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U.S. Climate Change Law: A Decade of Flux and an Uncertain Future

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U.S. Climate Change Law: A Decade of Flux and an Uncertain Future

ARTICLES

U.S. CLIMATE CHANGE LAW: A DECADE OF FLUX AND AN UNCERTAIN FUTURE

CINNAMON P. CARLARNE*

Climate change is a defining feature of contemporary existence. It also poses fundamental challenges to the rule of law. As the scale of the climate crises swells, so too do efforts to develop innovative strategies for addressing climate change at the local, state, and national levels. This innovation is driven by necessity and is fueled by creative and determined actors from across the public and private sectors. But the pace of legal innovation is uneven, and the consistency of political leadership is erratic. Nowhere is this more evident than at the federal level in the United States, where presidential politics vividly demonstrate the degree to which we still lack a collective national vision for how to respond to climate change.

In this Article, I argue that as important as presidential leadership is, lawmakers and scholars should not focus myopically on the vagaries of presidential climate politics and federal climate law. Between 2009 and 2019, the United States elected the most climate-friendly president in U.S. history and then replaced him with the most climate-skeptical president in U.S. history. Within this dramatic decade, notwithstanding the fluxes and flows in legal development at the federal level, there has been a steady stream of legal innovation by subnational and non-state actors. The interactions between national, subnational, and non-state climate governance efforts are one of the most under-explored dimensions of domestic climate change law. This Article addresses this gap by examining key developments in U.S. climate change law and policy over the period 2009 to 2019, to reveal how subnational and non-state initiatives complement and constrain the development of national climate change law and policy over time.

* Alumni Society Designated Professor of Law, Moritz College of Law, The Ohio State University. For their essential research assistance, I want to thank Sarah Siewe, Matthew Dowiatt, and Michael McGuire and for their valuable assistance, inspiration, and feedback I want to thank Martha Chamallas, Marc Spindelman, Mohamed Helal, and Paul Rose.

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INTRODUCTION

Climate change is the inescapable backdrop and impending horizon for contemporary existence. The reality of anthropogenic climate change is no longer subject to scientific debate. Greenhouse gases are accumulating in the atmosphere and the climate is warming. The question is not whether anthropogenic forcing of the climate system is occurring, but rather, what do we want to do about it and what is the role of law in this regard.¹

The experienced and anticipated effects of climate change are pervasive. All states, from the greatest superpowers to the tiniest, lowest lying islands, are affected by climate change. The resulting political debate over how to limit and respond to climate change is ubiquitous. Yet the substance and outcome of this debate continues to vary widely across and within states. The nature of the debate and the contours of legal responses vary not only as a result of the usual socio-legal factors that shape legal systems,² but also because climate change poses unique challenges that test the ingenuity of lawmakers and the capacity of the rule of law.³ As Fisher, Scotford, and Barritt explain, “[c]limate change gives rise to disputes and problems not easily addressed by existing legal doctrines and frameworks.”⁴ Consequently, creative legal efforts to respond to climate change have proliferated and so, too, has the body of climate law scholarship exploring these anticipated, avoided, and actual legal responses.

1. See, e.g., CHRISTOPHER B. FIELD ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE [IPCC], CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY: SUMMARY FOR POLICYMAKERS 3, 12 (2014), https://www.ipcc.ch/site/assets/uploads/2018/02/ar5_wgII_spm_en.pdf [<https://perma.cc/N379-AYHU>].

2. See, e.g., CINNAMON PINON CARLARNE, CLIMATE CHANGE LAW AND POLICY: EU AND US APPROACHES 16 (2010).

3. See Elizabeth Fisher, *Environmental Law as ‘Hot Law’*, 25 J. ENVTL. L. 347, 347–48, 352 (2013) (“[W]hat we commonly understand as ‘environmental law’ is directly concerned with ‘hot situations’ in which the agreed frames, legal and otherwise, for how we understand and act in the world are in a constant state of flux and contestation. As such, environmental law stands in stark contrast to those areas of law where actors, interests, preferences, and thus rights and responsibilities, can be easily identified and thus workable frames of legal action can operate.” (footnote omitted)).

4. Elizabeth Fisher, Eloise Scotford & Emily Barritt, *The Legally Disruptive Nature of Climate Change*, 80 MOD. L. REV. 173, 173 (2017); see also J. B. Ruhl & James Salzman, *Climate Change, Dead Zones, and Massive Problems in the Administrative State: A Guide for Whittling Away*, 98 CALIF. L. REV. 59, 72–78 (2010) (describing the “massive” nature of climate change and the challenges to which it gives rise).

In common with the legal system itself, even as climate law scholarship has matured,⁵ it has struggled to conceptualize and respond to the disruptive nature of climate change. Climate law scholarship has expanded to consider increasingly numerous and complex questions related to everything from deforestation, adaptation, loss and damage to renewable portfolio standards, feed-in-tariffs, carbon sequestration, and solar radiation management. This scholarship contributes to efforts to conceptualize and respond to the discrete drivers and consequences of climate change, and it advances the “inevitably incremental and fragmented hard work of whittling away at the challenges climate change poses.”⁶ Even as scholars unravel and parse the multitude of legal challenges to which climate change gives rise, there is a continuing need for more comprehensive analyses of how the multitude of multi-level, multi-scale efforts to respond to climate change add up, how they are evolving or, eroding, as the case may be and what this means for conceptualizing our ability to use law to create societies capable of minimizing the extent of climate change and thriving within an inevitably warmer and more variable climate. This Article builds on past work to help advance this line of analysis.

Just over a decade ago, in a 2008 article, *Notes from a Climate Change Pressure-Cooker: Sub-Federal Attempts at Transformation Meet National Resistance in the USA*,⁷ I examined the state of U.S. climate change law and policy during the waning hours of President George W. Bush’s Administration. At the time, the article offered one of the earliest reviews of U.S. climate change law at multiple levels of governance and provided insight into how federal abdication of leadership was prompting a variety of efforts on the part of subnational and non-state actors to respond to climate change. In particular, the article explored the extent to which local, national, and international law were being used to “overcome federal resistance” and “force legal transformations in climate change policy-making in America.”⁸

5. For a discussion of the challenges environmental law scholars confront as the field matures, see Elizabeth Fisher et al., *Maturity and Methodology: Starting a Debate About Environmental Law Scholarship*, 29 J. ENVTL. L. 213, 215, 250 (2009).

6. Cinnamon P. Carlarne, *The Space Between Grand Optimism and Grim Determination: Finding a Pathway Forward in International Climate Change Law*, LOY. U. CHIC. INT’L L. REV. (forthcoming 2019).

7. Cinnamon Carlarne, *Notes from a Climate Change Pressure-Cooker: Sub-Federal Attempts at Transformation Meet National Resistance in the USA*, 40 CONN. L. REV. 1351 (2008).

8. *Id.* at 1351.

In 2008, the state of U.S. climate change law at the federal level looked bleak, but there were glimmers of hope. Progressive states, such as California, were developing comprehensive strategies to address climate change and, in the process, were pressuring Congress and the President to act on climate change. States, cities, and non-governmental organizations (NGOs) were drawing on a long history of social activism and adversarial legalism⁹ to find political, common law, and statutory footholds to prompt climate action. Equally, efforts to restructure the historically entrenched, vertically integrated, monopoly-driven U.S. electricity system so as to allow greater competition and more entry points for clean energy were picking up pace.¹⁰ It was a tumultuous period. The United States lacked any form of federal climate legislation and, really, any firm basis for crafting a national legal response to climate change, but diverse and creative efforts were afoot to create the foundations for a federal climate change policy by hook or by crook. In the ensuing decade, much has changed, but much remains the same.

Between 2009 and 2019, the United States elected the most climate-friendly president in U.S. history and then replaced him with the most climate-skeptic president in U.S. history. Within this dramatic decade, notwithstanding the fluxes and flows at the federal level, there has been a steady stream of social, technical, and legal innovation spurring the kind of dispersed, persistent, multi-level change necessary to build the backbone for a society that is capable of persisting, if not ultimately thriving, in a warmer world. These ongoing transformations, alone, are not enough to limit long-term changes in the climate system.¹¹ Much more is needed. Yet

9. ROBERT A. KAGAN, *ADVERSARIAL LEGALISM: THE AMERICAN WAY OF LAW* 3 (2001) (defining Kagan's concept of adversarial legalism as "policymaking, policy implementation, and dispute resolution by means of lawyer-dominated litigation").

10. For an overview of regulatory change in the context of federal energy law, see Jim Rossi & Hannah J. Wiseman, *Constrained Regulatory Exit in Energy Law*, 67 *DUKE L.J.* 1687, 1688–90 (2018). For a helpful discussion of the complex and still poorly understood and conceptualized relationship between energy regulation and climate change law and policy in a comparative context, see Lincoln L. Davies et al., *Climate Regulation of the Electricity Industry: A Comparative View from Australia, Great Britain, South Korea, and the United States*, 13 *S.C.J. INT'L L. & BUS.* 109 (2017).

11. See, e.g., MYLES ALLEN ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *GLOBAL WARMING OF 1.5°C: SUMMARY FOR POLICYMAKERS* 7 (Valérie Masson Delmotte et al. eds., 2018), https://www.ipcc.ch/sr15/pdf/sr15_spm_final.pdf [<https://perma.cc/YFF8-SH6E>]. This report details the varying risks of keeping warming to 1.5°C versus 2°C above pre-industrial levels and outlines the steps that would need to be taken to keep warming to 1.5°C above pre-industrial levels, as well as the short timeframe remaining in which to take the steps to do so. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *GLOBAL WARMING OF 1.5°C: HEADLINE STATEMENTS FROM THE*

the changes taking place are significant, and the aggregate impact of ongoing legal developments requires more rigorous assessment.

This Article contributes to that work. It complements the maturing body of climate scholarship¹² by tracing the key trends in U.S. climate change law and policy over the period 2009 to 2019 to reveal how legal developments by subnational and non-state actors intersect with and influence national climate policy. In doing so, it examines the extent to which the “complicated picture of pushes and pulls—of stagnation and resistance to change at the top” and “innovation and pressure for progress from below”¹³ that characterized the state of play in 2008 has spawned legal change and innovation that could enable the emergence of a multi-dimensional rule of law¹⁴ around climate change in the United States.

The objective of this Article is not to create a granular picture of every legal development that directly or indirectly intersects with climate change. Perhaps as testament to the rapid growth of climate law, that exercise would be too discursive to be helpful. Instead, the objective is to explore the dominant trends that characterize climate-related legal developments within the federal, subnational, and non-state contexts in order to better understand and advance efforts to construct a network of complementary legal structures.

SUMMARY FOR POLICYMAKERS (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/sr15_headline_statements.pdf [<https://perma.cc/FZ7F-GXRX>].

12. See, e.g., Eloise Scotford & Stephen Minas, *Probing the Hidden Depths of Climate Law: Analysing National Climate Legislation*, 28 *RECIEL* 67 (2019) (providing a three part methodology for reviewing national climate legislation focused on: identifying legislation that directly intersects with climate change; identifying laws and regulations that indirectly intersect with climate change and identify linkages or tensions between direct and indirect climate leg; and examining aggregated national climate change legislation and regulation within the relevant legal context and culture).

13. Carlarne, *supra* note 7, at 1353.

14. For a discussion of the importance of the rule of law with respect to environmental matters, see *Environmental Rule of Law*, U.N. ENV'T, <https://www.unenvironment.org/explore-topics/environmental-rights-and-governance/what-we-do/promoting-environmental-rule-law-0> [<https://perma.cc/M98Q-JAY3>]; see also U.N. Secretary-General, *The Rule of Law and Transitional Justice in Conflict and Post-Conflict Societies*, 4, U.N. Doc. S/2004/616 (Aug. 23, 2004) (“The ‘rule of law’ is a concept at the very heart of the Organization’s mission. It refers to a principle of governance in which all persons, institutions and entities, public and private, including the State itself, are accountable to laws that are publicly promulgated, equally enforced and independently adjudicated, and which are consistent with international human rights norms and standards. It requires, as well, measures to ensure adherence to the principles of supremacy of law, equality before the law, accountability to the law, fairness in the application of the law, separation of powers, participation in decision-making, legal certainty, avoidance of arbitrariness and procedural and legal transparency.”).

To this end, this Article commences in Part I by mapping out the evolving terrain of climate change law in the United States. Parts II and III, respectively, examine the rapid expansion and, subsequent, dramatic contraction of federal climate change law during the Obama and Trump Administrations. These legal fluxes provide context for exploring the promise and perils of relying on executive power to tackle a massive problem such as climate change. The ensuing discussion of climate litigation in Part IV focuses on how litigation strategies are evolving in response to federal policy fluxes, judicial precedent, and advances in climate science.

Part V of this Article steps down from the federal level to explore how subnational efforts to address climate change have expanded over the past decade. Here, recognizing the seemingly infinite variety of instruments that subnational entities are employing to address the causes and consequences of climate change, this Article focuses on how the conduct of states, cities, and non-state actors reveals emerging trends and provides opportunities for legal experimentation and iterative learning. The goal is to provide a window into the multitude of ways in which subnational and non-state actors increasingly influence the state of play on climate change. In doing so, this Article spotlights the swelling social movement around climate change, including the escalating roles of individual and collective actors as varied as the state of California,¹⁵ New York City,¹⁶ Michael Bloomberg,¹⁷ Unilever,¹⁸

15. See, e.g., Ann Carlson, *Symposium on Climate Change Localism: The Trump Administration's Assault on California's Global Climate Change Leadership*, 112 AM. J. INT'L L. UNBOUND 269, 271–72 (2018) (discussing the Trump Administration's efforts to revoke California's special authority under the Clean Air Act to regulate automobile tailpipe emissions more stringently than the federal government and the implications of this move for state efforts to cut greenhouse gas emissions and limit conventional pollutants).

16. See, e.g., Rebecca Bratspies, *Protecting the Environment in an Era of Federal Retreat: The View from New York City*, 13 FLA. INT'L U. L. REV. 5, 10 (2018) (contrasting New York City's climate-protective response with the federal government's undercutting of environmental regulations after the 2016 election).

17. See, e.g., Press Release, Bloomberg Philanthropies, Michael Bloomberg Launches Beyond Carbon, the Largest-Ever Coordinated Campaign Against Climate Change in United States (June 7, 2019), <https://www.bloomberg.org/press/releases/michael-bloomberg-launches-beyond-carbon-the-largest-ever-coordinated-campaign-against-climate-change-in-united-states> [<https://perma.cc/6RDP-LL9A>] (announcing a \$500 million investment in a campaign “to tackle climate change”).

18. See, e.g., Letter from Alan Jope, CEO, Unilever, on Responsible Engagement in Climate Policy to Unilever, to Trade Ass'ns and Bus. Grps. (June 5, 2019), <https://www.unilever.com/sustainable-living/reducing-environmental-impact/greenhouse-gases/global-climate-action/responsible-engagement-in-climate-policy> [<https://perma.cc/UCX2-RGA8>] (announcing Unilever's aspiration to reduce carbon emissions and expressing hope that its industry partners will join that commitment).

Greta Thunberg,¹⁹ Representative Alexandria Ocasio-Cortez,²⁰ and the “We Are Still In” collective.²¹

I. U.S. CLIMATE CHANGE LAW: A CANVAS FOR CONSTANT CHANGE

A. *The Global Context: International Climate Law Matures*

The field of climate change law has exploded over the past decade hand-in-hand with the growing body of knowledge about climate change. At the international level, following two decades of meaningful but frustratingly slow international climate negotiations, the parties to the United Nations Framework Convention on Climate Change (UNFCCC)²² adopted a new international legal agreement on climate change, the Paris Agreement (or “the Agreement”).²³ The Paris Agreement represents the maturing of the field. It frames the urgency of the challenge, calls upon all state parties to act with the highest level of ambition, prioritizes not only mitigation but also adaptation and loss and damage, and creates increasingly sophisticated financial, technological, and administrative support systems.²⁴ Yet, for all of the progress that it represents, whether the Paris Agreement can provide the legal backbone for facilitating the extent of state-based efforts necessary to avoid catastrophic climate change remains to be seen.²⁵

Notably, at the time of adoption of the Paris Agreement, the aggregate mitigation contributions to which the parties had committed—even if fully implemented—would fail to keep warming

19. See, e.g., *Greta Thunberg: The Swedish Teen Inspiring Climate Strikes*, BBC NEWS (Feb. 14, 2019), <https://www.bbc.com/news/av/world-europe-47231271/greta-thunberg-the-swedish-teen-inspiring-climate-strikes> [<https://perma.cc/T55A-BAK6>] (reporting that Greta Thunberg’s climate activism has prompted many similar climate protests worldwide).

20. See, e.g., Matthew Daly, *Ocasio-Cortez: No ‘Middle-Ground’ on Fighting Climate Change*, AP NEWS (May 13, 2019), <https://www.apnews.com/4359d6588f9740aca1ab24a9745f2c9d> [<https://perma.cc/S2QG-NGHJ>] (describing Representative Ocasio-Cortez’s stance on climate change as a “no middle ground” position).

21. WE ARE STILL IN, <https://www.wearestillin.com> [<https://perma.cc/B3UR-LSQH>] (providing a platform whereby government officials, faith leaders, academics, and business executives can affirm their commitment to achieving the United States’ objectives under the Paris Agreement).

22. U.N. Framework Convention on Climate Change (“UNFCCC”), May 9, 1992, S. Treaty Doc No. 102-38, 1771 U.N.T.S. 107.

23. UNFCCC, *Rep. of the Conf. of the Parties on Its Twenty-First Session*, U.N. Doc. FCCC/CP/2015/10/Add.1, Annex (Jan. 29, 2016) [hereinafter *Paris Agreement*].

24. See, e.g., Cinnamon Carlarne & JD Colavecchio, *Balancing Equity and Effectiveness: The Paris Agreement and the Future of International Climate Change Law*, 27 NYU ENVTL. L. REV. 107, 136–37 (2019).

25. See *Paris Agreement*, *supra* note 23, art. 2.

below the 2°C target the Agreement establishes.²⁶ Therefore, the willingness of key state actors to move more aggressively to limit domestic emissions is critical to efforts to keep warming within internationally agreed limits. Yet, in the wake of the adoption of the Paris Agreement, the rise of populist movements in the United States, Europe, Brazil, and worldwide place additional pressures on the already tenuous willingness of the great power states to be climate leaders.²⁷ Meanwhile, growing political and economic tensions²⁸ between the two largest emitters,²⁹ the United States and China, further complicates efforts to build consensus among key state actors.

As the tides of populism, nationalism, and great power politics seem to pull the already fragile fabric of the international community³⁰ asunder, however, a countertide of subnational action and transnational legal development and learning is taking place.³¹ The countertrends of high-level political and legal fluctuations and steady subnational and transnational legal developments create a complex picture of pushes and pulls in both international and domestic efforts to develop effective legal responses to climate change.

26. *Id.* ¶ 17.

27. See Dan Farber, *Another Scary Election (But Not Here)*, LEGAL PLANET (Oct. 22, 2018), <http://legal-planet.org/2018/10/22/another-scary-election-but-not-here> [<https://perma.cc/5JB3-DDSU>] (describing Brazil's then-candidate Bolsonaro's climate policies, including opening up indigenous lands for commercial development). *But see* Paola Villavicencio Calzadilla & Louis J. Kotze, *Living in Harmony with Nature? A Critical Appraisal of the Rights of Mother Earth in Bolivia*, 7 TRANSNAT'L ENVTL. L. 397 (forthcoming 2018) (discussing the ways in which countries such as Ecuador and Bolivia are pushing for a more progressive re-imagining of environmental law).

28. See generally Rachel Brewster, *Analyzing the Trump Administration's International Trade Strategy*, 42 FORDHAM INT'L L.J. 1419 (2019) (arguing that the Trump Administration's trade policies are contrary to United States interests).

29. See *Each Country's Share of CO₂ Emissions*, UNION OF CONCERNED SCIENTISTS, <https://www.ucsusa.org/global-warming/science-and-impacts/science/each-country-share-of-co2.html> [<https://perma.cc/7LCH-6LXD>] (showing that the United States and China are the largest emitters of carbon dioxide).

30. See Cinnamon P. Carlarne & Mohamed S. Helal, *A Conversation About Climate Change and the 'International Community'*, 8 CLIMATE L. 229, 231 (2018).

31. See Kenneth Abbott, *Strengthening the Transnational Regime Complex for Climate Change*, 3 TRANSNAT'L ENVTL. L. 57, 60 (2014) (encouraging "innovative, complementary approaches" by transnational actors to develop networks and governance structures that can bypass recalcitrant states and contribute the development of a multi-level climate governance regime complex); Sharmila Murthy, *States and Cities as "Norm Sustainers": A Role for Subnational Actors in the Paris Agreement on Climate Change*, 37 VA. ENVTL. L.J. 1, 1 (2019) (arguing that subnational actors are "norm sustainers" that can help ensure the success of the Paris Agreement even if the United States withdraws from the Agreement).

Within this oscillating web of national flux, subnational innovation, and transnational network building, the United States sits at the center pushing and pulling the strings of the larger international trends.

B. The Political Malleability of Climate Change in the United States

The principal challenge facing any effort to analyze the developmental arc of federal climate change law in the United States over the past decade is that the basic concept of climate change remains contested. Two of the United States' past three presidents and many of our sitting legislators have questioned both the legitimacy of climate science and the desirability of the United States taking any concrete legal steps to limit climate change.³² Sandwiched between these two presidents and interacting with these skeptical federal legislators, however, was a president who provided not only significant domestic leadership but also important international leadership on climate change. The development of federal climate law thus is a non-linear story of extreme fluxes and flows riddled with, at times, dramatically contradictory narratives of the reality and urgency of climate change.

As context for the discussion of federal climate law that follows, it is helpful to understand the extent to which each of the three twenty-first century U.S. presidents has had access to assessments of the scientific basis of climate change and the manner in which they have used this data to contextualize their political strategies on climate change.

32. See Ellen Cranley, *These Are the 130 Current Members of Congress Who Have Doubted or Denied Climate Change*, BUS. INSIDER (Apr. 29, 2019, 1:36 PM), <https://www.businessinsider.com/climate-change-and-republicans-congress-global-warming-2019-2> [<https://perma.cc/43WA-2K9B>] (highlighting the 130 members of Congress who have made statements such as “the earth is currently in a natural warming cycle rather than a man-made climate change”). In fact, as will be discussed, there has been a persistent undercurrent of efforts focused on increasing domestic production, consumption, and exportation of fossil fuels—particularly natural gas—and, more recently, presidential efforts to prop up the declining coal industry in direct opposition to market forces. See, e.g., *The United States Is Now the Largest Global Crude Oil Producer*, U.S. ENERGY INFO. ADMIN. (Sept. 12, 2018), <https://www.eia.gov/todayinenergy/detail.php?id=37053> [<https://perma.cc/9AHV-3EFS>]; see also Jennifer A. Dlouhy, *Trump Prepares Lifeline for Money-Losing Coal Plants*, BLOOMBERG (May 31, 2018, 8:49 PM), <https://www.bloomberg.com/news/articles/2018-06-01/trump-said-to-grant-lifeline-to-money-losing-coal-power-plants-jhv94ghl>. For a more thorough, critical discussion of President Trump's energy policy, see generally Carol J. Miller, *For a Lump of Coal & a Drop of Oil: An Environmentalist's Critique of the Trump Administration's First Year of Energy Policies*, 36 VA. ENVTL. L.J. 185, 194–95 (2018).

As very brief background, since 1990,³³ the Intergovernmental Panel on Climate Change (IPCC) has produced regular assessments of “the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation.”³⁴ Over time, the body of climate science has expanded exponentially; in turn, the IPCC reports have become increasingly comprehensive, with even the syntheses running thousands of pages. Equally, despite inevitable areas of uncertainty, each report has become increasingly confident and dire with respect to the impacts of anthropogenic warming of the climate system. The IPCC’s most recent report cautioned that “[w]arming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen.”³⁵

The IPCC reports assess the work of thousands of scientists and social scientists from around the world and provide a comprehensive and reliable source of information for policymakers to use when assessing potential responses to climate change.³⁶ Over time, a body of domestically-focused assessments examining the ways in which climate change affects the United States has grown as a complement to the IPCC reports.

When George W. Bush assumed office in 2001, the IPCC was in the process of releasing its Third Assessment Report.³⁷ In relevant part, this report determined that there was “new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities,” and that “observed changes in regional climate have affected many physical and biological systems, and there are preliminary indications that social and economic systems have been

33. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE: THE IPCC 1990 AND 1992 ASSESSMENTS 5 (1992).

34. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, IPCC FACTSHEET: WHAT IS THE IPCC (2013), https://www.ipcc.ch/site/assets/uploads/2018/02/FS_what_ipcc.pdf [<https://perma.cc/ARZ7-GY9P>] [hereinafter IPCC FACTSHEET].

35. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014 SYNTHESIS REPORT: SUMMARY FOR POLICYMAKERS 2 (2014), https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf [<https://perma.cc/K63E-KHBX>].

36. See IPCC FACTSHEET, *supra* note 34 (emphasizing the Intergovernmental Panel on Climate Change’s role as a source for climate change assessments to provide policy makers with the information without “tell[ing] policymakers what actions to take”).

37. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: THE SCIENTIFIC BASIS (J.T. Houghton et al. eds., 2001), https://www.ipcc.ch/site/assets/uploads/2018/07/WG1_TAR_FM.pdf [<https://perma.cc/5M3K-7WGP>].

affected.”³⁸ In response to this report, international efforts to develop a collective response to climate change intensified, leading to the adoption of a new international agreement on climate change, the Kyoto Protocol,³⁹ and to the expansion of a plethora of state and regional legal efforts to address climate change.

By the end of President Bush’s second term, the state of climate science had advanced dramatically. By 2007, the IPCC had released its Fourth Assessment Report (“AR4”),⁴⁰ which added even greater urgency to collective understanding of anthropogenic climate change. In particular, AR4 concluded that “warming of the climate system is unequivocal” and that “[m]ost of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations.”⁴¹

Even as collective understanding of climate change grew during the mid-2000s, efforts to respond to climate change at the domestic level floundered under President Bush’s leadership. Despite early assertions that “[c]limate change, with its potential to impact every corner of the world, is an issue that must be addressed by the world,”⁴² under President Bush’s leadership, the United States questioned climate

38. *Id.* at ix; Dr. R.K. Pachauri, Chairman, *Intergovernmental Panel on Climate Change, Address at the 11th Conference of the Parties to the United Nations Framework Convention on Climate Change and 1st Conference of the Parties Serving as Meeting of the Parties to the Kyoto Protocol* (Dec. 7, 2005).

39. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 11, 1997, 2303 U.N.T.S. 148, art. 12 [hereinafter *Kyoto Protocol*].

40. See *Reports*, IPCC, <https://www.ipcc.ch/reports> [<https://perma.cc/JZL7-G89Z>] (containing links to and information about all of the IPCC reports released to date).

41. RICHARD B. ALLEY ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SUMMARY FOR POLICYMAKERS 5, 10 (2007), <https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-spm-1.pdf> [<https://perma.cc/K5FZ-4ZSW>]. In 2009, the United States released its Second National Climate Assessment, determining that “[c]limate changes are underway in the United States and are projected to grow” and that “[w]idespread climate-related impacts are occurring now and are expected to increase.” U.S. GLOB. CLIMATE CHANGE RES. PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES: 2009 REPORT 12 (Thomas R. Karl et al. eds., 2009), <https://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf> [<https://perma.cc/N79X-MLJW>].

42. See *Bush Presser*, C-SPAN (Nov. 28, 2016), <https://www.c-span.org/video/?c4632703/bush-presser> [<https://perma.cc/2ES9-Q5LA>].

science,⁴³ impeded international negotiations,⁴⁴ and thwarted efforts to develop domestic climate change law.⁴⁵ This questioning of climate science and near total abdication of leadership on climate change shifted abruptly in 2008 with the inauguration of President Barack Obama.

President Obama made it clear from the outset that he approached climate science and thus, climate policy, very differently than his predecessor. In the run-up to the election, then Senator Obama reprimanded the sitting president and declared his commitment to acting on climate change, noting:

Washington's failure to lead on energy is the failure of a President who spent most of his time in office denying the very existence of global warming—a President who put more faith in the spin of a science fiction writer than the science facts of real experts.⁴⁶

He continued by declaring that “we cannot afford more of the same timid politics when the future of our planet is at stake I will set big goals for this country as President—some so large that the technology to reach them does not yet exist. But that has not stopped us before.”⁴⁷ Granted, this was a campaign speech, and the tone of the speech reflected the grandeur of a presidential campaign. Nevertheless, the shift in tone and in the resulting intent for policy change was clear. Subsequently, President Obama's commitment to scientifically informed decision-making came to define his approach to climate change.⁴⁸

President Trump has adopted a different tack. Even before taking office, President Trump made it clear that he questioned the basic premise of climate change, paid little to no respect for scientific

43. See, e.g., *Manipulation of Global Warming Science*, UNION OF CONCERNED SCIENTISTS, <https://www.ucsusa.org/our-work/center-science-and-democracy-promoting-scientific-integrity/manipulation-of-global.html> [<https://perma.cc/745M-CUNN>] (chronicling the ways in which President Bush “consistently sought to undermine the view held by the vast majority of climate scientists that human-caused emissions of carbon dioxide and other heat-trapping gases are making a discernible contribution to global warming”).

44. Julian Borger, *Bush Kills Global Warming Treaty*, GUARDIAN (Mar. 29, 2001), <https://www.theguardian.com/environment/2001/mar/29/globalwarming.usnews> [<https://perma.cc/AY7Z-FL9C>].

45. See Carlarne, *supra* note 7, at 1360–64 (discussing President Bush's climate change policies). See generally Patrick Parenteau, *Anything Industry Wants: Environmental Policy Under Bush II*, 14 DUKE ENVTL. L. & POL'Y F. 363 (2004) (providing a critical overview of President Bush's environmental policies).

