

The Super Wicked Problem of Donald Trump

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INTRODUCTION

In 2009 I published a law review article that both explained why I believed that climate change was a “super wicked” problem for lawmakers and offered specific recommendations for ways that any laws addressing climate change should be crafted in light of its super

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wicked nature.¹ The purpose of this subsequent Article is to revisit, modify, and update my earlier analysis based on the actual events of the past decade. Such hindsight analysis necessarily requires acknowledging, a bit embarrassingly, the things that I got wrong. Though, in my partial (not complete!) defense, I am in good company given the wholly unpredictable and truly whipsaw nature of the nation's changing political landscape between 2009 and the present. The only thing that links the presidencies of Barack Obama and Donald Trump is the highly remote nature of their electoral prospects when each announced their respective candidacies for President. In every other way, it is hard to imagine two more different people across every possible personal and professional dimension, including their views on climate change.

The Article is divided into three parts. Part I reviews my 2009 thesis and focuses on what I got wrong. After all, I might as well confess those errors up front and not beat around the bush. Part II addresses the literal elephant in the room²—the 2016 election of Donald Trump as President of the United States—and contends that Trump's election and his conduct since taking the oath of office are expressions of the super wicked nature of climate change. Or to say it a bit more provocatively, yes, President Trump is super wicked. (I feel better already.) Part III takes stock of where we are now by exploring how we can best address climate change in light of lessons learned since 2009. Our prospects today for addressing climate change are far less promising than I had hoped in 2009. Time is not costless in the fight against climate change, and each year since 2009 has further set us back.

I. WHAT I GOT WRONG IN 2009, AND WHY

In 2009 I published *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future* in the *Cornell Law Review*.³ It was the first law review article to characterize climate change as a “super wicked” problem, but it did not claim to be the first academic writing to propose that characterization. The article expressly credited a working draft paper presented at an academic conference in

1. Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 94 CORNELL L. REV. 1153 (2009).

2. Although it lacks the advantage of a reference to an animal traditionally affiliated with the Republican Party, the comedian John Mulaney's references to President Trump as “a horse loose in a hospital” has always struck me as the more accurate characterization. The Late Show with Stephen Colbert, *John Mulaney: Trump Is “a Horse Loose in a Hospital,”* YOUTUBE (June 9, 2017), <https://www.youtube.com/watch?v=IU2ye11FyIQ> [<https://perma.cc/B74T-2KG3>].

3. Lazarus, *supra* note 1.

the spring of 2007,⁴ subsequently published in 2012,⁵ by several political scientists that first coined the phrase in application to climate change. My own article's most important and original contributions were in describing the origins and implications of the challenges of climate change lawmaking in light of climate change's super wickedness and then detailing a series of specific ways that climate laws in the United States might be crafted to make them more resilient and effective over the necessary longer term.⁶

Many of the article's insights and related recommendations are no less relevant today. Some things, however, I plainly got wrong. All are described below.

A. The Super Wicked Nature of Climate Change

Horst Rittel, a professor of design methodology, first used the term "wicked problem" in the 1960s to describe a category of social policy problems that are especially difficult to address.⁷ Joined by his academic colleague Melvin Webber, Rittel and Webber in 1973 published a pathbreaking paper on wicked problems that formally defined what they deemed to be the common characteristics for wicked problems: enormous interdependencies, uncertainties, circularities, and conflicting stakeholders.⁸ Commentators have described AIDS, healthcare, and terrorism as classic examples of wicked problems.⁹

What makes climate change a "super" wicked problem is the presence of several additional, exacerbating factors. The first is that time is not costless in addressing climate change.¹⁰ The longer it takes to address the climate issue, the exponentially harder it is to address it effectively. For climate change, this is true for two reasons. First, any

4. Kelly Levin, Steven Bernstein, Benjamin Cashore & Graeme Auld, *Playing It Forward: Path Dependency, Progressive Incrementalism, and the "Super Wicked" Problem of Global Climate Change* 8–10 (July 7, 2007) (unpublished manuscript) (on file with author) (discussing climate change and the features that make it a "super wicked problem"); *see also* Lazarus, *supra* note 1, at 1160 n.10 (citing Levin et al., *supra*, for its discussion of climate change as a "super wicked problem").

5. Kelly Levin, Benjamin Cashore, Steven Bernstein & Graeme Auld, *Overcoming the Tragedy of Super Wicked Problems: Constraining Our Future Selves to Ameliorate Global Climate Change*, 45 *POLY SCIS.* 123 (2012).

6. *See* Lazarus, *supra* note 1, at 1187–1231.

7. C. West Churchman, *Wicked Problems*, 14 *MGMT. SCI.* B-141, B-141 (1967).

8. Horst W.J. Rittel & Melvin M. Webber, *Dilemmas in a General Theory of Planning*, 4 *POLY SCI.* 155, 160–69 (1973).

9. Robert E. Horn & Robert P. Weber, *New Tools for Resolving Wicked Problems: Mess Mapping and Resolution Mapping Processes*, MACROVU(R), INC. & STRATEGY KINETICS, LLC 3 (2007), http://www.strategykinetics.com//New_Tools_For_Resolving_Wicked_Problems.pdf [<https://perma.cc/2LHT-PET7>].

10. Lazarus, *supra* note 1, at 1160.

delay means greenhouse gas concentrations in the atmosphere will get even higher and therefore require even more dramatic steps to bring down to sustainable levels.¹¹ Unlike some pollutants that have short half-lives in the atmosphere, greenhouse gases like carbon dioxide persist for many decades and accumulate over time. And, second, because climate change caused by such higher concentrations may cause economic hardship—for instance, by causing flooding that harms businesses in close proximity to bodies of water—society may lose its will to take the short-term steps necessary to address the problem.¹²

The second exacerbating factor that contributes to climate change's wickedness is that those most responsible for causing greenhouse gas concentrations to rise are not those who will suffer the most from the resulting climate change.¹³ Just the opposite. There is an almost precise, tragic mismatch between where the most industrialized nations are located and where climate change will hit hardest the soonest: locations along the equator and at the poles. The average temperatures cited as resulting from climate change mask major differences in temperature and precipitation across the globe as well as the enormous differences in the consequences of those temperature and precipitation shifts. In particular, those most responsible for climate change, including the United States, will suffer the least in the near term and those least responsible for and most vulnerable to climate change will suffer the most the soonest.¹⁴

As a result, the most immediate harmful consequences will not themselves provide the incentive necessary to persuade those responsible for greenhouse gas emissions to take the action required to reduce those emissions. The incentive to dramatically reduce greenhouse gas emissions will need to be otherwise provided, whether by binding legal rules that limit such emissions, economic liability rules that make greenhouse gas emitters liable to pay for the harm caused by climate change, or cultural norms that persuade current generations to curb activities because of their moral responsibility to future generations that will otherwise suffer the most from climate change.¹⁵

But herein lies the final rub—and the third exacerbating factor—that further deepens climate change's super wicked nature. Because of the vast temporal and spatial dimensions of the causes and consequences of climate change, there are no governmental lawmaking

11. *Id.*

12. *Id.*

13. *Id.*

14. *Id.* at 1160, 1168–73.

15. *Id.*

institutions, market forces, or moral authorities that possess the jurisdictional sweep commensurate with the problem of climate change. These causes and consequences are too spread out over time and space, spanning simultaneously both the globe and centuries.¹⁶

No single nation possesses legal authority to mandate the worldwide reduction of greenhouse gas emissions required to reduce atmospheric greenhouse concentrations to an environmentally sustainable level. Within any single nation, moreover, government leaders and elected officials come and go every few years, while greenhouse gas concentrations and their consequences persist for decades and even centuries. These government officials lack both the incentive and capacity to enact and administer laws that address a problem that, like climate change, has a temporal and spatial scope far greater than their own reach.¹⁷

Nor is there any way to ensure that economic liability rules worldwide provide the necessary incentive. They too operate on a far smaller temporal and spatial scale than greenhouse gases and climate change.¹⁸ Finally, cultural norms are no less splintered and fragmented across the globe. There is no worldwide spiritual leader or moral authority with the power to persuade current generations to modify their behavior as necessary to prevent catastrophic climate consequences to future generations.¹⁹

There are, in short, deeply rooted reasons for why the United States and much of the world have so far failed to take the major steps needed to address the problem of climate change. These reasons are rooted in the science of climate change, which spreads out cause and effect over vast temporal and spatial dimensions; in human nature, especially our limited cognitive capacity to grasp and address problems that are not immediate and visible; and in the nature of our lawmaking institutions, which similarly struggle to address a public policy problem of such enormous temporal and spatial reach. Climate change is indeed super wicked.

B. My 2009 Thesis

As published in June 2009, my *Cornell Law Review* article began by announcing a deliberately bold premise. Although Congress had failed to enact any meaningful legislation designed to address the

16. *Id.* at 1160–61, 1168–73, 1179–84.

17. *Id.* at 1184–85.

18. *Id.* at 1185.

19. *Id.* at 1183–85, 1204–05.

climate change problem in a significant and comprehensive way, the article predicted that a major lawmaking moment was about to happen in the United States. According to the article, “all the political ingredients seem well in place for that moment” and the anticipated passage of such climate legislation “will rival in historic significance one of the nation’s greatest lawmaking moments—the passage in the 1970s of a series of extraordinarily demanding and sweeping pollution control and natural resource conservation laws.”²⁰

What made the prediction so audacious at the time was that Congress had witnessed no comparable lawmaking moment for environmental law since 1990—for almost twenty years. Indeed, Congress’s disappearance from environmental lawmaking had prompted my publication of a law review article just three years earlier entitled *Congressional Descent: The Demise of Deliberative Democracy in Environmental Law*, bemoaning Congress’s failure to enact needed environmental legislation.²¹ Yet my 2009 article was boldly (or perhaps recklessly) premised entirely on the fact that such significant climate legislation would soon become law. Thus it addressed exclusively the distinct, succeeding issue of what kinds of specific language such legislation should include to prevent its future unraveling.²²

In particular, the article posited that although the forces that had previously prevented enactment of climate legislation would soon be defeated, these same forces would, post-enactment, regroup and try to defeat the law’s actual implementation. “The inherent problem with such lawmaking moments, however, is just that: they are moments. What Congress and the President do with much fanfare can quickly and quietly slip away in the ensuing years.”²³ The article’s primary objective was accordingly to propose a series of recommendations for how legislation could be drafted to defeat these anticipated post-enactment efforts to defeat climate legislation’s ambitious purpose.²⁴

My recommendations were unapologetically dominated by “precommitment strategies” designed to make it harder to change the law in the future. In response to accusations that any such approach was antidemocratic, by binding future generations to the policy preferences of current generations, I argued that just the opposite was true.²⁵ Precommitment strategies make it harder, but not impossible,

20. *Id.* at 1232, 1155.

21. Richard J. Lazarus, *Congressional Descent: The Demise of Deliberative Democracy in Environmental Law*, 94 GEO. L.J. 619 (2006).

22. Lazarus, *supra* note 1, at 1156.

23. *Id.* at 1156.

24. *Id.*

25. *Id.* at 1194–95.

to change the law. And even more important, the greater risk to the autonomy of future generations would be the failure of current generations to take the action now required to prevent the potentially catastrophic consequences of climate change. The greater threat to their freedom to pursue opportunities would be our failure to take action, including necessary precommitment strategies that make it hard to change restrictions on greenhouse gas emissions.²⁶

My proposed precommitment strategies were also deliberately asymmetric. They were designed to make it harder to relax requirements and easier, in light of new information, to make them tougher.²⁷ I characterized such asymmetry as akin to “chutes” and “ladders” from the classic board game. Lawmaking chutes would make it harder to relax laws while lawmaking ladders would make it easier to make laws tougher.²⁸

Finally, my recommendations were aimed at all three branches of the federal government, state governments, and local governments. I pulled no punches in my willingness to acquiesce and take advantage of, rather than purport to reform, political incentives and tendencies of human nature I might well otherwise criticize. My goal was to work with the world we face rather than fictionalize it by embracing unrealistic assumptions about politics and individual behavior.²⁹

For instance, I recommended that federal legislation include revenue-raising provisions that could, by allocating revenue, create entrenched, political constituencies that would resist future efforts to curb the greenhouse gas emission reduction programs that generated that revenue.³⁰ A differently directed but related recommendation was to insulate climate regulators from the federal appropriations process—akin to how the Federal Reserve Board is funded to enhance its independence—by using funds and fees generated by climate regulation to fund the budget of government agency regulators. Congressional appropriations committees in recent years are notorious for using the budget, including targeted appropriation riders, to limit, if not eviscerate, the ability of an agency to impose tough environmental regulations opposed by politically connected business interests.³¹

26. *Id.* at 1204–05. Professors Ann Carlson and Dallas Burtraw have since published a book that presents a terrific series of like-minded chapter contributions on how to build durability and adaptability into U.S. climate and energy policy. See *LESSONS FROM THE CLEAN AIR ACT: BUILDING DURABILITY AND ADAPTABILITY INTO U.S. CLIMATE AND ENERGY POLICY* (Ann Carlson & Dallas Burtraw eds., 2019).

27. Lazarus, *supra* note 1, at 1210–11.

28. *Id.* at 1206.

29. *Id.* at 1205–07.

30. *Id.* at 1210.

31. *Id.* at 1211–12.

Because so much of environmental protection law in recent decades has been heavily dependent on executive branch administration, the majority of my recommendations were devoted to this branch. Recommendations included a series of reforms designed to insulate as much as possible relevant agency officials from short-term political impulses by providing for longer-term and staggered appointments across administrations and by establishing formal professional credentials for appointment to certain positions.³² They also included provisions to require interagency consultations to ensure that certain constituencies within the government with longer-term climate perspectives are heard as part of the governmental decisionmaking process and to foster such authoritative voices within the government.³³ Not only has such consultation proven to lead to far better, more informed decisions, but it also creates an administrative record more susceptible to judicial scrutiny if and when government officials ignore the advice offered by these other authorities. To that same end, other recommendations called for enhanced participatory rights in government decisionmaking by identified stakeholders whose voices are otherwise at risk of being lost, as well as tough greenhouse gas emission restrictions that are triggered in the absence of governmental action or upon findings made by independent scientific review entities. Such “hammer” provisions have proven effective at reversing the incentives to simply stall and delay those who seek to resist greenhouse gas emission reductions would otherwise have.³⁴

Finally, because so many of the most innovative and significant laws addressing climate change are state and local law, my 2009 article set forth a series of recommendations designed to limit federal preemption of these state and local climate laws.³⁵ Here too, the proposals were deliberately asymmetric: laws that were more demanding were favored over those that called for relaxation of requirements. Preemption, though, was not off the table entirely—because in certain contexts there can be a compelling case for uniform, or least a limited number of, national standards—but a series of safeguards were built in to promote state and local autonomy and innovation.³⁶

32. *Id.* at 1212–16.

33. *Id.* at 1217–18.

34. *Id.* at 1222–31.

35. *Id.* at 1228–29.

36. *Id.*

C. Undue Optimism

The most obvious flaw in my reasoning was the article’s premise: that Congress was about to make history by passing comprehensive national climate legislation. Indeed, the article’s confidence was so great that it assumed that premise with little analysis. Needless to say, I missed the mark. Ten plus years later, Congress has not passed national climate legislation. And the odds of Congress doing so in the immediate future, as the nation continues to grapple with the economic devastation caused by COVID-19, now seem vanishingly small. A similar assumption today would be, sadly, laughable even as scientific evidence of the dire consequences of failing to enact such legislation has increased during the past ten years.³⁷

Sheepishly, I recall that, at the time of the article’s publication in June 2009, I was proud of my prognostication—made long before it was clear that Barack Obama would be President of the United States. And by June 2009, my prediction was looking pretty good. Not only was Obama President, but he had made the climate issue, including national climate legislation, one of the top two legislative priorities of his presidency.³⁸ One week after his inauguration in January of that year, the newly elected President had publicly declared how “the long-term threat of climate change . . . if left unchecked could result in violent conflict, terrible storms, shrinking coastlines, and irreversible catastrophe. These are the facts”³⁹

Nor was the President without reason to think he could get the job done. He had appointed to leading policymaking positions in both his cabinet and within the White House a series of individuals who had made clear that addressing climate change was their top priority. They included Lisa Jackson as Environmental Protection Agency (“EPA”)

37. See, e.g., Oliver Milman, *Last Decade Was Earth’s Hottest on Record as Climate Crisis Accelerates*, *GUARDIAN* (Aug. 12, 2020, 11:51 AM), <https://www.theguardian.com/us-news/2020/aug/12/hottest-decade-climate-crisis-2019> [<https://perma.cc/HGB2-RJCX>] (discussing global climate data from 2010 to 2020 and the extreme weather events that have accompanied record-setting temperatures).

38. See, e.g., Address Before a Joint Session of the Congress, 1 *PUB. PAPERS* 145, 149 (Feb. 24, 2009):

[T]o truly transform our economy, to protect our security, and save our planet from the ravages of climate change, we need to ultimately make clean, renewable energy the profitable kind of energy. So I ask this Congress to send me legislation that places a market-based cap on carbon pollution and drives the production of more renewable energy in America.

John M. Broder, *Obama Affirms Climate Change Goals*, *N.Y. TIMES* (Nov. 18, 2008), <https://www.nytimes.com/2008/11/19/us/politics/19climate.html> [<https://perma.cc/T4FQ-BBGD>] (“My presidency will mark a new chapter in America’s leadership on climate change that will strengthen our security and create millions of new jobs in the process.”).

