



Judging in a Changed Climate

Spurred by government actions and court decisions—and accompanied by a drumbeat of growing impacts—a rule of law of climate change is emerging. ELI's Climate Judiciary Project is preparing the bench to understand the science and ensure justice in the new legal environment



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CLIMATE CHANGE is driving a groundswell of litigation in a very broad range of legal categories. These lawsuits are critical not just for the parties in the cases but for the many social impacts that will reach far beyond the specifics of a given controversy. Many of these matters gain urgency in view of the lag in policy responses to the challenges posed by a changing natural environment. Plaintiffs in this wave are asking not so much for novel uses of the law as for applying existing law and precedent to a changed factual context.

When there are such significant shifts in litigation trends, judges typically prepare for the challenge by identifying changes in management and resources they may need—and by seeking education on new issues. Because of the profound implications of climate change and efforts to stem it, and the nature of the science that explains it, today's judges are seeking just this kind of support. Through ELI's Climate Judiciary Project, we are meeting the need for specialized education on the science and law of this threat.

Climate change is already affecting every aspect of life. It runs through our environment, society, and economy. Right now, species vanish from the Earth faster as habitats decline, deeper droughts and more severe heat waves afflict communities, sea-level rise places infrastructure and buildings at risk and financially burdens governments, owners, and insurers—all because the oceans and troposphere have grown warmer.

Yet the dynamics of climate change are so difficult to grasp, the impacts so vast and trends so slow, that this severe problem can seem far removed and abstract to most people. Atmospheric carbon increases by only a few parts per million each year. In the same time span, sea levels rise by a few millimeters. The global average temperature has risen but two degrees Fahrenheit in a century and a half. These changes are scientifically significant but virtually undetectable to the average person, making it particularly hard for society to respond with recognition, much less resolve.

The main drivers of these changes, fossil fuels, are integral to our economic system and have also been responsible for unprecedented prosperity. How to disentangle this commodity from global markets and from countries that rely on oil and gas revenues? What to do about oil and gas infrastructure around the world? What about the jobs involved? How do you begin to tackle such a massive challenge? In ad-

dition to clashing political views about the proper size and structure of government, and enormous investment by fossil fuel interests to obscure the true situation, these factors have greatly impeded society's response to climate change despite the scientific understanding coalescing year by year.

Time is precisely what we do not have. With rising trends in sustained droughts, heavier downpours, strong hurricanes, frequent large wildfires, more extreme-heat events, and growing sea-level rise, climate change is already assaulting humanity and Earth's natural systems—and will only accelerate in its impacts.

All of this is against a backdrop of historic injustice. Benefits of our industrial economy have often disproportionately accrued to the privileged while environmental burdens devolved in outsize portions to the disadvantaged. In a time of social and political transition, historic power structures will tend to be reinforced. Thus, the climate problem poses yet another injustice: impacts are already disproportionately felt by people of color and low-income communities who are least responsible for their creation in the United States and around the world.

While response has been painfully slow, it has already influenced our legal system at every level of government, and across every branch. Sweeping and ambitious attempts—the Waxman-Markey legislation of the 2000s and the *Juliana* litigation—have failed to gain the resolution their proponents sought. At the same time, a steady flow of less-conspicuous actions in policymaking and in quotidian federal decisionmaking were mainstreaming climate change action. These included legislative and executive actions like the Infrastructure Investment and Jobs Act passed last year and President Biden's Executive Order on Tackling the Climate Crisis at Home and Abroad. Climate is now a constant in federal environmental and energy law decisionmaking, in environmental assessments, Endangered Species Act listing decisions, and permitting of gas pipelines.

These federal actions are eclipsed by legal developments at the state and local level, where many governments have adopted greenhouse gas reduction targets, developed climate action and adaptation plans, and are investing in renewable energy. Both New York and California, for example, committed to reducing greenhouse gas emissions to nearly zero by 2050, and Hawaii passed a law committing to achieving 100 percent clean energy by 2045. In recent years, the pace of legal activity has intensified and diversified as pressure grew from civil soci-

ety, (mostly) progressive politicians, and the private sector. Despite political swings, the trend over the last few decades is clear: climate-responsive laws and policies have accumulated over time. Accompanying the steady drumbeat of growing climate impacts, a rule of law of climate change is emerging.

This new body of law and policy related to climate change is developing in response to the challenges—as law has always evolved in response to new circumstances. But it is taking place in the absence of a comprehensive legal and policy strategy. The law and policy transition is accelerating, but scientific evidence and impacts themselves are outpacing this progress. In addition, there remain powerful countercurrents against an emerging consensus. In particular, some in the fossil-fuel industry remain resistant to adjusting to the new realities, with, for example, counter suits over their role in creating a climate crisis.