46. Senator Barack Obama, *Real Leadership for a Clean Energy Future* (Oct. 8, 2007).'

47. *Id.*

48. See, e.g., David B. Hunter, *International Climate Negotiations: Opportunities and Challenges for the Obama Administration*, 19 DUKE ENVTL. L. & POL'Y F. 247, 252 (2009) (suggesting that President Obama's appointments to environmental agencies signal a “new and real commitment to science-based policymaking”).

findings related to climate change, failed to understand the elementary difference between weather and climate, and intended not only to stop the advancement of U.S. climate law, but also to do all he could to roll back existing legal provisions.⁴⁹ President Trump's provocative statements on climate change are too many to mention, but a quick review of his Twitter account edifies the general tenor of his stance on climate change. Starting with his infamous declaration that "[t]he concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive,"⁵⁰ and expanded upon by statements such as, "[w]e should be focused on magnificently clean and healthy air and not distracted by the expensive hoax that is global warming!"⁵¹, and "[i]t's really cold outside, they are calling it a major freeze, weeks ahead of normal. Man, we could use a big fat dose of global warming!"⁵² President Trump has clearly communicated his stance as a climate skeptic.

Throughout his presidency, President Trump has routinely attacked and attempted to suppress science and science-based decision-making. As Farber characterizes it, the Trump Administration has adopted an unabashed "hostile attitude toward science" and "has used a triad of strategies: efforts to defund research, suppression of scientific findings, and embrace of fringe science" to accomplish these efforts.⁵³

Between 2017 to 2018, at the height of President Trump's attack on climate science, the U.S. Global Climate Change Research Program released *The Fourth National Climate Assessment* ("4th NCA").⁵⁴ Released

49. See, e.g., Chris Cilizza, *Donald Trump Doesn't Think Much of Climate Change*, in *20 Quotes*, CNN: THE POINT (Aug. 8, 2017, 11:17 AM), <https://www.cnn.com/2017/08/08/politics/trump-global-warming/index.html> [<https://perma.cc/APV7-3B7B>].

50. Donald J. Trump (@realDonaldTrump), TWITTER (Nov. 6, 2012, 11:15 AM), <https://twitter.com/realdonaldtrump/status/265895292191248385> [<https://perma.cc/48F8-BTQ5>].

51. Donald J. Trump (@realDonaldTrump), TWITTER (Dec. 6, 2013, 7:38 AM), <https://twitter.com/realdonaldtrump/status/408983789830815744> [<https://perma.cc/44G2-CL52>].

52. Donald J. Trump (@realDonaldTrump), TWITTER (Oct. 19, 2015, 6:30 AM), <https://twitter.com/realdonaldtrump/status/656100109386674176> [<https://perma.cc/NFN4-63AK>].

53. Dan Farber, *Updates on the War on Science: The Trump Administration Continues Its Campaign to Suppress Science*, LEGAL PLANET (June 10, 2019), <https://legal-planet.org/2019/06/10/updates-on-the-war-on-science> [<https://perma.cc/Q6EP-QU4S>].

54. The first volume of the report was released in 2017. 1 U.S. GLOB. CHANGE RES. PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT (2017), https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf [<https://perma.cc/Q8XU-HDNZ>] [hereinafter 4TH NCA VOL. I]. The second volume of the report was released in 2018. 2 U.S. GLOB. CHANGE RES. PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT,

in two volumes, the 4th NCA provides an assessment of the foundational science of climate change (“Volume I”) and explores “the human welfare, societal, and environmental elements of climate change”⁵⁵ at the national and regional levels (“Volume II”) in the United States. The 4th NCA, in essence, provides a federally mandated, domestically focused complement to the IPCC reports.

Volume I sets the stage by confirming the anthropogenic patterns of warming indicated by the IPCC AR5.⁵⁶ Volume II then explores the widespread threats climate change poses for the United States, suggesting that “[c]limate change creates new risks and exacerbates existing vulnerabilities in communities across the United States, presenting growing challenges to human health and safety, quality of life, and the rate of economic growth.”⁵⁷

The findings of the 4th NCA paint a stark picture of the climate-related risks facing the United States and highlight the degree to which domestic responses continue to lag. Bringing together the lack of ambition at both the international and national levels, the report warns that “neither global efforts to mitigate the causes of climate change nor regional efforts to adapt to the impacts currently approach the scales needed to avoid substantial damages to the U.S. economy, environment, and human health and well-being over the coming decades.”⁵⁸

While the contents of the report came as no surprise to those versed in climate science, in the wake of the release of the 4th NCA, there was great anticipation as to how President Trump would respond to a federal report that seemed to be in direct tension with his Administration’s rhetoric and legal strategies.⁵⁹ As one account bluntly suggests,

(2018), https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf [<https://perma.cc/FH72-ECC5>] [hereinafter 4TH NCA VOL. II].

55. 4TH NCA VOL. II, *supra* note 54, at 1. The report also highlights the economic dimensions of climate change, noting that “[w]ith continued growth in emissions at historic rates, annual losses in some economic sectors are projected to reach hundreds of billions of dollars by the end of the century—more than the current gross domestic product (GDP) of many U.S. states.” *Id.* at 26.

56. 4TH NCA VOL. I, *supra* note 54, at 14.

57. 4TH NCA VOL. II, *supra* note 54, at 25.

58. *Id.* at 34.

59. See, e.g., Brady Dennis & Chris Mooney, *Major Trump Administration Climate Report Says Damage Is Intensifying Across the Country*, WASH. POST (Nov. 23, 2018), <https://www.washingtonpost.com/energy-environment/2018/11/23/major-trump-administration-climate-report-says-damages-are-intensifying-across-country>.

[t]he report, which was mandated by Congress and made public by the White House, is notable not only for the precision of its calculations and bluntness of its conclusions, but also because its findings are directly at odds with President Trump's agenda of environmental deregulation, which he asserts will spur economic growth.⁶⁰

President Trump's response to the report was rapid and direct. When asked by reporters about the findings of the report, he simply stated: "I don't believe it."⁶¹ The Trump Administration's stance on climate change thus remains one of skepticism about the science of climate change and near absolute opposition to domestic action or international cooperation on climate change.

In light of the Bush, Obama, and Trump Administrations' shifting interpretations of climate science, climate change continues to be treated as a politically malleable concept in domestic law. The dramatic swings in federal climate change law between 2008 and 2019 illustrate this malleability.

II. THE OBAMA ERA: CONSTRUCTING THE FOUNDATIONS FOR CHANGE

Over his two terms in office, President Obama drew upon his executive authority and political influence to take what was essentially an empty lot and construct a foundation for federal climate law. These eight years represented a period of incremental legal construction. The Obama Administration, alongside key federal agencies, supportive subnational leaders, and a wide-ranging group of non-state actors worked cooperatively to craft a growing body of judicial precedent, federal regulations, executive initiatives, and public-private partnerships to combat climate change.⁶² By the end of President Obama's second term in office, the United States possessed the scaffolding necessary to build a more robust system of climate law. Being largely driven and supported by executive level actions, however, this scaffolding proved vulnerable to demolition efforts. Demolition is what President Trump set out to do.

60. Coral Davenport & Kendra Pierre-Louis, *U.S. Climate Report Warns of Damaged Environment and Shrinking Economy*, N.Y. TIMES (Nov. 23, 2018), <https://www.nytimes.com/2018/11/23/climate/us-climate-report.html>.

61. *See Trump on Climate Change Report: 'I Don't Believe It'*, BBC NEWS (Nov. 26, 2018), <https://www.bbc.com/news/world-us-canada-46351940> [<https://perma.cc/V6AH-CP25>].

62. *See generally* THE WHITE HOUSE: PRESIDENT BARACK OBAMA, PRESIDENT OBAMA ON CLIMATE & ENERGY: A HISTORIC COMMITMENT TO PROTECTING THE ENVIRONMENT AND ADDRESSING THE IMPACTS OF CLIMATE CHANGE, https://obamawhitehouse.archives.gov/sites/obamawhitehouse.archives.gov/files/achievements/theRecord_climate_0.pdf [<https://perma.cc/Q7VX-HAKL>].

During the first two years of President Trump's presidency, the news was replete with stories about efforts to roll back President Obama's climate initiatives.⁶³ The dominant theme of the Trump Administration's approach to climate law appears to be to reverse the steps that had been taken over the preceding eight years to develop a legal framework for combatting climate change and instead, to prop up, sustain, and nourish greenhouse gas intensive industries and activities.

This saga of construction and demolition reveals the continuing, emphatic power of the state—and, in particular, the President—to enable or to cripple large-scale change and the profound legal uncertainty this has created in the context of U.S. climate change law.

The discussion that follows explores the overarching approach that the Obama Administration employed in its efforts to address climate change. This is followed by a discussion of what steps the Trump Administration has taken to dismantle the spirit and structure of these efforts. The intent of the following section is not to provide an exhaustive list of all of the legal initiatives. Instead, it seeks to highlight key initiatives and important trends and to explore the implications of these changes for future efforts to craft a comprehensive system of climate law that facilitates change at the scale needed to protect “the U.S. economy, environment, and human health and well-being over the coming decades.”⁶⁴

A. *Obama Era Initiatives*

In contrast to the caricature of climate skepticism that President Trump has come to represent, President Obama is commonly portrayed as a champion of climate policy.⁶⁵ During his presidential

63. See, e.g., Coral Davenport, *Trump Administration Unveils Its Plan to Relax Car Pollution Rules*, N.Y. TIMES (Aug. 2, 2018), <https://www.nytimes.com/2018/08/02/climate/trump-auto-emissions-california.html> (Obama-era fuel-efficiency standards for cars); John Flesher, *Trump Scraps Obama Policy on Protecting Oceans, Great Lakes*, ASSOCIATED PRESS, June 21, 2018, <https://www.apnews.com/57d405229ba844f59f9f2d06c65c4318> [<https://perma.cc/J5MJ-WB6G>] (Obama-era ocean protections); Lisa Friedman and Coral Davenport, *Trump Administration Rolls Back Clean Water Protection*, N.Y. TIMES (Sept. 12, 2019), <https://www.nytimes.com/2019/09/12/climate/trump-administration-rolls-back-clean-water-protections.html> (Obama-era limits on polluting chemicals near bodies of water); Emma Newburger, *Critics Rail Against Trump's Methane Proposal as an 'Unconscionable Assault on Environment*, CNBC (Aug. 29, 2019), <https://www.cnbc.com/2019/08/29/trump-to-roll-back-methane-climate-change-regulations.html> [<https://perma.cc/7A9W-HLH3>] (Obama-era limits on methane emissions).

64. 4TH NCA VOL. II, *supra* note 54, at 34.

65. See, e.g., John Abraham, *Barack Obama Is the First Climate President*, GUARDIAN (Nov. 2, 2016), <https://www.theguardian.com/environment/climate-consensus-97->

campaign, he advocated for efforts to combat climate change and diversify the domestic energy system.⁶⁶ Once elected, he expended significant political capital to develop a multifaceted response to climate change. In addition, he reasserted U.S. leadership on climate change at the international level. Over the course of his two terms in office, President Obama laid the foundations for an ambitious, economy-wide strategy for addressing climate change and combatted a paralyzed Congress by using executive and regulatory authority “to take a remarkable variety of steps to reduce greenhouse gas emissions.”⁶⁷ Despite important successes, “President Obama’s climate legacy is more complex and the results more fragile than are often depicted.”⁶⁸ While President Obama tackled climate change aggressively during his second term, his failure to successfully pursue federal legislative action during his first term,⁶⁹ coupled with his extensive reliance on politically malleable executive and regulatory measures, limit his legacy of leadership on climate change.⁷⁰

Despite these limitations, President Obama is, without doubt, the president who has done the most to develop a domestic response to climate change. In the wake of political change, the pressing question is: what was he able to achieve that has lasting impact, either through enduring changes to the rule of law or through influencing societal and political shifts that perpetuate climate efforts even during a climate-skeptic Administration?⁷¹

per-cent/2016/nov/02/barack-obama-is-the-first-climate-president
[<https://perma.cc/KTR8-YE3U>] (noting that that United States had “transitioned from the worst climate president ever (Bush) to the best (Obama)”).

66. See, e.g., Obama, *supra* note 46.

67. David Bookbinder, *The Obama Climate Legacy*, NISKANEN CTR. (Apr. 11, 2017), <https://niskanencenter.org/blog/greenwashing-obama-climate-legacy> [https://perma.cc/BQ7V-W3UV] (quoting Cass R. Sunstein, *Changing Climate Change, 2009–2016*, 42 HARV. ENVTL. L. REV. 231, 270 (2018)).

68. Cinnamon Carlarne, *On Localism and the Persistent Power of the State*, 112 AM. J. INT’L L. UNBOUND 285, 287 (2018).

69. See, e.g., Sunstein, *supra* note 67, at 245–47 (suggesting legislative defeats and comparative executive inaction during President Obama’s first term are largely attributable to the ongoing economic crises); see also Yumehiko Hoshijima, Note, *Presidential Administration and the Durability of Climate-Consciousness*, 127 YALE L.J. 170, 172–73 (2017) (highlighting several significant environmental policy failures during President Obama’s first term).

70. See JONATHAN CHAIT, AUDACITY: HOW BARACK OBAMA DEFIED HIS CRITICS AND CREATED A LEGACY THAT WILL PREVAIL 123 (2017).

71. See Hoshijima, *supra* note 69, at 174–75 (explaining the connection between the unveiling of the Obama Administration’s Climate Action Plan and Congressional gridlock).

B. The Vision

Much has been written about the various steps President Obama took to address climate change and the ways in which he leveraged a combination of legal and political strategies and executive power⁷² to advance these efforts. While the brunt of media and scholarly attention has focused on the Environmental Protection Agency's (EPA) efforts to develop a regulatory regime for greenhouse gas emissions from new and existing sources under the Clean Air Act (CAA),⁷³ namely the Timing and Tailoring Rules and the Clean Power Plan (CPP),⁷⁴ these rules constitute only pieces of a much larger, more ambitious policy effort.

Of particular import here is the comprehensive and far-reaching approach that President Obama brought to bear in his efforts to address climate change and the degree to which he sought to leverage diverse actors and legal and extra-legal strategies to create a multifaceted climate change agenda.⁷⁵ Many of these efforts escaped high-level political scrutiny, being overshadowed, as they were, by the high political drama surrounding the legal centerpiece of the agenda, i.e., the CPP.⁷⁶ That the CPP is legally significant is uncontroversial. It would have provided the cornerstone tool for ratcheting down emissions from existing coal-fired power plants, the most singularly significant and difficult to regulate source of greenhouse gas emissions

72. See Jerry L. Mashaw & David Berke, *Presidential Administration in a Regime of Separated Powers: An Analysis of Recent American Experience*, 35 YALE J. REG. 549, 580 (2018). Mashaw and Berke suggest that “[o]ur look at climate policy highlights both the power and perils of presidentialism. Bold action is possible, but it may not be durable.” *Id.* at 587. This is true in terms of the durability of “bold [legal] action,” but arguably less true of the lasting effect of the sweeping use of executive power in elevating the floor of the debate and mobilizing sub-federal and non-state actors even when the bold legal action that formed the centerpiece of a President’s strategy has been dismantled.

73. Clean Air Act, Pub. L. No. 88-206, 77 Stat. 392 (1963) (codified as amended in scattered sections of 42 U.S.C.).

74. See Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,662 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60) (establishing final emission guidelines for states for fossil-fuel fired power plants).

75. See generally Gabriel Pacyniak, *Making the Most of Cooperative Federalism: What the Clean Power Plan Has Already Achieved*, 29 GEO. ENVTL. L. REV. 301 (2017) (examining state-based policy engagement with federal greenhouse gas rulemaking in a cooperative federalism context and exploring the benefits of dynamic, iterative federalism processes even where the final rule is rejected).

76. See, e.g., Coral Davenport, *Obama’s Climate Plan May Hinge on a Clerical Error in a 1990 Law*, N.Y. TIMES, Sept. 26, 2016, at A17 (explaining that the focus was on the CPP because it played a key role in the negotiation of the Paris Agreement but was simultaneously subject to judicial challenge).

in the United States.⁷⁷ Equally, the CPP emerged from and stretched the outer edges of administrative authority under the CAA, a statute already the subject of great contention not only with respect to its applicability to climate change but also with respect to fundamental questions of administrative and constitutional law.⁷⁸ Hence, the attention paid to the birth and eventual demise of the CPP is warranted. It also, however, masks the variegated landscape of climate policy that the Obama Administration helped nurture and which, ultimately, evidences early efforts to cultivate the type of layered and integrated governance regime necessary to tackle the massive challenge that climate change poses.⁷⁹

In his first week in office, President Obama followed up on campaign promises to take action on climate change. On January 26, 2009—six days after his inauguration—President Obama issued two presidential memoranda intended to initiate a new era of executive leadership on climate change.⁸⁰ Drawing on federal legal authority to regulate

77. See *Frequently Asked Questions: What Are U.S. Energy-Related Carbon Dioxide Emissions by Source and Sector?*, U.S. ENERGY INFO. ADMIN. (May 15, 2019), <https://www.eia.gov/tools/faqs/faq.php?id=75&t=11> [<https://perma.cc/2KGC-SZ8F>] (finding, in relevant part, that with respect to domestic carbon dioxide emissions, “[t]he electric power sector is the largest source, accounting for 40 percent of all energy-related CO₂ emissions. The electric power sector consists of those entities whose primary business is the production of electricity”); see also Bruce R. Huber, *Transition Policy in Environmental Law*, 35 HARV. ENVTL. L. REV. 91, 93, n.8 (2011) (describing the grandfathering of coal-fired power plants under the 1977 CAA Amendments as one of the most “egregious missteps” in environmental law, largely because it allowed these old facilities to continue operating subject to much more lenient environmental standards than new power plants would be subject to).

78. See Jody Freeman & David B. Spence, *Old Statutes, New Problems*, 163 U. PA. L. REV. 13, 20–43 (2014) (explaining “how federal agencies coping with new regulatory challenges often encounter problems of ‘fit’ with older statutes, which require them to make delicate legal and political judgments in the face of congressional silence,” including in the context of the CAA and climate change); Jody Freeman & Adrian Vermeule, *Massachusetts v. EPA: From Politics to Expertise*, 2007 SUP. CT. REV. 51, 52 (exploring the implications of the case with respect to “increasing worries about the politicization of administrative expertise”). See generally David M. Driesen et al., *Half a Century of Supreme Court Clean Air Act Interpretation: Purposivism, Textualism, Dynamism, and Activism*, 75 WASH. & LEE L. REV. 1781, 1786–87 (2018) (offering a comprehensive review of CAA Supreme Court jurisprudence in the wake of Justice Scalia’s death).

79. See Ruhl & Salzman, *supra* note 4, at 72–78 (contextualizing climate change as a “massive problem” and exploring the legal challenges this poses).

80. See State of California Request for Waiver Under 42 U.S.C. 7543(b), the Clean Air Act, 74 Fed. Reg. 4,905, 4,905 (Jan. 28, 2009); The Energy Independence and Security Act of 2007, 74 Fed. Reg. 4,907, 4,907 (Jan. 28, 2009); see also *Regulation Database—Executive Orders*, COLUM. L. SCH.: SABIN CTR. FOR CLIMATE CHANGE L., <https://climate.law.columbia.edu/content/regulation-database-executive-orders>

greenhouse gases pursuant to the Supreme Court's decision in *Massachusetts v. EPA*,⁸¹ these memoranda, in turn, directed the EPA to reconsider a March 2008 decision that denied California a CAA preemption waiver that would have allowed it to set greenhouse gas (GHG) emission standards for motor vehicles⁸² and directed the National Highway Traffic Safety Administration to develop increased fuel economy standards for automobiles.⁸³ Together with the subsequently announced National Fuel Efficiency Policy,⁸⁴ these memoranda created a platform for what would become historically ambitious and substantively effective efforts to ratchet down GHG emissions—and conventional pollutants—from new automobiles. The transportation sector is the second largest source of domestic carbon emissions behind the energy sector, so this was an ambitious first move.⁸⁵

Building on this momentum, many climate activists hoped to see a decisive shift in national climate policy during President Obama's first term. As the President and Congress grappled with the pervasive impacts of the economic crisis, however, this decisive shift seemed more and more evasive. Following a failed push for congressional action on climate change and the resulting "demise of federal legislation as a realistic option for addressing climate change,"⁸⁶ President Obama's first term slipped by without the hoped-for sea change.

If President Obama's first term was characterized by promising but ultimately abortive legislative initiatives and fledgling efforts to develop a political strategy on climate change, his second term was characterized by a full-fledged re-direction of executive energy towards creating a robust national climate agenda. On a sweltering day in June

[<https://perma.cc/C47M-P8AH>] (listing Presidential Executive Orders related to climate change).

81. 549 U.S. 497 (2007); *see also infra* text accompanying note 198.

82. State of California Request for Waiver Under 42 U.S.C. 7543(b), the Clean Air Act, 74 Fed. Reg. at 4,905. The EPA subsequently granted the waiver request on June 30, 2009.

83. The Energy Independence and Security Act of 2007, 74 Fed. Reg. at 4,907.

84. *See* President Barack Obama, *Remarks on Fuel Efficiency Standards*, in 1 PUBLIC PAPERS OF THE PRESIDENTS OF THE UNITED STATES 672, 673–74 (2009) (announcing a new policy that increases gas mileage and decreases emissions, that was developed by a partnership of two agencies, ten companies, and fourteen states).

85. *See, e.g.*, U.S. ENERGY INFO. ADMIN., EMISSIONS OF GREENHOUSE GASES IN THE UNITED STATES 2009 2 (2011), https://www.eia.gov/environment/emissions/ghg_report/pdf/0573%282009%29.pdf [<https://perma.cc/Y8WS-D6FR>] (comparing greenhouse gas emissions from the electric power; transportation; and commercial, residential, and industry sectors).

86. DANIEL A. FARBER & CINNAMON P. CARLARNE, CLIMATE CHANGE LAW 151 (2018).

2013, speaking before an audience at Georgetown University, President Obama symbolically took off his jacket, rolled up his shirt sleeves and unveiled his Climate Action Plan (“the Plan”).⁸⁷

C. *The Climate Action Plan*

President Obama’s Climate Action Plan laid out a sweeping executive strategy based on three core pillars: (1) cut domestic carbon pollution; (2) prepare the United States for the impacts of climate change; and (3) lead international efforts to address global climate change.⁸⁸ The agenda mirrored the international climate change regime with its joint focus on mitigation and adaptation,⁸⁹ its emphasis on the importance of drawing on hard and soft law, and its efforts to leverage the public and private sector to address climate change. In key part, President Obama’s climate agenda envisioned developing a domestic climate system with a core legal backbone centered on mitigating greenhouse gas emissions from the energy and transport sectors, but then surrounding and supporting that legal backbone with an extensive set of executive-mandated and executive-facilitated initiatives to reconfigure everything from federal energy efficiency standards, to international energy investment, to agricultural emissions.⁹⁰

87. EXEC. OFFICE OF THE PRESIDENT, THE PRESIDENT’S CLIMATE ACTION PLAN (2013), <https://obamawhitehouse.archives.gov/sites/default/files/image/president27climateactionplan.pdf> [<https://perma.cc/3RP7-W2PL>] [hereinafter CLIMATE ACTION PLAN]; see also Press Release, The White House: President Barack Obama, Fact Sheet: President Obama’s Climate Action Plan (June 25, 2013), <https://obamawhitehouse.archives.gov/the-press-office/2013/06/25/fact-sheet-president-obama-s-climate-action-plan> [<https://perma.cc/92K7-B8SW>]. For a narrative of President Obama’s announcement of the plan, see *President Obama Announces Climate Action Plan*, ENV’T & ENERGY STUDY INST. (June 26, 2013), <https://www.eesi.org/articles/view/president-obama-announces-climate-action-plan> [<https://perma.cc/MJY7-PPQM>]. For an early analysis of the plan, see Jennifer Morgan & Kevin Kennedy, *First Take: Looking at President Obama’s Climate Plan*, WORLD RES. INST. (June 25, 2013), <https://www.wri.org/blog/2013/06/first-take-looking-president-obama-s-climate-action-plan> [<https://perma.cc/XV56-UFNM>].

88. *Id.* at 5.

89. See Cinnamon P. Carlarne, *Rethinking a Failing Framework: Adaptation and Institutional Rebirth for the Global Climate Change Regime*, 25 GEO. INT’L ENVTL. L. REV. 1, 21–22, 32 (2012) (discussing the evolution of UNFCCC negotiations and the increased focus on adaptation over time, as mitigation efforts languished and patterns of climate change advanced and citing the Cancun Agreement’s determination that “[a]daptation must be addressed with the same priority as mitigation and requires appropriate institutional arrangements to enhance adaptation action and support,” Decision 1/CP.16, The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention Part I(2)(b), FCCC/CP/2010/7/Add.1 (2010)).

90. CLIMATE ACTION PLAN, *supra* note 87, at 6, 8, 11, 14–15, 20–21.

Viewing the agenda from the vantage point of history, and through the lens of the Trump Administration, three aspects of President Obama's agenda stand out.

First, the climate agenda was serious, far-reaching, and ambitious, but it was also smart and focused on incremental change. It neither attempted to dramatically reconfigure the US energy and transport sectors in one fell swoop, nor to position efforts to address climate change in such a way as to put a brake on economic activity or threaten core American values. It did, however, attempt to elevate climate change as an economic and social priority and to infuse climate considerations across all aspects of political decision-making.

Second, virtually all the legal components and executive initiatives that provided the core of the climate agenda were susceptible to political roll-back. This was an inevitable and fully understood element of attempting to develop and implement an executive-led climate strategy during a second presidential term with a largely unsupportive Congress.

Third, the climate agenda vividly demonstrates the degree to which the Obama Administration understood the evolving role of federal leadership on climate change. President Obama understood the urgency and importance of national leadership. He recognized the power of the state to facilitate extensive, enduring change by providing vision, legal structure, high-level coordination, financial investment, and general economies of scale. He also, however, recognized the evolving role of subnational and non-state actors in shaping climate law, policy, and consciousness.⁹¹ The agenda was designed to harness the existing energy, initiatives, and infrastructure that subnational and non-state actors had been steadily building for almost two decades.⁹²

91. See Hoshijima, *supra* note 69, at 174–76. Hoshijima offers a helpful discussion of the way in which President Obama's climate agenda sought to develop and embed climate consciousness at the federal level. Hoshijima suggests, in key part, that there was a fourth pillar to President Obama's climate agenda that included

a set of policies that advanced climate-consciousness in the executive branch . . . the Obama Administration championed climate-consciousness with tools that were deeply reliant on sound scientific, technical, and economic information. In other words, the Obama Administration sought to accomplish its objectives in a manner that enhanced bureaucratic rationality. This focus on reasoned administration responded to a judicial demand for scientifically rigorous government responses to climate change, while sidestepping congressional hostility to climate change action by finding a narrow zone of relative congressional inattention.

Id.

92. See generally Carlarne, *supra* note 7, at 1353–54 (examining state and local law- and policy-making efforts as well as civil society's strategies for influencing climate

The Obama Administration understood that both the short-term success and long-term durability of the agenda would inevitably turn on its ability to tap into and advance the increasingly widespread, coordinated, and ambitious climate efforts of subnational and non-state actors. Even as President Obama boldly erected the scaffolding for U.S. climate policy seemingly from the ground up, he was drawing upon the blueprints, expertise, and enthusiasm from subnational and non-state actors to create a framework that could persist across the waxes and wanes of presidential leadership.

In 2013, even as President Obama girded for extreme political and legal backlash against his agenda, no one was anticipating the wrecking ball that would swing directly at its core in 2017. But before proceeding to examine the legacy of President Obama's agenda in light of President Trump's subsequent demolition efforts, it is useful to briefly examine each pillar of the Climate Action Plan in turn.

Providing the foundation for the Climate Action Plan, in 2009, President Obama pledged that, by 2020, the United States would reduce its greenhouse gas emissions in the range of 17% below 2005 levels.⁹³ Subsequently, in 2014, in the run-up to negotiations for the Paris Agreement, President Obama announced a new, more ambitious target to cut greenhouse gas emissions 26% to 28% below 2005 levels by 2025.⁹⁴

These commitments form the backdrop for the first pillar of the Climate Action Plan, which laid out the President's mitigation strategy. The first pillar emphasized federal leadership both through pursuing voluntary clean energy and energy efficiency initiatives and through adopting binding legal measures.⁹⁵ The centerpiece of President Obama's mitigation strategy focused on bolstering the evolving regulatory regime for automobile emissions with a commitment to establish national carbon pollution standards for power plants under the CAA. To this end, on the same day that President Obama rolled out his Climate Action Plan, he issued a Presidential Memorandum

policy); Murthy, *supra* note 31, at 17–19 (discussing the role of subnational actors as norm sustainers during periods in which the state abdicates a leadership role).

93. CLIMATE ACTION PLAN, *supra* note 87, at 4.

94. Press Release, The White House: President Barack Obama, Fact Sheet: U.S.-China Joint Announcement on Climate Change and Clean Energy Cooperation (Nov. 12, 2014), <https://obamawhitehouse.archives.gov/the-press-office/2014/11/11/fact-sheet-us-china-joint-announcement-climate-change-and-clean-energy-c> [<https://perma.cc/969N-T5CT>].