39. Remarks on Energy, 1 *PUB. PAPERS* 14, 15 (Jan. 26, 2009).

Administrator and Stephen Chu as Secretary of Energy, along with Carol Browner and John Holdren in the White House, serving respectively as the Director of the White House Office of Energy and Climate Policy and Director of the Office of Science and Technology.⁴⁰

The Democrats also then enjoyed generous majorities in both the House and the Senate. They boasted an eighty-one-vote majority in the House and their majority in the Senate, by July 2009, had reached sixty senators aided by two aligned independent senators.⁴¹ Both the House and Senate leadership, moreover, had taken great care to ensure that the chairs of the congressional committees key to the passage of climate legislation were in the hands of those supportive of sweeping, ambitious climate legislation. The House leadership was so committed to that policy objective that it took the extreme step of allowing a climate hawk, Henry Waxman from California, to challenge and defeat Michigan's John Dingell for the position of Chair of the Energy and Commerce Committee—the single most important House committee with jurisdiction over any climate bill.⁴² Dingell, at the time, was one of the most formidable and powerful members of the House whose seniority and prior service made such a challenge seemingly unthinkable. Yet, concern that his ties to the auto industry might impede desired climate legislation were enough to cause Dingell to lose his position as Committee Chair.⁴³

Any July 2009 strutting on my part, however, was unwarranted, wholly apart from the obvious fact that I later turned out to be wrong. By early February 2008, when I was submitting my draft article to be considered for publication, it did not require much brilliant guesswork to believe that climate legislation was clearly in the offing regardless of which political party won the White House in November later that year. Senator John McCain's success in the early Republican Presidential

40. See David Biello, *Obama Names Energy Secretary, EPA Chief*, SCI. AM. (Dec. 15, 2008), <https://www.scientificamerican.com/article/obama-names-energy-and-environment-team/> [<https://perma.cc/7YFZ-QE2B>] (describing announcement of individuals for energy and environment posts); Gardiner Harris, *4 Top Science Advisers Are Named by Obama*, N.Y. TIMES (Dec. 20, 2008), <https://www.nytimes.com/2008/12/21/us/politics/21science.html> [<https://perma.cc/X5WC-DYAK>] (describing announcement of John Holdren as director of the White House Office of Science and Technology).

41. See JENNIFER E. MANNING, CONG. RSCH. SERV., R40086, MEMBERSHIP OF THE 111TH CONGRESS: A PROFILE 1 (2010), <https://fas.org/sgp/crs/misc/R40086.pdf> [<https://perma.cc/XHM8-7YTS>] [hereinafter MANNING, 111TH CONGRESS]; Steve Benen, *A Fleeting, Illusory Supermajority*, MSNBC: THE MADDOWBLOG (last updated Oct. 31, 2013, 2:51 PM), <http://www.msnbc.com/rachel-maddow-show/fleeting-illusory-supermajority> [<https://perma.cc/4AAP-NW46>] (tracking changes in Senate membership during the 111th Congress and providing party breakdowns at each point).

42. John M. Broder, *Democrats Oust Longtime Leader of House Panel*, N.Y. TIMES (Nov. 20, 2008), <https://www.nytimes.com/2008/11/21/us/politics/21dingell.html> [<https://perma.cc/UW73-TEZ7>].

43. *Id.*

primaries, including “Super Tuesday” in early February, had made him the all but certain Republican nominee.⁴⁴ McCain was then also a hawk on the climate issue. He had been outspoken on the need for climate legislation: as early as 2001, he had held hearings designed to educate his colleagues and the general public about the seriousness of climate change;⁴⁵ he had given strongly worded speeches before Congress;⁴⁶ and he had repeatedly championed an ambitious climate bill’s passage, only to fall short. In his campaign for the presidency, McCain alone ran a television campaign commercial touting his record and that he had “stood up to the president [Bush] and sounded the alarm on global warming.”⁴⁷ The then-leading Democratic candidate Barack Obama was no less a stalwart of national climate legislation.⁴⁸ And, even if Senator Clinton was able to make an unexpected comeback, environmentalists similarly saw her as a strong ally on the climate issue.⁴⁹

What I did not recall, however, until I looked back at my initial drafts of the 2009 article during the preparation of this Article, was that my own thinking evolved considerably between the time I first submitted a draft for law review consideration in early 2008 and the article’s final draft more than a year later. The initial drafts in early 2008 boldly and unqualifiedly declared that “Congress will pass and the President will sign into law significant climate legislation” and “[t]here will be a celebratory White House signing ceremony” in recognition of

44. See Michael Cooper, *McCain Wins Big on Super Tuesday*, N.Y. TIMES (Feb. 6, 2008), <https://www.nytimes.com/2008/02/06/world/americas/06iht-06relect.9784233.html> [<https://perma.cc/JG7Y-E8TR>].

45. See *Climate Change—Greenhouse Gas Reductions and Trading System: Hearing Before the S. Comm. on Com., Sci. & Transp.*, 108th Cong. 1–4 (2003) (statement of Sen. John McCain, Chairman, S. Comm. on Com., Sci. & Transp.); Marianne Lavelle, *John McCain’s Climate Change Legacy*, INSIDE CLIMATE NEWS (Aug. 28, 2018), <https://insideclimatenews.org/news/26082018/john-mccain-climate-change-leadership-senate-cap-trade-bipartisan-lieberman-republican-campaign> [<https://perma.cc/DHS7-3KS7>] (discussing McCain’s aim to educate others on climate science).

46. See 147 CONG. REC. S8894–96 (daily ed. Aug. 3, 2001) (Cap and Trade Approach to Climate Change, statement of Sen. John McCain); Lavelle, *supra* note 45 (discussing Senator Lieberman’s recollection of Senator McCain’s fiery speeches).

47. *Election Guide 2008, Ads: John McCain: Global*, N.Y. TIMES (May 25, 2012), <https://www.nytimes.com/elections/2008/president/advertising/ads/6469358--john-mccain-global.html> [<https://perma.cc/3X3Y-XYBN>]; Elisabeth Bumiller & Jeff Zeley, *McCain Seeks to Break with Bush on Environment*, N.Y. TIMES (June 17, 2008), <https://www.nytimes.com/2008/06/17/us/politics/17cnd-mccain.html> [<https://perma.cc/B76H-RHTC>] (quoting campaign ad).

48. See, e.g., Scott Horsley, *2008 Election Issues: Climate Change*, NPR (Jan. 30, 2008), <https://legacy.npr.org/news/specials/election2008/issues/climate.html> [<https://perma.cc/9MNB-KZLE>] (discussing presidential candidates’ positions on climate change). The similarities between Obama and McCain on climate change were also apparent during the general election. See Andrew C. Revkin, *On Global Warming, McCain and Obama Agree: Urgent Action Is Needed*, N.Y. TIMES (Oct. 19, 2008), <https://www.nytimes.com/2008/10/19/us/politics/19climate.html> [<https://perma.cc/M5YV-VU3E>].

49. See, e.g., Horsley, *supra* note 48.

the history then being made as “the logjam regarding the nation’s and world’s most pressing environmental problem [is] finally . . . broken.”⁵⁰ I pulled no punches in my predictions.

In late fall of 2008, I began to have second thoughts about the unqualified nature of my prediction. I wrote a note to myself on October 12 to change the article’s beginning to claim only the “possibility of legislation.”⁵¹ And the revised version, completed on October 29, a week before the presidential election, hedged my bets a bit by stating only that “the new President and Congress are expected to join together in the first serious efforts” and added how “if they are successful” it would be the “first major environmental legislation in almost two decades.”⁵² The stuff about the White House celebration was deleted. The only subsequent changes prior to final publication were changing a reference to “the new President” to “President Barack Obama,” in light of the actual results of the election and adding a few footnote references to climate actions taken by Obama in early 2009 immediately prior to publication in June of that year.⁵³

The reason for my deliberate hedging in October 2008? The nation’s fiscal crisis dominated the nation’s headlines in September.⁵⁴ That crisis may well have helped to catapult Barack Obama into the White House on November 4. But I was well aware at the time that a nation preoccupied with a crippled economy and reeling from enormous economic losses was less likely to be a nation willing to embrace the kinds of longer-term investments required to address climate change.

In short, thanks to my last second hedging, my predictions of national climate legislation were not as wrong as they might otherwise have been. But I still clearly blundered by so easily premising my article on an assumption that has, now a decade later, still not come to pass.

50. Richard J. Lazarus, *Ulysses, the Sirens, and Climate Change: Binding the Present to Liberate the Future 1* (Feb. 27, 2008) (unpublished article outline) (on file with author).

51. Richard J. Lazarus, *Article Edit Notes 1* (Oct. 12, 2008) (unpublished notes) (on file with author).

52. Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future 1* (Oct. 29, 2008) (unpublished draft manuscript) (on file with author).

53. Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future 103* (Apr. 17, 2009) (unpublished draft manuscript) (on file with author); *see also id.* at 135–36 (describing actions taken on climate policy at the start of the Obama Administration).

54. *See, e.g.,* Stephen Labaton, *Wall St. in Worst Loss Since '01 Despite Reassurances from Bush; Dow Drops 4.4 Officials Try to Stem Crisis – Concern on Big Insurer*, N.Y. TIMES, Sept. 16, 2008, at A1.

D. Underestimation of the Opposition to Climate Legislation

The central flaw in my 2009 reasoning was that I underestimated the strength of the opposition that could be generated to climate legislation. Rather than acquiesce in climate legislation's inevitability, the opposition not only successfully prevented its congressional enactment, but further transformed what had months earlier been considered a matter of bipartisan consensus into the political equivalent of a third rail that hardly any elected official was willing to touch. The sudden turnabout was devastating for those who had been anxiously but optimistically expecting favorable congressional action to address climate change.

The first shoe dropped quickly in mid-February 2009 when Senator McCain suddenly abandoned his longstanding, full-throttled support for climate legislation. The Senator had recommitted to passage of a climate bill just a few weeks earlier, working with Connecticut Senator Joe Lieberman on an expected McCain-Lieberman bill.⁵⁵ But McCain dramatically retreated as soon as J.D. Hayworth—a former member of Congress, far right conservative radio talk show host, and climate skeptic—announced he would challenge McCain in the Arizona Republican primary.⁵⁶ Hayworth repeatedly slammed McCain on the climate issue,⁵⁷ and McCain plainly decided he needed to protect his political flank from right-wing attacks fueled by his past support of a climate bill. That the Obama Administration was now championing climate legislation made it harder still for McCain to do the same, given Obama's unpopularity with the conservative voters that McCain needed to win over in the 2010 Arizona Republican Primary.

With McCain's departure, the White House and the congressional Democratic leadership knew they needed another prominent Republican ally in the Senate for any climate legislation to be able to defeat an anticipated filibuster in that chamber, a procedural

55. See Ryan Lizza, *As the World Burns*, *NEW YORKER* (Oct. 3, 2010), <https://www.newyorker.com/magazine/2010/10/11/as-the-world-burns> [<https://perma.cc/2BCG-MXB6>] (noting that most of the details of the McCain-Lieberman bill were finalized by January 2009).

56. See *id.* (noting that McCain's support for the bill evaporated once Hayworth threatened a primary challenge). Hayworth would officially announce his primary challenge in 2010. Jennifer Steinhauer, *From Right of Radio Dial, a Challenge to McCain*, *N.Y. TIMES* (Feb. 8, 2010), <https://www.nytimes.com/2010/02/09/us/politics/09arizona.html> [<https://perma.cc/C5NE-83WW>].

57. See Alan Greenblatt, *How Republicans Learned to Reject Climate Change*, *NPR* (Mar. 25, 2010, 7:05 AM), <https://www.npr.org/templates/story/story.php?storyId=125075282> [<https://perma.cc/X7Y9-4FY5>] (commenting on McCain's silence on climate change issues after facing criticism from Hayworth on the issue).

hurdle they did not similarly face in the House.⁵⁸ They turned to South Carolina Senator Lindsey Graham as their best hope and worked for more than a year to win his support. During the next fourteen months, the White House and Senate Democrats kept upping the ante to keep Graham on board in return for his assistance in persuading other Republican senators to support climate legislation.⁵⁹ To keep Graham as a climate ally, Senate Democrats, working closely with the White House, promised Graham new loan guarantees for the nuclear power industry; expanded oil and gas drilling and exploration in the outer Continental Shelf; and, finally, in a last desperate act, billions of additional dollars for a highway trust fund supported by South Carolina truckers, even though such increased highway funding was clearly antithetical to reducing greenhouse gas emissions.⁶⁰

They succeeded in persuading Graham to coauthor with Massachusetts Senator John Kerry an op-ed in the *New York Times* in October 2009 in favor of climate legislation.⁶¹ The national news media showered Graham with praise, culminating in a *Time* magazine headline naming Graham in glowing terms the “New GOP Maverick in the Senate,”⁶² in an apparent reference to his dethroning of McCain for that honor. But by April 2010, the political backlash against Graham was intense.⁶³ A prominent Tea Party activist publicly questioned why Graham was “trying to sell out [his] own countrymen” and went so far as to suggest that Graham might be trying to protect himself from accusations that he was “gay.”⁶⁴ The accompanying video reportedly went viral, and ultimately not even a concession by Senators Kerry and Lieberman that they would agree to Graham’s demand for massive

58. See Darren Samuelsohn, *Meet Lindsey Graham, the Next GOP Maverick on Climate Change*, E&E NEWS (Oct. 13, 2009), <https://www.eenews.net/stories/83301> [<https://perma.cc/6DKV-R3LJ>] (profiling Graham’s evolution on climate issues); John M. Broder, *Graham Pulls Support for Major Senate Climate Bill*, N.Y. TIMES (Apr. 24, 2010), <https://www.nytimes.com/2010/04/25/us/politics/25graham.html> [<https://perma.cc/3FP4-F8T9>] (characterizing Obama Administration outreach efforts for bipartisan support after the bill’s failure).

59. See Lizza, *supra* note 55.

60. See *id.*

61. John Kerry & Lindsey Graham, Opinion, *Yes We Can (Pass Climate Legislation)*, N.Y. TIMES (Oct. 10, 2009), <https://www.nytimes.com/2009/10/11/opinion/11kerrygraham.html> [<https://perma.cc/J2DG-SFWS>].

62. Jay Newton-Small, *Lindsey Graham: New GOP Maverick in the Senate*, TIME (Dec. 23, 2009), <http://content.time.com/time/politics/article/0,8599,1949766,00.html> [<https://perma.cc/E36N-XN36>].

63. See Lizza, *supra* note 55 (discussing the backlash Graham faced).

64. *Id.*

highway funding could keep Graham on board.⁶⁵ The South Carolina Senator abandoned climate legislation in late April.⁶⁶

The lack of support was not limited to Republicans. Both Democratic senators up for reelection and new Democratic candidates for the Senate distanced themselves from any visible support of climate regulation, especially those in tight races that the party desperately needed to win to maintain its majority. This included several prominent Democratic senators who voted to strip the EPA of its existing authority to regulate greenhouse gas emissions, and West Virginia Democratic Senate candidate Joe Manchin, who ran for office loudly opposed to national climate legislation. Manchin famously broadcast a television ad in which he fired his rifle at a target make-up of a climate bill, promising to take “dead-aim” at climate legislation because “it’s bad for West Virginia.”⁶⁷ Democratic Senate Majority Leader Harry Reid made climate legislation’s obituary official when he announced on the same day that Senators Kerry and Lieberman agreed to Graham’s demands for highway funding that Senate consideration of the climate bill would take a backseat to immigration reform.⁶⁸

The BP Deepwater Horizon Gulf of Mexico oil spill was the final nail in climate legislation’s coffin, making sure no resurrection of the bill would be possible.⁶⁹ The Obama Administration tried at first to downplay the enormity of the spill because it threatened to derail the deal it had just struck three weeks earlier when the President had announced that the federal government would open up new offshore areas for oil and gas leasing.⁷⁰ He had done so as part of an effort to

65. *See id.*

66. *See id.*

67. *See* Joe Manchin, *Dead Aim – Joe Manchin for West Virginia TV Ad*, YOUTUBE (Oct. 9, 2010), <https://www.youtube.com/watch?v=xIJORBRpOPM> [<https://perma.cc/Y447-G9CY>]; *see also* Gabriel Nelson, *Republican Victories Boost Effort to Block Climate Rules*, E&E NEWS (Nov. 3, 2010), <https://www.eenews.net/stories/1059941727> [<https://perma.cc/24AN-Z336>] (counting potential votes in the Senate, following the mid-term election results, for a bill to remove the EPA’s authority to regulate greenhouse gases).

68. *See* Lizza, *supra* note 55 (referring to Reid’s announcement of interest in passing an immigration bill before a climate bill as a “cynical ploy” for his own reelection); Julia Preston, *From Senate Majority Leader, a Promise to Take Up Immigration Reform*, N.Y. TIMES (Apr. 10, 2010), <https://www.nytimes.com/2010/04/11/us/politics/11immig.html> [<https://perma.cc/8CTT-ZLNJ>] (covering speech from Reid at an immigration rally in Nevada); Broder, *supra* note 58 (quoting Graham as saying that moving forward on immigration first was “a cynical political ploy” that resulted in loss of Graham’s support for the climate bill).

