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Presidential Administration and the Durability of Climate-Consciousness

ABSTRACT. President Obama took executive actions to address climate change that far exceeded previous Presidents' efforts to pursue policy objectives through presidential administration. This Note does not focus on the Obama Administration's major climate change regulations and international agreements, which have already attracted much attention. Rather, this Note identifies a concerted but inconspicuous effort to embed climate-consciousness throughout the executive branch, elevating climate change as a key decisional criterion for federal departments and agencies. This Note explains how the Obama Administration's efforts exhibited a delicate interplay with the judicial and legislative branches, responding to a judicial demand for rigorous administrative reasoning about climate change while sidestepping congressional hostility to climate change action by finding a narrow zone of congressional inattention. Although conventional wisdom counsels that subsequent Presidents may easily reverse policies advanced through presidential administration, the Obama Administration's efforts to advance climate-consciousness may prove surprisingly durable due to formal legal constraints, bureaucratic inertia, and public backlash.

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INTRODUCTION

In the early years of his Administration, President Obama placed little emphasis on climate change,¹ and his first term was marked by three high-profile environmental policy failures. The first occurred at the 2009 United Nations Copenhagen Climate Change Conference. There, parties to the United Nations Framework Convention on Climate Change, the primary vehicle for international cooperation on climate change, negotiated over the parameters for a new global climate change treaty. The fractious Copenhagen negotiations were marred by public disagreements between major powers, particularly between the United States and the “G-77+China” coalition of developing nations.² On the last day of talks, President Obama flew to Copenhagen to participate in last-minute negotiations that salvaged a widely panned and weak³ three-page agreement.⁴

The second failure was the Waxman-Markey bill, which would have established a national cap-and-trade program for greenhouse gases with stringent

1. Environmental activists and academic observers have argued that during President Obama's first term, climate change took a back seat to other efforts, including economic recovery. See Marianne Lavelle, *2016: Obama's Climate Legacy Marked by Triumphs and Lost Opportunities*, INSIDE CLIMATE NEWS (Dec. 26, 2016), <http://insideclimatenews.org/news/23122016/obama-climate-change-legacy-trump-policies> [<http://perma.cc/J2CK-HMFR>] (quoting high-profile environmental activists and academic observers).

This is, of course, a controvertible view; even during the economic recovery, the Obama Administration brought a pro-climate focus to spending. According to the Office of Management and Budget, the American Reinvestment and Recovery Act of 2009 contained \$26.1 billion in climate change-related spending. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-11-317, CLIMATE CHANGE: IMPROVEMENTS NEEDED TO CLARIFY NATIONAL PRIORITIES AND BETTER ALIGN THEM WITH FEDERAL FUNDING DECISIONS 8 (2011).

2. Juliet Eilperin, *In Copenhagen, U.S. Pushes for Emissions Cuts from China, Developing Nations*, WASH. POST (Dec. 10, 2009), <http://www.washingtonpost.com/wp-dyn/content/article/2009/12/09/AR2009120904596.html> [<http://perma.cc/RR5M-2HCQ>]; see also Int'l Inst. for Sustainable Dev., *Summary of the Copenhagen Climate Change Conference: 7-19 December 2009*, 12 EARTH NEGOTIATIONS BULL. 1 (Dec. 22, 2009), <http://www.iisd.ca/download/pdf/enb12459e.pdf> [<http://perma.cc/BUC4-97HC>] (providing a summary of the Copenhagen negotiations).
3. John Vidal et al., *Low Targets, Goals Dropped: Copenhagen Ends in Failure*, GUARDIAN (Dec. 18, 2009), <http://www.theguardian.com/environment/2009/dec/18/copenhagen-deal> [<http://perma.cc/JQG5-4HN5>]; Bryan Walsh, *In Copenhagen, a Last-Minute Deal that Satisfies Few*, TIME (Dec. 18, 2009), http://content.time.com/time/specials/packages/article/0,28804,1929071_1929070_1948974,00.html [<http://perma.cc/WR26-USEB>].
4. Framework Convention on Climate Change, *Report of the Conference of the Parties on Its Fifteenth Session*, U.N. Doc. FCCC/CP/2009/11/Add.1 (Mar. 30, 2010).

emissions reduction targets.⁵ Even after a two-decade hiatus in major domestic environmental legislation following the 1990 Clean Air Act Amendments,⁶ the Waxman-Markey bill and its Senate counterpart nevertheless attracted strong support from most Democrats and some Republican lawmakers.⁷ Yet both the House and Senate versions of the cap-and-trade legislation were gradually watered down by concessions to heavily emitting industries.⁸ Although the Waxman-Markey bill passed the House, then-Senate Majority Leader Harry Reid declined to introduce cap-and-trade legislation in the Senate, knowing that he could not reach cloture.⁹ After the Waxman-Markey bill died, environmental advocates faulted President Obama for the Administration's disengagement from the legislative effort.¹⁰

The third failure was the 2010 Deepwater Horizon accident in the Gulf of Mexico, a deadly offshore wellhead blowout that led to the largest marine oil spill in history.¹¹ Although BP, Halliburton, and Transocean were found liable for the spill,¹² the Deepwater Horizon accident also exposed serious deficiencies in the risk regulation regime for offshore oil drilling¹³ and reinforced climate change advocates' calls to transition away from fossil fuels.¹⁴

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5. *Comparison Chart of Waxman-Markey and Kerry-Lieberman*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, <http://www.czes.org/federal/congress/111/comparison-waxman-markey-kerry-lieberman> [<http://perma.cc/96KQ-5J2Y>].
 6. Jody Freeman & David B. Spence, *Old Statutes, New Problems*, 163 U. PA. L. REV. 1, 9-11 (2014); see also Daniel C. Esty, *Red Lights to Green Lights: From 20th Century Environmental Regulation to 21st Century Sustainability*, 47 ENVTL. L. 1, 7-9 (2017) (arguing that this hiatus is indicative of a deeper "political rupture" along partisan and ideological lines).
 7. Ryan Lizza, *As the World Burns*, NEW YORKER (Oct. 11, 2010), <http://www.newyorker.com/magazine/2010/10/11/as-the-world-burns> [<http://perma.cc/H2JJ-PF64>].
 8. Darren Samuelsohn, *Waxman Predicts Committee Passage as Details Emerge on Cap-and-Trade, Energy Bill*, E&E DAILY (May 13, 2009), <http://www.eenews.net/eedaily/2009/05/13/full> [<http://perma.cc/KJU6-AHCS>].
 9. Bryan Walsh, *Why the Climate Bill Died*, TIME (July 26, 2010), <http://science.time.com/2010/07/26/why-the-climate-bill-died> [<http://perma.cc/5HRX-H53S>].
 10. See Randy Rieland, *The Blame Obama Game*, GRIST (July 27, 2010), <http://grist.org/article/2010-07-26-the-blame-obama-game> [<http://perma.cc/H2DR-R2SQ>].
 11. *Deepwater Horizon—BP Gulf of Mexico Oil Spill*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/enforcement/deepwater-horizon-bp-gulf-mexico-oil-spill> [<http://perma.cc/3XBH-TXYG>].
 12. *In re Oil Spill by the Oil Rig "Deepwater Horizon" in the Gulf of Mexico, on April 20, 2010*, 21 F. Supp. 3d 657, 757 (E.D. La. 2014).
 13. See generally *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*, NAT'L COMMISSION ON BP DEEPWATER HORIZON OIL SPILL & OFFSHORE DRILLING (Jan. 2011), http://permanent.access.gpo.gov/gpo2978/DEEPWATER_ReporttothePresident_FINAL.pdf [<http://perma.cc/5KCK-Y36F>] (detailing deficiencies in the risk regulatory regime).

These three setbacks impelled the Obama Administration to overhaul its climate change efforts. However, after Republicans made sweeping congressional gains in the 2010 midterm elections, legislative gridlock forced the Obama Administration to respond to climate change with executive actions.¹⁵ Signaling that the Obama Administration prioritized climate change, White House officials recruited John Podesta¹⁶—a veteran policy and political strategist and then-chairman of the Center for American Progress—to serve as the President’s “climate and energy czar.”¹⁷ In 2013, the White House unveiled the *President’s Climate Action Plan*, which identified climate change regulations, international agreements, and federal support for state and local responses to

These regulatory gaps spurred deep reforms, including the establishment of a new regulatory agency, the Bureau of Ocean Energy Management. *Regulatory Reforms*, BUREAU OF OCEAN ENERGY MGMT., <http://www.boem.gov/Regulatory-Reform> [<http://perma.cc/GG9L-SC9Y>].

14. See, e.g., Bill McKibben, *Mr. President, Lead Now on Fossil Fuels*, L.A. TIMES (June 6, 2010), <http://articles.latimes.com/2010/jun/06/opinion/la-oe-mckibben-global-warming-20100606> [<http://perma.cc/KU65-HWAF>].
15. Amanda Reilly & Kevin Bogardus, *7 Years Later, Failed Waxman-Markey Bill Still Makes Waves*, E&E NEWS (July 27, 2016), <http://www.eenews.net/stories/1060039422> [<http://perma.cc/WS9T-NYWV>].
16. The Obama Administration’s appointment of Podesta reflected a recent trend of appointing high-powered “czars” in the executive branch with cross-agency policy portfolios of specific substantive issues. See Tuan Samahon, *The Czar’s Place in Presidential Administration, and What the Excepting Clause Teaches Us About Delegation*, 2011 U. CHI. LEGAL F. 169, 170 (noting that czars increasingly tend to be capable experts with extensive government experience, and observing that czars increasingly take on responsibilities that overlap with those of cabinet officials); see also Aaron J. Saiger, *Obama’s “Czars” for Domestic Policy and the Law of the White House Staff*, 79 FORDHAM L. REV. 2577 (2011) (examining the Obama Administration’s use of czars).
17. George Russell, *Pacific Pushback: Podesta, White House Warned About Ocean Preserve Expansion To Combat “Climate Change,”* FOX NEWS (Sept. 10, 2014), <http://www.foxnews.com/world/2014/09/10/pacific-pushback-podesta-white-house-warned-about-ocean-preserve-expansion-to.html> [<http://perma.cc/FT4A-8RCE>]. Podesta was brought in specifically after the Obama Administration identified a need to pivot to executive action to bypass an uncooperative Congress. Ben Geman, *The Audacity of John Podesta*, ATLANTIC (Nov. 21, 2014), <http://www.theatlantic.com/politics/archive/2014/11/the-audacity-of-john-podesta/446901> [<http://perma.cc/G5PT-6HP2>]; see also *The Power of the President: Recommendations To Advance Progressive Change*, CTR. FOR AM. PROGRESS 6-7 (Nov. 2010), http://www.americanprogress.org/wp-content/uploads/issues/2010/11/pdf/executive_orders.pdf [<http://perma.cc/M9CC-3EMN>] (detailing the ways in which the Center for American Progress, under Podesta’s leadership, conceived of presidential action on climate change).

climate change as the three “pillars” of executive climate change action.¹⁸ The “first pillar” consisted of regulations to limit greenhouse gas emissions from a wide array of sources. The “centerpiece” of this pillar was the Clean Power Plan, a Clean Air Act regulation that limited greenhouse gas emissions from power plants.¹⁹ In implementing the “second pillar,” international agreements, the Obama Administration sought a rapprochement with the Chinese government on climate change. President Hu Jintao’s retirement and the Chinese Communist Party’s selection of President Xi Jinping as his replacement provided an opening to improve U.S.-Sino relations. The United States and China’s cooperation on climate change developed quickly following a June 2013 summit between Presidents Obama and Xi,²⁰ and subsequent negotiations led to bilateral agreements that facilitated the 2015 Paris Climate Change Agreement by resolving disagreements between the world’s two largest and most influential economies. For the “third pillar,” the Obama Administration worked with local and state leaders to support their climate change responses by providing resources and technical support.²¹

This Note identifies a less visible fourth pillar of the Obama Administration’s strategy: a set of policies that advanced climate-consciousness in the executive branch. “Climate-consciousness” refers to the acceptance of climate change as a key decisional criterion in administrative decision making. The fourth pillar aggressively used President Obama’s powers of presidential administration—his authority to direct the federal bureaucracy to advance his policy agenda—to embed climate change as a key decisional criterion in administrative decision making. The Obama Administration exerted this authority with a wide range of tools ranging from well-known methods like regulatory review at the Office of Information and Regulatory Affairs to more obscure methods like budget planning. Through these efforts, the Obama Administration sought to reduce greenhouse gas emissions from the federal government, improve the federal government’s resilience to climate-induced disruptions,

18. *The President’s Climate Action Plan*, EXECUTIVE OFF. PRESIDENT 5 (June 2013), <http://www.whitehouse.gov/sites/default/files/image/president27climateactionplan.pdf> [<http://perma.cc/62ZS-B2GL>].

19. Coral Davenport, *Donald Trump Could Put Climate Change on Course for “Danger Zone,”* N.Y. TIMES (Nov. 10, 2016), <http://www.nytimes.com/2016/11/11/us/politics/donald-trump-climate-change.html> [<http://perma.cc/D6KH-SD2X>]. Challenges to the regulation have been stayed pending reconsideration by the EPA. See *Order, West Virginia v. EPA*, No. 15-1363 (D.C. Cir. Aug. 8, 2017) (per curiam).

20. Julie Hirschfeld Davis et al., *Obama on Climate Change: The Trends Are “Terrifying,”* N.Y. TIMES (Sept. 8, 2016), <http://www.nytimes.com/2016/09/08/us/politics/obama-climate-change.html> [<http://perma.cc/K5QP-W2LZ>].

21. See *The President’s Climate Action Plan*, *supra* note 18, at 6-7.

and equip departments and agencies to grapple with the uncertain consequences of future climate change.

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

Additionally, President Obama exercised his powers of presidential administration in a manner that was at odds with conventional expectations about presidential administration. First, the fourth pillar balanced control with cooperation by combining top-down directives and incentives with bottom-up implementation. This belied the common caricature that presidential administration is a coercive and hierarchal use of presidential power. Second, the fourth pillar had a mixed record on transparency. President Obama and senior administration officials appeared to selectively draw attention to the fourth pillar, sometimes choosing to insulate the fourth pillar from scrutiny. This belied the common expectation that presidential administration is transparency-enhancing. Third, Congress was ill-equipped to engage with the fourth pillar, as the fourth pillar often sought to influence the internal functions of departments and agencies. Finally, from the perspective of transitions in presidential power, the fourth pillar may be surprisingly well-positioned to weather the Trump Administration's deregulatory efforts, challenging the conventional narrative that purely executive actions are especially vulnerable to reversal by subsequent Presidents.

Part I of this Note briefly surveys the literature on presidential administration and introduces the concept of climate-consciousness. The Part then describes the fourth pillar and its constituent mechanisms. The Part closes with an analysis of the commonalities, divergences, and complementary relationships among those policies. Part II explains how recent judicial precedents prompted, reinforced, and complemented the Obama Administration's approach to presidential administration. Part III explores how the fourth pillar largely left Congress out of the picture, as the interventions used to promote climate-consciousness were particularly unamenable to congressional opposition. Part IV offers a prospective view, explaining why climate-consciousness in the federal government may remain durable throughout the Administration of

President Trump, a climate change denier.²² The Conclusion briefly looks into the tension between the Obama Administration’s efforts—which represent presidential administration at its zenith—and democratic legitimacy.

I. PRESIDENT OBAMA’S FOURTH PILLAR OF CLIMATE POLICY

The Obama Administration did not use a single, readily identifiable mechanism to ingrain climate-consciousness in the federal bureaucracy. Rather, President Obama’s fourth pillar intervened at multiple points, was systematic, and was less visible due to its widely dispersed character. Nevertheless, this advancement of climate-consciousness was no less significant than the Obama Administration’s headline-grabbing presidential actions like the Clean Power Plan and the United States’ accession to the Paris Climate Change Agreement.

This Part proceeds in four Sections. Section I.A briefly surveys the existing literature on “presidential administration,” with particular attention to critiques about democratic accountability and effective bureaucratic administration. Against that backdrop, Section I.B explores the unique attributes of climate change as a public problem, observing that an effective response to climate change requires climate-consciousness to suffuse the federal bureaucracy. Section I.C is the heart of this Note’s descriptive account. It describes six distinct policy tools that the Obama Administration applied to advance climate-conscious reasoning in the executive branch. Section I.D analyzes how these fourth-pillar mechanisms reinforced and complemented each other.

A. *Background on Presidential Administration*

Starting with President Reagan, chief executives have wielded forceful powers of “presidential administration” over the executive branch.²³ As a general matter, presidential administration refers to a recent trend toward consolidation of administrative power in the presidency, especially through regulatory

22. See Donald J. Trump (@realDonaldTrump), TWITTER (Nov. 6, 2016, 11:15 AM), <http://twitter.com/realdonaldtrump/status/265895292191248385> [<http://perma.cc/G39V-BKJM>].

23. Elena Kagan, *Presidential Administration*, 114 HARV. L. REV. 2245, 2248, 2277-81 (2001); see also Daniel A. Farber & Anne Joseph O’Connell, *The Lost World of Administrative Law*, 92 TEX. L. REV. 1137, 1167-70 (2014) (arguing that the strength of the Office of Information and Regulatory Affairs (OIRA), which was greatly empowered by the Reagan Administration, fundamentally changed the administrative state). Note that accounts of presidential administration usually exclude foreign policy and military matters, which are more firmly within exclusive executive control.

review at the Office of Management and Budget (OMB).²⁴ By this account, Presidents have increasingly taken public ownership of—and exerted “directive authority” over—administrative actions instead of leaving agencies to their own devices.²⁵

Modern presidential administration started when President Reagan established the Office of Information and Regulatory Affairs (OIRA) within OMB and empowered it to veto regulations whose benefits did not exceed their costs.²⁶ In then-Professor Elena Kagan’s view, President Clinton brought presidential administration to maturity by exerting even greater control over administrative agencies. This upended a “conventional view” of administrative law in which “Congress possesses broad, although not unlimited, power to structure the relationship between the President and the administration” alongside interest groups that enhance agencies’ accountability to the public.²⁷

Kagan’s account of President Clinton’s Administration is notable in three ways. First, President Clinton expanded his influence by using a wider array of regulatory tools. At the “front end” of administrative actions, President Clinton regularly issued formal directives that instructed agencies to issue rules or take other administrative actions.²⁸ During rulemaking, the Clinton Administration used a “modified form of OMB [cost-benefit] review” that instructed OMB to consider factors other than monetary costs and benefits.²⁹ Once agencies acted,

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24. Cf. Nina A. Mendelson, *Disclosing “Political” Oversight of Agency Decision Making*, 108 MICH. L. REV. 1127 (2010) (focusing on OMB as the key locus for presidential control of agency activities).
25. Kagan, *supra* note 23, at 2319; cf. Peter L. Strauss, *Overseer, or “The Decider”? The President in Administrative Law*, 75 GEO. WASH. L. REV. 696, 704-05 (2007) (arguing for an “overseer, not decider” vision of the President in administrative law).
26. See Kagan, *supra* note 23, at 2247; see also *infra* Section I.C.4 (explaining the history of regulatory review through OIRA).
27. Kagan, *supra* note 23, at 2250, 2253-55; see also Lisa Schultz Bressman, *Beyond Accountability: Arbitrariness and Legitimacy in the Administrative State*, 78 N.Y.U. L. REV. 461, 461-91 (2003) (explaining historical changes in theories of public administration); Kagan, *supra* note 23, at 2252 & n.12 (explaining that the Supreme Court has espoused such a view of administration); Richard B. Stewart, *The Reformation of American Administrative Law*, 88 HARV. L. REV. 1667 (1975) (providing a canonical account of interest group control over administration, which was secured with procedural protections for public participation in administrative processes); Ilan Wurman, *Constitutional Administration*, 69 STAN. L. REV. 359, 402-03 & nn.182-91 (2017) (characterizing this “conventional” view of administrative law).
28. Kagan, *supra* note 23, at 2285, 2290-93; see also *id.* at 2294-95 (noting that Presidents Reagan and George H.W. Bush issued a total of thirteen directives “regarding substantive regulatory policy,” whereas President Clinton issued 107 such directives).
29. *Id.* at 2285-89.

President Clinton took “personal appropriation”³⁰ by “presenting them to the public as his own—the products of his values and decisions.”³¹ Second, President Clinton aggressively pushed a pro-regulatory and progressive vision of presidential control, a sharp contrast to the Reagan Administration’s use of presidential control for deregulatory ends.³² Third, President Clinton’s use of presidential administration operated in public view, departing from the Reagan and Bush I Administrations’ practice of exerting control behind closed doors.³³ Kagan claimed that President Clinton’s administrative efforts enhanced the accountability and effectiveness of the federal bureaucracy, arguing that “the new presidentialization of administration renders the bureaucratic sphere more *transparent* and *responsive* to the public, while also better promoting important kinds of regulatory *competence* and *dynamism*.”³⁴ President Clinton’s use of aggressive and novel control mechanisms laid the groundwork for President Obama’s administrative innovations to address climate change.

Nonetheless, critics have objected to this “strong” form of presidential administration. Setting aside constitutional critiques of unitary executiveism,³⁵ ar-

30. *Id.* at 2285.

31. *Id.* at 2299–300. This account of President Clinton’s expansive use of directives is confirmed by studies of administrative agencies and historical studies of presidential control. In an article that surveyed Environmental Protection Agency (EPA) officials from the Clinton years, Professors Lisa Schultz Bressman and Michael P. Vandenbergh observed that during the Clinton Administration, directives gradually overshadowed OMB–OIRA review as the primary means of presidential control over agency actions. See Lisa Schultz Bressman & Michael P. Vandenbergh, *Inside the Administrative State: A Critical Look at the Practice of Presidential Control*, 105 MICH. L. REV. 47 (2006). In an exhaustively researched book, Steven G. Calabresi and Christopher S. Yoo confirm Justice Kagan’s view that President Clinton’s control of administration went beyond historical precedents. STEVEN G. CALABRESI & CHRISTOPHER S. YOO, *THE UNITARY EXECUTIVE: PRESIDENTIAL POWER FROM WASHINGTON TO BUSH* 391–99 (2008).

32. Kagan, *supra* note 23, at 2249, 2315–16.

33. *Id.* at 2316.

34. *Id.* at 2252 (emphasis added).

35. As might be expected, there is a closely related debate over the constitutionality of the unitary executive. Yet, Kagan largely sidestepped this debate in *Presidential Administration* by “taking . . . as a given” the validity of the Supreme Court’s removal jurisprudence and taking an intermediate view that the President has broad but not unitary control over the executive branch. *Id.* at 2326.

Although the debate over the constitutionality of the unitary executive is worthy of attention, it is outside of the domain of this Note. For defenses of a unitary executive, see Steven G. Calabresi & Saikrishna B. Prakash, *The President’s Power To Execute the Laws*, 104 YALE L.J. 541 (1994); Geoffrey P. Miller, *Independent Agencies*, 1986 SUP. CT. REV. 41; Peter L. Strauss, *The Place of Agencies in Government: Separation of Powers and the Fourth Branch*, 84 COLUM. L. REV. 573 (1984). For a seminal argument against a unitary executive, see Law-

guments against strong presidential administration generally rest on a pair of intertwined concerns: (1) that presidential influence crowds out agency expertise; and (2) that presidential administration fails to achieve Kagan's purported benefits of enhanced democratic accountability and effective administration.³⁶ Most of these critiques have been directed at OIRA, whose cost-benefit-oriented oversight over rulemaking has been criticized as opaque, preclusive of congressional oversight, vulnerable to politicization, insufficiently deferential to agency expertise,³⁷ and sporadic.³⁸ OIRA has also been accused—depending on the administration—of conducting cost-benefit regulatory review with deregulatory and anti-environmental biases.³⁹ In response to such concerns, scholars have proposed strategies to reconcile this perceived tension between presidential control and technocratic expertise. These proposals include stronger internal checks on presidential administration,⁴⁰ judicial oversight over presidential influence,⁴¹ and mandatory disclosures of presidential influence.⁴²

These competing accounts expose the chimeric nature of presidential administration. Presidential administration may enhance democratic responsive-

rence Lessig & Cass R. Sunstein, *The President and the Administration*, 94 COLUM. L. REV. 1 (1994).