95. These include, for example, pursuing greater energy efficiency and increasing the amount of electricity coming from renewable sources within the federal government. CLIMATE ACTION PLAN, *supra* note 87, at 6.

directing the EPA “to issue standards, regulations, or guidelines, as appropriate, that address carbon pollution from modified, reconstructed, and existing power plants and build on State efforts to move toward a cleaner power sector.”⁹⁶ This Memorandum led to the release, on August 3, 2015, of the CPP.⁹⁷ The CPP was designed to cut carbon emissions from power plants by 32% below 2005 levels by 2030. By targeting power plant emissions that constitute the “the largest concentrated source of emissions in the United States, together accounting for roughly one-third of all domestic greenhouse gas emissions,”⁹⁸ the CPP provided the cornerstone for national efforts to begin ratcheting down emissions and a critical tool towards allowing President Obama to achieve domestic and international emissions reductions targets.⁹⁹

Although the CPP and the automobile emissions standards provided the legal backbone for carbon pollution reduction efforts, the Climate Action Plan laid out a series of supporting executive-led strategies.¹⁰⁰ The mitigation agenda reflected an effort to create a multi-sector, multi-level governance strategy that drew upon the collective abilities of the federal, state, and non-state sectors to advance public and private regulatory and market-based strategies for reducing emissions and sparking innovation.

In sum, the Climate Action Plan centered around developing an ambitious legal mitigation core, consisting of the CPP and the fuel

96. Power Sector Carbon Pollution Standards, 78 Fed. Reg. 39,535, 39,535–36 (July 1, 2013) (revoked by Exec. Order No. 13,783, 3 C.F.R. 314 (2017)).

97. EPA, OVERVIEW OF THE CLEAN POWER PLAN CUTTING CARBON POLLUTION FROM POWER PLANTS 2 (2015), <https://archive.epa.gov/epa/sites/production/files/2015-08/documents/fs-cpp-overview.pdf> [<https://perma.cc/RSN2-FXL7>].

98. CLIMATE ACTION PLAN, *supra* note 87, at 6.

99. As a Party to the Paris Agreement, the United States had committed “to achieve an economy-wide target of reducing its greenhouse gas emissions by 26%–28% below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28%.” U.S.A. First NDC Submission, NDC REGISTRY (Mar. 31, 2015), <https://www.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First%20NDC%20Submission.pdf> [<https://perma.cc/B2VS-9K6G>].

100. *See, e.g.*, CLIMATE ACTION PLAN, *supra* note 87, at 7–11. These included everything from accelerating the permitting process for renewable energy facilities, to increasing the federal budget and loan guarantee program for clean energy and advanced fossil energy projects, to advancing partnerships between the private and public sectors to deploy cleaner fuels and supporting state and city efforts to improve transportation options, to cutting energy waste through new adopting new efficiency standards for appliances and reduced barriers to investment in energy efficiency, to tackling emissions from other greenhouse gases such as HFCs and methane, to advancing efforts to reduce emissions from deforestation and degradation and enhance carbon uptake through forestry management efforts. *Id.*

economy standards, but then surrounding these regulatory pillars with a suite of supportive measures. Recognizing the political vulnerability of regulatory measures and the pressing reality that, even should these regulatory initiatives persist, successfully tackling greenhouse gas emissions in the long-term requires economy-wide transitions in how we live, move, and above all, consume energy, President Obama used the Climate Action Plan to sketch out a multi-layered strategy for addressing climate change.

The second pillar of President Obama's Climate Action Plan, facetiously titled, "Prepare the United States for the Impacts of Climate Change," contained the adaptation and resiliency objectives of his climate agenda.¹⁰¹ In contrast to the rule-oriented and executive driven mitigation strategy, the adaptation strategy was less directive and more facilitative of ongoing subnational efforts, while still recognizing the important role of the federal government. President Obama framed the federal government's role as follows:

The federal government has an important role to play in supporting community-based preparedness and resilience efforts, establishing policies that promote preparedness, protecting critical infrastructure and public resources, supporting science and research germane to preparedness and resilience, and ensuring that federal operations and facilities continue to protect and serve citizens in a changing climate.¹⁰²

In common with evolving adaptation and resiliency strategies worldwide, President Obama's approach recognized that while there may be no "optimal"¹⁰³ adaptation strategy, the best level for adaptation actions will often be at the local or regional levels.¹⁰⁴ In contrast to mitigation policy, where the focus is often on overcoming collective action challenges and maximizing economies of scale in order to reduce greenhouse gas emissions through sweeping top-down decision-making, in the adaptation and resiliency planning context, the challenges are more varied and location specific. Adaptation

101. CLIMATE ACTION PLAN, *supra* note 87, at 5, 12.

102. CLIMATE ACTION PLAN, *supra* note 87, at 12.

103. Elinor Ostrom, *A Polycentric Approach for Coping with Climate Change* 39 (World Bank Policy Research Working Paper No. 5095, 2009), <http://documents.worldbank.org/curated/en/480171468315567893/pdf/WPS5095.pdf> [<https://perma.cc/72FK-4BJV>]. Ostrom suggests that as a result of the complexity of the challenges associated with responding to climate change, there are no "optimal" solutions. *Id.* Within this context, a polycentric approach offers a variety of advantages in "that it encourages experimental efforts at multiple levels, as well as the development of methods for assessing the benefits and costs of particular strategies adopted in one type of ecosystem and comparing these with results obtained in other ecosystems." *Id.*

104. *Id.*

planning, thus, requires greater nuance and specificity with respect to the multitude of challenges to which climate change gives rise. This, in turn, necessitates greater decentralization of decision-making authority and, often, more bottom-up policymaking processes. As Adger, Arnell, & Tompkins emphasize, “[a]dapting to climate change involves cascading decisions across a landscape made up of agents from individuals, firms and civil society, to public bodies and governments at local, regional and national scales, and international agencies.”¹⁰⁵ Governance in the adaptation context is therefore frequently decentralized, multi-layered, and messy. Further, this is an area of law and policymaking that is still young and evolving. There is a tremendous amount of experimentation and an increasing amount of cooperation and transnational learning taking place. There is, however, still a dearth of knowledge about the range of governance approaches being employed, the strengths of different strategies, and the ability to translate and repeat successful strategies in diverse geographical contexts. This is still an area ripe for development, legal analysis, and iterative learning. President Obama’s plan reflected the fragmentary and emergent nature of this field.

President Obama’s plan did not propose developing federal rules or a comprehensive national adaptation strategy. Instead, the Plan envisioned taking a variety of steps to maximize the role the federal government plays in accelerating research, planning, and experimentation.

During his first term, President Obama laid the groundwork for his plan by taking steps to create a federal presence in the adaptation and resiliency planning space. Shortly after coming into office, he established the first ever Interagency Climate Change Adaptation Task Force. Subsequently, in October 2009, President Obama signed an Executive Order directing the task force to “recommend ways federal policies and programs can better prepare the Nation for change.”¹⁰⁶ This was followed by the first ever National Climate Adaptation Summit, which brought together key stakeholders to identify pressing challenges and opportunities.¹⁰⁷

Building on these initial steps, in February 2013, just months before the release of the Climate Action Plan, federal agencies began

105. W. Neil Adger, Nigel W. Arnell & Emma L. Tompkins, *Successful Adaptation to Climate Change Across Scales*, 15 GLOBAL ENVTL. CHANGE 77, 79 (2005).

106. CLIMATE ACTION PLAN, *supra* note 87, at 12.

107. See, e.g., NAT’L CLIMATE ADAPTATION SUMMIT COMM., NATIONAL CLIMATE ADAPTATION SUMMIT REPORT 4–5 (Sept. 29, 2010), http://vintage.joss.ucar.edu/events/2010/ncas/ncas_report.pdf [<https://perma.cc/YE55-4UEC>] (including the private sector, civil society organizations, and government decisionmakers as stakeholders).

releasing their first ever Climate Change Adaptation Plans in which they commenced the process of “outlining strategies to protect their operations, missions, and programs from the effects of climate change.”¹⁰⁸ Despite the tentative nature of these plans,¹⁰⁹ the mainstreaming of adaptation into federal agency planning harks back to the early days of environmental law, when the first step towards more substantive environmentally minded decision-making was the integration of environmental considerations into federal decision-making processes.¹¹⁰

Drawing from this momentum, the Climate Action Plan proposed strengthening federal support for adaptation in three core areas: (1) “Building Stronger and Safer Communities and Infrastructure”;¹¹¹ (2) “Protecting our Economy & Natural Resources”;¹¹² and (3) “Using Sound Science to Manage Climate Impacts.”¹¹³ In each of these areas, President Obama sought to harness federal powers and resources to advance research, planning, investment, and cooperation.

Following the release of the Climate Action Plan, President Obama took a number of steps to advance his agenda, including issuing an executive order on climate preparedness.¹¹⁴ Stressing the need to “improve the Nation’s preparedness and resilience,” the President directed agencies to report on planned changes to their policies and rules necessary to advance climate preparedness; he also established both a federal Council on Climate Preparedness and Resilience consisting of key senior agency officials and a new Task Force on Climate Preparedness and Resilience consisting of governors, mayors, county officials, and Tribal leaders.¹¹⁵

From here, President Obama issued a number of complementary executive orders and presidential memoranda addressing federal goals

108. CLIMATE ACTION PLAN, *supra* note 87, at 12.

109. See, e.g., CONG. RESEARCH SERV., R43915, CLIMATE CHANGE ADAPTATION BY FEDERAL AGENCIES: AN ANALYSIS OF PLANS AND ISSUES FOR CONGRESS (2015), https://www.everycrsreport.com/files/20150223_R43915_9b9a4bd5f4f793f04fe0e6fd4cbac857e8187970.pdf [<https://perma.cc/WT7Q-2ERF>].

110. See, e.g., Joseph L. Sax, *Introduction*, 19 U. MICH. J.L. REF. 797, 804 n.28 (1986) (recognizing the influence of NEPA’s “soft law” elements).

111. CLIMATE ACTION PLAN, *supra* note 87, at 12–14.

112. *Id.* at 14–15.

113. *Id.* at 16.

114. See Exec. Order No. 13,653, 3 C.F.R. 330, 330 (2013) (modernizing federal programs to support climate resilient investment and planning, managing federal lands for climate change preparedness, and establishing a council on climate preparedness and resilience) (revoked by Exec. Order No. 13,783, 3 C.F.R. 314 (2017)).

115. *Id.* at 330–36.

and obligations with respect to a sweeping range of adaptation and resilience-related topics including: advancing climate-resilient international development;¹¹⁶ minimizing flood risks;¹¹⁷ minimizing wildfire risks;¹¹⁸ improving drought resilience;¹¹⁹ understanding and minimizing climate risks to the Arctic;¹²⁰ and ensuring climate-related risks are integrated into national security planning.¹²¹

President Obama's agenda focused on leveraging federal resources to facilitate adaptation and resiliency efforts in discrete sectors (e.g., water, fire, disaster, flooding, agriculture) in ways that built on existing subnational momentum and advanced public-private partnerships. Consequently, while the conspicuous federal research and funding efforts under the second pillar provided easy targets for political roll-back,¹²² many of the initiatives proposed in the Climate Action Plan have proven less susceptible to sweeping political overhaul, with a number of adaptation and resiliency-focused executive orders (thus far) remaining on the books.¹²³

The third and final pillar of President Obama's Climate Action Plan focused on reasserting U.S. leadership in the international arena.¹²⁴ Under President Obama's predecessor, President George W. Bush, the

116. Exec. Order No. 13,677, 3 C.F.R. 299, 299–300 (2014).

117. Exec. Order No. 13,690, 3 C.F.R. 268, 268 (2015) (revoked by Exec. Order No. 13,807, 3 C.F.R. 369 (2017)).

118. Exec. Order No. 13,728, 3 C.F.R. 460, 460 (2016).

119. Memorandum on Building National Capabilities for Long-Term Drought Resilience, 81 Fed. Reg. 16,053, 16,053 (Mar. 25, 2016).

120. Exec. Order No. 13,689, 3 C.F.R. 264, 265 (2015).

121. Memorandum on Climate Change and National Security, 2016 DAILY COMP. PRES. DOC. 1 (Sept. 21, 2016) (revoked by Exec. Order No. 13,783, 3 C.F.R. 314 (2017)).

122. For example, President Trump has revoked President Obama's executive orders related to climate preparedness and flood management. *See* Exec. Order No. 13,807, 3 C.F.R. at 376 (revoking Exec. Order No. 13,690 (Flood Risk Management)); Exec. Order No. 13,783, 3 C.F.R. at 316 (revoking Exec. Order No. 13,653, 3 C.F.R. 330 (2013) (Climate Change Preparedness), Memorandum on Power Sector Carbon Pollution Standards, and Memorandum on Climate Change and National Security).

123. Benjamin Hulac, *Key Obama Climate Orders Still on the Books*, E&E NEWS (May 2, 2018), <https://www.eenews.net/stories/1060080615> [<https://perma.cc/FQB7-KVC8>].

124. CLIMATE ACTION PLAN, *supra* note 87, at 5, 17, 21; *see also* Press Release, The White House: President Barack Obama, U.S. Leadership and the Historic Paris Agreement to Combat Climate Change (Dec. 12, 2015), <https://obamawhitehouse.archives.gov/the-press-office/2015/12/12/us-leadership-and-historic-paris-agreement-combat-climate-change> [<https://perma.cc/RC9U-DT9N>] (discussing the ambitious nature of the Paris Agreement's commitment, including efforts to involve private, subnational, and individual actors; to increase financing options for mitigation and adaptation development programs; and to establish transparent reporting processes for each country).

United States did not merely abdicate leadership in international negotiations, it actively opposed the Kyoto Protocol, leading to significant delays in the Protocol entering into force.¹²⁵ Following multiple years of stalled negotiations and the United States dragging its feet, in 2009, President Obama reasserted U.S. leadership in international climate negotiations.

Seeking to advance his international leadership role, President Obama used his Climate Action Plan to lay out a pathway towards advancing multilateral and bilateral engagement on climate change. In key part, the President highlighted the progress he had already made toward building working relationships with key emerging economies, including China, India, and Brazil,¹²⁶ as well as multilateral initiatives he has championed to reduce short-lived climate pollutants, to address emissions from deforestation, and to promote the expansion of clean energy worldwide.¹²⁷ The Plan then stressed the importance of liberalizing trade in environmental goods, increasing public sector financing for clean energy, and strengthening global resilience to climate change. Here, again, the Plan emphasized the Obama Administration's track record in advancing these goals, highlighting the billions of dollars that the Administration had already mobilized for clean energy investments and climate preparedness worldwide.¹²⁸

The Plan then briefly chronicled the successes the Obama Administration had achieved with respect to international negotiations, asserting that “[t]he United States has made historic progress in the international climate negotiations during the past four years.”¹²⁹ Building on this narrative, the Administration laid out its vision for what would ultimately become the Paris Agreement, stating that the Agreement must be “ambitious, inclusive and flexible.”¹³⁰

Across the three pillars of his Climate Action Plan—mitigation, adaptation, and international leadership—President Obama was drawing on a relatively clean slate. As detailed elsewhere,¹³¹ his

125. *U.S. Rejection of Kyoto Protocol Process*, 95 AM. J. INT'L L. 647, 647–48 (Sean D. Murphy ed., 2001).

126. These include bilateral partnerships such as the U.S.-China Clean Energy Research Center, the U.S.-India Partnership to Advance Clean Energy, and the Strategic Energy Dialogue with Brazil. CLIMATE ACTION PLAN, *supra* note 87, at 17.

127. *Id.* at 18.

128. *Id.* at 20. The President also called for an end to U.S. support for public financing of most new coal plants overseas.

129. *Id.* at 21.

130. *Id.*

131. See, e.g., Carlarne, *supra* note 7, at 1360–63 (exploring President George W. Bush's climate policy as non-committal and based on deceptive metrics).

predecessor, President George W. Bush, had done very little to construct either a legal regime or a substantive policy approach to addressing climate change. Consequently, as in the mitigation and adaptation contexts, where President Obama sought to use legal (e.g., the CPP) and executive (e.g., the Task Force on Climate Preparedness and Resilience) initiatives to lay the foundation for a multi-layered approach to climate change, here, as well, he attempted to create a comprehensive platform for action.

In the international context, however, President Obama not only had to chart a course of action, he also had to overcome a legacy of U.S. political opposition to climate negotiations. The obstructionist attitude of the Bush Administration created a legacy of frustration and ill-will that empowered other powerful polluting states, especially China¹³² in such a way as to make it more difficult for President Obama to reassert U.S. influence in climate negotiations. Congressional opposition at home further complicated his international leadership objectives.¹³³ Despite these challenges, President Obama was able to reassert U.S. leadership on climate change at the international level in a way that enabled more fruitful bilateral and international negotiations that ultimately proved instrumental to the adoption of the Paris Agreement.¹³⁴

132. See, e.g., Carlarne, *supra* note 89, at 10. Carlarne explains that:

The re-engagement of the United States was met with the emergence of China and, to a lesser degree, India as dominant players in establishing the parameters of climate governance. In the end, the Conference was neither defined by the negotiating texts that diplomats had spent the past two years refining, nor by the long heralded re-engagement of the United States in global negotiations but by the new political paradigm that emerged.

The Copenhagen Conference revealed the degree to which power—whether political, symbolic, or merely procedural—was dispersed among the state participants. The Conference also demonstrated that there was no longer one clear hegemonic power that could shape negotiations. Rather, states grappled to hold the title of the hegemonic power.

Id. (footnote omitted).

133. See, e.g., David M. Herszenhorn, *Votes in Congress Move to Undercut Climate Pledge*, N.Y. TIMES, Dec. 2, 2015, at A17.

134. Although President Obama actively engaged in international climate negotiations beginning with the 2009 Copenhagen Conference, the firmness of his rhetoric and the authoritativeness of his leadership on climate change increased notably during his second term. As just one example of this, when addressing the UN Climate Summit in September of 2014, he characterized climate change as the “one issue that will define the contours of this century more dramatically than any other, and that is the urgent and growing threat of a changing climate,” and declared:

[T]here should be no question that the United States of America is stepping up to the plate. We recognize our role in creating this problem; we embrace

Key to President Obama's success in the international context was his ability to wield his executive authority to engage China on climate change and to negotiate an international agreement that the United States could become party to without requiring legislative approval.¹³⁵

As the two leading greenhouse gas emitters and two of the most powerful states in global politics, U.S.-Chinese participation on climate change was critical. Following President Xi Jinping's assumption of power in 2012, President Obama sought to improve U.S. relations with China. In June 2013, President Obama and President Xi Jinping met to discuss a range of shared concerns, including climate change.¹³⁶ Subsequently, in 2014, President Obama and President Xi Jinping jointly declared that the two countries "have a critical role to play in combating global climate change, one of the greatest threats facing humanity."¹³⁷ Accordingly, they reaffirmed their commitment to bilateral cooperation and announced the relative post-2020 actions they would commit to taking under the soon-to-be negotiated Paris Agreement.¹³⁸ This unprecedented level of cooperation gave a boost to

our responsibility to combat it. We will do our part, and we will help developing nations do theirs. But we can only succeed in combating climate change if we are joined in this effort by every nation—developed and developing alike. Nobody gets a pass.

Remarks by the President at U.N. Climate Change Summit, WHITE HOUSE: PRESIDENT BARRACK OBAMA (Sept. 23, 2014), <https://obamawhitehouse.archives.gov/the-press-office/2014/09/23/remarks-president-un-climate-change-summit> [<https://perma.cc/SU3E-GP3C>].

135. See DANIEL BODANSKY, *IN BRIEF: LEGAL OPTIONS FOR U.S. ACCEPTANCE OF A NEW CLIMATE CHANGE AGREEMENT* 2–3, 5 (2015), <https://www.c2es.org/site/assets/uploads/2015/05/in-brief-legal-options-us-acceptance-new-climate-change-agreement.pdf> [<https://perma.cc/PMH3-NWRB>] (explaining the three constitutionally allowed pathways for the president to ratify a treaty without the advice and consent of the senate: congressional-executive agreements, treaty-executive agreements, and presidential-executive agreements).

136. See *Remarks Following a Meeting with President Xi Jinping of China and an Exchange with Reporters in Rancho Mirage, California*, 2013 DAILY COMP. PRES. DOC. 5 (June 7, 2013).

137. Fact Sheet: U.S.-China Joint Announcement on Climate Change and Clean Energy Cooperation, *supra* note 94.

138. These commitments were as follows:

The United States intends to achieve an economy-wide target of reducing its emissions by 26%–28% below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28%. China intends to achieve the peaking of CO₂ emissions around 2030 and to make best efforts to peak early and intends to increase the share of non-fossil fuels in primary energy consumption to around 20% by 2030. Both sides intend to continue to work to increase ambition over time.

Id.

international climate negotiations, with then UNFCCC Executive Secretary, Christiana Figueres, declaring that:

[The] joint announcement provides both practical and political momentum towards a new, universal climate agreement in Paris in late 2015 that is meaningful, forward-looking and recognizes that combating climate change is not a five or ten year plan—but is a long term commitment to keep a global temperature rise under [two] degrees throughout this century.¹³⁹

President Obama achieved similar success in ensuring that the contours of the subsequently negotiated Paris Agreement, and the United States' obligations thereunder, would allow President Obama to accept the agreement on behalf of the United States without seeking legislative approval.¹⁴⁰ As a result, on September 3, 2016, the United States formally accepted the Paris Agreement.¹⁴¹ Symbolically, the United States and China submitted their respective instruments to join the Paris Agreement on the same day, marking a defining moment in international climate change law.¹⁴²

Despite historic advances in international cooperation and ambitious work to structure robust domestic legal and political foundations for addressing climate change, President Obama's climate legacy is both flawed and fragile.¹⁴³ At the end of his second term, the future of his key legal initiative—the CPP—was tenuous at best given

139. Press Release, UNFCCC, US, China Climate Moves Boost Paris Prospects (Nov. 12, 2014), <https://unfccc.int/news/us-china-climate-moves-boost-paris-prospects> [<https://perma.cc/2VD8-S3JL>].

140. For a discussion of different forms of executive agreements, see Daniel Bodansky & Peter Spiro, *Executive Agreements*, 49 VAND. J. TRANSNAT'L L. 885, 916–19 (2016) (explaining how the President can accept procedural aspects of international agreements under the foreign affairs power to communicate with other nations under the following three conditions: (1) “the core obligations . . . are procedural in nature”; (2) the decision to join the agreement “finds significant support in the Senate’s prior approval” in a prior agreement that “largely elaborates obligations contained in [the prior agreement]”; and the agreement “is consistent with and can be implemented on the basis of existing legal and regulatory authorities”).

141. Tanya Somanader, *President Obama: The United States Formally Enters the Paris Agreement*, WHITE HOUSE: PRESIDENT BARACK OBAMA (Sept. 3, 2016, 10:41 AM), <https://obamawhitehouse.archives.gov/blog/2016/09/03/president-obama-united-states-formally-enters-paris-agreement> [<https://perma.cc/GQ7E-VTAN>].

142. *Id.*

143. For an informative overview and timeline of the progress the Obama Administration made towards implementing the Climate Action Plan, see *Fact Sheet: Timeline of Progress Made in President Obama's Climate Action Plan*, ENV'T & ENERGY STUDY INST. (Apr. 5, 2015), <https://www.eesi.org/papers/view/fact-sheet-timeline-progress-of-president-obama-climate-action-plan> [<https://perma.cc/MB72-MM35>].

that the Supreme Court had stayed implementation of the rule.¹⁴⁴ Moreover, the Presidents' efforts to facilitate a coordinated approach to improving national adaptation and resiliency efforts remained fragmented and in their infancy, and the ability of the Paris Agreement to mobilize the level of commitments needed to limit dangerous anthropogenic climate change hung in the balance.¹⁴⁵ The success of these initiatives depended on continuing efforts to strengthen the foundations that the Obama Administration had laid. Instead, the 2016 election brought these legal construction efforts to a dramatic halt. By late 2016, the question was no longer how to advance existing initiatives, but whether and how they could survive the impending swing of the wrecking ball that President Trump had already threatened.

III. THE TRUMP ERA: INTERNATIONAL OBSTRUCTION AND DOMESTIC DEREGULATION

President Obama was able to help bring about a relatively rapid set of changes to climate change law and policy at the international and domestic levels. He drew upon the full strength of his executive authority to achieve a degree of change that could only be achieved through the vehicle of the state. State power, of course, can be wielded to constructive or destructive ends. With the transition from President Obama to President Trump, we have witnessed President Trump wield the power of the state to dismantle domestic rules, derail international cooperation, deepen political polarization, and undermine science-based decision-making.

"They're taking them down, one by one."¹⁴⁶ Thus did Janet McCabe, the EPA's top climate and clean-air regulator during the Obama Administration, aptly sum up the Trump Administrations' approach to the suite of climate-related rules adopted during the Obama-era.

As discussed, President Trump ran on a platform of Tweet-based mockery of climate science, flippant opposition to domestic and international climate action, and resolute commitment to propping up

144. Even before President Trump declared his intent to revoke the CPP rule, the Supreme Court had stayed implementation of the rule pending judicial challenge. See Courtney Sobie, *Supreme Court Stays EPA Clean Power Plan*, A.B.A. (Feb. 27, 2016), <https://www.americanbar.org/groups/litigation/committees/environmental-energy/practice/2016/021716-energy-supreme-court-stays-epas-clean-power-plan> [<https://perma.cc/Z9FL-QKVP>].

145. See, e.g., *Paris Agreement*, *supra* note 23, at 2 (summarizing the mitigation gap).

146. Coral Davenport, *White House Set to Weaken Rules Curbing Methane Use*, N.Y. TIMES, Sept. 11, 2018, at A1.

domestic sources of fossil fuel energy.¹⁴⁷ Accordingly, it came as no surprise when President-elect Trump populated his energy transition team with climate skeptics and energy lobbyists.¹⁴⁸ Moreover, President Trump organized his transition agenda around an “America First” policy premised, in the case of energy and the environment, on achieving energy independence; relieving burdens on the domestic fossil fuel industry; and unraveling many Obama-era regulations such as his “stupid” climate rule for power plants.¹⁴⁹ President Trump’s energy and environment plan sought to prioritize a suite of policies, including: withdrawing the United States from the Paris Agreement; increasing domestic production of natural resources; reviving the coal industry; expediting environmental reviews of energy-related projects; accelerating large energy infrastructure projects, such as the Keystone XL Pipeline; reviewing subsidies for renewable sources of energy; repealing the CPP; and relaxing fuel economy standards.¹⁵⁰

Once President Trump assumed office, he immediately began the promised process of deregulation by rolling back Obama-era rules across the board. By 2018, the Administration boasted that “[s]ince January 2017, a total of 2253 regulatory actions have been delayed or withdrawn,”¹⁵¹ including the CPP, and highlighted priority areas for further regulatory roll-back, including initiatives to freeze CAFE standards and tailpipe carbon dioxide emission standards for passenger vehicles and light trucks.¹⁵²

147. See *supra* notes 50–52.

148. See, e.g., Robin Bravender, *Trump’s Energy Team Overhauled*, E&E NEWS (Nov. 21, 2016), <https://www.eenews.net/stories/1060046098> [<https://perma.cc/7782-ZN6F>] (explaining that many lobbyists are stepping down and being replaced with former lobbyists and climate change skeptics); Steven Mufson, *Trump’s Energy Policy Team Includes Climate Change Skeptic, Free-Market Advocate*, WASH. POST (Nov. 29, 2016), https://www.washingtonpost.com/business/economy/trumps-energy-policy-team-includes-climate-change-skeptic-free-market-advocate/2016/11/29/86e52004-b5a4-11e6-b8df-600bd9d38a02_story.html (stating that President-elect Trump met with former lobbyists and climate change skeptics for transition advice).

149. Timothy Cama & Devin Henry, *Trump Outlines ‘America First’ Energy Plan*, HILL (May 26, 2016), <https://thehill.com/policy/energy-environment/281430-trump-outlines-america-first-energy-plan> [<https://perma.cc/V5VW-Y6EA>].

150. *Id.*

151. OFFICE OF MGMT. & BUDGET, THE 2018 REGULATORY REFORM REPORT: CUTTING THE RED TAPE, UNLEASHING ECONOMIC FREEDOM, <https://www.whitehouse.gov/wp-content/uploads/2018/10/2018-Unified-Agenda-Cutting-the-Red-Tape.pdf> [<https://perma.cc/2N7K-TQXN>].

152. *Id.* (identifying additional further roll-backs to include freezing CAFE standards and tailpipe carbon dioxide emission standards for passenger vehicles and light trucks); see also Nadja Popovic et al., *85 Environmental Rules Being Rolled Back Under Trump*, N.Y. TIMES

In common with President Obama's ambitious construction of climate change laws and policies following the policymaking drought during the Bush-era, the litany of changes that President Trump has made to deconstruct Obama-era climate laws and policies are too many to review. Here, this Article examines key steps the Trump Administration has taken to alter the United States' approach to climate change. The primary objective here, as throughout this Article, is to develop an understanding of how President Trump's approach to climate change shapes larger domestic efforts to develop an effective system of climate law moving forward, particularly as we look ahead to the presidential election of 2020.

A. *The Domestic Death of the "Draconian" Paris Agreement*

Keeping with his campaign-trail promise, on June 1, 2017, President Trump announced that the United States would be withdrawing from the Paris Agreement.¹⁵³ More precisely, he declared that "as of today, the United States will cease all implementation of the non-binding Paris Accord and the draconian financial and economic burdens the agreement imposes on our country."¹⁵⁴ In his speech he decried the Agreement as "simply the latest example of Washington entering into an agreement that disadvantages the United States to the exclusive benefit of other countries," as "handicap[ing] the United States economy in order to win praise from the very foreign capitals and global activists that have long sought to gain wealth at our country's expense" and, ultimately, as "very unfair, at the highest level, to the United States."¹⁵⁵ The United States, therefore, would terminate all steps to comply with the Agreement, including implementing domestic emissions reduction efforts and contributing to climate finance initiatives.

The legal effect of President Trump's announcement was limited by the terms of the agreement, which prevent the United States from formally withdrawing from the Agreement until November 4, 2020, the

(Sept. 12, 2019), <https://www.nytimes.com/interactive/2019/climate/trump-environment-rollbacks.html> (highlighting regulations that have been successfully repealed).