69. *See* John M. Broder, *Oil Rig Blast Complicates Push for Energy and Climate Bill*, N.Y. TIMES (Apr. 27, 2010), <https://www.nytimes.com/2010/04/28/us/politics/28drill.html> [<https://perma.cc/JV2R-Y9VV>].

70. *See* NAT’L COMM’N ON THE BP DEEPWATER HORIZON OIL SPILL & OFFSHORE DRILLING, DEEP WATER: THE GULF OIL DISASTER AND THE FUTURE OF OFFSHORE DRILLING 133 (2011) <https://www.govinfo.gov/content/pkg/GPO-OILCOMMISSION/pdf/GPO-OILCOMMISSION.pdf> [<https://perma.cc/75YG-RBQD>] (explaining the underestimated rate of oil output reported by

persuade the oil and gas industry to support climate legislation. But once the massive nature of the oil spill became apparent, and the Administration responded with a sweeping moratorium on offshore drilling in the Gulf opposed by industry,⁷¹ all bets were off. Climate legislation was, like the Wicked Witch of the East in *The Wizard of Oz*, “not only merely dead,” it was “really most sincerely dead.”⁷²

The total capitulation reached no less than the Oval Office within the White House. At the outset of his Administration, President Obama returned again and again to the climate issue, in a clear effort to persuade Americans of its seriousness and the need for the nation to take bold steps to address climate change, including the passage of ambitious national legislation.⁷³ He did so again in 2010. But in 2011 and for much of 2012, the President pivoted and displayed a striking reluctance to raise the issue of climate change.⁷⁴ Obama did not return

responders during the first four weeks after start of the spill); John M. Broder, *Obama to Open Offshore Areas to Oil Drilling for First Time*, N.Y. TIMES (Mar. 31, 2010), <https://www.nytimes.com/2010/03/31/science/earth/31energy.html> [<https://perma.cc/342V-63UB>] (announcing a compromise proposal to open offshore areas to drilling weeks before the Deepwater Horizon spill began).

71. Memorandum from Ken Salazar, Sec’y, Dep’t of the Interior, to Dir., Mins. Mgmt. Serv., Suspension of Outer Continental Shelf (OCS) Drilling of New Deepwater Wells (May 28, 2010), https://www.doi.gov/sites/doi.gov/files/migrated/news/pressreleases/upload/M-Secretary_Moratorium.pdf [<https://perma.cc/PGT3-7XVY>]; Memorandum from Ken Salazar, Sec’y, Dep’t of the Interior, to Michael R. Bromwich, Dir., Bureau of Ocean Energy Mgmt., Reg. & Enft, Decision Memorandum Regarding the Suspension of Certain Offshore Permitting and Drilling Activities on the Outer Continental Shelf (July 12, 2010), <https://www.doi.gov/sites/doi.gov/files/migrated/deepwaterhorizon/upload/Salazar-Bromwich-July-12-OCS-FINAL.pdf> [<https://perma.cc/4HD8-3GMY>]; see also John M. Broder & Clifford Krauss, *U.S. Halts Plan to Drill in Eastern Gulf*, N.Y. TIMES (Dec. 1, 2010), <https://www.nytimes.com/2010/12/02/us/02drill.html> [<https://perma.cc/7ABM-RX8G>] (discussing the Obama Administration’s decision to halt expansion of offshore oil exploration in the Gulf of Mexico and along the Atlantic Coast).

72. THE WIZARD OF OZ (Metro-Goldwyn-Mayer 1939) (line sung by Meinhardt Raabe as the Munchkin Coroner in “As Coroner I Must Aver,” one in a series of brief songs following the dramatic “Ding-Dong! The Witch is Dead”).

73. See, e.g., Graciela Kincaid & J. Timmons Roberts, *No Talk, Some Walk: Obama Administration First-Term Rhetoric on Climate Change and US International Climate-Budget Commitments*, 13 GLOB. ENV’T POL. 41, 44 (2013) (noting that President Obama called for a comprehensive bill to address climate change in his 2009 address to the Joint Session of Congress).

74. See *id.* at 45–46 (finding use of the terms “climate change” and “global warming” “stunningly absent from the political arena from 2010 until the fall of 2012”); Suzanne Goldenberg, *Revealed: The Day Obama Chose a Strategy of Silence on Climate Change*, GUARDIAN (Nov. 1, 2012, 12:02 PM), <https://www.theguardian.com/environment/2012/nov/01/obama-strategy-silence-climate-change> [<https://perma.cc/VGZ6-GYTQ>] (describing a 2009 meeting on avoiding climate change messaging); Maxwell T. Boykoff, Opinion, *A Dangerous Shift in Obama’s ‘Climate Change’ Rhetoric*, WASH. POST (Jan. 27, 2012), https://www.washingtonpost.com/opinions/a-dangerous-shift-in-obamas-climate-change-rhetoric/2012/01/26/gIQAYnwzVQ_story.html [<https://perma.cc/4W5N-J58K>] (comparing use of the terms “climate change” and “global warming in State of the Union addresses).

to the climate issue with any gusto until the night he won reelection in November 2012.⁷⁵

The significant drop in presidential rhetoric of any mention of climate change cannot be mere happenstance. Presumably because of internal political polling within the White House demonstrating that climate was a dangerous political issue with the potential to backfire, climate change became the political equivalent of Harry Potter's Voldemort—an evil so frightening that it shall “not be named.” The President, accordingly, stilled his voice. The bully pulpit was itself bullied into silence on the issue the President himself had characterized at the outset of his presidency as threatening the world with catastrophic consequences if left, as in past decades, unaddressed.

What possibly could have caused such an extraordinary reversal of fortune first in Congress, with both Republicans and Democrats, and then even in the White House? Here, with the advantage of hindsight, the answer is easy. Everything that makes climate change not only a wicked problem, but a super wicked problem, fueled an effectively furious political backlash to the climate bill. The bill's opponents did not wait, as I had anticipated, merely to seek to defeat the effective implementation of climate legislation after it had become law. They instead delivered a kill shot that prevented any legislation at all.

Those in the Senate who opposed the legislation, whether Democrats or Republicans, seem to have been driven by concerns that supporting the legislation would harm their reelection prospects. Some were up for reelection in the near future in politically vulnerable states like Indiana and Arkansas, which was an especially hotly contested race.⁷⁶ Others, like Manchin, were from states like West Virginia, where the coal industry was powerful and felt threatened by climate regulation. Anticipating that their constituents in casting their ballots would care less about the longer-term consequences of climate change, especially those afflicting other parts of the world, those elected officials decided to try to save their political skins by opposing climate legislation.

Although the House—unlike the Senate, which was hobbled by a possible filibuster—did pass a climate bill in late June 2009, it did so only by the narrowest of margins, notwithstanding the Democrats'

75. See Remarks at an Election Victory Celebration in Chicago, Illinois, 2 PUB. PAPERS 1768, 1769 (Nov. 7, 2012) (“We want our children to live in an America . . . that isn't threatened by the destructive power of a warming planet.”).

76. See, e.g., Matthew Bigg, *Arkansas Conservative Democrats Hold Senate Race Key*, REUTERS (Sept. 22, 2010, 9:38 PM), <https://www.reuters.com/article/us-usa-elections-arkansas-voters/arkansas-conservative-democrats-hold-senate-race-key-idUSTRE68L5U320100923> [<https://perma.cc/Z5KJ-4XNN>] (stating that the Arkansas Senate race was tightly contested).

outsized majority in the House.⁷⁷ Dozens of Democratic members of Congress ran for cover and failed to vote for the bill, which passed by only seven votes, with eight of those votes supplied by moderate Republicans in safe congressional districts.⁷⁸ A shift of only four of those Republicans, however, would have defeated the legislation. Based on the House vote, the Senate Democratic leadership no doubt saw the electoral handwriting on the wall and did not want to force its potentially vulnerable senators to take a politically risky vote when leadership had no reason to be confident they could ever overcome a filibuster anyway. What, after all, was the point of such a meaningless political gesture? They would not only fail to pass a bill but also increase their chances of losing the Senate too.

Those opposed to climate legislation, moreover, wasted no time in making exaggerated claims that climate legislation would cause middle-class America to suffer from crippling increases in electricity costs.⁷⁹ Workers in the coal and auto industries would lose their jobs. Gasoline prices would skyrocket. (The threat of a “gas tax” was the argument that the conservative political action committee American Solutions, which was largely funded by coal and power plant business interests, had so effectively and successfully used to attack Senator Lindsay Graham.)⁸⁰ Others argued that to meet greenhouse gas emissions standards for motor vehicles, cars would become so light as to be unsafe, causing a dramatic increase in fatalities from car accidents.⁸¹ And all this cost to the U.S. economic and public safety

77. See John M. Broder, *House Passes Bill to Address Threat of Climate Change*, N.Y. TIMES (June 26, 2009), <https://www.nytimes.com/2009/06/27/us/politics/27climate.html> [<https://perma.cc/WQV8-ZD6F>] (explaining the passage of climate change bill by 219-212 margin in the House with forty-four Democrats voting against and eight Republicans voting for it).

78. See *id.*

79. Theda Skocpol, *Naming the Problem: What It Will Take to Counter Extremism and Engage Americans in the Fight Against Global Warming* 52 (Feb. 14, 2013) (unpublished symposium paper), https://scholars.org/sites/scholars/files/skocpol_captrade_report_january_2013_0.pdf [<https://perma.cc/KST9-MX44>] (describing an advocacy campaign claiming a potential \$3,100 increase in annual electricity and gas costs for families if climate change policies were passed).

80. See YouGovPolimetrix Nat'l Omnibus Poll, Thomas Riehle & Am. Sols., *Vast Majority of Americans Oppose Kerry-Graham-Lieberman Gas Tax Bill*, AM. SOLS. 1 (Apr. 25, 2010), <https://www.scribd.com/document/30229469/Vast-Majority-of-Americans-Oppose-Kerry-Graham-Lieberman-Gas-Tax-Bill> [<https://perma.cc/55VS-5E5L>] (presenting polling results showing seventy percent opposition to question framed as a gas tax); Lizza, *supra* note 55 (portraying Graham's apoplectic reaction to a Fox News story indicating that he supported a gas tax).

81. See, e.g., ReasonTV, *Morticians Association of America Endorses President Obama's Tough New Fuel Efficiency Standards*, YOUTUBE (May 25, 2009, 12:01 PM), <https://www.youtube.com/watch?v=GADpBkk5zns> [<https://perma.cc/U8G8-FD58>] (parody ad endorsing fuel efficiency standards because they will increase business for morticians by making cars less safe); Robert E. Grady, *Opinion, Light Cars Are Dangerous Cars*, WALL ST. J. (May 22,

would be for naught, either because climate science was unclear (though it was not) or because greenhouse gas emission increases by other countries (i.e., China and India) would render meaningless any sacrifices made by Americans.⁸²

All these political arguments derived directly from the features of climate change that make it a super wicked problem, which the opponents of climate legislation fully exploited. The scientific complexity inevitably made the problem seem riddled with uncertainties. The dramatic temporal and spatial mismatch between the causes and consequences of climate change fed claims that some people would be immediately harmed by climate regulation (taxes, rising electricity costs, car accidents), while the identity of those who might benefit in the future and at other places in the world was vague and uncertain. The limits of human cognition in assessing consequences that are far removed in time and space from the immediate present made it hard for voters to appreciate climate change's compelling nature in terms of its possible adverse consequences. The short-term incentives of elected officials and the lack of any governmental institution with jurisdiction over a policy problem of climate change's enormous scope made it likewise hard to persuade those running for office that they should sacrifice their electoral prospects for a problem they could not actually solve.

That is why climate legislation quickly cratered by the fall of 2010. And why, after the Democrats received what President Obama described as a "shellacking" in the midterm November 2010 elections,⁸³ Obama decided to stop even mentioning the words climate change out loud. The Democrats had gone from a seventy-nine-vote majority in the House to a forty-nine-vote deficit: a colossal loss of sixty-three seats after only two years.⁸⁴ The Republicans then controlled the House,

2009), <https://www.wsj.com/articles/SB124294901851445311> [<https://perma.cc/VSZ2-CAS4>] (arguing that lighter cars due to the regulation could result in more highway deaths).

82. See, e.g., MINORITY STAFF OF S. COMM. ON ENV'T & PUB. WORKS, 110TH CONG., U.S. SENATE MINORITY REPORT: MORE THAN 650 INTERNATIONAL SCIENTISTS DISSENT OVER MAN-MADE GLOBAL WARMING CLAIMS, SCIENTISTS CONTINUE TO DEBUNK "CONSENSUS" IN 2008, at 30 (2008), https://www.epw.senate.gov/public/_cache/files/8/3/83947f5d-d84a-4a84-ad5d-6e2d71db52d9/01AFD79733D77F24A71FEF9DAFCCB056.senateminorityreport2.pdf [<https://perma.cc/6385-ZFG5>] (arguing that action by the U.S. on climate is "cutting off our economic noses to spite our faces" while China and India continue to add coal-fired power plants).

83. Peter Baker & Carl Hulse, *Deep Rifts Divide Obama and Republicans*, N.Y. TIMES (Nov. 3, 2010), <https://www.nytimes.com/2010/11/04/us/politics/04elect.html> [<https://perma.cc/UE2H-6WCK>] (quoting Obama).

84. See *id.* Compare MANNING, 111TH CONGRESS, *supra* note 41, at 1 (noting that in the 111th Congress, there were 261 Democrats and 180 Republicans in the House), with JENNIFER E. MANNING, CONG. RSCH. SERV., R41647, MEMBERSHIP OF THE 112TH CONGRESS: A PROFILE 1 (2012) <https://fas.org/sgp/crs/misc/R41647.pdf> [<https://perma.cc/M7YU-664V>] [hereinafter MANNING,

meaning a climate bill was not going to happen. The Democratic Party's once-glorious sixty votes in the Senate eighteen months before had dwindled to a slim margin: a mere fifty-one senators, which was slightly buffeted because two independent senators, unaffiliated with either party, agreed to caucus with the Democrats.⁸⁵ The Democrats were holding on to the Senate only by a thin, fraying thread.⁸⁶

Of course, that shellacking was not uniquely tied to the climate issue. The President's Affordable Care Act, which the White House had decided would take precedence over climate legislation in the first two years, was the primary target. But the President and his closest advisors clearly concluded that the lessons of the 2010 election were not strictly limited to health care. They extended to the political viability of a climate bill, the opponents of which had funded the organized political attacks on Senators like McCain and Graham or anyone else who was identified as politically vulnerable.⁸⁷

As illustrated by a *New York Times* article published on October 20, 2010, when the incumbent Democratic Representative from Indiana Baron P. Hill tried to defend his vote in favor of the climate bill in a local candidate forum by explaining that the bill would "create jobs in Indiana, reduce foreign oil imports and address global warming," he was "showered" by "[a] rain of boos."⁸⁸ During the 2010 campaign, across the country, it was an "article[] of faith" of the Tea Party movement to be skeptical or even to deny the existence of global warming and instead to see climate change "as a conspiracy to impose world government."⁸⁹ Major funders of the Tea Party movement included political action groups heavily funded by the oil industry, which opposed climate change legislation because of its potential to reduce their immediate profits.⁹⁰ Representative Hill had won reelection to his sixth term in office in 2008 by more than sixty thousand

112TH CONGRESS] (noting that in the 112th Congress, there were 198 Democrats and 241 Republicans in the House).

85. See MANNING, *supra* note 84, at 1.

86. See *id.*; Jeff Zeleny, *G.O.P. Captures House, but Not Senate*, N.Y. TIMES (Nov. 2, 2010), <https://www.nytimes.com/2010/11/03/us/politics/03elect.html> [https://perma.cc/884N-F8WC] (recapping the 2010 midterm election results).

87. See JANE MAYER, *DARK MONEY: THE HIDDEN HISTORY OF THE BILLIONAIRES BEHIND THE RISE OF THE RADICAL RIGHT 198–225* (2016) (stating that opponents of climate change legislation funded coordinated attacks); Baker & Hulse, *supra* note 83 (stating that climate change legislation was not politically viable).

88. John M. Broder, *Climate Change Doubt Is Tea Party Article of Faith*, N.Y. TIMES (Oct. 20, 2010), <https://www.nytimes.com/2010/10/21/us/politics/21climate.html> [https://perma.cc/WC4C-QYDG].

89. *Id.*

90. MAYER, *supra* note 87, at 198–225 (describing fossil fuel industry funding of Tea Party to promote successful opposition to national climate legislation).

votes, topping nearly sixty percent of the vote.⁹¹ He lost his seat in 2010 by approximately twenty-three thousand votes, securing only forty-two percent of the vote.⁹² It was not a lesson lost on other Democrat incumbents seeking to hold on to their own congressional seats.

The message was, after all, not subtle. The Obama White House wasted no time taking it in and no less quickly abandoned any legislative pathway to address climate change. If they were going to make significant progress in addressing climate change, it would have to be based on exclusive use of existing executive branch power. So the President and his advisors pivoted away from Congress and focused on whatever authority the executive branch might possess to act on its own.