36. See, e.g., Jodi L. Short, *The Political Turn in American Administrative Law: Power, Rationality, and Reasons*, 61 DUKE L.J. 1811, 1815-16, 1818-29 (2012) (expressing skepticism over “presidentialism” and describing the “political turn” in administrative law by pointing to *Motor Vehicles Manufacturers Ass’n v. State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29 (1983), and *F.C.C. v. Fox Television Stations, Inc.*, 556 U.S. 502 (2009), as two touchstone cases).
37. Farber & O’Connell, *supra* note 23, at 1174-75; see also Bressman & Vandenberg, *supra* note 31, at 78 (noting that bureaucrats within the EPA did not view OIRA review as sufficiently visible to the public). *But cf.* Steven Croley, *White House Review of Agency Rulemaking: An Empirical Investigation*, 70 U. CHI. L. REV. 821, 873-74 (2003) (positing that OIRA’s career staff may provide consistency across presidential administrations and reduce the risk of politicized regulatory review).
38. Bressman & Vandenberg, *supra* note 31, at 67.
39. See Croley, *supra* note 37, at 872-73; *infra* notes 138-141 and accompanying text.
40. Short, *supra* note 36, at 1879-80 (citing Gillian E. Metzger, *The Interdependent Relationship Between Internal and External Separation of Powers*, 59 EMORY L.J. 423, 444 (2009)); see also Neal Kumar Katyal, *Internal Separation of Powers: Checking Today’s Most Dangerous Branch from Within*, 115 YALE L.J. 2314, 2346 (2006) (describing how internal separations of power in the State Department provide a “modest internal checking function”).
41. *Cf.* Kathryn A. Watts, *Proposing a Place for Politics in Arbitrary and Capricious Review*, 119 YALE L.J. 2, 32-45 (2009) (arguing that there are benefits to the incorporation of political considerations into arbitrary-and-capricious review).
42. See Mendelson, *supra* note 24, at 1163-70.

ness by consolidating power in a nationally representative President, or erode democratic responsiveness by weakening congressional control of federal departments and agencies. Presidential administration may promote competence by providing room for bureaucrats to make sound scientific and technical decisions, or erode agency expertise by providing a channel for covert executive interference. Presidential administration may promote transparency due to sharp public scrutiny of presidential actions, or increase bureaucratic opacity by empowering the President to influence decisions behind closed doors and later disavow those decisions.

As this Part demonstrates, the Obama Administration's fourth pillar exhibited a similarly complex story with one exception: although the Obama Administration vacillated between transparency or opacity and public participation or non-participation, it consistently respected scientific, economic, and technical expertise. Rigorous evidentiary norms were necessary to properly respond to climate change, a particularly vexing public problem.

B. The Need for Climate-Consciousness

In the abstract, climate change appears to be a simple problem: climate change is caused by an excessive buildup of greenhouse gases in the Earth's atmosphere, and reversing that buildup in a timely fashion would largely halt anthropogenic global warming. Yet from the perspective of concrete policy responses, climate change is a problem of unparalleled scale, scope, and complexity that tests the outer limits of society's ability to solve common problems.⁴³ This Section describes the unique difficulties climate change poses for the federal government. These difficulties required a broad and diverse array of presidential interventions to embed climate-consciousness throughout the executive branch.

Climate change is an extreme collective action problem—greenhouse gases are emitted from virtually every sphere of human activity and numerous natural systems. Likewise, climate change has many consequences. In the worst-case scenario, unmitigated climate change has the potential to cause catastrophic long-term damage, including heat waves that render human habitation impossible in parts of the Persian Gulf;⁴⁴ sea-level rise that displaces mil-

43. See generally Kelly Levin et al., *Overcoming the Tragedy of Super Wicked Problems: Constraining Our Future Selves To Ameliorate Global Climate Change*, 45 POL'Y SCI. 123 (2012) (describing the unique attributes of climate change as a public problem).

44. Jeremy S. Pal & Elfatih A.B. Eltahir, *Future Temperature in Southwest Asia Projected To Exceed a Threshold for Human Adaptability*, 6 NATURE CLIMATE CHANGE 197, 197-98 (2016) (explaining that under the Intergovernmental Panel on Climate Change's higher-warming scenarios,

lions from low-lying coastal cities;⁴⁵ widespread changes in migration patterns;⁴⁶ major shifts in the world's climate system, including shutdowns of major ocean currents that regulate large-scale heat transport;⁴⁷ drought, famine, and epidemics;⁴⁸ a sixth mass extinction of animal and plant species;⁴⁹ and changes in extreme weather events.⁵⁰ Moreover, climate change impacts are already widespread⁵¹ and human society—even if greenhouse gas emissions were

parts of the Persian Gulf will—by the end of the century—regularly experience wet-bulb temperatures that render human habitation impossible without air conditioning); see also John Schwartz, *Deadly Heat Is Forecast in Persian Gulf by 2100*, N.Y. TIMES (Oct. 26, 2015), <http://www.nytimes.com/2015/10/27/science/intolerable-heat-may-hit-the-middle-east-by-the-end-of-the-century.html> [<http://perma.cc/WF7Y-TAM9>] (explaining the study in layperson's terms).

45. Gardiner Harris, *Borrowed Time on Disappearing Land*, N.Y. TIMES (Mar. 28, 2014), <http://www.nytimes.com/2014/03/29/world/asia/facing-rising-seas-bangladesh-confronts-the-consequences-of-climate-change.html> [<http://perma.cc/84FF-Y6T5>] (illustrating this phenomenon by examining present and future climate change impacts in Bangladesh).
46. See Clionadh Raleigh et al., *Assessing the Impact of Climate Change on Migration and Conflict*, WORLD BANK GROUP (2008), http://siteresources.worldbank.org/EXTSOCIALDEVELOPMENT/Resources/SDCCWorkingPaper_MigrationandConflict.pdf [<http://perma.cc/6NSX-CKEE>] (assessing these risks in detail).
47. See *infra* notes 191-192 and accompanying text. For a layperson's explanation, see Nicola Jones, *How Climate Change Could Jam the World's Ocean Circulation*, YALE ENV'T 360 (Sept. 6, 2016), http://e360.yale.edu/features/will_climate_change_jam_the_global_ocean_conveyor_belt [<http://perma.cc/D8J8-M4GH>].
48. See Nafeez Ahmed, "Whole World" at Risk from Simultaneous Droughts, Famines, Epidemics: Scientists, GUARDIAN (Dec. 17, 2013 9:29 AM), <http://www.theguardian.com/environment/earth-insight/2013/dec/17/planet-climate-change-risk-drought-famine-epidemic> [<http://perma.cc/8D26-2TG9>] (explaining key findings from a series of studies by the Inter-Sectoral Impact Model Intercomparison Project, a project initiated by the Potsdam Institute for Climate Impact Research and recently published in the *Proceedings of the National Academy of Sciences*).
49. See, e.g., Anthony D. Barnosky et al., *Has the Earth's Sixth Mass Extinction Already Arrived?*, 471 NATURE 51 (2011).
50. *Managing the Risks of Extreme Events and Disasters To Advance Climate Change Adaptation: Summary for Policymakers*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 5-7 (2012), http://www.ipcc.ch/pdf/special-reports/srex/SREX_Full_Report.pdf [<http://perma.cc/LV6N-GCR6>].
51. Christopher B. Field et al., *Climate Change 2014: Impacts, Adaptation, and Vulnerability: Summary for Policymakers*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 4 (2014), http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/ar5_wgII_spm_en.pdf [<http://perma.cc/YW3S-R5SW>] (noting that the effects of climate change are being felt "on all continents and across the oceans"); see also Eric Holthaus, *The Point of No Return: Climate Change Nightmares Are Already Here*, ROLLING STONE (Aug. 5, 2015), <http://www.rollingstone.com/politics/news/the-point-of-no-return-climate-change-nightmares-are-already-here-20150805> [<http://perma.cc/2KNX-SF9T>].

immediately cut to zero—would continue to experience increasingly severe climate change impacts for centuries.⁵²

Given the scale of the challenge, the Obama Administration did not stop at major greenhouse gas regulations and international agreements on climate change. The White House tried to respond in a commensurate fashion by reducing greenhouse gas emissions from the federal government itself (a major emitter in its own right), improving the federal government’s resilience to the impacts of climate change, and bolstering the federal government’s capacity to deal with future climate-induced problems in an uncertain world. The scale of this challenge is as sweeping as the federal government itself. Climate change implicates virtually every executive branch department and agency ranging from the Department of Energy (DOE)⁵³ to the Department of Labor,⁵⁴ independent agencies ranging from the SEC⁵⁵ to the Export-Import Bank,⁵⁶ and military operations ranging from Arctic naval activities⁵⁷ to disaster relief.⁵⁸ As of 2010, the U.S. government’s greenhouse gas emissions totaled over 120 megatons of carbon-dioxide-equivalent⁵⁹—roughly equal to annual emissions from

52. See Gerald A. Meehl et al., *How Much More Warming and Sea Level Rise?*, 307 SCI. 1769 (2005).
53. *Climate Change*, U.S. DEP’T ENERGY, <http://energy.gov/science-innovation/climate-change> [<http://perma.cc/6FAC-GD24>] (detailing DOE’s involvement with climate change).
54. *Green Jobs*, U.S. DEP’T LAB., <http://www.dol.gov/odep/topics/GreenJobs.htm> [<http://perma.cc/F2VA-HMRJ>] (claiming that the Department of Labor is “a federal government leader in creating a clean energy economy”).
55. Commission Guidance Regarding Disclosure Related to Climate Change, 75 Fed. Reg. 6290-91 (Feb. 8, 2010) (to be codified at 17 C.F.R. pts. 211, 231 & 241) (providing guidance on corporate disclosures of climate-related risks).
56. *Friends of the Earth, Inc. v. Spinelli*, No. 02-4106, 2005 WL 2035596 (N.D. Cal. Aug. 23, 2005) (challenging the Export-Import Bank’s failure to conduct National Environmental Policy Act (NEPA) assessments that adequately considered climate change). This suit was later settled. *Landmark Global Warming Lawsuit Settled*, GREENPEACE, <http://www.greenpeace.org/usa/news/landmark-global-warming-lawsuit> [<http://perma.cc/NLL6-4MCL>].
57. See U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-15-556, ARCTIC PLANNING: DOD EXPECTS TO PLAY A SUPPORTING ROLE TO OTHER FEDERAL AGENCIES AND HAS EFFORTS UNDER WAY TO ADDRESS CAPABILITY NEEDS AND UPDATE PLANS (2015).
58. See E.D. McGrady et al., *Climate Change: Potential Effects on Demands for U.S. Military Humanitarian Assistance and Disaster Response*, CTR. FOR NAVAL ANALYSES (2010), <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA564975> [<http://perma.cc/47RT-NGRK>].
59. Leon Walker, *Fed Carbon Footprint: 121.3 Million Metric Tons; Lion’s Share Is DOD*, ENVTL. LEADER (May 2, 2011), <http://www.environmentalleader.com/2011/05/02/fed-carbon-footprint-121-3-million-metric-tons-lion%E2%80%99s-share-is-DOD> [<http://perma.cc/T29Y-P7PS>].

Belgium or the Czech Republic.⁶⁰ As of 2015, the federal government was the largest single electricity purchaser in the United States⁶¹ and had an environmental footprint that spanned “360,000 buildings, 650,000 fleet vehicles, and \$445 billion spent annually on goods and services.”⁶² A wide range of other federal programs and activities structure incentives for non-federal actors in ways that affected emission levels and vulnerability to climate change risks.⁶³

To achieve its goals, the Obama Administration advanced climate-consciousness in the federal bureaucracy. Climate-consciousness accounts for how a federal action might affect climate change and how climate change might affect a federal action, even for actions that are not obviously connected to climate change. At its best, climate-consciousness would embed the consideration of climate change throughout the executive branch, rely on sound scientific and technical evidence to understand an uncertain future, and incorporate climate change into decisions in a transparent and accountable manner. Such climate-consciousness responded to a judicial demand for reasoned administration on climate change, while avoiding congressional scrutiny by changing administrative processes in a submerged fashion that attracted less attention than major climate change regulations and international agreements.

As the next Section demonstrates, the Obama Administration used a variety of tools to enable, encourage, or require climate-consciousness. Although the

60. CAIT Climate Data Explorer, *Total GHG Emissions Including Land-Use Change and Forestry—2010*, WORLD RESOURCES INST., [http://cait2.wri.org/historical/Country%20GHG%20Emissions?indicator\[\]=Total%20GHG%20Emissions%20Including%20Land-Use%20Change%20and%20Forestry&year\[\]=2010&sortIdx=0&sortDir=desc&chartType=geo](http://cait2.wri.org/historical/Country%20GHG%20Emissions?indicator[]=Total%20GHG%20Emissions%20Including%20Land-Use%20Change%20and%20Forestry&year[]=2010&sortIdx=0&sortDir=desc&chartType=geo) [<http://perma.cc/8CBF-BYEE>]. As with all emissions estimates, this should be regarded as a rough estimate and not a precise figure.

61. See Press Release, Office of the Press Sec’y, White House, Fact Sheet: Reducing Greenhouse Gas Emissions in the Federal Government and Across the Supply Chain (Mar. 19, 2015), <http://obamawhitehouse.archives.gov/the-press-office/2015/03/19/fact-sheet-reducing-greenhouse-gas-emissions-federal-government-and-acro> [<http://perma.cc/KY94-F6NF>].

62. Council on Env’tl. Quality, *Federal Leadership on Climate Change and Environmental Sustainability—Executive Order 13693*, WHITE HOUSE, <http://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/sustainability> [<http://perma.cc/Z483-SJS3>].

63. Examples of such incentives—both direct and indirect—abound. For example, the Conservation Reserve Program (CRP)—a federal program that purchases conservation easements for soil conservation, water quality, and wildlife habitat—also sequesters substantial quantities of carbon dioxide. See Conservation Reserve Program, 80 Fed. Reg. 41987, 41991 (July 16, 2015) (to be codified at 7 C.F.R. pt. 1410) (noting that “[t]he purpose of CRP” is, *inter alia*, “to assist producers in conserving and improving soil, water, and wildlife, restoring wetlands, improving other resources”); see also Gervasio Piñeiro et al., *Set-Asides Can Be Better Climate Investment than Corn Ethanol*, 19 ECOLOGICAL APPLICATIONS 277 (2009) (arguing that the CRP has major climate change benefits, and that such lands should not be converted to cropland for ethanol production).

Obama Administration used top-down directives and incentives to require and encourage agency responses, agencies were granted autonomy to incorporate climate-consciousness in a bottom-up fashion. This unique blend of control and co-optation was well-suited given the complexity of climate change.

C. *Applying Presidential Administration to Climate-Consciousness*

President Obama is known to have followed in the footsteps of President Clinton, making heavy use of centralized regulatory review, issuing numerous presidential directives and personally claiming credit for administrative actions.⁶⁴ However, this narrative misses the fourth pillar, where President Obama developed the practice of presidential administration in significant ways.

Even though presidential administration has strengthened in recent decades, exercises of presidential administration have nevertheless been confined: Presidents have targeted a small number of agencies, pursued relatively self-contained policy objectives, or used a limited range of methods to advance each policy objective. For example, President Clinton exercised control over a relatively small number of agencies to address discrete problems like tobacco control, gun control, and welfare reform.⁶⁵ Presidents Reagan and George W. Bush sought to reduce regulatory costs across a wide array of agency actions by heavily relying on a single tool, centralized regulatory review.⁶⁶

By contrast, President Obama's fourth pillar affected virtually all departments and agencies, addressed a broad and seemingly unbounded public problem,⁶⁷ and applied a wider array of tools than Kagan identified.⁶⁸ Of course, the Obama White House made heavy use of the tools written about by Kagan: the President still issued presidential directives, incorporated climate change into at

64. Kathryn A. Watts, *Controlling Presidential Control*, 114 MICH. L. REV. 683, 698-705 (2016).

65. See Kagan, *supra* note 23, at 2248, 2303-08; see also Barack Obama, Commentary, *The President's Role in Advancing Criminal Justice Reform*, 130 HARV. L. REV. 811, 823-35 (2017) (describing how the Obama Administration used a relatively narrow set of tactics to reform the federal criminal justice system that focused on a small number of federal departments and agencies, including the Department of Justice, Department of Education, and Office of Personnel Management).

66. Watts, *supra* note 64, at 693-98.

67. In a helpful article, Jody Freeman and Jim Rossi explain the difficulties posed when problems cut across multiple agencies and into "shared regulatory space." See Jody Freeman & Jim Rossi, *Agency Coordination in Shared Regulatory Space*, 125 HARV. L. REV. 1131, 1135-36 (2012). Climate change may be considered an extreme version of such a problem.

68. See *supra* text accompanying notes 28-34.

least some cost-benefit analyses, and publicly represented agencies' climate-related actions as the President's own.⁶⁹ Yet the Obama Administration used a much broader array of policy tools: it exercised budgetary control in order to secure compliance with presidential directives, used scientific processes to inform climate-related decisions, and elicited voluntary climate-conscious commitments from private-sector actors such as federal suppliers and contractors.⁷⁰

This creative and wide-ranging approach to presidential administration was necessary in light of President Obama's limited formal legal authority to mandate climate-consciousness. After all, most efforts to address highly cross-cutting problems through presidential oversight are anchored in statutes⁷¹ that impose compulsory analytical requirements on agencies.⁷² However, there is no specific legislative mandate for federal departments and agencies to be climate-conscious when making decisions.⁷³ Consequently, the Obama Administration found it necessary to "pool" powers and resources from a multitude of sources to address climate change despite congressional hostility to climate action.⁷⁴

Although climate change may be a *sui generis* public problem, the case studies that follow provide a rich example of presidential administration at its most expansive, illustrating how the President can combine myriad tools to influence and direct the executive branch. President Obama's efforts were especially notable for their reliance on rigorous scientific, economic, and technical analyses, belying the common assumption that there is an irreconcilable tension between agency expertise and presidential control.

69. Watts, *supra* note 64, at 698-705.

70. *Cf. id.* at 685 (describing President Obama's methods of presidential control as "taking a cue from" President Clinton's example).

71. *E.g.*, Regulatory Flexibility Act, 5 U.S.C. §§ 601-612 (2012) (ensuring that the needs of small businesses are considered in the regulatory process).

72. Jerry L. Mashaw, *Between Facts and Norms: Agency Statutory Interpretation as an Autonomous Enterprise*, 55 U. TORONTO L.J. 497, 506-07 (2005).

73. The National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4347 (2012), has been interpreted to require agencies to consider climate change in some instances. *See infra* Sections I.C.3, II.B. However, NEPA—a statute passed in 1970, before climate change was widely acknowledged as a public problem—does not explicitly contemplate climate change.

74. Daphna Renan, *Pooling Powers*, 115 COLUM. L. REV. 211, 218-19, 255-56 (2015) (explaining the concept of "pooling" as a form of "unilateral structuring by the executive" that "integrates legal or other resources possessed by—and dispersed across— . . . agencies" and provides a source of executive authority that is greater than the sum of its parts). For examples, see *id.* at 221-28.

1. Directives Issued Through Executive Orders

President Obama's climate-related executive orders can be divided into two categories. The first consisted of a hodgepodge of orders that applied to only a few agencies or addressed a narrow set of policy issues.⁷⁵ The second category—the subject of this Section—consisted of three broad executive orders that implicated every executive-branch agency and department.

Executive orders relating to federal energy efficiency and conservation have been issued since the Ford Administration.⁷⁶ By the time President Obama en-

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75. Examples of this sort of executive order include Executive Order 13,547, an interagency order to implement certain ocean- and lake-management initiatives and establish an interagency National Ocean Council; Executive Order 13,677, a mandate for the United States Agency for International Development to “integrat[e] climate-resilience considerations” into its development work; Executive Order 13,689, a mandate to enhance interagency and intergovernmental cooperation in the rapidly melting Arctic; Executive Order 13,690, a directive for the Federal Emergency Management Agency (FEMA) to account for climate change when designating floodplains; and Executive Order 13,728, a mandate to improve wildfire resilience for certain federally owned, leased, or financed buildings in wildfire-prone areas. Exec. Order No. 13,728, 81 Fed. Reg. 32223 (May 20, 2016); Exec. Order No. 13,547, 75 Fed. Reg. 43023 (July 19, 2010); Exec. Order No. 13,677, 79 Fed. Reg. 58231 (Sept. 23, 2014); Exec. Order No. 13,689, 80 Fed. Reg. 4191 (Jan. 21, 2015); Exec. Order No. 13,690, 80 Fed. Reg. 6425 (Jan. 30, 2015); see Molly Lawrence & Carly Summers, *President's Executive Order Expands Regulated Floodplain To Account for Climate Change*, VAN NESS FELDMAN LLP (Mar. 17, 2015), <http://www.vnf.com/presidents-executive-order-expands-regulated-floodplain-to-account> [<http://perma.cc/CZ7Q-7JU5>].
76. These orders started around the time of the 1970s oil shocks and were gradually strengthened by successive presidential administrations. Exec. Order No. 11,912, 41 Fed. Reg. 15825 (Apr. 13, 1976) (directing the General Services Administration to ensure that the federal government purchases fuel-efficient vehicles; ordering federal departments and agencies to implement provisions in contemporary statutes relating to energy conservation; directing the Secretary of Energy, OMB Director, and the General Services Administrator to develop a plan for energy conservation in federal buildings; and directing each executive agency to develop and submit a ten-year plan for saving energy and fuel); Exec. Order No. 12,003, 42 Fed. Reg. 37523 (July 20, 1977) (setting numerical targets for fuel efficiency in federal government vehicle fleets and energy conservation in federal buildings, and refining requirements in Executive Order 11,912); Exec. Order No. 12,759, 56 Fed. Reg. 16257 (Apr. 17, 1991) (amending existing federal efficiency and conservation standards; extending energy efficiency mandates to require that agencies consider the energy embodied in products that they procure); Exec. Order No. 12,845, 58 Fed. Reg. 21887 (Apr. 21, 1993) (requiring the purchase of energy-efficient computer equipment); Exec. Order No. 12,902, 59 Fed. Reg. 11463 (Mar. 8, 1994) (updating requirements for energy efficiency and water conservation in federal facilities); Exec. Order No. 13,101, 63 Fed. Reg. 49643 (Sept. 14, 1998) (issuing new requirements for waste prevention and recycling, and requiring that federal departments and agencies take end-of-life factors into account when purchasing goods); Exec. Order No. 13,132, 64 Fed. Reg. 30851 (June 3, 1999) (updating energy efficiency requirements for federal facilities, establishing a renewable energy goal for federal facilities, and imposing a greenhouse

tered office, these orders had expanded to address greenhouse gas emission reductions, recycling and waste reduction, and federal purchases of energy-efficient goods. However, President Obama's three orders built upon previous orders by imposing more rigorous planning requirements, placing a novel focus on adapting to the effects of climate change, setting more stringent emission reduction goals, and placing public pressure on federal contractors and suppliers to reduce their environmental impacts.

The first of the three orders, Executive Order 13,514, was issued in 2009.⁷⁷ Most of the Order's provisions focused on strengthening energy efficiency standards, emissions reductions goals, and other targets articulated in previous executive orders.⁷⁸ However, Executive Order 13,514 contained two novel requirements. First, the Order directed the White House Council on Environmental Quality (CEQ) and OMB to help each agency create a "Strategic Sustainability Performance Plan."⁷⁹ The sustainability planning process required each agency to:

- issue a comprehensive plan that accounted for the achievement of all environmental goals imposed upon the agency by executive order;
- inventory its emissions;

gas reduction goal for federal facilities of 30% between 1990 and 2010); Exec. Order No. 13,148, 65 Fed. Reg. 24595 (Apr. 21, 2000) (requiring each agency to implement so-called "environmental management systems," report toxic releases, change landscaping practices, and limit the purchase of hazardous or toxic substances); Exec. Order No. 13,149, 65 Fed. Reg. 24607 (Apr. 21, 2000) (updating efficiency standards for federal vehicle fleets); Exec. Order No. 13,423, 72 Fed. Reg. 3919 (Jan. 24, 2007) (setting a percentage reduction goal for greenhouse gases from federal agencies, a percentage reduction goal for water use, measures for sustainable procurement, requirements for high-performance building practices for new or renovated buildings, and standards for the use of non-gasoline and hybrid vehicles; mandating that agencies appoint officers for carrying out the Order; requiring departments and agencies to establish management systems for environmental practices; directing departments and agencies to train federal employees in environmental management; establishing the Federal Environmental Executive, an EPA office tasked with monitoring agencies; and envisioning a central coordinating role for CEQ and OMB).

77. Exec. Order No. 13,514, 74 Fed. Reg. 52117 (Oct. 5, 2009).

78. Press Release, Office of the Press Sec'y, White House, Executive Order 13514—Focused on Federal Leadership in Environmental, Energy, and Economic Performance (Oct. 5, 2009), <http://obamawhitehouse.archives.gov/the-press-office/president-obama-signs-executive-order-focused-federal-leadership-environmental-ener> [<http://perma.cc/HZ2B-HLZG>] ("The Executive Order builds on and expands the energy reduction and environmental requirements of Executive Order 13,423 by making reductions of greenhouse gas emissions a priority of the Federal government, and by requiring agencies to develop sustainability plans focused on cost-effective projects and programs.").

79. *Id.*

- set a multiyear greenhouse gas reduction goal in consultation with CEQ and OMB;
- prioritize agency responses by their returns on investment;
- integrate sustainability objectives into the agency’s budgetary process; and
- subject its plan to “scorecard”-based interagency comparisons.⁸⁰

Although not required by the Order, the Obama Administration also subjected these sustainability plans to public comment.⁸¹ Essentially, Executive Order 13,514 required departments and agencies not only to set abstract goals, but also to establish concrete plans to achieve them. This planning process required each agency to account for the environmental, energy, and climate change-related mandates that had built up between the Ford and George W. Bush Administrations.

Second, Executive Order 13,514 mandated agencies to set targets for the reduction of indirect greenhouse gas emissions, or so-called “Scope 3” emissions.⁸² Scope 3 emissions consist of emissions that are “a consequence of the agency[’s] activities, but originate from sources not controlled by the agency.”⁸³ This includes emissions stemming from activities such as employee travel and commuting, emissions from contractors, and even emissions from visitors traveling to national parks.⁸⁴ A broader definition of emissions ensured that federal departments and agencies – at the cost of a higher analytical burden – more fully considered the emissions consequences of their actions. Executive Order 13,514 was therefore an early indicator of the design attributes of the fourth pillar: the Order combined a top-down directive with a bottom-up approach to agency planning, and the Order pushed agencies to assess their climate impacts in a more complete and rigorous fashion.

