Atmospheric Trust Litigation: Securing a Constitutional Right to a Stable Climate System*

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It is a privilege to be here in Boulder, which is a place I think of as a hub of climate action, with its young climate warriors, its renewable energy visionaries, and its dedicated league of citizens determined to create a safe future. And it is a supreme honor to give the lecture named after the two legal giants who have so shaped Indian law, natural resources law, and public lands law with their brilliant vision and dedication to justice. My honor is magnified by the immense gratitude I have towards Professor Charles Wilkinson, who has been an invaluable mentor and guiding light throughout my entire teaching career. He is the person who, in an unparalleled way, steps back from the law as it appears in the moment and contextualizes it in history, recognizing and identifying its organizing force through the ages. He is the one who captures the essence of legal principles and their driving rationale and inspires us all to reach towards the law no matter how daunting the challenge we face. It was largely his scholarship that led me into the heart of the public trust doctrine many years ago.

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I.

This evening I will describe a litigation campaign and strategy that draws upon this public trust principle to confront the climate emergency. Let us begin with a simple recognition that we are the living beneficiaries of a public trust—a priceless trust. This trust holds the waters, the air, the wildlife, the forests, the soils, and all that encompasses the web of life. Our ancestors drew their life from this trust, and so must our descendants.

This trust—this exquisitely balanced, spectacularly complex, and absolutely vital Earth Endowment—supports all life systems. And without it functioning, life does not persist. That is law; indeed, that is Nature's Law. We would be fools to not recognize such law as the supreme law of the land, or ever to doubt for a moment that the jurisdiction over our very survival falls first to the air, the waters, the food sources, and the climate system. All of our ancestors recognized these truths.

And so it should come as no surprise that one of the most basic and original understandings of any government formed by the people concerns the people's rights in this essential ecology—rights expressed in the ancient public trust principle, which dates back to Roman times and has been part of our nation's jurisprudence since the beginning. This principle speaks to the origin of government itself. As part of the social contract between the people and their government, the people hold back for themselves inalienable property rights to crucial resources. This principle was underscored in a leading opinion handed down in 2013 by the Pennsylvania Supreme Court. That Court overturned a statute passed by the state legislature to promote fracking, a practice that has fouled much of that state. Chief Justice Castille wrote a plurality opinion declaring that the citizens hold "inherent and indefeasible rights" in essential ecology.[1] He said those rights are "of such 'general, great and essential' quality as to be ensconced as 'inviolate.' "[2] As he explained, these inherent rights are "secured rather than bestowed by the Constitution . . . ."[3] They amount to basic constitutional rights that we, the people, have always held and still hold.

A legal right held by the citizens gives rise to a duty on the part of government to protect that right. Since the beginning of this nation, courts have declared that government is a trustee of the natural resources that we all depend on. A trust is a concept of property law and means that

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1 Robinson Twp. v. Commonwealth, 83 A.3d 901, 947–48 (Pa. 2013).

2 *Id.*

3 *Id.* at n.36.

certain assets are managed by one party for the benefit of another. The beneficiaries of this public trust are the people, both present and future generations of citizens. The public trust sets a limit on what resources a government can allow profiteers to exploit.

In 1872, the U.S. Supreme Court decided the foundational case called *Illinois Central Railroad*. The Court there confronted a situation it had never before seen. The Illinois legislature had conveyed the entire Chicago shoreline of Lake Michigan to a private railroad company. Can you imagine? This was shoreline that the citizens needed for fishing, navigation, and commerce. The Supreme Court held that the legislature simply did not have power to convey away the shoreline and that such property remains held in trust for the public. In fact it said, a grant of such crucial resources to a corporation would be "a grievance which never could be long borne by a free people."[4]

When you understand that the ecology of Nature's Trust supports our very survival, and no less so for our children and future generations than for us, you can see that this public trust principle aims for the endurance, rather than the expiration, of the nation. It prevents our political leaders from abusing their breathtaking authority over our natural resources to serve their own political interests at our expense. This trust principle comes twin-born with democracy itself. This trust is so basic that it is found in states throughout this country, and in many nations throughout the world. Charles Wilkinson famously wrote several years back, "The real headwaters of the public trust doctrine . . . arise in rivulets from all reaches of the basin that holds the societies of the world."[5] This principle is, as Professor Gerald Torres writes, "the law's DNA."[6]

Since the beginning of this nation, this trust principle has been enforced by the courts – the third branch of government. They have played a unique constitutional role in protecting the vital ecology of this nation, for as Professor Charles Wilkinson has explained, "[The public trust doctrine] is rooted in the precept that some resources are so central to the well-being of the community that they must be protected by distinctive, judge-made principles."[7]

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4 Illinois Cent. R. Co. v. State of Illinois, 146 U.S. 387, 456 (1892).

