PRESIDENTIAL ADMINISTRATION AND THE DURABILITY OF CLIMATE-CONSCIOUS REASONING

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Since then-Professor Elena Kagan published her seminal Article Presidential Administration, *legal scholars have extensively examined presidential control over federal departments and agencies. In this Note, I provide a novel account of the Obama administration's presidential administration efforts relating to climate change. Here, I do not focus on the Obama administration's major climate change regulations and international agreements, which have already attracted much attention. Rather, I identify a concerted but inconspicuous effort to embed climate-consciousness throughout executive-branch decisionmaking. This effort was unprecedented in its scope and ambition, outmatching previous Presidents' efforts to pursue policy objectives through presidential administration. I then explain how recent judicial precedents complemented and reinforced the Obama administration's efforts. I close by questioning whether climate-conscious administrative reasoning will remain durable after the inauguration of President Trump, a climate change denier who has promised to completely reverse the Obama administration's climate change initiatives. Although conventional wisdom counsels that the fruits of presidential administration are easily unraveled by subsequent Presidents, I argue that the Obama administration's efforts may be difficult to fully neutralize due to a range of structural factors.*

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INTRODUCTION

After the November 2008 election, President Obama's transition team immediately started to address the ballooning financial crisis.[1] Accordingly, economic issues dominated the agenda for the first few years of the Obama presidency. After economic stabilization came healthcare. Having campaigned on a promise to improve a broken healthcare system, the administration expended much of its political capital on brokering the Affordable Care Act.

In these early years, President Obama placed little emphasis on climate change,[2] and his first term was marked by two high-profile environmental policy failures. The first occurred at the 2009 United Nations climate change conference in Copenhagen. There, parties to the United Nations Framework Convention on Climate Change (UNFCCC), 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 high-profile disagreements between major powers,[3] and President Obama flew into Copenhagen to participate in last-minute negotiations that salvaged a widely panned and weak[4] three-page agreement.[5]

The second failure was the demise of the Waxman-Markey bill, which would have established a national cap-and-trade program for greenhouse gases (GHGs) with stringent emissions reduction targets.[6] Even following a two-decade hiatus in major domestic environmental legislation following the passage of the 1990 Clean Air Act Amendments, the Waxman-Markey bill and its Senate counterpart attracted support from most Democrats and some Republican lawmakers.[7] However, both the House and Senate versions of the cap-and-trade legislation were

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[1] Robert Reich, *Obama's Transition Economic Advisory Board: The Full List*, U.S. NEWS & WORLD REP. (Nov. 7, 2008), http://www.usnews.com/news/campaign-2008/articles/2008/11/07/obamas-transition-economic-advisory-board-the-full-list (stating that President Obama had convened a "Transition Economic Advisory Board" by the Friday following his election). *See* Jonathan D. Rose, *Old-Fashioned Deposit Runs* 2-8 (Bd. of Governors of the Fed. Reserve Sys., Finance and Economics Discussion Series No. 2015-111, 2015), https://www.federalreserve.gov/econresdata/feds/2015/files/2015111pap.pdf (detailing the progression of the financial crisis and noting that some banks continued to experience deposit runs into 2009).

[2] According to the Office of Management and Budget, the American Reinvestment and Recovery Act of 2009 (ARRA) 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). However, the climate change-related spending in the ARRA likely does not reflect a presidential or congressional focus on climate change. Rather, the climate change-related spending likely reflects the scramble in 2008-09 to identify projects that were ready to accept federal funding.

[3] 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; *see also* Int'l Inst. for Sustainable Dev. Reporting Servs. *Summary of the Copenhagen Climate Change Conference: 7-19 December 2009*, EARTH NEGOTS. BULL. Vol. 12, No. 459, Dec. 22, 2009, http://www.iisd.ca/download/pdf/enb12459e.pdf (providing a summary of the Copenhagen negotiations).

[4] 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.

[5] Copenhagen Accord, U.N. Doc. FCCC/CP/2009/L.7 (Dec. 18, 2009).

[6] *Comparison Chart of Waxman-Markey and Kerry-Lieberman*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, http://www.c2es.org/federal/congress/111/comparison-waxman-markey-kerry-lieberman.

[7] Ryan Lizza, *As the World Burns*, NEW YORKER (Oct. 11, 2010), http://www.newyorker.com/magazine/2010/10/11/as-the-world-burns.