Two later executive orders – Executive Orders 13,653 and 13,693 – continued that evolution. In 2013, Executive Order 13,653 mandated – for the first time – a wide array of adaptive actions by agencies to make federal activities more resili-

80. Exec. Order No. 13,514, §§ 2, 4, 8, 74 Fed. Reg. 52117 (Oct. 5, 2009).

81. Council on Env’tl. Quality, *Obama Administration Releases Agency Strategic Sustainability Performance Plans*, EXECUTIVE OFF. PRESIDENT (Feb. 7, 2013), http://obamawhitehouse.archives.gov/administration/eop/ceq/Press_Releases/February_07_2013 [<http://perma.cc/63AA-JFYN>].

82. Exec. Order No. 13,514, § 2(b), 74 Fed. Reg. 52117 (Oct. 5, 2009).

83. Council on Env’tl. Quality, *Federal Greenhouse Gas Accounting and Reporting Guidance*, EXECUTIVE OFF. PRESIDENT app. C, C-1 (June 4, 2012), http://obamawhitehouse.archives.gov/sites/default/files/federal_greenhouse_gas_accounting_and_reporting_guidance_technical_support_document.pdf [<http://perma.cc/X6GM-SL5C>].

84. *Id.* at 11-13.

ent to climate-induced disruptions.⁸⁵ This was consonant with a shift in climate-change thinking, in which policymakers started to pursue climate change adaptation in addition to efforts to mitigate climate change by reducing emissions.⁸⁶ The Order built upon previous requirements by requiring each agency to understand and prepare for the consequences that climate change would impose on the federal government.

Finally, in 2015, Executive Order 13,693 replaced Executive Order 13,514.⁸⁷ The Order established an aggressive target for federal emissions reductions of roughly 40% over the span of a decade.⁸⁸ This target was notably ambitious, far outpacing California's widely lauded goal of reducing emissions by 40% between 1990 and 2030.⁸⁹ The Order was announced along with a host of voluntary pledges from major federal contractors to reduce their emissions,⁹⁰ as well

85. Exec. Order No. 13,653, 78 Fed. Reg. 66819 (Nov. 1, 2013). Although section 16 of Executive Order 13,514 mandated agency participation in an interagency Climate Change Adaptation Task Force, the Order did not compel action by agencies. Exec. Order No. 13,514, 74 Fed. Reg. 52117 (Oct. 5, 2009); *President Obama Establishes Task Force and Council on Climate Change Preparedness*, GEO. CLIMATE CTR. (Nov. 1, 2013), <http://www.georgetownclimate.org/articles/president-obama-establishes-task-force-and-council-on-climate-change-preparedness.html> [<http://perma.cc/U4Q4-UGMT>].

86. Climate-change adaptation has—until very recently—been a “taboo” subject, as climate-change adaptation implies that significant climate-induced damage will occur. This taboo lifted as it became clear that climate-induced harms were unavoidable. Although I cannot pinpoint exactly when the taboo lifted, it persisted until relatively recently. See Roger Pielke, Jr. et al., *Climate Change 2007: Lifting the Taboo on Adaptation*, 445 NATURE 597, 597-98 (2007) (calling on observers to depart from the treatment of climate-change adaptation as a taboo subject).

Executive Order 13,693 convened a Climate Preparedness and Resilience Task Force consisting of local, state, and tribal leaders, whose recommendations spurred numerous executive initiatives to support climate adaptation and resilience measures by local, state, and tribal governments. *President Obama Establishes Task Force and Council on Climate Change Preparedness*, *supra* note 85; Council on Env'tl. Quality, *Fact Sheet: Recommendations of the President's State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience and New Executive Actions*, EXECUTIVE OFF. PRESIDENT (Nov. 17, 2014), <http://obamawhitehouse.archives.gov/the-press-office/2014/11/17/fact-sheet-recommendations-president's-state-local-and-tribal-leaders> [<http://perma.cc/JJ3V-8VCQ>].

87. Exec. Order No. 13,693, 80 Fed. Reg. 15871 (Mar. 19, 2015).

88. *Cf.* Exec. Order No. 13,423, 72 Fed. Reg. 3919 (Jan. 24, 2007) (mandating a 30% reduction in energy use over twelve years).

89. Chris Megerian & Liam Dillon, *Gov. Brown Signs Sweeping Legislation To Combat Climate Change*, L.A. TIMES (Sept. 8, 2016), <http://www.latimes.com/politics/la-pol-ca-jerry-brown-signs-climate-laws-20160908-snap-story.html> [<http://perma.cc/B8TM-DD3P>].

90. Participating suppliers and contractors included Honeywell, IBM, and General Electric. Juliet Eilperin, *Obama To Cut Federal Government's Carbon Emissions 40 Percent Over 10 Years*, WASH. POST (Mar. 19, 2015), <http://www.washingtonpost.com/news/energy-environment>

as a scorecard to compare federal contractors on their greenhouse gas reduction initiatives.⁹¹ This pledging and competitive scoring campaign brought public attention to leaders and laggards among federal contractors that received hundreds of billions of federal dollars per year.⁹² Pressuring private actors into climate-consciousness moved beyond the traditional domain of presidential administration; it leveraged the federal government's massive economic power to incentivize an even broader array of actors to consider climate change in their decision making.

In sum, President Obama's executive orders required agencies to engage in structured sustainability planning processes, compelled agencies to consider adaptation and resilience measures, and attempted to influence major federal suppliers through both co-option and competitive benchmarking. Furthermore, the Obama Administration exercised presidential administration in a transparent and publicly oriented manner, even encouraging members of the public to pressure federal contractors into taking climate-friendly actions. The executive orders also demonstrated a concern with administrative effectiveness by mandating federal departments and agencies to comply with executive orders in an organized fashion. These developments represented a more expansive and sophisticated iteration of presidential administration.

2. OMB Budgetary Control

The Obama Administration wielded its powers of budgetary oversight to ensure that federal departments and agencies followed climate change-related executive orders. This fell squarely within the President's statutory duty to submit a budget to Congress,⁹³ which empowers the President to deny agency budget requests that do not comport with his policy preferences.⁹⁴

/wp/2015/03/19/obama-to-cut-federal-governments-carbon-emission [http://perma.cc/4BSP-AEFU].

91. Council on Envtl. Quality, *Federal Supplier Greenhouse Gas Management Scorecard*, EXECUTIVE OFF. PRESIDENT, <http://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/sustainability/supplier-GHG> [http://perma.cc/7W5L-9K63].
92. See *Annual Review of Government Contracting: 2015 Edition*, NAT'L CONT. MGMT. ASS'N & BLOOMBERG GOV'T (2015), <http://www.ncmahq.org/docs/default-source/default-document-library/pdfs/exec15---ncma-annual-review-of-government-contracting-2015-edition> [http://perma.cc/UH5H-KLTH].
93. See Budget and Accounting (Good-McCormick) Act of 1921, § 201, Pub. L. No. 67-13, 42 Stat. 20 (1921) (codified as amended in scattered sections of 31 U.S.C.).
94. Eloise Pasachoff, *The President's Budget as a Source of Agency Policy Control*, 125 YALE L.J. 2182, 2199-2200, 2213-26 (2016) (describing the powerful roles of OMB's Resource Management Officers and the leverage associated with OMB's power to control agency budget requests).

OMB, the largest office in the Executive Office of the President, prepares the President's budget proposal and serves as a key focal point for presidential administration by "embed[ding] the administration's various management initiatives in agency budget requests."⁹⁵ At the budget-setting stage, the White House communicates its preferences to federal departments and agencies through ad hoc communication between OMB and agency heads, memoranda issued by the OMB Director, and Circular A-11, a document that provides instructions to agencies about the development and submission of budget requests.⁹⁶ Since much of Circular A-11 is technical and does not change from year to year,⁹⁷ any non-technical change to the Circular sends a clear message to departments and agencies.

During the first term of the Obama presidency, OMB was generally silent on climate change. The only exceptions were a brief mention of global warming in a 2009 budget letter,⁹⁸ minor treatment of climate change in 2009 and 2010 memoranda outlining the President's "Science and Technology Priorities,"⁹⁹ and incidental references to energy efficiency in other memoranda.¹⁰⁰ In 2011, a Government Accountability Office (GAO) report found two "key factors" that "complicate[d] . . . efforts" to "align climate change funding with strategic priorities": "(1) the lack of a shared understanding of federal strategic priorities among federal officials and (2) the fact that existing mechanisms that could help align agency funding with priorities [were] nonbinding, limiting

95. *Id.* at 2210.

96. Office of Mgmt. & Budget, *Circular No. A-11: Preparation, Submission and Execution of the Budget*, EXECUTIVE OFF. PRESIDENT (July 2016), http://obamawhitehouse.archives.gov/sites/default/files/omb/assets/a11_current_year/a11_2016.pdf [<http://perma.cc/9CV6-Q9JN>].

97. Pasachoff, *supra* note 94, at 2210. Note that OMB issues budget memoranda with much greater frequency.

98. Memorandum No. M-09-20 from Peter R. Orszag, Dir., Office of Mgmt. & Budget, to Heads of Dep'ts & Agencies (June 11, 2009), <http://fas.org/sgp/obama/who61109.pdf> [<http://perma.cc/93AT-T4G7>].

99. Memorandum No. M-10-30 from Peter R. Orszag, Dir., Office of Mgmt. & Budget, and John P. Holdren, Dir., Office of Sci. Tech. Policy, to Heads of Exec. Dep'ts & Agencies (July 21, 2010), <http://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2010/m10-30.pdf> [<http://perma.cc/S6PV-GHQN>]; Memorandum No. M-09-27 from Peter R. Orszag, Dir., Office of Mgmt. & Budget, and John P. Holdren, Dir., Office of Sci. Tech. Policy, to Heads of Exec. Dep'ts & Agencies (Aug. 4, 2009), <http://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2009/mo9-27.pdf> [<http://perma.cc/3SX9-WVWT>].

100. See, e.g., Memorandum No. M-10-09 from Peter R. Orszag, Dir., Office of Mgmt. & Budget, to Heads of Dep'ts & Agencies (Dec. 21, 2009), <http://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2010/m10-09.pdf> [<http://perma.cc/29MK-D5XK>].

their effectiveness where they conflict[ed] with agency responsibilities and priorities.”¹⁰¹ Clearly, the Obama Administration had not yet conveyed that climate change was a key priority.

Late in President Obama’s second term, OMB explicitly turned its attention to climate change by issuing a 2015 revision of its Circular A-11 guidance¹⁰² and a 2016 memorandum issued jointly with CEQ and addressed to all agency and department heads.¹⁰³ The Circular A-11 revision expressed an intention “to ensure that funding requests in support of Federal facilities align with the Administration’s climate preparedness and resilience goals.”¹⁰⁴ The revision also referenced two of President Obama’s executive orders on climate change. First, Circular A-11 required that “[i]f [an agency] is proposing construction of Federal facilities, [the agency] must: . . . [c]omply with Executive Order 13,693 and associated implementing instructions to ensure that [the agency is] adhering to the Federal sustainable green buildings requirements.”¹⁰⁵ Second, Circular A-11 required agencies to “[c]omply with Executive Order 13,653, ‘Preparing the United States for the Impact of Climate Change,’”¹⁰⁶ the executive order that had required federal departments and agencies to begin adapting to climate change. This revision to Circular A-11 demonstrated careful integration between President Obama’s executive orders and his budgetary power.

Memorandum No. M-16-09 was similarly structured. Jointly issued in 2016 by OMB and CEQ, that memorandum directed agencies to answer several questions about their Climate Adaptation Plans, send agency representatives to regular in-person progress reviews of Climate Adaptation Plans, “identify concrete next steps” for enhancing climate change adaptation measures, and take action on OMB and CEQ recommendations.¹⁰⁷ In other words, Memorandum No. M-16-09 clearly conveyed that mere box-checking was not enough to

101. U.S. GOV’T ACCOUNTABILITY OFF., GAO-11-317, CLIMATE CHANGE: IMPROVEMENTS NEEDED TO CLARIFY NATIONAL PRIORITIES AND BETTER ALIGN THEM WITH FEDERAL FUNDING DECISIONS 25 (2011).

102. Office of Mgmt. & Budget, *supra* note 96.

103. Memorandum No. M-16-09 from Shaun Donovan, Dir., Office of Mgmt. & Budget, and Christy Goldfuss, Managing Dir., Council on Env’tl. Quality, to Exec. Dep’ts & Agencies (Apr. 29, 2016), <http://obamawhitehouse.archives.gov/sites/default/files/omb/memoranda/2016/m-16-09.pdf> [<http://perma.cc/NJG7-M2QW>].

104. Ali Zaidi, *Making Federal Investments Climate-Smart*, WHITE HOUSE (July 1, 2015), <http://obamawhitehouse.archives.gov/blog/2015/07/01/making-federal-investments-climate-smart> [<http://perma.cc/MU77-8J84>].

105. Office of Mgmt. & Budget, *supra* note 96, at 31-5.

106. *Id.* at 31-6.

107. Memorandum No. M-16-09, *supra* note 103, at 2-3.

comply with President Obama's executive orders. Like the revision to Circular A-11, the memorandum drew a clear link between budgetary approval and agency compliance with the Obama executive orders, stating, "These [in-person progress review] discussions will also be an opportunity for agencies to discuss priority issues and get feedback from OMB in advance of annual budget submissions."¹⁰⁸

The update to Circular A-11 and Memorandum No. M-16-09 signaled that the Obama Administration would use the appropriations process to secure agency compliance with its climate change-related executive orders. Although direct examination of the effects of Circular A-11 and the memorandum is impracticable due to OMB's opacity, the two documents presumably served as a credible admonition to heed the executive orders. Otherwise, agency heads would have run the risk of being required to resubmit their budget proposals or face budgetary consequences.

In addition to using the budgetary process to incentivize compliance with presidential directives on climate change, the Obama Administration disbursed substantial funds to support climate change programs across federal departments and agencies. Although the precise extent of this funding is unknown, an underinclusive estimate by the Congressional Research Service estimated that it totaled \$77 billion between 2008 and 2013.¹⁰⁹ These disbursements were scattered across the federal government under program names that often deliberately avoided use of the term "climate change," reflecting an effort to "integrate climate programs into everything the federal government did" while hiding disbursements from hostile political adversaries.¹¹⁰

The Obama Administration, then, used a carrot-and-stick approach to promote climate consciousness through budgetary measures. The message was simple: agencies would be denied funding if their budgets did not comply with presidential directives, but agencies could also expect low-profile budgetary support for climate change initiatives. Although this alignment of incentives was likely effective, budgetary control served as an opaque and unaccountable form of presidential administration, raising significant transparency concerns.

108. *Id.* at 2.

109. Christopher Flavelle, *To Protect Climate Money, Obama Stashed It Where It's Hard To Find*, BLOOMBERG POL. (Mar. 15, 2017), <http://www.bloomberg.com/politics/articles/2017-03-15/cutting-climate-spending-made-harder-by-obama-s-budget-tactics> [<http://perma.cc/M7H8-CHTG>].

110. *Id.*

3. *Environmental Impact Assessments Under the National Environmental Policy Act*

Between 2010 and 2016, CEQ developed and released a guidance document recommending that government actors consider climate change when reviewing the environmental consequences of their actions pursuant to the National Environmental Policy Act (NEPA).¹¹¹ Although the guidance was nonbinding, the guidance document was a clear call for climate-consciousness that also provided additional instructions on how agencies might incorporate climate change into NEPA analyses. This *enabling* function was particularly important given that—as discussed in Sections II.B and IV.B—judicial interpretations of NEPA have increasingly imposed duties on departments and agencies to account for climate change when conducting NEPA assessments.

NEPA serves as a key anti-tunnel-vision statute that forces federal actors to account for the environmental consequences of their actions and consider alternatives.¹¹² NEPA is expansive; it does not focus on a specific medium (e.g., surface water, air, or land) or specific human activities. Rather, NEPA aims to comprehensively “balance a broad range of environmental factors.”¹¹³ As “the centerpiece of environmental regulations in the United States,”¹¹⁴ NEPA is administered by CEQ, whose “limited resources preclude extensive involvement in individual NEPA problems.”¹¹⁵ Instead, CEQ promulgates NEPA regulations, issues guidance, and exercises oversight over each agency’s procedures that implement NEPA.¹¹⁶

NEPA has broad applicability; it applies to “all agencies of the Federal Government.”¹¹⁷ An agency triggers NEPA when it proposes a regulation or an “action[] with effects that may be major and which are potentially subject to Federal control and responsibility”¹¹⁸ that “significantly affect[s] the quality of the

111. Notice of Availability of Final Guidance, 81 Fed. Reg. 51866 (Aug. 5, 2016); Memorandum from Christina Goldfuss, Chair, Council on Env'tl. Quality, to Heads of Fed. Dep'ts & Agencies (Aug. 1, 2016), http://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance.pdf [<http://perma.cc/45UD-6Z3Z>].

112. NICHOLAS C. YOST, NEPA DESKBOOK 3 (4th ed. 2014).

113. *Id.* at 1.

114. *New Mexico ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 703 (10th Cir. 2009).

115. YOST, *supra* note 112, at 5.

116. *Id.*

117. 42 U.S.C. § 4332(2) (2012).

118. 40 C.F.R. § 1508.18 (2016).

human environment.”¹¹⁹ If an agency suspects that a regulation or action might fall under NEPA, the agency first decides what type of evaluation it must undertake. Agencies can categorically exclude certain sets of actions from their NEPA procedures if the agency determines that those actions presumptively lack “significant” environmental consequences. Agencies may also specify certain categories of actions as categorically requiring environmental impact statements (EISs).

For proposals that do not fall within a categorical inclusion or exclusion, agencies first conduct Environmental Assessments (EAs). An EA is a short and publicly disclosed document that announces and explains the agency’s determination about whether a full-blown EIS is necessary. The EA must include an explanation of why the agency needs to take the action in question, a description of possible alternative actions, and a preliminary assessment of the environmental consequences of the proposed action and its alternatives.¹²⁰ If the EA reaches a so-called Finding of No Significant Impact (FONSI) or uncovers a viable alternative that results in no significant environmental impact,¹²¹ the agency is finished with the NEPA process. If the EA finds that the proposed agency action will have a significant environmental impact, the agency must prepare an EIS.

In an EIS, the agency indicates how it plans to meet NEPA’s goals, details the purpose and need for the proposal, estimates the proposal’s environmental consequences, discusses alternatives to the proposal, analyzes how environmental impacts may be mitigated, and identifies relevant information that is either incomplete or unavailable to the agency.¹²² NEPA also requires a narrow notice-and-comment process for EISs: the agency must circulate the EIS to affected parties, obtain comments, and respond to comments.¹²³ Courts have characterized NEPA’s requirements as procedural and not substantive.¹²⁴ Yet

119. 42 U.S.C. § 4332(2)(C); see also John F. Shepherd & Hadassah M. Reimer, *Range of Proposals Covered by NEPA*, in *THE NEPA LITIGATION GUIDE* 23, 25-28 (Albert M. Ferlo et al. eds., 2d ed. 2012) (explaining how NEPA’s regulations clarify the applicability of NEPA).

120. *Id.* at 10-11.

121. This is known as a “mitigated FONSI.” Council on Env’tl. Quality, *The National Environmental Policy Act: A Study of Its Effectiveness After Twenty-Five Years*, EXECUTIVE OFF. PRESIDENT, 19-20 (Jan. 1997), <http://ceq.doe.gov/docs/ceq-publications/nepa25fn.pdf> [<http://perma.cc/G6S2-QEKB>].

122. YOST, *supra* note 112, at 15-21.

123. *Id.* at 22.

124. *Vt. Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc.*, 435 U.S. 519, 558 (1978).

NEPA appears to substantively influence many federal decisions,¹²⁵ stakeholders frequently comment in EIS processes, private litigants regularly bring challenges under NEPA, and the judiciary's comfort with enforcing procedural requirements means that NEPA litigation is often effective in blocking or delaying federal actions.¹²⁶

Under previous administrations and during the Obama Administration's first term, agencies usually did not consider climate change when conducting NEPA EAs and EISs. For example, one scholar assessed thirty-five EISs issued by the Bureau of Land Management from 2007 to 2008.¹²⁷ Of those EISs, thirteen did not mention climate change at all; seven contained cursory statements about climate change; and fifteen quantified greenhouse gas emissions. Of the fifteen EISs that quantified emissions, only three discussed means to mitigate emissions from the proposal, thereby fulfilling NEPA's mandate to consider alternative actions or means to mitigate environmental damage.¹²⁸ A 2012 study by the Sabin Center for Climate Change Law found that at least 227 EISs between 2009 and 2011 considered climate change,¹²⁹ a small proportion of the estimated 1,400 EISs issued in that period.¹³⁰ Moreover, the EISs that considered climate change varied widely in their depth and care of treatment.¹³¹

Against this backdrop, CEQ in 2010 began to develop a guidance document on NEPA and climate change as part of a broader initiative to "Modernize and

125. The practical effectiveness of NEPA is highly contested. The best study of this matter was conducted by CEQ in 1997 and argued that NEPA was substantively effective. Council on Envtl. Quality, *supra* note 121.

126. Jennifer Klein & Ethan Strell, *Legal Tools for Climate Adaptation Advocacy: NEPA*, COLUM. L. SCH. SABIN CTR. FOR CLIMATE CHANGE L. 6-8 (Mar. 2015), <http://columbiaclimatelaw.com/files/2016/06/Klein-and-Strell-2015-03-Adaptation-Advocacy-NEPA.pdf> [<http://perma.cc/NKFF4-CYJR>]. *But see* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-14-369, NATIONAL ENVIRONMENTAL POLICY ACT: LITTLE INFORMATION EXISTS ON NEPA ANALYSES 20-21 (2014) (noting that the federal government prevails in most NEPA litigation).

127. Amy L. Stein, *Climate Change Under NEPA: Avoiding Cursory Consideration of Greenhouse Gases*, 81 U. COLO. L. REV. 473, 505 (2010).

128. *Id.*

129. Patrick Woolsey, *Consideration of Climate Change in Federal EISs, 2009-2011*, CTR. FOR CLIMATE CHANGE L. 1, 7-14 (July 2012), <http://wordpress.ei.columbia.edu/climate-change-law/files/2016/06/Woolsey-2012-07-Consideration-of-Climate-Change-in-Federal-EISs-2009-2011.pdf> [<http://perma.cc/PYD4-DFCD>].

130. According to a Government Accountability Office (GAO) report, the EPA, CEQ, and the National Association of Environmental Professionals publish estimates of the number of final EISs issued each year. There are minor inconsistencies between each group's reported totals. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-14-369, NATIONAL ENVIRONMENTAL POLICY ACT: LITTLE INFORMATION EXISTS ON NEPA ANALYSES 8 tbl.1 (2014).

131. Woolsey, *supra* note 129, at 7-14.

Reinvigorate the National Environmental Policy Act.”¹³² CEQ issued draft documents in February 2010 and December 2014, and opened both to public comment. The final guidance document, released in August 2016,¹³³ recommended that agencies consider climate change impacts, reasonable alternatives that may reduce climate change impacts, and emissions mitigation measures in their EAs and EISs.¹³⁴ To evaluate the marginal impacts of greenhouse gas emissions, the guidance document endorsed the use of a “social cost of carbon” (SCC), an estimate of the present value of the social cost associated with an incremental unit of emissions.¹³⁵ Importantly, the guidance did not advocate for hard cost-benefit analysis; rather, the guidance acknowledged that agencies might qualitatively consider climate change consequences that cannot be easily quantified or valued.¹³⁶ This flexible approach was consistent with NEPA’s implementing regulations promulgated by CEQ, which instruct agencies to include poorly understood or non-quantifiable impacts.¹³⁷

Although the Obama Administration’s NEPA guidance on climate change did not bind federal departments and agencies, the multiple rounds of notice-and-comment, the thoroughness of the guidance document, and the influence of CEQ in the appropriations process suggest that the Obama Administration intended the guidance documents to meaningfully affect departments’ and agencies’ NEPA processes. In sum, the NEPA guidance communicated to government actors that they should consider climate change when making major decisions, and provided actionable recommendations on how departments and agencies might do so.

4. *Regulatory Oversight for Nonclimate Regulations*

The Obama Administration likely used centralized regulatory review at OMB’s OIRA to push agencies to account for climate change when weighing the costs and benefits of regulations that did not directly involve environmental policy. This expanded the traditional practice of regulatory cost-benefit analy-

132. Council on Env’tl. Quality, *White House Council on Environmental Quality Announces Steps To Modernize and Reinvigorate the National Environmental Policy Act*, EXECUTIVE OFF. PRESIDENT (Feb. 18, 2010), http://obamawhitehouse.archives.gov/administration/eop/ceq/Press_Releases/February_18_2010 [http://perma.cc/X3GV-Z69B].

133. Memorandum from Christina Goldfuss, *supra* note 111.

134. *Id.* at 5.

135. *Id.* at 33 n.86.