153. President Donald J. Trump, Statement by President Trump on the Paris Climate Accord (June 1, 2017), <https://www.whitehouse.gov/briefings-statements/statement-president-trump-paris-climate-accord> [<https://perma.cc/U9YF-9792>]; see also *President Trump Announces U.S. Withdrawal from the Paris Climate Accord*, WHITE HOUSE (June 1, 2017), <https://www.whitehouse.gov/articles/president-trump-announces-u-s-withdrawal-paris-climate-accord> [<https://perma.cc/3DBE-WMFZ>].

154. Statement by President Trump on the Paris Climate Accord, *supra* note 153.

155. *Id.*

day after the next presidential election.¹⁵⁶ The symbolic and substantive effects of President Trump's announcement, however, were significant. First, it set the tone for the Trump Administration's approach to climate change. This tone being total defiance of the idea that the United States should be a cooperative actor on climate change and an unapologetic intent to undo the work of the previous administration to reassert U.S. leadership on climate change. Second, the decision to cease implementation of the Agreement had immediate effect on global mitigation and adaptation efforts, given that it meant that the United States—the second largest-global GHG emitter—would no longer commit to reducing its emissions in line with the pledge that it made under the Agreement, thus undermining cumulative global efforts to limit warming. Further, it also meant that the United States would immediately stop providing the climate finance that it had committed to under the Obama Administration, with the effect of weakening global mitigation and adaptation efforts.

President Trump's announcement, however, also had a side effect that he may not have predicted. At the domestic level, his announcement was met with an immediate outpouring of resistance and widespread efforts to mobilize subnational and non-state actors to step into the void to help keep the United States on track to pursuing domestic and international commitments to address climate change. On the same day that President Trump announced the United States' de facto withdrawal from the Paris Agreement, the governors of California, Washington, and New York announced they had formed a new partnership, the United States Climate Alliance, aimed at advancing the goals of the Paris Agreement and fulfilling the United States' obligations thereunder.¹⁵⁷ On the same day, eighty-four U.S. mayors, representing forty million Americans, issued a joint statement declaring their intention to “adopt, honor, and uphold the

156. *Paris Agreement*, *supra* note 23, at Annex, art. 28.1–2 (“At any time after three years from the date on which this Agreement has entered into force for a Party [for the United States, November 4, 2016], that Party may withdraw from this Agreement by giving written notification to the Depositary. Any such withdrawal shall take effect upon expiry of one year from the date of receipt by the Depositary of the notification of withdrawal . . .”). The United States status is, thus, “pending withdrawal.” See Harold Hongju Koh, *Presidential Power to Terminate International Agreements*, 128 *YALE L.J.F.* 432, 468–70 (2018).

157. U.S. CLIMATE ALLIANCE, <https://www.usclimatealliance.org> [<https://perma.cc/G7F3-HR23>]. By summer 2019, 25 governors were members. Press Release, U.S. Climate Alliance, Montana Governor Steve Bullock Becomes 25th Governor to Join U.S. Climate Alliance (July 1, 2019), <https://www.usclimatealliance.org/publications/2019/7/1/montana-governor-steve-bullock-becomes-25th-governor-to-join-us-climate-alliance> [<https://perma.cc/A6SP-J5KA>].

commitments to the goals enshrined in the Paris Agreement.”¹⁵⁸ Complementing the state and city initiatives, in June 2017, a group of mayors, governors, and business leaders launched the “We Are Still In” initiative that brought together a bipartisan coalition of “mayors, county executives, governors, tribal leaders, college and university leaders, businesses, faith groups, cultural institutions, healthcare organizations, and investors,” declaring their intent to continue efforts to implement the United States international climate pledge.¹⁵⁹ Also in June 2017, California Governor, Jerry Brown, together with Michael Bloomberg launched “America’s Pledge,” an initiative to “compile and quantify the actions of states, cities and businesses in the United States to drive down their greenhouse gas emissions consistent with the goals of the Paris Agreement.”¹⁶⁰ The swelling of support for climate action across the public and private sectors has continued to intensify in the wake of persistent presidential efforts to undermine U.S. climate actions.¹⁶¹

At the international level, President Trump’s announcement was met with reactions varying from a symbolic shrug to exasperated defiance. President Emmanuel Macron of France responded to President Trump’s announcement by releasing a speech (in English, and on Twitter) stating that:

Tonight, I wish to tell the United States: France believes in you. The world believes in you. I know that you are a great nation. I know your history, our common history. To all scientists, engineers, entrepreneurs, responsible citizens who were disappointed by the decision of the President of the United States, I want to say that they will find in France, a second homeland . . . I can assure you, France will not give up the fight.¹⁶²

158. *Paris Climate Agreement: 407 US Climate Mayors Commit to Adopt, Honor and Uphold Paris Climate Agreement Goals*, CLIMATE MAYORS, <http://climatemayors.org/actions/paris-climate-agreement> [<https://perma.cc/2WED-J7QB>]. As of July 2019, the pact included 407 U.S. Mayors representing 70 million Americans. *Id.*

159. “*We Are Still In*” Declaration, WE ARE STILL IN, <https://www.wearestillin.com/we-are-still-declaration> [<https://perma.cc/5B55-AZPU>].

160. Press Release, Office of Governor Edmund G. Brown, California Governor Jerry Brown and Michael Bloomberg Launch “America’s Pledge” (July 12, 2017), <https://ca.gov/archive/gov39/2017/07/12/news19872/index.html> [<https://perma.cc/K3U8-DYEE>].

161. See *infra* Part IV.

162. *Statement of Emmanuel Macron, President of France* (June 1, 2017), <https://www.pscp.tv/w/1jMKgoodLyqKL>; see also Emmanuel Macron (@EmmanuelMacron), TWITTER (June 1, 2017, 2:46 PM), <https://twitter.com/emmanuelmacron/status/870396270829084672> [<https://perma.cc/6CC8-TEFY>] (posting President Macron’s remarks to his Twitter feed).

He ended his statement with a not-so-subtle dig at Trump, declaring: “[m]ake our planet great again.”¹⁶³ Simultaneously, France joined with Germany and Italy in a statement taking note “with regret of the decision by the United States of America to withdraw from the universal agreement on climate change,” and committing to “step up efforts to support developing countries, in particular the poorest and most vulnerable, in achieving their mitigation and adaptation goals.”¹⁶⁴ The Prime Minister of Canada, Justin Trudeau, expressed similar frustration, stating that:

We are deeply disappointed that the United States federal government has decided to withdraw from the Paris Agreement. Canada is unwavering in our commitment to fight climate change and support clean economic growth While the U.S. decision is disheartening, we remain inspired by the growing momentum around the world to combat climate change and transition to clean growth economies.¹⁶⁵

The Prime Minister of India joined the sentiment of his Canadian and European counterparts, issuing a statement on Twitter stating that the “Paris Agreement reflects our duty towards protecting the Earth and our natural resources. For us, this is an article of faith”¹⁶⁶

Perhaps, most importantly, preceding and following President Trump’s announcement, the Chinese government has expressed support for the Paris Agreement and disappointment in the United States’ efforts to undermine the global pact. Prior to President Trump’s June 2017 announcement, at a speech before the United Nations, Chinese President, Xi Jinping, proclaimed that “[t]he Paris Agreement is a milestone in the history of climate governance. We must ensure this endeavor *is not derailed* All parties should work together to implement the Paris [A]greement. China will continue to

163. *Statement of Emmanuel Macron, President of France, supra* note 162.

164. *Statement by Italy, France, and Germany on the US Withdrawal from the Paris Agreement on Climate*, AMBASCIATA D’ITALIA, WASH. D.C. (June 1, 2017), https://ambwashingtondc.esteri.it/ambasciata_washington/en/sala-stampa/dall_ambasciata/2017/06/dichiarazione-italia-germania-francia.html [<https://perma.cc/LB3Q-TBSW>].

165. *Statement by the Prime Minister of Canada in Response to the United States’ Decision to Withdraw from the Paris Agreement*, PRIME MINISTER CAN. (June 1, 2017), <https://pm.gc.ca/eng/news/2017/06/01/statement-prime-minister-canada-response-united-states-decision-withdraw-paris> [<https://perma.cc/5ECX-YE83>].

166. PMO India (@PMO India), TWITTER (June 3, 2017, 5:29 AM), <https://twitter.com/PMOIndia/status/870980871720845312> [<https://perma.cc/BP5Q-QZA8>].

take steps to tackle climate change and fully honor its obligations.”¹⁶⁷ In the wake of President Trump’s announcement, China has continued to demonstrate support for the Agreement and appears to be exploring ways in which it can assert leadership in the vacuum created by the United States’ abdication.¹⁶⁸

President Trump’s emphatic rejection of the Paris Agreement epitomized his emerging approach to climate policy at the domestic level, which similarly has focused on tearing down the existing legal architecture, undermining climate science, and juxtaposing climate action as in direct conflict with American jobs and economic development. While the President has great power to deconstruct and re-direct State action,¹⁶⁹ his ability to dismantle and undermine the emerging legal architecture and slow the momentum for climate law and policy has been hindered by systemic and social resistance at every level.¹⁷⁰ That is, President Trump has used executive authority to cease implementation of the Paris Agreement and to direct the EPA to repeal the regulatory foundations that President Obama put in place; however, he has not been able to wield that authority to undermine the cooperative momentum motivating international negotiations and

167. See Tom Phillips, *China’s Xi Jinping says Paris Climate Deal Must not be Allowed to Fail*, GUARDIAN (Jan. 18, 2017), <https://www.theguardian.com/world/2017/jan/19/chinas-xi-jinping-says-world-must-implement-paris-climate-deal> [<https://perma.cc/3E6Q-N34X>] (emphasis added) (quoting Xi Jinping).

168. See, e.g., Benjamin Haas, *China Sees an Opportunity to Lead as Trump Withdraws from Paris. But Will It?*, GUARDIAN (June 2, 2017), <https://www.theguardian.com/world/2017/jun/02/china-sees-an-opportunity-to-lead-as-trump-withdraws-from-paris-but-will-it> [<https://perma.cc/YNS9-G7QB>]; see also Hai-Bin Zhang et al., *U.S. Withdrawal from the Paris Agreement: Reasons, Impacts, and China’s Response*, 8 ADVANCES IN CLIMATE CHANGE RES. 220 (2017) (analyzing the range of actions China could, and should, take in response to the United States’ declared withdrawal).

169. For a reminder of the cumulative nature of law and a discussion the resilience of law across changes in radical leadership, see Jeremy Waldron, *The Concept and the Rule of Law*, 43 GA. L. REV. 1, 32–33 (2008). Waldron reminds us:

A legal system builds on itself. Though it is always possible for a law to be amended or revoked, it is not usual for each new legislature to wipe the slate clean of the work of its predecessors. Instead, what legislators do—and what courts also do in their law-making capacity—is add to the laws already in existence. . . . Even when there is a radical change of personnel in the political system—with liberals replacing conservatives—indeed, even when there is a revolution, we hardly ever see a return to “Year Zero” so far as the law is concerned. Instead, law grows by accretion, so that new liberal legislation takes its place alongside old conservative legislation—or at least alongside the old conservative legislation that has not been explicitly repealed.

Id.

170. See *infra* Part IV.

domestic efforts to respond to climate change. President Obama was unable to create iron-clad legal architecture, but he successfully leveraged his authority to push forward international negotiations and to advance international cooperation. His efforts facilitated the creation of a robust international climate change agreement and a firm foundation for international cooperation that has proved resolute and able to withstand the Trump Administration's reversal of course.

B. Gutting the Clean Air Act Regulatory Regime & Deregulating the Fossil Fuel Industry

One of the focal points of Trump's presidency has been fast-tracking the move towards domestic energy independence. To this end, in March 2017, Trump issued an executive order, Promoting Energy Independence and Economic Growth.¹⁷¹ President Trump declared that, "[i]t is in the national interest to promote clean and safe development of our Nation's vast energy resources, while at the same time avoiding regulatory burdens that unnecessarily encumber energy production, constrain economic growth, and prevent job creation."¹⁷² Accordingly, the order directed all executive departments and agencies to "immediately review existing regulations that potentially burden the development or use of domestically produced energy resources and appropriately suspend, revise, or rescind those that unduly burden the development of domestic energy resources"¹⁷³

To jump start the process of reducing regulatory burdens on energy production and begin the process of reversing course on climate change, the order rescinds multiple Obama-era executive orders, including his order related to Preparing the United States for the Impacts of Climate Change and his memoranda related to Power Sector Carbon Pollution Standards and Climate Change and National Security.¹⁷⁴ Further seeking to dismantle the core of President Obama's climate agenda, the executive order also rescinds the Climate Action Plan and the Climate Action Plan Strategy to Reduce Methane Emissions.¹⁷⁵ The order also directs immediate review of the CPP; disbands the Interagency Working Group on the Social Cost of Greenhouse Gases and withdraws its reports on the social cost of

171. Exec. Order No. 13,783, 3 C.F.R. 314 (2017).

172. *Id.* at 314–15.

173. *Id.* at 315.

174. *Id.* at 316 (revoking Exec. Order No. 13,653, 3 C.F.R. 330 (2013) (Climate Change Preparedness), Memorandum on Power Sector Carbon Pollution Standards, and Memorandum on Climate Change and National Security).

175. *Id.*

carbon declaring them “no longer representative of governmental policy”; directs that “any and all moratoria on Federal land coal leasing activities” be lifted; and charges that a suite of other Obama-era rules regulating oil and gas development be reviewed with an eye towards rescinding or revising the rules in order to unencumber energy production.¹⁷⁶ Hence, in one fell swoop, the Trump Administration sought to undermine the foundations of the existing domestic climate regime.

Pursuant to this order, on October 16, 2017, the EPA proposed repealing the CPP¹⁷⁷ and subsequently, on August 21, 2018, issued its proposed replacement, the Affordable Clean Energy (ACE) rule.¹⁷⁸ The CPP was finally repealed and replaced with the ACE on June 19, 2019.¹⁷⁹ According to the EPA, the ACE replaces “the prior Administration’s overly prescriptive and burdensome [CPP] and instead empowers states, promotes energy independence, and facilitates economic growth and job creation.”¹⁸⁰

With the CPP, the Obama Administration sought to create an enforceable legal backbone for reducing emissions from the largest source of emissions in the United States—e.g., existing power plants. Reducing emissions from existing coal-fired power plants is critical to long-term efforts to reduce domestic emissions and central to the United States’ ability to meet its commitments under the Paris Agreement.¹⁸¹ Accordingly, the CPP was designed to ratchet down emissions from power plants by 32% below 2005 levels by 2030.¹⁸²

The EPA attests that the ACE will “reduce emissions of CO₂, mercury, as well as precursors for pollutants like fine particulate matter and ground-level ozone” and “result in annual net benefits of \$120

176. *Id.* at 318.

177. Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 82 Fed. Reg. 48,035 (proposed Oct. 16, 2017) (to be codified at 40 C.F.R. pt. 60).

178. *EPA Proposes Affordable Clean Energy (ACE) Rule*, EPA (Aug. 21, 2018), <https://www.epa.gov/newsreleases/epa-proposes-affordable-clean-energy-ace-rule> [<https://perma.cc/ZH42-KCEY>].

179. EPA, FACT SHEET: THE AFFORDABLE CLEAN ENERGY RULE, https://www.epa.gov/sites/production/files/2019-06/documents/bser_and_eg_fact_sheet_6.18.19_final.pdf [<https://perma.cc/NN9V-Q2WZ>].

180. *EPA Proposes Affordable Clean Energy (ACE) Rule*, *supra* note 178.

181. *See supra* note 94 and accompanying text (describing the United States’ commitment pursuant to the Paris Agreement to reduce greenhouse gas emissions 26% to 28% below 2005 levels by 2025).

182. *See Fact Sheet: Overview of the Clean Power Plan*, EPA, <https://19january2017snapshot.epa.gov/cleanpowerplan/fact-sheet-overview-clean-power-plan> [<https://perma.cc/VBE2-9ML7>].

million to \$730 million, including costs, domestic climate benefits, and health co-benefits.¹⁸³ In contrast to the CPP, which set out in a clear and transparent manner the net emissions reductions that the plan would achieve—i.e., reducing greenhouse gas emissions 32% below 2005 levels by 2030—with the ACE, the EPA states that “along with additional expected emissions reductions based on long-term industry trends” the rule could result in emissions reductions “as much as 35% below 2005 levels” by the year 2030.¹⁸⁴ What is key here is that the rule does not seek to, or even attest to, achieve anything comparable to the emissions reductions the CPP would have achieved. Instead, the rule relies on ongoing industry trends—e.g., the shift from coal to natural gas and the growth of renewable energy to achieve emissions reductions.¹⁸⁵ Notably, when the Trump administration issued the proposed rule, estimates suggested that the ACE would “reduce[] pollution only negligibly even from a no-CPP baseline.”¹⁸⁶ The Trump Administration’s own analysis demonstrates that it would actually allow for an increase in particulate matter and ozone pollution, with dire impacts for human health. The EPA’s estimates suggest that increases in particulate matter and ozone pollution could lead to thousands of premature deaths and increases in pollution-related illness, as compared to the baseline under the CPP. In fact, the “EPA estimates, for example, that in the year 2030 alone somewhere between 350 and

183. EPA Finalizes Affordable Clean Energy Rule, Ensuring Reliable, Diversified Energy Resources While Protecting Our Environment, EPA (June 19, 2019), <https://www.epa.gov/newsreleases/epa-finalizes-affordable-clean-energy-rule-ensuring-reliable-diversified-energy> [<https://perma.cc/A3Z3-UYPE>] (suggesting that ACE will reduce CO₂ emissions by 11-million short tons—less than 1% of current U.S. emissions, SO₂ emissions by 5700 tons, NO_x emissions by 7100 tons, PM_{2.5} emissions by 400 tons, and mercury emissions by fifty-nine pounds).

184. *Id.*

185. This argument has been undercut by recent trends, which reveal an increase in greenhouse gas emissions from the power sector as “natural gas generation increased to meet rising electricity demand, offsetting the emissions reductions associated with coal plant retirements.” Benjamin Storrow, *2019 Power-Sector Trends Point to a Continued Rise in U.S. Emissions*, SCI. AM.: E&E NEWS (June 3, 2019), <https://www.scientificamerican.com/article/2019-power-sector-trends-point-to-a-continued-rise-in-u-s-emissions> [<https://perma.cc/TJ5L-6PKN>].

186. Letter from Cara Horowitz & Ann Carlson, UCLA Sch. of Law, to EPA, Re: Comment by Electricity Grid Experts Benjamin F. Hobbs, Brendan Kirby, Kenneth J. Lutz, and James D. McCalley on Docket ID No. EPA-HQ-OAR-2017-0355, Proposed Affordable Clean Energy Rule (Oct. 30, 2018), https://legal-planet.org/wp-content/uploads/2018/10/Grid-expert-comment-letter_ACE_proposal_Oct_30_2018_FINAL-1.pdf [<https://perma.cc/N8BY-WAHX>].

over 1000 people will die from exposure to particulate matter and ozone whose deaths would have been avoided under the CPP.”¹⁸⁷

In contrast to the CPP, which set individualized emission caps for each state, the ACE jettisons emissions caps of any kind and, instead, “gives states broad latitude to determine how stringently they want to control power plant emissions under their jurisdiction.”¹⁸⁸ The rule operates by mandating heat-rate efficiency improvements (“HRIs”) at individual facilities; the rule does not mandate net emissions reductions by state or even by facility.¹⁸⁹ Because the rule does not set cumulative or individual emissions caps, there is a significant risk that “[d]ue to greater plant efficiency, such HRIs could lead to increased generation and emissions, known as an emissions rebound effect.”¹⁹⁰ Taking the rebound effect into account, one early study suggests that while the ACE “only modestly reduces national power sector CO₂ emissions” it could lead to increases in CO₂ emissions “by up to 8.7% in 18 states plus the District of Columbia in 2030 compared to no policy” and increases in “SO₂ and NO_x emissions in 19 states and 20 states plus DC, respectively, in 2030 compared to no policy, with implications for air quality and public health.”¹⁹¹

Furthermore, while one of President Trump’s repeated objectives has been to remove the Obama Administration’s “overly prescriptive and burdensome”¹⁹² rule and to adopt a new rule that would reduce regulatory burden and minimize costs for industry, the ACE has been critiqued on just this count. One such critique suggests that, according to

187. Nat Logar, *The Affordable Clean Energy Rule Would Be Neither Affordable nor Clean*, LEGAL PLANET (Oct. 31, 2018), <https://legal-planet.org/2018/10/31/the-affordable-clean-energy-rule-would-be-neither-affordable-nor-clean> [https://perma.cc/5RPL-HAAD] (quoting Cara Horowitz et al., Comment by Electricity Grid Experts Benjamin F. Hobbs, Brendan Kirby, Kenneth J. Lutz, and James D. McCalley on Docket ID No. EPA-HQ-OAR-2017-0355, Proposed Affordable Clean Energy Rule (Oct. 30, 2018), https://legal-planet.org/wp-content/uploads/2018/10/Grid-expert-comment-letter_ACE_proposal_Oct_30_2018_FINAL-1.pdf [https://perma.cc/QK5A-KUWX]).

188. Niina H. Farah, *Trump Admin Finalizes Clean Power Plan*, E&E NEWS (June 19, 2019), <https://www.eenews.net/stories/1060631669> [https://perma.cc/EJ3A-W2UR].

189. See William C. Schillaci, *Affordable Clean Energy Rule Puts States in Regulatory Driver’s Seat*, EHS DAILY ADVISOR (June 21, 2019), <https://ehsdailyadvisor.blr.com/2019/06/affordable-clean-energy-rule-puts-states-in-the-regulatory-drivers-seat> [https://perma.cc/RA45-CTPF].

190. See Amelia T. Keyes et al., *The Affordable Clean Energy Rule and the Impact of Emissions Rebound on Carbon Dioxide and Criteria Air Pollutant Emissions*, 14 ENVTL. RES. LETTERS 044018 (2019).

191. *Id.*

192. *EPA Proposes Affordable Clean Energy (ACE) Rule*, *supra* note 178.

a careful review of the EPA's own models, the ACE is likely to “*impose similar, or perhaps even greater, compliance costs*” on industry than the CPP.¹⁹³

In sum, the ACE's ability to bring about real emissions reductions or to achieve the promised cost savings for the energy industry has been called into question.¹⁹⁴ Taking into account all of the different dimensions of the rule, one group of legal commentators suggest that the ACE

would increase pollution of CO₂ and other air pollutants; cost us billions of dollars in forgone benefits; and harm public health, resulting in thousands of premature deaths that the CPP would prevent. At the same time . . . the ACE Rule is not likely to save industry much in compliance costs.¹⁹⁵

The core of the Obama Administration's efforts to limit greenhouse gas emissions under the umbrella of the CAA consisted of the CPP, which provided the tool for limiting emissions from power plants, and the “Tailpipe Rule,” which provided the tool for limiting emissions from automobiles.¹⁹⁶ Together, these two CAA regulatory programs targeted the two largest sources of domestic greenhouse gas emissions.¹⁹⁷ Replacing the CPP with the ACE deals a high-impact blow to the heart of the Obama Administration's efforts to use the CAA to limit emissions from power plants. It is book-ended by the Trump Administration's ongoing efforts to limit regulatory constraints on automobiles.

The origins of both the CPP and the Tailpipe Rule rest in the Supreme Court's 2007 decision in *Massachusetts v. EPA*. In this seminal case, the Court ruled that the EPA possessed regulatory authority over greenhouse gases under the CAA, and that the Agency's decision on whether to regulate these pollutants must be statutorily grounded and based on scientific (not political) considerations.¹⁹⁸ Following the Court's 2007 ruling, in 2009, the EPA issued the CAA section 202(a) (1)

193. Logar, *supra* note 187 (emphasis added) (quoting Horowitz et al., *supra* note 187).

194. See, e.g., *Issue Brief: Final ACE Rule Raises State Concerns*, GEO. CLIMATE CTR. (July 2, 2019), <https://www.georgetownclimate.org/articles/issue-brief-final-ace-rule-raises-state-concerns.html> [<https://perma.cc/LGY3-7J4P>].

195. Horowitz & Carlson, *supra* note 186, at 1.

196. See Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662 (proposed Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60) (the CPP); Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (proposed Apr. 24, 2009) (to be codified at 40 C.F.R. ch. 1) (the Tailpipe Rule).

197. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. at 64,664; Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. at 66,517.

198. See *Massachusetts v. EPA*, 549 U.S. 497, 532–35 (2007).

endangerment finding that triggered the EPA's obligation to begin regulating greenhouse gas emissions from new automobiles.¹⁹⁹ That same year, the EPA also granted a waiver of the CAA preemption to California, allowing it to adopt its greenhouse gas emission standards for motor vehicles.²⁰⁰ Subsequently, in May 2009, the EPA, the Department of Transportation, state regulators, and the auto industry established the first-ever nationwide greenhouse gas emission standards for light-duty vehicles and the most progressive fuel efficiency improvements in thirty years. The 2009 rule, known as the Tailpipe Rule, applied to model years 2012 to 2016 and was followed in 2012 by another rule requiring additional reductions in greenhouse gas emissions and additional improvements in fuel economy for light-duty vehicles for model years 2017 to 2025.²⁰¹ In 2014 and 2015, the EPA continued to develop the regulatory regime, finalizing gasoline standards that further contribute to vehicle efficiency for passenger cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty vehicles.²⁰² As a result of these rules, automakers were required to nearly double the average fuel economy of new cars and trucks by 2025.²⁰³

Unlike the CPP, which was released late in President Obama's second term and remained in limbo even prior to President Trump taking office, the regulatory regime for auto emissions came into effect and was actively implemented and enforced during President Obama's first and second terms in office. Despite the established nature of the regulatory regime and the proven environmental and human-health benefits associated with the efficiency and emissions improvements, the Trump Administration opposed the tightening standards arguing

199. 42 U.S.C. § 7521(a)(1) (2012).

200. *Timeline of Major Accomplishments in Transportation, Air Pollution, and Climate Change*, EPA, <https://www.epa.gov/air-pollution-transportation/timeline-major-accomplishments-transportation-air-pollution-and-climate> [<https://perma.cc/7FSU-XY8B>].

201. *Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks*, EPA, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-passenger-cars> [<https://perma.cc/9BAV-TBM2>].

202. *Timeline of Major Accomplishments in Transportation, Air Pollution, and Climate Change*, *supra* note 200.

203. See Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles-Phase 2, 81 Fed. Reg. 73,478 (proposed Oct. 25, 2016) (to be codified at 49 C.F.R. pts. 523, 534, 535, 538); see also *Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2*, EPA, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-greenhouse-gas-emissions-and-fuel-efficiency> [<https://perma.cc/L2LK-9XGW>].

that they were economically onerous and created safety concerns.²⁰⁴ Accordingly, on August 2, 2018, the EPA released a proposed rule—the Safe Affordable Fuel Efficient (SAFE) Vehicles proposal—that would freeze emissions and fuel-efficiency standards for cars after 2021, and would revoke the waiver of CAA preemption the EPA granted California to establish its greenhouse gas emissions standards.²⁰⁵ At the time of writing, this rule is not yet final and is being challenged by environmentalists, consumer groups, and auto-industry representatives.²⁰⁶ If the proposed rule comes into effect, it would deal a blow not only to efforts to limit emissions from the transportation sector, but also to the core remaining piece of President Obama’s CAA greenhouse gas regulatory regime. Additionally, revoking California’s waiver would challenge states’ rights to adopt more ambitious automobile standards and interfere with the ability of states to meet their own environmental objectives. As Carlson suggests, the proposed rule would deal a significant blow to U.S. efforts to reduce GHG emissions from the transportation fleet and hamper California’s ambitious climate goals and air pollution policy.²⁰⁷ In so doing, the Administration’s actions may also weaken California’s efforts to act as a global environmental policy and technology leader, demonstrating the potential limits of Governor Brown’s efforts to be the de facto leader of U.S. climate leadership. At the end of the day, in a system of federalism, a state can provide only so much global leadership in the face of national intransigence.²⁰⁸

Taken together, the repeal and replacement of the CPP and the proposed freezing of the Tailpipe Rule erode the core of President Obama’s efforts to develop a federal legal regime for limiting

204. See Timothy Cama & Miranda Green, *Trump Moves to Roll Back Obama Emissions Standards*, HILL (Aug. 2, 2018), <https://thehill.com/policy/energy-environment/400036-trump-submits-rule-to-weaken-iconic-obama-car-efficiency-standards> [<https://perma.cc/XQU6-UYZY>].

205. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–26 Passenger Cars and Light Trucks, 83 Fed. Reg. 42,986 (proposed Aug. 24, 2018) (to be codified at 40 C.F.R. pts. 85, 86) (proposing to “retain the model year 2020 standards . . . for [cars and light trucks] through model year 2026”).

206. See, e.g., *Academy Warns of Danger in Proposed SAFE Vehicles Rule*, AM. ACAD. FAM. PHYSICIANS (Nov. 7, 2018), <https://www.aafp.org/news/government-medicine/20181107epaletter> [<https://perma.cc/Q867-PWFS>]; Letter from Academy of Integrative Health & Medicine et al., to Andrew Wheeler, Acting Administrator, EPA, Public Health Organizations’ Opposition to the Proposed “Safer Affordable Fuel-Efficient Vehicles Rule” for Model Years 2021–26 Passenger Cars and Light Trucks (Oct. 26, 2018), <https://www.aafa.org/media/2221/aafa-sign-on-letter-opposing-safer-affordable-fuel-efficient-vehicles-rule.pdf> [<https://perma.cc/4MGV-TCUK>].

207. Carlson, *supra* note 15, at 271–72.

208. *Id.* at 272.

greenhouse gas emissions. The Trump Administration's climate and energy related deregulatory efforts, however, are far more extensive and include efforts to remove limits on all aspects of fossil fuel development and to enable large-scale energy infrastructure development.

