given some of the features of the New York and other statutes.

From the perspective of somebody who does a lot of Superfund work, there are significant differences about how this liability scheme works that are important to focus on, and that really do distinguish it from more traditional approaches to Superfund liability. The first is—and it really jumped out at those of us who are likely to end up on the defense side of some of these issues—the disregard of corporate separateness. Both the Vermont statute and the New York statute are really quite explicit in terms of how they choose to impose liability on all of the members of the corporate group, explicitly trying to get around the concepts of corporate separateness that the U.S. Supreme Court recognized as fundamental to American jurisprudence in the *Bestfoods* case.[14]

I understand that there are policy arguments in favor of that. I can understand why the proponents of these statutes wanted to go that way. But to me, that choice plays into some of the themes that have been raised by the challengers, because it really does tend to make it look more like a dispute among different states with different interests than a more conventional legal remedy. You'll have, for example, statutes in New York or Vermont imposing liability schemes to disregard corporate separateness of foreign corporations domiciled in jurisdictions like Delaware, where corporate separateness and formality is kind of a big deal. So in the challenges to these statutes, that's a theme that's going to be played pretty hard.

Similarly, it's kind of a shorthand to say that CERCLA imposes joint and several liability on responsible parties

12. Christoper W. Callahan & Justin S. Mankin, *Carbon Majors and the Scientific Case for Climate Liability*, 640 Nature 893 (2025), https://www.nature.com/articles/s41586-025-08751-3.
13. Christoper W. Callahan & Justin S. Mankin, *National Attribution of Historical Climate Damages*, 172 Climatic Change art. 40 (2022), https://link.springer.com/article/10.1007/s10584-022-03387-y.
14. United States v. Bestfoods, 524 U.S. 51, 61 (1998) ("It is a general principle of corporate law deeply 'ingrained in our economic and legal systems' that a parent corporation (so-called because of control through ownership of another corporation's stock) is not liable for the acts of its subsidiaries.") (citations omitted).

for a Superfund site. That's the typical outcome in these Superfund cases. It's pretty much the presumption. But if you go back to CERCLA cases engaging with joint and several liability, even back in the early cases like *Chem-Dyne*,[15] there was a recognition that joint and several liability was to be applied and administered consistently with what had been done under the common law, and a recognition that it was a broadening of that liability. It still was tethered to some of those more traditional principles. The current round of climate Superfund statutes really does dispense with that consideration in ways that I think are going to be potentially significant in terms of how reviewing courts look at these statutes.

Similarly, on the question of causation, CERCLA did dispense with traditional notions of causation in some significant and important ways. It didn't eliminate causation requirements completely. There are certainly some causal standards required under CERCLA. In the divisibility-of-harm stage, responsible parties are given the opportunity to demonstrate they caused only a limited portion of the harm. There is still a causation element there.

In contrast, under the Vermont and New York laws, there's no explicit place in the statutes where those issues are taken into account. Based on the prior discussion, it sounds like the way those statutes are intended to work is that the legislature has made that causal determination in the first instance. It's a question of toting up the emissions and allocating the liability. I think that might be problematic from the perspective of the reviewing court. It certainly is a significant broadening of environmental liability relative to things that have been endorsed in the past.

Again, recognizing and understanding the states' justification for focusing on the largest emitters only, I think that is potentially problematic from the perspective of the judicial challenge. Because what you're really doing is imposing joint and several liability for a problem to which many, many entities contributed, and expecting just a small proportion of those companies to bear the cost.

For example, under the New York statute, liability attaches to production of fossil fuels but doesn't extend to any of the end-users of those fossil fuels, the people who actually combusted those fuels and put the GHGs into the atmosphere. It's a significant change from CERCLA. Under CERCLA, the way the U.S. Congress formulated that remedy was intended to broadly cover all the parties that contributed to the harm.

In addition to the pros and cons of focusing on such a narrow class of parties, I think that choice also plays into some of the themes sounded by the challenging states, because it happens to work out that the entities who are liable under the New York climate Superfund law happen to be entities from outside of New York. So to a certain extent, when states that are challenging the rule say this is the kind of issue that should be dealt with by a uniform federal rule, what it is really doing is transferring money from some states' businesses to others. I think that's a real issue that reviewing courts are going to have to grapple with.