136. *Id.* at 33 & n.88.

137. 40 C.F.R. § 1502.23 (2016).

sis—which by some accounts had consistently undervalued environmental costs and benefits—to incorporate climate change considerations.

The Obama Administration’s use of regulatory review is part of a long history of presidential control over regulation. Modern regulatory review emerged during the Reagan Administration with Executive Order 12,291.¹³⁸ Executive Order 12,291 empowered OIRA to veto regulations and required agencies to show that the benefits of new regulations would exceed their costs. At the time, an expanding regulatory state had provoked a backlash from regulated parties, and antiregulatory sentiment was high. The Reagan Administration’s “regulatory reformers” promoted cost-benefit analysis and centralized regulatory review to introduce a deregulatory slant into the administrative state. Consequently, many environmental advocates who sought greater regulatory protections came to revile cost-benefit analysis.¹³⁹

This style of regulatory review persisted until the Clinton Administration, which replaced Executive Order 12,291 with Executive Order 12,866. Executive Order 12,866 imposed a softer requirement for cost-effectiveness: a rule’s benefits must *justify*, but not necessarily *exceed*, its costs. The Order also provided greater room for agencies to consider qualitative and non-quantifiable factors in decision making and promoted transparency by directing agencies to explain any changes made to a regulation due to OIRA’s recommendations.¹⁴⁰ These changes were intended to balance cost-benefit analysis and ameliorate its deregulatory bias. Consequently, some environmental groups gradually softened their opposition to cost-benefit analysis and became regular participants in cost-benefit driven regulatory processes.¹⁴¹

138. Exec. Order No. 12,291, 3 C.F.R. § 127 (1981). The earliest efforts at regulatory oversight began in the Nixon Administration with a so-called “Quality of Life” review process supervised by OMB. Jim Tozzi, *OIRA’s Formative Years: The Historical Record of Centralized Regulatory Review Preceding OIRA’s Founding*, 63 ADMIN. L. REV. 37, 40-41 (2011). However, the Nixon review process—in practice—ignored most agencies other than EPA. *Id.* at 48-49. The Ford administration issued two executive orders—Executive Orders 11,821 and 11,949—which required agencies to consider the economic and inflationary impacts of economically significant regulations. However, these reviews were nonbinding. *Id.* at 51. The Carter administration also advanced regulatory review with Executive Order 12,044, which imposed a thicker requirement for regulatory impact analyses. *Id.* at 55-57. However, even in the Carter era, the President did not have the power to strike regulations; ultimately, the final decision to regulate remained with the agency.

139. RICHARD L. REVESZ & MICHAEL A. LIVERMORE, *RETAKING RATIONALITY: HOW COST-BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENT AND OUR HEALTH* 10 (2008).

140. Exec. Order No. 12,866, 3 C.F.R. § 638 (1993).

141. REVESZ & LIVERMORE, *supra* note 139, at 33-45. In the last few decades, some environmental groups—most notably the Environmental Defense Fund—grew to see cost-benefit analysis as a beneficial tool for incorporating environmental concerns into administrative decision

Although the George W. Bush Administration replaced Executive Order 12,866 with a more Reagan-like order for regulatory review,¹⁴² the Obama Administration largely reinstated Executive Order 12,866 with Executive Order 13,563.¹⁴³ Executive Order 13,563 slightly deviated from Executive Order 12,866 by emphasizing the use of sound scientific information and the quantification of costs and benefits.¹⁴⁴ Executive Order 13,563 indirectly referred to climate change by incorporating a presidential “scientific integrity” memorandum that identified climate change, energy efficiency, and environmental protection as key areas of interest:

Science and the scientific process must inform and guide decisions of my Administration on a wide range of issues, including improvement of public health, protection of the environment, increased efficiency in the use of energy and other resources, mitigation of the threat of climate change, and protection of national security.¹⁴⁵

Although the memorandum did not require agencies to consider climate change when conducting regulatory impact analyses, it singled out climate change as a specific issue where scientific knowledge was important. This represented a marked departure from the George W. Bush Administration’s concerted efforts to suppress and manipulate science that did not comport with its policy objectives.¹⁴⁶

making. See, e.g., Frederic D. Krupp, *New Environmentalism Factors in Economic Needs*, WALL ST. J. (Nov. 20, 1986), <http://www.wsj.com/articles/SB117269353475022375> [<http://perma.cc/888K-NJAQ>] (describing how under the author’s leadership, the Environmental Defense Fund used cost-benefit analysis to advocate for pro-environmental goals).

142. Exec. Order No. 13,422, 3 C.F.R. § 191 (2008).

143. Exec. Order No. 13,563, 3 C.F.R. § 3821 (2011).

144. *Summary of Executive Order 12866 – Regulatory Planning and Review*, ENVTL. PROTECTION AGENCY, <http://www.epa.gov/laws-regulations/summary-executive-order-12866-regulatory-planning-and-review> [<http://perma.cc/23YV-54ZG>].

145. Memorandum from President Barack Obama to Heads of Exec. Dep’ts & Agencies (Mar. 9, 2009), <http://obamawhitehouse.archives.gov/the-press-office/memorandum-heads-executive-departments-and-agencies-3-9-09> [<http://perma.cc/2D7W-FLYP>].

146. This story is documented in a report by the Union of Concerned Scientists. *Scientific Integrity in Policymaking: Further Investigation of the Bush Administration’s Misuse of Science*, UNION CONCERNED SCIENTISTS (July 2004), http://www.ucsusa.org/sites/default/files/legacy/assets/documents/scientific_integrity/scientific_integrity_in_policy_making_july_2004_1.pdf [<http://perma.cc/A64Y-ZWGJ>]. However, some scholars have painted a more mixed picture for the state of scientific integrity in the Obama Administration. See, e.g., Heidi Kitrosser, *Scientific Integrity: The Perils and Promise of White House Administration*, 79 *FORDHAM L. REV.* 2395, 2406–16 (2011) (criticizing the Obama Administration’s approach to gov-

Still, the overall effect of the Obama Administration's regulatory review on environmental protection has been contested. The dispute has been headlined by Professors Cass Sunstein and Lisa Heinzerling, who both served in the Obama Administration. Heinzerling claimed that the Obama OIRA had stonewalled environmental regulatory efforts, particularly an Environmental Protection Agency (EPA) regulation on tropospheric ozone pollution,¹⁴⁷ by deliberately introducing delays into the OIRA review process¹⁴⁸ and serving as a "pocket veto" for President Obama to stop meritorious but politically inconvenient regulations.¹⁴⁹ On the other hand, Sunstein claimed that the Obama OIRA mostly served as a middleman agency and "information aggregator" that gathered necessary information from the White House and other agencies to promote improved decision making.¹⁵⁰ Sunstein attributed delays in the OIRA process to difficulties inherent in this sort of interagency consultation. The resolution of this debate is beyond the scope of this Note. However, the Heinzerling-Sunstein debate neatly prefaces a key question: did President Obama use centralized regulatory review to advance climate-consciousness?

This question is difficult to answer because OIRA is opaque.¹⁵¹ During the Obama Administration, OIRA moved toward even greater opacity by abandoning the George W. Bush Administration's practice of issuing "return letters," letters that enumerate OIRA's reasons for rejecting regulatory actions and returning them to agencies.¹⁵² Moreover, the two lines of evidence examined in this Section provide a mixed picture.

ernment science during the BP oil spill and treatment of whistleblowers, but lauding the Interior Department's scientific integrity program).

147. See Lisa Heinzerling, *Inside EPA: A Former Insider's Reflections on the Relationship Between the Obama EPA and the Obama White House*, 31 PACE ENVTL. L. REV. 325, 354-58 (2014).
148. Jeremy P. Jacobs, *Lisa Heinzerling Won't Back Down*, GREENWIRE (May 27, 2014), <http://www.eenews.net/stories/1060000220> [<http://perma.cc/9JSK-KCXW>].
149. Molly Redden, Opinion, *OIRA Antagonizing Environmentalists*, NEW REPUBLIC (Jan. 12, 2012), <http://www.npr.org/2012/01/12/145095539/new-republic-oira-antagonizing-environmentalists> [<http://perma.cc/6VDB-RXZ4>].
150. Cass R. Sunstein, Commentary, *The Office of Information and Regulatory Affairs: Myths and Realities*, 126 HARV. L. REV. 1838, 1840-41 (2013).
151. Several observers have criticized OIRA for its opacity. For one recent account, see Peter L. Strauss, *The OIRA Transparency Problem*, YALE J. ON REG.: NOTICE & COMMENT (Nov. 22, 2016), <http://yalejreg.com/nc/the-oira-transparency-problem-by-peter-strauss> [<http://perma.cc/9FFH-UBU5>].
152. Stuart Shapiro, *Obama's Ozone Decision Shows Clearly Who's in Charge*, REG. REV. (Sept. 8, 2011), <http://www.theregreview.org/2011/09/08/obamas-ozone-decision-shows-clearly-whos-in-charge> [<http://perma.cc/2KCE-ZH92>] (noting that a 2011 return letter was the first one sent by the Obama Administration over two-and-a-half years of regulatory activity); see also SECTION ON ADMIN. LAW & REGULATORY PRACTICE, AM. BAR ASS'N, IMPROVING

On the one hand, the Obama Administration relied heavily on cost-benefit analyses to justify its expensive “first pillar” regulations like the Clean Power Plan¹⁵³ and “Phase 2” medium- and heavy-duty vehicle fuel efficiency standards,¹⁵⁴ pointing to the high social costs of greenhouse gas emissions. Even ostensibly nonclimate-related rules relied on careful regulatory justifications of environmental benefits. Consider the Mercury and Air Toxics Standards (MATS), an expensive air toxics regulation that caused extensive retirements of coal-fired power plants¹⁵⁵ and was portrayed by many as a stealth climate change regulation.¹⁵⁶ During litigation, the Obama Administration defended MATS by pointing to a vast array of regulatory “co-benefits” that supplemented the regulation’s primary benefits.¹⁵⁷ Regulations like the Clean Power Plan and MATS demonstrate that the Obama Administration very carefully used cost-benefit analyses to justify stricter climate change regulations and defend them from challenges.

On the other hand, I found mixed results in a review of regulatory impact assessments (RIAs) associated with rules submitted to OIRA in 2007 and 2015 by six departments and agencies: EPA, the DOE, the Department of Interior, the Department of Agriculture, the Department of Transportation (DOT), and

THE ADMINISTRATIVE PROCESS: A REPORT TO THE PRESIDENT-ELECT OF THE UNITED STATES 8 (2016) (exhorting the incoming administration to exercise openness and transparency in OIRA review).

153. *Regulatory Impact Analysis for the Clean Power Plan Final Rule*, U.S. ENVTL. PROTECTION AGENCY (2015), http://www3.epa.gov/ttnecas1/docs/ria/utilities_ria_final-clean-power-plan-existing-units_2015-08.pdf [<http://perma.cc/P9J4-4HV9>].
154. *Draft Regulatory Impact Analysis (RIA), Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2, Proposed Rule*, U.S. ENVTL. PROTECTION AGENCY & NAT’L HIGHWAY TRAFFIC SAFETY ADMIN. (2015), <http://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-0243> [<http://perma.cc/3SKB-BVKG>].
155. *EIA Electricity Generator Data Show Power Industry Response to EPA Mercury Limits*, U.S. ENERGY INFO. ADMIN. (July 7, 2016), <http://www.eia.gov/todayinenergy/detail.php?id=26972> [<http://perma.cc/757F-VEFU>].
156. See, e.g., Editorial, *The EPA’s War on Jobs*, WALL ST. J. (June 13, 2011), <http://www.wsj.com/articles/SB10001424052748703818204576206662079202844> [<http://perma.cc/VM7M-T6PX>].
157. See Brief for Respondent at 14, 56–57, *Michigan v. EPA*, 135 S. Ct. 2699 (2015) (No. 14-46). These co-benefits were primarily attributable to reductions in particulate emissions that occurred as an incident of controlling mercury emissions. *Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards*, ENVTL. PROTECTION AGENCY, at ES-1 (Dec. 2011), <http://www3.epa.gov/ttnecas1/regdata/RIAs/matsriafinal.pdf> [<http://perma.cc/5Q9D-6FBH>]; see also *Michigan v. EPA*, 135 S. Ct. 2699 (2015) (reviewing the MATS regulation and its cost-benefit analysis).

the Department of Veterans Affairs. Due to various limitations,¹⁵⁸ I was unable to conduct a full-fledged analysis. Nevertheless, I reached two valuable qualitative conclusions about the extent to which departments and agencies considered climate change in their RIAs.

First, even for regulations submitted to OIRA in 2015, the six federal departments and agencies varied greatly in whether and how much they considered climate change in their RIAs. This variance appeared to correspond to how much each agency's mission related to energy, environmental, and climate change issues. The DOE and EPA took climate change very seriously in their RIAs, consistently quantifying and monetizing emissions increases and reductions resulting from regulations.¹⁵⁹ The DOT considered climate change for

158. In this analysis, I attempted to code for the depth and extent of each agency's treatment of climate change in their regulatory impact analyses. However, I was not able to define categories that accurately reflected agencies' consideration of climate change, and I was not able to develop a satisfactory method for accounting for instances where agency consideration of climate change was evident in agency documents *other* than the regulatory impact analysis.

Additionally, I often had trouble discerning what document actually constituted the agency's RIA, and what set of documents was actually submitted to OIRA for review. Therefore, the assessment that follows is necessarily rough, and I caution against drawing strong conclusions from it.

159. As expected, the DOE and EPA engaged in extensive analyses of climate change-related benefits and costs. Nine of ten energy efficiency regulations proposed by DOE and reviewed by OIRA contained a monetization of climate benefits; the tenth contained a quantification of avoided emissions but not a monetization of benefits. For the nine rules, see Office of Energy Efficiency & Renewable Energy, *Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Commercial Warm Air Furnaces*, U.S. DEP'T ENERGY (Jan. 16, 2015), <http://www.regulations.gov/document?D=EERE-2013-BT-STD-0021-0012> [<http://perma.cc/2GUE-R6F7>]; Office of Energy Efficiency & Renewable Energy, *Technical Support Document: Energy Conservation Program for Consumer Products: Energy Conservation Standards for Hearth Products*, U.S. DEP'T ENERGY (Jan. 30, 2015), <http://www.regulations.gov/document?D=EERE-2014-BT-STD-0036-0002> [<http://perma.cc/2WB6-A7VU>]; Office of Energy Efficiency & Renewable Energy, *Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Residential Boilers*, U.S. DEP'T ENERGY (Mar. 12, 2015), <http://www.regulations.gov/document?D=EERE-2012-BT-STD-0047-0036> [<http://perma.cc/BPT5-FXRE>]; Office of Energy Efficiency & Renewable Energy, *Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Residential Furnaces*, U.S. DEP'T ENERGY (Feb. 10 2015), <http://www.regulations.gov/document?D=EERE-2014-BT-STD-0031-0027> [<http://perma.cc/H3GW-NWWS>]; Office of Energy Efficiency & Renewable Energy, *Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Residential Conventional Ovens*, U.S. DEP'T ENERGY (May 2015), <http://www.regulations.gov/document?D=EERE-2014-BT-STD-0005-0018> [<http://perma.cc/8YVP-NCG8>]; Office of Energy Efficiency & Renewable Energy, *Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Pumps*, U.S. DEP'T ENERGY (Dec. 2015), <http://www.regulations.gov>

/document?D=EERE-2011-BT-STD-0031-0056 [http://perma.cc/FB28-NDKN]; Office of Energy Efficiency & Renewable Energy, *Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Refrigerated Bottled or Canned Beverage Vending Machines*, U.S. DEP'T ENERGY (Dec. 22, 2015), <http://www.regulations.gov/document?D=EERE-2013-BT-STD-0022-0067> [http://perma.cc/G6Z2-T4VF]; Office of Energy Efficiency & Renewable Energy, *Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Residential Dehumidifiers*, U.S. DEP'T ENERGY (June 2016), <http://www.regulations.gov/document?D=EERE-2012-BT-STD-0027-0046> [http://perma.cc/LHJ9-K8RJ]; and Office of Energy Efficiency & Renewable Energy, *Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Ceiling Fans*, U.S. DEP'T ENERGY (Nov. 2016), <http://www.regulations.gov/document?D=EERE-2012-BT-STD-0045-0149> [http://perma.cc/4PKJ-FN5J].

For the tenth DOE rule, see Energy Efficiency Standards for New Federal Commercial and Multi-Family High-Rise Residential Buildings' Baseline Standards Update, 80 Fed. Reg. 68749, 68755 (Nov. 6, 2015).

The EPA considered climate change extensively in its air pollution regulations, which made up nearly two-thirds of its actions that were reviewed by OIRA. In addition to considering climate change in its explicitly climate-focused air pollution regulations like the Clean Power Plan, EPA monetized the value of incidental methane regulations that occurred along with municipal solid waste landfill regulations aimed at other pollutants; described and valued the *increased* emissions resulting from a regulation for air toxics from brick, structural clay, and clay ceramics manufacturing; and even tried to assess the climate consequences of black carbon soot from residential wood heaters and furnaces, notwithstanding that the climate consequences of black carbon soot were ill-understood by the agency. See *Draft Regulatory Impact Analysis (RIA), Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2, Proposed Rule*, U.S. ENVTL. PROTECTION AGENCY & NAT'L HIGHWAY TRAFFIC SAFETY ADMIN. (June 2015), <http://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-0243> [http://perma.cc/3R7G-NYP7]; *Regulatory Impact Analysis: Final Brick and Structural Clay Products NESHAP*, U.S. ENVTL. PROTECTION AGENCY (July 2011), http://www3.epa.gov/ttnecas1/docs/ria/nonmetallic-mineral_ria_final-brick-neshap_2015-07.pdf [http://perma.cc/L8SY-KDMM]; *Regulatory Impact Analysis for the Clean Power Plan Final Rule*, U.S. ENVTL. PROTECTION AGENCY (Oct. 23, 2015), http://www3.epa.gov/ttnecas1/docs/ria/utilities_ria_final-clean-power-plan-existing-units_2015-08.pdf [http://perma.cc/S424-QUYQ]; *Regulatory Impact Analysis for the Proposed Revisions to the Emission Guidelines for Existing Sources and Supplemental Proposed New Source Performance Standards in the Municipal Solid Waste Landfills Sector*, U.S. ENVTL. PROTECTION AGENCY (Aug. 2015), <http://www.regulations.gov/document?D=EPA-HQ-OAR-2003-0215-0135> [http://perma.cc/B33W-6ZX9]; *Regulatory Impact Analysis (RIA) for Residential Wood Heaters NSPS Revision: Final Report*, U.S. ENVTL. PROTECTION AGENCY (Feb. 2015), <http://www.regulations.gov/document?D=EPA-HQ-OAR-2009-0734-1789> [http://perma.cc/BB5C-47SH].

I did not find climate change considered in non-air regulations by the EPA during this period; however, the sample size is too small to understand whether this is a systematic problem or an incident of the few actions that happened to come before OIRA during this period. The EPA's internal guidelines for cost-benefit analysis make note of greenhouse gases and climate change-related costs and benefits, suggesting that there is an agency-wide priority on including climate change in cost-benefit analyses. Office of Policy, *Guidelines for*

regulations involving its physical assets, where the agency was concerned about climate-resilient infrastructure.¹⁶⁰ Interior, Agriculture, and Veterans Affairs were less attentive to climate change, ignoring climate change even for rules that clearly appeared to implicate climate change.¹⁶¹ This variance suggests that the Obama Administration either did not promote climate-consciousness through OIRA regulatory review at all, or that the Obama Administration's

Preparing Economic Analyses, U.S. ENVTL. PROTECTION AGENCY (Dec. 17, 2010), [http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0568-50.pdf/\\$file/EE-0568-50.pdf](http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0568-50.pdf/$file/EE-0568-50.pdf) [<http://perma.cc/65BZ-3MMC>].

160. The Department of Transportation (DOT) identified climate change as a key area of risk for its “Asset Management Plan,” but did not elaborate greatly. *An Analysis of the Economic and Non-Economic Costs and Benefits of Implementing MAP-21 Asset Management Plans and Related Provisions*, U.S. DEP’T TRANSP. (2015), <http://www.regulations.gov/document?D=FHWA-2013-0052-0001> [<http://perma.cc/JB4G-67TY>]. In a pipeline infrastructure rule that involved methane releases, the DOT also fully monetized the benefits of methane leakage prevention. Pipeline and Hazardous Materials Safety Admin., *Regulatory Impact Analysis: Pipeline Safety: Expanding the Use of Excess Flow Valves in Gas Distribution Systems to Applications Other than Single-Family Residences*, U.S. DEP’T TRANSP. (Oct. 2016), <http://www.regulations.gov/document?D=PHMSA-2011-0009-0049> [<http://perma.cc/7J66-7AXH>]. It appears that for the set of DOT rules that have major climate change implications, DOT—at the very least—describes climate change risks and monetizes mitigated emissions.
161. The Department of Veterans Affairs did not mention climate change at all in its RIAs, even though some regulatory actions—most notably an update to a “Caregivers Program” that implicated substantial numbers of vehicle miles traveled—had obvious climate change-related implications. Memorandum from Chief Impact Analyst, Office of Gen. Counsel, U.S. Dep’t of Veterans Affairs, to Dir., Regulations Mgmt., U.S. Dep’t of Veterans Affairs (Oct. 31, 2014), <http://www.regulations.gov/document?D=VA-2014-VHA-0022-0002> [<http://perma.cc/6LBX-ME52>]. The Department of Interior was similarly inattentive to climate change. For example, in an RIA relating to a rule about stimulation of oil and gas wells—an activity that can lead to substantial direct emissions as well as downstream emissions—the Department of Interior made no mention of climate change. *Well Stimulation Proposed Rule: Economic Analysis and Initial Regulatory Flexibility Analysis*, U.S. BUREAU LAND MGMT. (2012), <http://www.regulations.gov/document?D=BLM-2012-0001-0003> [<http://perma.cc/M5C9-APMK>]. In regulations about the hunting of migratory birds, the Department again made no mention of how climate change may affect migratory birds. Division of Econ., *Economic Analysis of the Migratory Bird Hunting Regulations for the 2013-2014 Season*, FISH & WILDLIFE SERV. (Aug. 2013), <http://www.regulations.gov/document?D=FWS-HQ-MB-2014-0064-0011> [<http://perma.cc/C2VF-42T3>].

As for the U.S. Department of Agriculture (USDA), the Department made cursory mentions of carbon sequestration with respect to conservation easements. However, USDA made no attempt to quantify or monetize these associated benefits. Farm Serv. Agency, *Cost-Benefit Assessment: Conservation Reserve Program Interim Rule*, U.S. DEP’T AGRIC. (June 18, 2015), <http://www.regulations.gov/document?D=CCC-2015-0006-0002> [<http://perma.cc/5LXX-HPPC>]; Nat. Res. Conservation Serv., *Regulatory Impact Analysis for the Agriculture Conservation Easement Program*, U.S. DEP’T AGRIC. (Feb. 13, 2015), <http://www.regulations.gov/document?D=NRCS-2014-0011-0005> [<http://perma.cc/5HJS-QXPG>].

effort was imperfect and only reached agencies that were already susceptible to climate-consciousness.

Second, even for regulations submitted to OIRA for review in 2007, climate change was not entirely absent from RIAs. The Department of Energy (DOE) made particularly ambitious efforts to quantify emissions reductions in its energy efficiency regulations, making such assessments in four of five RIAs for 2007.¹⁶² In fact, the RIA for one regulation attempted to monetize emissions reductions,¹⁶³ a difficult task given high uncertainty about the social cost of greenhouse gas emissions at the time.¹⁶⁴ Considering that the George W. Bush Administration was noted for its suppression of climate science,¹⁶⁵ these RIAs suggest that imperfect presidential control permitted professional staff in the DOE to continue considering climate change when estimating regulatory benefits. This gestures towards the possibility that, even under President Trump, agencies may continue to consider climate change in measuring costs and benefits.

The analysis in this Section leaves an unclear picture. Although Sunstein and others have publicly stated that embedding climate change in cost-benefit analyses was a key priority for the Obama Administration,¹⁶⁶ agencies under the Obama Administration appear to have varied greatly in the depth and extent to which they considered climate change. Yet the Obama Administration's use of cost-benefit analyses to justify its climate change regulations suggests

162. For the four rules that make such a quantification, see Energy Conservation Standards for Certain Consumer Products, 74 Fed. Reg. 16040, 16078-80 (Apr. 8, 2009); Energy Conservation Program for Commercial and Industrial Equipment, 74 Fed. Reg. 1092, 1094 (Jan. 6, 2009); *Environmental Assessment for Today's Energy Conservation Standards for Residential Furnaces and Boilers*, U.S. DEP'T ENERGY (Sept. 2007), <http://www.regulations.gov/document?D=EERE-2006-STD-0102-0211> [<http://perma.cc/BK2W-YXA8>]; and Energy Conservation Standards for New Federal Commercial and Multi-Family High-Rise Residential Buildings and New Federal Low-Rise Residential Buildings, 71 Fed. Reg. 70275, 70280 (Dec. 4, 2006).

For the rule that did not consider climate change, see *Regulatory Impact Analysis for Energy Conservation Standards for Distribution Transformers*, U.S. DEP'T ENERGY (July 2007), <http://www.regulations.gov/document?D=EERE-2006-STD-0099-0252> [<http://perma.cc/66XN-XEFZ>].

