



ESSAY

The Role of Lawyers in Decarbonizing Society

Michael B. Gerrard*

Greenhouse gas (GHG) emissions are the root cause of anthropogenic climate change. In the United States, about 80% of these emissions come from fossil fuel combustion;¹ globally, the figure is about 72%.² Most of the rest is from agriculture, deforestation, and other land use changes. Thus, the most important task in reducing climate change is transitioning away from fossil fuels.

Congress has passed no laws that require reductions in GHG emissions or that otherwise address the climate problem other than by calling for studies and reports. In the absence of federal legislation, a few state laws call for specific numerical reductions in GHG emissions by specified points in time. The most prominent of these is California's Global Warming Solutions Act of 2006.³ Its reduction goal for 2020 was met in 2016, and the state is now working to meet a more ambitious reduction goal for 2030.⁴ New York adopted the Climate Leadership and Community Protection Act in 2019.⁵ In all, "[a]t least 15 states

* Michael B. Gerrard is Andrew Sabin Professor of Professional Practice and Faculty Director of the Sabin Center for Climate Change Law at Columbia Law School. He is a former partner, and currently Senior Counsel, in the law firm of Arnold & Porter. He formerly chaired the faculty of Columbia University's Earth Institute, and the Section of Environmental, Energy, and Resources Law of the American Bar Association. He has served on the executive committees of the Environmental Law Institute and the American College of Environmental Lawyers.

1. See U.S. ENVTL. PROTECTION AGENCY, EPA 430-R-19-001, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2017, tbl. 2-1 (2019), <https://perma.cc/2V6S-9HZF>. This figure is calculated by adding CO₂ emissions from fossil fuel combustion, CH₄ emissions from natural gas systems, and N₂O emissions from stationary combustion and mobile combustion and comparing this sum to total emissions for 2017, the latest year for which data is available.
2. *Global Emissions*, CTR. FOR CLIMATE & ENERGY SOLS., <https://perma.cc/RR5R-AFQ3> (last accessed Jan. 25, 2020).
3. California Global Warming Solutions Act of 2006, CAL. HEALTH & SAFETY CODE §§ 38500-38599 (West 2020).
4. CAL. AIR RES. BD., Release No. 18-37, CLIMATE POLLUTANTS FALL BELOW 1990 LEVELS FOR FIRST TIME (2018), <https://perma.cc/2KXL-RR7C>.
5. N.Y. ENVTL. CONSERV. LAW § 75-0107 (McKinney 2019).

and Puerto Rico have enacted legislation establishing GHG emissions reduction requirements.⁶ Several other states have taken executive action to commit to reduction goals, but have not set binding statutory targets.⁷ However, most of these laws and executive orders say little about exactly how to achieve these targets. Just as “send a person to the moon” or “build an aircraft carrier” are directions that a President or Congress can issue, with innumerable details still to be figured out, a requirement to reduce GHG emissions by x percentage points by y date is a clear order that does not immediately yield the methodology for getting there.

A number of groups of engineers and scientists have laid out specific pathways for meeting the targets.⁸ They specify ways in which electricity should be generated, vehicles should be fueled, buildings should be heated, and so on. For governments and corporations to deviate from their business as usual and instead follow these pathways, voluntary measures will only take us so far; legal requirements, incentives, and other inducements are needed. This is one key place where lawyers are essential—writing, administering, and enforcing the laws that will drive these actions.

This Essay concerns one current project to turn GHG reduction goals into actual laws that could achieve these goals. The project has four phases: (1) formulating the engineers’ recommendations; (2) identifying the existing laws that would help implement those recommendations, and the new laws that need to be written; (3) drafting the laws; and (4) attempting to persuade lawmakers at the federal, state, and local levels to adopt them. This Essay discusses each phase in turn. As will be shown, we are well into the third phase and starting the fourth, and are in need of volunteer lawyers to help with both.