THE courts have a critical role to play in this transformation of society, our economy, and even our governance system. Rights and responsibilities will be rewritten. Duties of care and reasonableness redefined. Government roles reshaped and reallocated. All these are matters to be processed through the courts. Litigation has the benefit not only of addressing the specific controversy between the parties to the case but of uncovering previously unknown efforts to defraud the public, raising the public profile of the issues, and providing an incentive for adaptation efforts as the standard for reasonable behavior changes.

As defined by the Intergovernmental Panel on Climate Change's most recent report, *cli-*

mate litigation is an attempt to control, order, or influence the behavior of others in relation to climate governance. Some define the category as “litigation motivated by a concern about climate change or climate change policy” and others, such as the Sabin Center for Climate Change Litigation, more broadly as “cases that raise material issues of law or fact relating to climate change mitigation, adaptation, or the science of climate change.” Regardless of where you draw the boundary around these cases, more and more of them are being filed.

As of April 2022, the Sabin Center Database documents over 1,400 climate cases in the United States.

The rate of filings is increasing—82 cases were filed in 2017, and the number almost doubled by 2018, with 159 cases filed that year. Total cases nearly doubled between 2017 and 2020, from around 650 to 1,200. The current trajectory of filings, coupled with continual refinement of climate science that yields more robust results, suggests this trend may well accelerate.

Climate litigation involves parties from all levels of government—federal, state, and local—non-governmental organizations, industry and industry associations, and individuals. Plaintiffs pursue an expanding range of legal theories, extending to a wide variety of constitutional, statutory, administrative, and common law claims, at both the federal and state levels. The focus of these claims includes issues related to adaptation, mitigation, and financial risk, with overlap among the issues central to some cases.

While more and more cases are being filed, it seems the courts have treated core questions about climate change response as a hot potato. While *Massachusetts v. EPA* gave plaintiff states standing and found that the agency was required to regulate carbon emissions from motor vehicles, and the resulting endangerment finding was also upheld, subsequent efforts to carry out this mandate have been hung up. In *Connecticut v. AEP*, the Supreme Court found that most federal common law claims are displaced by the Clean Air Act, effectively pushing such claims to state courts. In *Native Village of Kivalina v. Exxon-Mobil*, the Court held that money damages are also displaced to state courts. When youth plaintiffs in *Juliana* took a different tack and argued for a constitutional right to a stable environment, the Ninth Circuit demurred, saying that the courts are not a proper venue for addressing climate change. The Supreme Court is currently reconsidering the question of EPA's authority to regulate carbon emissions in *West Virginia v. EPA*. In the meantime, many of the state cases seeking to hold parties accountable for climate change have been hung up at the procedural stage.

While small government ideology and continued resistance from fossil-fuel producers played important roles, these decisions reflect primarily that as a society we have not had the requisite reckoning about how we will allocate responsibility for climate change. That reckoning is coming, and the courts will play a critical part in shaping the future governance of our changed environment and society.

Crucial to humanity's response is scientific understanding of the causes and effects of climate change. This understanding, built squarely on long-understood basic science, has emerged from the careful collective efforts of hosts of experts. Leading scien-

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tists such as Inez Fung have dedicated decades to understanding the dynamics of Earth's atmosphere. Christopher Field of Stanford University and Katharine Mach of the University of Miami have dedicated their careers to understanding the relationships between changes in the climate system and impacts felt on the ground. Benjamin Strauss, CEO of Climate Central, has led research describing the status and trends of sea-level rise and its economic and social implications. And still others, such as Jalonne White-Newsome, document the relationships between climate change and health equity. These findings and many more will be essential to enabling judges to apply laws to the new realities.

Judges will need to understand the science at issue in cases, but they also require a fundamental understanding of what is in store for us from climate change, and why it is happening. To fulfill their role, judges must be able to respond in an informed way to these new challenges. The law, policy, and justice challenges posed by climate change do not require new kinds of law, however. Rather, what is needed here is the clear-eyed application of existing law and precedent with understanding of how completely the entire factual landscape has changed.

At the Environmental Law Institute, we strive to find the best ways to use laws and policies to address society's environmental priorities. The Institute was established in 1969 to shepherd the development of the new, emerging area of law related to the natural environment. We document and disseminate law and policy trends, and we work with partners to use law and policy to address their problems. For these efforts, we seek the best, most reliable information about scientific facts and effective legal approaches. One thread that runs throughout is our specialized education to support stronger governance.

Prominent is our long-standing program educating judges, which sprang from a request for help in this regard from Judge James L. Oates in his speech accepting the 1989 ELI Award. Starting a year later, judges have come to ELI seeking analysis of foundational and emerging topics related to environmental, public health, and natural resource rights and responsibilities in their jurisdictions. In 32 years, the program has enabled thousands of jurists in 28 countries—including federal and state judges in the United States—to fully and effectively play their role in addressing society's challenges.