163. Energy Conservation Program: Energy Conservation Standards for Certain Consumer Products, 74 Fed. Reg. at 16078-80.

164. See *infra* note 182 and accompanying text.

165. See *supra* note 146 and accompanying text.

166. See, e.g., Michael Greenstone & Cass R. Sunstein, *Donald Trump Should Know: This Is What Climate Change Costs Us*, N.Y. TIMES (Dec. 15, 2016), <http://www.nytimes.com/2016/12/15/opinion/donald-trump-should-know-this-is-what-climate-change-costs-us.html> [<http://perma.cc/9HQZ-BT5X>].

that the Obama Administration was at least cognizant of the relationship between cost-benefit analyses and climate-consciousness. Moreover, as argued in the next Section, the Obama Administration expended substantial effort on scientific tools to facilitate the consideration of climate change in cost-benefit analyses. On balance, Obama Administration likely used OIRA—at least to some extent—as part of the “fourth pillar.”

The varying degree to which agencies considered climate change in cost-benefit analyses suggests that some agencies were more prepared than others to consider climate change in regulatory design and policy analyses. Agencies needed scientific tools and resources to lower the analytical burden associated with climate-consciousness. The next Section argues that the Obama Administration attempted to provide such resources by expanding the scope of policy-relevant government science on climate change.

5. *Authoritative Scientific Resources*

The Obama Administration greatly expanded the scope of government climate change research and protected the integrity of scientific processes, shifting from the Bush Administration’s practice of discouraging and interfering with climate science.¹⁶⁷

The Obama Administration promoted many different climate change research programs, ranging from the impacts of climate change on individual species¹⁶⁸ to large-scale assessments of the United States’ vulnerability to climate change. This Section focuses on two of these programs—the National Climate Assessment (NCA) process by the U.S. Global Change Research Program (GCRP) and estimates of the social cost of carbon (SCC) by the Interagency Working Group on the Social Cost of Carbon (IWG-SCC). Both projects produced useful information that aided government agencies in climate-conscious governance, supporting the Obama Administration’s broader climate change efforts. Moreover, both programs underline the extent to which the

167. This was discussed briefly in the discussion of “scientific integrity” in the previous Section. See *supra* text accompanying notes 145-146. For example, in 2006, Dr. James Hansen—then-director of NASA’s Goddard Institute—spoke out against the Bush Administration’s suppression of climate scientists in a highly publicized article in the *New York Times*. Andrew C. Revkin, *Climate Expert Says NASA Tried To Silence Him*, N.Y. TIMES (Jan. 29, 2006), <http://www.nytimes.com/2006/01/29/science/earth/climate-expert-says-nasa-tried-to-silence-him.html> [http://perma.cc/SGW4-6RNN].

168. See, e.g., *Alaska Oil & Gas Ass’n v. Pritzker*, 840 F.3d 671, 676-79 (9th Cir. 2016) (detailing government scientists’ work to determine whether a species of seal would be vulnerable to extinction due to future climatic conditions).

Obama Administration's fourth pillar leveraged and relied on scientific and technical expertise.

The Obama Administration breathed life into the dormant NCA program. In 1990, Congress passed the Global Change Research Act,¹⁶⁹ which established the GCRP and charged it with conducting "assessments every four years that 'analyze[] current trends in global change.'"¹⁷⁰ After a hiatus during the George W. Bush Administration, a federal district court in 2007 issued a mandamus order for the GCRP to conduct its statutorily mandated assessments.¹⁷¹ Following this order, the GCRP in 2009 issued the Second NCA after a truncated two-year production process.¹⁷² Although the Assessment—at over 180 pages long—provided a sound overview of climate change impacts in the United States, the Third NCA, released in 2014, dwarfed the Second NCA.¹⁷³ The Third NCA, *Climate Change Impacts in the United States*, required "a three-year analytical effort by a team of over 300 experts."¹⁷⁴ The Third NCA was the product of a range of expert bodies, including the National Research Council (NRC) and the National Academy of Sciences (NAS). That broad consultative effort "establish[ed] a strong base that government at all levels of U.S. society can use in responding" to the demands of climate change.¹⁷⁵

The Third NCA provided detailed sector-specific projections of climate impacts, thorough assessments of how climate change would affect activities in different regions, and a rough assessment of how different climate policies would mesh together. The breadth of the Third NCA reflected the Obama Administration's strong support for the GCRP: President Obama increased GCRP funding by forty-five percent over eight years¹⁷⁶ despite attacks from

169. Pub. L. No. 101-606, 104 Stat. 3096 (1990) (codified at 15 U.S.C. §§ 2921-2691(2012)).

170. *Connecticut v. Am. Elec. Power Co.*, 406 F. Supp. 2d 265, 269 (S.D.N.Y. 2005) (quoting 15 U.S.C. § 2936(3) (2000)).

171. *See* *Ctr. for Biological Diversity v. Brennan*, 571 F. Supp. 2d 1105 (N.D. Cal. 2007).

172. Thomas R. Karl et al., *Global Climate Change Impacts in the United States*, U.S. GLOBAL CHANGE RES. PROGRAM (2009), <http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf> [<http://perma.cc/T7Q9-5QVZ>].

173. Jerry M. Melillo et al., *Climate Change Impacts in the United States: The Third National Climate Assessment*, U.S. GLOBAL CHANGE RES. PROGRAM (2014), http://s3.amazonaws.com/nca2014/low/NCA3_Climate_Change_Impacts_in_the_United%20States_LowRes.pdf [<http://perma.cc/MDE8-SV2Q>].

174. *Id.* at iii.

175. *Id.*

176. Flavelle, *supra* note 109.

Republican members of Congress.¹⁷⁷ The Obama Administration also took serious steps to publicize the release of the Third NCA, organizing interviews in the Rose Garden between President Obama and major news organizations' meteorologists to bring attention to the NCA's findings.¹⁷⁸ Following the release of the Third NCA, the Obama Administration continued to support the GCRP by supporting the drafting process for the Fourth NCA.¹⁷⁹ The Fourth NCA process continued to build upon the Third NCA by compiling greater research on the relationship between climate change and human health and developing even more regionally tailored information for decisionmakers.¹⁸⁰ By providing the NCA process with resources and protecting it from political interference, the Obama Administration was able to put scientific, technical, and economic expertise at the fore, producing accurate and useful information that both justified and facilitated climate-consciousness for decisionmakers both within and without government.

In addition to these broad national assessments, the Obama Administration commissioned studies to address narrower issues.¹⁸¹ Perhaps the most important effort involved the SCC, an estimate of the present value of the social cost associated with each marginal unit of carbon dioxide emissions. The SCC is important for climate-consciousness because it allows agencies to estimate the monetary value of increased or reduced carbon emissions, allowing them to project the long-term effects of climate change in their cost-benefit analyses.

As documented by Jonathan Masur and Eric Posner, early attempts to estimate the SCC led to poorly constrained results, with estimates that ranged be-

177. See, e.g., Michael Bastasch, *Rand Paul Slams Obama for Wasting Billions on Duplicative Global Warming Research*, DAILY CALLER (Apr. 25, 2016, 5:44 PM), <http://dailycaller.com/2016/04/25/rand-paul-slams-obama-for-wasting-billions-on-duplicative-global-warming-research> [<http://perma.cc/BW85-MZZR>] (hailing Senator Rand Paul's opposition to climate change research funding).

178. Andrew Freedman, *Obama Taps TV Meteorologists To Roll Out New Climate Report*, MASHABLE (May 5, 2014), <http://mashable.com/2014/05/05/white-house-climate-report-meterologists> [<http://perma.cc/L4D9-NFJG>].

179. As one marker of this support, during the final weeks of the Obama Administration, the White House released a draft of the Fourth NCA and explained the state of the GCRP's research efforts. Tamara Dickinson & Michael Kuperberg, *Providing the Foundation for the Fourth National Climate Assessment*, WHITE HOUSE (Dec. 22, 2016, 9:37 AM), <http://obamawhitehouse.archives.gov/blog/2016/12/22/providing-foundation-national-climate-assessment> [<http://perma.cc/H8CU-EVKY>].

180. *Id.*

181. See, e.g., Patricia K. Quinn et al., *AMAP Assessment 2015: Black Carbon and Ozone as Arctic Climate Forcers*, ARCTIC MONITORING & ASSESSMENT PROGRAMME (2015), <http://www.amap.no/documents/download/2506> [<http://perma.cc/XA8L-XN2G>].

tween \$0 and \$68 per ton of carbon dioxide emissions.¹⁸² This meant that federal agencies struggled to place a value on emissions increases or reductions when evaluating their decisions. Consequently, the Obama OMB in 2009 convened the IWG-SCC, which derived an authoritative SCC figure that federal agencies could use in regulatory processes.¹⁸³

The IWG-SCC's valuation model relied on three common integrated assessment models (IAMs) for climate change, undergirded by relatively simple macroeconomic models. The IAMs estimated greenhouse gas emissions as a function of economic growth and the expected carbon intensity of economic output.¹⁸⁴ The resulting estimates were monetized into social costs by applying functions for the effects of emissions on global temperature and the effects of global temperature changes on climate-induced damage to society.¹⁸⁵ The IWG-SCC's model produced a shadow price for carbon that stretched four decades into the future.¹⁸⁶ Notably, the IWG-SCC declined to specify an appropriate discount rate for climate-induced costs and benefits,¹⁸⁷ sidestepping a contentious scholarly debate about such discount rates.¹⁸⁸

Of course, as Masur and Posner observe, the IWG-SCC's methodology was flawed in many respects.¹⁸⁹ First, the IWG-SCC's method produced a global

182. Jonathan S. Masur & Eric A. Posner, *Climate Regulation and the Limits of Cost-Benefit Analysis*, 99 CALIF. L. REV. 1557, 1560-61 (2011).

183. *EPA Fact Sheet: Social Cost of Carbon*, U.S. ENVTL. PROTECTION AGENCY (Dec. 2015), <http://www.arb.ca.gov/regact/2016/capandtrade16/attach11.pdf> [<http://perma.cc/VQE3-46TJ>].

184. Masur & Posner, *supra* note 182, at 1578.

185. *Id.*

186. *Id.* at 1579.

187. *Id.*

188. There is a robust debate in the economics literature. Economists generally wrestle over the so-called "Ramsey equation," which attempts to account for returns on capital, risk aversion, and pure rates of time preference. The most famous controversy erupted in the late 2000s between Lord Nicholas Stern and William Nordhaus. See generally William D. Nordhaus, *A Review of the Stern Review on the Economics of Climate Change*, 45 J. ECON. LITERATURE 686 (2007) (responding to Lord Stern).

Of course, there is a closely related debate in the non-economic literature about discounting, including a controversy as to whether discounting is justifiable at all. See David Leonhardt, *A Battle over the Costs of Global Warming*, N.Y. TIMES (Feb. 21, 2007), <http://www.nytimes.com/2007/02/21/business/21leonhardt.html> [<http://perma.cc/2N7H-FUTM>]; Will Oremus, *How Much Is the Future Worth?*, SLATE: FUTURE TENSE (Sept. 1, 2017), http://www.slate.com/articles/technology/future_tense/2017/09/how_social_discounting_helps_explain_why_we_dont_prepare_for_disasters.html [<http://perma.cc/RC6F-5FTS>].

189. Masur & Posner, *supra* note 182, at 1580-88.

SCC—which accounted for the social cost imposed by domestic emissions on all countries instead of only the United States—raising questions about the relevant measurement of damages.¹⁹⁰ Second, the IWG-SCC’s underlying models relied on relatively simple and optimistic assumptions that overlooked the possibility of catastrophic consequences of climate change.¹⁹¹ This concern has been rendered more salient by recent studies suggesting that catastrophic climate impacts may be highly correlated,¹⁹² enhancing the right-skewed “fat-tailedness” of the risk distribution for climate change.¹⁹³ Third, the IWG-SCC’s method assumed that climate change decision making should apply a principle of risk-neutrality, not risk-averseness.¹⁹⁴ The flaws with the IWG-SCC were potentially serious, leading to the possible under- or overestimation of the social cost of carbon.

The IWG-SCC’s model was nevertheless useful to agencies because it provided a reasonable SCC figure that removed the burden of estimation from agencies and aggregated authoritative scientific knowledge. Federal agencies,

190. *Id.* at 1588.

191. *Id.* at 1580-85. For example, recent studies have raised severe concerns about a possible shutdown of the Atlantic Meridional Overturning Circulation (AMOC), a large-scale ocean current that moves heat from Earth’s equatorial regions to its poles. See, e.g., Ruth Curry & Cecilie Mauritzen, *Dilution of the Northern North Atlantic Ocean in Recent Decades*, 308 *SCIENCE* 1772 (2005); James Hansen et al., *Ice Melt, Sea-Level Rise and Superstorms: Evidence from Paleoclimate Data, Climate Modeling, and Modern Observations that 2°C Global Warming Could Be Dangerous*, 16 *ATMOSPHERIC CHEMISTRY & PHYSICS* 3761 (2016) (using multiple lines of evidence to argue, in part, that a shutdown of the AMOC is more likely than commonly thought); Wei Liu et al., *Overlooked Possibility of a Collapsed Atlantic Meridional Overturning Circulation in Warming Climate*, *SCI. ADVANCES*, Jan. 4, 2017, at 1 (applying a revised ice melt model to study the possibility of an AMOC shutdown).

192. See, e.g., Yongyang Cai et al., *Risk of Multiple Interacting Tipping Points Should Encourage Rapid CO₂ Emissions Reduction*, 6 *NATURE CLIMATE CHANGE* 520 (2016), <http://www.nature.com/nclimate/journal/v6/n5/pdf/nclimate2964.pdf> [<http://perma.cc/3DM9-K2XJ>] (advocating for policymakers to thoroughly consider the possibility of tipping points that are highly correlated with each other).

193. Martin L. Weitzman, *On Modeling and Interpreting the Economics of Catastrophic Climate Change*, 91 *REV. ECON. STAT.* 1, 2 (2009) (arguing that the “extreme-negative-impact fat tail” of the probability density function for climate change damages should counsel policymakers to treat climate change as a policy problem akin to insuring against a catastrophic risk, not as a problem of smoothing consumption over time subject to a discount rate); *id.* at 5-6 (extrapolating upon the highly uncertain social damages that could be imposed by extreme global warming); *id.* at 10-13 (describing a “dismal theorem,” where a public problem like climate change may lead to unlimited risk exposure). *But see* William D. Nordhaus, *An Analysis of the Dismal Theorem* 8-16 (Cowles Found., Working Paper No. 1686, 2009) (critiquing the assumptions that undergird Weitzman’s “dismal theorem”).

194. Masur & Posner, *supra* note 182, at 1581.

most notably departments like DOE that had previously struggled to establish and justify a SCC figure,¹⁹⁵ made liberal use of the IWG-SCC's estimates.¹⁹⁶ Further, as discussed in Section II.A and Part IV, the IWG-SCC's estimates survived judicial scrutiny and meshed well with federal courts' demands for economically rigorous regulatory analyses. Despite its flaws, courts trusted the IWG-SCC's estimates as a good-faith effort that was untainted by political interference, again underlining the importance of the Obama Administration's respect for scientific, technical, and economic knowledge.

In sum, the Obama Administration encouraged serious and policy-relevant scientific efforts. This accorded with the Obama White House's general treatment of government science as a foundation for evidence-informed decisions, not as a tool that provided a veneer of rationality for politically motivated judgments. This insistence on scientific integrity responded to a judicial demand for rigorous and politically untainted agency reasoning about climate change and contradicted Congress's unscientific denial of climate change. Consequently, the Trump Administration may find it difficult to repudiate efforts advanced by the Obama Administration if pro-environmental litigants invoke Obama-era government science to defend climate-conscious policies.¹⁹⁷

6. *Defense Planning*

The Department of Defense (DOD) and U.S. Armed Forces have exhibited a mature form of climate-consciousness, which demonstrates that climate-consciousness is strengthened not only by scientific effort but also by repeated practice. Deeply ingrained climate-consciousness in the defense community preceded the Obama Administration, continued to develop during the Obama presidency,¹⁹⁸ and — as discussed in Section IV.C — has persisted into the Trump presidency. Yet the DOD and U.S. Armed Forces are also special areas of the federal government where presidential control is at its strongest, raising the possibility that a tension will emerge between a well-established culture of climate-consciousness and a climate-unconscious Commander-in-Chief.

195. See *supra* notes 163-164 and accompanying text.

196. See *supra* note 159.

197. See *infra* Section IV.B.

198. See, e.g., Danny Vinik, *Why the GOP Is Trying To Stop the Pentagon's Climate Plan*, POLITICO (June 23, 2016, 5:21 AM), <http://www.politico.com/agenda/story/2016/06/republicans-trying-to-stop-pentagon-climate-plan-000149> [<http://perma.cc/HNQ5-MGFM>] (noting that the DOD has been at the “vanguard” of federal departments and agencies in addressing climate change).

The DOD and U.S. Armed Forces were early movers on climate change. As early as 1990, the Naval War College studied the impacts of climate change on naval infrastructure and operations.¹⁹⁹ By 2003, the DOD had begun to study the security implications of extreme climate change scenarios.²⁰⁰ This approach continued into the Obama Administration. In 2008, the DOD included climate change in its National Defense Strategy,²⁰¹ and in 2010, the DOD spent much of its Quadrennial Defense Review discussing the implications of climate change, describing it as an “accelerant of instability or conflict.”²⁰² A 2014 speech delivered by Defense Secretary Chuck Hagel to announce the DOD’s “Climate Change Adaptation Roadmap” illustrated the military’s outlook on climate change:

Climate change is a “threat multiplier” . . . because it has the potential to exacerbate many of the challenges we already confront today – from infectious disease to armed insurgencies—and to produce new challenges in the future

[C]limate trends will clearly have implications for our militaries. A higher tempo and intensity of natural disasters could demand more support for our civil authorities, and more humanitarian assistance and relief. Our coastal installations could be vulnerable to rising shorelines and flooding, and extreme weather could impair our training ranges, supply chains, and critical equipment. Our militaries’ readiness could be tested, and our capabilities could be stressed.²⁰³

By this time, the military’s focus had long moved beyond preparing facilities and equipment for the impacts of climate change. The DOD and U.S.

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199. Terry P. Kelley, *Global Climate Change: Implications for the United States Navy*, U.S. NAVAL WAR C. 9-25 (May 1990), <http://documents.theblackvault.com/documents/weather/climatechange/globalclimatechange-navy.pdf> [<http://perma.cc/P4SY-Q64Q>].
200. Peter Schwartz & Doug Randall, *An Abrupt Climate Change Scenario and Its Implications for United States National Security*, CAL. INST. TECH. JET PROPULSION LAB (Oct. 2003), <http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA469325> [<http://perma.cc/AUF5-9M6S>].
201. *National Defense Strategy*, U.S. DEP’T DEF. 5 (2008), <http://archive.defense.gov/pubs/2008NationalDefenseStrategy.pdf> [<http://perma.cc/SQ2L-GZAS>].
202. *Quadrennial Defense Review Report*, U.S. DEP’T DEF. 85 (2010), http://www.defense.gov/Portals/1/features/defenseReviews/QDR/QDR_as_of_29JAN10_1600.pdf [<http://perma.cc/U9RX-YJ5N>].
203. Chuck Hagel, U.S. Sec’y of Def., Speech at Conference of the Defense Ministers of the Americas (Oct. 13, 2014), <http://www.defense.gov/Speeches/Speech.aspx?SpeechID=1893> [<http://perma.cc/5BBY-VDCV>].

Armed Forces had come to see climate change as a key strategic issue—even incorporating climate change into the curricula of military academies.²⁰⁴ A 2015 DOD response to a congressional inquiry revealed that most of the U.S. military’s combatant commands had already started to integrate climate change into their training, planning, engagement with foreign forces, data analyses, and disaster response planning.²⁰⁵ By the end of President Obama’s second term, there was a growing recognition among the administration’s national security and foreign policy officials that climate change contributed to the Syrian Civil War²⁰⁶ and the rise of Boko Haram in Nigeria,²⁰⁷ further heightening climate-consciousness in the Pentagon.

Although the DOD and U.S. Armed Forces were deeply engaged with climate change before President Obama’s tenure, the Obama Administration continued to advance the issue. The Obama Administration underscored the importance of climate change with directives like the 2015 National Security Strategy²⁰⁸ and the 2016 presidential memorandum on “Climate Change and National Security,”²⁰⁹ established a “Climate and National Security Working Group” to promote interagency cooperation on climate change issues across the DOD, the intelligence community, and the military;²¹⁰ and subjected the Pen-

204. Ian Duncan, *For Naval Academy, Climate Change Is a Challenge Both Global and Local*, BALT. SUN (July 17, 2017, 9:13 PM), <http://www.baltimoresun.com/news/maryland/bs-md-naval-climate-change-20150717-story.html> [<http://perma.cc/8QHZ-FE6L>].

205. *National Security Implications of Climate-Related Risks and a Changing Climate*, U.S. DEP’T DEF. (July 23, 2015), <http://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf> [<http://perma.cc/VR6U-772H>].

206. See, e.g., *Climate Change Intensifies Conflicts, John Kerry Says*, AL JAZEERA (Nov. 11, 2015), <http://www.aljazeera.com/news/2015/11/kerry-political-crises-linked-climate-change-15110190932931.html> [<http://perma.cc/ZU6Y-CXDC>]; Dan Merica, *Hillary Clinton: Climate Change Has Contributed to Refugee Crises, Including Syria*, CNN (Nov. 4, 2015, 12:29 PM), <http://www.cnn.com/2015/11/04/politics/hillary-clinton-climate-change-syria-refugee-crises> [<http://perma.cc/5Y93-Y6FE>]; see also John Wendle, *The Ominous Story of Syria’s Climate Refugees*, SCI. AM. (Dec. 17, 2015), <http://www.scientificamerican.com/article/ominous-story-of-syria-climate-refugees> [<http://perma.cc/X3LT-YBMG>] (explaining how climate change exacerbated civil unrest).

207. *Climate Change Intensifies Conflicts, John Kerry Says*, *supra* note 206.

208. *The 2015 National Security Strategy*, WHITE HOUSE (Feb. 2015), http://obamawhitehouse.archives.gov/sites/default/files/docs/2015_national_security_strategy_2.pdf [<http://perma.cc/M7XA-XXDD>].

209. Memorandum from President Barack Obama to Heads of Exec. Dep’ts & Agencies (Sept. 21, 2016), <http://obamawhitehouse.archives.gov/the-press-office/2016/09/21/presidential-memorandum-climate-change-and-national-security> [<http://perma.cc/L7QT-C2SB>].

210. *Id.*; Lynne Howard, *Obama Presidential Memorandum Sought To Embed Climate Change Impacts into National Security Planning*, 42 COLUM. J. ENVTL. L. 1, 1-5 (2017).

tagon to its climate-related executive orders. Together, these actions amplified climate-consciousness in the military bureaucracy and instilled the White House's vision of climate-conscious decision making.

More importantly, the DOD was receptive. For example, the Pentagon in January 2016 issued Directive 4715.21, "Climate Change Adaptation and Resilience," as a direct response to President Obama's orders on climate change adaptation and resilience.²¹¹ Although the Directive "received little coverage when it was first published," some military experts believed that the Directive took "a critical step toward streamlining" the DOD's climate preparedness initiatives by establishing a clear chain of command and allocating responsibilities for climate responses.²¹² In other words, the Directive ensured that the DOD's climate change initiatives progressed in a structured and organized fashion.

As climate-consciousness has advanced in the Pentagon and U.S. Armed Forces, leaders have realized both climate-related and nonclimate-related benefits. For example, the Navy's emissions reductions initiative is expected to reduce its vulnerability to disruptions in fossil fuel supply chains and its bases' vulnerability to cyberattacks against electrical grids. The Navy's effort to adapt to a melting Arctic Ocean by building additional icebreakers is expected to enhance the Navy's ability to serve as a geopolitical counterweight to Russia.²¹³ In this manner, climate-consciousness may serve as a self-reinforcing phenomenon once it reaches a critical point, as decisionmakers themselves begin to understand the importance of climate-consciousness.

Thus, President Obama inherited a DOD and U.S. Armed Forces that had already started to take climate change seriously and encouraged them to continue. The defense community—more than any other part of government—embodied a highly developed form of climate-consciousness formed through years of practice, in which decisionmakers accepted and considered climate change as a key issue for both long-term strategies and day-to-day operations. The DOD and U.S. Armed Forces, then, may demonstrate that climate-consciousness—once instilled—may simply become regularized practice.

211. DOD Directive 4715.21: *Climate Change Adaptation and Resilience*, U.S. DEP'T DEF. (2016), <http://www.defense.gov/Portals/1/Documents/pubs/471521p.pdf> [<http://perma.cc/XG3Y-J3QX>].

212. Vinik, *supra* note 198.

213. See Forest L. Reinhardt & Michael W. Toffel, *Managing Climate Change: Lessons from the U.S. Navy*, HARV. BUS. REV. (July-Aug. 2017), <http://hbr.org/2017/07/managing-climate-change> [<http://perma.cc/96UF-XK8X>].