This Essay also discusses an effort that grew out of the project that is the main subject—an effort to provide pro bono legal representation to communities that want renewable energy facilities but are facing opposition.

6. *Greenhouse Gas Emissions Reduction Targets and Market-based Policies*, NAT’L CONFERENCE OF STATE LEGISLATURES (Dec. 17, 2019), <https://perma.cc/7VMJ-UXMZ>.

7. *Id.*

8. *See, e.g.*, INT’L RENEWABLE ENERGY AGENCY, RENEWABLE ENERGY PROSPECTS: UNITED STATES OF AMERICA (2015); RISKY BUS. PROJECT, FROM RISK TO RETURN: INVESTING IN A CLEAN ENERGY ECONOMY (2016); THE WHITE HOUSE, UNITED STATES MID-CENTURY STRATEGY FOR DEEP DECARBONIZATION (2016); JAMES H. WILLIAMS ET AL., PATHWAYS TO DEEP DECARBONIZATION IN THE UNITED STATES (2014); Leon E. Clarke et al., *Technology and U.S. Emissions Reductions Goals: Results of the EMF 24 Modeling Exercise*, 35 ENERGY J. 9 (2014); Mark Z. Jacobson et al., *100% Clean and Renewable Wind, Water, and Sunlight (WWS) All-Sector Energy Roadmaps for the 50 United States*, 8 ENERGY & ENVTL. SCI. 2093 (2015); Johan Rockström et al., *A Roadmap for Rapid Decarbonization*, SCL, Mar. 2017.

Phase One: Technical Pathways

In 2013 two nongovernmental organizations, the Sustainable Development Solutions Network (based in New York) and the Institute for Sustainable Development and International Relations (based in Paris), in collaboration with the United Nations, launched the Deep Decarbonization Pathways Project, designed to devise ways that the major economies could slash their GHG emissions.⁹ Working with teams in each country, they have published volumes for sixteen countries; together these countries account for about three-fourths of the world's GHG emissions.¹⁰ The U.S. volumes, published in 2014 and 2015, laid out how this country can reduce GHG levels 80% by 2050, while still having a growing population and economy.¹¹

The recommendations were founded on three pillars:

- Doubling the efficiency of energy use;
- Producing electricity while releasing only minimal GHGs in the process; and
- Shifting energy for transportation, heating, cooling, and some industrial uses from liquid fuels (such as gasoline, diesel, and fuel oil) and natural gas to electricity where possible, and to biofuels where not possible.¹²

Electrifying major sectors would require about twice as much electricity, even after accounting for greatly improved energy efficiency.¹³ To do this without releasing GHGs, there would need to be a massive expansion of renewable energy capacity (mainly wind and solar); all the coal plants would be shut down; natural gas-powered plants could run only if they had carbon capture and sequestration; and the existing nuclear fleet would keep running as long as possible.¹⁴

In November 2016, the White House issued a new report, *United States Mid-Century Strategy for Deep Decarbonization*, which updated and expanded upon the 2014 and 2015 reports.¹⁵

Several other technical reports have proposed how the United States could achieve similar GHG reduction goals, and more are issued on a regular basis.

9. INST. FOR SUSTAINABLE DEV. & INT'L RELATIONS & SUSTAINABLE DEV. SOLS. NETWORK, PATHWAYS TO DEEP DECARBONIZATION 3-4 (2015), <https://perma.cc/98BH-586J>.

10. *Id.*

11. JAMES H. WILLIAMS ET AL., PATHWAYS TO DEEP DECARBONIZATION IN THE UNITED STATES (2014), <https://perma.cc/WS32-VEAV> [hereinafter WILLIAMS ET AL., PATHWAYS]; JAMES H. WILLIAMS ET AL., POLICY IMPLICATIONS OF DEEP DECARBONIZATION IN THE UNITED STATES 8-9 (2015), <https://perma.cc/B5JR-WZ8J> [hereinafter WILLIAMS ET AL., POLICY IMPLICATIONS].