Also, the way these statutes are structured, recognizing that states have limited jurisdiction over certain out-of-state entities, the exclusion of entities that are beyond the reach of the statutes in Vermont and New York, at least in New York, seems to increase the liability for the small set of companies that are subject to jurisdiction in New York. All those things go to the scale of joint and several liability, and in a relatively aggressive liability scheme that goes beyond what has been upheld in the past under Superfund.

The same is true with the lack of a contribution remedy. If you've got a problem to which many people have contributed and you put liability only on some of them, what kind of remedies do those parties you tag with the liability have to spread the cost to others? That's an important thing to think about both from a policy perspective and how reviewing courts might look at the statutes.

The same is also true in terms of what the money is spent on. This is a step change from what happens under CERCLA. If you look at traditional Superfund liability, that liability is defined with respect to a particular environmental response action. The nature of that response action and the cost of that response action are developed based on a process as set forth in the National Contingency Plan. Those who are subject to liability for those remedial actions have the ability, granted it's not a very viable remedy in most cases, to argue to an independent court that the U.S. Environmental Protection Agency's (EPA's) remedy decisions are arbitrary and capricious or that they lack sufficient connection to a site to be held liable for it.

Again, what seems to me to be one of the most significant innovations of these new climate Superfund statutes is that causation and damages issues are being resolved at the legislative level on the front end. How to enforce those legislative findings against private parties in the context of judicial challenges is going to raise some interesting issues.

Finally, obviously, these statutes are self-consciously quite cutting-edge. I think they push the envelope. Unsurprisingly, those challenging the statutes are going to have a host of interesting arguments in response. But I think, big picture, if you look at the case law on retroactive liability and recognize that some of those cases are quite favorable to legislators and their ability to do so, there is still a pretty meaningful level of judicial discomfort in terms of the potential for aggressive expansions of liability retroactively in ways that rise to a level of a takings problem or a due process problem.

If there's one takeaway from my talk today, at least from the perspective of somebody who might at some point be advising clients how to respond to this, it seems like this is a very aggressive liability scheme that goes well beyond the things that have been upheld in the past. I think it's pushing the limits of where the reviewing court might say it is just too much or too aggressive. I recognize this is probably not the most popular position on this panel. I'm sure that there are those who specifically and vigorously will disagree with me, but I appreciate the opportunity to

15. *See, e.g.*, United States v. Chem-Dyne Corp., 572 F. Supp. 802 (S.D. Ohio 1983).

put forth a slightly dissenting view as to how this might play out.

Rachel Rothschild: Next, Mary Wood is the Philip H. Knight professor at the University of Oregon School of Law. She's faculty director of the Environmental and Natural Resources Law Center and researches and writes on climate issues.

Mary Wood: Thank you, Rachel, and thank you to my co-panelists. Whereas others talked about climate Superfund acts or bills that are presently enforced or proposed, I'm going to focus on a possible next generation of climate Superfund acts. While these "second-generation" climate Superfund acts, as I'll call them, have not yet been proposed, they would respond to an urgent need of cleaning up the sky of the excess CO_2 that is causing climate disruption around the world.

As we know, the highest safe concentration of CO_2 in the atmosphere is 350 parts per million (ppm).[16] Yet we have sailed well beyond that to the latest figure on the National Aeronautics and Space Administration's (NASA's) website: 428 ppm.[17] Decarbonization is no longer enough. This excess CO_2 has wreaked havoc on the world and will continue to do so until the energy balance is recovered, which requires drawing down and sequestering this legacy carbon in the sky.

What we need at this point is a massive sky cleanup—you can think of it as analogous to a marine oil spill cleanup—of this excess legacy carbon in the sky. If carbon in the sky were as visible as oil is in water, I think we would have everybody clamoring for its cleanup.