As just a few of examples of the steps taken to relieve regulatory burdens on the energy industry,²⁰⁹ the Trump Administration has removed requirements for oil and gas companies to report methane emissions while also revising and partially repealing Obama-era rules limiting methane emissions from the oil and gas industry;²¹⁰ proposed lifting an Obama-era coal leasing moratorium on public lands;²¹¹ proposed an expanded oil and gas leasing program in the Arctic National Wildlife Refuge;²¹² issued an executive order seeking to expedite approvals of energy infrastructure projects;²¹³ proposed rolling back an Obama-era rule aimed at preventing hydrofluorocarbon leaks from air conditioners;²¹⁴ rolled back regulatory limits on petroleum refineries;²¹⁵ quickened the pace of approving onshore drilling permits;²¹⁶ and proposed to dramatically expand the areas open to offshore oil and gas leasing.²¹⁷

209. See, e.g., *Climate Deregulation Tracker*, COLUM. L. SCH.: SABIN CTR. FOR CLIMATE CHANGE L., <http://columbiaclimatelaw.com/resources/climate-deregulation-tracker> [<https://perma.cc/U7VG-WPPT>].

210. See *Proposed Improvements 2016 New Source Performance Standards*, EPA, <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/proposed-improvements-2016-new-source> [<https://perma.cc/EV8Q-5PR3>] (last updated Dec. 19, 2018).

211. See *BLM Publishes Draft Environmental Assessment for Lifting Coal Leasing Moratorium*, COLUM. L. SCH.: SABIN CTR. FOR CLIMATE CHANGE L. (May 22, 2019), <http://climate.law.columbia.edu/content/blm-publishes-draft-environmental-assessment-for-lifting-coal-leasing-moratorium> [<https://perma.cc/L496-8ZFT>].

212. See Press Release, Bureau Land Mgmt., BLM Alaska Releases Draft Environmental Impact Statement for the Coastal Plain Oil and Gas Leasing Program (Dec. 20, 2018), <https://www.blm.gov/press-release/blm-alaska-releases-draft-eis-coastal-plain-oil-and-gas-leasing-program> [<https://perma.cc/QN4U-Q46P>].

213. See Exec. Order No. 13,868, 84 Fed. Reg. 15,495 (Apr. 15, 2019).

214. See Maxine Joselow, *Trump Admin to Alter Rollback over HFC Concerns*, E&E NEWS (Apr. 29, 2019), <https://www.eenews.net/stories/1060235551> [<https://perma.cc/584W-PJBC>].

215. See 40 C.F.R. §§ 60.100, 60.100a, 63.640, 63.1560 (2018); National Emission Standards for Hazardous Air Pollutants and New Source Performance Standards: Petroleum Refinery Sector Amendments, 83 Fed. Reg. 227, 60,696 (Nov. 26, 2018).

216. See Curt Devine et al., *Interior Dep't. Approved Far More Oil and Gas Permits During Shutdown than Previously Known*, CNN (Mar. 27, 2019), <https://www.cnn.com/2019/03/27/politics/bernhardt-interior-approved-permits-shutdown/index.html> [<https://perma.cc/SN6R-2B8T>].

217. See Press Release, U.S. Dep't Interior, Secretary Zinke Announces Plan for Unleashing America's Offshore Oil and Gas Potential (Jan. 4, 2018), <https://www.doi.gov/pressreleases/secretary-zinke-announces-plan-unleashing->

Cumulatively, these ongoing and proposed changes loosen environmental controls on the fossil fuel industry from the point of extraction to the point of combustion, expand the range of areas where extraction can take place, and facilitate the development of large-scale energy projects. While it is too early to fully understand the combined effect of all these changes, a new study prepared for state attorneys general describe the Trump Administration's actions as amounting to a "virtual surrender to climate change" and suggest that the plans to roll back climate and energy-related regulations could drive up domestic greenhouse gas emissions by over two hundred million tonnes a year CO₂ Equivalent by 2025.²¹⁸

Although the long-term impacts are unknown, the Trump Administration's policies have already facilitated increases in fossil fuel production, greenhouse gas emissions, and energy exports. In 2018, U.S. CO₂ emissions rose by 3.4%; this spike represented the largest increase in domestic emissions in eight years and the second largest annual increase in more than two decades.²¹⁹ Also, in 2018, the United States surpassed Russia and Saudi Arabia to become the world's largest crude oil producer.²²⁰ In addition, U.S. exports of fossil fuels continue to increase. It is projected that, by 2020, "for the first time since the 1950s, the United States will export more energy than it imports"²²¹

americas-offshore-oil-and-gas-potential [https://perma.cc/K4KG-URM9] ("[T]he National Outer Continental Shelf Oil and Gas Leasing Program . . . proposes to make over 90 percent of the total OCS acreage and more than 98 percent of undiscovered, technically recoverable oil and gas resources in federal offshore areas available to consider for future exploration and development. By comparison, the current program puts 94 percent of the OCS off limits. In addition, the program proposes the largest number of lease sales in U.S. history.")

218. See STATE ENERGY & ENVTL. IMPACT CTR., NYU SCH. L., CLIMATE & HEALTH SHOWDOWN IN THE COURTS: STATE ATTORNEYS GENERAL PREPARE TO FIGHT 5 (Mar. 2019), <https://www.law.nyu.edu/sites/default/files/climate-and-health-showdown-in-the-courts.pdf> [https://perma.cc/GE9Y-RMFC]; Valerie Volcovici, *Trump Climate Deregulation Could Boost CO₂ Emissions by 200 Million Tonnes a Year: Study*, U.S. NEWS & WORLD REP. (Mar. 5, 2019), <https://www.usnews.com/news/top-news/articles/2019-03-05/trump-climate-deregulation-could-boost> [https://perma.cc/QK4T-GL43].

219. See *Preliminary US Emissions Estimates for 2018*, RHODIUM GROUP (Jan. 8, 2019), <https://rhg.com/research/preliminary-us-emissions-estimates-for-2018> [https://perma.cc/M627-2HSU] (noting that the 2018 gain was "surpassed only by 2010 when the economy bounced back from the Great Recession").

220. See *The United States Is Now the Largest Global Crude Oil Producer*, U.S. ENERGY INFO. ADMIN. (Sept. 12, 2018), <https://www.eia.gov/todayinenergy/detail.php?id=37053> [https://perma.cc/F7UZ-2YT9].

221. *The United States Is Expected to Export More Energy than it Imports by 2020*, U.S. ENERGY INFO. ADMIN. (Jan. 29, 2019), <https://www.eia.gov/todayinenergy/detail.php?id=38152> [https://perma.cc/4UM9-C4KV].

At the same time that the Trump Administration's energy policies are facilitating increases in fossil fuel production, consumption, and exports, the Administration is also taking steps to limit domestic efforts to integrate climate change into policy planning, with the effect of undermining Obama-era climate resiliency strategies. In 2017, for example, the Trump Administration removed climate change from a list of threats to national security,²²² despite far-reaching concerns among military leaders about the effects of climate change on national security.²²³ The Administration has also sought to thin-out climate change considerations from natural resource management strategies, including revoking an Obama-era executive order promoting "climate resilience" in the Bering Sea²²⁴ and rescinding an Obama-era policy that integrates climate change into natural resource management decisions in national parks.²²⁵ The Administration also rescinded an Obama-era policy directing the Department of Interior to "integrate climate change adaptation strategies into its policies, planning, programs and operations"²²⁶ as well as the far-reaching National Environmental Policy Act (NEPA) guidelines directing agencies to take climate change into consideration when assessing the environmental

222. See Jean Chemnick, *Trump Drops Climate Threats from National Security Strategy*, SCI. AM.: E&E NEWS (Dec. 19, 2017), <https://www.scientificamerican.com/article/trump-drops-climate-threats-from-national-security-strategy> [<https://perma.cc/A6N4-EXTT>].

223. Revealing fissures between the Administration and the Pentagon, in 2019, the Department of Defense released a report declaring that "[t]he effects of a changing climate are a national security issue with potential impacts to Department of Defense missions, operational plans, and installations." U.S. DEP'T DEF., REPORT ON EFFECTS OF A CHANGING CLIMATE TO THE DEPARTMENT OF DEFENSE 2 (Jan. 2019), https://climateandsecurity.files.wordpress.com/2019/01/sec_335_ndaa-report_effects_of_a_changing_climate_to_dod.pdf [<https://perma.cc/PB6L-CU4Y>].

224. See Exec. Order No. 13,795, 3 C.F.R. 340 (2017).

225. See Rob Hotakainen, *NPS Chief Scraps Climate-Focused Order*, E&E NEWS (Aug. 31, 2017), <https://www.eenews.net/stories/1060059511> [<https://perma.cc/9UFC-EEWH>].

226. See Michael Doyle, *Department Rescinds Obama-era Mitigation and Climate Docs*, E&E NEWS (Jan. 5, 2018), <https://www.eenews.net/stories/1060070247> [<https://perma.cc/C3RD-ZZB7>].

impacts of federal actions.²²⁷ The cumulative effect²²⁸ of the Trump Administration's roll-backs of resiliency and adaptation policies has been to minimize the extent to which the federal government must and even can take climate change into account when making short and long-term planning decisions across a range of issues.²²⁹ These roll-backs undermine what was already a thin and experimental set of strategies that President Obama had put in place to try to anticipate and respond to the pervasive threats that climate change poses to the United States. In common with efforts worldwide, U.S. adaptation planning is still in its infancy. Eroding the emerging foundations for national adaptation policy sets the United States back with the effect of minimizing the federal government's ability both to limit the negative effects and to take advantage of any short-term positive effects of climate change.²³⁰

227. In 2019, the Council on Environmental Quality issued revised guidance designed to "facilitate more timely environmental reviews and permitting decisions for infrastructure projects" by limiting when, and to what extent the agency has to take into account climate considerations. COUNCIL ENVTL. QUALITY, FACT SHEET: CEQ'S DRAFT NEPA GUIDANCE ON CONSIDERATION OF GHG EMISSIONS (June 2019), <https://www.whitehouse.gov/wp-content/uploads/2017/11/20190621-FINAL-GHG-Guidance-Fact-Sheet.pdf> [<https://perma.cc/RG22-8HA7>]; *Guidance on Consideration of Greenhouse Gases*, NAT'L ENVTL. POL'Y ACT, https://ceq.doe.gov/guidance/ceq_guidance_nepa-ghg.html [<https://perma.cc/2H3B-M42Y>].

228. There are exceptions to the dominant trend towards rolling-back climate resiliency efforts. The Trump Administration, for example, is overhauling the National Flood Insurance Program in a way that many climate advocates view as necessary in light of climate-related changes to flood-based risks. *See As Risks Rise, an Overhaul Announced for Federal Flood Insurance*, YALE ENV'T 360 (Mar. 19, 2019), <https://e360.yale.edu/digest/as-risks-rise-an-overhaul-announced-for-federal-flood-insurance> [<https://perma.cc/C8JM-FPVY>].

229. For more details on the Trump era roll backs, in this regard, see *Climate Change, Sustainable Development, and Ecosystems*, in ABA SECTION ENV'T, ENERGY, & RESOURCES: 2017 ANNUAL REPORT 339–40 (Andrew Schatz et al. eds., 2017); STATE ENERGY & ENVTL. IMPACT CTR., NYU SCH. L., STATE ATTORNEYS GENERAL: 13 MONTHS OF CRITICAL ACTIONS 21–22 (Feb. 2018), https://gallery.mailchimp.com/8c3272f6ebbb6024dc1359725/files/fdbd6457-5cff-4672-8bd7-5cae63ba69aa/Web_Report_StateImpactCenter_Final.04.pdf [<https://perma.cc/39LG-7LTQ>].

230. *See, e.g.*, J.B. Ruhl, *The Political Economy of Climate Change Winners*, 97 MINN. L. REV. 206, 247, 269–70 (2012) (exploring the reality that, even if the global aggregate impacts of climate change are negative, some people—and some groups of people—stand to benefit from climate change in the near term, and discussing the complex interplay between climate change winners and losers over time); *see also* Robin Kundis Craig, *The Social and Cultural Aspects of Climate Change Winners*, 97 MINN. L. REV. 1416, 1417, 1418, 1420 (2013) (cautioning that how we label people who benefit during times of social turmoil “depends as much on cultural constructions of their meaning and public relations as on actual differences in their motives and actions” and warning

While it is beyond the ambit of this Article to explore the full range of actions that President Trump has taken to unravel the Obama Administration's work on climate change, even examining these (very) few examples reveals the extent to which the Trump Administration not only has undermined efforts to limit the causes and consequences of climate change, but also has set the United States on a course towards increased fossil fuel dependency.

As Farber suggests:

Much of Trump's damage to the environment is obvious: his efforts to increase gas and oil production, his regulatory rollbacks, and his efforts to gut the agencies charged with protecting the environment. But he has also done deeper damage to the institutions we need to address climate change and other daunting environmental challenges.²³¹

In addition to direct attacks on core components of the United States' burgeoning climate law foundation, President Trump has undermined the role of science in decision-making, deepened political polarization around climate change, and damaged the role and reputation of the United States in international climate negotiations.

Yet, as extensive as the Trump Administration's efforts to undermine climate policy are, they are meeting resistance at every step. Not only does the sweeping nature of President Obama's climate policies limit the Trump Administration's ability to dismantle the existing climate strategy in one fell swoop,²³² but the Administration has also faced

that "winners could come at the expense of ultimately disastrous long-term consequences for the planet as a whole").

231. Dan Farber, *Helping Repair Our Broken Governance System*, LEGAL PLANET (June 24, 2019), <https://legal-planet.org/2019/06/24/helping-repair-our-broken-governance-system> [<https://perma.cc/MM2V-2AB2>].

232. See Benjamin Hulac, *Key Obama Climate Orders Still on the Books*, E&E NEWS (May 2, 2018), <https://www.eenews.net/stories/1060080615> [<https://perma.cc/YS8K-YM8C>] (discussing some of the climate-related executive orders that have not yet been revoked).

significant losses in the courts²³³ and persistent push-back from the public and private sector.²³⁴

President Trump will continue to chip away at President Obama's climate strategy and to erode the remaining components of its legal core. President Obama's overarching climate legacy, however, is proving durable. The steps that President Obama took to mobilize climate action at the international, national, and subnational levels and across the public and private sectors has created a platform of resistance and policy momentum that persists.²³⁵ Patterns of climate litigation exemplify this trend.

IV. THE EVOLUTION OF CLIMATE LITIGATION

Across the waxes and wanes of the Bush, Obama, and Trump Administrations, the courts have been a steady driving force in shaping the emerging rule of law around climate change. There is a rich and varied body of scholarship exploring the role that climate change

233. See Ann Carlson, *The Trump Administration Is on an Environmental Losing Streak*, LEGAL PLANET (Aug. 17, 2018), <https://legal-planet.org/2018/08/17/the-trump-administration-is-on-an-environmental-losing-streak> [<https://perma.cc/YC2W-6E9E>]. As Carlson notes:

[C]ourts are continuing to hand the [A]dministration an impressive string of losses that mean that, at least in the short term, the assault is much less effective than the [A]dministration's claims of deregulating the economy would lead us all to believe. In just the last 8 days, the Administration has lost four high profile environmental cases, adding to a string of losses over the past 18 months.

Id.

234. See Leading U.S. Businesses Call on Congress to Enact a Market-Based Approach to Climate Change, WORLD RES. INST. (May 15, 2019), <https://www.wri.org/news/2019/05/leading-us-businesses-call-congress-enact-market-based-approach-climate-change> [<https://perma.cc/YN2P-8WT4>] (“The CEOs of 13 U.S. and Global Fortune 500 companies or their subsidiaries, in collaboration with four leading environmental groups, today issued a call for action on climate change.”).

235. See Jerry L. Mashaw & David Berke, *Presidential Administration in a Regime of Separated Powers: An Analysis of Recent American Experience*, 35 YALE J. REG. 549, 587 (2018). Mashaw and Berke suggest that, “[o]ur look at climate policy highlights both the power and perils of presidentialism. Bold action is possible, but it may not be durable.” *Id.* This is true in terms of the durability of bold legal action, but arguably less true of the lasting effect of the sweeping use of executive power in elevating the floor of the debate and mobilizing subnational and non-state actors even when the “bold action” that formed the centerpiece of a President's strategy has been dismantled. *Id.*

litigation has²³⁶ and continues²³⁷ to play in shaping climate change law and policy. In the United States, in particular, climate litigation has been the meatiest subject for legal academics given the dearth of primary law with which to engage. It is well beyond the remit of this Article to review the breadth and impact of past and present climate litigation in depth. Rather, the goal here is to explore what patterns in domestic (and international) litigation reveal about the evolving state of climate change law.

The number and variety of climate change-related lawsuits that have been filed around the world is remarkable. A recent study of global trends in climate litigation reveals that, as of May 2019, 1,328 climate-related cases have been filed in twenty-eight countries around the world, “in addition to cases brought to the Court of Justice of the European Union . . . the Inter-American Court on Human Rights, the Inter-American Commission on Human Rights and the UN Human Rights Committee.”²³⁸ Of these 1328 global cases, “more than three-quarters of cases identified globally have been filed in the US.”²³⁹

Globally, the number of cases filed has surged in recent years.²⁴⁰ The cases target a variety of defendants, namely governments and corporations, including the largest global greenhouse gas emitters, collectively referred to as the “carbon majors.”²⁴¹ These cases are being

236. See, e.g., Benjamin Ewing & Douglas A. Kysar, *Prods and Pleas: Limited Government in an Era of Unlimited Harm*, 121 YALE L.J. 350 (2011); David Markell & J.B. Ruhl, *An Empirical Assessment of Climate Change in the Courts: A New Jurisprudence or Business as Usual?*, 64 FLA. L. REV. 15 (2012); Hari M. Osofsky & Jacqueline Peel, *Litigation's Regulatory Pathways and the Administrative State: Lessons from U.S. and Australian Climate Change Governance*, 25 GEO. INT'L ENVTL. L. REV. 207 (2013); Eric A. Posner, *Climate Change and International Human Rights Litigation: A Critical Appraisal*, 155 U. PA. L. REV. 1925 (2007).

237. See, e.g., Lisa Benjamin, *The Road to Paris Runs Through Delaware: Climate Litigation and Directors' Duties*, UTAH L. REV. (forthcoming), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3379848 [<https://perma.cc/6GVL-737S?type=image>]; Myanna Dellinger, *See You in Court: Around the World in Eight Climate Change Lawsuits*, 42 WM. & MARY ENVTL. L. & POL'Y REV. 525 (2018); Jacqueline Peel & Hari M. Osofsky, *A Rights Turn in Climate Change Litigation?*, 7 TRANSNAT'L ENVTL. L. 37 (2018); Philippe Sands, *Climate Change and the Rule of Law: Adjudicating the Future in International Law*, 28 J. ENVTL. L. 19 (2016).

238. JOANA SETZER & REBECCA BYRNES, GLOBAL TRENDS IN CLIMATE CHANGE LITIGATION: 2019 SNAPSHOT 3 (2019), http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2019/07/GRI_Global-trends-in-climate-change-litigation-2019-snapshot-2.pdf [<https://perma.cc/W9BU-7CVG>].

239. *Id.*

240. See *id.* at 1.

241. See Richard Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854–2010*, 122 CLIMATIC CHANGE 229 (2014). In his influential 2013 study, Richard Heede provided a quantitative analysis of historic fossil fuel and cement production records of 90 leading investor-owned, state-owned and nation-state producers of oil, natural gas, coal and cement. This study revealed 90

brought by non-profit organizations, states, cities, and, increasingly, by corporate investors, shareholders, and employees.²⁴²

A. *The First Wave*

While characterizations of the patterns of climate litigation vary, recent trends suggest that we have entered a second wave of litigation both in terms of strategy and transnational diffusion of litigation tactics. The first wave of climate litigation was driven by actions brought in the United States, largely in the wake of federal inaction. During this first wave of litigation, domestic claimants—largely environmental organizations and subnational actors—sought to use existing statutes and tort law claims first, to compel the federal government to limit greenhouse gas emissions pursuant to existing environmental laws and, second, to force large corporate actors to reduce their emissions or provide compensation for the harms caused by climate change.²⁴³ The most prominent examples of these two types of cases, respectively, are *Massachusetts v. EPA* and *American Electric Power Company, Inc. v. Connecticut* (“AEP”).²⁴⁴

Massachusetts v. EPA represents the height of domestic climate litigation and provides the solid core for domestic climate change law. In this pivotal case, a group of state and local governments, and thirteen leading environmental organizations, sought to force the Bush Administration’s hand in regulating greenhouse gas emissions from new vehicles under the CAA.²⁴⁵ Specifically, they petitioned EPA to regulate greenhouse gases under section 202(a)(1) of the CAA, which applies to air pollution from new vehicles.²⁴⁶ The Court ultimately concluded that the CAA plainly covers greenhouse gases and tasked the EPA with determining whether, pursuant to the

entities—i.e., carbon majors—were responsible for 63% of cumulative worldwide industrial emissions of CO₂ and methane from 1854–2010. Of these 90 entities, the 20 largest investor- and state-owned energy corporations were responsible for 29.5% of all global industrial emissions through 2010. This study has proved pivotal to the recent round of lawsuits being brought against these heavy emitting entities, which have come to be known as the “carbon majors.” *Id.* at 229, 234.

242. See generally Benjamin, *supra* note 237, at 4, 33–34, 36, 61–62.

243. A notable third category of cases during this first wave of litigation involved treaty-based actions. See Carlarne, *supra* note 7, at 1400–05; see also William C.G. Burns, *Belt and Suspenders?: The World Heritage Convention’s Role in Confronting Climate Change*, 17 SE. ENVTL. L.J. 359, 362–64 (2009); Cinnamon P. Carlarne, *Climate Change, Cultural Heritage & the Oceans: Rethinking Regulatory Approaches to Climate Change*, 17 SE. ENVTL. L.J. 271, 290–93 (2009).

244. 564 U.S. 410 (2011).

245. *Massachusetts v. EPA*, 549 U.S. 497, 505 (2007).

246. 42 U.S.C. § 7521(a)(1); 549 U.S. at 505–06.

language of the statute, greenhouse gas emissions constituted air pollutants that cause or contribute to air pollution that endangers human health or welfare.²⁴⁷ In tasking the EPA with making this statutorily grounded determination, the Court limited the agency's ability to defer the decision to regulate greenhouse gas emissions based on political considerations or general arguments of scientific uncertainty.²⁴⁸ This was a key turning point in domestic climate law because it provided the first viable avenue for developing a statutorily grounded federal response to climate change. Ultimately, as discussed, the decision in *Massachusetts v. EPA* led the EPA to issue the Endangerment Finding, which triggered the EPA's responsibility under the CAA to regulate greenhouse gas emissions from automobiles and, ultimately, formed the foundation for President Obama's climate law efforts.²⁴⁹ Although *Massachusetts v. EPA* is the most high-profile CAA climate case, claimants pursued numerous other statute- and regulation-based cases during the early and mid-2000s in an effort to find footholds for forcing federal regulatory action on climate change.

The primary complement to these regulatory cases were federal common law cases that sought—largely unsuccessfully—to hold corporations legally accountable for their contributions to climate change. Plaintiffs in high profile examples of these cases unsuccessfully sought compensation from large energy producers for property damage associated with climate-exacerbated natural disasters such as Hurricane Katrina²⁵⁰ as well as for the costs of relocating an entire community of native Alaskans due to climate-induced threats to their village.²⁵¹ The Supreme Court's decision in *AEP* is the most high profile and decisive response to attempts to use federal common law to hold large emitters accountable for their emissions.²⁵² Here, eight states, New York City, and three conservation organizations brought a nuisance suit against four electric power companies and the Tennessee

247. 549 U.S. at 532–35.

248. *Id.* at 533–34.

249. *See supra* text accompanying notes 93–100, 198–203.

250. *Comer v. Murphy Oil USA, Inc.*, No. 1:05-CV-436-LG-RHW, 2007 WL 6942285, at *1 (S.D. Miss. Aug. 30, 2007). *Murphy Oil* was appealed to the Fifth Circuit, where the panel initially reversed and remanded the case. *Comer v. Murphy Oil USA*, 585 F.3d 855 (5th Cir. 2009). The Fifth Circuit granted rehearing en banc, 598 F.3d 208 (5th Cir. 2010), but ultimately dismissed the appeal because it lacked a quorum to decide the issue. *Comer v. Murphy Oil USA*, 607 F.3d 1049 (5th Cir. 2010).

251. *Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849, 858 (9th Cir. 2012).

252. *Am. Elec. Power Co. v. Connecticut*, 564 U.S. 410, 424 (2011).

Valley Authority—the five largest emitters of greenhouse gases in the United States—claiming that the defendants’ emissions contributed to climate change and resulting harms to the plaintiffs and thus constituted a public nuisance.²⁵³ The petitioners asked the court to cap the defendants’ emissions and then require them to reduce their emissions “by a specified percentage each year for at least a decade.”²⁵⁴

In *AEP*, the Court held that, pursuant to its decision in *Massachusetts v. EPA*, “the Clean Air Act and the EPA actions it authorizes displace any federal common-law right to seek abatement of carbon-dioxide emissions from fossil-fuel fired power plants.”²⁵⁵ As a result of the decision in *AEP*, very little room is left for climate litigation sounding in federal common law.

While the decision in *AEP* provided a decisive obstacle to federal common law causes of action, in the years leading up to the Court’s 2011 decision, various lower courts grappled with underlying substantive challenges in these cases, including questions related to standing, the political question doctrine, and causation. Questions of causation proved particularly challenging for the courts given the attenuated causal chain between particular sources of emissions, patterns of global climate change, and the climate-related harms that the plaintiffs suffered.²⁵⁶ Thus, as fast as climate science was evolving during the mid-2000s, it remained factually difficult for plaintiffs to demonstrate the requisite degree of causal connection between the harms they suffered and the defendants’ emissions.

As a result of the decision in *AEP* and ongoing challenges relating to climate science and harm attribution, by 2011, most of the first round of common law cases had run aground. Similarly, by this time, the primary pathways for challenging agency actions and inaction on climate change under existing environmental law had been tried. Around this same time, however, climate attribution science began to evolve rapidly, climate litigation picked up around the world, and new classes of plaintiffs began to emerge, prompting a new wave of climate litigation.

253. *Id.* at 418.

254. Complaint at 2, *Connecticut v. Am. Elec. Power Co.*, 406 F. Supp. 2d 265 (S.D.N.Y. 2005) (No. 1:04-cv-05669-LAP).

255. 564 U.S. 410, 424 (2011).

256. Geetanjali Ganguly et al., *If at First You Don’t Succeed: Suing Corporations for Climate Change*, 83 OXFORD J. LEGAL STUD. 841, 846–47 (2018).

B. The Second Wave

The ongoing wave of climate litigation includes a wide range of cases and claims, but two dominant themes emerge: (1) litigants are refining their approach to common law claims and expanding the scope of claims outward to make greater use of private law claims; and (2) litigants are seeking to situate state obligations to address climate change as a matter of fundamental constitutional and human rights.²⁵⁷

First, domestic litigation is entering a second phase wherein judges and litigants are more actively engaging with advanced climate research such as Heede's groundbreaking carbon majors study²⁵⁸ and probabilistic event attribution science. Attribution science "increasingly allows a quantitative assessment of the extent to which human-induced climate change is affecting local weather events."²⁵⁹ Together, these data sources help establish causal links between specific sources of emissions and climate-related harms.²⁶⁰ In addition, litigants are learning from the first round of common law litigation and are "becoming more creative, attempting to avoid federal displacement arguments encountered in the first wave by focusing on state-based common law and statutory claims . . . [and] moving beyond tort-based claims to employ diverse causes of action, including corporate law."²⁶¹ The combined effect of these trends is that litigants are employing a refined set of causes of actions—drawing from common law claims and corporate law claims—and using advanced research to help establish causal connections between defendants' emissions and specific climate-related injuries.

One of the most defining aspects of this trend is the focus on holding the carbon majors legally accountable for their contributions to climate change.²⁶² Cities and municipalities around the United States, as well as shareholders, investors, and employees, are bringing a flood

257. See DENA P. ADLER, COLUMBIA LAW SCH., SABIN CTR. FOR CLIMATE CHANGE LAW, U.S. CLIMATE LITIGATION IN THE AGE OF TRUMP: YEAR TWO 19 (2019), <http://columbiaclimatelaw.com/files/2019/06/Adler-2019-06-US-Climate-Change-Litigation-in-Age-of-Trump-Year-2-Report.pdf> [<https://perma.cc/JUH9-KUAY>].

258. See Heede, *supra* note 241.

259. FRIEDERIKE OTTO, RACHEL JAMES & MYLES ALLEN, ENVTL. CHANGE INST., THE SCIENCE OF ATTRIBUTING EXTREME WEATHER EVENTS AND ITS POTENTIAL CONTRIBUTION TO ASSESSING LOSS AND DAMAGE ASSOCIATED WITH CLIMATE CHANGE IMPACTS, https://unfccc.int/files/adaptation/workstreams/loss_and_damage/application/pdf/attributingextremeevents.pdf [<https://perma.cc/PG8D-2HG6>]; see also Benjamin, *supra* note 237, at 17–18.

260. Benjamin, *supra* note 237, at 17–18.

261. See *id.* at 1.

262. See Ganguly et al., *supra* note 256.

of claims ranging from nuisance,²⁶³ to fraud,²⁶⁴ to allegations of statutory violations²⁶⁵ against these large fossil fuel companies.²⁶⁶

For example, by July 2019, at least fourteen cities and counties, three states, and one territory had filed tort suits or launched climate-based fraud investigations²⁶⁷ against the carbon majors in the United States. The entities bringing suit range from big actors such as the State of Rhode Island, New York City, Oakland, and San Francisco to smaller entities such as the cities of Boulder, CO; Santa Cruz, CA; and King County, WA.²⁶⁸ In addition to these public entities, crab fisherman in California and Oregon have also brought suits against the carbon majors.²⁶⁹ Most of these lawsuits were filed between 2017 and 2018, meaning that they are still in the early stages of litigation. Despite their

263. See, e.g., *San Francisco and Oakland Sue Top Five Oil Companies Over Costs of Climate Change*, CITY ATT'Y S.F. (Sept. 19, 2017), <https://www.sfcityattorney.org/2017/09/19/san-francisco-oakland-sue-top-five-oil-gas-companies-costs-climate-change> [https://perma.cc/5SQK-TYGQ].