ELI is not alone in using education to advance environmental solutions. Climate Central is another such organization; it researches and reports on the science

and impacts of climate change. It too targets influential audiences—such as television meteorologists—as well as the general public.

In 2018, former president of Climate Central Paul Hanle was seeking a new focus for his climate science education efforts. On the climate policy front at the time, the Trump administration was moving to block and undo established policies and programs at every level, pushing much of the action to the courts. In his scoping to identify opportunities to advance climate education, he met with former BP Energy Vice President David Van Hoogstraten, a long-time ELI friend, who suggested the power that might arise from bringing Paul's climate science education to ELI's judicial education program.

Recognizing the potential of such a program, but also the challenges associated with introducing a new and potentially contentious topic to the judicial education authorities, who very carefully protect judges from controversy and limit educational programs to only those considered critical to playing their role on the bench, ELI joined with Paul to test if a project on climate science for judges might be possible.

In early 2019, Sandra Thiam returned to ELI after five years abroad, to join Paul's audacious effort to find out if judges saw a need for education on climate science and to meet that need. Sandy had a track record of educating judges in ELI's international programs over many years and was excited for the chance to apply her experience to addressing one of the most pressing issues of our time.

Judges are, by definition, generalists. Very few have a background in science. And the science relevant to much climate litigation has only become clear in the last several years, long after any sitting judges completed their education. Lawyers often joke that they chose to pursue law in order to avoid science and math. The joke is not so funny when it affects the outcomes of cases.

The need for judges to understand elements of science is not new. In his introduction to the third edition of the *Reference Manual on Scientific Evidence*, Supreme Court Justice Stephen Breyer described how scientific and technical issues arise in litigation in our modern society. The manual provides information to judges on common scientific issues. Educational programs on key aspects of science also occur routinely. Common topics include implicit bias, neuroscience, forensics, and technology. These programs are convened by such institutions as the Federal Judicial Center,

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governed by a body chaired by the chief justice of the United States, as well as independent organizations such as the National Judicial College and the National Center for State Courts.

The project that we envisioned would be true to ELI's core principles of being apolitical and serving as a technical informational resource without advocating for any policy or legal outcome. And it would further adhere closely to the core of the scientific endeavor—to explain the objective evidence and scientific understanding that climate change is real, human-caused, and has far-reaching and serious consequences for society and the planet. The content of the project would be mainstream science as reflected in assessments and consensus reports of leading scientific institutions such as the National Academy of Sciences, National Climate Assessment, and IPCC. It would focus particularly on the science that judges needed to know for the climate cases that were coming. And to do so, we would engage with the leading experts on these topics to shape their knowledge for presentation to the judiciary.

WHEN we began to introduce the idea of education on climate science—at a judicial education conference on environmental law in Washington in 2018—several judges offered strong encouragement. One participant, a state chief justice, observed that there was a real need for this kind of program—and no one else was doing it. Consultations with leaders in judicial education helped us to understand current priorities. We were

soon invited to submit a proposal for cosponsorship with the Federal Judicial Center of a pilot series of climate science seminars for federal judges to test if they thought it was needed. Leading universities around the country stepped up to host the pilot series, each for judges in the federal circuits in their region. We enlisted the aid of the American Association for the Advancement of Science to help us recruit leading scientists and evaluate if what they were presenting

matched what judges expected. When we began the pilots, we had many questions about whether judges would see our content as a priority and how to meet their needs. So, we designed the pilots to encourage discussion and feedback from the judges about content and approach.

A long-time partner, the Sabin Center for Climate

Change Law at Columbia University, hosted our inaugural program in June 2019 for judges from across the 1st, 2nd, and 3rd federal circuits. They came from western New York and San Juan, Puerto Rico, Boston, and the greater New York area. At our invitation, two New York state judges joined the group.

Radley Horton of the Lamont-Doherty Earth Observatory at Columbia, who had been a convening author of the Third National Climate Assessment, opened the program with lessons on the well-established science explaining why the climate is warming, the body of evidence that confirms it, and some impacts associated with the changing climate. Leading climate law expert and Director of the Sabin Center Michael Gerrard gave the first of many presentations he has contributed to our project, with an overview of trends in climate litigation, the history of litigation over EPA's mandate to regulate greenhouse gases, the relatively routine environmental law cases, and the high-profile cases brought by cities and states against the oil companies.

While we learned more about sensitivities and interests at each of the five sessions, the enthusiasm for this content amongst the judges was unmistakable from the first. Our participants have consistently expressed the importance of being aware of such a critical new context in order to be able to play their role as judges. Overall, the message from participants has been clear: judges need and want the climate science education that we were delivering, and they are increasingly giving it priority in their continuing education.