In the absence of such sky cleanup, the harm and cost of climate change will just keep rising. The IPCC has estimated that well over 100 and maybe up to 1,000 gigatons of CO_2 will need to be removed from the atmosphere by the end of the century.[18] There are technological ways of doing this, but they have not yet been deployed to scale. And they seemingly hold no ecological co-benefits.

But natural climate solutions (NCS) have been designed to draw down CO_2 using nature's own engines of cleanup. Basically, these methods harness the power of soils and vegetation to absorb CO_2, and can be deployed across four ecotypes: rangelands, farmlands, forests, and blue and teal carbon areas. The Nature Conservancy has been a real leader in establishing the scientific foundation for NCS.[19]

NCS practices across working lands usually involve restoring soils and conserving trees and grasslands to let nature do its work. But these practices should not be used as offsets to justify even more pollution. At the same time as they draw down carbon, these NCS practices can recover biodiversity and create multiple other co-benefits, including some important adaptation benefits. For example, a farmer implementing NCS may create better water retention in the soil, which will help protect against drought brought on by climate disruption.

But to scale up to their potential, these NCS practices must receive massive funding that will incentivize their adoption by land managers. This is not a regulatory structure but an incentive-based structure. Regional frameworks can organize and maximize a region's contribution to sky cleanup by prioritizing the high-yield projects across ecotypes and then pricing out these measures on a regional level.

But we do come back to the basic funding need to accomplish this necessary sky cleanup. Who should be liable for paying these cleanup costs? In the case of a marine oil spill, there's no question that the responsible company is liable. The sovereigns—the federal, state, and tribal governments—seek cleanup costs and natural resource damages to pay for the cleanup.

The money recovered by these governments is used to clean up the mess, not to provide adaptation to a problem that would continuously worsen. The first generation of climate Superfund acts are not geared toward actually cleaning up the pollution as a Superfund scheme normally would; instead, their primary thrust is to fund state adaptation efforts.

The difficulty with that approach, though it certainly breaks very important ground in establishing a liability scheme, is that there is just not enough money in the world to pay for all the adaptation that likely must occur in response to a heating planet. We really confront a tragic reality that every single state, every community, and every country in the world has mounting costs of adaptation.

Moreover, every community's recovery is as compelling as the next, as a matter of fairness. So, the first few states to gain successful cost recoveries could likely deplete the industry's funds. While they will benefit, the other communities around the world that need those funds won't. In the end, it's a zero-sum game. Recovery of adaptation costs in New York, for example, won't have any benefit for

16. James Hansen et al., *Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature*, 8 PLoS ONE e81648, at 1, 4 (2013). *See also* In re Hawai'i Elec. Light Co., 526 P.3d 329 (Haw. 2023) (Wilson, J., concurring):

> Given the unprecedented life-threatening emergency that will result if atmospheric CO_2 concentrations are not reduced to below 350 ppm, and the increasing necessity to urgently reduce emissions in order to reach that goal, the State bears a public trust duty to protect and conserve a life-sustaining climate system for present and future generations.

Lauren E. Sancken et al., *The Injustice of 1.5°C-2°C: The Need for a Scientifically Based Standard of Fundamental Rights Protection in Constitutional Climate Change Cases*, 40 Va. Env't L.J. 102, n.54 (2022).

17. NASA, *Carbon Dioxide*, https://climate.nasa.gov/vital-signs/carbon-dioxide/?intent=121 (last updated March 2025).

18. Myles Allen et al., *Summary for Policymakers*, *in* Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty (Valerie Masson-Delmotte et al. eds. Cambridge Univ. Press 2018).

19. *See* Bronson W. Griscom et al., *Natural Climate Solutions*, 114 PNAS 11645, 11647 (2017); Joseph E. Fargione et al., *Natural Climate Solutions for the United States*, 4 Sci. Advances eaat1869, at 1 (2018). *See also* Mary C. Wood, *Sky Carbon Cleanup and Biodiversity Restoration: Devising Regional Frameworks*, 25 Vt. J. Env't L. No. 3 (2024).