The next six years bore witness to a flurry of executive branch activity, especially major rulemakings and presidential executive branch orders. The presidential pivot was also reflected in some highly visible about-faces. For the first six-plus years of the Administration, the President sent multiple signals indicating his willingness to approve the Keystone XL Pipeline, even though the pipeline was a primary target of climate activists who literally encircled the White House in protest of the President's position.⁹³ The obvious reason for Obama's decision to risk alienating such an important constituency was that the President hoped that by not antagonizing business interests in several key western states, he would improve both his chances of reelection in 2012 and the odds of the Democratic Party holding on to its thin majority in the Senate in 2012 and 2014. But that political calculus disappeared after the Senate flipped to the Republicans in 2014, and it did not take long for Obama, too, to flip on the Keystone XL Pipeline once there was no potential political upside to antagonizing the more liberal Democratic base who opposed the pipeline. Soon thereafter, the President joined his Secretary of State John Kerry in

91. *Indiana's 9th Congressional District*, BALLOTPEdia, https://ballotpedia.org/Indiana%27s_9th_Congressional_District (last visited Sept. 10, 2020) [<https://perma.cc/E37H-2V42>].

92. *See id.*

93. *See, e.g.*, John M. Broder & Clifford Krauss, *U.S. Offers Key Support to Canadian Pipeline*, N.Y. TIMES (Aug. 26, 2011), <https://www.nytimes.com/2011/08/27/business/energy-environment/us-state-department-to-allow-canadian-pipeline.html> [<https://perma.cc/FE89-7RRA>] (characterizing the Obama Administration's Keystone Pipeline approval as likely following a State Department-issued Environmental Impact Statement); John M. Broder & Dan Frosch, *U.S. Delays Decision on Pipeline Until After Election*, N.Y. TIMES (Nov. 10, 2011), <https://www.nytimes.com/2011/11/11/us/politics/administration-to-delay-pipeline-decision-past-12-election.html> [<https://perma.cc/M3B6-8FPT>] (announcing a new review of the pipeline due to pressure by environmental activists).

concluding “that the Keystone XL Pipeline would not serve the national interests of the United States.”⁹⁴

E. Underestimation of the Precommitment Strategic Potential of Executive Branch Authority to Address Climate Change

By focusing exclusively on how new legislation might be crafted to make climate change law more enduring, my 2009 article also neglected to consider either the full extent of existing executive branch authority to address climate change or how such authority might take advantage of precommitment strategies to make executive branch climate lawmaking more enduring. I too quickly assumed all executive branch actions are readily reversible without considering, in a more nuanced way, how some may be less reversible as a practical matter than others. And just as precommitment strategies can be used in legislation to make climate regulation more durable, there may be techniques for making climate regulation established by an exercise of executive branch authority less susceptible to the whims of whoever happens to occupy the Oval Office.

The centerpiece of President Obama’s post-legislation climate agenda was compelled by both necessity and a precommitment strategy. First, as a matter of necessity, Obama knew that climate change could not be effectively addressed by any one nation alone. Climate science made that impossible given that it makes no difference to uniform atmospheric concentrations of greenhouse gases from which nations across the globe greenhouse gases are emitted. The same tonnage emitted by a source located in South America has the same impact on those atmospheric concentrations if the source were instead located in the Middle East, Central Asia, or Africa. It would accordingly require an international accord among all nations, with virtually every nation agreeing to reduce greenhouse gas emissions, to address climate change in an effective way.

An international accord also had the added advantage of providing an effective precommitment strategy. By publicly declaring to the rest of the world the United States’ commitment to reduce greenhouse gases and then having other nations rely on that commitment, Obama could make it that much harder for the United States to later retreat. The nation’s credibility and stature in international arenas would be undermined by any such reversal. Indeed, such a public declaration of intent is one of the most classic

94. Remarks on the Keystone XL Pipeline Project, 2015 DAILY COMP. PRES. DOC. 787 (Nov. 6, 2015).

examples of a precommitment strategy designed to make it harder to change one's mind later. Obvious examples include public vows in weddings, promises made in Alcoholic Anonymous meetings, and public commitments made in many weight loss programs. An international agreement with 194 other nations is clearly a far bigger deal, but the underlying theory of the advantages of public commitment is still the same—to make it harder later to renege.

But, as much as achieving an international climate accord was clearly the key, Obama knew that any hope of convincing the rest of the world to join in an international climate accord to reduce global greenhouse gas emissions would be wholly illusory unless and until the United States first put into place domestic regulations that promised to reduce U.S. greenhouse gas emissions. After all, although the United States was no longer the largest annual source of greenhouse gas emissions—that pole position had recently shifted to China—the United States remained the greatest source of accumulated greenhouse gases in the atmosphere, which now threaten the entire planet with the harmful consequences of climate change.⁹⁵ The United States would accordingly have to take the first step. All prior international climate conventions—then most recently in Copenhagen in 2009—had effectively collapsed because other countries were unimpressed by the lack of prior U.S. efforts to address the climate issue domestically in a comprehensive way.⁹⁶

From 2010 until its final weeks and days in January 2017, that was what the Obama Administration strove to do: demonstrate to the rest of the world the seriousness of its commitment to reduce domestic greenhouse gas emissions and use its resulting credibility to catalyze the world's first international climate accord. And that is just what the Administration did in what amounted to a seven-year lawmaking sprint to the finish line.

95. *Emissions*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/international/data/world> [<https://perma.cc/BMB4-BCXW>] (last visited Sept. 10, 2020) (select “Emissions by fuel” under “Other Statistics,” then click “Show visualization” and place cursor over the bubbles for the United States and China); *CO₂ Emissions from Fuel Combustion*, IEA ATLAS OF ENERGY, <http://energyatlas.iea.org/#/tellmap/1378539487> [<https://perma.cc/9B2A-EL57>] (last visited Sept. 10, 2020); MARCIA ROCHA, MARIO KRAPP, JOHANNES GUETSCHOW, LOUISE JEFFREY, BILL HARE & MICHIEL SCHAEFFER, CLIMATE ANALYTICS, HISTORICAL RESPONSIBILITY FOR CLIMATE CHANGE—FROM COUNTRIES EMISSIONS TO CONTRIBUTION TO TEMPERATURE INCREASE 8 (2015) https://climateanalytics.org/media/historical_responsibility_report_nov_2015.pdf [<https://perma.cc/8BSC-E9N9>].

96. See John M. Broder, *Many Goals Remain Unmet in 5 Nations' Climate Deal*, N.Y. TIMES (Dec. 18, 2009), <https://www.nytimes.com/2009/12/19/science/earth/19climate.html> [<https://perma.cc/U5UD-UKH9>] (noting that the Copenhagen convention failed to produce a comprehensive, binding agreement).

Two sets of major rulemakings by the U.S. Environmental Protection Agency were the linchpin of the Administration's effort by targeting the two largest sources of the nation's greenhouse gas emissions. The first targeted motor vehicle emissions, which accounted for twenty-eight percent of U.S. greenhouse gas emissions. The final standards promised to double fuel efficiency and halve oil consumption by 2025 compared to 2010.⁹⁷ And the second was aimed at the nation's coal-fired power plants, which accounted for twenty-eight percent of U.S. greenhouse gas emissions. They promised to reduce greenhouse gas emissions by thirty-two percent below 2005 emissions levels by 2030.⁹⁸

And these were just two of a host of Obama Administration regulatory initiatives designed to reduce domestic greenhouse gas emissions. These two major EPA regulations were joined before Obama left office with Department of Energy measures providing energy conservation standards applicable to appliances, equipment, and commercial building codes;⁹⁹ EPA regulations restricting methane emissions from landfills¹⁰⁰ and from oil and gas production;¹⁰¹ Department of the Interior regulations similarly restricting methane emissions from oil and gas activities conducted on public lands;¹⁰² and a Department of the Interior moratorium on coal mining on public lands¹⁰³ and restrictions on offshore oil and gas exploration and

97. See Remarks on Fuel Efficiency Standards, 2 PUB. PAPERS 906, 907–08 (July 29, 2011); Press Release, The White House, Off. of the Press Sec'y, President Obama Announces Historic 54.5 mpg Fuel Efficiency Standard (July 29, 2011), <https://obamawhitehouse.archives.gov/the-press-office/2011/07/29/president-obama-announces-historic-545-mpg-fuel-efficiency-standard> [https://perma.cc/EKG7-GF5Z].

98. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,665 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60) (Clean Power Plan).

99. See, e.g., Energy Conservation Program for Certain Commercial and Industrial Equipment: Test Procedure for Commercial Water Heating Equipment, 81 Fed. Reg. 79,261, 79,261 (Nov. 10, 2016) (to be codified at 10 C.F.R. pts. 429, 430, 431); Energy Conservation Program: Test Procedure for Walk-In Coolers and Walk-In Freezers, 81 Fed. Reg. 95,758, 95,758 (Dec. 28, 2016) (to be codified at 10 C.F.R. pts. 429, 431); Energy Efficiency Standards for the Design and Construction of New Federal Low-Rise Residential Buildings' Baseline Standards Update, 82 Fed. Reg. 2857, 2857 (Jan. 10, 2017) (to be codified at 10 C.F.R. pt. 435).

100. Standards of Performance for Municipal Solid Waste Landfills, 81 Fed. Reg. 59,332, 59,332 (Aug. 29, 2016) (to be codified at 40 C.F.R. pt. 60).

101. Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources, 81 Fed. Reg. 35,824, 35,824 (June 3, 2016) (to be codified at 40 C.F.R. pt. 60).

102. Waste Prevention, Production Subject to Royalties, and Resource Conservation, 81 Fed. Reg. 83,008, 83,010 (Nov. 18, 2016) (to be codified at 40 C.F.R. pts. 3100, 3160, 3170); see also *Fact Sheet on Methane and Waste Prevention Rule*, DEPT OF THE INTERIOR, https://www.doi.gov/sites/doi.gov/files/uploads/methane_waste_prevention_rule_factsheet.pdf (last visited Sept. 10, 2020) [https://perma.cc/9VKE-GQYH].

103. DEPT OF THE INTERIOR, SECRETARIAL ORDER NO. 3338, DISCRETIONARY PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT TO MODERNIZE THE FEDERAL COAL PROGRAM (2016); see also

drilling.¹⁰⁴ Finally, presidential executive orders commanded changes in the federal government's own activities and building operations,¹⁰⁵ including by the U.S. military,¹⁰⁶ to significantly reduce greenhouse gas emissions resulting from those governmental operations.

President Obama made clear the connection between his use of executive branch authority to undertake these significant domestic steps and his desire to promote the world's first climate agreement. He submitted a formal report to the United States in advance of international climate negotiations scheduled for December 2015 that detailed all the steps he was taking and the decrease in greenhouse gas reductions that would result. All together, they promised an ambitious and impressive twenty-six to twenty-eight percent reduction in 2005 greenhouse levels by 2025.¹⁰⁷

That U.S. showing was without a doubt an essential prerequisite to the historic signing of the Paris Accord in December 2015, only a few weeks after the EPA completed its rulemaking reducing greenhouse gas emissions from coal-fired power plants. To be sure, because neither President Obama nor his Secretary of State John Kerry thought they had the votes in the U.S. Senate to ratify a formally binding international treaty, the Paris Accord, at U.S. insistence, deliberately

Coral Davenport, *In Climate Move, Obama Halts New Coal Mining Leases on Public Lands*, N.Y. TIMES (Jan. 14, 2016), <https://www.nytimes.com/2016/01/15/us/politics/in-climate-move-obama-to-halt-new-coal-mining-leases-on-public-lands.html> [<https://perma.cc/RW5D-6NFC>] (noting that the "move represent[ed] a significant setback for the coal industry, effectively freezing new coal production on federal lands").

104. See, e.g., Memorandum on Withdrawal of Certain Areas of the United States Outer Continental Shelf Offshore Alaska from Leasing Disposition, 2015 DAILY COMP. PRES. DOC. 1 (Jan. 27, 2015); Memorandum on Withdrawal of Certain Portions of the United States Arctic Outer Continental Shelf from Mineral Leasing, 2016 DAILY COMP. PRES. DOC. 1 (Dec. 20, 2016); Statement on the Withdrawal of Certain Areas in the Arctic and Atlantic Oceans on the Outer Continental Shelf from Mineral Leasing, 2016 DAILY COMP. PRES. DOC. 1 (Dec. 20, 2016).

105. Exec. Order No. 13,693, Planning for Federal Sustainability in the Next Decade, 80 Fed. Reg. 15,871 (Mar. 25, 2015); Exec. Order No. 13,514, Federal Leadership in Environmental, Energy, and Economic Performance, 74 Fed. Reg. 52,117 (Oct. 8, 2009); Memorandum on Federal Fleet Performance, 2011 DAILY COMP. PRES. DOC. 1–3 (May 24, 2011).

106. See, e.g., Press Release, Dep't of Agric., Obama Administration Officials Discuss Navy's Successful Demonstration of Domestic Biofuel and New Energy Efficiencies in Major Maritime Exercise (July 19, 2012), <https://www.usda.gov/media/press-releases/2012/07/19/obama-administration-officials-discuss-navys-successful> [<https://perma.cc/8L7Q-6MG6>] (touting the Navy's "Great Green Fleet" exercise powered by nuclear energy and advanced biofuels); DEP'T OF THE ARMY, ARMY VISION FOR NET ZERO (2011), https://www.asaie.army.mil/Public/ES/netzero/docs/4Oct11_NET_ZERO_White_Paper.pdf [<https://perma.cc/FNS8-ZMMW>] (outlining strategies to reduce the Army's consumption of resources).

107. U.S., INTENDED NATIONALLY DETERMINED CONTRIBUTION AND ACCOMPANYING INFORMATION 1 (2015), <https://www4.unfccc.int/sites/submissions/INDC/Published%20Documents/United%20States%20of%20America/1/U.S.%20Cover%20Note%20INDC%20and%20Accompanying%20Information.pdf> [<https://perma.cc/8J6J-RAQB>] (submitted to United Nations Framework Convention on Climate Change Secretariat on March 31, 2015).

did not include a legally binding commitment.¹⁰⁸ But even with that significant caveat, the agreement was plainly of enormous historic import by succeeding to bring together 195 nations to make public commitments for major greenhouse gas reductions.

But the precommitment strategy achieved by the Obama Administration's reliance on executive branch authority was not limited to the Paris Accord itself. In ways I did not fully appreciate in 2009, the various agency rulemakings themselves have significant staying power and, unlike presidential executive orders, cannot be so easily reversed. They can be both legally and practically very sticky in significant ways.

First, the major rules promulgated by the EPA to restrict greenhouse gas emissions cannot be simply repealed by fiat. The procedural and substantive requirements that make these major rules hard to issue in the first instance equally govern any efforts to modify them. Both the motor vehicle and power plant rules, for instance, were the result of rulemakings based on voluminous, highly sophisticated, and complex scientific and economic analysis and findings. The resulting rulemaking records were massive, and the final regulations and large number of public comments reflected that complexity. For instance, the final EPA rule governing greenhouse gas emissions from existing power plants was 1,560 pages long (an extraordinary 304 pages in the Federal Register), and the proposed rule had generated 4.3 million comments to which the EPA had to respond.¹⁰⁹

Any effort to change the rules would have to provide a legally sufficient justification for the change. What new scientific or economic studies had produced facts that warranted the Agency reaching a different conclusion? What other factors warranted the modification? On governing questions of law, what justified the Agency's new interpretation of the relevant statutory provisions?¹¹⁰

None of this is to suggest agencies cannot change their minds and revise previously issued rules. They most certainly can. But it requires significant work, careful study, and persuasive reasoning. And in their absence, a reviewing court is very likely to reject the agency's proposed revision as arbitrary and capricious and otherwise unlawful. For many of the Obama Administration's greenhouse gas rules, these

108. See Melissa Eddy, *At Climate Talks, a Few Letters that Almost Sank the Deal*, N.Y. TIMES (Dec. 14, 2015), <https://www.nytimes.com/interactive/projects/cp/climate/2015-paris-climate-talks/at-climate-talks-three-letters-almost-sunk-the-deal> [<https://perma.cc/3XXP-KLWJ>] (describing actions taken by Kerry after noticing the word "shall" in the agreement).

109. See Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,663 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60) ("[S]takeholders provid[ed] more than 4.3 million comments on the proposed rule.").

110. See *Fed. Comm'n Comm'n v. Fox Television Stations, Inc.*, 556 U.S. 502, 515–16 (2009).

are not trivial limitations precisely because agency officials worked hard over many years to create such substantial rulemaking records that justified their rules.¹¹¹ By contrast, the many presidential executive orders issued by President Obama designed to limit the carbon footprint of the federal government's own operations are not similarly sticky. Presidential executive orders can typically be immediately reversed by a subsequent president.