5 Charles Wilkinson, *The Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine*, 19 ENVTL. L. 425, 431 (1989).

6 Gerald Torres & Nathan Bellinger, *The Public Trust: The Law's DNA*, 4 WAKE FOREST J.L. & POL'Y 281, 283–85 (2014).

7 Charles F. Wilkinson, *The Public Trust Doctrine in Public Land Law*, 14 U.C. DAVIS L. REV. 269, 315 (1980).

We now sit at an extraordinary time in human history, at the edge of climate tipping points that I will explain in a few moments, and we have no choice but to match the law with the reality we face. That reality is quite honestly terrifying as we find our society racing towards what scientists describe as an "uninhabitable planet."[8] As we sit here this evening, we can feel ourselves drawn irrevocably into an unprecedented era of disruption as communities struggle to recover from Hurricane Harvey, which put Houston under ten feet of water. That hurricane was followed by Irma, the most powerful hurricane ever recorded in the Atlantic, and now there are other hurricanes stacking up and making destructive landfall. Jeff Goodell captures the moment by saying "We're living in a new world now, and we better get ready. Mother Nature is coming for us."[9] In many ways, we have created this dangerous new world.

Let me first describe this state of climate crisis, and then I'll explain how youth across the country are asking courts to enforce public trust and constitutional rights to a stable climate system. But I pause here to note that I never want to give the impression that law is any sort of panacea for this emergency. It's not. If you are an engineer, don't wait for the law. Develop a battery to save the world. If you are an investor, create financing for renewable energy projects. If you are an architect, design a green building. I'm a lawyer and this is the toolkit I have, so tonight we'll talk primarily about the law.

Before we look at the climate crisis, let us reflect on the basic purpose of law, which is to organize society and prevent harm. Justice Holmes famously said the common law must respond to the "felt necessities of the times."[10] Regardless of how daunting this climate crisis may be, the remedy sought from law must match the scale and gravity of the harm. Atmospheric Trust Litigation was conceived around that core premise.

II.

So, how bad is the climate situation? Well, if you are sleeping well at night, you probably don't know enough about climate science. For

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[8] Nafeez Ahmed, *James Hansen: Fossil Fuel Addiction Could Trigger Runaway Global Warming*, GUARDIAN (July 10, 2013), https://www.theguardian.com/environment/earth-insight/2013/jul/10/james-hansen-fossil-fuels-runaway-global-warming.

[9] Jeff Goodell, *Houston: A Global Warning*, ROLLING STONE (August 31, 2017), https://www.rollingstone.com/politics/features/hurricane-harvey-houston-flood-is-climate-change-warning-w500596.

[10] OLIVER WENDELL HOLMES, THE COMMON LAW 1 (1881).

your bedtime reading, I'll refer you to a recent article, published in New York Magazine, called "The Uninhabitable Earth, Annotated Edition." It can be summarized by the author's statement: "It is, I promise, worse than you think . . . no matter how well informed you are, you are surely not alarmed enough."[11]

The only good news is that this crisis is caused primarily by pollution within human control.[12] The law has dealt with pollution before. It has the tools. It has had them for forty years. The world emits about 70 million tons of carbon dioxide into the atmosphere per day. Some of this lingers in the atmosphere anywhere from 100 to over 1000 years, and that means that there is heating in the pipeline from past emissions. So despite how bad the climate impacts are already, I assure you that they are going to get worse, because there is heating yet to come from past emissions persisting in the atmosphere. In other words, even if we were to stop all of our emissions tomorrow—all of them—we would still experience a big dose of future heating that we cannot call back. Perhaps we can all think of that every single time we decide to drive: that the pollution emitted today is going to stay in the atmosphere for a very long time, damaging our children's and grandchildren's lives.

That pollution traps energy, creating a greenhouse effect that heats the Earth. This heating now melts the ice masses around the world. Greenland is breaking up. The West Antarctic ice sheet is disintegrating, and scientists believe it is beyond the point of no return. Just last summer, a chunk the size of Delaware broke off suddenly, alarming the scientists even more. The rapid global ice melt is causing sea level rise and is already forcing coastal Alaskan communities to abandon their lands and relocate. Sea level rise on the East Coast and Florida now regularly causes "hide tide" floods that immerse automobile tires in ocean water. Soon, some of these areas will not be habitable. Louisiana is sinking so fast that the Louisiana state government is creating a plan to empty out (depopulate) an area the size of Delaware.[13] It is expected that by the end of the century there will be at least six feet more sea level rise.

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11 David Wallace-Wells, *The Uninhabitable Earth, Annotated Edition*, N.Y. MAG. (July 14, 2017), http://nymag.com/daily/intelligencer/2017/07/climate-change-earth-too-hot-for-humans-annotated.html.

12 In addition to carbon dioxide pollution, the human causes of climate disruption include animal agriculture, feed lots, and deforestation. Though these other causes are beyond the scope of this speech, they are incorporated into the *Juliana* case discussed in Part IV, *infra*.

13 Christopher Flavelle, *Louisiana Sinking Fast, Prepares to Empty Out its Coastal Plain*, BLOOMBERG (Dec. 22, 2017), https://www.bloomberg.com/news /articles/2017-12-22/louisiana-sinking-fast-prepares-to-empty-out-its-coastal-plain.

The ocean life systems are dying. Oceans have absorbed so much of our carbon dioxide pollution that sea water is now thirty percent more acidic than before the Industrial Revolution. In areas, baby shellfish cannot survive, because the water erodes their shells as just soon as they make them. The oceans are also heating as a result of global warming, and the heat is killing marine species. In one "freakish effect" of such heating, the largest green sea turtle rookery is producing ninety-nine percent females.[14] We have a big problem on our hands if our oceans are dying and our marine species are not able to reproduce.