Oregon, which has its own adaptation costs. Moreover, the adaptation costs will keep rising as long as there is a dangerous amount of excess carbon in the sky until that atmospheric pollution is cleaned up.

At some point, we have to acknowledge the prospect that no amount of human engineering and adaptation will protect humankind if climate change spins out of control. Given this reality, the next iteration of climate Superfund acts might focus on sky cleanup through regional frameworks that organize the drawdown and prioritize NCS projects across very broad areas.

With this approach, every project in any one region benefits every other part of the world as it draws down atmospheric carbon. So rather than a zero-sum game, it's an everybody-wins approach. Funding long-term protection of Oregon forests, for example, will benefit people in Nebraska, in India, in Germany, in Peru, and everywhere in the world. The structure of such second-generation bills can certainly build on the liability schemes of the first-generation Superfund acts, but there are some notable distinctions.

First, the second-generation acts will have to set forth regional frameworks—in essence, a cleanup plan—to organize, quantify, and price out the region's contribution to atmospheric carbon cleanup.

Second, attribution would not seem to be a factor in these second-generation laws because there would be no need to assess the cost of community damage attributable to climate disruption. Instead, the cost of the *regional cleanup framework* would be allocated among the liable parties, according to the amount of carbon they are responsible for contributing to the atmosphere.

Third, the overall liability of a company would decrease over time as it pays out its proportional financial responsibility for the sky cleanup. This is notably different from the first-generation CERCLA laws that would not decrease the company's global liability, because paying for adaptation in one place does nothing for adaptation in another place, and the adaptation costs keep rising.

In sum, the first-generation climate Superfund acts will greatly benefit the first states to collect, but they don't act as real Superfund acts in terms of cleaning up the pollution. They won't solve the worsening problem of the climate crisis. Until we can clean up that legacy atmospheric pollution, the problem will just keep worsening. But these acts do provide a liability structure that can be used in second-generation acts that set forth a Superfund cleanup mechanism.

Rachel Rothchild: To kick off our question-and-answer discussion, I want to make a couple of clarifying notes, since I've been involved in some of the legislative discussions about these bills, and then open up with some questions. One thing I want to say as a response to what Ben was talking about is that the bills that have been passed so far in Vermont and New York don't impose joint and several liability. That was a discussion that was had in the legislatures, and something that was considered but rejected. From my perspective, the bills are less aggressive than Superfund by not imposing joint and several liability on these companies. That is one clarification.

The other thing I want to note is that Mary laid out some excellent ideas about what the next legislative steps might be to help us adapt to climate change, especially because we have received a few questions about what kind of projects could be covered by these bills. Mary is absolutely correct that these bills are not designed to exclusively remove CO_2 or other GHG emissions from the atmosphere. However, there is flexibility in the way the legislation has been written to allow for such projects, should the agencies decide to pursue them.

I'll also note that CERCLA cleanups don't always involve removal of pollutants. Sometimes, the best thing to do in a CERCLA site cleanup is to encapsulate the pollution, to try to make it so that it will not be harmful to the surrounding communities. In that sense, I don't see these bills as completely inconsistent with what came before in CERCLA.

But with that, I'm going to go through some of the questions. One of the recurring questions was about the ways in which these bills are going to be implemented. I'll turn to Jon and Elena to discuss the types of projects that they think would be allowable under the statutes as they're written, and how disadvantaged communities are going to be assisted, which is something that I think the bills in Vermont and New York address.

Jonathan Binder: As Rachel rightly said, the law has some flexibility for the agency to determine what kind of projects are going to qualify that might be utilizing these funds. That's going to be informed by this plan that the law requires us to develop over the next several years. But at a high level it is going to be focused on adaptation, and that includes things like nature-based solutions. That's something that's specifically called out in the legislation, that we should be emphasizing nature-based solutions that utilize natural processes for adaptation and resilience.

With respect to disadvantaged communities, I would say that the Climate Act has already identified what counts as a disadvantaged community under New York law with the Climate Justice Working Group. The focus in the law is to make sure that at least 35% of the benefits of all the funds coming out of this process benefit those communities. So, certainly disadvantaged communities and projects in those communities will be eligible for receiving these funds. That will be something that we want to see encouraged as much as possible.