The success of the pilots and indeed the project overall has relied on the contributions of dedicated and skilled experts to our programs and materials. Over the course of the pilot series, we worked with leading scientists from nine different institutions to present their expertise for judges. Two other climate litigation experts, in addition to Professor Gerrard, Professors Anne Carlson of UCLA and Dan Farber of Berkeley, gave legal talks during the sessions.

Altogether, in the pilot year, we delivered five half-day sessions to approximately 80 federal and state judges in New York, Washington, Berkeley, Chicago, and Atlanta. In addition to these programs, we were invited to present several sessions at scheduled gatherings of important groups of judges. Most noteworthy, perhaps, was the annual mid-winter meeting of the Ninth Federal Circuit a few days after it handed down the momentous decision to dismiss *Juliana*, where we delivered the first plenary session to approximately 100 judges including the presiding judges in that case.

Our final session took place in Atlanta on the fateful day of March 13, 2020, and was attended by judges from the 4th and 5th federal circuits as well as from North Carolina. Professor Gerrard joined scientists

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Karen Levy, Kim Cobb, and Marshall Shephard for that session. In spite of the world closing down over Covid, our program went ahead as planned with good attendance, a testament to the importance of this issue to judges.

By the time the pandemic spread, we had presented our program to judges from almost all of the federal circuits and four states. It was clear that there was a demand for the content. In response, we launched the Climate Judiciary Project.

THE Climate Judiciary Project exists to serve the needs of the bench and relies on the contributions of climate scientists and legal scholars. Since its inauguration, we have attracted the support of leading federal and state judges, who connect the project with opportunities to reach more judges and to develop educational materials to meet their needs. We have expanded our partnerships to include the National Judicial College and the National Center for State Courts, as well as the Conference of Chief Justices. Through these groups, we have a steady stream of invitations to give presentations of various lengths, both virtually and in person, in different parts of the country.

One particularly exciting program is Judicial Leaders in Climate Science, a partnership with the National Judicial College. It is a year-long program with a cohort of 23 state judges that combines climate science and leadership. Coming from a very wide range of backgrounds from states and territories around the country, the group responded with great interest to the leadership and science curriculum we presented in March. Many of the participants told us how much they appreciated the information about how climate scientists validate climate facts. Even more jurists appreciated connecting with science presenter Benjamin Santer on a personal level, and understanding the values and rigorous scientific way that he has responded to challenges to his work. The group left the first session eagerly anticipating future gatherings, most notably a deeper dive into the science in Woods Hole in September.

Engaging directly with the judges on these topics is the most powerful way of sharing climate science information they need to apply the law to these new realities. Written materials will allow us to deepen our impact. After several years of conducting programs, we have polished our content and messaging and are developing a first-of-its kind curriculum designed explicitly to meet judge's needs for understanding climate science that is relevant to litigation.

The work is overseen by a distinguished advisory

committee of 13 leading judges, scientists, and legal scholars—the top-tier of such leaders in the nation. We draw our content from the established literature of the nation's and the world's expert climate scientists, represented by the extensively validated reports of the National Academy of Sciences, the National Climate Assessment, and the Intergovernmental Panel on Climate Change (a program of the United Nations and World Meteorological Organization).

The curriculum includes information on both the specific areas of climate science that are likely to arise in cases and their methodologies—in particular emphasizing how norms of science differ from norms for the legal process and how climate scientists know what they know. Topics range from basic climate science, climate justice, impacts, attribution, and solutions to the uses of this science in administrative law, procedure, tort litigation, and other kinds of cases. Each module is being written by leading experts on the topic.

Whether through dissemination of modules of the curriculum, or by delivery of seminars and webinars, in the next three years we will focus our outreach on states and federal jurisdictions where cases will be heard. And in addition to the scientists who have already become CJP partners, we are also developing a cadre of outstanding senior and mid-career scientists with expertise on the topics critical to upcoming litigation to lead our seminars.

The trajectory of climate impacts will continue to increase for the foreseeable future. Efforts to use the law to stem greenhouse gas emissions and to adapt to these impacts will continue and ensuing controversies will be brought to court. We need judges to help make sense of rights and responsibilities in this new world.

To be able to do that, they need to become familiar with the chains of causation and trends of impacts that scientists are continuing to refine and verify. Our children are faced with the challenges of our legacy of climate change. But they have the benefit of receiving a clear scientific understanding of the unequivocal nature of human-caused warming. Vast scientific effort has given us this opportunity. Jurists currently on the bench, along with the rest of society, are just catching up to these realities. We will look to judges to sort out rights and responsibilities in the coming energy transition. The Climate Judiciary Project is supporting the bench in this process, providing the connection to the scientific community that jurists need to respond to our changing environment. **R&P**

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