The second reason that the major greenhouse gas rulemakings are more enduring than they might seem is not due to legal constraints but to economic forces. Once a new rule is in place and regulated entities subject to the rule make the often-significant financial investments necessary to comply with the rule, those same entities naturally begin to lose interest in the rule's repeal. They now have sunk costs dependent on the rule's existence and therefore the economic advantages of the rule's relaxation have correspondingly decreased. Indeed, they may even have a financial incentive in favor of the rule's maintenance because, otherwise, competitors who have not yet made a similar investment may enjoy a competitive advantage over them.¹¹²

For related reasons, many business interests highly value regulatory stability. Although they might well have preferred that the new regulation had never been adopted, once it is in place and settled, it can be highly disruptive of the marketplace to eliminate it later. Many decisions have been made in the marketplace based on that regulation's existence. A repeal can be problematic for the marketplace, especially if the legality of the repeal itself is in question, for two reasons. First, the repeal frustrates the economic expectations of businesses who previously made major investments based on the former rule. And,

111. See Juliet Eilperin & Brady Dennis, *EPA Staff Warned that Mileage Rollbacks Had Flaws. Trump Officials Ignored Them.*, WASH. POST (May 19, 2020, 7:15 PM CDT), https://www.washingtonpost.com/climate-environment/epa-staff-warned-that-mileage-rollbacks-had-flaws-trump-officials-ignored-them/2020/05/19/242056ba-960f-11ea-91d7-cf4423d47683_story.html [https://perma.cc/QTU6-4VPG] (describing how "EPA staff were sidelined as they warned that the revised standards had several defects"); Coral Davenport, *Trump's Environmental Rollbacks Find Opposition Within: Staff Scientists*, N.Y. TIMES (March 27, 2020), <https://www.nytimes.com/2020/03/27/climate/trumps-environmental-rollbacks-staff-scientists.html> [https://perma.cc/U4UW-654A] (describing how objective scientific analysis prepared by EPA career scientists limits the ability of Trump Administration to generate administrative records in support of regulatory rollbacks sufficient to withstand legal challenge).

112. For instance, even the American Electric Power Institute, normally a reliable champion of environmental deregulation, made clear the power plant industry's opposition to Trump Administration plans to rollback mercury emission limitations promulgated during the Obama Administration: "We've already made those investments. We're happy to comply with this rule. Let sleeping dogs lie." Juliet Eilperin & Brady Dennis, *The EPA Is About to Change a Rule Cutting Mercury Pollution. The Industry Doesn't Want It.*, WASH. POST (Feb. 17, 2020, 6:00 AM EST) (quoting Scott Weaver), https://www.washingtonpost.com/climate-environment/the-epa-is-about-to-change-a-rule-cutting-mercury-pollution-the-industry-doesnt-want-it/2020/02/16/8ebac4e2-4470-11ea-b503-2b077c436617_story.html [https://perma.cc/7HW6-46XC].

second, the repeal's uncertain validity makes it hard for businesses to know what the law will be in the future. Such uncertainty is anathema to economic investment. Most businesses would far prefer a certain rule that is more demanding to an uncertain, potentially shifting rule that holds out the promise of being less demanding but only if it survives years of litigation.¹¹³

Nor is it only the regulated entity that is likely to object to the undoing of an existing major regulation of economic activity that has begun to settle in a way that had created economic expectations. Other interested parties include those who have been enjoying the benefits of the regulation. It is far harder to deprive someone of a benefit they have learned to value than to deny them that same benefit in the first instance. The benefits of regulation also extend to other businesses whose products and services are more valuable because of the regulation's mandate.¹¹⁴

When it comes to the economics of climate regulation, the business community is far less monolithic than many reflexively assume. For the Obama Administration greenhouse gas emission regulations, there was a vast network of powerful business interests that benefited from those regulations: those in the fishing, real estate, manufacturing, or high technology industries concerned about the adverse effects on their bottom line of climate change;¹¹⁵ those in the auto industry's production line who made parts that improved fuel efficiency; those companies who made more efficient power plant boilers; and those who manufactured or marketed products that

113. Timothy Gardner, *Investors Urge Drillers, Miners Not to Take Advantage of Trump Environmental Rollbacks*, REUTERS (Jan. 29, 2020) (quoting investment groups' letter), <https://www.reuters.com/article/us-usa-environment-investors/investors-urge-drillers-miners-not-to-take-advantage-of-trump-environmental-rollbacks-idUSKBN1ZS1VK> [<https://perma.cc/W835-U44J>]; Coral Davenport, *Automakers Plan for Their Worst Nightmare: Regulatory Chaos After Trump's Emissions Rollback*, N.Y. TIMES (Apr. 10, 2019), <https://www.nytimes.com/2019/04/10/climate/auto-emissions-cape-rollback-trump.html> [<https://perma.cc/L3QZ-AWVY>]; Clifford Krauss, *Trump's Methane Rule Rollback Divides Oil and Gas Industry*, N.Y. TIMES (Aug. 29, 2019), <https://www.nytimes.com/2019/08/29/business/energy-environment/methane-regulation-reaction.html> [<https://perma.cc/KZJ3-EPLN>].

114. For instance, the Advanced Energy Economy, American Wind Association, and Solar Energy Industries all intervened in support of the Obama EPA's Clean Power Plan in the D.C. Circuit. See Brief of Intervenors Advanced Energy Economy, American Wind Energy Ass'n, and Solar Energy Industries Ass'n in Support of Respondents, *West Virginia v. EPA*, No. 15-1363 (and consolidated cases) (D.C. Cir. filed Mar. 29, 2016).

115. For instance, Adobe, Mars, IKEA, Blue Cross and Blue Shield of Massachusetts, Microsoft, and Google all filed amicus curiae briefs in support of the Obama EPA's Clean Power Plan in the D.C. Circuit. See Brief of Amici Curiae Adobe, Mars, IKEA North American, and Blue Cross and Blue Shield of Massachusetts in Support of Respondents, *West Virginia v. EPA*, No. 15-1363 (and consolidated cases) (D.C. Cir. Apr. 1, 2016); Brief of Amici Curiae Amazon, Apple, Google, and Microsoft in Support of Respondents, *West Virginia v. EPA*, No. 15-1363 (and consolidated cases) (D.C. Cir. Apr. 1, 2016).

produce electricity using fuels or processes other than coal, such as natural gas, nuclear power, wind, solar, and geothermal. These are billion-dollar industries with wide geographical sweep across the country.¹¹⁶ The Obama Administration greenhouse gas regulations, moreover, especially the Clean Power Plan, made explicit their reliance on the long-term success of those other industries, which helps to build an economic and political constituency opposed to their relaxation, let alone their complete repeal.

Third, the Obama Administration greenhouse gas regulations built partnerships with many states as well. The Clean Power Plan's program for reducing greenhouse gas emissions from existing power plants relied heavily on detailed information the EPA gathered and evaluated about the potential of each state to reduce power plant emissions associated with meeting electricity demand within their borders.¹¹⁷ The Plan, in that way, provided a road map to those states to act on their own even if a subsequent presidential administration were able to succeed in taking the extreme action of eliminating the federal Clean Power Plan. Any states that cared about the climate issue would still be left with all the guidance provided by the EPA rulemaking record and would be free to adopt those same measures on their own. And many states have done just that.¹¹⁸ The federal government would possess no general authority to stop the states from doing so. In that further way, the EPA regulations could be effectively more enduring.

II. (PRESIDENT) DONALD TRUMP

The defeat of climate legislation during the 111th Congress was a surprising, major setback for U.S. climate policy. What had been accepted at the outset of that Congress in January 2009 as a fait accompli had become a legislative pariah by the beginning of the 112th

116. See *supra* notes 114 and 115 (listing briefs of major associations and corporations that supported the Clean Power Plan).

117. See Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,821–22 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60) (outlining steps taken to determine state-based goals).

118. See, e.g., Brad Plumer, *Blue States Roll Out Aggressive Climate Strategies. Red States Keep to the Sidelines.*, N.Y. TIMES (June 21, 2019), <https://www.nytimes.com/2019/06/21/climate/states-climate-change.html> [<https://perma.cc/FJ67-J8Z6>] (comparing recent climate laws passed in Democratic- and Republican-controlled states); Larry Hogan & Ralph Northam, Opinion, *States Can Lead the Way on Climate Change. Let's Get to Work.*, WASH. POST (Dec. 11, 2018), https://www.washingtonpost.com/opinions/states-can-lead-the-way-on-climate-change-lets-get-to-work/2018/12/11/2f3e4590-fd75-11e8-83c0-b06139e540e5_story.html [<https://perma.cc/9SZ9-6X6N>] (bipartisan governors advocating for state-level climate action and touting their accomplishments); *State Climate Policy Maps*, CTR. FOR CLIMATE & ENERGY SOLS., <https://www.c2es.org/content/state-climate-policy/> [<https://perma.cc/3GG7-5M4S>] (mapping greenhouse gas targets from twenty-three states and the District of Columbia).

Congress in January 2011. But the significance to U.S. climate policy of the absence of national, comprehensive climate legislation paled in comparison to the shock waves felt in the aftermath of Donald Trump's election to the presidency six years later. The latter was a body blow. The newly elected President seemed ready to repudiate the international scientific consensus regarding both the human causes of climate change and its serious consequences, to walk away from the Paris Climate Accord, and to overturn every effort by the Obama Administration to limit domestic greenhouse gas emissions.

Nor was the climate issue a mere innocent bystander victim to the results of a presidential election that had focused on and been decided by voter preferences on other issues. Candidate Trump made repudiation of the Paris Accord and the restrictions on greenhouse gas emissions imposed during the Obama Administration a central message of his campaign, first in securing the Republican nomination and then in winning the national election in November 2016. There was nothing subtle or remotely abashed about it. Trump's attack on the climate issue played right into his core campaign promise to "Make America Great Again." And in doing so, Trump exploited to his maximum political advantage everything that makes climate change such a super wicked problem to address.

*A. Trump's Repeated and Persistent Reliance on
Climate Change's Super Wickedness*

The inherently uncertain nature of climate change, rooted in its vast spatial and temporal dimensions and scientific complexity, was repeatedly reflected in how first candidate Trump and then President Trump characterized climate science. He described climate change as "nonexistent," "mythical," a "hoax," and "a total con job."¹¹⁹ He contended that "global warming has been proven to be a canard repeatedly over and over again."¹²⁰ Exploiting the human tendency to confuse climate with weather, Trump did just that. In December 2015, when asked if he believed in climate change and global warming, Trump responded: "I think that there'll be a little change here. It'll go up. It'll get a little cooler. It'll get a little warmer like it always has for

119. See Peter Baker, *Does Donald Trump Still Think Climate Change Is a Hoax? No One Can Say*, N.Y. TIMES (June 2, 2017), <https://www.nytimes.com/2017/06/02/us/politics/climate-change-trump-hoax-scott-pruitt.html> [<https://perma.cc/FC5B-673Z>]; see also Donald J. Trump (@realDonaldTrump), TWITTER (Nov. 6, 2012, 11:15 AM), <https://twitter.com/realdonaldtrump/status/265895292191248385> [<https://perma.cc/N9SB-CBY4>].

120. See Baker, *supra* note 119 (quoting President Trump).

millions of years. It'll get cooler. It'll get warmer. It's called weather."¹²¹ Several years later, now as President, Trump maintained the same themes. In June 2019, after a lengthy meeting with Great Britain's Prince Charles on climate change, Trump responded to the question of whether he believed in climate change by stating his belief "that there's a change in weather, and I think it changes both ways."¹²² At the World Economic Forum in Davos in February 2020, just before the full dimensions of the coronavirus hit the United States, President Trump decried climate activists as "the heirs of yesterday's foolish fortune-tellers" and "perennial prophets of doom" who, throughout history, had falsely predicted the coming "of the apocalypse."¹²³

In rejecting the consensus views of climate scientists, Trump questioned their legitimacy. "[T]hey have a very big political agenda," he cautioned in 2018.¹²⁴ "I don't believe it. . . . No. No. I don't believe it" was the President's response, without elaboration, when questioned in late November 2018 about the recent findings of the International Panel on Climate Change of the potentially devastating economic consequences of climate change.¹²⁵ He pointed out that there are other scientists who do not see climate change as so serious, and the President mocked those who claim climate change is a serious problem by pointing out the shifting nature of their claim: "Don't forget it used to be called global warming. That wasn't working. Then it was called climate change. Now it's actually called extreme weather, because with extreme weather, you can't miss."¹²⁶ But, according to the President, "[f]orty years ago we had the worst tornado binge we've ever had" and "[i]n the 1890s, we had our worst hurricanes."¹²⁷

Trump's campaign promises, often repeated in campaign-like rallies even since becoming President, used to his political advantage

121. Fox News, *Donald Trump on Climate Change Policy*, YOUTUBE (Dec. 3, 2015), <https://www.youtube.com/watch?v=uGEzFbRl-g8> [<https://perma.cc/7SE3-U7K5>] (interview with then-candidate Trump on the O'Reilly Factor).

122. Isaac Stanley-Becker, *Trump, Pressed on the Environment in U.K Visit, Says Climate Change Goes "Both Ways"*, WASH. POST (June 5, 2019, 4:10 AM EDT) (quoting President Trump), https://www.washingtonpost.com/world/europe/trump-pressed-on-the-environment-in-uk-visit-says-climate-change-goes-both-ways/2019/06/05/77c8750c-8717-11e9-9d73-e2ba6bbf1b9b_story.html [<https://perma.cc/9ACA-8WXK>].

123. Remarks at the World Economic Forum in Davos, Switzerland, 2020 DAILY COMP. PRES. DOC. 6 (Jan. 21, 2020).

124. Interview by Leslie Stahl with Donald Trump, President, U.S., in Washington D.C. (Oct. 15, 2018), <https://www.cbsnews.com/news/donald-trump-full-interview-60-minutes-transcript-lesley-stahl-2018-10-14/> [<https://perma.cc/5QJ5-P3RF>].

125. Remarks in an Exchange with Reporters Prior to Departure for Tupelo, Mississippi, 2018 DAILY COMP. PRES. DOC. 2 (Nov. 26, 2018).

126. See Stanley-Becker, *supra* note 122 (quoting President Trump).

127. *Id.*

how climate change creates conflicts between stakeholders, both within the United States and between the United States and other nations of the world. In a campaign speech in October 2016 in North Carolina, Trump promised to cancel all the “wasteful climate change spending” and use the money domestically “to help rebuild the vital infrastructure.”¹²⁸ Long before he ran for President, in 2012, he famously argued that the whole climate change problem was a hoax invited by the Chinese to help their manufacturing industry at the expense of the American economy: “The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.”¹²⁹

He repeatedly blamed laws designed to address climate change as harming the U.S. economy, nowhere perhaps as much as he did in reference to West Virginia, focusing on its coal industry. Trump described President Obama’s Clean Power Plan, designed to limit greenhouse gas emissions from the nation’s power plants, as “job-crushing.”¹³⁰ He made saving the coal industry a campaign priority, and, once President, he repeatedly declared that he had fulfilled his campaign promise by “lift[ing] the restrictions on American . . . clean beautiful coal” and by “putting coal miners back to work.”¹³¹ At rallies, the President declared he had met his promise: “[T]hey’re back to work all over the country”¹³² and “Did you see West Virginia? I love West Virginia.”¹³³

Trump’s rhetoric expressing his disdain for the Paris Climate Accord and then his decision, over the objection of many of his close advisors, to abandon that agreement, struck the same “us vs. them” theme. The Paris Accord was, for Trump, accordingly a bull’s-eye shot in carrying out his pledge to Make America Great Again. In celebrating his decision that the United States would withdraw from the Paris

128. Donald Trump, Campaign Speech in Charlotte, North Carolina (Oct. 26, 2016); Tim Hains, *Trump Proposes “New Deal for Black America” in Charlotte*, REAL CLEAR POL. (Oct. 26, 2016), https://www.realclearpolitics.com/video/2016/10/26/trump_proposes_new_deal_for_black_america_in_charlotte.html [<https://perma.cc/25RB-MC2H>] (transcript of prepared remarks for a campaign speech in Charlotte).

129. Trump, *supra* note 119.

130. Remarks on Signing Executive Orders on Energy Infrastructure Development in Crosby, Texas, 2019 DAILY COMP. PRES. DOC. 2 (Apr. 10, 2019) [hereinafter Energy Infrastructure Development].

131. Remarks at a “Make America Great Again” Rally in Pensacola, Florida, 2017 DAILY COMP. PRES. DOC. 7 (Dec. 8, 2017) [hereinafter Pensacola Rally]; *see also* Remarks on Efforts to Promote Domestic Energy Production, 2017 DAILY COMP. PRES. DOC. 3 (June 29, 2017) [hereinafter Domestic Energy Remarks] (“[P]utting the coal miners back to work.”); Remarks at the Conservative Political Action Conference in Oxon Hill, Maryland, 2018 DAILY COMP. PRES. DOC. 4 (Feb. 23, 2018) (“[W]e’ve ended the war on beautiful, clean coal.”).

132. Energy Infrastructure Development, *supra* note 130, at 2.

133. Pensacola Rally, *supra* note 131, at 7.

Agreement, Trump stressed that “[i]t is time to put Youngstown, Ohio; Detroit, [Michigan]; and Pittsburgh, [Pennsylvania] along with many, many other locations within our great country, before Paris, France” and that “[i]t is time to make America great again.”¹³⁴ For Trump, the Paris Agreement, not climate change, literally became the true catastrophe: “It’s going to strip us of our jobs, our wealth, our companies”;¹³⁵ and “We would have had to close factories and businesses.”¹³⁶ Absent Trump’s intervention, he declared, the agreement “would have been one of the great catastrophes.”¹³⁷

At risk, according to Trump, was no less than the nation’s independent sovereignty and self-respect—the ability of Americans to hold their heads up and feel proud. In this manner, he sought to use to his political advantage that addressing climate change raised the specter of world government that is anathema to many American voters—another of climate change’s super wicked qualities that it requires a nonexistent global authority. Trump equated climate change law as tantamount to such a surrender: “[W]hat we won’t do is let other countries take advantage of the United States anymore and . . . dictate our future.”¹³⁸ “It would have once been unthinkable that an international agreement could prevent the United States from conducting its own domestic affairs . . .”;¹³⁹ and “At what point does America get demeaned? At what point do they start laughing at us as a country?”¹⁴⁰ That is why, Trump celebrated, people were thanking him for his decision. “[T]here are so many people that say thank you. You saved the sovereignty of our country.”¹⁴¹ In short, to the extent that addressing climate change requires—because of the physics and chemistry of climate science—international cooperation and therefore some international legal governance, Trump used that necessity as a further cudgel to attack it. He argued, in effect, that United States participation in international efforts to address the climate issue would be allowing foreign governments to exercise sovereign authority over the United States and otherwise erode our autonomy.