Elena Mihaly: A "climate change adaptation project" is actually a defined term in Vermont's law. It's very similar to what Jon was describing in terms of having a kind of introductory sentence that says that it's a project designed to respond to, avoid, moderate, repair, or adapt to negative impacts caused by climate change, and to assist human and natural communities, households, and businesses in preparing for future climate-driven disruptions.

Then it goes on to say what climate change adaptation projects include, which is a long list of projects. But I think

the idea is, yes, that the Agency of Natural Resources' Resilience Implementation Strategy would shed further light on the types of projects that would be included. And as noted earlier, Vermont has an Environmental Justice Law that applies to state spending. So that would apply here. And that law defines what an "environmental justice focus population" is in Vermont.

Mary Wood: It is true that some of the language in some of the bills allows for nature-based solutions. In my mind, that's a lot different than having a framework to maximize a region's contribution to sky cleanup. In other words, it's more shoehorning a co-benefit of sequestration into an overall adaptation purpose of these recoveries.

With the second-generation climate Superfund acts, you would have an actual framework and plan to maximize the carbon sequestration potential of different projects across a region. The framework would be an overview of how much that region can extract from the atmosphere. There would be a calculation of that on a macro level. The regional framework would organize the projects and tap the ecological and adaptation co-benefits of those projects.

Rachel Rothschild: As a follow-up to that, Jon and Elena, you have been interested in thinking about the total number of parties that might be considered responsible parties under these bills. I'm curious if you can give us a rough estimate of the number of companies that you think might be responsible.

Jonathan Binder: We're not in a position to give a precise number since we are early in the implementation. We have to go through the process of promulgating the regulations and identifying what those responsible parties might be. But that one billion ton threshold is a relatively high threshold, so it is a relatively small number of responsible parties that would potentially qualify.

There are publicly available databases that one could look at. We're going to determine it through our process, but they could give you a general sense. One is the Carbon Majors database.[20] It gives you a sense of where that one billion ton threshold might be, but we're not in a position to give a precise number at this point.

Elena Mihaly: I would add, as Ben alluded to, that the number is then further downsized based on the application of a jurisdictional nexus "minimum contacts" requirement as well.

Rachel Rothschild: I'll give the next question to Justin. There were some audience members that were curious about how climate adaptation science can perhaps help us think through connections between not just CO_2 but the other GHG emissions and the harms that we're seeing. And there were some questions about how to disentangle all these different contributions from different industries such as agriculture. Is that something that we're able to do?

Justin Mankin: We can consider any number of GHGs. In the work that I've done with Chris, the former student pursuing a postdoc, we're looking at CO_2 and methane contributions to the atmosphere from fossil fuel production and sale—so scope 1 and scope 3 emissions. We could look at sectors of the economy. We can look at other industries to include "Big Agriculture."

You tell me the emissions of interest, and it becomes a thermodynamic problem and one we can hope to solve through our modeling framework. In that sense, if I know the kind of hazard of interest and/or the sense of damages one wants to consider, whether those are health outcomes or economic growth outcomes, and if I know the emissions, then we can provide an attribution of what those emissions imply for a damage outcome or a particular hazard.

Rachel Rothschild: I'll turn to some of the questions we received about the structure of these bills and their legal basis and in what way, shape, or form they're modeled on CERCLA. Since I helped to some extent in drafting these bills, I'll start off with my answer to this question. Then I'd love for Ben and Mary to join me in talking about this.

It's correct, as Ben pointed out, that these laws are different from CERCLA. They're not exactly modeled on the federal Superfund statute. What they were trying to do was to think about ways that we could model these bills on what's been done in the past for hazardous waste liability. There are certainly differences.

But in terms of thinking about future legal challenges, it's useful to look toward past examples like CERCLA to try to get a sense of how the courts are going to approach this type of legislation. It can also be useful in thinking about, just to push back a little bit on what Ben was saying, what would be more aggressive and what would be less aggressive in terms of how to structure these bills. There are some ways in which I would add to the comments I made earlier about how the bills are perhaps less aggressive than CERCLA.