D. The Fourth Pillar: A Novel Aggregation of Presidential Tools

President Obama's fourth pillar, viewed as an interconnected whole, was remarkable for employing a broad array of tools. Three important trends may be derived from this Part's descriptive account of these tools.

First, and perhaps most importantly, President Obama's fourth pillar was deeply reliant on sound scientific, technical, and economic information. As noted in Section I.C.5, the Obama Administration heavily supported government research into climate change, and as noted in Section I.C.4, President Obama made clear—from the first months of his presidency—that administrative decision making should respect scientific integrity. This emphasis on science was evident even in President Obama's personal approach to grappling with climate change. In an interview about climate change near the end of his presidency, he demonstrated granular knowledge and deep thinking about climate change and noted his particular interest in climate data presented by his science advisor, John Holdren.²¹⁴ This rigorous approach to dealing with climate change, which was reflected at the highest levels of the Obama Administration, was reflected in all aspects of the fourth pillar and was consonant with a judicial demand for reasoned and technically sound administration.

Second, the Obama Administration's fourth pillar placed a heavy emphasis on bottom-up implementation in response to top-down presidential directives and incentives. From a top-down perspective, the fourth pillar issued binding mandates enforced through centralized regulatory and budgetary oversight. From a bottom-up perspective, the fourth pillar encouraged departments and agencies to develop their own sustainability plans, seek funding for climate change efforts with billions of dollars of appropriations concealed in the federal budget, assess the environmental impacts of their actions through NEPA, and apply government science to pursue more sustainable outcomes. This moderate approach reflects a delicate balance between controlling and co-opting agencies, reflecting the Obama Administration's objective of embedding climate-consciousness throughout executive-branch practice instead of treating it as a purely presidential priority. As demonstrated by the DOD, U.S. Armed Forces, and the DOE, this sort of bottom-up climate-consciousness may be more resistant to changes in political leadership. Moreover, such bottom-up buy-in may be necessary given the sheer vastness of the federal bureaucracy relative to the President's powers of presidential administration.

Third, the Obama Administration's fourth pillar exhibited a mixed record on transparency. The Obama Administration's approach to centralized regula-

214. Davis et al., *supra* note 20.

tory review, for example, was even more opaque than that of previous Presidents.²¹⁵ The Obama OMB obscured climate change initiatives with budgetary machinations.²¹⁶ By contrast, the Obama Administration was surprisingly transparent about its efforts to further integrate climate change planning in the national security context: President Obama²¹⁷ and other senior administration officials²¹⁸ extensively used their bully pulpits to draw public attention to climate-and-security issues. This selective publicization of the national security consequences of climate change may have reflected the Obama Administration's awareness of the deep partisan polarization on climate change,²¹⁹ as well as the hope that a national security-oriented framing would be persuasive in conveying the seriousness of climate change.²²⁰ Yet as discussed in Part III, the fourth pillar may have been insulated from political pressure due to its low political salience and not its selective opacity.

As observed throughout this Note, the fourth pillar was complex and varied, but it was remarkably consistent in its emphasis on scientific, technical, and economic knowledge. As discussed in the next Part, these persistent attributes of the fourth pillar answered a judicial demand for high-quality administrative reasoning on climate change, which provided room for the Obama Administration to instill climate-consciousness and may protect climate-consciousness from politicized interference under the Trump Administration.

II. A JUDICIAL DEMAND FOR SCIENTIFIC INTEGRITY

The previous Part argued that President Obama's fourth pillar protected scientific integrity and promoted scientific efforts. This Part briefly explains

215. See *supra* note 152 and accompanying text.

216. See *supra* text accompanying notes 109-110.

217. Susan Jones, *Obama at West Point: "Effort To Combat Climate Change . . . Will Help Shape Your Time in Uniform,"* CNS NEWS (May 29, 2014, 7:24 AM), <http://www.cnsnews.com/news/article/susan-jones/obama-west-point-effort-combat-climate-changewill-help-shape-your-time> [<http://perma.cc/WXU4-ARM2>].

218. Steve Almasy, *John Kerry: Climate Change as Big a Threat as Terrorism, Poverty, WMDs*, CNN (Feb. 17, 2014, 8:42 AM), <http://www.cnn.com/2014/02/16/politics/kerry-climate> [<http://perma.cc/NLD2-URPQ>].

219. See Cary Funk & Brian Kennedy, *The Politics of Climate*, PEW RES. CTR. (Oct. 4, 2016), <http://www.pewinternet.org/2016/10/04/the-politics-of-climate> [<http://perma.cc/ACX4-EM6D>].

220. *But see* Jack Zhou, *Boomerangs Versus Javelins: How Polarization Constrains Communication on Climate Change*, 25 ENVTL. POL. 788 (2016) (finding that polarization may render climate change communications that use a national security framing ineffective).

that where climate-conscious presidential administration resulted in judicially reviewable outcomes, the Obama Administration's climate-consciousness efforts mirrored judicial precedents that encouraged administrative uses of scientific, technical, and expert knowledge. Especially when viewed in light of the Supreme Court's decision in *Massachusetts v. EPA*, the Obama Administration's initiatives appeared to respond to a judicial demand to give scientifically sound, apolitical reasons for climate change-related decisions.

This Part explains how the Obama Administration's fourth pillar responded to three lines of caselaw: first, judicial acceptance of authoritative scientific assessments like the NCA and the IWG-SCC's SCC estimates; second, judicial treatment of climate change under NEPA; and third, decisions that heightened the importance of considering costs and benefits in reasoned decision making. As will be discussed in Part IV, all three lines of caselaw may contribute to the fourth pillar's durability during the Trump presidency.

A. *Judicial Treatment of Scientific Assessments on Climate Change*

The Obama Administration benefited from a judiciary that had begun to recognize the gravity of climate change as a public issue and was wary of political interference with government science.

Traditionally, reviewing courts have entrusted factual findings about contested scientific issues to administrative agencies.²²¹ For issues like climate change, a highly complex phenomenon whose components involve varying degrees of certainty,²²² adjudicating the validity of agency judgments is difficult. Two lines of precedent illuminate this area of law, with the first line addressing

221. See, e.g., *Am. Elec. Power Co. v. Connecticut*, 564 U.S. 410, 428 (2011) ("The expert agency is surely better equipped to do the job than individual district judges issuing ad hoc, case-by-case injunctions. Federal judges lack the scientific, economic, and technological resources an agency can utilize in coping with issues of this order.") (citing *Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 865-66 (1984)); *Citizens To Pres. Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416 (1971) ("Although this inquiry into the facts is to be searching and careful, the ultimate standard of review is a narrow one. The court is not empowered to substitute its judgment for that of the agency.").

222. For example, the Intergovernmental Panel on Climate Change (IPCC) states that "[w]arming of the climate system is unequivocal." *Climate Change 2013: The Physical Science Basis: Summary for Policymakers*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 4 (2013), http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf [http://perma.cc/YWM9-ETDE]. However, the IPCC is less certain about other attributes of climate change. For example, the IPCC only has "[l]ow confidence" in its assessment that there have been global "[i]ncreases in intense tropical cyclone activity." *Id.* at 7.

matters at the frontiers of science and the second line addressing well-settled knowledge.

First, the Court in *Baltimore Gas & Electric Co. v. NRDC* required particularly strong deference where agencies act within their areas of expertise in matters that lie “at the frontiers of science.”²²³ The Court’s judgment echoed the D.C. Circuit’s en banc judgment in *Ethyl Corp. v. EPA*, where the court found that for issues on the “frontiers of scientific knowledge,” agencies were expected to make a mixed fact-policy inquiry that combined limited and uncertain scientific data with policy judgments about risk management.²²⁴ Still, the *Ethyl* court conducted an extensive rational-basis review of EPA’s factual findings that undergirded a regulation, finding that the agency took reasonable steps in the face of conflicting scientific evidence.²²⁵ Other panels of the D.C. Circuit have justified the approaches taken in cases like *Ethyl*, noting that “[i]t is not [the courts’] function to resolve disagreement among the experts or to judge the merits of competing expert views.”²²⁶

Second, courts have looked skeptically on agency attempts to reject well-settled knowledge, especially where reputable scientific bodies have made authoritative judgments about complex phenomena. Where administrative agencies’ judgments contradict authoritative findings, reviewing courts have required agencies to justify those departures. For example, in reviewing EPA’s judgment that an emissions control technology for motor vehicles was technically feasible, Judge Leventhal in *International Harvester Co. v. Ruckelshaus* invalidated an attempt by EPA to reject a report by the National Academy of Sciences (NAS) without providing a sound justification.²²⁷

223. 462 U.S. 87, 103 (1983).

224. *Ethyl Corp. v. EPA*, 541 F.2d 1, 28-29 (D.C. Cir. 1976) (en banc) (enshrining this principle). In *Ethyl*, the D.C. Circuit mentioned the voluminous and indeterminate nature of the administrative record, which spanned over 10,000 pages, noting that “evidence may be isolated that supports virtually any inference one might care to draw.” *Id.* at 37.

225. *Id.* at 37-48. “Thus, after considering the inferences that can be drawn from the studies supporting the Administrator, and those opposing him, we must decide whether the cumulative effect of all this evidence, and not the effect of any single bit of it, presents a rational basis for the low-lead regulations.” *Id.* at 38.

226. *Lead Indus. Ass’n v. EPA*, 647 F.2d 1130, 1160 (D.C. Cir. 1980) (citing *AFL-CIO v. Marshall*, 617 F.2d 636, 651 & n.66 (D.C. Cir. 1979)). Deference is even stronger when agencies are making such reasoned judgments “within [their] area[s] of special expertise.” *Balt. Gas & Elec. Co.*, 462 U.S. at 10.

227. *Int’l Harvester Co. v. Ruckelshaus*, 478 F.2d 615, 649 (D.C. Cir. 1973) (“[T]he NAS conclusion was that technology was not available to meet the standards in 1975. Congress called on NAS, with presumed reliance on the knowledge and objectivity of that prestigious body, to make an independent judgment While . . . EPA was not necessarily bound by NAS’s

The basic facts of climate change, which were in part bolstered by the Obama Administration's scientific efforts, are well-settled. Three recent decisions have demonstrated this judicial acceptance of the basic facts of climate change. Importantly, these decisions also reflect a judicial preoccupation with the risk of political interference with government climate science. The Obama Administration explicitly avoided such interference.

In *Massachusetts v. EPA*,²²⁸ the Supreme Court relied on the history of congressional action on climate change²²⁹ and expert reports to find that—contrary to EPA's position—carbon dioxide fell under the broad definition of the term “air pollutant” in the Clean Air Act.²³⁰ These expert reports included the First Assessment Report by the United Nations Intergovernmental Panel on Climate Change (IPCC);²³¹ the IPCC's Second Assessment Report;²³² a 2001 study by the NRC;²³³ and testimony by Michael MacCracken, the former executive director of the GCRP.²³⁴ Although the *Massachusetts* Court did not compel a

approach, particularly as to matters interlaced with policy and legal aspects, we do not think that it was contemplated that EPA could alter the conclusion of NAS by revising the NAS assumptions, or injecting new ones, unless it states its reasons for finding reliability—possibly by challenging the NAS approach in terms of later-acquired research and experience.”); see also *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 530 (D.C. Cir. 1983) (noting that “EPA's decision to reduce gasoline lead . . . was supported by the overwhelming majority of comments from health experts,” that the decision was supported by all comments from state and local governments, and that those comments were consistent with a report by the NAS).

However, Judge Leventhal also emphasized that the *International Harvester* panel only reluctantly took on the task of reviewing the EPA Administrator's judgments about a technical issue:

Our diffidence is rooted in the underlying technical complexities, and remains even when we take into account that ours is a judicial review, and not a technical or policy redetermination, our review is channeled by a salutary restraint, and deference to the expertise of an agency that provides reasoned analysis.

478 F.2d at 641; see also *Lead Indus. Ass'n*, 647 F.2d at 1146 (expressing a similar view). Ultimately, the D.C. Circuit remanded the action to the agency with a vague mandate to reconsider the decision and provide more robust reasons for the action. 478 F.2d at 650.

228. 549 U.S. 497 (2007).

229. *Id.* at 507-08.

230. *Id.* at 528-29.

231. *Id.* at 508-09.

232. *Id.* at 509.

233. *Id.* at 511; see also *id.* at 521 (noting specific forms of climate change damage detailed in the 2001 NRC report).

234. *Id.* at 521-22.

regulatory action by EPA, it relied on authoritative assessments to support its view that EPA needed to give more substantial reasons for inaction.²³⁵

Yet, as observed by Professors Jody Freeman and Adrian Vermeule, the *Massachusetts* decision “illustrate[d] a larger theme” that went beyond the substantive regulatory problem at issue in the case: “the Court majority’s increasing worries about the politicization of administrative expertise.”²³⁶ Freeman and Vermeule explained that the *Massachusetts* Court rendered an “expertise-forcing” decision, in which the Court—with full awareness of the George W. Bush Administration’s interference with government science—denied deference to EPA in order to ensure scientifically sound treatment of climate change.²³⁷ In this context, the Obama Administration’s public commitment to scientific integrity—first expressed in March 2009²³⁸—responded directly to this judicial demand for untainted expertise.

Judicial respect for genuine expert knowledge was even more prominent in the D.C. Circuit’s per curiam opinion in *Coalition for Responsible Regulation, Inc. v. EPA*,²³⁹ a case that involved an “Endangerment Finding”²⁴⁰ that greenhouse gases “may reasonably be anticipated to endanger public health or welfare.”²⁴¹ In *Coalition for Responsible Regulation*, the panel engaged in a far-reaching discussion of the scientific and technical evidence in the administrative record, with particular attention to assessment reports issued by the IPCC, NRC, and GCRP.²⁴² First, the court noted the exhaustive review process used to create the reports, observing that “[t]hese peer-reviewed assessments synthesized thousands of individual studies on various aspects of greenhouse gases and climate change.”²⁴³ Second, the court distinguished between the use of assessment reports “as substitutes for [an agency’s] own judgment” and the use of “evidence

235. *Id.* at 534-35.

236. Jody Freeman & Adrian Vermeule, *Massachusetts v. EPA: From Politics to Expertise*, 2007 SUP. CT. REV. 51, 52.

237. *Id.*

238. See *supra* notes 145-146 and accompanying text.

239. 684 F.3d 102 (D.C. Cir. 2012) (per curiam), *aff’d in part, rev’d in part sub nom.*, *Util. Air Regulatory Grp. v. EPA*, 134 S. Ct. 2427 (2014).

240. *Id.* at 113; see also *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, 74 Fed. Reg. 66,496 (Dec. 15, 2009) (to be codified at 40 C.F.R. ch. I) (summarizing the EPA Administrator’s findings that six greenhouse gases “endanger[] public health and welfare”).

241. Clean Air Act § 202(a)(1), 42 U.S.C. § 7521(a)(1) (2012).

242. *Coalition for Responsible Regulation*, 684 F.3d at 119.

243. *Id.*

upon which [an agency] relie[s] to make [a] judgment.”²⁴⁴ Third, the court rejected an attempt by litigants to undermine the credibility of the assessment reports by pointing to errors in a small subset of the underlying studies.²⁴⁵ In sum, the *Coalition for Responsible Regulation* court confirmed the primacy of scientific expertise in public administration, as well as the trust placed in assessment reports that synthesize the state of scientific knowledge using rigorous processes.

In *Zero Zone, Inc. v. Department of Energy*,²⁴⁶ a Seventh Circuit panel extended this logic to an application of the IWG-SCC’s SCC estimates. In *Zero Zone*, appellants challenged the credibility of the SCC estimates on several grounds, but the Seventh Circuit placed trust in the IWG-SCC’s process and held that DOE had sufficiently responded to objections during the notice-and-comment process.²⁴⁷ Even though the IWG-SCC’s SCC estimates were vulnerable to extensive criticism,²⁴⁸ the Seventh Circuit saw that the IWG-SCC had done its best to reach an inherently difficult scientific judgment.

The Obama Administration’s advancement of climate-consciousness was marked by heavy investments in scientific, technical, and economic knowledge. Federal courts’ longstanding trust in such expertise had been enhanced in the climate change context due to a judicial aversion to political interference. This trust complemented the Obama Administration’s use of scientific outputs to support decision making and insistence on scientific integrity, which allayed courts’ fears of tainted science. Consequently, as discussed in Part IV, the sheer strength of the scientific and technical record compiled by the Obama Administration may constrain the Trump Administration’s authority to take contrary actions. In particular, judicial scrutiny of such agency reversals may be heightened by the *State Farm* doctrine, which directs courts to more carefully question the propriety of agency actions that upend factual and technical assumptions that undergirded prior agency actions.

244. *Id.* at 120.

245. *Id.* at 125.

246. 832 F.3d 654 (7th Cir. 2016).

247. *Id.* at 678. The Seventh Circuit’s analysis here is quick, and the court did not discuss the IWG-SCC’s processes in great depth. Appellants also challenged DOE’s authority to consider the global cost of climate change, but this claim was also rejected by the court. *Id.* at 679. Cost-benefit analysis is discussed in greater detail below. See *infra* Section II.C.

248. See *supra* Section I.C.5.

B. Caselaw on NEPA and Climate Change

Section I.C.3 characterized the Obama CEQ's NEPA climate change guidance as both requiring and enabling agencies to incorporate climate-consciousness into the NEPA process. This guidance was both a codification of existing caselaw on NEPA and climate change, and a catalyst for future jurisprudential development.

Before the late 2000s, courts had made it difficult for litigants to show standing for lawsuits that sought to compel agencies to consider climate change in their NEPA assessments. Courts also permitted agencies to ignore climate change in NEPA processes on the basis that climate change impacts “[fe]ll below the threshold of significance.”²⁴⁹ Yet, immediately before and during the Obama presidency, federal courts began to liberalize standing for climate change challenges under NEPA and expand the requirement for climate change to be addressed in an Environmental Assessment (EA) or Environmental Impact Statement (EIS).²⁵⁰

Litigants claiming procedural injuries relating to climate change had long struggled to establish standing.²⁵¹ However, the D.C. Circuit in 2009 recognized a novel procedural theory of standing. In *Center for Biological Diversity v. Department of Interior*, litigants were permitted to bring a climate change-related NEPA claim because an agency's failure to consider climate change had allegedly led to an erroneous decision that caused an unrelated injury.²⁵² This theory opened the door for a wider range of climate change suits under NEPA.²⁵³

Also around this time, courts began to heighten the requirement for federal actors to consider climate change in their NEPA analyses. For example, in *Center for Biological Diversity v. National Highway Traffic Safety Administration*, the Ninth Circuit required the National Highway Traffic Safety Administration (NHTSA) to correct a deficient environmental impact statement (EIS) for a fuel economy regulation. The opinion rested on several grounds, including

249. Michael B. Gerrard, *Climate Change and the Environmental Impact Review Process*, 22 NAT. RESOURCES & ENV'T, Winter 2008, at 20, 20.

250. See *id.* at 20-21 (discussing several cases that developed between those years, including *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172 (9th Cir. 2008)).

251. Mark Squillace & Alexander Hood, *NEPA and Climate Change*, in THE NEPA LITIGATION GUIDE 261, 262-63 (Albert M. Ferlo et al. eds., 2d ed. 2012).

252. *Ctr. for Biological Diversity v. U.S. Dep't of Interior*, 563 F.3d 466, 479 (D.C. Cir. 2009).

253. See, e.g., *WildEarth Guardians v. Jewell*, 738 F.3d 298, 307-08 (D.C. Cir. 2013); *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1186-87 (D. Colo. 2014); *WildEarth Guardians v. Bureau of Land Mgmt.*, 8 F. Supp. 3d 17, 29-30 (D.D.C. 2014).

NHTSA's failure to consider climate change in its EIS.²⁵⁴ The decision was one of several²⁵⁵ indicating that NEPA caselaw had gradually shifted from *permitting* agencies to consider climate change to *mandating* that agencies consider climate change for regulatory actions with significant effects on greenhouse gas emissions.

Yet this judicially imposed requirement to consider climate change in NEPA analyses remained somewhat thin. Although courts had claimed to take a "hard look" at how agencies address climate change in EISs and EAs, judges had been hesitant to require agencies to conduct formal cost-benefit analyses,²⁵⁶ enumerate specific climate change impacts that might arise from a project,²⁵⁷ and quantify emissions.²⁵⁸ However, reviewing courts' reticence to impose more rigorous requirements appeared to be driven by a view that it was technically challenging to determine the causal relationship between emissions and environmental impacts, not by skepticism that climate change was worthy of careful analysis.²⁵⁹ Therefore, as climate science improves and agencies gain access to analytical tools that lower the burden of engaging in thicker analyses, courts may impose more rigorous analytical requirements for considering climate change under NEPA.

Thus, the NEPA climate change guidance released by the Obama CEQ was in part a codification of a rapidly developing common law around NEPA and climate change. However, the NEPA guidance did more than counsel agencies about the importance of considering climate change in EAs and EISs: it instructed agencies on how they might consider climate change.²⁶⁰ These instruc-

254. See *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1214-15 (2008).

255. See *supra* notes 252-261.

256. *High Country Conservation Advocates*, 52 F. Supp. 3d at 1182 (noting that "NEPA does not require an explicit cost-benefit analysis to be included in an EIS" in relation to a climate change-related claim).

257. *Jewell*, 738 F.3d at 309 (declining to mandate a more specific EIS because "current science does not allow for the specificity demanded by the Appellants").

258. *San Diego Navy Broadway Complex Coal. v. U.S. Dep't of Def.*, 904 F. Supp. 2d 1056, 1068 (S.D. Cal. 2012) (finding that an EA's "eleven-page discussion of climate change issues," which included a discussion of how to reduce emissions from a project, was sufficient even though the EA did not quantify emissions from the project); *WildEarth Guardians v. U.S. Forest Serv.*, 828 F. Supp. 2d 1223, 1240 (D. Colo. 2011) (ruling that the Forest Service did not have to determine "the precise impact on global warming" from a mine expansion because there was no "credibl[e]" way to precisely determine the "pro rata effect").

259. See *San Diego Navy Broadway Complex Coal.*, 904 F. Supp. 2d at 1068; *WildEarth Guardians*, 828 F. Supp. 2d at 1240.

260. See *supra* notes 132-137 and accompanying text.

tions from CEQ, combined with scientific assessments produced by the Obama Administration,²⁶¹ enabled agencies to consider climate change in NEPA processes.²⁶² Consequently, even though the Trump Administration has rescinded the Obama CEQ’s climate change guidance,²⁶³ litigants may point to the Obama CEQ’s climate change guidance as evidence that agencies are capable of incorporating climate change into their EAs and EISs, and courts might enforce a requirement to consider climate change under NEPA.

C. Caselaw on Cost-Benefit Analysis and Reasonableness

Over the last several years, federal courts have magnified the role of cost-benefit analyses in substantive review of agency actions and required climate change to be considered in cost-benefit analyses. The Obama Administration’s establishment of the IWG-SCC²⁶⁴ fits neatly into these trends.

Michigan v. EPA, the first Supreme Court decision that interpreted open-ended statutory language to require an agency to consider costs, reflected the rising importance of cost-benefit analysis in administrative rationality. *Michigan* involved a section of the Clean Air Act²⁶⁵ that directed EPA to evaluate whether “regulation is appropriate and necessary.”²⁶⁶ The Court, in a majority opinion written by Justice Scalia, held that “it was unreasonable for EPA to read [the statutory provision] to mean that cost is irrelevant to the initial deci-

261. See, e.g., *High Country Conservation Advocates*, 52 F. Supp. 3d at 1193 (ruling that the Forest Service had to justify its decision to *not* monetize the social costs of emissions from an action, because the IWG-SCC had “invested time and expertise” to develop figures that could be used for agency actions).

262. Although NEPA does not vest regulatory authority in CEQ, courts nevertheless defer to CEQ’s NEPA regulations and guidance. See, e.g., *Andrus v. Sierra Club*, 442 U.S. 347, 358 (1979) (noting that CEQ’s NEPA regulations deserved “substantial deference”); *WildEarth Guardians v. Jewell*, 738 F.3d 298, 309 (D.C. Cir. 2013) (giving persuasive weight to a draft version of CEQ’s climate change guidance).

263. *CEQ Withdraws Guidance on NEPA and Climate Change*, COLUM. L. SCH. SABIN CTR. ON CLIMATE CHANGE L.: CLIMATE DEREGULATION TRACKER (Apr. 5, 2017), <http://columbiaclimatelaw.com/climate-deregulation-tracker/ceq-withdraws-guidance-on-nepa-and-climate-change> [<http://perma.cc/H344-LV8U>].

264. See *supra* Section I.C.5. As detailed in Section I.C.4, the extent to which the Obama Administration used OIRA regulatory review to promote agency consideration of climate change is unclear. There is weak evidence – within a small sample of RIAs examined – that some agencies took climate change more seriously in their RIAs under the Obama Administration.

265. 42 U.S.C. § 7412(n)(1)(A) (2012).