134. See Michael D. Shear, *Trump Will Withdraw U.S. From Paris Climate Agreement*, N.Y. TIMES (June 1, 2017) (quoting President Trump), <https://www.nytimes.com/2017/06/01/climate/trump-paris-climate-agreement.html> [<https://perma.cc/8TH4-Y748>].

135. Remarks at the Faith and Freedom Coalition’s Road to Majority Conference, 2017 DAILY COMP. PRES. DOC. 2 (June 8, 2017) [hereinafter Faith and Freedom Speech].

136. Pensacola Rally, *supra* note 131, at 7.

137. *Id.*

138. Faith and Freedom Speech, *supra* note 135, at 2.

139. See Shear, *supra* note 134 (quoting President Trump).

140. *Id.*

141. Domestic Energy Remarks, *supra* note 131, at 3.

B. Trump's Retreat on Climate

Many presidential candidates campaign on one set of themes but then notoriously govern quite differently if elected. They make promises that either they never intended to keep or, even if their initial promises were sincerely made, they soon learn once in power that the actual responsibilities associated with governing a nation override their ability to fulfill those promises. No such gap between campaigning and governing developed for Trump, however, for the simple reason that, even after being elected, he has never stopped campaigning. The notion that there might be contrasting responsibilities associated with actual governance never kicked in.

The upshot is that climate change's super wicked nature not only defeated passage of climate legislation during the 111th Congress but returned with a vengeance a few years later to fuel political forces that, with their champion in the White House, now seek to upend much of what President Obama achieved in the alternative through assertion of executive branch authority. President Trump has systematically targeted for repeal all of the dozens of Obama Administration climate initiatives, big and small, that had put the United States on track for a major reduction in domestic greenhouse gas emissions.

1. Executive Orders

In March of his first year in office, President Trump exercised his authority to revoke a series of significant executive orders issued by President Obama related to climate change. They included executive orders that sought to reduce greenhouse gas emissions caused by military activities and the operation of government buildings.¹⁴² He also eliminated important guidance developed to determine the "social cost of carbon" to promote decisions by federal agencies that, in rationally considering the costs and benefits of their actions, took account of the cost of greenhouse gas emissions to the nation's health and welfare.¹⁴³ The guidance was the result of many years of careful and deliberate

142. See Exec. Order No. 13,783, Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16,093, 16,093 (Mar. 28, 2017); Exec. Order No. 13,834, Efficient Federal Operations, 83 Fed. Reg. 23,771, 23,771 (May 17, 2018).

143. Promoting Energy Independence and Economic Growth, 82 Fed. Reg. at 16,095–96.

analysis and had been widely viewed as representing a major advance in ensuring rational governmental decisionmaking.¹⁴⁴

2. Climate Science

The Trump Administration also effectively shut down federal funding of basic climate research and sought to end consideration of climate science in decisionmaking, even when it is highly relevant to decisions being made.¹⁴⁵ Deliberate ignorance of climate science became a legal mandate. The EPA has long enjoyed the benefit of outside science advisory boards to help ensure agency decisionmaking was based on sound science. The Trump Administration, however, has systematically sought to reduce the influence of outside scientific expertise by replacing academic experts on these advisory boards in favor of industry representatives.¹⁴⁶ Prior Republican administrations had displayed far less enthusiasm for climate regulations than the Obama Administration. But none, before Trump, had taken the extreme step of seeking to stop the learning provided by basic scientific

144. See, e.g., INTERAGENCY WORKING GRP. ON SOC. COST OF CARBON, U.S. GOV'T, TECHNICAL SUPPORT DOCUMENT: SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS UNDER EXECUTIVE ORDER 12866 (2010), https://www.epa.gov/sites/production/files/2016-12/documents/scc_tsd_2010.pdf [<https://perma.cc/7QE2-CKJY>] (providing estimated social cost of carbon for agency use); INTERAGENCY WORKING GRP. ON SOC. COST OF CARBON, U.S. GOV'T, TECHNICAL SUPPORT DOCUMENT: TECHNICAL UPDATE OF THE SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS UNDER EXECUTIVE ORDER 12866 (2015), <https://obamawhitehouse.archives.gov/sites/default/files/omb/inforeg/scc-tsd-final-july-2015.pdf> [<https://perma.cc/BM8P-X3XV>] (same); INTERAGENCY WORKING GRP. ON SOC. COST OF GREENHOUSE GASES, U.S. GOV'T, TECHNICAL SUPPORT DOCUMENT: TECHNICAL UPDATE OF THE SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS UNDER EXECUTIVE ORDER 12866 (2016), https://www.epa.gov/sites/production/files/2016-12/documents/sc_co2_tsd_august_2016.pdf [<https://perma.cc/YWZ8-QB45>] (same).

145. See Brady Dennis, Juliet Eilperin & Andrew Ba Tran, *With a Shrinking EPA, Trump Delivers on His Promise to Cut Government*, WASH. POST (Sept. 8, 2018, 5:45 PM CDT), https://www.washingtonpost.com/national/health-science/with-a-shrinking-epa-trump-delivers-on-his-promise-to-cut-government/2018/09/08/6b058f9e-b143-11e8-a20b-5f4f84429666_story.html [<https://perma.cc/9XQE-MWVF>] (discussing the reduction in size of the Environmental Protection Agency under Trump).

146. See Lisa Friedman, *E.P.A. Broke Rules in Shake-Up of Science Panels, Federal Watchdog Says*, N.Y. TIMES (July 15, 2019), <https://www.nytimes.com/2019/07/15/climate/epa-advisory-panels-gao-report.html> [<https://perma.cc/DR74-MHBF>] (noting a reduction in scientist participation on EPA advisory panels under the Trump Administration); Pamela King, *Greens, Agency at Loggerhead After Court Ruling on Advisers*, E&E NEWS: GREENWIRE (Feb. 25, 2020), <https://www.eenews.net/greenwire/2020/02/25/stories/1062446203> [<https://perma.cc/9JAJ-M2E3>] (noting disagreement between an environmental group and the EPA after a federal judge found the agency's policy limiting membership on advisory panels violated the Administrative Procedure Act).

research to allow both governmental officials and market participants to make informed decisions.

Many veteran government climate experts left their positions, leaving a vacuum of governmental expertise.¹⁴⁷ Even more foreboding, doctoral and post-doctoral graduate students who had been interested in conducting climate research had to switch the focus of their work to gain funding, thereby placing at risk a generation of learning.¹⁴⁸ Government scientists who were experts in climate even had their congressional testimony edited or redacted to avoid their saying publicly anything inconsistent with the Trump Administration's policy, which extended to disagreement with the international scientific consensus regarding the causes and consequences of climate change.¹⁴⁹

To that same end, the National Park Service eliminated a requirement that it had to take into account climate change in its management of national parks.¹⁵⁰ National flood insurance programs no longer required the federal government to consider the risks created by sea level rise and other climate change effects when planning for

147. See, e.g., Darryl Fears, *Interior Department Whistleblower Resigns; Bipartisan Former Appointees Object to Zinke's Statements*, WASH. POST (Oct. 6, 2017, 12:00 PM CDT), <https://www.washingtonpost.com/news/energy-environment/wp/2017/10/04/whistleblower-resigns-keeping-my-voice-more-important-than-keeping-my-job/> [<https://perma.cc/44QU-B3TJ>] (discussing the resignation of a Department of the Interior climate scientist who had disclosed impacts of climate change on Alaska Native communities); Coral Davenport, *State Dept. Intelligence Analyst Quits to Protest Blocked House Testimony*, N.Y. TIMES (July 10, 2019), <https://www.nytimes.com/2019/07/10/climate/rod-schoonover-resigns.html> [<https://perma.cc/6TCT-DBFD>] (discussing the resignation of a State Department analyst after administration efforts to stop his congressional testimony on climate science); Jeremy Hobson & Allison Hagan, *Former USDA Scientist Says He'll Make a Bigger Impact on Climate Change Research Outside of the Government*, WBUR: HERE & NOW (Sept. 19, 2019), <https://www.wbur.org/hereandnow/2019/09/19/trump-usda-ziska-climate-change-research> [<https://perma.cc/JRR3-594X>] (discussing the resignation of a Department of Agriculture scientist after dispute over paper documenting the impacts of climate change on the nutritional value of rice); Brad Plumer & Coral Davenport, *Science Under Attack: How Trump Is Sidelining Researchers and Their Work*, N.Y. TIMES (Dec. 28, 2019), <https://www.nytimes.com/2019/12/28/climate/trump-administration-war-on-science.html> [<https://perma.cc/F4SL-LWTZ>] (describing impacts on climate science and environmental scientific expertise from reduction in research funds and accelerating departure of EPA scientists).

148. See Rebecca Hersher, *Climate Scientists Watch Their Words, Hoping to Stave Off Funding Cuts*, NPR (Nov. 29, 2017, 5:19 AM ET), <https://www.npr.org/sections/thetwo-way/2017/11/29/564043596/climate-scientists-watch-their-words-hoping-to-stave-off-funding-cuts> [<https://perma.cc/FY73-4Z9C>] (describing the experiences of multiple researchers who avoided mentions of climate change in funding proposals).

149. See Lisa Friedman, *White House Tried to Stop Climate Science Testimony, Documents Show*, N.Y. TIMES (June 8, 2019), <https://www.nytimes.com/2019/06/08/climate/rod-schoonover-testimony.html> [<https://perma.cc/46LJ-RHA4>] (describing an attempt by the Trump Administration to stop a State Department analyst from discussing climate change in congressional testimony).

150. Rob Hotakainen, *NPS Chief Scraps Climate-Focused Order*, E&E NEWS (Aug. 31, 2017), <https://www.eenews.net/stories/1060059511> [<https://perma.cc/X7JB-CNZM>].

infrastructure projects like roads and bridges.¹⁵¹ Finally, at the President's direction, his Council on Environmental Quality proposed both to rescind existing guidelines, which had required all federal agencies to consider thoroughly the potential climate impacts of their actions as a reasonable and necessary part of deciding which among several possible actions was best for the country, and to replace them with new regulations that significantly limited any consideration of climate impacts of governmental action.¹⁵²

3. EPA and Other Federal Agency Authority to Regulate Greenhouse Gas Emissions

The EPA is the federal regulatory agency primarily responsible for addressing climate based on its authority under the Clean Air Act to curtail air pollution that threatens public health and welfare.¹⁵³ Candidate Trump had pledged to dismantle the EPA “in almost every form.”¹⁵⁴ As President, Trump named Scott Pruitt, then-Attorney General of Oklahoma, to head the EPA. Pruitt's principal qualification? He was best known for bringing lawsuits challenging the EPA's authority to regulate greenhouse gas emissions—the same authority Pruitt would now be in charge of overseeing.¹⁵⁵ And, when Pruitt was forced to resign under an ethical cloud fifteen months into the job, the President replaced him with Andrew Wheeler, a coal industry

151. Lisa Friedman, *Trump Signs Order Rolling Back Environmental Rules on Infrastructure*, N.Y. TIMES (Aug. 15, 2017), <https://www.nytimes.com/2017/08/15/climate/flooding-infrastructure-climate-change-trump-obama.html> [<https://perma.cc/4KED-548X>].

152. Exec. Order No. 13,783, Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16,093, 16,094 (Mar. 28, 2017) (rescinding the Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews); see Lisa Friedman, *Trump's Move Against Landmark Environmental Law Caps a Relentless Agenda*, N.Y. TIMES (Jan. 13, 2020), <https://www.nytimes.com/2020/01/09/climate/trump-nepa-environment.html> [<https://perma.cc/4VQJ-8LE3>] (describing an attempt by the Trump Administration to alter the National Environmental Policy Act to no longer require environmental review of infrastructure projects); Lisa Friedman, *Trump Rule Would Exclude Climate Change in Infrastructure Planning*, N.Y. TIMES (July 14, 2020), <https://www.nytimes.com/2020/01/03/climate/trump-nepa-climate-change.html> [<https://perma.cc/EB9S-ZBMQ>] (same).

153. See Clean Air Act Title I § 109, 42 U.S.C. § 7409 (discussing the authority of the EPA Administrator).

154. Dennis et al., *supra* note 145 (quoting President Trump).

155. See Chris Mooney, Brady Dennis & Steven Mufson, *Trump Names Scott Pruitt, Oklahoma Attorney General Suing EPA on Climate Change, to Head the EPA*, WASH. POST (Dec. 8, 2016, 5:17 AM CST), <https://www.washingtonpost.com/news/energy-environment/wp/2016/12/07/trump-names-scott-pruitt-oklahoma-attorney-general-suing-epa-on-climate-change-to-head-the-epa/> [<https://perma.cc/S6Q4-EMLV>]; Coral Davenport, *Senate Confirms Scott Pruitt as E.P.A. Head*, N.Y. TIMES (Feb. 17, 2017), <https://www.nytimes.com/2017/02/17/us/politics/scott-pruitt-environmental-protection-agency.html> [<https://perma.cc/FF9U-LJ4B>].

lobbyist.¹⁵⁶ The Administration sought to slash the EPA's budget, and political appointees within the agency declined to consult with career agency employees, whom they did not trust to carry out the president's agenda.¹⁵⁷ The breakdown between the political appointees and career employees within the EPA has reportedly led to an escalating departure from the EPA of many long-term career agency employees,¹⁵⁸ depriving an Agency that long enjoyed one of the highest retention rates of critical expertise¹⁵⁹—a legacy that will likely undercut the EPA's effectiveness long after Trump is President. That loss of critical and longstanding agency expertise may well be the single most harmful, long-lasting impact on environmental protection of the Trump Presidency.

As instructed by President Trump in a March 2017 executive order, the EPA has put on the chopping block essentially every one of the EPA's restrictions on greenhouse gas emissions. The EPA targeted for significant reduction or outright repeal its ambitious regulations aimed at reducing greenhouse gas emissions from four of the nation's

156. See Brady Dennis & Juliet Eilperin, *Trump Plans to Nominate Andrew Wheeler, Former Coal Lobbyist, as EPA Chief*, WASH. POST (Nov. 16, 2018, 6:14 PM CST), <https://www.washingtonpost.com/energy-environment/2018/11/16/trump-plans-nominate-andrew-wheeler-former-coal-lobbyist-permanent-epa-chief/> [https://perma.cc/2SL9-93VW]; Lisa Friedman, *Andrew Wheeler, at E.P.A. Confirmation Hearing, Walks a Fine Line on Climate Change*, N.Y. TIMES (Jan. 16, 2019), <https://www.nytimes.com/2019/01/16/climate/wheeler-senate-epa-confirmation-hearing.html> [https://perma.cc/XS4S-QFNK].

157. See Brady Dennis & Juliet Eilperin, *How Scott Pruitt Turned the EPA into One of Trump's Most Powerful Tools*, WASH. POST (Dec. 31, 2017), https://www.washingtonpost.com/national/health-science/under-scott-pruitt-a-year-of-tumult-and-transformation-at-epa/2017/12/26/f93d1262-e017-11e7-8679-a9728984779c_story.html [https://perma.cc/XN7F-CC9R] (describing Scott Pruitt's limited contact with the EPA's internal staff); Eric Lipton, Kenneth P. Vogel & Lisa Friedman, *E.P.A. Officials Sidelined After Questioning Scott Pruitt*, N.Y. TIMES (Apr. 5, 2018), <https://www.nytimes.com/2018/04/05/business/epa-officials-questioned-scott-pruitt.html> [https://perma.cc/P9BE-QDNH] (reporting that EPA staff members were reassigned, demoted, or requested new assignments after questioning Scott Pruitt's spending practices); Dino Grandoni & Brady Dennis, *Former EPA Leaders Question Agency's Direction Under Trump*, WASH. POST (June 11, 2019, 1:07 PM CDT), <https://www.washingtonpost.com/climate-environment/2019/06/11/former-epa-leaders-question-agencys-direction-under-trump/> [https://perma.cc/7FGE-3BVH] (describing former EPA leaders' criticisms of EPA policy under the Trump Administration).

158. See Dennis et al., *supra* note 145 (noting that nearly sixteen hundred EPA employees left the agency in the first eighteen months of the Trump Administration); Lisa Friedman, Marina Affo & Derek Kravitz, *E.P.A. Officials, Disheartened by Agency's Direction, Are Leaving in Drones*, N.Y. TIMES (Dec. 22, 2017), <https://www.nytimes.com/2017/12/22/climate/epa-buyouts-pruitt.html> [https://perma.cc/AWE3-2QPR] (reporting increased turnover and lowered morale among EPA staff).