264. See, e.g., Class Action Complaint for Violations of the Employee Retirement Income Security Act at 2–3, 6, *Fentress v. Exxon Mobil Corp.*, 304 F. Supp. 3d 569 (S.D. Tex. Mar. 30, 2018) (No. 4:16-CV-03484).

265. See, e.g., *Ramirez v. Exxon Mobil Corp.*, 334 F. Supp. 3d 832, 841 (N.D. Tex. 2018).

266. While the focus here is on domestic actions, it is important to note that similar actions are being brought around the world. One of the most high-profile examples of this is the ongoing Philippines Human Rights Commission carbon majors inquiry. See *National Inquiry on Climate Change*, PHIL. COMMISSION ON HUM. RTS., <https://chr.gov.ph/nicc-2> [https://perma.cc/E35P-9WQJ]. The inquiry is a response to a petition that was filed with the Commission “seeking to establish how climate change is related to the increasing frequency and severity of natural disasters and how human rights of the Filipinos are affected by them.” *Id.* The inquiry includes an investigation of the responsibility of the “Carbon Majors” for human rights violations resulting from climate impacts, drawing upon the abovementioned study by Richard Heede and advancements in attribution science. See *The Carbon Majors Inquiry Comes to London*, GRANTHAM RES. INST. ON CLIMATE CHANGE & THE ENV'T. (Oct. 30, 2018), <http://www.lse.ac.uk/GranthamInstitute/news/the-carbon-majors-inquiry-comes-to-london> [https://perma.cc/97VE-TQR8].

267. See David Hasemyer, *Fossil Fuels on Trial: Where the Major Climate Change Lawsuits Today*, INSIDE CLIMATE NEWS (July 22, 2019), <https://insideclimatenews.org/news/04042018/climate-change-fossil-fuel-company-lawsuits-timeline-exxon-children-california-cities-attorney-general> [https://perma.cc/493W-LZF9].

268. *Id.*

269. See David Hasemyer, *Crab Fishers Sue Fossil Fuel Industry Over Climate Change Damage*, INSIDE CLIMATE NEWS (Nov. 14, 2018), <https://insideclimatenews.org/news/14112018/crab-fishermen-climate-change-lawsuit-fossil-fuel-companies-ocean-algae-neurotoxin-fishery-closure> [https://perma.cc/NSL4-AEHU]; Erin McCormick, *Clarus Outs: Crab Fishermen Sue 30 Oil Firms Over Climate Change*, GUARDIAN (Nov. 14, 2018, 5:58 PM), <https://www.theguardian.com/environment/2018/nov/14/crab-fishermen-sue-oil-firms-exxon-chevron> [https://perma.cc/DW9U-EFUX].

still emergent nature, litigants are already engaged in a process of iterative learning and are refining their approaches in response to each decision the courts make. This is particularly true with respect to the state and city litigation.

The first wave of cities to bring suits against the carbon majors, including New York City, Oakland, and San Francisco, suffered early setbacks. These cases make similar arguments, claiming that the five largest investor-owned producers of fossil fuels in the world²⁷⁰—who, cumulatively are responsible for 11% of global greenhouse gas emissions—have knowingly contributed to climate change, resulting in injuries to the cities due to sea level rise and other climate-induced harms.²⁷¹ While New York City sought compensatory damages to cover the costs that the City incurred as a result of climate impacts as well as an equitable order requiring the defendants to abate the nuisance and trespass to which their emissions give rise,²⁷² San Francisco and Oakland requested more limited relief in the form of an abatement fund to pay for seawalls and other infrastructure needed to address rising sea levels.²⁷³ In both jurisdictions, the plaintiff cities sought to avoid federal preemption challenges by moving to remand their cases to the state level.²⁷⁴ In both cases, however, their motions to remand were denied and, in summer 2018, both cases were dismissed based on a number of grounds, including federal preemption and the political question doctrine.²⁷⁵

These early decisions reveal “how difficult a hurdle the federal displacement issue is to overcome,”²⁷⁶ but they also demonstrate that the courts are taking climate science seriously even as they struggle to grapple with the appropriate judicial response to a problem of such massive scale.²⁷⁷ U.S. District Court Judge William Alsup, who presided

270. These five are: Chevron Corp, Exxon Mobil Corp, British Petroleum Plc, Royal Dutch Shell, and ConocoPhillips. These defendants are, respectively, the first, second, fourth, sixth and ninth largest cumulative producers of fossil fuels worldwide. Complaint at 1, 2, 31, *New York v. BP P.L.C.*, 325 F. Supp. 3d 466 (S.D.N.Y. July 19, 2018) (No. 1:18-cv-00182-JFK).

271. *See id.* at 2.

272. *Id.* at 63.

273. *See California v. BP P.L.C.*, No. C17-06011 WHA, No. C17-06012 WHA, 2018 WL 1064293, at *1 (N.D. Cal. Feb. 27, 2018).

274. *See Plaintiff’s Motion to Remand to State Court: Memorandum of Points and Authorities, California v. BP P.L.C.*, No. C17-06011 WHA, No. C17-06012 WHA, 2018 WL 1064293 (N.D. Cal. Feb. 27, 2018).

275. *See City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017, 1028–29 (N.D. Cal. June 25, 2018); *California v. BP P.L.C.*, 2018 WL 1064293, at *5 (denying plaintiffs’ motion for remand).

276. Benjamin, *supra* note 237, at 22.

277. *Id.* at 22–23.

over the combined Oakland and San Francisco cases, requested a tutorial on climate change science.²⁷⁸ Following a five-hour tutorial, in his decision to dismiss he declared that “[a]ll parties agree that fossil fuels have led to global warming and ocean rise and will continue to do so,” while also calling the scope of the plaintiffs’ theory “breathtaking” and ultimately concluding that the “problem deserves a solution on a more vast scale than can be supplied by a district judge or jury in a public nuisance case.”²⁷⁹

In a strikingly similar decision dismissing New York City’s case, U.S. District Judge John Keenan said “[c]limate change is a fact of life, as is not contested by Defendants. But the serious problems caused thereby are not for the judiciary to ameliorate. Global warming and solutions thereto must be addressed by the two other branches of government.”²⁸⁰

As the appeals for these two cases make their way through the courts, a host of other governmental actors have watched carefully and refined their claims accordingly. As Benjamin describes:

The second group of cases brought by California cities and counties attempted to avoid the federal displacement doctrine by making a more diverse set of claims, . . . including public and private nuisance, strict liability for failure to warn customers of the dangers of climate change, design defect, negligence and trespass. These suits were patterned more closely on tobacco and asbestos litigation.²⁸¹

This novel climate litigation is just beginning to percolate, but the litigants—including governmental entities from California, Colorado, Washington, Rhode Island, and Baltimore—are drawing from the first wave of climate litigation, the ongoing carbon majors litigation in the U.S. and around the world,²⁸² and the lessons offered from litigation

278. See Warren Cornwall, *In a San Francisco Courtroom, Climate Science Gets Its Day on the Docket*, SCI. MAG. (Mar. 22, 2018), <https://www.sciencemag.org/news/2018/03/san-francisco-court-room-climate-science-gets-its-day-docket> [https://perma.cc/GW7E-CRLU].

279. *City of Oakland*, 325 F. Supp. 3d at 1022.

280. *City of New York v. BP P.L.C.*, 325 F. Supp. 3d 466, 474–75 (S.D.N.Y. 2018).

281. Benjamin, *supra* note 237, at 23.

282. In one of the most prominent examples of an international carbon major tort-based case, *Lliuya v. RWE*, a Peruvian farmer filed claims for declaratory judgment and damages in a German court against German’s largest electricity producer, RWE, alleging that RWE, having knowingly contributed to climate change by emitting substantial volumes of greenhouse gases, bore some measure of responsibility for the melting of mountain glaciers near his town of Huaraz, population 120,000. *Lliuya v. RWE: Summary*, GRANTHAM RES. INST. ON CLIMATE CHANGE & THE ENV’T., <http://www.lse.ac.uk/GranthamInstitute/litigation/liuya-v-rwe> [https://perma.cc/7ACC-4B84]. This groundbreaking case used refined attribution science to make one of the most precise causation-based arguments to date. The court

successes on other complex public health challenges to continually refine their litigation strategies.

Alongside this evolving body of common law-based litigation, there are growing efforts to use corporate law to compel fossil fuel entities to disclose information and modify their business practices.²⁸³ Together, the common law and corporate law litigation is bringing the carbon majors under increased legal, ethical, and financial scrutiny. These entities will continue to push back against efforts to hold them legally liable for climate injuries or to force them to modify their business practices. However, their ability to evade scrutiny over their responsibilities and choices with respect to climate change is rapidly eroding. Increasingly, the carbon majors will be forced to be more transparent and accountable not only to their shareholders, investors, and employees, but also to the general public.²⁸⁴

As litigants refine their common law and corporate law strategies, a second litigation trend is emerging. In courts around the world, litigants are drawing upon constitutional and human rights law to assert that the state has a fundamental legal obligation to address climate change.²⁸⁵ These cases are moving beyond the constraints of existing statutory and regulatory regimes to try to situate state obligations to address climate change as a matter of fundamental constitutional and human rights. As Carlson suggests, these claims are driven by “the compelling nature of climate change as an existential risk and the failure of our institutions to address it, in the face of a mountain of evidence”²⁸⁶

dismissed the claim on the basis that “no linear causal chain” could be recognized between RWE’s emissions and Lliuya’s injuries. *Id.* In one of the most surprising and important international decisions thus far, however, the appeals court reversed the lower court and has allowed the case to proceed to the evidentiary phase. For more in-depth discussion of ongoing international litigation, see generally Michael Byers et al., *The Internationalization of Climate Damages Litigation*, 7 WASH. J. ENVTL. L. & POL’Y 264 (2017).

283. See generally Benjamin, *supra* note 237. See also *How Corporate America Is Addressing Climate Change Risks*, NPR (July 9, 2019), <https://www.nprillinois.org/post/how-corporate-america-addressing-climate-change-risks> [<https://perma.cc/9DZQ-U9VA>]; TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES, <https://www.fsb-tcfd.org> [<https://perma.cc/ND7J-HZ4K>].

284. For a discussion of other ways in which the energy sector is coming under pressure in ways that could influence their behavior, see Hari M. Osofsky et al., *Energy Re-Investment*, 94 IND. L.J. 595 (2019).

285. See, e.g., Rb.’s-Gravenhage 24 juni 2015, AB 2015, 336 m.nt. Ch.W. Backes (Stichting Urgenda/Staat der Nederlanden),.

286. Sean Hecht, *UCLA Law’s Ann Carlson Interviewed on CBS’s 60 Minutes Discussing Juliana v. U.S., Landmark Climate Change Lawsuit*, LEGAL PLANET (Mar. 6, 2019), <https://legal-planet.org/2019/03/06/ucla-laws-ann-carlson-interviewed-on-cbs-60-minutes-discussing-juliana-v-u-s-landmark-climate-change-lawsuit> [<https://perma.cc/7NQD-WQ8H>].

The case that best embodies this new approach is the Children's Trust case in the United States.²⁸⁷ The Children's Trust litigation seeks to embed the responsibility to address climate change at the heart of legal obligations the state owes to its citizenry.²⁸⁸

In this case—commonly referred to as “the *Juliana* case”—twenty-one young people, represented by the non-profit organization, Our Children's Trust, filed suit against the United States²⁸⁹ claiming that the federal government has violated their legal rights by knowingly contributing to climate change and failing to take decisive steps to reduce domestic greenhouse gas emissions or otherwise address the causes and consequences of climate change.²⁹⁰ Specifically, the plaintiffs allege that the federal government has deprived them of their right to a safe climate without due process of law and thereby violated

287. See *Juliana v. United States*, 217 F. Supp. 3d 1224, 1233 (D. Or. 2016). The complement to the *Juliana* case in the United States is the *Urgenda* case in the Netherlands. In *Urgenda*, 886 citizens, represented by the NGO Urgenda, brought a case in Dutch court claiming that the Dutch state is constitutionally obligated to reduce its greenhouse gas emissions by 25% to 49% by 2030 compared to 1990 levels and that by failing to do so, the Dutch government had acted tortuously. In 2015, the lower court ruled in Urgenda's favor and ordered that the Dutch government must ensure that it reduce its emissions at least 25% by 2020 in order to avoid being negligent in its duties under the Dutch Constitution. See 7196 m.nt. (Urgenda Foundation/Kingdom of the Netherlands). This case was groundbreaking; it was the first case in which the courts found that the state is legally obligated to lower greenhouse gas emissions. In 2018, the Dutch appellate court upheld the lower court's ruling and extended the decision even farther, finding that the failure of the Dutch government to reduce its emissions to 25% by 2030 below 1990 levels would also constitute a breach of the European Convention on Human Rights. Hof's-Gravenhage 9 oktober 2018, AB 2018, 417 m.nt. GA van der Veen, Ch.W. Backes (Staat der Nederlanden/Stichting Urgenda) (Neth.). The case is now on appeal to the Dutch Supreme Court. Revealing the degree of transnational learning that is taking place, the *Urgenda* case has inspired a burst of similar litigation in the European Union and beyond, e.g., in the United Kingdom, Belgium, New Zealand, Ireland, and Switzerland. For further discussion of this case, see Benoit Mayer, Note, *The State of the Netherlands v. Urgenda Foundation: Ruling of the Court of Appeal of The Hague (9 October 2018)*, 8 TRANSNAT'L ENVTL. L. 167 (2019).

288. First Amended Complaint for Declaratory & Injunctive Relief at 92–93, *Juliana v. United States*, 217 F. Supp. 3d 1224 (D. Or. 2015) (Case No.: 6:15-cv-01517-TC) (Sept. 10, 2015) [hereinafter Youth Complaint].

289. *Id.* at 6–36; see also Press Release, Our Children's Trust, America's Youth File Landmark Climate Lawsuit Against U.S. Government and President (Aug. 12, 2015), <https://static1.squarespace.com/static/571d109b04426270152febe0/t/576c6e11ebbd1aee23f5f77e/1466723857447/15.08.12FederalClimateLawsuitPressRelease+%281%29.pdf> [https://perma.cc/6HQX-DYHR] (describing Our Children's Trust's representation of the *Juliana* plaintiffs).

290. Youth Complaint, *supra* note 288, at 56–57.

their constitutional rights of due process,²⁹¹ equal protection,²⁹² and unenumerated rights protected under the Ninth Amendment.²⁹³ In addition, the plaintiffs allege that the federal government is the sovereign trustee of the “country’s life-sustaining climate system” and, pursuant to the public trust doctrine, has an affirmative duty to present and future generations to “take affirmative steps to protect those trust resources” and that they “have failed in their duty of care to safeguard the interests of Plaintiffs as the present and future beneficiaries of the public trust.”²⁹⁴ As the presiding district court judge summed up, the core of the plaintiffs’ claim is that the federal government’s actions and inactions—“whether or not they violate any specific statutory duty—have so profoundly damaged our home planet that they threaten plaintiffs’ fundamental constitutional rights to life and liberty.”²⁹⁵

As relief, the plaintiffs ask the court to declare that the United States’ current environmental policy infringes their fundamental rights and direct the federal government to take affirmative, enforceable steps to “swiftly phase out” greenhouse gas emissions and to take any other actions necessary to keep concentrations of greenhouse gas emissions in the atmosphere at a safe level.²⁹⁶

The constitutional and public trust claims driving this case have been the subject of extensive debate.²⁹⁷ These plaintiffs’ claims test the boundaries of constitutional law jurisprudence and propose a novel, untested theory of the federal public trust doctrine. While it is beyond the ambit of this Article to explore the nuances and likely success of the plaintiffs’ claims in this case, the case teaches us (a lot) about the progression of climate litigation. As Farber suggests, while the legal prospects of the case are problematic, “at the core of the plaintiff’s case is a powerful insight. The government really does have an obligation

291. *Id.* at 84–88.

292. *Id.* at 88–91.

293. *Id.* at 91–92.

294. *Id.* at 92–93. For one of the most important legal analyses on the public trust doctrine as it applies to natural resources, see Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471, 477 (1970).

295. *Juliana v. United States*, 217 F. Supp. 3d 1224, 1261 (D. Or. 2016).

296. *Youth Complaint*, *supra* note 288, at 4, 94–95.

297. See, e.g., Ann Carlson, *Standing and the Juliana v. United States Plaintiffs*, LEGAL PLANET (June 3, 2019), <https://legal-planet.org/2019/06/03/standing-and-the-juliana-v-united-states-plaintiffs> [<https://perma.cc/WBU2-M8HG>]; see also Michael C. Blumm & Mary Christina Wood, “No Ordinary Lawsuit”: *Climate Change, Due Process, and the Public Trust Doctrine*, 67 AM. U. L. REV. 1 (2017); Gerald Torres, *No Ordinary Lawsuit: The Public Trust and the Duty to Confront Climate Disruption—Commentary on Blumm and Wood*, 67 AM. U. L. REV. F. 49 (2018).

to preserve our lands and sea for the benefit of all Americans—including future generations. And climate change really is a dire threat to the future.”²⁹⁸ This insight—that climate change poses an existential threat to present and future generations and that the state must, in some meaningful way, be accountable for addressing this threat resounds throughout *Juliana*, through the political discourse pushing back against President Trump’s erosion of domestic and international climate law structures, through ongoing efforts to recognize that climate change poses a risk to fundamental human rights,²⁹⁹ and through subnational and non-state efforts to create upward pressure on the state to fulfill its obligations to protect its citizens. This insight is a product of nearly three decades of learning about the depth of the threat climate change poses and the juxtaposition of that looming threat with the persistent absence of an adequate state response. It is an insight that began percolating during the Bush Administration, informed intensifying efforts to reconceptualize the role of the state during President Obama’s second term, and finally came to a boil in the face of the total abdication of responsibility during the Trump Administration.

The harsh juxtaposition of such an extreme threat with the continued absence of defined state responsibility comes to the surface of legal consciousness in an emphatic way in the *Juliana* case. Not only do the young plaintiffs highlight this insight throughout their pleadings in visceral ways as they describe their climate injuries,³⁰⁰ but, in her order denying the defendant’s motions to dismiss,³⁰¹ U.S.

298. Daniel Farber, *What’s Wrong with Juliana (and What’s Right)*, CTR. FOR PROGRESSIVE REFORM: CPRBLOG (Jan. 22, 2019), <http://www.progressivereform.org/CPRBlog.cfm?idBlog=A6644A55-9B8B-D096-2BF612F2E8FB772C> [<https://perma.cc/6K5X-D7GM>].

299. See, e.g., *Human Rights and Climate Change*, U.N. OFF. HIGH COMMISSIONER FOR HUM. RTS., <https://www.ohchr.org/en/issues/hrandclimatechange/pages/hrclimatechangeindex.aspx> [<https://perma.cc/PX7B-3JY6>].

300. *Youth Complaint*, *supra* note 288, at 6–35.

301. This case has a complicated procedural history involving both the President and the Supreme Court. In brief, in 2016, U.S. District Court Judge Anne Aiken denied the federal government’s motion to dismiss, the Trump Administration’s Justice Department then mounted repeated efforts in the appellate courts to stay or dismiss the district court proceedings. After the Ninth Circuit rejected those attempts, the government appealed the Ninth Circuit’s decision to the Supreme Court. Justice Anthony Kennedy initially rejected the government’s appeal as premature but, subsequently, Chief Justice Roberts stayed all district court proceedings in the case and ordered the plaintiffs to file a response to the Trump Administration’s petition to the Supreme Court seeking to dismiss the case. Finally, in December of 2018, the Ninth Circuit granted the federal government’s petition for permission to appeal Judge Aiken’s order allowing the case to go to trial and, in June 2019, the Ninth Circuit heard oral arguments

District Court Judge, Anne Aiken, takes on this seemingly inexplicable legal gap headlong. Breaking from her counterparts in San Francisco and Manhattan who, when confronted with complex legal and political questions in the carbon majors nuisance litigation expressed, at once, deep concern over the implications of climate change and caution over the role of the judiciary in shaping a response to climate change, Judge Aiken adopts a distinctively different approach to the role of the courts.³⁰² In denying the defendant's motion to dismiss, Judge Aiken declares this case is "no ordinary lawsuit"³⁰³ and rebukes judicial diffidence in the face of the overwhelming nature of the climate challenge, stating that the "[f]ederal courts too often have been cautious and overly deferential in the arena of environmental law, and the world has suffered for it."³⁰⁴ Judge Aiken draws upon the words of Circuit Judge Alfred Goodwin, to make her point:

The current state of affairs . . . reveals a wholesale failure of the legal system to protect humanity from the collapse of finite natural resources by the uncontrolled pursuit of short-term profits [T]he modern judiciary has enfeebled itself to the point that law enforcement can rarely be accomplished by taking environmental predators to court The third branch can, and should, take another long and careful look at the barriers to litigation created by modern doctrines of subject-matter jurisdiction and deference to the legislative and administrative branches of government.³⁰⁵

Bringing Judge Goodwin's insight to bear in *Juliana*, Judge Aiken concludes: "[e]ven when a case implicates hotly contested political issues, the judiciary must not shrink from its role as a coequal branch of government."³⁰⁶

Throughout her decision, Judge Aiken carefully grapples with the complex questions of law that the plaintiffs' claims present for the court. In doing so, she refuses to allow the sometimes novel and always

on the appeal. For a full procedural history and supporting documents, see *Juliana v. United States*, CLIMATE CHANGE LITIG. DATABASES, <http://climatecasechart.com/case/juliana-v-united-states> [<https://perma.cc/ET5X-FQ22>].

302. In similar fashion to Judges Alsup and Keenan, however, Judge Aiken is careful to note that climate science is not on trial, stating: "[t]his lawsuit is not about proving that climate change is happening or that human activity is driving it. For the purposes of this motion, those facts are undisputed." *Juliana v. United States*, 217 F. Supp. 3d 1224, 1234 (D. Or. 2016).

303. *Id.*

304. *Id.* at 1262.

305. *Id.* (quoting Alfred T. Goodwin, *A Wake-Up Call for Judges*, 2015 WIS. L. REV. 785, 785-86, 788).

306. *Id.* at 1263.

challenging nature of the legal conundrum that climate claims pose to be a reason to punt the claims out of the court or defer to the legislature.

Ultimately, in determining the level of judicial scrutiny applicable to the plaintiffs constitutional due process claims, Judge Aiken makes one of the most critical judicial findings to date in domestic climate litigation, holding that “the right to a climate system capable of sustaining human life is fundamental to a free and ordered society.”³⁰⁷ That is, she finds that under U.S. constitutional law, the right to a climate system capable of sustaining human life is a fundamental right.³⁰⁸ Recognizing the right to a climate system capable of sustaining human life as a “new” fundamental right³⁰⁹ breaks legal ground and affords the plaintiffs with a heightened level of constitutional protection.

The future of this case is uncertain. Even its proponents recognize that the case faces a long, uphill battle and that, as a necessary next step, it will be a “heavy lift to have the 9th Circuit recognize a constitutional right to a stable climate.”³¹⁰ Despite the odds, the case has been called “the [c]limate [t]rial of the [c]entury”³¹¹ for its potential to profoundly reconfigure primary legal rights and responsibilities with respect to climate change. A victory for the plaintiffs in *Juliana* would allow the courts to compel governmental

307. *Id.* at 1250. Judge Aiken qualifies the recognition of a new fundamental right, explaining:

In framing the fundamental right at issue as the right to a climate system capable of sustaining human life, I intend to strike a balance and to provide some protection against the constitutionalization of all environmental claims. On the one hand, the phrase “capable of sustaining human life” should not be read to require a plaintiff to allege that governmental action will result in the extinction of humans as a species. On the other hand, acknowledgment of this fundamental right does not transform any minor or even moderate act that contributes to the warming of the planet into a constitutional violation.

Id. at 1250.

308. *Id.* (“To hold otherwise would be to say that the Constitution affords no protection against a government’s knowing decision to poison the air its citizens breathe or the water its citizens drink.”).

309. Judge Aiken uses the Court’s recognition of a new constitutional right to same-sex marriage in *Obergefell* as an analogy and jurisprudential lesson for finding a “new” right to a climate system capable of sustaining human life, drawing upon the reminder that Justice Kennedy offers in *Obergefell* that “[t]he identification and protection of fundamental rights is an enduring part of the judicial duty to interpret the Constitution”. *Id.* at 1249 (quoting *Obergefell v. Hodges*, 135 S. Ct. 2584, 2598 (2015)).

310. Jennifer Hijazi, ‘*All Eyes of the World Are on Juliana*’, E&E NEWS (May 31, 2019), https://www.eenews.net/special_reports/juliana_v_us/stories/1060435539 [<https://perma.cc/8887-Y57K>] (quoting Professor Ann Carlson).

311. David Solnit, *The Climate Trial of the Century*, 350.ORG (Nov. 2, 2018), <https://350.org/youthgov/juliana-climate-trial-of-century> [<https://perma.cc/4QNC-AGC6>].

action on climate change, thus redrawing the legal landscape of domestic climate change law with sweeping effect.

Ultimately, *Juliana* may teach us a good deal about how the federal judiciary views its role and responsibility with respect to climate change. Regardless of how the courts decide the case, *Juliana* has already demonstrated that, beyond the high-profile fluctuations of federal climate policy across the past three presidential administrations, cultural consciousness and resolve on climate change has solidified and is driving increasingly ambitious efforts to find legal footholds for compelling profound and durable state action.

The ongoing second wave of litigation seeks definitive outcomes that recognize new fundamental rights and force governmental and corporate actors to modify their behavior and provide compensation for harms done. The litigation also forces state and private actors to publicly disclose how their actions and inactions impact the planet and its people, and to directly address what they see as their legal and moral obligations in the face of these revelations. This forced transparency and public grappling with legal roles and moral responsibilities highlights the increasingly inexplicable gap between the threat climate change poses and the legal responses offered. This public reckoning may not lead to decisive legal victories in every case, but it provides critical insight and, inevitably, strengthens the resolve of those fighting for climate action.

V. BEYOND THE STATE—THE EVOLVING ROLE OF SUB-FEDERAL AND NON-STATE ACTORS

The cultural consciousness and resolve underpinning the second wave of climate litigation mirrors and complements ongoing efforts by subnational and non-state actors to develop legal infrastructure, social capital, and private networks for addressing climate change. These flourishing climate efforts emerged during the Bush Administration,³¹² but the movement builds on a long history of cooperative environmental federalism and grassroots environmental movements. The scale of the climate effort, however, is both unparalleled and of unprecedented importance given the state's inability to settle on a course of action on climate change.

312. See generally JOSEPH E. ALDY ET AL., PEW CTR. ON GLOBAL CLIMATE CHANGE, BEYOND KYOTO: ADVANCING THE INTERNATIONAL EFFORT AGAINST CLIMATE CHANGE (2003); Carlarne, *supra* note 7, at 1365–83; Cary Coglianese & Jocelyn D'Ambrosio, *Policymaking Under Pressure: The Perils of Incremental Responses to Climate Change*, 40 CONN. L. REV. 1411 (2008).

A. *From Complementary to Contradictory: The Evolving Impact of the Executive on Non-State Climate Actions*

With the shifts from the Bush to the Obama to the Trump Administrations, the role that subnational and non-state actors have played in shaping climate policy has varied, but the momentum and influence of these cumulative efforts have steadily grown over time. In key part, during the Obama-era, the Administration complemented burgeoning subnational and non-state efforts by creating a parallel set of federal initiatives and by minimizing federal obstructions to subnational efforts.³¹³ Moreover, President Obama's leadership on climate change largely obviated the need for defensive policy or litigation efforts designed to force the federal government's hand. Instead, his leadership created an enabling environment for key actors, such as California and New York, to develop increasingly sophisticated subnational legal regimes and innovative public and private partnerships that pushed the boundaries of federalism.³¹⁴ Equally, with the President leading efforts to develop an expansive federal regulatory regime to limit emissions under the CAA, environmental NGOs could dedicate greater resources to challenging federal policies in complementary areas (e.g., fracking and the Keystone Pipeline).³¹⁵ Similarly, subnational governmental actors were able to focus on local adaptation needs and mitigation opportunities.³¹⁶ At the same time, within the private sector, hundreds of companies began "taking action

313. *Climate Change and President Obama's Action Plan*, WHITE HOUSE, <https://obamawhitehouse.archives.gov/president-obama-climate-action-plan> [<https://perma.cc/YS7T-FWMS>] (discussing the Clean Power Plan, the Paris Agreement, and federal cooperation with tribal, state, and local governments such as through the President's State, Local and Tribal Leaders Task Force on Climate Preparedness and Resilience).

314. See Farber & Carlane, *supra* note 86, at 185; *Climate Change Partnerships: Working Across Agencies and Beyond Borders*, CA.GOV, https://www.climatechange.ca.gov/climate_action_team/partnerships.html [<https://perma.cc/X6LG-AMXE>].

315. See Rebecca Cohen, *The Trump Administration Wants to Roll Back Fracking Standards, So We're Going to Court*, EARTHJUSTICE (Jan. 23, 2018), <https://earthjustice.org/blog/2018-january/blm-fracking-rule-lawsuit> [<https://perma.cc/H36H-5J6T>]; Betsy Lillian, *EPA Slapped with Another Suit over Vehicle Emissions Standards*, NGTNEWS (May 16, 2018), <https://ngtnews.com/epa-slapped-with-another-suit-over-vehicle-emissions-standards> [<https://perma.cc/Y3PJ-7AMU>].