CERCLA doesn't actually have a limit on its retroactive liability. I'm teaching CERCLA right now in my environmental law and policy class. We covered a case where a company was liable for some of its activities all the way back to World War II. So, you have a liability scheme where the retroactivity has no limit.

In contrast, in these bills, I think one of the things that was important in discussions about how to draft them was where to put those limits in terms of their retroactivity. So looking to past cases and thinking about when the science of climate change was well established, when would regulated parties be on notice that perhaps they could face some type of cost associated with their economic activities, these are the kinds of things that are and have been important for states considering how retroactive to make these laws.

Mary Wood: CERCLA is certainly relevant in terms of providing a liability scheme. CERCLA implementation

20. Carbon Majors, *Home Page*, https://carbonmajors.org/EN/index.html (last visited Apr. 15, 2025).

has been characterized by strict, retroactive, and joint and several liability.[21] All of these features provide a solid platform for designing climate Superfund acts. But of course there is a fundamental distinction between CERCLA and these first-generation climate Superfund acts, in that CERCLA has a focus on cleaning up the pollution that's the source of the problem, while the climate Superfund acts focus on funding community adaptation.

Benjamin Lippard: It's a really good question. I didn't want to imply that I thought that there were no good arguments going the other way in terms of the precedent CERCLA sets for these statutes. I have a couple of things to add.

First of all, Rachel made a point earlier on joint and several liability and whether or not these statutes impose this liability. I was really thinking more about the New York statute. If you look at the New York statute, it's got a $75 billion liability that's going to have to be made up by a small set of responsible parties. If certain parties are dropped out for jurisdictional reasons, the other parties will make it up. I think that was kind of the point of joint and several liability there, at least the way I think about it in terms of the actual exposure of these entities.

Rachel raised a good point on the temporal retroactivity of CERCLA. At least, in my experience, 1945 is pretty recent. Actually, we've had sites where the liabilities go back longer than that. You get situations where your client had a brief window where it operated a facility in the early 20th century, for example. It's the last entity standing, so EPA presents you with a $300 million bill or whatever.

As a practical matter though, just stepping back for a second, a typical scenario for joint and several liability in the early years of Superfund, when the case law was developing, would be something like a $15 million landfill cleanup, where there are 15 or 20 or 30 parties that are responsible. I think the scale becomes so different when the sites get bigger, and the dollars get bigger, and the parties get fewer. It's really kind of a different thing.

Rachel Rothschild: A follow-up question that you, Ben, might be well-positioned to answer: what might the timeline be for these legal challenges to play out? We have the U.S. Chamber of Commerce suing both Vermont and New York over these laws. We've seen Republican attorneys general suing in New York over these laws.[22]

Benjamin Lippard: A point that I was going to make earlier is that, while theoretically joint and several liability can go back in time, as you get further away in time, with fewer entities involved, larger sites, and larger cleanup costs, as a practical matter, EPA and the U.S. Department of Justice tend to take that into account when they resolve these cases. They tend not to go to the mattresses on sites where your involvement is modest, or small, or a long time ago. I think they use some judgment in that.

Now on the question of timing for these lawsuits, I have no idea. I mean, I don't know whether there's likely to be preliminary relief or not. I think that particularly in the New York cases, if you look at the precedent that was set in the *City of New York v. Chevron* case,[23] a district court considering those challenges might well find itself constrained and want to act quickly on the basis of that authority.

I recognize that there are lots of arguments that might go the other way on that, so it's possible that something might happen quickly. But these seem to be really complicated cases to me, if you get into the ins and outs of what's the significance of the displacement of federal common law, or what does the Excessive Fines Clause really mean, or what you're going to do with a case like *Eastern Enterprises v. Apfel*.[24]

It's all really complicated. My guess is it will move slowly. I think that no one's on the hook to pay money for a few years. It might take the pressure off courts to act quickly, but your guess is as good as mine on that. Maybe those who are closer to it have a better sense.