12. *See* WILLIAMS ET AL., POLICY IMPLICATIONS, *supra* note 11, 49-50.

13. *See id.* at 50.

14. *See* WILLIAMS ET AL., PATHWAYS, *supra* note 11, 35-36.

15. THE WHITE HOUSE, UNITED STATES MID-CENTURY STRATEGY FOR DEEP DECARBONIZATION (2016), <https://perma.cc/3L7E-9E3C>.

They differ in the details, but all place great reliance on the three pillars described above.

Some economists have argued that putting a price on carbon (either through a carbon tax or a cap-and-trade system) would do the trick—design the pricing program well and set the price high enough, and the invisible hand of the economy will work almost everything out.¹⁶ This ignores several obstacles.¹⁷ For example, local opposition will impede some projects (such as wind farms) that are economically viable. Some emission sources, such as pipeline leakage, are difficult to measure and therefore to tax. Some polluting sectors, such as those that use gases like hydrofluorocarbons, have low price elasticity and thus would not change their behavior due to a change in price. Some sectors have long planning lead times and need certainty in advance about what they must build, such as passenger automobile manufacturing. So a wide variety of legal instruments is needed in addition to pricing.¹⁸

Phase Two: Legal Pathways

In early 2015, Professor John Dernbach of Widener University, Commonwealth Law School in Harrisburg, Pennsylvania and I were attending a conference and we started talking about how we both admired the Deep Decarbonization Pathways Project. As a result of this conversation we decided to team up to address the question of how U.S. law—federal, state, and local, as well as private law—needs to change for these pathways to be feasible. We broke the technical reports' recommendations into about two dozen pieces, each calling for a different kind of legal expertise. We also added several topics that had not been covered in the technical project, mostly because their emissions benefits are difficult to quantify. In all the project came to include thirty-five chapters.

We then set out to find people to write these chapters. We ended up with about sixty chapter authors—mostly law professors and academic fellows but also several lawyers in private practice and in environmental organizations. We also assembled a peer-review panel to read draft chapters and help provide quality control. The Environmental Law Institute (ELI) agreed to publish our book, and in the meantime they would run several of the chapters in their *Environmental Law Reporter*.

We had wanted to complete the book in time to present to an incoming Hillary Clinton administration in January 2017. Neither our writing schedule

16. See, e.g., Martin L. Weitzman, *Can Negotiating a Uniform Carbon Price Help to Internalize the Global Warming Externality?*, 1 J. ASS'N ENVTL. & RESOURCE ECONOMISTS 29, 47 (2014).

17. Noah Smith, *Carbon Taxes Won't Do Enough to Slow Global Warming*, BLOOMBERG OPINION (Sept. 25, 2019, 4:30 AM PDT), <https://perma.cc/8CV2-EJP9>.

18. See, e.g., Jeffrey Sachs, *Getting to a Carbon-Free Economy*, AM. PROSPECT (Dec. 5, 2019), <https://perma.cc/84QV-SS2T>.

nor the 2016 election turned out the way we had hoped. In late 2018, nearing the end of the editorial process and wishing to get our key recommendations out into the world, we issued a summary volume of 146 pages, and ELI made it available for free download. The full book, *Legal Pathways to Deep Decarbonization in the United States*, appeared in April 2019.¹⁹ It is approximately 1,200 pages and has more than 1,000 specific recommendations.