Storms like super-storm Sandy and the recent hurricanes now batter the coasts. These weather events are intensified by the amount of precipitation in the atmosphere and the energy in the system. Climate disruption now brings both epic flooding and killer heat waves to Arizona and Texas and a multitude of other places in the country and throughout the world.

Drought now parches farming communities around the world. The United Nations predicts that a third of the globe will face water shortages because of climate crisis. In 2014, California had barely enough water to meet its needs. Several years ago, the then-Secretary of Energy Steven Chu said, "I don't think the American public has gripped in its gut what could happen. . . . We're looking at a scenario where there is no more agriculture in California. I don't see how they can keep their big cities going."[15] Fires now devour the arid West, invading subdivisions and consuming thousands of homes. Fire has always shaped the Western landscape, but these recent infernos are intensified by climate heating.

The climate crisis drives species of all kinds towards extinction. The UN predicts that a third of all species will face extinction. And for our human species, climate catastrophes drive millions from their homes, causing a global refugee crisis. U.S. military leaders identify climate change as an "immediate" threat to national security.[16]

If we live our lives tomorrow like we did today, we remain on a "Business as Usual" track pushing us toward 9 to 11 degrees Fahrenheit warming over most of this country by 2090. Everything I have described

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[14] Kristin Hugo, *Australia: 99 Percent of Great Barrier Reef Sea Turtles are Turning Female in Freakish Effect of Climate Change*, NEWSWEEK (Jan. 9, 2018), http://www.newsweek.com/australia-99-great-barrier-reef-sea-turtles-are-turning-female-freakish-effect-775359.

[15] Jim Tankersley, *California Farms, Vineyards in Peril from Warming, U.S. Energy Secretary Warns*, L.A. TIMES (Feb. 4, 2009), http://articles.latimes.com/2009 /feb/04/local /me-warming4.

[16] Coral Davenport, *Pentagon Signals Security Risks of Climate Change*, N.Y. TIMES (Oct. 13, 2014), https://www.nytimes.com/2014/10/14/us/pentagon-says-global-warming-presents-immediate-security-threat.html.

is the result of just 1.4 degrees F. average global heating over pre-Industrial temperatures.[17] There is not one climate scientist I have found who gives any assurance that the amount of heating we are headed towards is broadly survivable. Our fossil fuels are driving Humanity towards a dead end, quite literally.

Dr. Jim Hansen, the former chief climate scientist at NASA, puts it this way: global warming threatens "not simply the Earth, but the fate of all its species, including humanity."[18] Gus Speth, the former Dean of Yale's School of Forestry and Professor of Law at Vermont Law School, writes, "If we keep on doing exactly what we are doing today, the world in the latter part of this century won't be fit to live in."[19] He is talking about 2050. That's thirty-three years from now. So let's pause to do some arithmetic. If there is anybody you love—maybe it's your child, maybe it's your nephew or niece, maybe it's your young cousin, maybe it's a young neighbor—calculate how old that person will be in 2050. An eleven year-old today will be forty-four years-old at mid-century, and climate analysts say this world may not be livable in that child's projected lifespan. Let that sink in with respect to the young people you love. We must jump off this disastrous "Business as Usual" track with all deliberate speed.

Time is not our friend, as Dr. Hansen often points out, for we face planetary tipping points. These are points at which Nature's own processes kick in to create feedback loops from which there is no escape. Nature's own feedback loops are much more powerful than anything humans can control and, if triggered, they can push the planet into a state of runaway heating. There are many feedbacks, but I will mention just two. One has to do with the forests, which absorb carbon dioxide. Because we have heated our world, the forests now heat and die and succumb to fire at a much faster rate. When they burn, the forests release carbon dioxide, rather than absorb it. Another feedback comes from the permafrost across all the northern latitudes. This permafrost stores vast amounts of methane and carbon dioxide—much greater amounts than we could ever emit on our own. And when this permafrost melts, it releases these greenhouse gases to the atmosphere. The permafrost has already started to melt. If this melt really gets going, the result could be

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17 Michael Carlowicz, *Global Temperatures*, NASA EARTH OBSERVATORY: WORLD OF CHANGE (last updated 2010), https://earthobservatory.nasa.gov/Features/WorldOfChange/decadaltemp.php.

18 James Hansen, *Tell Barack Obama the Truth – The Whole Truth*, http://www.columbia.edu/~jeh1/mailings/2008/20081121_Obama.pdf (last visited Jan. 9, 2018).

19 JAMES GUSTAVE SPETH, THE BRIDGE AT THE EDGE OF THE WORLD: CAPITALISM, THE ENVIRONMENT, AND CROSSING FROM CRISIS TO SUSTAINABILITY, at x (2008).

described as an "atmospheric tsunami."[20] It would flood our atmosphere with greenhouse gasses and make our carbon emissions look like a drop in the bucket.

III.