159. See, e.g., *William K. Reilly: Oral History Interview*, EPA (Sept. 1995), <https://archive.epa.gov/epa/aboutepa/william-k-reilly-oral-history-interview.html> [https://perma.cc/9YLJ-AVBE] ("They gave good value consistently. They were very dedicated, very committed. . . . They worked very long hours and brought to their task a degree of sophistication about the interplay of politics, economics, science and health"); Dennis et al., *supra* note 145 (describing how sixteen hundred employees left the EPA during the first eighteen months of the Trump Administration).

largest sources of greenhouse gas emissions—motor vehicles,¹⁶⁰ power plants,¹⁶¹ oil and gas production facilities,¹⁶² and landfills.¹⁶³

To that same end, Trump’s Department of the Interior lifted the Obama Administration’s moratorium on coal leasing on federal lands.¹⁶⁴ The Interior further expanded oil and gas leasing on public lands both onshore and offshore.¹⁶⁵ The Department even lifted safety rules put in place after the 2010 Gulf Oil Spill—the nation’s worst oil spill ever, resulting in the death of eleven people and the uncontrolled discharge over eighty-five days of hundreds of thousands of tons of oil into the Gulf of Mexico—designed to minimize the risks of future deepwater well blowouts and the adverse harm caused by such blowouts should they occur.¹⁶⁶

The Trump Administration’s climate rollback efforts have extended beyond the EPA and the Interior. The Department of Transportation eliminated an Obama rule that encouraged regional and local transportation authorities to consider climate impacts in their

160. See *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks*, 85 Fed. Reg. 24,174, 24,176 (Apr. 30, 2020) (to be codified at 40 C.F.R. pts. 86, 600) (joint action by the EPA and the National Highway Traffic Safety Administration adopting less stringent emissions requirements for motor vehicles).

161. See *Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations*, 84 Fed. Reg. 32,520, 32,522 (July 8, 2019) (to be codified at 40 C.F.R. pt. 60) (repealing the Clean Power Plan on the basis that it exceeded the EPA’s statutory authority).

162. See *Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Review*, EPA (Aug. 13, 2020), https://www.epa.gov/sites/production/files/2020-08/documents/frn_oil_and_gas_review_2060-at90_final_20200812_admin_web.pdf [<https://perma.cc/SBB3-DJWC>] (pre-publication version of final rule; to be published in the Federal Register); Coral Davenport, *Trump Eliminates Major Methane Rule, Even as Leaks Are Worsening*, N.Y. TIMES (Aug. 13, 2020), <https://www.nytimes.com/2020/08/13/climate/trump-methane.html> (last updated Aug. 20, 2020) [<https://perma.cc/75R9-WMQJ>].

163. See *Adopting Requirements in Emission Guidelines for Municipal Solid Waste Landfills*, 84 Fed. Reg. 44,547, 44,547 (Aug. 26, 2019) (to be codified at 40 C.F.R. pt. 60) (reducing requirements for public hearings and submission regulations for state plans).

164. See DEP’T OF THE INTERIOR, SECRETARIAL ORDER NO. 3349, AMERICAN ENERGY INDEPENDENCE (2017); Press Release, U.S. Dep’t of the Interior, Secretary Zinke Takes Immediate Action to Advance American Energy Independence (Mar. 29, 2017), <https://www.doi.gov/pressreleases/secretary-zinke-takes-immediate-action-advance-american-energy-independence> [<https://perma.cc/HL3X-6QZA>].

165. See Press Release, U.S. Dep’t of the 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-americas-offshore-oil-and-gas-potential> [<https://perma.cc/2D43-8BCM>].

166. See *Oil and Gas and Sulfur Operations in the Outer Continental Shelf—Blowout Preventer Systems and Well Control Revisions*, 84 Fed. Reg. 21,908, 21,908 (May 15, 2019) (to be codified at 30 C.F.R. pt. 250); Coral Davenport, *Interior Dept. Loosens Offshore-Drilling Safety Rules Dating from Deepwater Horizon*, N.Y. TIMES (May 2, 2019), <https://www.nytimes.com/2019/05/02/climate/offshore-drilling-safety-rollback-deepwater-horizon.html> [<https://perma.cc/PT3F-68UJ>].

transportation planning.¹⁶⁷ The Federal Energy Regulation Commission announced it would limit its consideration of the downstream and upstream climate impacts when reviewing whether proposed natural gas projects were in the public interest.¹⁶⁸ The Department of Energy proposed rolling back or repealing energy efficiency requirements applicable to light bulbs and appliances like air conditioners and refrigerators and their use of chemicals that result in the emission of especially powerful greenhouse gases.¹⁶⁹ The President even explored asking the Energy Department to use emergency powers to order power plants throughout the nation to rely more on coal combustion to produce electricity rather than readily available and less expensive renewable sources.¹⁷⁰ The pretense is safeguarding national security—a proposition that is so absurd it should be merely laughable and quickly dismissed. But finding its origins in the White House, it must be taken seriously and be understood for what it truly is: exploiting climate change’s super wicked nature by positing a false choice between greenhouse gas emission reduction and national

167. See National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program, 83 Fed. Reg. 24,920, 24,920 (May 31, 2018) (to be codified at 23 C.F.R. pt. 490) (repealing the Greenhouse Gas measure used to assess performance based on the percent change in tailpipe carbon dioxide emissions).

168. See Order Denying Rehearing, Dominion Transmission, Inc., 163 FERC ¶ 61,128, at P 36 (May 18, 2018) (limiting the geographic scope of “the cumulative impact analysis [to be] appropriately reflective of the proposed Project’s direct and indirect environmental impacts”); Sam Mintz, *FERC Shifts Policy to Limit Climate Considerations*, E&E NEWS (May 18, 2018), <https://www.eenews.net/eenewspm/stories/1060082141> [<https://perma.cc/2SXY-PSW5>].

169. See, e.g., Energy Conservation Program: Test Procedure for Walk-In Coolers and Walk-In Freezers, 82 Fed. Reg. 8,805, 8,805 (Jan. 31, 2017) (to be codified at 10 C.F.R. pts. 429, 431) (delaying date of test procedure); Energy Conservation Program: Test Procedures for Central Air Conditioners and Heat Pumps, 82 Fed. Reg. 8,985, 8,985 (Feb. 2, 2017) (to be codified at 10 C.F.R. pts. 429, 430) (postponing effective date); Energy Conservation Program: Test Procedures for Compressors, 82 Fed. Reg. 8,985, 8,985 (Feb. 2, 2017) (to be codified at 10 C.F.R. pts. 429, 431) (postponing effective date); Energy Conservation Program: Energy Conservation Standards for General Service Incandescent Lamps, 84 Fed. Reg. 71,626, 71,627 (Dec. 27, 2019) (failing to adopt energy conservation standards for general service incandescent lamps); see also John Schwartz, *Trump Administration Blocks Energy Efficiency Rule for Light Bulbs*, N.Y. TIMES (Dec. 20, 2019), <https://www.nytimes.com/2019/12/20/climate/trump-light-bulb-rollback.html> [<https://perma.cc/A4KU-Y4TW>] (asserting that the Trump Administration blocked a rule requiring Americans to use energy efficient bulbs).

170. See Steven Mufson, *Trump Orders Energy Secretary Perry to Halt Shutdown of Coal and Nuclear Plants*, WASH. POST (June 1, 2018), https://www.washingtonpost.com/business/economy/trump-officials-preparing-to-use-cold-war-emergency-powers-to-protect-coal-and-nuclear-plants/2018/06/01/230f0778-65a9-11e8-a69c-b944de66d9e7_story.html [<https://perma.cc/FD4H-MPT9>] (citing leaked memo on use of emergency powers to force purchase of coal); Eric Wolff & Darius Dixon, *Rick Perry’s Coal Rescue Runs Aground at White House*, POLITICO (Oct. 15, 2018), <https://www.politico.com/story/2018/10/15/rick-perry-coal-rescue-trump-850528> [<https://perma.cc/RL5B-BS36>] (describing the demise of a proposal to use emergency powers to require coal purchases).

security and thereby dangerously propelling the United States and the rest of the world down a pathway with calamitous consequences.

III. TRUMP'S LONGER-TERM SUPER WICKED LEGACY FOR CLIMATE LAW

In 2009, I described climate change as environmental law's "worst nightmare." Environmental lawmaking is inherently hard. The reasons for those difficulties are a product of several endemic features presented by the laws of nature that define the biology, chemistry, and physics of environmental problems, human nature, and the nature of our lawmaking institutions. The way those features combine make environmental law very hard to make, enforce, and maintain over time. Climate change presents a nightmarish scenario for environmental lawmakers because each of those otherwise challenging features are an order of magnitude harder still in combination in the climate context—hence climate change law's super wicked nature.

Donald Trump's election to the presidency has, in turn, been climate change law's worst nightmare. It is no coincidence that this nightmare occurred in the immediate aftermath of the United States taking its first significant steps to address the climate issue. First, as a presidential candidate and then as President, Trump has systematically exploited to his political advantage the factors that, as detailed in my 2009 article, make climate change such a super wicked public policy issue to address. That is why I call this sequel the "Super Wicked Problem of Donald Trump."

As described, candidate Trump exploited to his political advantage those who, because of climate change's super wicked nature, might feel their short-term economic interests threatened by climate change law designed to avoid harms that would be realized only in the distant future. And, as President, he has sought to fulfill his campaign promise to address those short-term economic concerns by seeking to repeal past regulatory efforts and, even more forebodingly, seeking to destroy the longer-term ability of the federal government to address the issue by curtailing basic climate scientific research.

Until the Trump Administration, there had been reason for great hope that there was still sufficient time to address climate change and prevent many of its most harmful consequences. U.S. greenhouse gas emissions had been on a steady decline for almost a decade—partly, of course, as a result of the fiscal crisis of 2008, which resulted in a decided slowdown of the nation's economy.¹⁷¹ But the reductions also

171. See U.S. ENERGY INFO. ADMIN., EMISSIONS OF GREENHOUSE GASES IN THE UNITED STATES 2009, at 1 (2011), https://www.eia.gov/environment/emissions/ghg_report/pdf/0573%282009%29.p

importantly resulted from significant reductions in the use of coal-fired power plants to produce electricity and major motor vehicle fuel efficiency improvements.¹⁷² Lower prices for natural gas, wind, and solar all played a major role in coal's demise, largely as a result of technological advances in natural gas production, wind turbines, and solar cells.¹⁷³ The Obama Administration's Clean Power Plan sought effectively to promote and accelerate those trends in order to reduce reliance on coal even further still across the nation's electricity grid by shifting electricity production away from coal-fired power plants.¹⁷⁴ The decrease in motor vehicle greenhouse gas emissions resulted from fuel efficiency gains mandated by the first round of federal greenhouse gas rules applicable to motor vehicles.¹⁷⁵

The historic Paris Accord, made possible because of those U.S. commitments, had provided further reason for hope. The agreement itself promised only half of the greenhouse gas reductions needed to achieve its objective of limiting global temperature increases to 3.6 degrees Fahrenheit (2 degrees Celsius).¹⁷⁶ But it represented a critical first step, even as subsequent climate science reports made clear that adverse effects with a 3.6-degree increase would be far worse than previously assumed.¹⁷⁷

df [<https://perma.cc/WU59-9UQM>] (listing the economic recession as a reason for carbon dioxide emissions reductions in 2009).

172. See *id.* (listing shift from coal to natural gas as a reason for carbon dioxide emissions reductions in 2009); EPA, THE 2018 EPA AUTOMOTIVE TRENDS REPORT: GREENHOUSE GAS EMISSIONS, FUEL ECONOMY, AND TECHNOLOGY SINCE 1975, at 3 fig. ES-1 (2019), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100YVK3.pdf> [<https://perma.cc/M86G-GXW6>] (comparing increases in fuel economy and decreases in carbon dioxide emissions over time).

173. See U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2016, at ES-5 (2016), [https://www.eia.gov/outlooks/aeo/pdf/0383\(2016\).pdf](https://www.eia.gov/outlooks/aeo/pdf/0383(2016).pdf) [<https://perma.cc/2MN2-XCZZ>] (technological advancements from hydraulic fracturing); OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY, 2016 WIND TECHNOLOGIES MARKET REPORT 1 (2016), https://www.energy.gov/sites/prod/files/2017/08/f35/2016_Wind_Technologies_Market_Report_0.pdf [<https://perma.cc/GG39-ZA3G>] (increasing adoption of wind power due to performance improvements); U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2015, at ES-7 (2015), [https://www.eia.gov/outlooks/aeo/pdf/0383\(2015\).pdf](https://www.eia.gov/outlooks/aeo/pdf/0383(2015).pdf) [<https://perma.cc/9ZD8-HQL3>] (finding solar photovoltaic technology to be the fastest growing energy source for renewable generation).

174. See Remarks Announcing the Environmental Protection Agency's Clean Power Plan, 2015 DAILY COMP. PRES. DOC. 3 (Aug. 3, 2015) ("[B]y setting these standards, we can actually speed up our transition to a cleaner, safer future.").

175. See *id.* at 5 ("We've set new fuel economy standards that mean our cars will go twice as far on a gallon of gas by the middle of the next decade.").

176. See Coral Davenport, *Nations Approve Landmark Climate Accord in Paris*, N.Y. TIMES (Dec. 12, 2015), <https://www.nytimes.com/2015/12/13/world/europe/climate-change-accord-paris.html> [<https://perma.cc/PH9K-KVV7>].

177. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, GLOBAL WARMING OF 1.5°C: AN IPCC SPECIAL REPORT ON THE IMPACTS OF GLOBAL WARMING OF 1.5°C ABOVE PRE-INDUSTRIAL LEVELS, SUMMARY FOR POLICYMAKERS 7 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_HR.pdf [<https://perma.cc/6T2X-B5FC>] (describing the impacts of climate change).

The Trump Administration has disrupted those efforts and made it hard, if not completely impossible, to be optimistic that all of climate change's worst impacts can still be avoided. After only three-plus years, the Administration's shock waves are already visible. The steady decade-long decrease in U.S. greenhouse gas emissions has been reversed. From 2017 to 2018, U.S. greenhouse gas emissions rose between 1.5 to 2.5 percent. The forecasts are for even greater increases in subsequent years.¹⁷⁸

The loss of U.S. leadership in international fora, punctuated by President Trump's announced intent to withdraw from the Paris Accord, has not led to a formal stampede of other nations following suit. Just the opposite has occurred so far. Most of the rest of the world has publicly reaffirmed their commitment to Paris.¹⁷⁹ But that does not mean that the U.S. retreat lacks actual impact on the rest of the world. Should Trump succeed in his ongoing efforts to restore the domestic coal industry and eliminate greenhouse gas reductions, one can fairly anticipate that those developing nations that were willing to sign on to Paris only after the United States took the first major steps to bring down its own domestic emissions will lose the necessary political will to meet their emission reduction pledges.¹⁸⁰

The global trends are certainly not promising. This past spring carbon dioxide in the atmosphere hit an eight hundred thousand year high at 415 parts per million ("ppm").¹⁸¹ That is about 35 ppm higher than concentration levels ten years earlier when my first *Super Wicked* article was published.¹⁸² Global carbon dioxide concentrations have

178. See Brad Plumer, *US Carbon Emissions Surged in 2018 Even as Coal Plants Closed*, N.Y. TIMES (Jan. 8, 2019), <https://www.nytimes.com/2019/01/08/climate/greenhouse-gas-emissions-increase.html> [<https://perma.cc/HKB7-85LG>] ("America's carbon dioxide emissions rose by 3.4 percent in 2018 . . .").

179. See UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, THE HEAT IS ON: TAKING STOCK OF GLOBAL CLIMATE AMBITION 6–7 (2019), <https://unfccc.int/sites/default/files/resource/NDC%20Outlook.pdf> [<https://perma.cc/S6AQ-BKEH>] (highlighting increasing commitments under the Paris Agreement).

180. International climate negotiations in Madrid in December 2019 ended without any agreement, attributable in part to resistance to an agreement by the United States. See Somini Sengupta, *U.N. Climate Talks End With Few Commitments and a 'Lost' Opportunity*, N.Y. TIMES (Dec. 15, 2019), <https://www.nytimes.com/2019/12/15/climate/cop25-un-climate-talks-madrid.html> [<https://perma.cc/58AW-MLEZ>].

181. Ryan W. Miller & Doyle Rice, *Carbon Dioxide Levels Hit Landmark at 415 PPM, Highest in Human History*, USA TODAY (May 13, 2019), <https://www.usatoday.com/story/news/world/2019/05/13/climate-change-co-2-levels-hit-415-parts-per-million-human-first/1186417001/> [<https://perma.cc/E7FS-SS6X>].

182. See *Trends in Atmospheric Carbon Dioxide*, NAT'L OCEANIC & ATMOSPHERIC ADMIN, <https://www.esrl.noaa.gov/gmd/ccgg/trends/data.html> (last visited Sept. 11, 2020) [<https://perma.cc/2YAN-YNCS>] (click on "Global").

been increasing in the past several years at a rate three times higher than in the 1950s.¹⁸³

Ten years ago, the stated goal was to maintain carbon dioxide concentrations at no greater than 350 ppm. After all, that was why Bill McKibben's highly influential organization was called 350.org.¹⁸⁴ Today, there is rarely mention of 350 ppm as a realistic goal. Too little has been done for too long to bring down greenhouse gas emissions, which has allowed ever greater volumes to accumulate in the atmosphere.