The book has seven major parts; for each of the seven parts, the subject of each chapter is listed below:

1. *Cross-cutting approaches to reducing emissions*—adoption of carbon pricing; incentives to modify behavior, such as increasing consumer uptake of energy efficient appliances and vehicles; funding for technological innovation and expedited approval of new technologies; financing large-scale projects; financing at the grid edge; reducing materials consumption and solid waste; and removing international trade barriers to clean technologies.
2. *Improving energy efficiency*—adoption of tighter standards for the efficiency of appliances, lighting, and other equipment; reducing energy use by and emissions from new buildings, existing buildings, and the industrial sector.
3. *Transportation sector*—reducing emissions from light-duty vehicles and heavy-duty vehicles; transforming transportation demand through land use and other changes; aviation; and shipping.
4. *Decarbonizing the electricity supply*—utility-scale renewables; distributed renewables; transmission, distribution, storage, and grid integration; nuclear energy; hydropower; electricity charges, mandates, and subsidies; and phasing out the use of fossil fuels for generating electricity.
5. *Fuel decarbonization*—growth of bioenergy feedstocks; production and delivery of low-carbon gaseous fuels; production and delivery of bioenergy liquid fuels.
6. *Carbon capture and negative emissions*—carbon capture and sequestration; negative emissions technologies and direct air capture to draw carbon dioxide from the atmosphere; agriculture; and forestry.
7. *Non-carbon dioxide climate pollutants*—reducing the emissions of black carbon, methane, fluorinated gases, and nitrous oxide.

Each chapter has numerous specific recommendations. For example, the chapter on utility-scale renewables addresses in considerable detail ways to expedite the approval processes under the National Environmental Policy Act and the Endangered Species Act; to coordinate various federal-permitting systems; to ease the process for leasing federally-owned onshore and offshore

19. LEGAL PATHWAYS TO DEEP DECARBONIZATION IN THE UNITED STATES (Michael B. Gerrard & John C. Dernbach eds., 2019).

land; to improve state permitting processes; and to overcome local laws that impede project development.

Many of these chapters rely in part on conventional command-and-control regulations, and on pricing and other market mechanisms. But John Dernbach, writing separately, has identified numerous other kinds of legal tools that emerge from the recommendations in our book.²⁰ These include removal or lowering of obstacles to construction; removal of incentives for fossil fuel use; providing more information to consumers; research and development; insurance; and adjustments to property rights. Considerations of social equity are also important and are explicitly recognized throughout.

For many years most of the focus of hoped-for climate laws was at the federal level. More attention went to state-level activities when the federal government retreated from climate action during the W. Bush Administration and, even more so, the Trump Administration. But regardless of what party is in power in the White House and Congress, different levels of government are best suited for different forms of governance. The federal government would be the best actor to impose a price on carbon (especially to avoid the problem of leakage—that is, emission sources moving from a location where a price is charged to one without a price); to regulate international trade; to set motor vehicle emission standards (subject to the provision of the Clean Air Act allowing EPA to authorize California to set its own tighter standards);²¹ to set ambient air quality standards and appliance efficiency standards; to regulate aircraft and nuclear power; and to control federal and offshore lands. The federal government also has long had exclusive control over interstate natural gas pipelines and most hydropower.

State governments control the utility-scale generation of electricity, the siting of electric transmission and distribution lines, the pricing of electricity and natural gas for consumers, mineral extraction and forestry outside federal lands, and solid-waste management. Municipal governments adopt building and zoning codes, set most transportation patterns, control distributed renewable energy sources (such as rooftop solar panels), and will have major roles in the siting of electric vehicle charging stations.

The multiplicity of levels of government greatly complicates the task of identifying and drafting the needed legal tools. It also requires laws to be drafted for all the different levels of government, which takes us to Phase Three.

20. John C. Dernbach, *The Dozen Types of Legal Tools in the Deep Decarbonization Toolbox*, 39 ENERGY L.J. 313, 314 (2018).

21. 42 U.S.C. § 7543(b) (2018); *see also* Office of the Attorney General, *Attorney General Becerra Files Lawsuit Against EPA for Attacking California's Advanced Clear Car Standards*, CAL. DEP'T OF JUST. (Nov. 15, 2019), <https://perma.cc/73VP-9QUQ>.