316. See Sharyn Stein, *Groups Ask Court for Permission to Help Defend Colorado Clean Car Standards*, ENVTL. DEF. FUND (Mar. 11, 2019), <https://www.edf.org/media/groups-ask-court-permission-help-defend-colorado-clean-car-standards> [<https://perma.cc/FS8K-FZEW>]; Joshua Emerson Smith, *Sierra Club, Others Sue San Diego County to Block Carbon Credit Plan for New Development*, SAN DIEGO UNION-TRIB. (Mar. 19, 2018), <https://www.sandiegouniontribune.com/news/environment/sd-me-sierra-lawsuit-20180319-story.html> [<https://perma.cc/K355-2GAM>].

to reduce their exposure to the financial risks of climate change, quantify and control their greenhouse gas emissions, and adapt to impacts either now occurring or just over the horizon.”³¹⁷ The relationship between the Obama Administration and many of these actors was mutually supportive. Burgeoning subnational and non-state efforts to address climate change were enabled by a supportive executive branch and, in turn, facilitated the Administration’s efforts to structure domestic and international climate regimes.

This era of mutually reinforcing federal and subnational development was not without its challenges, of course. While states such as California and New York encouraged complementary federal action on climate change and took advantage of the mutually supportive environment to push for more aggressive climate efforts at the state level, other powerful subnational actors—e.g., Texas, West Virginia, and Alabama³¹⁸—fought back aggressively against the expansion of the federal climate regime, challenging key moves the Obama Administration made to expand regulatory efforts. Equally politically influential actors, representing the fossil fuel industry and non-state actors, such as the Koch Foundation, continued to prove powerful counterpoints to the President’s climate agenda.³¹⁹

317. J. Kevin Healy & Bryan Keyt, *The Case for Corporate Action on Climate Change*, 48 ENVTL. L. REP. 10,381, 10,381–82 (2018).

318. See Petition for Review at 2, *West Virginia v. EPA*, No. 15-1363, 2019 U.S. App. LEXIS (D.C. Cir. Sept. 17, 2019), ECF No. 2 (noting that twenty-six of the fifty states joined in opposition to EPA’s CPP); see also *Texas v. EPA*, 726 F.3d 180 (D.C. Cir. 2013) (wherein Texas, Wyoming, and various industry groups petitioned for review of five EPA rules designed to ensure that a permitting authority existed to issue greenhouse gas permits under the CAA); Attorneys General of the States of Oklahoma, West Virginia, Nebraska, Alabama, Florida, Georgia, Indiana, Kansas, Louisiana, Michigan, Montana, North Dakota, Ohio, South Carolina, South Dakota, Utah and Wyoming, Comment Letter on Proposed Rule Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (Nov. 24, 2014), <https://www.regulations.gov/document?D=EPA-HQ-OAR-2013-0602-25433> [<https://perma.cc/K9VW-HKNM>].

319. See Daniel A. Farber, *The Conservatives as Environmentalists: From Goldwater and the Early Reagan Era to the 21st Century*, 59 ARIZ. L. REV. 1005, 1042–43 (2017). Farber explains that:

The Koch family, whose wealth derives from the oil industry, also created a network of political groups to oppose climate change regulation. Moreover, promotion of fossil fuels remains a key objective of the Kochs. For instance, one of their groups, Fueling U.S. Forward, is “dedicated to educating the public about the value and potential of American energy, the vast majority of which comes from fossil fuels.”

Id. (footnotes omitted) (quoting Hiroko Tabuchi, *Sensing Gains Ahead Under Trump, the Kochs Court Minorities*, N.Y. TIMES (Jan. 5, 2017), <http://www.nytimes.com/2017/>

Despite aggressive³²⁰ and, at times, effective³²¹ push-back, President Obama's presidency was characterized by constructive efforts to facilitate the growth of a polycentric governance system that maximized federal, subnational, and non-state efforts to address climate change. President Obama, perhaps most critically, removed obstacles and provided momentum and incentives for change. This enabled subnational and non-state actors committed to addressing climate change to enact a diverse suite of climate laws and policies. Moreover, it created room for the climate movement to grow and solidify more easily than during both the preceding and following periods of executive obstruction.³²²

With the election of President Trump, the era of mutually reinforcing federal and subnational climate actions came to an abrupt halt. In the Trump-era, subnational climate efforts now lack the support and facilitation of the state and face greater pushback at every step. This pushback includes challenges to the constitutionality of subnational laws and regional or foreign partnerships, deep budget cuts to climate-related programs, aggressive assaults on climate rules, and the general diffusion of non-state actor resources as the suite of unaddressed environmental challenges grows.

As discussed in Part I,³²³ the dramatic reversal in the state's position has been met with active resistance. Federal recalcitrance has prompted a deluge of legal and extra-legal efforts to address climate change. In key part, through initiatives such as *We Are Still In*³²⁴ and the *Climate Alliance*,³²⁵ "more than 2,500 non-federal actors representing more

01/05/business/energy-environment/koch-brothers-fossil-fuels-minorities.html; see also Robert J. Brulle, *Institutionalizing Delay: Foundation Funding and the Creation of U.S. Climate Change Counter-Movement Organizations*, 122 CLIMATIC CHANGE 681 (2014) (analyzing "the financial resource mobilization of the organizations that make up the climate change counter-movement"); Coral Davenport & Eric Lipton, *How G.O.P. Leaders Came to View Climate Change as Fake Science*, N.Y. TIMES (June 3, 2017), <https://www.nytimes.com/2017/06/03/us/politics/republican-leaders-climate-change.html>.

320. See, e.g., Jean Galbraith, *Two Faces of Foreign Affairs Federalism and What They Mean for Climate Change Mitigation*, 112 AM. J. INT'L L. UNBOUND 274, 276 (2018) (describing how some states went as far as to "pas[s] legislation signaling their disapproval of the EPA's attempts to regulate climate and urging maximum flexibility for states").

321. See, e.g., Sobie, *supra* note 144 (discussing the Court's stay of the CPP).

322. See, e.g., Carlson, *supra* note 15, at 271; Hoshijima, *supra* note 69, at 174–75; Michael B. Gerrard, *Environmental and Energy Legislation in the 112th Congress*, A.B.A. TRENDS, Mar./Apr. 2011, at 5.

323. See *supra* Part I.

324. WE ARE STILL IN, *supra* note 21.

325. U.S. CLIMATE ALLIANCE, *supra* note 157.

than half the U.S. economy . . . have pledged their support for the Paris Agreement goals.”³²⁶ The scale of these commitments is significant: “the combined Gross Domestic Product (GDP) of U.S. states and cities that have stated they remain committed to action in line with the emissions reductions goals of Paris Agreement would be larger than 195 out of 197 Parties to the Framework Convention”³²⁷ These commitments are further bolstered by the “more than 1,300 businesses with U.S. operations, representing \$25 trillion in market capitalization and accounting for 0.9 gigatons (Gt) carbon dioxide equivalent (CO₂e) of GHG [greenhouse gas] emissions per year” that have voluntarily adopted GHG targets.³²⁸

Many of the actors driving these initiatives were active climate advocates during the Obama Administration. However, President Trump’s obstructionist approach to climate change triggered defiant efforts to concentrate and mobilize burgeoning subnational and civil society actions.³²⁹ In response to President Trump’s seeming attempts to race to the bottom of international leadership on climate change, these entities have worked collectively to create a counter-narrative of race to the top. Not only have subnational and non-state actors proved willing to take on voluntary commitments to address climate change, they have also adopted some of the world’s most ambitious climate goals.³³⁰

326. Kristin Ugusky & Kevin Kennedy, *By the Numbers: America’s Pledge Shows How US Is Taking Climate Action Without Trump*, WORLD RESOURCES INST. (Nov. 11, 2017), <https://www.wri.org/blog/2017/11/numbers-americas-pledge-shows-us-moving-forward-climate-action> [<https://perma.cc/J345-UZH8>].

327. BLOOMBERG PHILANTHROPIES, *AMERICA’S PLEDGE: PHASE 1 REPORT-STATES, CITIES, AND BUSINESSES IN THE UNITED STATES ARE STEPPING UP ON CLIMATE ACTION 14* (2017).

328. *See id.* at 14–15.

329. *See* Murthy, *supra* note 31, at 1.

330. *See, e.g.*, Brad Plumer, *It’s New York vs. California in a New Climate Race. Who Will Win?*, N.Y. TIMES (July 9, 2019), <https://www.nytimes.com/2019/07/08/climate/new-york-california-climate-race.html>.

By 2019, for example, both New York³³¹ and California³³² had embraced plans to reduce greenhouse gas emissions down to nearly zero by 2050, and Hawaii had passed a law committing to achieving the goals of the Paris Agreement and becoming carbon neutral by 2045.³³³

The cumulative impact of the efforts to advance U.S. action on climate change in defiance of the Trump Administration's regressive climate policies reveals the irrepressible nature of the domestic climate consciousness. The strength of this countertrend has domestic and international impact. At the domestic level, it advances both substantive efforts to limit climate change and symbolic efforts to nurture and advance the climate movement.³³⁴ At the international level, it helps sustain U.S. climate leadership. As Galbraith describes:

331. See Jesse McKinley & Brad Plumer, *New York to Approve One of the World's Most Ambitious Climate Plans*, N.Y. TIMES (June 18, 2019), <https://www.nytimes.com/2019/06/18/nyregion/greenhouse-gases-ny.html>; see also Matt Stieb, *New York to Enact One of the Most Aggressive Climate Bills in the U.S.*, N.Y. MAG. (June 19, 2019), <http://nymag.com/intelligencer/2019/06/new-york-state-to-approve-impressive-ambitious-climate-bill.html> [<https://perma.cc/6W5A-89G7>]. The bill is, in essence, “a legally binding legislative act to achieve an 85% reduction in greenhouse gas emissions by 2050 and a goal of net zero.” Michael B. Gerrard, *The Heat Is On, New York: A New Climate Law Is a Major Landmark, but Now Requires Work and Sacrifice*, N.Y. DAILY NEWS (June 23, 2019), <https://www.nydailynews.com/opinion/ny-oped-start-innovating-new-york-20190623-3mucksnuazak3axgpggpygxtly-story.html> [<https://perma.cc/PB7G-WJRM>].

332. See Clean Energy Act of 2018, S.B. 100, 2017 Leg., Reg. Sess. (Ca. 2018). This Bill, known as the *Clean Energy Act of 2018*, sets a state policy that eligible renewable energy and zero-carbon resources supply 100% of all retail sales of electricity in California by 2045. See also Exec. Order No. B-55-18 (Cal. 2018). In this executive order, then Governor Jerry Brown set out a statewide goal “to achieve carbon neutrality as soon as possible, and no later than 2045, and to achieve and maintain net negative emissions thereafter.” *Id.*; see also David R. Baker, *Gov. Brown's New Climate Goal: Less than Zero Global Warming Emissions*, S.F. CHRON. (Sept. 10, 2018), <https://www.sfchronicle.com/business/article/California-to-go-100-percent-clean-energy-by-2045-13218236.php> [<https://perma.cc/RLX8-BKV9>].

333. S.B. 559, 29th Leg., Reg. Sess. (Haw. 2017) (stating that the Bill “document[s] the State’s commitment to combat climate change by systematically reducing greenhouse gas emissions and improving our resiliency to climate change aligned with the principles and contributing to the goals set by the Paris Agreement”); see also Vicki Arroyo, *From Paris to Pittsburgh: U.S. State and Local Leadership in an Era of Trump*, 31 GEO. ENVTL. L. REV. 433, 443, 454 (2019).

334. See, e.g., Murthy, *supra* note 31, at 2; see also *About the Under2 Coalition*, UNDER 2 COALITION, <https://www.under2coalition.org/about> [<https://perma.cc/R355-BZ24>].

President Trump has done the impossible: he has made the international community enthusiastic about U.S. federalism. Even as they express dismay at Trump's plan to abandon the Paris Agreement, foreign leaders and internationalists have praised the efforts of U.S. states and cities to combat climate change mitigation in accordance with the Agreement's goals.³³⁵

Thus, despite President Trump's best efforts to roll back climate laws and quell domestic demand for climate actions, subnational climate leadership not only persists but flourishes. For more than two decades, subnational and non-state actors have steadily increased their climate related activities and incrementally influenced federal and international climate policy. The Trump Administration's approach to climate change, however, has given rise to a renewed era of subnational climate leadership.

The "breadth and depth of engagement by leading states and cities" has received significant attention in the academic literature.³³⁶ For the purposes of this Article, it is unnecessary to retrace this literature. It will suffice to note that subnational actors are finding new and creative ways to push the boundaries of the interstitial spaces within which they operate in order to reduce greenhouse gas emissions, facilitate the transition to clean energy,³³⁷ build resiliency and adaptive capacity, demonstrate global leadership, and influence the federal government's willingness to respond to climate change in the long term.³³⁸ These efforts are indispensable to addressing climate change. However, they are not enough. The state remains an essential source of power and arbiter of influence. Limiting dangerous anthropogenic climate change requires state leadership or, at a minimum, the absence of state obstruction. The United States is failing in both regards. Therefore, the onus falls on subnational leaders to keep climate efforts alive during the executive leadership drought. While this Article avoids a discursive analysis of the myriad of subnational climate efforts afoot, the next section looks briefly at the expanding role of cities as important sites of climate governance and as microcosms for exploring emerging trends and future opportunities.

335. Galbraith, *supra* note 320, at 274.

336. Arroyo, *supra* note 333, at 433; *see also* Sarah J. Adams-Schoen, *Beyond Localism: Harnessing State Adaptation Lawmaking to Facilitate Local Climate Resilience*, 8 MICH. J. ENVTL. & ADMIN. L. 185 (2018); Vicki Arroyo, *State and Local Climate Leadership in the Trumpocene*, 11 CARBON & CLIMATE L. REV. 303 (2017); Vicki Arroyo et al., *State Innovation on Climate Change: Reducing Emissions from Key Sectors While Preparing for a "New Normal"*, 10 HARV. L. & POL'Y REV. 385 (2016).

337. *See, e.g.*, Shelley Welton, *Electricity Markets and the Social Project of Decarbonization*, 118 COLUM. L. REV. 1067, 1097–99 (2018).

338. *See* Arroyo, *supra* note 336, at 437–40.

B. Cities as Microcosms for Climate Challenges & Opportunities

Cities are critical sites of global innovation. They are also the “places where humanity’s greatest challenges, from climate change to migration to inequality, impact the most people.”³³⁹ Ongoing global trends towards urbanization and the consequent growth of megacities mean that today, “55% of the world’s population lives in urban areas” with that number expected to increase to 68% by 2050.³⁴⁰ Moreover, by 2030, the UN estimates that forty-three cities around the globe will have 10 million or more inhabitants.³⁴¹ Although much of the population growth over the next half century will be highly concentrated in a few

339. Bloomberg Cities, *The Future of City Innovation*, MEDIUM (Mar. 19, 2019), <https://medium.com/@BloombergCities/the-future-of-city-innovation-99a0950a76c3> [<https://perma.cc/JA4J-PT84>]; Richard Florida, *The Geography of Innovation*, CITYLAB (Aug. 3, 2017), <https://www.citylab.com/life/2017/08/the-geography-of-innovation/530349> [<https://perma.cc/SZD6-VP4E>]; Miguel Marshall, *Why Cities Are the Key to Innovation*, WORLD ECON. F. (Nov. 17, 2005), <https://www.weforum.org/agenda/2015/11/why-cities-are-the-key-to-innovation> [<https://perma.cc/N5L6-J5RR>].

340. *2018 Revision of World Urbanization Prospects*, U.N. DEP’T ECON. & SOC. AFF. (May 16, 2018), <https://www.un.org/development/desa/publications/2018-revision-of-world-urbanization-prospects.html> [<https://perma.cc/6JGM-YLW4>]; see also U.K. HOUSE OF COMMONS ENVTL. AUDIT COMM., OUR PLANET OUR HEALTH, 2017-19, HC 1803, AT 42, <https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/1803/1803.pdf> [<https://perma.cc/AG8B-2FFS>]. The House of Commons report states that:

The UN estimates around 55 per cent of the world’s population lived in urban areas in 2018. This is expected to rise to 60 per cent by 2030 and 68 per cent by 2050. Most of this increase in urban populations is expected to occur in Asia and Africa, with India, China and Nigeria accounting for 35 per cent of the projected growth of the world’s urban population by 2050. The number of cities worldwide with one million or more inhabitants was 548 in 2018—by 2030 it is projected to be 706. The number of cities with over 10 million inhabitants (“megacities”) is expected to rise from 33 in 2018 to 43 in 2030.

Id. (footnote omitted).

341. *Id.* Although it is not the focus of this Article, the fact that the majority of population growth and urbanization is expected to be highly concentrated in a few rapidly developing countries, including India, China, and Nigeria creates additional concerns about resource stress, socio-economic inequality, and the impact of disasters on heavily populated areas. These are critical areas of concern in the context of global economic, development, human rights, and climate policy. With respect to megacities, Glasow et al. emphasize that these areas

[a]re not only important drivers for socio-economic development but also sources of environmental challenges. Many megacities and large urban agglomerations are located in the coastal zone where land, atmosphere, and ocean meet, posing multiple environmental challenges

Roland von Glasow et al., *Megacities and Large Urban Agglomerations in the Coastal Zone: Interactions Between Atmosphere, Land, and Marine Ecosystems*, 42 AMBIO 13, 13 (2012).

rapidly developing countries in Asia and Africa, North America is currently the most urbanized region in the world, with 82% of its population living in urban areas in 2018.³⁴² In addition, many of the most heavily concentrated urban areas are in coastal zones, which are increasingly vulnerable to sea level rise and other climate impacts.³⁴³

As urbanization continues and cities grow, these areas become increasingly important sites with respect to climate change for three primary reasons.³⁴⁴ First, cities are vulnerable to climate impacts.³⁴⁵ Second, although cities occupy only 2% of the world's land, they consume more than two-thirds of global energy and produce approximately 70% of global greenhouse gas emissions.³⁴⁶ Third, cities possess "important human, economic and knowledge resources which enable them to take action and design innovative solutions."³⁴⁷ Critically, in the context of climate law and policy, "[t]hey're also where ambitious leaders are stepping up to think creatively, not only about the catalytic role local government can play in solving these problems—but how, in a time of rapid technological, social, and economic change,

342. 2018 Revision of World Urbanization Prospects, *supra* note 340.

343. See Michael B. McElroy & D. James Baker, *Climate Extremes: Recent Trends with Implications for National Security*, 15 VT.J. ENVTL. L. 727, 733 (2014).

344. See Magali Dreyfus, *Are Cities a Relevant Scale of Action to Tackle Climate Change? Some Reflections to Inform the Debate on the Post-2020 Regime*, 7 CARBON & CLIMATE L. REV. 283, 284 (2013); see also Alejandra Borunda, *This Is What Cities Need to Do by 2050 to Meet Climate Goals*, NAT'L GEOGRAPHIC (Sept. 19, 2019), <https://www.nationalgeographic.com/environment/2019/09/zero-carbon-cities-future>.

345. See, e.g., *Why Cities?*, C40, https://www.c40.org/why_cities [<https://perma.cc/Q488-TBEY>] (suggesting that "with 90 percent of the world's urban areas situated on coastlines, cities are at high risk from some of the devastating impacts of climate change, such as rising sea levels and powerful coastal storms"). Although it is beyond the scope of this Article to address in-depth, pervasive problems of climate justice mean that certain residents will be more vulnerable and harder hit by climate impacts than others. In coastal cities, for example, low-income communities are particularly vulnerable to rising sea levels. It is predicted that by 2035, the number of American communities that will experience "chronic inundation"—a sea level rise induced flooding that occurs twenty-six times per year or more—will double and that 55% of the communities expected to suffer from chronic inundation are home to socioeconomically vulnerable neighborhoods. Inequality and climate justice challenges are further compounded at the global level. See Courtney Lauren Anderson, *Climate Change and Infrastructure*, 18 HOUS. J. HEALTH L. & POL'Y 1, 4–5 (2018).

346. See *id.*; UN HABITAT, HOT CITIES: BATTLE-GROUND FOR CLIMATE CHANGE (2011), http://mirror.unhabitat.org/downloads/docs/E_Hot_Cities.pdf [<https://perma.cc/U8WX-ZG6Z>]; see also U.K. HOUSE OF COMMONS ENVTL. AUDIT COMM., *supra* note 340, at 3.

347. Dreyfus, *supra* note 344, at 283.

they can keep their communities ahead.”³⁴⁸ Cities, therefore, have a significant role to play in mapping out how to live in a world indelibly altered by climate change.

Many city leaders worldwide have proved eager to take on the challenge.³⁴⁹ In the United States, cities have actively engaged in climate politics since the Bush Administration³⁵⁰ with the extent of activity picking up over time.³⁵¹ As just two brief examples, more than 350 mayors in the United States have adopted the Paris Agreement goals for their cities, and more than 400 cities are participating in the “EV Purchasing Collaborative”—an agreement amongst “Climate Mayors” to leverage their collective buying power and accelerate the conversion of public fleets to electric vehicles.³⁵²

One of the most prominent advocates for city leadership has been Michael Bloomberg,³⁵³ the former mayor of New York City turned vocal

348. Bloomberg Cities, *supra* note 339; *see also* Florida, *supra* note 339; Marshall, *supra* note 339.

349. *See, e.g.*, GLOBAL COVENANT OF MAYORS FOR CLIMATE AND ENERGY, <https://www.globalcovenantofmayors.org/about> [<https://perma.cc/8DMT-WVUS>] (providing that the alliance is the world’s largest cooperative effort among mayors and city officials to reduce greenhouse gas emissions and climate risks in cities); CLIMATE MAYORS, <http://climatemayors.org> [<https://perma.cc/G5MX-C7UZ>] (describing the group as a “bipartisan peer-to-peer network of U.S. mayors working together to demonstrate leadership on climate change through meaningful action in their communities, and to express and build political will for effective federal and global policy action”); C40, THE COMPACT OF MAYORS: GOALS, OBJECTIVES AND COMMITMENTS, <https://www.c40.org/researches/compact-of-mayors> [<https://perma.cc/2RVG-E5MY>] (stating that C40 is a network of the world’s megacities committed to addressing climate change that supports cities to collaborate effectively, share knowledge and drive meaningful, measurable, and sustainable action on climate change).

350. *See, e.g.*, Carlarne, *supra* note 7, at 1380–81; Kirsten Engel, *State and Local Climate Change Initiatives: What Is Motivating State and Local Governments to Address a Global Problem and What Does This Say About Federalism and Environmental Law*, 38 URB. LAW. 1015, 1016 (2006).

351. *See* Arroyo, *supra* note 333, at 451–54.

352. *See About the Climate Mayors Electric Vehicle Purchasing Collaborative*, DRIVE EV FLEETS, <https://driveevfleets.org/what-is-the-collaborative> [<https://perma.cc/WQ9N-36QP>]; *City Climate Policy*, C2ES, <https://www.c2es.org/content/city-climate-policy> [<https://perma.cc/94NW-AEXS>].

353. The initiatives that Bloomberg has contributed to include “We Are Still In,” “America’s Pledge,” the “C40 Cities Climate Leadership Group,” and “The American Cities Climate Challenge,” to which his philanthropy organization pledged \$70 million dollars; additionally, he served as the United Nations Secretary-General’s Special Envoy for Climate Action. *See Michael Bloomberg Contributes Additional \$5.5 Million to United Nations Climate Change Secretariat to Again Fill United States Federal Funding Gap*, BLOOMBERG (Apr. 22, 2019), <https://www.bloomberg.org/press/releases/michael-bloomberg-contributes-additional-5-5-million-united-nations-climate-change->

climate advocate, who has suggested that “[a]lthough history is not usually taught this way, one could argue that cities have played a more important role in shaping the world than empires.”³⁵⁴ In the climate context, cities have an especially important role to play both because political power is increasingly concentrated at the local level and local authorities may be motivated to act earlier than their state or national counterparts because the effects of climate change will be felt earlier and most acutely at the local level. Additionally, cities can often be nimbler in adopting new legal and political strategies.³⁵⁵

Given their growing scale, nimbleness, and heavy carbon footprints, climate action at the city level is not just possible, but vital. In fact, one study suggests that city-level actions could reduce greenhouse gas emissions associated with urban buildings, transport and waste disposal by nearly half (47%) in 2050.³⁵⁶ Cities have ample tools at their disposal to reshape urban consumption and energy patterns. These include efficiency standards for residential and commercial buildings and “green” building codes.³⁵⁷ For example, cities can use efficiency standards and building codes to regulate everything from energy efficiency, water consumption, and choice of materials, to storm water management systems.³⁵⁸

In the realm of climate-focused cities, New York City (“NYC” or “the City”) stands out in every way. It is economically, socially, and politically

secretariat-fill-united-states-federal-funding-gap; *Board of Directors*, C40, https://c40.org/board_of_directors [<https://perma.cc/SZ4L-EH76>].

354. Michael Bloomberg, *City Century: Why Municipalities Are the Key to Fighting Climate Change*, 94 FOREIGN AFF. 116, 116 (2015).

355. Although cities are often nimbler than their state and federal counterparts, their jurisdiction and capacity in the climate context, of course, has important limits that demonstrate why it is so critical to focus on developing multi-level, multi-scalar, polycentric governance approaches. See Bratspies, *supra* note 16, at 30–33; see also SABRINA DEKKER, CITIES LEADING CLIMATE ACTION: URBAN POLICY AND PLANNING 66 (2019); Elinor Ostrom, *Nested Externalities and Polycentric Institutions: Must We Wait for Global Solutions to Climate Change before Taking Actions at Other Scales?*, 49 ECON. THEORY 353, 356, 365, 366 (2012); Daniel H. Cole, *From Global to Polycentric Climate Governance*, 2 CLIMATE L. 395 (2011).

356. See Peter Erickson & Kevin Tempest, *Advancing Climate Ambition: How City-Scale Actions Can Contribute to Global Climate Goals* 5 (Stockholm Env'tl. Inst., Working Paper No. 2014-06, 2014), <https://mediamanager.sei.org/documents/Publications/Climate/SEI-WP-2014-06-C40-Cities-mitigation.pdf> [<https://perma.cc/Z6N4-BM78>].

357. Andrea McArdle, *Local Green Initiatives: What Local Governance Can Contribute to Environmental Defenses Against the Onslaughts of Climate Change*, 28 FORDHAM ENVTL. L. REV. 102, 105 (2016).

358. *Id.*

influential on a global scale.³⁵⁹ It has a heavy carbon footprint.³⁶⁰ Moreover, as Hurricane Sandy viscerally demonstrated, it is geographically vulnerable, particularly to sea-level rise and coastal storms.³⁶¹

New York City's climate vulnerability is further compounded by the fact that its infrastructure is amongst the "oldest in America"; the city's water infrastructure, subway systems, highway networks, and up to 3000 miles of roads, bridges, and tunnels are all in need of repair.³⁶² As Bratspies explains, the

combination of a large population at high vulnerability puts New York City on the front lines of climate change. Fortunately, New York City's political leaders are well-aware of the vulnerability, and eager to position the city to play a leadership role in driving national and global action to combat climate change.³⁶³

With climate efforts dating back to 2007 and covering everything from mitigation and adaptation to climate finance,³⁶⁴ New York City has been on the front line of climate change for a number of years, but those efforts intensified in the wake of Hurricane Sandy and, again

359. See Bratspies, *supra* note 16, at 10. Bratspies describes New York City's importance:

New York City stands alone as by far the most economically powerful city in the world. New York City is the nation's largest city, with more than 8.4 million residents. The New York City metro area, which includes Newark, is the single most populous urban area, with more than 18.3 million inhabitants. Thus, the choices that New York City makes have the potential to shape the environmental behaviors of roughly 17% of the United States population.

Id. (footnotes omitted).

360. See, e.g., N.Y.C. MAYOR'S OFFICE OF SUSTAINABILITY, INVENTORY OF NEW YORK CITY GREENHOUSE GAS EMISSIONS IN 2015 (2017), https://www.dec.ny.gov/docs/administration_pdf/nycghg.pdf [<https://perma.cc/K79S-SHXL>]; see also YOSEF JABAREEN, THE RISK CITY: CITIES COUNTERING CLIMATE CHANGE: EMERGING PLANNING THEORIES AND PRACTICES AROUND THE WORLD 84 (2015).

361. While it is beyond the ambit of this Article, it is important to highlight that deep equity challenges pervade climate responses in New York City. While everyone in the City is at risk, low-income communities often face disproportionate risk with respect to climate change impacts. See Roshanak Mehdipanah et al., *Neighborhood Context, Homeownership and Home Value: An Ecological Analysis of Implications for Health*, 14 INT. J. ENVTL. RES. & PUB. HEALTH 1098 (2017).

362. See JABAREEN, *supra* note 360, at 84 (quoting CITY OF N.Y., PLANYC: A GREENER, GREATER NEW YORK 7 (2007), http://www.nyc.gov/html/planyc/downloads/pdf/publications/full_report_2007.pdf [<https://perma.cc/C8TQ-DYYJ>]).

363. Bratspies, *supra* note 16, at 10.

364. E.g., N.Y.C., N.Y., New York City Climate Protection Act, Local Law No. 55 (Dec. 5, 2007). The Climate Protection Act amended the New York City Administrative Code in Relation to Greenhouse Gases (although it was subsequently repealed and replaced by N.Y.C. Local Law No. 22, which recodified the substantive provisions of Local Law 55).

following the election of President Trump. The list of actions New York City has taken to address climate change have been examined in detail elsewhere and are too numerous to review here.³⁶⁵ Rather, the purpose of this Section is to explore briefly some of the key steps that New York City has taken in the wake of President Trump's election to illustrate the role that cities can play in shaping the state of play on climate change during a period of federal neglect.