Mary Wood: One point to make is that CERCLA implementation often involves settlements, with penalties for recalcitrance and other built-in tools to encourage early settlements. That has been pretty successful in the traditional CERCLA context, and may be a dynamic in second-generation climate Superfund acts because settlements would reduce liability for remaining sky cleanup.

Rachel Rothschild: My sense from talking to folks on the other side of this litigation, who are not in favor of these laws, is that they intend to take this all the way up to the Supreme Court. I don't expect that there will be settlements.

I will lay out the *City of New York* precedent for folks who may not be familiar with it. It's a case with a complicated procedural posture because it was filed in federal court under diversity jurisdiction. This was a nuisance suit brought by the city of New York against fossil fuel companies, and the U.S. Court of Appeals for the Second Circuit decided to consider the claims under federal common law instead of state common law.

But the case seems to me pretty specific to nuisance law. One thing I want to emphasize is that it is the position of the state legislature, I think, that while emissions might be relevant to determining the responsibility of parties, the goal of these bills is to impose liability for the harmful sale of a product. It's not putting in place emissions controls, or reductions, or asking for that kind of relief.

So in that sense, it is arguably distinct from the concerns that perhaps animated the Second Circuit in *City of New*

21. *See* U.S. EPA, *Superfund Liability*, https://www.epa.gov/enforcement/superfund-liability (last updated Apr. 10, 2025).
22. On May 1, 2025, the federal government sued both New York and Vermont over their climate Superfund statutes. United States v. New York, No. 1:25-cv-03656 (S.D.N.Y. filed May 1, 2025); United States v. Vermont, No. 2:25-cv-463 (D. Vt. filed May 1, 2025).
23. City of New York v. Chevron Corp., No. 18-2188 (2d Cir. Apr. 1, 2021).
24. 524 U.S. 498 (1998).

York. There have been follow-on cases to that decision, such as an interesting case that came out of the U.S. District Court for the District of Connecticut that also went up to the Second Circuit. The case concerned a Connecticut lawsuit that sought to impose liability on fossil fuel companies under a state consumer fraud statute.[25] The opinion in the Connecticut case was written by the same judge, Judge Richard Sullivan, who authored the *City of New York* decision. But the consumer fraud case came out the other way, with the Second Circuit finding that lawsuits against fossil fuel companies under Connecticut's state consumer fraud statute were not preempted by the CAA because they didn't have to do with emissions.

So, I agree with Ben that this is going to be an important legal issue that will play out. But I hope that additional context and information is helpful for folks in thinking about that particular challenge that the laws are facing.

Benjamin Lippard: I think the legal issues are fascinating. It's very complicated. It looks like there are skilled lawyers on both sides, so all these issues are going to be well-litigated. But I do think there are a lot of important and complicated legal challenges. There are good arguments both ways on a lot of these issues.

Rachel Rothschild: In closing, one of the things that I think would be interesting to have the panel reflect on is why these laws are needed. I touched on this issue a bit in my opening statement. And bringing in Justin on this, what do you see as your role as a scientist in this area? What are we to do perhaps if these laws don't succeed? What is the problem they're trying to solve and why do state legislatures think they're so necessary?

Mary Wood: I think they're so necessary and important because they start the conversation on liability. Who is responsible for this overarching problem, and how much is this problem costing communities or states? Is it a step toward really assessing the huge global damage and figuring out who's going to pay the price? I think that's significant in creating a new paradigm.

Justin Mankin: From the scientific perspective, or at least my own perspective as a scientist doing this, we live in a world where we have warmed the planet. Climate damage analysis or climate impacts research is no longer some kind of prospective year 2100 exercise. It is actually just documenting and attributing that which has occurred.

That kind of pivot has taken place in my own research, and I know it is something that's shared by a lot of my colleagues in this space where the costs associated with climate change to date are far higher than we expected and/or understood. A really important question is, how do we think about accountability given those massive damages that we can attribute with a high degree of certainty and confidence?

25. Connecticut v. Exxon Mobil Corp., 83 F.4th 122 (2d Cir. 2023).