Phase Three: Legislative Drafting

Congress has a large staff of lawyers who draft bills at the request of members, though not all members have equal success in getting drafts of the bills they want. State legislatures have small drafting staffs, and most municipalities except for the largest have none. It became clear to John and me that for many of the recommendations in our book to be implemented, someone would have to undertake the hard legal work of translating our recommendations into model legislation that could then be customized for various states and cities, and that members of Congress could use.

Fortunately, Richard Horsch came along. He had just retired as an environmental partner in White & Case, one of the world's largest global law firms. Rick agreed to take on the massive task of recruiting pro bono law firms and lawyers to do the drafting. Rick, John, and I have given talks to multiple bar association groups and other assemblages of lawyers—sometimes in person, often through webinars—in search of volunteers. Rick fields the numerous inquiries that come in. The results have been gratifying. At latest count twenty-two major law firms have signed up, and we are in discussion with several others. Several law school clinics have also jumped in. In-house lawyers at corporations have also volunteered, as have several lawyers acting in their individual capacity. The volunteer law firms have typically taken on a chapter, or part of a chapter (or in a couple of cases, two chapters), and working with the authors of the chapter, drafted bills to implement the recommendations. Individual attorneys have typically taken on one or two recommendations from a chapter, also drafting bills to implement those recommendations. At several law schools, including Widener Commonwealth and Denver, students are taking individual recommendations and turning them into draft or model laws as part of a class project.

As we did with the book, we want the bills to be peer reviewed. Here again we were fortunate to find a volunteer to coordinate the effort—Marcy Kahn, who just retired as an Associate Justice of the New York Supreme Court Appellate Division. Many of the lawyers who approach us to help do not have the time to draft bills, but they have the time and expertise to review them, and former Justice Kahn is taking charge of assigning reviewers to appropriate bills and overseeing their work.

All of this work I have been describing for Phases Two and Three is being done on a pro bono basis. None of the chapter authors, chapter peer reviewers, bill drafters, or bill reviewers are being paid at all. Nor are our two coordinators. John and I waived all royalties. ELI assigned several paid editors to the book (led by the indefatigable Rachel Jean-Baptiste), but it is selling the book below cost.

Nonetheless, the project has been met with great enthusiasm by lawyers all around the country. Many lawyers—and not only the younger ones—have become deeply disturbed by what they read and hear about the ravages of

climate change to communities, to individuals, to nature, and to society itself. They want to apply their professional skills to addressing this problem, and they welcome the opportunity to do so through the Deep Decarbonization Legal Pathways Project.

Conflicts of interest have turned out to be a smaller problem than we had feared. Many large law firms include fossil fuel-based companies in their client rosters. These firms cannot take on matters directly adverse to those companies. However, most have no problem helping with projects that might incidentally reduce fossil fuel use, such as helping to build renewable energy projects or drafting energy efficiency regulations.

Phase Four: Outreach

The fourth phase of the project is to push these recommendations out to lawmakers around the country in the hopes that they will adopt versions of some of the laws we have drafted. Joseph DiMona, who recently retired as a corporate general counsel, has volunteered to lead this phase. We will be looking for people in every state and in many cities to advocate before their elected, appointed, and career officials.

Environmental lawyers can be found all over the country. There is a law school in every state except Alaska and most law schools have at least one professor who teaches a course on environmental law. The American Bar Association's Section of Environment, Energy, and Resources, and the American College of Environmental Lawyers, have members in almost every state. These lawyers will be prime resources in our search for volunteers. So will national advocacy organizations, such as the Sierra Club, the Natural Resources Defense Council, the Environmental Defense Fund, Earthjustice, and state and regional groups.

Because of the wide variety of types of laws recommended in our book, moreover, a wide variety of lawyers is also needed, in addition to environmental lawyers. These include energy, finance, corporate, procurement, contracting, real estate, and other types of lawyers.

We are already partly along the way in this journey. We have given testimony to congressional committees, both in person and in written statements; briefed multiple staffs on Capitol Hill; spoken to many groups of state and city officials; and otherwise spread the word. But there is far more to be done.