In June 2017, in the wake of President Trump's announcement that the United States would withdraw from the Paris Agreement, New York City accelerated its climate change law and policymaking initiatives. The city's Mayor Bill De Blasio set the tone when he responded to the President's Paris announcement by declaring that:

This is a dagger aimed straight at the heart of New York City . . . We have to understand that if climate change is not addressed, one of the greatest coastal cities on the earth will be increasingly threatened. It's very painful to reflect the fact that Donald Trump is from New York City. He should know better.³⁶⁶

The day immediately following President Trump's condemnation of the Paris Agreement, Mayor De Blasio issued a *Climate Action Executive Order*.³⁶⁷ In the order, Mayor De Blasio condemned President Trump's decision to withdraw from the Paris Agreement as "put[ting] millions of Americans at risk," and placing the onus on cities such as New York City to "step up to stop climate change," before calling for collective action based on a "moral, economic, public health, and security imperative to act to protect our planet, fellow human beings, and future generations."³⁶⁸ Responding to this imperative, he declared the city's commitment to the Paris Agreement and reaffirmed the city's long-standing commitment³⁶⁹ to reducing its greenhouse gas emissions 80% by 2050.

365. See generally Bratspies, *supra* note 16; Renee Cho, *How New York City Is Preparing for Climate Change*, PHYS.ORG (Apr. 29, 2019), <https://phys.org/news/2019-04-york-city-climate.html> [<https://perma.cc/S8H9-CD9P>].

366. See Oliver Milman et al., *The Fight Against Climate Change: Four Cities Leading the Way in the Trump Era*, GUARDIAN (June 12, 2017, 6:00 AM), <https://www.theguardian.com/cities/2017/jun/12/climate-change-trump-new-york-city-san-francisco-houston-miami> [<https://perma.cc/6JPT-XXWF>].

367. City of New York, Office of the Mayor, Exec. Order No. 26 (2017) [hereinafter *Climate Change Executive Order*].

368. *Id.*

369. See Mayor de Blasio Commits to 80 Percent Reduction of Greenhouse Gas Emissions by 2050, *Starting with Sweeping Green Buildings Plan*, NYC.GOV (Sept. 21, 2014), <https://www.nyc.gov/office-of-the-mayor/news/451-14/mayor-de-blasio-commits-80-percent-reduction-greenhouse-gas-emissions-2050-starting-with>

Mayor De Blasio's *Climate Action Executive Order* had both symbolic and substantive impact.³⁷⁰ The order publicly denounced President Trump's decision and cast him as a moral and political failure while juxtaposing New York City as a climate warrior, ready and able to step in to protect its citizens—and the citizens of America—from the inevitable threats climate change poses. The symbolic frame is backed up with a viable, substantive commitment. Mayor De Blasio not only reaffirms that the city will reduce its emissions by 80% by 2050, but also commits to working with cities worldwide to develop further emissions reductions strategies, underscoring that “climate action taken by cities in the United States and around the world can result in 40% of the pollution reduction needed globally to limit warming to only 1.5 degrees Celsius”³⁷¹ New York City, thus, both can and will step up to protect its citizens and advance meaningful efforts to address climate change, even as the President neglects his obligations in this regard.³⁷²

Three months later, Mayor De Blasio doubled down on these commitments with the release of *1.5C: Aligning New York City with the Paris Agreement*, a “first of its kind” plan laying out in detail the work that New York City must do to reduce emissions 80% by 2050 and committing the city to working with cities worldwide to “develop a

[<https://perma.cc/P8FY-E7K3>]; see also CITY OF NEW YORK, ONE NEW YORK: THE PLAN FOR A STRONG AND JUST CITY 166, <http://www.nyc.gov/html/onenyc/downloads/pdf/publications/OneNYC.pdf> [<https://perma.cc/6A9L-QSRG>].

370. See, e.g., Carlarne, *supra* note 7, at 1405–08; Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 *ECOLOGY L.Q.* 183, 215 (2005).

371. Climate Change Executive Order, *supra* note 367.

372. De Blasio's actions mirror similar statements and efforts by subnational actors during the Bush Administration. See, e.g., Press Release, Office of the Governor, State of California, Governor Schwarzenegger Issues Statement After U.S. EPA Rejects California's Tailpipe Emissions Waiver Request (Dec. 19, 2007), <http://freerepublic.com/focus/f-news/1941980/posts> [<https://perma.cc/J2SC-JAUQ>]. In 2007, after the EPA denied California's petition for a CAA 202 waiver, Governor Schwarzenegger issued a statement noting that:

It is disappointing that the federal government is standing in our way and ignoring the will of tens of millions of people across the nation. We will continue to fight this battle. California sued to compel the agency to act on our waiver, and now we will sue to overturn today's decision and allow Californians to protect our environment.

Id. For further discussion of the substantive value of De Blasio's commitments, see Milman et al., *supra* note 366 (noting that, by this time, “New York City has already earmarked billions of dollars to retrofit 1m buildings to make them more energy efficient, electrify its municipal vehicle fleet, plant thousands of trees and coat rooftops in solar panels”).

protocol to reduce our carbon footprint to zero.”³⁷³ Here, again, Mayor De Blasio marries symbolism with substance. He situates New York City’s efforts to address “the existential crisis of climate change” in direct contrast to the President’s failures:

We had hoped we could depend on the federal government for leadership. Now we know we cannot. President Trump’s decision to pull the United States out of the Paris Climate Agreement has set us on a dangerous path of denial. The City of New York was already taking action to reduce emissions 80 percent by 2050. Now, we have to take matters into our own hands and go further When our national government falls down, local governments have to step up.³⁷⁴

To this end, focusing on two deadlines—in 2020 and 2050—the plan lays out a detailed strategy for achieving deep and sustainable emissions reductions.

Mayor De Blasio lays out a meaningful action plan for reducing emissions and preparing the city for the impacts of climate change in full acknowledgment that the task of addressing climate change requires collective action at every level. New York City cannot achieve the goals of the Paris Agreement alone. De Blasio knows this; the plan acknowledges this. In the short-term, however, New York City and its counterparts have no choice but to plow forward because, at least, “[f]or the time being, the mantle of leadership in our country has passed to cities and states to fight climate change.”³⁷⁵

Complementing the ongoing city-wide efforts to address climate change, in January 2018, New York City became the first municipality outside of California to bring an action against the carbon majors.³⁷⁶ As discussed above, New York City’s common law action seeks compensatory damages for the costs the city incurs in its efforts to protect its infrastructure and inhabitants from climate impacts.³⁷⁷

373. CITY OF NEW YORK, 1.5C: ALIGNING NEW YORK CITY WITH THE PARIS AGREEMENT 1 (2017), <https://www.nyc.gov/assets/sustainability/downloads/pdf/publications/1point5-AligningNYCwithParisAgrmtFORWEB.pdf> [<https://perma.cc/QX9E-BH7H>].

374. *Id.*

375. *Id.* at 31.

376. Chris Mooney & Dino Grandoni, *New York City Sues Shell, ExxonMobil and Other Oil Companies over Climate Change*, WASH. POST (Jan. 10, 2018), <https://www.washingtonpost.com/news/energy-environment/wp/2018/01/10/new-york-city-sues-shell-exxonmobil-and-other-oil-majors-over-climate-change/?noredirect=on>.

377. See, e.g., Hilary Schein, *New York City’s Curious Jurisdictional Choice in Its Fight Against “Big Oil”*, GEO. ENVTL. L. REV. ONLINE (Mar. 9, 2018), <https://gielr.wordpress.com/2018/03/09/new-york-citys-curious-jurisdictional-choice-in-its-fight-against-big-oil> [<https://perma.cc/7PX9-P58R>].

Additionally, in a pivotal moment for global divestment campaigns, Mayor De Blasio simultaneously announced that the city would divest roughly five billion dollars of its pension investments from fossil fuel investments within five years.³⁷⁸ Later that year, city officials announced a “new goal to double the investments of the NYC Funds in climate change solutions to \$4 billion or 2% of the City’s \$195 billion pension portfolio over the next 3 years.”³⁷⁹

Thus, by fall 2018, New York City had reaffirmed its commitment to fulfilling the goals of the Paris Agreement, laid out a comprehensive plan to reduce the city’s emissions 80% by 2050, brought suit against the carbon majors, and committed to divesting from fossil fuels and investing in renewable energies and climate solutions. All these efforts complement strategies dating back to the Bush Administration designed to limit emissions, strengthen the resiliency of the city, and demonstrate New York City’s national and global leadership on climate change. President Trump’s intransigence on climate change merely served to strengthen Mayor De Blasio’s resolve to lead the city in efforts to do more faster, propelled by the dual goals of protecting the citizenry and helping carry the mantle of leadership until such a time as to be able, once again, to work hand-in-hand with the federal executive branch.

New York City does not stand alone in these efforts, of course. Cities across the United States—from large cities such as Houston, Miami, and San Francisco³⁸⁰ to smaller, regional leaders such as Georgetown, TX³⁸¹—have stepped up efforts to demonstrate climate leadership in reaction to the Trump Administration’s efforts to unravel domestic and international climate law. Moreover, closer to home, New York City’s climate leadership is paralleled by the state. In 2019, New York lawmakers, who have long been national leaders on climate change,³⁸² agreed to pass an ambitious climate plan, the Climate Leadership and

378. See Sarah L. Swan, *Plaintiff Cities*, 71 VAND. L. REV. 1227, 1238 (2018); William Neuman, *To Fight Climate Change, New York City Takes on Oil Companies*, N.Y. TIMES (Jan. 10, 2018), <https://www.nytimes.com/2018/01/10/nyregion/new-york-city-fossil-fuel-divestment.html>.

379. Press Release, Office of the N.Y.C. Comptroller, Mayor and Comptroller Announce Pension Fund Goal to Invest \$4 Billion in Climate Change Solutions By 2021 (Sept. 13, 2018), <https://comptroller.nyc.gov/newsroom/mayor-and-comptroller-announce-pension-fund-goal-to-invest-4-billion-in-climate-change-solutions-by-2021> [<https://perma.cc/QQS3-TJGQ?type=image>].

380. See Milman et al., *supra* note 366.

381. See, e.g., Tom Dart, *This Is What America’s Eco-City of the Future Looks Like*, GUARDIAN (Oct. 16, 2017, 7:49 AM), <https://www.theguardian.com/environment/2017/oct/16/texas-town-georgetown-energy-green> [<https://perma.cc/Y8QN-8PDL>].

382. See *supra* note 331 and accompanying text.

Community Protection Act.³⁸³ This Act requires the state to reduce greenhouse gas emissions 70% by 2030, and calls for the state to all but eliminate its emissions by 2050.³⁸⁴ In addition, complementing the city's carbon major litigation, in 2018, the New York Attorney General brought suit against ExxonMobil for shareholder fraud, alleging that the company misled its investors with respect to the risk that climate change regulations posed to its business.³⁸⁵

Across the Bush, Obama, and Trump Administrations, subnational actors have incrementally expanded their influence on climate policy. Subnational entities have long been environmental leaders in the United States. The sudden and dramatic change in course at the federal level, however, has prompted many of these entities, such as New York City, to intensify their efforts to develop legal blueprints and leadership models for addressing climate change and to do so in collaboration with other subnational actors. New York City's climate efforts provide a model for urban climate action; the successes and failures the city encounters as it works to reduce its emissions and improve its resiliency will inform efforts worldwide to scale up climate change strategies. These efforts also nurture climate consciousness and signal to relevant constituencies—including citizens, the private sector, and the federal government—that key subnational actors are fully committed to addressing climate change regardless of the obstacles that might arise along the way.

C. *Extra-Legal Pressure Points: A Brief Hint of What's to Come*

Parallel to patterns in subnational climate leadership, the role that the private sector and other extra-legal actors are playing in climate governance is significant and growing. At the time of writing, 2,228 business and investors, 28 health care organizations, 50 faith groups, 353 colleges and universities, and 67 cultural institutions had joined the 287 cities and counties, 10 states, and 10 tribes that have signed onto the

383. S. 6599, A. 8429, 2019–20 Reg. Sess. (N.Y. 2019).

384. Anne Barnard, *Demise of Gasoline Cars? What We Know About N.Y.'s Ambitious Climate Goals*, N.Y. TIMES (June 20, 2019), <https://www.nytimes.com/2019/06/20/nyregion/greenhouse-gases-ny.html>.

385. Press Release, N.Y. Attorney Gen., A.G. Underwood Files Lawsuit Against Exxonmobil for Defrauding Investors Regarding Financial Risk the Company Faces from Climate Change Regulations (Oct. 24, 2018), <https://ag.ny.gov/press-release/ag-underwood-files-lawsuit-against-exxonmobil-defrauding-investors-regarding-financial> [<https://perma.cc/2W8R-3T9J>].

We Are Still In pledge.³⁸⁶ Businesses that have signed on include global corporations such as Unilever, Mars Incorporated, Google Inc., Apple, and Walmart.³⁸⁷ The scale of the *We Are Still In* Movement and parallel calls for corporate action at the international level—including by the World Economic Forum³⁸⁸—suggests that a growing number of “corporate executives are recognizing the need to address the greenhouse gas emissions of their companies and the business logic of strong environmental, social, and governance practices more generally.”³⁸⁹ Although it is difficult to quantify the scale and dependability of corporate support for climate action, an increasing number of business leaders are integrating climate considerations into corporate practice and advocating for more consistent and predictable climate governance.

As just a few examples of the steps that significant multinational corporations are taking to address climate change: Kellogg has cut its carbon emissions by 14% per metric ton of food produced since 2005;³⁹⁰ Maersk, the world’s largest shipping company, has committed

386. *Who’s In, WE ARE STILL IN*, <https://www.wearestillin.com/signatories> [<https://perma.cc/FDS6-KZUD>].

387. *See id.* Noticeably, but not surprisingly absent are the carbon majors and most of the large auto manufacturers.

388. *See These 79 CEOs Believe in Global Climate Action*, WORLD ECON. F. (Nov. 23, 2015), <https://www.weforum.org/agenda/2015/11/open-letter-from-ceos-to-world-leaders-urging-climate-action> [<https://perma.cc/Y4RX-DGJ2>]; *see also* Simon Jessop & Nina Chestney, *Exclusive: Investors with \$34 Trillion Demand Urgent Climate Action*, REUTERS (June 25, 2019, 7:09 PM), <https://www.reuters.com/article/us-climatechange-investment-letter-exclu/exclusive-investors-with-34-trillion-demand-urgent-climate-change-action-idUSKCNITQ31X> [<https://perma.cc/YC8T-2SWF>]; *Ambitious Corporate Climate Action Needed for Paris Goals*, UNFCCC (Nov. 9, 2016), <https://unfccc.int/news/ambitious-corporate-climate-action-needed-for-paris-goals> [<https://perma.cc/X7DW-S6UQ>].

389. Daniel C. Esty & Michelle L. Bell, *Business Leadership in Global Climate Change Responses*, 108 AM. J. PUB. HEALTH S80 (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5922211> [<https://perma.cc/MV9D-VL5N>]. Esty and Bell detail how:

More than 1000 companies joined the World Bank’s 2015 call for a carbon charge. Hundreds of companies joined the Carbon Pricing Leadership Coalition, a group of governments and businesses launched in 2014 at the UN Climate Summit and led by the World Bank, which aims to grow the application of carbon pricing to lower emissions of greenhouse gases, while keeping economic advantages. Hundreds of US companies publicly announced support for the Paris Agreement and commitments to reduce their emissions.

Id. at S81 (footnotes omitted).

390. *See* Press Release, UNFCCC, *Business Is Key Driver of Global Climate Action* (June 28, 2016), <https://unfccc.int/news/business-is-key-driver-of-global-climate-action> [<https://perma.cc/RRL9-2PCJ>].

to going carbon neutral by 2050;³⁹¹ IKEA has committed to going 100% renewable;³⁹² Walmart, the world's largest retailer, has committed to avoiding one billion metric tons (a gigaton) of greenhouse gases—an amount roughly equivalent to the annual emissions of Japan—³⁹³ from its supply chains by 2030³⁹⁴; Unilever has consistently advocated for carbon pricing policies and, in 2016, began setting an internal price on carbon,³⁹⁵ and has also been deemed the global company “most ready for a low-carbon economy”.³⁹⁶ More than a 180 additional companies—including Google, Apple, and Facebook—have committed to using 100% renewable energy in their operations.³⁹⁷ These business are leading the way for widespread change; however, pushback from powerful energy lobbies, inconsistent regulatory signals, and contradictory federal and subnational messaging limits the pace of progress. Nonetheless, corporate climate activism and private climate governance will play an increasingly important role in climate governance and is the subject of extensive scholarly thought.³⁹⁸ Here, it will suffice to note that in an era of federal recalcitrance, private sector support for climate action provides an important counterpart to subnational climate leadership and another backstop to ongoing efforts to roll back climate action in the United States.

Alongside the burgeoning private climate governance movement, the global climate movement continues to grow and has been fed in recent years by new and powerful voices. Globally, the youth climate

391. See Christian Weinberg, *Shipping Giant Maersk Aims for Zero Net Carbon Emissions by 2050*, BLOOMBERG (Dec. 5, 2018), <https://www.bloomberg.com/news/articles/2018-12-05/shipping-giant-maersk-aims-for-zero-net-carbon-emissions-by-2050> [https://perma.cc/YT7X-XJP5].

392. See *Business Is Key Driver of Global Climate Action*, *supra* note 390.

393. See *Each Country's Share of CO₂ Emissions*, *supra* note 29.

394. See *Project Gigaton*, WALMART SUSTAINABILITY HUB, <https://www.walmart.com/sustainabilityhub.com/project-gigaton> [https://perma.cc/JAU6-XRGW].

395. See *Global Climate Action*, UNILEVER, <https://www.unilever.com/sustainable-living/reducing-environmental-impact/greenhouse-gases/global-climate-action> [https://perma.cc/NE2K-BENB].

396. See Emily Chasan & Katie Linsell, *Unilever and L'Oreal Deemed Most Ready for Climate Change*, BLOOMBERG (Feb. 24, 2019), <https://www.bloomberg.com/news/articles/2019-02-25/unilever-l-oreal-danone-deemed-most-ready-for-climate-change> [https://perma.cc/B3XK-MNS4].

397. See *Companies*, RE100, <http://there100.org/companies> [https://perma.cc/X35H-7QF9].

398. See, e.g., Jonathan M. Gilligan, *Carrots and Sticks in Private Climate Governance*, 6 TEX. A&M L. REV. 179 (2018); see also MICHAEL P. VANDENBERGH & JONATHAN M. GILLIGAN, *BEYOND POLITICS: THE PRIVATE GOVERNANCE RESPONSE TO CLIMATE CHANGE* (2017); Michael P. Vandenberg, *Motivating Private Climate Governance: The Role of the Efficiency Gap* (Vanderbilt Univ. Law Sch., Working Paper No. 18-35, 2018).

movement has swelled in numbers and influence.³⁹⁹ Mobilized by the raw, powerful messages of the likes of the plaintiffs in *Juliana* and Greta Thunberg—the 16-year-old Swedish climate activist whose climate strike outside the Swedish Parliament has inspired activists and politicians worldwide—the youth message has changed the tone of the climate movement.⁴⁰⁰ The message is simple and powerful: our future is at stake and inaction is intolerable. Existing largely outside the tangled realm of state politics, the youth movement has become a particularly powerful vehicle for diffusing the message of the urgency of climate change to a wider audience, and for finding new ways to make inroads into the political conversations around climate change.⁴⁰¹

At the level of domestic politics, in the mid-term elections of 2018, the Democrats not only regained control of the House of Representatives, but did so, in part, through the election of a new group of younger, more diverse congresswomen, including the democratic representative for New York's fourteenth congressional district, Alexandria Ocasio-Cortez, the youngest woman ever to serve in Congress.⁴⁰² Buoyed by the new group of motivated and undaunted representatives, on February 7, 2019, Representative Ocasio-Cortez together with veteran climate advocate, Senator Ed Markey, proposed a new approach to addressing a suite of climate, energy, and inequality challenges. This proposal, The Green New Deal,⁴⁰³ reframed the narrative around climate change in domestic politics. In key part, The Green New Deal framed climate change not just as another environmental problem, but as a challenge—intrinsically linked to human health, well-being, and economic inequality—that should be

399. See, e.g., Angely Mercado, *The Youth Climate Movement Is Just Getting Started*, THE NATION (June 13, 2019), <https://www.thenation.com/article/the-youth-climate-movement-is-just-getting-started-global-warming-fridays-for-future> [https://perma.cc/W568-FQDD].

400. Leslie Hook et al., *Greta Thunberg's Influence Grows as Young Activist Heads for US*, FIN. TIMES (Aug. 4, 2019), <https://www.ft.com/content/c1fc37b4bce411e989e241e555e96722>.

401. See, e.g., Communication to the Committee on the Rights of the Child in the Case of *Sacchi v. Argentina* (Sept. 23, 2019), <https://childrensvclimatecrisis.org/wp-content/uploads/2019/09/2019.09.23-CRC-communication-Sacchi-et-al-v.-Argentina-et-al-Redacted.pdf> [https://perma.cc/3ELM-RWLY]; Jonathan Watts, *The Greta Thunberg Effect: At Last, MPs Focus on Climate Change*, GUARDIAN (Apr. 23, 2019, 2:56 PM EDT), <https://www.theguardian.com/environment/2019/apr/23/greta-thunberg> [https://perma.cc/2ES6-8AS7].

402. See Tara Law, *Rep. Ocasio-Cortez Becomes Youngest Woman Ever to Preside over House of Representatives*, TIME (May 11, 2019), <https://time.com/5587669/ocasio-cortez-youngest-woman-preside-house> [https://perma.cc/VH2C-J8LS].

403. H.R. Res. 109, 116th Congress (2019).

approached in much the same way as the federal government approached the Great Depression.⁴⁰⁴ The objective behind The Green New Deal is not only to prioritize action on climate change but also to create a frame of action for climate change based on maximizing the economic and social opportunities associated with transitioning justly to a low-carbon economy.⁴⁰⁵ The roll-out of the proposal was plagued by problems,⁴⁰⁶ and the proposal itself has been widely critiqued.⁴⁰⁷ However, the proposal has also garnered widespread support⁴⁰⁸ and propelled the conversation around climate change into the political arena in a way that has created new pressure on Democratic and Republican politicians alike.⁴⁰⁹

404. See, e.g., Cinnamon Carlarne, *Delinking International Environmental Law & Climate Change*, 4 MICH. J. ENVTL. & ADMIN. L. 1, 6 (2014) (arguing that framing climate change in a narrow way as a conventional environmental law problem constrains efforts to experiment and think more creatively about how to address a challenge that defies classification as an environmental issue and demands more innovative, system-wide governance approaches).

405. See, e.g., Lisa Friedman, *What Is the Green New Deal? A Climate Proposal, Explained*, N.Y. TIMES (Feb. 21, 2019), <https://www.nytimes.com/2019/02/21/climate/green-new-deal-questions-answers.html> (reporting that the goal of the Green New Deal is “to reduce greenhouse gas emissions . . . while also trying to fix societal problems like economic inequality and racial injustice”); Joseph W. Kane, *The Green New Deal Promises Jobs, but Workers Need to be Ready to Fill Them*, BROOKINGS INST. (Jan. 25, 2019), <https://www.brookings.edu/blog/the-avenue/2019/01/25/the-green-new-deal-promises-jobs-but-workers-need-to-be-ready-to-fill-them> [<https://perma.cc/2NK2-KZBZ>] (stating that “jobs are a central element in the shift toward a cleaner economy, and the Green New Deal’s emphasis on this point serves as another reminder of that”).

406. See, e.g., Bill Scher, *The Weak Rollout of the Green New Deal*, REAL CLEAR POL. (Feb. 11, 2019), https://www.realclearpolitics.com/articles/2019/02/11/the_weak_rollout_of_the_green_new_deal_139426.html [<https://perma.cc/87V5-KQ24>] (criticizing the Green New Deal’s “polarized reception,” lack of specificity or solutions, and unintended release of additional drafted measures).

407. See, e.g., Jonathan Chait, *The Green New Deal Is a Bad Idea, Not Just a Botched Rollout*, N.Y. MAG. (Feb. 12, 2019), <http://nymag.com/intelligencer/2019/02/green-new-deal-aoc-bad-idea.html> [<https://perma.cc/46K9-XX8R>] (critiquing the *Green New Deal* and referring to Ocasio-Cortez as a “radical outlier”).

408. See, e.g., *The Guardian View on a Green New Deal: We Need it Now*, GUARDIAN (May 12, 2019, 1:25 PM), <https://www.theguardian.com/commentisfree/2019/may/12/the-guardian-view-on-a-green-new-deal-we-need-it-now> [<https://perma.cc/NH5H-LL6Q>]; Sean McElwee, *Opinion, People Actually Like the Green New Deal*, N.Y. TIMES (Mar. 27, 2019), <https://www.nytimes.com/2019/03/27/opinion/sunday/green-new-deal-mcconnell.html>.

409. See, e.g., Justin Worland, *How the Green New Deal Is Forcing Politicians to Finally Address Climate Change*, TIME (Mar. 21, 2019), <https://time.com/5555721/green-new-deal-climate-change> [<https://perma.cc/RF34-BGMZ>] (observing that the *Green New Deal* unleashed a national conversation where Democrats jumped to endorse the resolution and Republicans scrambled to come up with viable alternative positions on climate change).

The fate of The Green New Deal is uncertain, but its effect on the mainstream and political conversations is indelible.⁴¹⁰ In a much-publicized moment, when the voices of these two movements—Greta Thunberg and Representative Ocasio-Cortez—came together to discuss the future of climate action, the primary message that they shared was hope. Facing the threat of climate change and the obstacles to political action on climate change, Representative Ocasio-Cortez responded to the budding sense of hope and motivation inspired by the youth climate movement by suggesting that “[h]ope is something that you create, with your actions. Hope is something you have to manifest into the world, and once one person has hope, it can be contagious.”⁴¹¹

Together, the youth climate movement and the debate over The Green New Deal have created a powerful counternarrative to President Trump’s climate skepticism and, once again, demonstrated that irrespective of the waxes and wanes of presidential policy, the challenge of climate change cannot be ignored, and support for climate action persists even amidst full-scale presidential blitzkrieg.

The principal lesson that the efforts of these varied subnational, non-state, and political actions teach is that, even in an era when the President is launching a full-out war on climate science and climate politics, the march towards climate action moves forward undaunted, perhaps even more emphatically as a result of the opposition it faces. This is not to say that the actions of the Trump Administration are ineffective. Quite the opposite. The Trump Administration’s approach to climate change demonstrates the continuing power and importance of the state. Yet, the widespread push back against the Trump Administration’s approach also reveals the depth and diversity of actors that are operating individually and collectively to effect change in response to perceived deficiencies of the state.

410. See, e.g., Lisa Hymas, *The Green New Deal Is Pushing Climate Change into the Mainstream Media*, GRIST (Apr. 3, 2019), <https://grist.org/article/the-green-new-deal-is-pushing-climate-change-into-the-mainstream-media> [<https://perma.cc/PZZ9-EUE5>].

411. Emma Brockes, *When Alexandria Ocasio-Cortez Met Greta Thunberg: ‘Hope Is Contagious’*, GUARDIAN (June 29, 2019, 3:00 AM), <https://www.theguardian.com/environment/2019/jun/29/alexandria-ocasio-cortez-met-greta-thunberg-hope-contagious-climate> [<https://perma.cc/LYJ2-TCX2>] (quoting Alexandria Ocasio-Cortez).

CONCLUSION

Climate change is a defining feature of contemporary existence. It is also a fundamental challenge to the rule of law as we know it. As the scale of the climate crises swells, so too do efforts to develop innovative, multi-dimensional strategies for addressing climate change. This innovation is driven by necessity and is fueled by creative and determined actors from across the public and private sectors. Climate leaders run the gambit from teenagers, to philanthropists, to mayors, to Congresswomen, to presidents. But the pace of legal innovation is uneven, and the consistency of political leadership is erratic. Even in the face of this existential threat, policymakers continue to stumble in their efforts to develop an effective legal response. Nowhere is this more evident than at the federal level in the United States where presidential politics vividly demonstrate the degree to which we still lack a collective national vision for how to respond to climate change.

The scale and drama of presidential climate politics is undeniable. Over the past decade, U.S. presidents have led the construction and demolition of climate law on a grand scale. Long-term efforts to stave off catastrophic climate change and protect the American people, and the American economy, from the negative impacts of climate change requires more consistent federal leadership. However, as critical and as disruptive as high-level federal climate politics are, and as much attention as they deserve, they should not overshadow the larger picture of domestic climate law and policy. Underneath the flickering national vision and behind uneven national leadership, a clearer picture of climate law and policy trends emerges. In scanning the past decade to determine what is constant and what changes, we begin to see that for all of the fluctuations at the federal level, across the past three presidential administrations, subnational climate law and policy, climate consciousness, and a resulting sense of determination has not only developed consistently, but has deepened over time.

President Obama's and President Trump's respective abilities to construct and demolish a system of federal climate law reveal the extent of the underlying base of social capital and the evolving norms that sustain climate action nationwide. President Obama successfully leveraged, learned from, and relied on existing social capital to erect the foundations for a system of climate law over a relatively short period of time. Equally, that same climate base has limited President Trump's ability to demolish the foundations of federal climate law at the speed, and to the extent that he desires, and that base has created counterapproaches using every available legal and political tool.

As extensive and persistent as the network of multi-level, multi-scale climate responses are in the United States, the vagaries of presidential climate politics demonstrate that these upward forces have not yet reached the level of compelling decisive and predictable federal action on climate change. Nevertheless, what this Article reveals is the depth, sophistication, and intractability of efforts to develop an effective response to climate change in order to preserve the integrity of the rule of law in the United States.

In 2015, President Obama declared that “[n]o challenge—no challenge—poses a greater threat to future generations than climate change.”⁴¹² Half a decade later and the extent of the threat has only grown. Just as the science of climate change is irrefutable, so too is the necessity of legal and political action. The stability of the rule of law and the well-being of U.S. citizens depends on developing effective legal responses to climate change and doing so quickly.

412. Pres. Barack Obama, Remarks by the President in the State of the Union Address, WHITE HOUSE (Jan. 20, 2015), <https://obamawhitehouse.archives.gov/the-press-office/2015/01/20/remarks-president-state-union-address-january-20-2015> [<https://perma.cc/759F-WAQK>].