The point of all of this is that there is a timeframe that we have face when we think about legal strategies. If we don't act soon enough, we will, in Dr. Hansen's words, "eliminate the option of preserving a habitable climate system." Now let's turn to the law. Which law? The law that I turn to, first and foremost, is the law that Nature itself puts forth. Tribal elders speak of "natural law," and Oren Lyons puts this way: "The thing you have to understand about nature and natural law is, there's no mercy . . . There's only law . . . ."[21] Very simply, Nature itself delivers laws that we must abide by if we want to survive and thrive on this planet. But that is not the system of law that we have created. Instead, we have created a system that has actually brought about this crisis. Elizabeth Kolbert says, "It may seem impossible . . . to imagine that a technologically advanced society could choose, in essence, to destroy itself, but that is what we are now in the process of doing."[22]

Let me be clear: The problem is not any lack of written law. We have plenty of laws, regulations, and agencies implementing the laws. The problem is that our laws have permitted the very destruction they were designed to prevent. They have been geared toward permitting pollution and promoting a fossil fuel system that develops, drills, mines, and exports fossil fuels. This fossil fuel system has created devastating sacrifice zones across this nation resulting from mountain top removal, strip mining and drilling, and here in Colorado, massive fracking. This same system now brings us to the edge of a deadly climate precipice.

The U.S. government has known for a very long time that this climate crisis was materializing. In 1986, the Senate Committee on Public Works and the Environment wrote a letter to the U.S. Environmental Protection Agency ("EPA") acknowledging that there is

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20 FRED PEARCE, WITH SPEED AND VIOLENCE: WHY SCIENTISTS FEAR TIPPING POINTS IN CLIMATE CHANGE 212 (2007).

21 Tim Knauss, *Onondaga Faithkeeper Oren Lyons Speaks Out on the Environment: 'Business as Usual is Over,'* POST-STANDARD (Feb. 9, 2008), http://www.syracuse.com /progress/index.ssf/2008/02/onondaga_faithkeeper_oren_lyon.html.

22 Michael S. Roth, *'The Sixth Extinction: An Unnatural History' by Elizabeth Kolbert*, WASHINGTON POST (Feb. 21, 2014), https://www.washingtonpost.com /opinions/the-sixth-extinction-an-unnatural-history-b-y-elizabeth-kolbert/2014/02/21/23ea733e-8ddc-11e3-833c-33098f9e5267_story.html?utm_term=.1317274a1acd.

"a very real possibility" that we are "irreversibly altering the ability of our atmosphere to perform basic life support functions."[23] That Committee asked EPA to create a plan to return our atmosphere to stability at 350 parts per million ("ppm") CO_2. And guess what? The EPA did create a plan, but it was never implemented. Why was that? Because for decades, the fossil fuel industry has funded Congressional political campaigns. In return, Congress has systematically blocked all of the proactive measures that could have been taken over the last several decades. And, at the same time, the industry created doubt in the minds of Americans as to whether this climate crisis was even occurring.[24] Now we have a president who, with breathtaking recklessness, is trying to carry out his intention of developing fifty trillion dollars worth of oil and natural gas and coal.[25]

So here we are. We are the granules of sand falling through a minute glass between two worlds—our past world in which Nature supported our survival in infinite ways, and a hellish world ahead filled with firestorms, droughts, epic floods, food shortages, sea level rise, mass extinctions, and global chaos. And we don't have a leader to bring us out of this mess. Instead, our President is driving us towards disaster as fast as he can. But citizens do have the capacity to create a vision formulated around the requirements of Nature. Humanity needs to cease flooding the Earth's atmosphere with carbon, and further, we must decrease existing excess levels of atmospheric carbon to well below 350 ppm. The current levels are over 410 ppm, and still rising fast.[26] Scientists emphasize the need to accomplish two things. First, we need to decarbonize society, slashing our fossil fuel emissions as rapidly as possible and reaching zero by 2050. Second, we must draw down the legacy carbon dioxide from the atmosphere that lingers from our past pollution. In other words, we must clean up the polluted atmosphere – just as an oil spill in the ocean must be cleaned up for the marine ecosystems to function again. Drawdown can be accomplished by

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23 Letter from the 1986 U.S Senate Subcom. on Env't & Pub. Works to the U.S. Envtl. Prot. Agency (Sept. 12, 1986), https://law.uoregon.edu/images/uploads/entries/SG_Wood_095_KKG_Senators_Letter__EPA.pdf.

24 *See* NAOMI ORESKES & ERIC M. CONWAY, MERCHANTS OF DOUBT: HOW A HANDFUL OF SCIENTISTS OBSCURED THE TRUTH ON ISSUES FROM TOBACCO SMOKE TO GLOBAL WARMING (2011).

25 Annie Sneed, *Trump's First 100 Days: Climate and Energy*, SCI. AM. (Nov. 29, 2016), https://www.scientificamerican.com/article/trumps-first-100-days-climate-and-energy/.

26 Brian Kahn, *We Just Breached the 410 ppm Threshold for CO2*, SCI. AM. (Apr. 21, 2017), https://www.scientificamerican.com/article/we-just-breached-the-410-ppm-thresh old-for-co2/.

instigating projects around the globe to sequester ("draw down") excess carbon in the atmosphere, with the goal of recovering atmospheric balance at below 350 ppm. Without that drawdown, we still drive our planet into runaway heating, even if we eliminate all future GHG pollution. We need both measures to recover a stable climate system. One or the other will not suffice on its own.

So, our legal strategy must develop around that dual mandate. Let us first address decarbonization. Decarbonization means that we basically have to create a fossil-free society, which requires system change rather than just change around the edges. We have to convert our energy and transportation systems to one hundred percent clean renewables. Has such ambition of rapid technology development and deployment ever happened before? Of course it has. Witness the age of computers and cell phones, and the landing of a spacecraft on the moon and Mars. Here in Colorado you have some of the best minds at work on alternative energy.[27] In the end, renewable energy is so much more efficient, low-cost, safe, healthy, and cheap that it will gain rapid momentum on its own. You can look at this situation as akin to pushing a boulder up a mountain—it is going to move a lot faster if we all get behind it, and once it reaches the top of that mountain, it will accelerate on its own.