266. *Michigan v. EPA*, 135 S. Ct. 2699, 2705 (2015) (quoting 42 U.S.C. § 7412(n)(1)(A) (2012)).

sion to regulate power plants. The Agency must consider cost”²⁶⁷ Moreover, although the Court divided in a 5-4 vote along ideological lines, Justice Kagan’s dissent accepted the premise that EPA was required to consider costs in its regulatory finding.²⁶⁸ As Professor Heinzerling observed,²⁶⁹ both Justice Scalia’s majority opinion and Justice Kagan’s dissent moved beyond *Entergy Corp. v. Riverkeeper, Inc.*, in which the Court held that open-ended language in the Clean Water Act did not prevent EPA from considering costs, to hold that costs were an inextricable feature of rational analysis.²⁷⁰

Michigan can be read broadly or narrowly. Parts of Justice Scalia’s opinion suggest that the decision is narrowly tailored to the “appropriate and necessary” language in section 112(n) of the Clean Air Act,²⁷¹ while others make sweeping claims about the importance of cost in reasoned decision making.²⁷² Some lower courts have deployed *Michigan* expansively. The present state of the caselaw is decidedly unclear.²⁷³

Two possible principles for reasoned decision making arise from this recent set of judicial precedents. First, if an agency conducts a cost-benefit analysis, climate change must be considered if it poses significant costs or benefits,²⁷⁴ and second, an agency should monetize changes in greenhouse gas emissions where an authoritative SCC figure is available, absent a strong justification to

267. *Id.* at 2711.

268. *Id.* at 2716 (Kagan, J., dissenting) (“Cost is almost always a relevant—and usually, a highly important—factor in regulation.”).

269. Lisa Heinzerling, *The Power Canons*, 58 WM. & MARY L. REV. (forthcoming 2017) (manuscript at 25), <http://ssrn.com/abstract=2757770> [<http://perma.cc/SL4L-3J5R>].

270. 556 U.S. 208, 218 (2009).

271. 42 U.S.C. § 7412(n) (2012); *Michigan*, 135 S. Ct. at 2709 (“And as we have discussed, context establishes that this expansive standard encompasses cost.”).

272. See, e.g., *Michigan*, 135 S. Ct. at 2707 (“Agencies have long treated cost as a centrally relevant factor when deciding whether to regulate. Consideration of cost reflects the understanding that reasonable regulation ordinarily requires paying attention to the advantages *and* the disadvantages of agency decisions.”).

273. Lower courts have read *Michigan* at varying levels of abstraction. See, e.g., *Nicopure Labs, L.L.C. v. FDA*, Nos. 16-0878 (ABJ), 16-1210 (ABJ), 2017 WL 3130312, at *32-33 (D.D.C. July 21, 2017) (placing significant weight on the statutory provision in question that contained the “specific words ‘appropriate and necessary’”); *MetLife, Inc. v. Fin. Stability Oversight Council*, 177 F. Supp. 3d 219, 239-42 (D.D.C. 2016) (interpreting provisions regarding banking risk in the Dodd-Frank Act with an eye to statutory purpose).

274. *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1198-1202 (9th Cir. 2008) (“Even if NHTSA may use a cost-benefit analysis to determine the ‘maximum feasible’ fuel economy standard, it cannot put a thumb on the scale by undervaluing the benefits and overvaluing the costs of more stringent standards. NHTSA fails to include in its analysis the benefit of carbon emissions reduction in either quantitative or qualitative form.”).

the contrary.²⁷⁵ The Obama Administration's actions echoed these principles by providing agencies with the authoritative SCC figure and analytical tools necessary to incorporate climate change into their analyses, empowering agencies to fulfill the judicial demand for systematic assessments of costs and benefits.

As observed in this Part, President Obama encountered a judiciary that recognized the vulnerability of climate science to politicization and the consequent importance of scientific process; the possibility that agencies should consider climate change in NEPA analyses, providing that agencies had the tools to do so; and the need for rigorous and balanced cost-benefit analyses. As the fourth pillar was a rationality-*enhancing* project that both required and empowered agencies to reason in a climate-conscious manner, it answered this judicial demand for reasoned administration. By contrast, President Obama's fourth pillar largely avoided a Congress that was hostile to climate change policy by taking advantage of congressional inattention to obscure matters of administration.

III. LIMITED CONGRESSIONAL OVERSIGHT OF CLIMATE-CONSCIOUSNESS

In contrast to the judiciary, which was receptive to climate-consciousness, the Republican-controlled Congress was hostile to climate change responses. Yet although Republican members of Congress pushed back against the fourth pillar's more visible components with budgetary restrictions and public criticism, Congress did not meaningfully counteract climate-consciousness. On a theoretical level, this confirms Kagan's view that Congress is a relatively impotent overseer of agency decision making.

In *Presidential Administration*, Kagan observed that a hostile Congress partly motivated President Clinton's "turn[] to the bureaucracy."²⁷⁶ This mirrored President Obama's resort to executive actions on climate change following the 2010 midterm election.²⁷⁷ Kagan also observed that Congress exhibited relative "frailty" in exerting its own control over the administrative state, attributing

275. *Id.* at 1200-01 (in a decision before the IWG-SCC was convened, discussing that in the agency record for a rule, extensive reference was made to a social cost of carbon figure derived by the NAS, and faulting NHTSA for not using the figure in its cost-benefit analysis); *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1193 (D. Colo. 2014) ("I am not persuaded . . . that it is reasonable completely to ignore a tool [the IWG-SCC's estimates] in which an interagency group of experts invested time and expertise."); *see also Zero Zone, Inc. v. U.S. Dep't of Energy*, 832 F.3d 654, 678-79 (7th Cir. 2016) (defending DOE's use of the IWG-SCC's estimates).

276. Kagan, *supra* note 23, at 2248.

277. *See supra* notes 15-21 and accompanying text.

this weakness to “courts’ refusal, in the face of broad delegations, to ratify alternative mechanisms of legislative control” and to a judicial requirement that “agency action bear the indicia of essentially apolitical, ‘expert’ process and judgment.”²⁷⁸ Again, this closely mirrored President Obama’s fourth pillar. As observed in Section I.C, President Obama used tools of control that were not easily scrutinized by the legislative branch.

Congress was not entirely inattentive to these fourth-pillar exercises of presidential control. As Kagan pointed out, “presidential dictation of administrative activity . . . sounds a very loud ‘fire alarm’ to a Congress controlled by the other party,”²⁷⁹ and Congress responded to the fourth pillar with hearings, harassment, and threats of sanction.²⁸⁰ Yet congressional scrutiny was distributed unevenly throughout the fourth pillar and centered on parts of the fourth pillar that Congress could more easily control. The most concerted congressional attacks on the fourth pillar centered on programs that Congress could easily shape through its budgetary powers: the DOD’s climate-consciousness efforts and federally funded climate change science. With respect to the DOD, the Republican majority in the House passed an amendment to a defense appropriations bill in 2016 that attempted to restrict the DOD from using federal funds to prepare for climate change.²⁸¹ Although the appropriations bill died in the Senate,²⁸² the Republican amendment represented a serious effort to cut back on climate-consciousness in the DOD. With respect to federally funded climate change science, Republican members of Congress fought the Obama Administration’s attempts to allocate funding at every turn. Although the Obama Administration secured large increases in funding for GCRP²⁸³ and NASA’s Earth Science division, the National Oceanographic and Atmospheric Administration’s climate research programs and the National Science Foundation’s Geosciences division fared worse.²⁸⁴

On the other hand, Congress only sporadically or indirectly attacked components of the fourth pillar that could not be counteracted with their budgetary

278. Kagan, *supra* note 23, at 2270.

279. *Id.* at 2348.

280. See *infra* text accompanying notes 281–286; cf. Kagan, *supra* note 23, at 2347 (describing hearings, harassment, and threats of sanction as the key congressional tools).

281. Vinik, *supra* note 198.

282. H.R. 5293 (114th): *Department of Defense Appropriations Act, 2017*, GOVTRACK, <http://www.govtrack.us/congress/bills/114/hr5293> [<http://perma.cc/CMQ4-DFZ2>].

283. See *supra* notes 176–177.

284. Matt Hourihan, *Science and Technology Funding Under Obama: A Look Back*, AM. ASS’N FOR ADVANCEMENT SCI. (Jan. 19, 2017), <http://www.aaas.org/news/science-and-technology-funding-under-obama-look-back> [<http://perma.cc/KL88-G8VT>].

powers. For example, Sunstein, who served as President Obama's OIRA director from 2009 to 2012, was harangued by Republican members of the House in a 2011 oversight hearing. Republican members of the House Oversight and Investigations Subcommittee attacked Sunstein due to dissatisfaction with the allegedly high level of new regulatory activity under the Obama Administration.²⁸⁵ This hearing reflected the prevailing antiregulatory sentiment among Republican members of Congress, which continued into President Obama's second term after Sunstein left office. Yet the hearing only targeted the public face of a presidentialized and opaque process, reflecting the very limited ability of Congress to oppose OIRA. Republican opposition was limited to public invective, rather than policy resistance. As another example, a few Republican members of Congress attacked the Obama CEQ's NEPA guidance on climate change in statements to the press.²⁸⁶ Although such harassment and public criticism associated with the fourth pillar were weak forms of control, they reflected a broader pattern of congressional hostility to acknowledgments of climate change.

By contrast, concrete congressional opposition was directed at the first and second pillars: climate change regulations and international climate change agreements. Perhaps most famously, Republican members of Congress accused the Obama Administration of waging a "war on coal" by promulgating the Clean Power Plan, finalizing a wide range of other environmental regulations including MATS²⁸⁷ that caused widespread retirements of coal-fired power plants,²⁸⁸ and modifying the Department of Interior's program of coal leases on federal lands.²⁸⁹ The Senate in late 2015 attempted to erode President Obama's ability to broker the Paris Climate Change Agreement by denying the Administration's request for \$3 billion in climate-related foreign aid for less developed

285. David Weigel, *Nudge on Trial*, SLATE (Jan. 26, 2011, 7:12 PM), http://www.slate.com/articles/news_and_politics/politics/2011/01/nudge_on_trial.html [<http://perma.cc/2S7Z-6B66>].

286. Rowena Lindsay, *New Climate Change Policy: Republicans Object, Democrats Worry*, CHRISTIAN SCI. MONITOR (Aug. 4, 2016), <http://www.csmonitor.com/Environment/2016/0804/New-climate-change-policy-Republicans-object-Democrats-worry> [<http://perma.cc/96TG-3Q6N>].

287. See *supra* notes 155-157 and accompanying text.

288. *Obama's War on Coal*, SENATE REPUBLICAN POL'Y COMMITTEE (May 15, 2012), <http://www.rpc.senate.gov/policy-papers/obamas-war-on-coal> [<http://perma.cc/L4MG-ENTF>].

289. Rebecca Leber, *How Obama Inserted the "War on Coal" into the 2016 Race*, NEW REPUBLIC (Jan. 17, 2016), <http://newrepublic.com/article/127833/obama-inserted-war-coal-2016-race> [<http://perma.cc/G5C9-BW6P>].

countries and voting to repeal the Clean Power Plan.²⁹⁰ Although the vote to repeal the Clean Power Plan was a “symbolic move”²⁹¹ that was later vetoed by President Obama,²⁹² it reflected a serious effort to undermine President Obama’s ability to facilitate international cooperation on climate change.

The Republican Party’s 2016 platform, an imperfect proxy for the Republican response to President Obama’s executive actions on climate change, reinforces the view that congressional pressure was primarily directed at the first and second pillars. The platform explicitly mentioned the Clean Power Plan,²⁹³ Bureau of Land Management regulations,²⁹⁴ nuclear power policies,²⁹⁵ slow permitting processes for liquefied natural gas export infrastructure,²⁹⁶ the Keystone XL pipeline,²⁹⁷ the UN Framework Convention on Climate Change,²⁹⁸ and even the United Nations’ Agenda 21.²⁹⁹ The only aspect of the fourth pillar even mentioned in the Republican Party’s platform was an Obama Administration effort to reduce the military’s greenhouse gas emissions,³⁰⁰ which was one of the most-publicized aspects of the fourth pillar.³⁰¹

290. Suzanne Goldenberg, *Republicans Make Second Bid To Weaken Obama’s Hand at Paris Climate Talks*, *GUARDIAN* (Nov. 19, 2015, 6:09 AM), <http://www.theguardian.com/environment/2015/nov/19/republicans-make-second-bid-weaken-obamas-hand-paris-climate-talks> [<http://perma.cc/7ZN5-QPEV>].

291. Puneet Kollipara, *In Symbolic Move, Congress Votes To Gut Obama Climate Plans*, *SCIENCE* (Dec. 2, 2015, 2:15 PM), <http://www.sciencemag.org/news/2015/12/symbolic-move-congress-votes-gut-obama-climate-plans> [<http://perma.cc/YD9L-JT75>].

292. Timothy Cama, *Obama Vetoes GOP Push To Kill Climate Rules*, *HILL* (Dec. 19, 2015, 8:35 AM), <http://thehill.com/policy/energy-environment/263805-obama-vetoes-gop-attempts-to-kill-climate-rules> [<http://perma.cc/R65U-GMW5>].

293. *Republican Platform 2016*, COMMITTEE ON ARRANGEMENTS FOR 2016 REPUBLICAN NAT’L CONVENTION 19 (2016) [http://prod-cdn-static.gop.com/media/documents/DRAFT_12_FINAL\[1\]-ben_1468872234.pdf](http://prod-cdn-static.gop.com/media/documents/DRAFT_12_FINAL[1]-ben_1468872234.pdf) [<http://perma.cc/LF9D-XZPY>].

294. *Id.* at 19-20.

295. *Id.*

296. *Id.* at 20.

297. *Id.* at 19-20.

298. *Id.* at 22.

299. *Id.* at 51. Agenda 21 is a non-binding United Nations resolution about sustainable development passed in 1992. The Republican Party has gradually come to embrace the notion that Agenda 21 is “a United Nations-led conspiracy to deny property rights and herd citizens toward cities.” Leslie Kaufman & Kate Zernike, *Activists Fight Green Projects, Seeing U.N. Plot*, *N.Y. TIMES* (Feb. 3, 2012), <http://www.nytimes.com/2012/02/04/us/activists-fight-green-projects-seeing-un-plot.html> [<http://perma.cc/KYA8-BAVG>].

300. *Republican Platform 2016*, *supra* note 293, at 20.

301. *See supra* notes 217-218 and accompanying text.

Congress's weaker and more intermittent oversight of the fourth pillar may be explained by the low political salience of climate-conscious efforts diffused widely across—and submerged deeply within—the administrative state. Even though these fourth pillar mechanisms were not secret,³⁰² and even though Congress was much more interested in the finer points of government operations than the public,³⁰³ much of the fourth pillar's initiatives lacked the salience that would have placed them on the congressional agenda.³⁰⁴

An exegesis of issue salience and the political agenda-setting process is far beyond the scope of this Note.³⁰⁵ Yet some reasoned observations may be drawn about the causes of Congress's weak responses to the fourth pillar. By their very nature, President Obama's executive actions on climate change combined a wide range of presidential tools that were already available due to his inherent powers and already-delegated authority. Among these actions, the fourth pillar was comprised of low-salience methods: it almost goes without saying that the finer points of the Circular A-11 process and OIRA do not pique public attention. This low salience meant that congressional pressure naturally flowed toward the higher-salience aspects of President Obama's executive actions, namely first-pillar efforts like the Clean Power Plan and second-pillar efforts like the Paris Agreement. The overshadowed fourth pillar only rose to congressional attention when it entered the ambit of congressional budgetary powers. As explained in Section I.C.2, the Obama Administration avoided such budgetary control as much as possible by hiding climate change spending throughout the federal budget.³⁰⁶ This underscores the critical difference between *transparency* and *salience*—even though the Obama Administration's climate-consciousness interventions in the administrative state were publicly disclosed with the exception of OIRA review, the fourth pillar's interventions into administration lacked the salience necessary to trigger congressional “fire alarms.”

302. The materials used in this Note are all publicly available records.

303. Bryan D. Jones & Frank R. Baumgartner, *Representation and Agenda Setting*, 32 POL'Y STUD. J. 1, 5 fig. 1, 6 fig. 2 (2004).

304. See Glen S. Krutz, *Issues and Institutions: “Winnowing” in the U.S. Congress*, 49 AM. J. POL. SCI. 313, 322-24 (2005) (describing the various factors that may determine whether a bill is winnowed out in the congressional process, and noting that most issues do not reach congressional consideration).

305. In fact, books have been written about this subject. See, e.g., BRYAN D. JONES & FRANK R. BAUMGARTNER, *THE POLITICS OF ATTENTION: HOW GOVERNMENT PRIORITIZES PROBLEMS* (2005).

306. See *supra* notes 109-110 and accompanying text.

These observations are consistent with, and somewhat additive to, Kagan's views about congressional oversight of administrative processes. Kagan believed that due to judicially imposed constraints on congressional control of administrative processes and judicial faith in technocratic expertise, congressional oversight was generally an impotent counterweight to presidential administration. Yet President Obama's climate-consciousness efforts appeared to use a subset of presidential interventions that were even more ill-suited for congressional interference: namely, the Obama Administration shaped the technocratic internal processes of the executive branch to achieve its policy objectives.

Following his inauguration, President Trump has started to reverse these efforts to control deeply ingrained executive-branch processes. Mirroring congressional Republicans, candidate Trump frequently expressed disapproval of President Obama's actions on climate change and targeted specific high-salience actions like the Paris Climate Change Agreement and the Clean Power Plan,³⁰⁷ declining to call attention to the executive branch's internal processes. Nevertheless, President Trump has quickly moved to dismantle the fourth pillar following his inauguration by rescinding Obama-era executive orders, withdrawing guidance and scientific reports, and threatening to overhaul government scientific processes for climate change. This attack on the fourth pillar has proceeded with virtually no congressional role, underlining the limited extent of congressional involvement in climate-conscious administration. This shift to a diametrically opposed presidential outlook raises significant puzzles about the durability of outcomes achieved through presidential administration, the separation of powers, and the role of democratic engagement in securing a sustainable future.

IV. THE DURABILITY OF CLIMATE-CONSCIOUSNESS

[I]f Donald Trump is elected, for example, you have a pretty big shift And there is no doubt that when you have a legislative ratification of a policy, that it is firmer, it is less subject to reversal. But keep in mind that what happens when we come up with smart policies and regulations that prove to work, it becomes stickier; it's harder, then, to

307. See, e.g., Interview by Bill O'Reilly with Donald Trump, presidential candidate (Dec. 4, 2015), <http://www.presidency.ucsb.edu/ws/?pid=113948> [<http://perma.cc/PT9H-KMJQ>].

reverse. So all these individual and collective steps that have been taken, they lock in: they embed us moving in a certain direction.

President Barack Obama, interview with the *New York Times*³⁰⁸

When examining the fourth pillar of climate policy, one might intuitively suspect that the fruits of presidential administration will be easily reversed by the Trump Administration. The risk of reversal following the presidential transition is enhanced by expansive presidential power in the modern United States, which may enable an “imperial” executive that acts arbitrarily and with few constraints.³⁰⁹ This Part begins by assessing the Trump Administration’s efforts to dismantle President Obama’s fourth pillar to date. It then assesses the formal legal constraints and non-legal factors that may stymie the Trump Administration’s attempts to reverse President Obama’s policies. The Part identifies two key factors that may slow deregulatory efforts after an abrupt change in presidential stances to climate change: first, the persistence of sound government science that demonstrates the importance of climate change; and second, bureaucratic inertia and backlash.

A. *Dismantling the Fourth Pillar*

Bucking the general narrative³¹⁰ that the Trump Administration has been slow to act in its initial months, the Trump Administration has moved quite efficiently to degrade President Obama’s fourth pillar.

Thus far, the Trump Administration has primarily targeted the fourth pillar with two executive orders. On March 28, 2017, President Trump issued an executive order that dismantled many aspects of President Obama’s fourth pil-

308. Davis et al., *supra* note 20.

309. Many scholars have expressed this concern. See, e.g., BRUCE ACKERMAN, *THE DECLINE AND FALL OF THE AMERICAN REPUBLIC* (2010); ARTHUR M. SCHLESINGER, JR., *THE IMPERIAL PRESIDENCY* (1973); PETER M. SHANE, *MADISON’S NIGHTMARE: HOW EXECUTIVE POWER THREATENS AMERICAN DEMOCRACY* (2009); Adrian Vermeule, *Our Schmittian Administrative Law*, 122 HARV. L. REV. 1095 (2009); cf. ERIC A. POSNER & ADRIAN VERMEULE, *THE EXECUTIVE UNBOUND: AFTER THE MADISONIAN REPUBLIC* (2010) (claiming that even though the executive is generally unbound from formal constraints, other factors meaningfully cabin executive action).

310. See, e.g., Lisa Rein, *Slow Pace of Trump Nominations Leaves Cabinet Agencies “Stuck” in Staffing Limbo*, WASH. POST (Apr. 25, 2017), http://www.washingtonpost.com/politics/slow-pace-of-trump-nominations-leaves-cabinet-agencies-stuck-in-staffinglimbo/2017/04/25/oa15oaba-252c-11e7-b503-9d616bd5a305_story.html [<http://perma.cc/4J4T-SQ39>].

lar.³¹¹ The order rescinded the Obama CEQ's NEPA guidance on climate change,³¹² disbanded the IWG-SCC and withdrew its SCC estimates;³¹³ withdrew a presidential memorandum on climate change and national security;³¹⁴ and rescinded President Obama's Executive Order 13,653,³¹⁵ which required federal departments and agencies to begin adapting to the impacts of climate change.³¹⁶ On August 15, 2017, President Trump signed another executive order³¹⁷ to strike Executive Order 13,690, an order issued by President Obama that required the consideration of climate-induced changes in precipitation when designating floodplains.³¹⁸ Although the Trump Administration has left untouched President Obama's executive orders relating to reductions in federal greenhouse gas emissions, improvements in federal energy efficiency, and agency sustainability plans, President Trump's two executive orders nevertheless eliminated some of the fourth pillar's core provisions.

The Trump Administration has also targeted federal scientific efforts relating to the environment and climate change. During the first months of the Trump presidency, EPA dismissed members of its Board of Scientific Counselors with the likely intent of replacing those members with industry representatives.³¹⁹ In more public moves against the fourth pillar's prioritization of politically insulated scientific judgments, federal government websites were scrubbed of information about climate change,³²⁰ and EPA Administrator Scott Pruitt announced plans to start a "red team-blue team" process to provide a platform for fringe climate change skeptics who deny well-accepted scientific

311. Exec. Order No. 13,783, 82 Fed. Reg. 16093 (Mar. 28, 2017).

312. *Id.* § 3(c).

313. *Id.* § 5(b).

314. *Id.* § 3(a)(iv).

315. *Id.* § 3(a)(i).

316. See *supra* Section I.C.1. The order also targeted first-pillar policies by directing the EPA to review the Clean Power Plan and instructing the Bureau of Land Management to revisit policies regarding methane emissions and hydrocarbon production on federal and tribal lands. Exec. Order No. 13,783, §§ 4, 6-7, 82 Fed. Reg. 16093 (Mar. 28, 2017).

317. Exec. Order No. 13,807, 82 Fed. Reg. 40463 (Aug. 15, 2017).

318. See *supra* note 75.

319. Coral Davenport, *EPA Dismisses Members of Major Scientific Review Board*, N.Y. TIMES (May 7, 2017), <http://www.nytimes.com/2017/05/07/us/politics/epa-dismisses-members-of-major-scientific-review-board.html> [<http://perma.cc/N3MY-NBQG>].

320. Oliver Milman & Sam Morris, *Trump Is Deleting Climate Change, One Site at a Time*, GUARDIAN (May 14, 2017), <http://www.theguardian.com/us-news/2017/may/14/donald-trump-climate-change-mentions-government-websites> [<http://perma.cc/MQA9-G3R9>].

theories.³²¹ Giving a voice to such skeptics would depart drastically from the Obama Administration's insistence on scientific integrity.³²² Finally, the White House proposed a budget that would slash scientific funding for NASA, the National Oceanographic and Atmospheric Administration, and EPA,³²³ reversing the Obama Administration's practice of supporting government climate change science.

These early attacks against President Obama's fourth pillar paint a bleak picture for the durability of climate-consciousness in the Trump Administration. However, the fourth pillar may prove surprisingly durable due to both formal and informal constraints on presidential power.

B. Formal Legal Constraints

Climate-consciousness may be protected by administrative-law doctrines, especially the requirement for agency decision making to rely on sound scientific reasoning. Notably, courts have applied such rationality requirements with greater force for agency policy reversals. Further, a recent conservative turn in administrative law raises the possibility of reduced deference and greater judicial scrutiny of administrative actions. These doctrines, combined with the Obama Administration's vast pool of scientific, technical, and economic assessments on climate change, may provide potent ammunition for sophisticated interest groups to credibly challenge Trump Administration cost-benefit analyses, NEPA EAs or EISs, and other agency justifications for administrative action.

Interest group pressure may slow the revocation of climate-conscious policies starting from the pre-rulemaking stage, the extreme "front end" where agencies interface with stakeholders to shape their policy proposals.³²⁴ By reg-

321. Brad Plumer & Coral Davenport, *EPA To Give Dissenters a Voice on Climate, No Matter the Consensus*, N.Y. TIMES (June 30, 2017), <http://www.nytimes.com/2017/06/30/climate/scott-pruitt-climate-change-red-team.html> [<http://perma.cc/K4E8-U8JR>].