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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 the related Senate bill, knowing that he could not reach cloture.[9] After the death of the Waxman-Markey bill, some environmental advocates faulted President Obama for the administration's relative disengagement from the legislative effort.[10]

After these two high-profile setbacks and the 2010 midterm elections, legislative gridlock forced the Obama administration to overhaul its approach to climate change by focusing on executive actions.[11] To lead this effort, White House officials recruited John Podesta, then-chairman of the influential Center for American Progress, to serve as the President's "climate change czar."[12] Later, 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 climate change as the three "pillars" for executive climate change actions.[13]

All three "pillars" have attracted extensive public and scholarly attention. In this Note, I identify a hidden "fourth pillar" to the Obama administration's strategy: an effort to embed climate-conscious reasoning throughout the federal government. This "fourth pillar" is significant because it reflects an effort at presidential administration that is unprecedented in its breath and ambition. In Part I of this Note, I introduce the concept of "presidential administration" and examine six channels of influence that President Obama exercised to instill climate-conscious reasoning throughout the federal government. In Part II, I explain how recent judicial precedents reinforced and complemented the Obama administration's approach to presidential administration. In Part III, I evaluate whether climate-consciousness within the federal government will remain durable after the inauguration of President Trump, a climate change denier.[14]

I. PRESIDENT OBAMA'S "FOURTH PILLAR" OF CLIMATE POLICY

Climate change poses challenging principal-agent problems for the federal government because the phenomenon is simultaneously fragmented and integrated. Climate change is

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[8] Darren Samuelsohn, *Waxman Predicts Committee Passage as Details Emerge on Cap-and-Trade, Energy Bill*, ENERGY & ENV'T DAILY (May 13, 2009), http://www.eenews.net/eedaily/2009/05/13/full.
[9] Bryan Walsh, *Why the Climate Bill Died*, TIME (July 26, 2010), http://science.time.com/2010/07/26/why-the-climate-bill-died/.
[10] David Roberts, *Why Did the Climate Bill Fail?*, GRIST (JULY 27, 2010), https://grist.org/article/2010-07-26-why-did-the-climate-bill-fail/.
[11] Amanda Reilly & Kevin Bogardus, *7 Years Later, Failed Waxman-Markey Bill Still Makes Waves*, ENERGY & ENV'T DAILY (JULY 27, 2016), http://www.eenews.net/stories/1060039422.
[12] Podesta was brought in specifically after the Obama administration identified a need to pivot to executive action to bypass a non-cooperative Congress. Ben Geman, *The Audacity of John Podesta*, THE ATLANTIC (Nov. 21, 2014), http://www.theatlantic.com/politics/archive/2014/11/the-audacity-of-john-podesta/446901/. *See also The Power of the President: Recommendations to Advance Progressive Change*, CTR. FOR AM. PROGRESS 6-7 (Nov. 2010), https://www.americanprogress.org/wp-content/uploads/issues/2010/11/pdf/executive_orders.pdf (detailing ways in which the Center for American Progress, under Podesta's leadership, conceived of presidential action on climate change).
[13] *The President's Climate Action Plan*, EXECUTIVE OFF. OF THE PRESIDENT 5 (June 2013), https://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf.
[14] *See, e.g.*, Donald J. Trump (@realDonaldTrump), TWITTER (Nov. 6, 2016, 11:15 AM), https://twitter.com/realdonaldtrump/status/265895292191248385.

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fragmented because sources of greenhouse gases are diverse and dispersed over space and time; consequences of global warming are difficult to predict and involve long causal chains; and a multitude of policies must be pursued to mitigate GHG emissions and adapt to climate-induced disruptions. Climate change is *integrated* because it is a collective action problem that affects nearly every aspect of human activity; requires deep coordination; and demands responses across different economic sectors and levels of government.[15]

Responsibility for climate change does not wholly lie within the mandate of any single department or agency. Climate change implicates departments ranging from the Department of Energy[16] to Department of Labor[17]; independent agencies ranging from the SEC[18] to the Export-Import Bank[19]; and military operations ranging from Arctic naval activities[20] to disaster relief.[21] The federal government, which is the largest single electricity purchaser in the U.S.,[22] has an environmental footprint that spans "360,000 buildings, 650,000 fleet vehicles, and $445 billion spent annually on goods and services."[23] As of 2010, the U.S. government's GHG emissions totaled over 120 megatons of carbon-dioxide-equivalent[24]—equivalent to about 2% of net U.S. emissions in that year.[25] A wide range of other federal actions influence economic activities throughout the U.S. and affect climate change through increased or reduced emissions.

Consequently, it was not enough for the Obama administration to promulgate climate change regulations, establish international agreements, and assist local and state governments. Rather, the Obama administration recognized and fulfilled the need for a "fourth" pillar of

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[15] *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 policy problem).

[16] *Climate Change*, U.S. DEP'T OF ENERGY, https://energy.gov/science-innovation/climate-change (detailing the Department of Energy's involvement with climate change).