But time has almost run out for us to reach the top of the mountain. When Dr. James Hansen was the nation's chief climate scientist at NASA, he assembled a team of scientists from around the world to develop a prescription for the planet that described how fast we should reduce carbon dioxide in order to get below 350 ppm and avoid tipping points. The team concluded that we have to slash global carbon dioxide emissions by seven percent annually if we started in 2015. Here's the rub: we would have had much less of a requirement had we started much earlier. If the world had started reducing emissions in 2005, the required global annual reduction would have been only 3.5 percent annually. But instead, emissions continued to soar. So now we are at the end of the plank, and the next three years are the most important years for the planet and for our collective future. If we wait until 2020, the amount of necessary global annual emissions reductions escalates exponentially to fifteen percent per year. At some point the task becomes so large that it is not conceivably feasible.

Top climate scientists across the world, led by former UN Climate Chief Christiana Figueres, delivered a proclamation to the world in June, 2017, declaring that we have at most three years left to push the curve of

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[27] A leading institute driving the energy transition is The Rocky Mountain Institute. *See* ROCKY MOUNTAIN INST., https://rmi.org.

carbon emissions irrevocably downward.[28] We do not have to fully decarbonize by 2020, but we can no longer increase our carbon emissions, and we must start rapid deep reductions by 2020.

This is a matter of carbon math. We cannot just go to Nature and ask for an easier task or more time in which to complete it. Nature doesn't work that way. To borrow Winston Churchill's famous statement, "It is not enough that we do our best; sometimes we must do what is required." Here is an analogy. Imagine a rescue team trying to rescue someone 150 feet down in a canyon. Is a rope that reaches only 100 feet going to suffice? Hardly. A rescue rope that is too short is no good at all. It doesn't matter how hard those rescuers try to reach that person, or how hard we try to stem global heating. We must meet Nature on its own terms. Therefore, we must align our legal system with the carbon math that drives our climate system.

Leading climate thinkers and energy analysts point out that this energy transformation is necessary, desirable, and achievable. But most political leaders are doing next to nothing to promote this massive transformation. The reason is clear. The captains of the fossil fuel industry continue to manipulate American politics on the local, state, and national levels for their own personal financial gain—and with virtually no moral regard for the death and destruction that will devastate communities across the planet if their corporations continue to produce fossil fuels. So now we must step outside of politics and talk about law.

IV.

For the last several decades, the field of environmental law has focused on statutes that Congress passed in the 1970s, like the Clean Air Act, the National Environmental Policy Act, and many others. But existing statutory approaches will not work in time. There is currently no statutory approach that offers a remedy scaled to this crisis. Recognizing this, the organization Our Children's Trust ("OCT") launched a global campaign of Atmosphere Trust Litigation on behalf of youth in 2011. This campaign takes a fundamental rights approach by applying the public trust doctrine to climate crisis. OCT brought administrative petitions and/or lawsuits in every state in this country and in some countries throughout the world, and more are being filed. Every petition and lawsuit asserts the rights of youth as beneficiaries of the public trust to protect and restore the irreplaceable atmosphere that sustains all life

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[28] Christiana Figueres et al., *Three Years to Safeguard Our Climate*, NATURE (June 28, 2017), https://www.nature.com/news/three-years-to-safeguard-our-climate-1.22201.

on Earth. These legal actions are brought against government agencies as public trustees of the atmosphere, asserting that defendant officials have the duty to prevent the substantial impairment of the climate system. The youth seek enforceable plans to reduce emissions according to the best available science.

Many of the early cases were dismissed on procedural grounds such as displacement and political question doctrines. These judges basically said, "Don't look to us for relief; this is a matter for Congress or state legislatures." Well, of course it is. That is the point—lawmakers have utterly failed to address this crisis adequately or even at all, so the courts must intervene and protect the fundamental rights of youth citizens before it is simply too late. Yale law professor Douglas Kysar co-authored an article analyzing these dismissed cases along with unsuccessful early climate nuisance cases, describing such outcomes as "judicial nihilism [in which courts are] denying their own expansive power." In his words, these judges "cowered before catastrophe."[29]

But the tide started turning as the seas began to rise, and the science became more glaring, and as climate chaos began taking its horrifying toll across the globe. Youth plaintiffs gained crucial victories. Judges in these cases recognized that courts do have a Constitutional role, as the third branch in our constitutional system of government, to enforce fundamental rights. Professor Kysar summarizes these winning cases as the "jurisdictional struggles that define the boundary between legal order and catastrophic overturning."[30]

One such lawsuit is pending in Washington state, brought by young plaintiffs against the Washington Department of Ecology for failing to take sufficient action to reduce carbon dioxide emissions.[31] In that case, Judge Hollis Hill came right out and said that global warming threatens the survival of these youth. She declared: "[C]urrent rates of reduction mandated by Washington law cannot achieve the GHG reductions necessary to . . . ensure the survival of an environment in which Petitioners can grow to adulthood safely." Judge Hill also found that the air and atmosphere is held in public trust and that the youth hold a constitutional right to climate protection. Plaintiffs in Massachusetts also won a historic victory in which the state Supreme Court found that the state agency is not doing enough to reduce carbon dioxide emissions. In Colorado, young plaintiffs brought a petition against the Oil and Gas Commission challenging the agency's fracking rule. They argued that the

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[29] R. Henry Weaver & Douglas A. Kysar, *Courting Disaster: Climate Change and the Adjudication of Catastrophe*, 93 NOTRE DAME L. REV. 295, 329 (2017).