As hard as it is to reduce annual emissions, it is an order of magnitude harder still to reduce atmospheric concentrations once they have been allowed to increase to high levels. Because greenhouse gases like carbon dioxide persist in the atmosphere for many decades, the latter occurs only if the total amount of annual emissions added to the atmosphere is less than what naturally dissipates from the atmosphere each year. For that reason, even major decreases in annual emissions do not necessarily mean that global concentrations are also going down. They may just be rising a bit more slowly.

Even if, moreover, one accomplishes the herculean task of getting annual emissions so low that there is no net addition into the atmosphere, the longer it takes for that to happen, the far longer it will take to achieve concentration levels that avoid the worst possible consequences of climate change. It is one thing to bring global concentrations down to 350 ppm when they are currently at 390 ppm. It is quite another to bring them down to 350 ppm after they have already risen to 420, 450, or 470 ppm.

For example, because greenhouse gas concentrations have continued to rise during the past decade, to keep world temperatures below 3.6 degrees Fahrenheit of warming would require reducing greenhouse gas emissions to zero by 2080.¹⁸⁵ And as difficult as that might seem, even zero greenhouse gas emissions by 2030 might not be enough to keep temperatures from rising that high. Because of feedback loops within the ecosystem, temperature increases that can no longer

183. Nicola Jones, *How the World Passed a Carbon Threshold and Why It Matters*, YALE ENV'T 360 (Jan. 26, 2017), <https://e360.yale.edu/features/how-the-world-passed-a-carbon-threshold-400ppm-and-why-it-matters> [<https://perma.cc/UX34-KJVG>] ("In the late 1950s, the annual rate of increase was about 0.7 ppm per year; from 2005-2014 it was about 2.1 ppm per year.")

184. See Bill McKibben, Opinion, *Remember This: 350 Parts Per Million*, WASH. POST (Dec. 28, 2007), <http://www.washingtonpost.com/wp-dyn/content/article/2007/12/27/AR2007122701942.html> [<https://perma.cc/44HG-QW7F>].

185. B. DeAngelo, J. Edmonds, D.W. Fahey & B.M. Sanderson, *Perspectives on Climate Change Mitigation*, in 1 CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT 399 (D.J. Wuebbles, D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart & T.K. Maycock eds., 2017).

be avoided in the next several decades may melt the permafrost, releasing massive volumes of carbon dioxide currently trapped below the surface there. If that happens, limiting temperatures to a 3.6-degree increase would require the further step of widespread application of technology capable of removing greenhouse gases from the atmosphere.¹⁸⁶ Merely zero annual emissions would not be sufficient; net negative emissions would be required, which would be a highly uncertain and risky undertaking.

That is why humankind can be fairly described as failing its first “timed test.”¹⁸⁷ For most things affecting humankind, as opposed to individual human lives, there is no hard deadline. There will always be additional time to make things better for future generations. But climate science does not provide us with that luxury in addressing climate change, which, of course, is one of the central features of climate change that makes it such a super wicked problem. Some options cease to be available if we fail to address the issue sooner rather than later. And, exacerbated by the Trump Administration, we likely have already delayed too long to avoid many serious affects. As also described by McKibben, “without an emergency transition away from coal and gas and oil, we can expect such rapid shifts that our ability to maintain civilizations will be in doubt. Famines, floods, chaotic mass migrations have already begun — striking hardest, of course, those who have done the least to cause them.”¹⁸⁸

That is why the 2020 election, which will occur after this Article’s completion and coincide with its publication, looms so large for addressing climate change while there is still time to do so. As damaging as the Trump Administration has already been in four years to climate change law, there is still reason to hope that the resulting impediments can be overcome to avoid climate change’s worst consequences if limited to a four-year term in office. And that is where the lessons learned from the Trump Administration offer some reasons for hope that climate laws may have the potential for the very kind of resiliency my 2009 *Super Wicked* article hoped to promote.

The Trump Administration’s bark may well prove to be much greater than its actual bite. Some of the significant climate change laws

186. *See id.*

187. *See Bill McKibben and Elizabeth Kolbert on the U.N. Extinction Report*, NEW YORKER (May 9, 2019), <https://www.newyorker.com/news/the-new-yorker-interview/bill-mckibben-and-elizabeth-kolbert-on-the-un-extinction-report> [<https://perma.cc/YE82-HU6G>] (“The problem with climate change is that it’s a timed test, and if you don’t solve it, it’s really the first timed test like this we’ve ever had. And if you don’t solve it fast then you don’t solve it.”).

188. Bill McKibben, Opinion, *The Clock Keeps Ticking in the Fight to Save the Planet*, BOS. GLOBE (Apr. 10, 2019), <https://www.bostonglobe.com/opinion/2019/04/10/the-clock-keeps-ticking-fight-save-planet/R8ZrHbh2yFqA8bNXe6wdjJ/story.html> [<https://perma.cc/4GRZ-9QJD>].

issued by the Obama Administration were susceptible to being curtailed or even repealed by the Trump Administration. But not all. Some are more enduring in nature and not so readily reversible. Because of longstanding principles of administrative law that limit the executive branch's ability to unilaterally change existing regulations, they have been resilient, as reflected in scores of judicial rulings rejecting Trump Administration efforts to unravel Obama Administration climate regulations. That resiliency has proven to be an effective break on the Trump Administration's ability to repeal or amend those climate rules.

Those that are the most clearly susceptible to immediate repeal are presidential executive orders. President Obama may order the military to reduce its carbon footprint and federal agencies to do the same in their operations of federal buildings. And President Trump can eliminate that mandate. Yet, even here, to the extent that investments have been made, personal behavior has been changed, and the cost savings that come with energy efficiency have been enjoyed, the elimination of a mandate by itself will not necessarily lead to changes in actual practices that have been routinely valued. It is hard to successfully mandate that people do things that are irrational and against their interest.

Nor can existing climate change regulations promulgated during the Obama Administration be unilaterally stopped in their tracks as soon as the Trump Administration would have liked. There are significant procedural and substantive requirements that apply to the issuance of those regulations in the first instance. And those same requirements establish procedural and substantive limitations on efforts to suspend, amend, or repeal those regulations.¹⁸⁹

On that basis, the Trump Administration lost in its first years a series of cases on procedural grounds that challenged Administration efforts to suspend Obama climate rules.¹⁹⁰ The courts ruled those suspensions unlawful.¹⁹¹ Administration officials also lost cases in

189. See *Fed. Comm'n Comm'n v. Fox Television Stations, Inc.*, 556 U.S. 502, 515–16 (2009) (holding that an agency must find good reasons for any policy change).

190. See Coral Davenport & Lisa Friedman, *In His Haste to Roll Back Rules*, *Scott Pruitt, E.P.A. Chief, Risks His Agenda*, N.Y. TIMES (Apr. 7, 2018), <https://www.nytimes.com/2018/04/07/climate/scott-pruitt-epa-rollbacks.html> [<https://perma.cc/X9YM-VVUF>] (“Six of [the EPA Administrator’s] efforts to delay or roll back Obama-era regulations — on issues including pesticides, lead paint and renewable-fuel requirements — have been struck down by the courts.”); Fred Barbash & Deanna Paul, *The Real Reason the Trump Administration Is Constantly Losing in Court*, WASH. POST (Mar. 19, 2019), https://www.washingtonpost.com/world/national-security/the-real-reason-president-trump-is-constantly-losing-in-court/2019/03/19/f5ffb056-33a8-11e9-af5b-b51b7ff322e9_story.html [<https://perma.cc/Q66K-HB8Y>].

191. See, e.g., *S.C. Coastal Conservation League v. Pruitt*, 318 F. Supp. 3d 959, 967 (D.S.C. 2018) (finding the suspension unlawful because agencies did not “allow a ‘meaningful opportunity’

which they had declined to consider climate impacts even though they had first sought to eliminate requirements that climate impacts be considered.¹⁹² The courts, however, concluded that whether formally required or not, failure to consider relevant climate impacts could render a decision arbitrary and capricious and therefore unlawful.

For instance, within just a few weeks of the spring of 2019, the Trump Administration lost a series of cases. One federal judge ruled against the EPA for failing to enforce existing methane emissions standards applicable to landfills.¹⁹³ Another federal judge held unlawful President Trump's attempted reversal of an Obama Administration ban on oil and gas drilling in the Arctic.¹⁹⁴ A third judge struck down the Trump Administration's lifting of the Obama Administration's moratorium on new coal leases on public lands.¹⁹⁵ This last judge concluded that the Trump Administration had failed to complete a necessary environmental review.¹⁹⁶

The extensive rulemaking records compiled by the EPA and other government officials in support of aggressive limits on greenhouse gas emissions from motor vehicles and other sources will likewise prove to be significant impediments to rolling back existing requirements. To the extent that the existing regulations depend on a finding that greenhouse gas emissions endanger public health and welfare, the Trump Administration will be hard pressed to build an administrative record contradicting that finding that can also survive judicial scrutiny. The climate science supporting the endangerment finding cannot be seriously questioned.

Similarly, to the extent that the current Obama rules rest on findings regarding what levels of emissions controls are technologically and economically feasible for the auto industry, or sufficiently

to comment"); *Clean Air Council v. Pruitt*, 862 F.3d 1, 9 (D.C. Cir. 2017) (requiring notice and comment to comply with the Administrative Procedure Act); *Nat. Res. Def. Council, Inc. v. Nat'l Highway Traffic Safety Admin.*, 894 F.3d 95, 115 (2d Cir. 2018) (holding no emergency or extraordinary circumstance existed to justify agency's failure to undertake notice and comment); *California v. Bureau of Land Mgmt.*, 286 F. Supp. 3d 1054, 1072–73 (N.D. Cal. 2018) (failure to provide reasoned analysis); *Env't Def. Fund v. EPA*, No. 18-1190, 2018 U.S. App. LEXIS 24040, at *1 (D.C. Cir. Aug. 22, 2018) (granting motion to dismiss after the EPA's withdrawal of No Action Assurance rendered the case moot); *Nat. Res. Def. Council, Inc. v. Perry*, 302 F. Supp. 3d 1094, 1101 (N.D. Cal. 2018) (holding that the agency breached its duty to publish energy standards), *appeal docketed*, No. 18-15475 (9th Cir. Mar. 23, 2018).

192. *See, e.g., WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 77 (D.D.C. 2019) (holding that the agency must consider the impact of lease sales on climate change).

193. *See California v. EPA*, 385 F. Supp. 3d 903, 909 (N.D. Cal. 2019).

194. *See League of Conservation Voters v. Trump*, 363 F. Supp. 3d 1013, 1030 (D. Alaska 2019).

195. *See Citizens for Clean Energy v. U.S. Dep't of the Interior*, 384 F. Supp. 3d 1264, 1281 (D. Mont. 2019).

196. *See id.* at 1279.

protective of motor vehicle safety, contrary findings cannot be easily and quickly made, let alone then successfully defended in court. The former rulemaking records rested on years of extensive research and study. More relaxed emission standards that rest on different determinations of technological feasibility and safety can be judicially sustained only if the new administration's lawyers can adequately explain and justify the discrepancy between those prior and current determinations. Courts generally provide administrative agencies with substantial deference on matters of technology, economic analysis, and scientific expertise, but it is not complete deference. And, under applicable Supreme Court precedent, courts require agencies to explain and justify reversals in their prior positions.¹⁹⁷

The Obama motor vehicle climate rules are also resilient because many in the auto industry now support them and are willing to question the need to relax them. When, as is true for many of the greenhouse gas emission standards applicable to new motor vehicles, industry has already spent substantial sums to redesign their fleet to comply with those rules, they have a natural incentive to keep the rules in place especially when, as is also true, they have learned that they can earn significant profits while complying. The auto industry, in many respects, has thrived economically under the Obama rules. A major shift in the rules is a major problem for the industry, even if the change purports to relax requirements.¹⁹⁸

There is no doubt why when the Trump Administration announced in the spring of 2019 a plan to cut back on motor vehicle greenhouse gas standards, many of the nation's leading auto manufacturers publicly declared their support for the existing, tougher rules.¹⁹⁹ Although the Administration ultimately chose to follow

197. See *Fed. Comm'n Comm'n v. Fox Television Stations, Inc.*, 556 U.S. 502, 515–16 (2009). The Trump Administration's effort to propose new motor vehicle greenhouse gas emissions regulations that cut back on the Obama rules were reportedly stymied by the Administration's inability to generate a defensible administrative record that would support their preferred cutbacks in emission requirements against anticipated lawsuits. Robinson Meyer, *We Knew They Had Cooked the Books*, ATLANTIC (Feb. 12, 2020), <https://www.theatlantic.com/science/archive/2020/02/an-inside-account-of-trumps-fuel-economy-debacle/606346/> [https://perma.cc/KQ9F-LQTF] (asserting SAFE car statistics were calculated incorrectly by the Trump Administration); Coral Davenport, *Trump's Path to Weaker Fuel Efficiency Rules May Lead to a Dead End*, N.Y. TIMES (Feb. 13, 2020), <https://www.nytimes.com/2020/02/13/climate/trump-fuel-economy-rollback.html> [https://perma.cc/JYE4-E98N]. Once finalized in April 2020, the final rules reportedly suffered from the same problems, pointed out by career EPA staff during the Agency's internal deliberations on the rules. Eilperin & Dennis, *supra* note 111.

198. See Davenport, *supra* note 113.

199. See Juliet Eilperin & Brady Dennis, *White House Poised to Relax Mileage Standards, Rebuffing Automakers and Setting up Possible Fight with California*, WASH. POST (June 7, 2019, 9:33 PM CDT), <https://www.washingtonpost.com/climate-environment/white-house-poised-to-relax-mileage-standards-rebuffing-automakers-and-setting-up-likely-fight-with-calif/2019/06/07/>

through on its plan to reduce emission standards,²⁰⁰ notwithstanding the lack of significant business support, the Trump Administration cutbacks are more vulnerable to being held unlawful by a court because of that industry dissent. Those challenging the cutbacks will use that dissent in support of their claim that the rollbacks are arbitrary and capricious because even industry leaders do not believe they are necessary.

Finally, even the President's own political appointees have concluded that existing law prevents them from readily embracing the Administration's declared political objective to promote the coal industry regardless of the resulting impact on the economy and the environment. The Federal Energy Regulatory Commission, chaired by a Trump appointee, rejected out of hand a request by Trump's Secretary of Energy, Rick Perry, that it initiate a rulemaking to order the nation's utilities to rely more on coal to produce electricity.²⁰¹ The Commission easily concluded there was no merit to Secretary Perry's proposal under existing law.²⁰²

In sum, I underestimated in 2009 the extent to which existing laws, especially in the field of federal administrative "ladders," erected the practical equivalent of "chutes" that would set back efforts by a subsequent presidential administration to undo the climate regulations promulgated by a prior administration. The last three years, however, have made clear how effective such chutes have been, as testified to by the remarkably large number of losses suffered by the Trump Administration in federal courts based on their repeated violations of procedural and substantive administrative law requirements.

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7dc1174c-8939-11e9-98c1-e945ae5db8fb_story.html [https://perma.cc/R24Y-F362]; Letter from Automobile Manufacturers to Donald J. Trump, President, U.S. (June 6, 2019), <http://media.freep.com/uploads/digital/Trump-GHG-CAFE-Letter-June-6-2019.pdf> [https://perma.cc/596F-F769] (indicating support for reopening rulemaking). *But see* Jody Freeman, Opinion, *The Auto Rule Rollback that Nobody Wants, Except Trump*, N.Y. TIMES (Sept. 9, 2019), <https://www.nytimes.com/2019/09/09/opinion/trump-clean-air-act.html> [https://perma.cc/W2RR-6YD7] (arguing that the auto industry opposes Trump's rollback plans because they would cause regulatory uncertainty).

200. *See* The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, 85 Fed. Reg. 24,174 (Apr. 30, 2020) (amending and establishing carbon dioxide and fuel economy standards).

201. *See* Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, Grid Reliability and Resilience Pricing, 162 FERC ¶ 61,012, at P 14 (Jan. 8, 2018).

202. *See id.* at P 14–16.

In the midst of a global pandemic that has devastated lives and livelihoods, the nation is at a crossroads in its efforts to address climate change. Given the outsized role the United States played in creating this problem and would have to play in addressing it, the world also faces this crossroads. History was made with the election of President Obama in 2009, and, notwithstanding the disappointment of the absence of congressional action, important progress was made during the eight years of the Obama Administration to forge a global pathway for a major effort to address climate change. History, however, was also made by the election of Donald Trump in 2016, which has disrupted virtually every climate change program adopted by President Obama and threatened to upend no less than the historic Paris Climate Accord. Most presidents might have been reluctant to walk the nation back from such an important, wildly applauded commitment to the rest of the world. But if Donald Trump has established anything for sure, it is that he relishes doing precisely what most presidents would not do.

Enough damage to U.S. climate policy has already been done to make it hard for even those with the most rose-colored glasses to be optimistic. Yet the remarkable resiliency of many of the Obama-era climate programs strongly suggests both the strength of the kind of precommitment strategies outlined in my 2009 *Super Wicked* article and that many (but not all) of climate change's worst consequences can still be avoided should the results of the 2020 election put the nation back on course after only four years. Unlike ten plus years ago, however, I will not this time predict the outcome, which will be known only after my last opportunity to make changes to this article has passed. At the very least, I have learned that super wicked problems make such predictions far too perilous.