The project received a big boost in August 2019, when the House of Delegates of the American Bar Association, its policymaking body, adopted a resolution urging all levels of government as well as the private sector "to recognize their obligation to address climate change and take action" to "[r]educe U.S. greenhouse gas emissions to net zero or below as soon as

possible, consistent with the latest peer-reviewed science.”²² The resolution also calls for two kinds of actions by lawyers that are consistent with our project. First, it “urges lawyers to engage in pro bono activities to aid efforts to reduce greenhouse gas emissions and adapt to climate change.”²³ Second, it urges lawyers “to advise their clients of the risks and opportunities that climate change provides.”²⁴

The United States, of course, is not the only country that needs new laws to decarbonize its economy. We would like our U.S. work to be replicated elsewhere. We are in discussions with lawyers in several other countries who are undertaking similar projects or considering doing so.

Further Efforts

As noted above, the electrification of transport, space heating and cooling, and other sectors, coupled with population and economic growth, will lead to approximately a doubling of the need for electricity in the United States. That, combined with the needed closure of fossil fuel plants, will require the construction of a very large number of new renewable energy facilities and associated transmission and storage infrastructure. Objections by local stakeholders, commonly referred to as “NIMBY” (Not in My Backyard) opposition, has become a significant obstacle.²⁵ To address this problem, the Sabin Center for Climate Change Law, together with the law firm where I was a partner for many years and am still affiliated, Arnold & Porter, has created a project called the Renewable Energy Legal Defense Initiative (RELDI).²⁶ Its purpose is to provide pro bono legal representation to community groups and others who want renewable energy facilities that are facing local opposition. Arnold & Porter seconded a senior litigation associate, Laura Cottingham, to spend half of her time during 2019 working on this project. Since then Hillary Aidun, a lawyer in the Sabin Center, has taken the lead.

Among the cases RELDI has taken on are representation of several farmers in upstate New York who wanted to lease some of their unproductive land for construction of a solar array, in the face of a town-imposed moratorium on such projects, and representation of a group on Long Island supporting the construction of an offshore wind farm, whose cable landing site was opposed by some wealthy landowners who did not want the construction

22. Res. 111, Am. Bar Ass’n (2019), <https://perma.cc/3EGB-Q4Z6>.

23. *Id.*

24. *Id.*

25. See SAMANTHA GROSS, THE BROOKINGS INSTITUTION, RENEWABLES, LAND USE, AND LOCAL OPPOSITION IN THE UNITED STATES 2 (Jan. 2020), <https://perma.cc/PV8W-X6VU>.

26. *Renewable Energy Legal Defense Initiative*, SABIN CTR. FOR CLIMATE CHANGE L., <https://perma.cc/59A2-GP7K> (last visited Jan. 31, 2020).

disruption.²⁷ We are looking for more cases to take on, and when we find them we will be seeking local volunteer lawyers.

Another activity flowing from our project involves other countries. As noted, the Deep Decarbonization Pathways Project prepared pathways for sixteen countries in all. Few of these other countries have fully developed legal systems to implement such pathways. We have begun efforts to recruit lawyers—primarily law professors—to take on legal pathways projects in their countries similar to what we have done in the United States. The legal systems vary widely among the sixteen countries, and our approach would not work in all of them, but we think it could be appropriate in several of them.

Conclusion

Broad policy statements and numerical targets have important roles in the fight against climate change. So do demonstrations and rallies. But much of the actual work in achieving the objectives will fall upon lawyers (as well as engineers, architects, and holders of many other skills). Here I have laid out one set of activities that could utilize the talents and time of many lawyers. I would be pleased to hear from lawyers who might want to volunteer to join us.

27. See Sabin Ctr. for Climate Change Law, *Renewable Energy Legal Defense Initiative*, COLUM. UNIV., <https://perma.cc/375T-BNRZ> (last visited Apr. 5, 2020).