[30] *Id.* at 330.

[31] Foster v. Washington State Dept. of Ecology, 362 P.3d 959 (Wash. 2015).

Commission was failing to protect public health and the environment as required by Colorado statutory law. While the trial judge upheld the agency's denial, saying that there were no grounds for this petition, more recently, the youth gained a substantial victory in the Colorado Court of Appeals, which reversed the trial court judge.[32] The Commission has filed an appeal before the Colorado Supreme Court.[33] This case is tremendously important to the future of this state, which is being fracked over by industry. In other countries, such as the Netherlands and Pakistan, citizens have gained significant rulings based on constitutional rights.

But the case widely called "the biggest case on the planet" sits in Eugene, Oregon. Filed in 2015 on behalf of twenty-one youth across the country, it challenges the U.S. government for acting with "deliberate indifference to the peril that they knowingly created" over decades of fossil fuel policy. The *Juliana v. United States*[34] case named as defendants every federal agency having a direct role in fossil fuel policy. Soon after the suit was filed, the entire fossil fuel industry intervened through trade associations like the American Petroleum Institute. This lawsuit is not a micro challenge. Instead, the suit challenges the entire fossil fuel policy of the United States of America—extraction and development and permitting and export and subsidies—the whole system. Moreover, the suit asserts constitutional rights rather than statutory rights, drawing upon the federal public trust doctrine as well as the Due Process Clause of the U.S. Constitution. The plaintiffs request the court to order an enforceable plan for decarbonization and drawdown.

The court held two hearings on the matter, both of which drew hundreds of children who packed the courtroom and overflow rooms. Two days after the 2016 election, the court issued a fifty-two-page opinion holding the children have a constitutional right to a stable climate system. In her ruling, the Judge Ann Aiken said, "I have no doubt that the right to a climate system capable of sustaining human life is fundamental to a free and ordered society." Recognizing that this is "no ordinary lawsuit," Judge Aiken found the existence of a constitutional Due Process right that constitutionalized the public trust and said that the trust arises from attributes of sovereignty and, therefore,

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32 Martinez v. Colo. Oil & Gas Comm'n, 2017 COA 37, *cert. granted* 2018 WL 582105 (Colo. Jan 29, 2018) (No. 17SC297).

33 The petition for writ of certiorari was granted by the Colorado Supreme Court on January 29, 2018. *See id.*

34 217 F. Supp. 3d 1224, 1250 (D. Or. 2016) (order denying motions to dismiss).

cannot be legislated away. Judge Aiken also found separate due process rights to a stable climate system.

When President Trump took office in January, 2017, he became the lead defendant in this historic case. Discovery began against both the government defendants and the fossil fuel industry intervener-defendants. The expected trial is called the "trial of the millennium" because it will represent the first time that U.S. fossil fuel policy meets climate science in court. It is easy for industry to spew climate misinformation outside of court. But courts are rigorous fact-findings bodies with evidentiary protections against spurious assertions.

In June, after the discovery process was well underway and the industry defendants faced requests for admissions, the industry made a stunning move to withdraw *en masse* from the case. The Trump Administration lawyers filed an unsuccessful motion to appeal Judge Aiken's ruling, and then filed an extraordinary petition for a writ of mandamus in the Ninth Circuit, in an attempt to force a premature appeal. That motion was denied [eds. — after the keynote address but prior to publication], and the case will go to trial.[35] At the same time, more cases are being filed as fast as possible in other states in this country as well as in other countries across the world. The children and their supporters hope that the recent string of victories will start a row of green dominoes falling in courts around the globe. The goal is to gain judicially enforceable climate recovery plans in time to thwart looming tipping points that threaten to push the planet into a state of runaway heating. Dr. James Hansen says of this massive litigation campaign: "Judicial relief may be the best last, the last, and, at this late stage, the only real change to preserve a habitable planet for young people and future generations."

So, to summarize this atmospheric trust litigation campaign, it seeks to compel decarbonization at a rate established by the best available science. There is another important legal front consisting of administrative actions to block fossil fuel transport through the Pacific Northwest. The region has been targeted by the fossil fuel industry as a gateway to export fossil fuels extracted from the interior of the United States—in particular, coal from the Powder River Basin and fracked oil from the Bakken fields—to Asian markets. Over a dozen export projects

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35 The United States Court of Appeals for the Ninth Circuit denied the motion on March 7, 2018. *See* Chris Mooney, *The Trump Administration Just Failed to Stop a Climate Lawsuit Brought by 21 Kids*, WASHINGTON POST (Mar. 7, 2018), https://www.washingtonpost.com/news/energy-environment/wp/2018/03/07/the-trump-administration-just-failed-to-stop-a-climate-lawsuit-brought-by-21-kids/?utm_term=.ac5db1f50a81. The trial is scheduled to begin October 29, 2018.