322. For a critique of the "red team-blue team" approach, see Kelly Levin, *Pruitt's "Red Team-Blue Team" Exercise a Bad Fit for EPA Climate Science*, WORLD RESOURCES INST. (June 20, 2017), <http://www.wri.org/blog/2017/06/pruitts-red-team-blue-team-exercise-bad-fit-epa-climate-science> [<http://perma.cc/5EJ4-57RD>].

323. Doyle Rice & Ledyard King, *Trump's Budget Proposal "Savages" Climate Research, Scientists Say*, USA TODAY (May 23, 2017), <http://www.usatoday.com/story/news/nation/2017/05/23/trumps-budget-proposal-savages-climate-research-scientists-say/102062556> [<http://perma.cc/5L76-9K5R>].

324. See William F. West, *Inside the Black Box: The Development of Proposed Rules and the Limits of Procedural Controls*, 41 ADMIN. & SOC'Y 576 (2009) (explaining the importance of this "front end").

istering strong objections to potential agency actions and credibly signaling the possibility of legal challenges, sophisticated interest groups—for example, “Big Green” groups like the Natural Resources Defense Council, the Environmental Defense Fund, and the Sierra Club—may force agencies to rethink their actions and develop justifications that are more likely to survive judicial review. During the notice-and-comment period, these groups may submit opposing legal views and technical evidence to the administrative docket, creating a need for government agencies—possibly in collaboration with industry groups—to create and submit countervailing evidence. When such administrative actions are litigated, pro-environmental interest groups may then refer to the vast pool of scientific information produced during the Obama presidency to reveal inconsistencies.

Two areas of doctrine may provide further support for such private litigants. First, the doctrine regarding regulatory reversals in *Motor Vehicle Manufacturers Ass’n v. State Farm Mutual Automobile Insurance Co.* requires an agency “changing its course” to “supply a reasoned analysis . . . beyond that which may be required when an agency does not act in the first instance.”³²⁵ In *FCC v. Fox Television Stations, Inc.*,³²⁶ five justices of the Court extended this general principle and agreed that at least some agency reversals required stronger justifications.³²⁷ In the climate change context, reviewing courts may—as discussed in Section II.A—be particularly sensitive to the possibility of political interference with climate change science. Therefore, a reviewing court may apply the full brunt of the *State Farm* doctrine if an administrative agency justifies an action with a transparently politicized repudiation of mainstream climate change science and Obama-era government assessments.

Second, a slowly building jurisprudence that questions deference to agency statutory interpretations could aid private litigants that challenge reversals of climate-conscious policies.³²⁸ In recent years, conservative judges have voiced

325. 463 U.S. 29, 42 (1983).

326. 556 U.S. 502 (2009).

327. *Id.* at 535 (Kennedy, J., concurring in part and concurring in the judgment) (agreeing with Justice Breyer’s dissent, which was joined by Justices Stevens, Souter, and Ginsburg). As explained by Randy J. Kozel and Jeffrey A. Pojanowski, *Fox* led to a complicated set of concurrences and dissents. “A majority . . . refused to subject an administrative reversal to heightened scrutiny, but a different coalition of five Justices indicated that at least some agency reversals require more rigorous review.” Randy J. Kozel & Jeffrey A. Pojanowski, *Administrative Change*, 59 UCLA L. REV. 112, 129 (2011).

328. See, e.g., Philip Hamburger, *Chevron Bias*, 84 GEO. WASH. L. REV. 1188 (2016); Heinzerling, *The Power Canons*, *supra* note 269; Jody Freeman, *The Chevron Sidestep: Professor Freeman on King v. Burwell*, HARV. ENVTL. L. PROGRAM (June 2015), <http://environment.law.harvard.edu/2015/06/the-chevron-sidestep> [<http://perma.cc/48ES-PHSM>]; Patrick Greg-

skepticism about the administrative state,³²⁹ including a withering critique of the *Chevron* doctrine by Justice Gorsuch during his tenure as a judge on the Tenth Circuit Court of Appeals.³³⁰ If this claw-back of deference is indeed occurring, it could increase judicial scrutiny of agency changes in course, thereby crystallizing previous agency decisions. Obama-era environmental initiatives are especially susceptible to this solidification in light of their reliance on hard data.

For example, assume that *Michigan v. EPA* is part of a rollback of deference. In other words, assume that the broad reading of *Michigan* limits agency statutory interpretations by holding that the agency may not interpret open-ended delegations to omit the consideration of costs.³³¹

Traditionally, deference has been understood as a pro-regulatory practice. Efforts to limit deference have been the province of conservative judges and legal scholars who hold constitutional concerns about the legitimacy of the administrative state.³³² Similarly, cost-benefit analysis has traditionally been used as a deregulatory tool. Cost-benefit analysis came into being as a Reagan Administration tool to reduce regulation, leading to skepticism by pro-labor and environmental interests.³³³ To this day, left-leaning scholars criticize the inability of cost-benefit analysis to account for many of the benefits of environmental

ory, *Scholars Concerned About Chevron Deference "Retreat,"* BLOOMBERG BNA (June 9, 2016), <http://www.bna.com/scholars-concerned-chevron-n57982073856> [<http://perma.cc/V9DW-487Y>].

329. Robin Bravender, *Alito Snubs Chevron, Obama EPA's "Eraser,"* GREENWIRE (Nov. 17, 2016), <http://www.eenews.net/greenwire/2016/11/17/stories/1060045952> [<http://perma.cc/CD8R-U3AZ>] (reporting on a talk by Justice Alito at the Federalist Society's annual convention, where Justice Alito described his and the late Justice Scalia's skepticism about *Chevron*).

330. *Gutierrez-Brizuela v. Lynch*, 834 F.3d 1142, 1158 (10th Cir. 2016) (Gorsuch, J., concurring) ("We managed to live with the administrative state before *Chevron*. We could do it again.").

331. See Andrew M. Grossman, *Michigan v. EPA: A Mandate for Agencies To Consider Costs*, 2015 CATO SUP. CT. REV. 281, 294 (relating *Michigan* to *Chevron* and *State Farm*); Heinzerling, *supra* note 269, at 5-6; Case Note, *Michigan v. EPA*, 129 HARV. L. REV. 311, 316 (2015) ("*Michigan* has the potential to alter two seminal doctrines governing judicial review of administrative action: *Chevron* and *State Farm*."); Philip Hamburger, *Chevron's Last Days?*, POWERLINE (July 2, 2015), <http://www.powerlineblog.com/archives/2015/07/philip-hamburger-chevrons-last-days.php> [<http://perma.cc/7UBZ-WMAE>].

332. See, e.g., PHILIP HAMBURGER, *IS ADMINISTRATIVE LAW UNLAWFUL?* (2014).

333. REVESZ & LIVERMORE, *supra* note 139, at 24-29; see also SHANE, *supra* note 309, at 149-54 (documenting the role of OIRA in the Reagan, George H.W. Bush, and Clinton administrations).

protection.³³⁴ However, as Professors Richard Revesz and Michael Livermore have posited, cost-benefit analysis—if conducted properly—need not have a pro-regulatory or anti-regulatory bias.³³⁵ Instead, cost-benefit analysis can be debiased by developing ways to account for difficult-to-quantify values, considering ancillary benefits,³³⁶ and acknowledging its inherent limitations.³³⁷

From this point of view, cost-benefit analysis can be a tonic for flawed rules that might over-regulate, under-regulate, or mis-regulate in various ways.³³⁸ If *Michigan* was an attempt to limit deference by requiring agencies to include cost-benefit analyses in their reason-giving, *Michigan* could then have the counterintuitive effect of *reinforcing* President Obama's attempt to embed climate change into federal decision making, as Obama-era resources both justify why agencies should account for climate change and facilitate agencies in doing so.

Of course, there are limitations to these formal legal constraints. First, President Trump has broad supervisory powers to inject policy considerations into rulemaking processes.³³⁹ As Professor Nina Mendelson argues, few forms of presidential pressure are “clearly out of bounds.”³⁴⁰ Second, the cost-benefit requirement foreshadowed in *Michigan* may turn out to be more procedural than substantive.³⁴¹ Even if lower courts interpret *Michigan* expansively, President Trump could easily fulfill the *Michigan* mandate to “consider” costs while ig-

334. See, e.g., FRANK ACKERMAN & LISA HEINZERLING, PRICELESS (2004); DOUGLAS A. KYSAR, REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY (2010).

335. See REVESZ & LIVERMORE, *supra* note 139, at 50–51 (pointing out that EPA developed improved cost-benefit guidelines to counter OIRA's deregulatory bias).

336. *Id.* at 58–67.

337. See *id.* (noting the potential shortcomings in cost-benefit analysis).

338. See, e.g., STEPHEN BREYER, BREAKING THE VICIOUS CIRCLE 3–29 (1993) (comparing risks that are overestimated and over-regulated, with risks that are underestimated and under-regulated); Richard Stewart, *A New Generation of Environmental Regulation*, 29 CAP. U. L. REV. 21, 28 (2001) (arguing that U.S. environmental protection suffers from simultaneous over-regulation and under-regulation).

339. See, e.g., *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 59 (1983) (Rehnquist, J., dissenting) (“A change in administration . . . is a perfectly reasonable basis for an executive agency's reappraisal of the costs and benefits of its programs and regulations.”); *Sierra Club v. Costle*, 657 F.2d 298, 446 (D.C. Cir. 1981) (“[W]e do not believe that Congress intended that the courts convert informal rulemaking into a rarified technocratic process, unaffected by political considerations or the presence of Presidential power.”).

340. Mendelson, *supra* note 24, at 1141.

341. As discussed throughout this paper, NEPA is a procedural statute that nevertheless imposes significant substantive effects.

noring climate change by providing colorable reasons to weigh nonclimate factors more heavily. Finally, formal legal constraints only apply where there are judicially reviewable outcomes. The judiciary is unlikely to provide recourse to litigants if the Trump Administration simply chooses inaction via non-enforcement or benign neglect.³⁴²

Yet at the very least, the Obama Administration's climate change assessments, combined with the overwhelming weight of the present scientific consensus on climate change, render pro-environmental litigants well-equipped to delay or "ossify"³⁴³ regulatory actions. Given that the Trump Administration has so far had difficulty in court justifying controversial actions with questionable legal and factual foundations,³⁴⁴ private litigants could prevail on the depth of the scientific data the Obama Administration cultivated in the federal bureaucracy.

C. Inertia and Backlash

Nonjudicial phenomena may compound formal legal constraints in preserving Obama-era climate-consciousness. Inertia, bureaucratic pushback, and public backlash may also frustrate the Trump Administration's effort to fully dismantle President Obama's fourth pillar. Although these phenomena are difficult to predict, the Trump Administration's first several months in office

342. See Daniel T. Deacon, Note, *Deregulation Through Nonenforcement*, 85 N.Y.U. L. REV. 795 (2010) (arguing that the presumption of nonreviewability for enforcement decisions, when combined with strong judicial scrutiny of agency policy reversals and rulemakings, creates an incentive to pursue "deregulation through nonenforcement," which is shielded from public view).

343. See Thomas O. McGarity, *Some Thoughts on "Deossifying" the Rulemaking Process*, 41 DUKE L.J. 1385 (1992).

344. The first and second versions of President Trump's executive order on visas and refugees (the so-called "travel ban") were notable for their inept design and weak factual support. See *Washington v. Trump*, 847 F.3d 1151, 1168 (9th Cir. 2017) (per curiam) ("The Government has pointed to no evidence that any alien from any of the countries named in the Order has perpetrated a terrorist attack in the United States. Rather than present evidence to explain the need for the Executive Order, the Government has taken the position that we must not review its decision at all."); *Hawaii v. Trump*, 859 F.3d 741, 772-73 (9th Cir. 2017) (per curiam) (stating that the President Trump's second immigration order "[did] not provide a rationale explaining why permitting entry of nationals from the six designated countries under current protocols would be detrimental to the interests of the United States"); see also Benjamin Wittes, *Malevolence Tempered by Incompetence: Trump's Horrifying Executive Order on Refugees and Visas*, LAWFARE (Jan. 28, 2017, 10:58 PM), <http://lawfareblog.com/malevolence-tempered-incompetence-trumps-horrifying-executive-order-refugees-and-visas> [<http://perma.cc/U9LH-BZTH>] (claiming that President Trump's first executive order on immigration was incompetently drafted).

provide preliminary signs that climate-consciousness may be deeply entrenched in certain parts of the federal government and that efforts to stamp out climate-consciousness may face unlikely foes, ranging from EPA bureaucrats to Republican members of Congress.

Presidential administration, however well-executed, may be frustrated by a federal bureaucracy that is steeped in routine and prone to inertia. As President Truman famously quipped of President Eisenhower, “He’ll sit here, and he’ll say, ‘Do this! Do that!’ *And nothing will happen*. Poor Ike – it won’t be a bit like the Army. He’ll find it very frustrating.”³⁴⁵ If anything, President Trump has – as of the time of writing – reportedly found it difficult to control the sprawling federal government.³⁴⁶

Although President Trump has issued executive orders to dismantle the fourth pillar and attacked federal climate change and environmental science, these actions have not fully addressed climate-consciousness, which is decentralized throughout the administrative state. As noted in Section I.C.2, federal funding for climate change activities is hidden throughout the federal budget. As Section I.C.4 described, some agencies like the DOE tend to consider climate change even in the absence of overt presidential direction. Finally, the analysis of the military’s climate-consciousness in Section I.C.6 demonstrates that key decisionmakers in the Pentagon have viewed climate change as a key strategic issue since at least the early 1990s. As the GAO noted in 2011, “[t]he overall scale of the federal climate change enterprise makes it difficult for officials to be aware of the whole range of programs and activities”³⁴⁷ In other words, climate-consciousness may be too ingrained to be easily stripped from the federal bureaucracy.

To reinforce this difficulty, agencies may respond imperfectly to presidential mandates due to habit. Bureaucratic agencies are often defined by regularized and stable practices.³⁴⁸ For example, even though CEQ has rescinded the

345. RICHARD E. NEUSTADT, *PRESIDENTIAL POWER AND THE MODERN PRESIDENTS* 10 (1990); see also Kagan, *supra* note 23, at 2272 (making use of this famous quote).

346. See, e.g., Alex Isenstadt et al., *Trump Vexed by Challenges, Scale of Government*, POLITICO (Feb. 10, 2017, 5:06 AM), <http://secure.politico.com/story/2017/02/donald-trump-challenges-governing-presidency-234879> [<http://perma.cc/5BTD-EP29>] (describing internal divisions in the Trump White House, problems in allocating and delegating responsibilities, and a “rocky” transition of power).

347. U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-11-317, *CLIMATE CHANGE: IMPROVEMENTS NEEDED TO CLARIFY NATIONAL PRIORITIES AND BETTER ALIGN THEM WITH FEDERAL FUNDING DECISIONS* (2011).

348. In fact, Max Weber, whose scholarship launched the modern study of bureaucracy, saw routine and regularization as a defining principle of bureaucracy. MAX WEBER, *ECONOMY AND*

NEPA guidance on climate change, it is conceivable that some agencies will – as a matter of course³⁴⁹ – continue to consider climate change when conducting EAs and EISs. It is conceivable that some RIAs will continue to incorporate climate change in their cost-benefit analyses. Such habits will likely be strongest for agencies with a long history of climate-consciousness, such as the DOE.

Additionally, the Trump Administration's environmental actions have been met by a surprising amount of bureaucratic pushback, which may serve as a potent check against presidential power.³⁵⁰ Conventional accounts of bureaucratic resistance, which study the period following President Reagan's rise to power, have suggested that career civil servants will generally comply with demands by a new presidential administration³⁵¹ and follow their self-perceived subordinate roles as unelected government officials.³⁵² However, there is at least some evidence that bureaucrats in the Trump Administration are departing from these norms. Rogue Twitter accounts by government employees have lampooned and lambasted the Administration,³⁵³ government employees have leaked a section of the Fourth National Climate Assessment to preempt the possibility of political interference,³⁵⁴ longtime civil servants have dropped the proverbial microphone with scathing critiques of the Trump Administration as

SOCIETY 956-58 (Guenther Roth & Claus Wittich eds., Ephraim Fischhoff et al. trans., Univ. of Cal. Press 1978) (1922).

349. See JERRY L. MASHAW, *CREATING THE ADMINISTRATIVE CONSTITUTION* 313-14 (2012) (culminating a historical account of early American administrative law by stressing the need for scholars to pay attention to ingrained patterns of agency practice).
350. See Jennifer Nou, *Bureaucratic Resistance from Below*, YALE J. ON REG.: NOTICE & COMMENT (Nov. 16, 2016), <http://yalejreg.com/nc/bureaucratic-resistance-from-below-by-jennifer-nou> [<http://perma.cc/VZG2-UG6V>].
351. See MARISSA MARTINO GOLDEN, *WHAT MOTIVATES BUREAUCRATS?: POLITICS AND ADMINISTRATION DURING THE REAGAN YEARS* 155 (2000).
352. *Id.* at 155-56.
353. See, e.g., Steve Gorman, *Defying Trump, Twitter Feeds for U.S. Government Scientists Go Rogue*, REUTERS (Jan. 26, 2017), <http://www.reuters.com/article/us-usa-trump-resist-idUSKBN15AoDI> [<http://perma.cc/HCX4-32X7>].
354. Lisa Friedman, *Scientists Fear Trump Will Dismiss Blunt Climate Report*, N.Y. TIMES (Aug. 7, 2017), <http://www.nytimes.com/2017/08/07/climate/climate-change-drastic-warming-trump.html> [<http://perma.cc/F29L-PQMN>]. There was a minor controversy as to whether the section of the report leaked to the *New York Times* was already available to the public, but it appears that the *Times* ended up publishing a version not available to the public. Eric Holthaus, *The Future Is Leak*, GRIST: BRIEFLY (Aug. 8, 2017), <http://grist.org/briefly/the-new-york-times-published-a-leaked-governmental-memo-on-climate-change-eventually> [<http://perma.cc/U9BN-WT7D>].

they retired,³⁵⁵ and close-knit cadres inside agencies as diverse as EPA, the Department of Labor, and the State Department have covertly organized in preparation for further resistance.³⁵⁶

These remarkable acts of bureaucratic pushback may be motivated in part by the hostility of President Trump's appointees. For example, EPA Administrator Scott Pruitt is reputed as being "disdainful of the agency and the science behind what the agency does."³⁵⁷ Since his appointment, Administrator Pruitt has largely operated behind a veil of secrecy, rarely interacting with career EPA staff and relying heavily on political appointees and industry lobbyists.³⁵⁸ Given the tense relationships between Administrator Pruitt and EPA staff, it is unsurprising that the agency's career civil servants have engaged in bare resistance.

The DOD and U.S. Armed Forces, where climate-consciousness is strong but presidential control is at its zenith, have also demonstrated a lingering commitment to climate-consciousness. Despite serving as a member of President Trump's Cabinet, Secretary of Defense James Mattis has strongly and unequivocally defended the military's focus on climate change.³⁵⁹ The military's

355. Joe Davidson, *EPA Staffer Leaves with a Bang, Blasting Agency Policies Under Trump*, WASH. POST: POWERPOST (Apr. 7, 2017), <http://www.washingtonpost.com/news/powerpost/wp/2017/04/07/epa-staffer-leaves-with-a-bang-blasting-agency-policies-under-trump> [<http://perma.cc/CUZ9-PGGR>].

356. See Andrew Restuccia et al., *Federal Workers Turn to Encryption To Thwart Trump*, POLITICO (Feb. 2, 2017, 5:07 AM), <http://www.politico.com/story/2017/02/federal-workers-signal-app-234510> [<http://perma.cc/G4NQ-RPQJ>].

357. Elizabeth Kolbert, *Earth to Pruitt: At a Confirmation Hearing, Denialism Stands While Temperatures Rise*, NEW YORKER (Jan. 19, 2017), <http://www.newyorker.com/news/daily-comment/earth-to-pruitt-at-a-confirmation-hearing-denialism-stands-while-temperatures-rise> [<http://perma.cc/LY88-PPZE>] (quoting Christine Todd Whitman, a former New Jersey governor who served as EPA Administrator during the George W. Bush presidency).

358. Coral Davenport & Eric Lipton, *Scott Pruitt Is Carrying Out His E.P.A. Agenda in Secret, Critics Say*, N.Y. TIMES (Aug. 11, 2017), <http://www.nytimes.com/2017/08/11/us/politics/scott-pruitt-epa.html> [<http://perma.cc/N3MY-NBQG>].

359. In written testimony before the Senate Armed Services Committee, Secretary Mattis asserted, "Climate change is impacting stability in areas of the world where our troops are operating today It is appropriate for the Combatant Commands to incorporate drivers of instability that impact the security environment in their areas into their planning." Andrew Revkin, *Trump's Defense Chief Cites Climate Change as National Security Challenge*, SCIENCE (Mar. 14, 2017, 1:00 PM), <http://www.sciencemag.org/news/2017/03/trump-s-defense-chief-cites-climate-change-national-security-challenge> [<http://perma.cc/VT7W-VEFX>]; see also Erika Bolstad, *Trump Likely To Downplay Climate as Security Threat*, CLIMATEWIRE (Nov. 28, 2016), <http://www.eenews.net/climatewire/stories/1060046229> [<http://perma.cc/CW7X-WPDJ>] (quoting interviewees who suspect that some Pentagon climate change policies will survive due to their cost- or life-saving qualities).

commitment to combating climate change has even swayed Republican members of Congress. In August 2017, forty-six House Republicans crossed partisan lines to reject an amendment to an annual defense bill that would have eliminated a mandate for the DOD to prepare for climate change impacts.³⁶⁰ This rebellion against the Republican Party's official position on climate change signals that the Pentagon's longstanding work on climate change, combined with the Obama Administration's support for such efforts, may have started to persuade legislators to pay greater heed to climate change.

In summary, President Obama's fourth pillar provides extensive opportunities for private litigants to protect climate-consciousness. Given the dispersed nature of the fourth pillar, the Trump Administration may find it difficult to eliminate climate change programs and counter bureaucratic opposition. For parts of the government like the DOD with long traditions of climate-consciousness, even Republican members of Congress may oppose efforts to roll back climate-consciousness. Although the fate of climate-consciousness may ultimately depend on whether President Trump wins a second term in office, President Obama's fourth pillar may prove surprisingly durable. The fourth pillar will, at the very least, provide a blueprint for future Presidents to motivate the vast federal bureaucracy to address complex public problems like climate change.

CONCLUSION: DEMOCRACY AND CLIMATE-CONSCIOUSNESS

This Note identified and explored an unrecognized component of the Obama Administration's executive actions on climate change. The fourth pillar represented a remarkably broad and deep intervention into the administrative state that advanced the envelope of presidential administration. The Obama Administration combined a diverse and interlocking array of interventions that relied heavily on good science and combined top-down directives and incentives with bottom-up implementation. The fourth pillar was highly responsive to a judicial demand for sound, reasoned, and evidence-driven responses to climate change. However, the fourth pillar left Congress somewhat out of the picture, and Congress directed its political opposition at higher-salience pillars of President Obama's Climate Action Plan.

Just as the fourth pillar complemented a judicial desire for more rational management of climate change, dismantling the fourth pillar may prove diffi-

360. David Siders, *More GOP Lawmakers Bucking Their Party on Climate Change*, POLITICO (Aug. 19, 2017, 7:45 AM), <http://www.politico.com/story/2017/08/19/more-gop-lawmakers-bucking-their-party-on-climate-change-241800> [<http://perma.cc/93XE-8F39>].

cult because climate-unconsciousness is irrational. Yet judicial challenges to the Trump Administration's climate-unconscious executive actions are—at best—likely to only *slow* the pace of deregulation. Bureaucratic inertia and public backlash may also render climate-consciousness more durable. In particular, the public backlash against the Trump Administration's denials of climate change has created room for some Republican members of Congress to defy the party line on climate change, representing a possible signal of democratic revitalization on climate change.

Kagan observed that presidential administration can promote both administrative effectiveness and democratic accountability. As this Note has argued, the Obama Administration's efforts generally promoted administrative effectiveness by directing and enabling federal departments and agencies to seriously and rationally respond to a grave public problem. Nevertheless, some aspects of the fourth pillar also raise significant questions about democratic accountability, diverging from Kagan's account. For example, even though public opinion during the Obama Presidency overwhelmingly favored treating climate change as a serious public problem,³⁶¹ there is something unsettling about the Obama Administration's practice—however well-intended—of deliberately hiding money throughout the federal budget to evade congressional scrutiny.

This points to a fundamental shortcoming of presidential administration. Ultimately, executive power may be an inferior substitute for a well-functioning legislature that passes well-considered laws that reflect the democratic interest and fosters the vigorous democratic process that is necessary³⁶² to address a problem like climate change.

361. See Jocelyn Kiley, *Ideological Divide Over Global Warming as Wide as Ever*, PEW RES. CTR. (June 16, 2015), <http://www.pewresearch.org/fact-tank/2015/06/16/ideological-divide-over-global-warming-as-wide-as-ever> [<http://perma.cc/N2JM-H3C8>] (showing that 69% of Americans identified global warming as a “very” or “somewhat” serious problem).

362. For arguments that a revitalization of democracy is necessary to address climate change, see KYSAR, *supra* note 334; Jedidiah Purdy, *The Politics of Nature: Climate Change, Environmental Law, and Democracy*, 119 YALE L.J. 1122 (2010).