have been proposed for the coastlines of Oregon and Washington. These proposals have generated enormous resistance summed up by the "None Shall Pass" movement that seeks to hold a "thin green line" against this fossil fuel transport throughout the Pacific Northwest. The public resistance has thus far been so strong that no proposal has gained all of the approvals necessary to move forward. One commentator refers to the Pacific Northwest as the region where fossil fuel projects "go to die."[36]

The swell of regional opposition includes significant tribal leadership. Tribes have limited jurisdiction extending only across their reservations, but they have treaty fishing rights in every major waterway, and those are the oldest property rights in the region. Tribes now assert such rights in multiple permit proceedings, and these legal grounds have been pivotal in permit denials for fossil fuel export projects on the local, state, and federal level. Due to a rising solidarity that draws from both the grassroots and tribal leadership in the Pacific Northwest, the very region identified by industry as a gateway for global fossil fuel markets has become, instead, a chokehold for transport. The Pacific Northwest's "Thin Green Line" may well be a crucial last line of defense for the planet's climate system.

V.

Always keeping in mind the macro picture of what the planet requires to regain climate balance, the other side of the climate scenario is drawdown. Much of the existing "legacy" carbon dioxide from past emissions must be scrubbed from the atmosphere to reduce the levels to well below 350 parts per million, the uppermost safe limit according to scientists. We must draw down at least one hundred gigatons (possibly more) of atmospheric carbon, or we still face the prospect of runaway planetary heating. In other words, full decarbonization is not enough at this point because the atmosphere is already polluted to an extent causing major climate disruption—evident in the firestorms, droughts, floods, super-charged storms, and rising seas across the globe.

The good news is that this drawdown project does not have the same ticking time clock as the decarbonization project—it can be more long-term over several decades, but the investment must begin now. Nature has its own processes to scrub out carbon and sequester it in the soil, for potentially one hundred gigatons worth. Plants naturally absorb

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[36] Marissa Luck, *Oil Refinery Faces Host of Hurdles Before Coming to Longview*, THE DAILY NEWS (May 29, 2015), http://tdn.com/news/oil-refinery-faces-host-of-hurdles-before-coming-to-longview/article_9ae19125-a7d4-5438-b259-94daf8ee7a68.html.

carbon dioxide, so climate scientists advocate for projects around the world to spur reforestation, mangrove and wetland restoration, regenerative agriculture (using different methods to grow crops), and regenerative grazing. Deploying these strategies will not only draw down carbon from the atmosphere, but will also restore natural ecosystems, boost food supplies, and create local jobs. State legislators and local politicians should love this concept: bring jobs to the local community by restoring Earth's natural ability to draw down carbon dioxide.

But this massive carbon cleanup will not just happen on its own. A team must design and carry out atmospheric recovery. Scientists must convene and create an atmospheric recovery plan that both establishes the parameters of drawdown projects and identifies high-potential locales in which to carry them out. Implementing this recovery plan through projects around the globe will require massive funding (perhaps in the trillions of dollars). So, the other part of the legal strategy to recover the climate system is geared towards funding this recovery plan through suits brought against the fossil fuel industry. Atmospheric Recovery Litigation would seek natural resource damages that can fund atmospheric restoration through soil-based drawdown.[37]

Counties, states, tribes, and national governments stand positioned as sovereign co-trustees of the atmosphere to bring natural resource damage actions against the big fossil fuel corporations—called the "carbon majors"—to fund drawdown. The logic of this legal strategy is no more complicated than the reasoning behind any cleanup of an oil spill in the ocean. When a marine spill occurs, there is no question that the companies responsible for the pollution must pay for the damage. Governments are obligated to sue the responsible corporations to collect money for cleanup and restoration. We saw that happen in the wake of the catastrophic Deep Water Horizon spill, which released nearly five million barrels of oil into the Gulf of Mexico. These lawsuits are normal business for government attorneys, and they are all premised on the public trust principle that was found by the *Juliana* court to have constitutional force. Sovereign trustees must use the money recovered (called "natural resource damages") to pay for restoration of the coastline, waters, fisheries, and bird life. The same public trust principle

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[37] For a concept paper describing this approach, see MARY CHRISTINA WOOD, A META-STRATEGY FOR ATMOSPHERIC RECOVERY: FILING SUIT AGAINST THE CARBON MAJORS, FORCING THE MANAGED DECLINE OF FOSSIL FUELS, AND FUNDING CLIMATE RESTORATION THROUGH SOIL-BASED CARBON SEQUESTRATION (2017), https://law.uoregon.edu/images/uploads/entries/Atmospheric_Recovery_Concept_Paper_FINAL11.10.17.pdf.

should make the fossil fuel industry liable—in the trillions—for funding an atmospheric cleanup and recovery plan.[38]

In the past, the federal agencies have taken the lead on suing corporations for cleanup of major oil spills, but the current administration is abrogating its trust duty of atmospheric cleanup. Nevertheless, states, tribes, counties, and foreign governments are positioned to bring suits as sovereign co-trustees of the common atmosphere. Suits can be brought in the United States, or in other nations, or both.

A key foundation of this legal approach was put into place in 2014, when the Carbon Accountability Institute released a groundbreaking study that attributed percentages of historic CO2 emissions to individual corporations. It found that just ninety companies were responsible for producing fossil fuels that accounted for two-thirds of the greenhouse gas emissions generated since the beginning of the Industrial Age. As the lead researcher and author Rick Heede put it, "There are thousands of oil, gas and coal producers in the world. But the decision makers, the CEOs, . . . could all fit on a Greyhound bus or two."[39]

The eyes of the world are now fixed on these fossil fuel companies to pay for the damage they have caused. California counties and the cities of San Francisco and Oakland have sued fossil fuel companies to pay for infrastructure repair and sea walls necessitated by damage resulting from rising sea levels. The logic of these lawsuits is simple: Fossil fuel industries made trillions polluting our atmosphere, while endangering coastal communities vulnerable to sea level rise. Now they should pay for the damages from flooding and erosion, and pay the cost of new infrastructure.

These suits are paving the way for natural resource damage lawsuits against the same corporations. But there is a big problem. Until the climate system is fixed, the devastation will only continue to worsen—exponentially—and more cities will likely sue to fund infrastructure and recover for damages. Think of Houston, Miami, and Boston, . . . Mumbai, Venice, Tokyo, Buenos Aires, Cape Town, . . . Puerto Rico,

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[38] While oil in marine waters is covered by statutory claims arising under the Oil Pollution Act, there is no federal statute yet expressly addressing carbon pollution in the atmosphere. A litigation approach invoking the public trust principle is set forth in Mary Christina Wood & Dan Galpern, *Atmospheric Recovery Litigation: Making the Fossil Fuel Industry Pay to Restore a Viable Climate System*, 45 ENVTL. L. 259 (2015).

[39] Suzanne Goldenberg, *Just 90 Companies Caused Two-Thirds of Man-Made Global Warming Emissions*, GUARDIAN (Nov. 20, 2013), https://www.theguardian.com environment/2013/nov/20/90-companies-man-made-global-warming-emissions-climate-change.

and entire Pacific islands drowned by rising seas. With climate damages mounting, there is no end to the potential liability of the fossil fuel industry. But there is a limit to their financial coffers. Quite simply, there is not enough money in the world to pay for all of the damage unleashed on our planet by this industry. Categories of wholesale damage include (1) loss of life and property, (2) economic losses, (3) relocation expenses, (4) infrastructure damage, and (5) secondary harm to species, forests, and waters. The total damage across these categories is incalculable, and recovering money for any of them will not address the underlying problem fueling disasters and upheavals around the globe. Making polluters pay for just the impacts of climate change—whether from firestorms, floods, heat waves, droughts, hurricane damage, or sea level rise—does nothing to clean up our atmosphere and cool the planet. Building a sea wall around San Francisco will not slow the rising seas—and it may not even save the city.

The growing global catastrophe will not be solved until we stabilize the atmosphere. Government attorneys should launch litigation against the carbon majors seeking disgorgement of their profits to fund a massive soil-based carbon removal plan. This Atmospheric Recovery Litigation must take priority over all other litigation seeking climate damages. With firestorms devouring communities in California and much of Puerto Rico still without power from Hurricane Maria, one thing is clear: We have no time to spare, and little left to lose.

VI.

Let me cap this evening's remarks. We face an immediate need to mount a massive, urgent defense effort well beyond even the scale of WWII to secure the systems of life on Earth for all generations to come. It is, as David Orr says, "all hands on deck time."[40] Confronted with this climate reality, we all face three choices. One, we can slip into denial, or just as bad, distraction, clinging to our business as usual lifestyle, living today as we did yesterday, with no particular regard to our climate emergency. Or two, we might find too much terror in our reality and succumb to paralysis. That too leads to inaction. Or three, we can confront this crisis with courage, determination, and focus, finding our role in it and using our talents and resources to make our singular contribution.

Sometimes it feels like the whole world rests on our shoulders. But that is not a productive outlook. Accept the fact that you can't save the

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[40] *See* THE 11TH HOUR (Warner Bros. 2007).

world by yourself—but recognize too that the world can't be saved without you.

People are rising in response to this crisis all over the world and creating power from their solidarity. Whatever your position is in life, this is *the time* to do something, do anything; just don't do nothing. Teachers, bring global warming to the classroom. Parents, bring it to the PTA. Lawyers, bring climate crisis to court. Business-people, bring it to the bank.

But everyone, please keep your focus. It is a focus blurred with tears of grief for the priceless nature that slips away before our very eyes, as we mourn for those illimitable mountains that weep their last glaciers into the sea. But it is a focus clarified and emboldened by our purpose and our knowledge—the profoundly spiritual knowledge—that we are the *only* generation on Earth that can act in time. We are but one link in a long line of Humanity on this planet. Whether we are seventeen years old, or ninety-seven years old, somehow fate has delivered all of us into this pivotal moment on Earth. We did not live one hundred years ago, before society could have even imagined this crisis, and we will not be here one hundred years from now when it will be a century too late to act. We can only claim our moment.

Let us leave this evening knowing that we hold, together, not the power of life, but the trust of life. Let us embrace and carry out that sacred trust covenant that connects all generations. As Terry Tempest Williams implores, "*The eyes of the future are looking back at us and they are praying for us to see beyond our own time.*"[41]

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[41] TERRY TEMPEST WILLIAMS, REFUGE: AN UNNATURAL HISTORY OF FAMILY AND PLACE 27 (1992) (emphasis added).