[17] *Green Jobs*, U.S. DEP'T OF LAB., https://www.dol.gov/odep/topics/GreenJobs.htm (claiming that the Department of Labor is "a federal government leader in creating a clean energy economy").

[18] Commission Guidance Regarding Disclosure Related to Climate Change, 75 Fed. Reg. 6289 (Feb. 28, 2010) (providing guidance on corporate disclosures of climate-related risks).

[19] Friends of the Earth, Inc. v. Spinelli, No. 02-4106 (N.D. Cal. 2002) (challenging the Export-Import Bank's failure to conduct 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-lawsui/.

[20] 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).

[21] E.D. McGrady, Maria Kingsley & Jessica Stewart, *Climate Change: Potential Effects on Demands for US Military Humanitarian Assistance and Disaster Response*, CNA (Nov. 2010), www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA564975.

[22] *Fact Sheet: Reducing Greenhouse Gas Emissions in the Federal Government and Across the Supply Chain*, WHITE HOUSE OFF. OF THE PRESS SECRETARY (Mar. 19, 2015), https://www.whitehouse.gov/the-press-office/2015/03/19/fact-sheet-reducing-greenhouse-gas-emissions-federal-government-and-acro.

[23] *Federal Leadership on Climate Change and Environmental Sustainability—Executive Order 13693*, COUNCIL ON ENVTL. QUALITY, https://www.whitehouse.gov/administration/eop/ceq/sustainability.

[24] Leon Walker, *Fed Carbon Footprint: 121.3 Million Metric Tons; Lion's Share Is DOD*, CLIMATE 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/.

[25] *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2014*, U.S. ENVTL. PROTECTION AGENCY at ES-5 tbl. ES-2 (Apr. 15, 2016), https://www.epa.gov/sites/production/files/2016-04/documents/us-ghg-inventory-2016-main-text.pdf

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executive action: to pervasively embed climate-conscious reasoning throughout the federal government.

Of course, as noted by then-Professor Elena Kagan and others, recent presidents starting with President Reagan have wielded forceful powers of "presidential administration" over the executive branch.[26] Although President Reagan applied his powers of presidential administration for deregulatory purposes, President Clinton definitively demonstrated that presidential administration could be used to advance proregulatory objectives,[27] setting a precedent for President Obama's climate change efforts. Still, even President Clinton's efforts at presidential administration exerted control over a relatively small number of agencies to address relatively narrow problems like tobacco control, gun control, and welfare reform.[28]

By contrast, climate change is—as described above—a broad problem that implicates many actors. Indeed, some scholars have described how presidential coordination becomes much when difficult when problems cut across multiple agencies and into "shared regulatory space."[29] Climate change is an extreme version of such a problem, because the "regulatory space" for climate change is shared by virtually every department and agency. Ordinarily, presidential efforts to address highly cross-cutting problems through presidential oversight are anchored by statutes[30] that impose compulsory "tunnel vision"-limiting[31] procedural requirements. These statutes bind agencies to consider broader social objectives when making certain decisions or taking certain actions. Unfortunately, there is no similar mandate for federal departments and agencies to be climate-conscious when making decisions.[32]

Faced with a vexing problem and equipped with imperfect tools, the Obama administration deployed a wide range of strategies to enable, encourage, and mandate climate-conscious administration. Although climate change may be a *sui generis* public problem, this case study

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[26] Elena Kagan, *Presidential Administration*, 114 HARV. L. REV. 2246, 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 largely exclude foreign policy and military matters, which are more securely within exclusive executive control.

[27] *Id.* at 2249-50, 2281-84; *see also* STEPHEN G. CALABRESI & CHRISTOPHER S. YOO, THE UNITARY EXECUTIVE 391-404 (2008) (explaining that President Clinton "demanded total control over the workings of the executive branch," used his removal powers, reinforced the role of OMB, placed pressure on independent agencies, and represented himself to the public as having "ownership of administrative actions").

[28] Kagan, *supra* note 26, at 2248.

[29] *See generally* Jody Freeman & Jim Rossi, *Agency Coordination in Shared Regulatory Space*, 125 HARV. L. REV. 1131 (2012).

[30] *See, e.g.*, Regulatory Flexibility Act, 5 U.S.C. §§ 601-612 (2012).

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

[32] The National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-47 (2012), has been interpreted to require agencies to consider climate change in some instances. *See infra* Parts I.C, II.B. However, NEPA—a statute passed before climate change was widely acknowledged as a public problem—does not explicitly contemplate climate change.

presents presidential administration at its most expansive, illustrating how the President can combine myriad tools to influence and direct the Executive Branch.

A. Directives Issued Through Executive Orders

President Obama's climate-related executive orders can be divided into two categories. The first category consists of a hodgepodge of orders that encompass only a few agencies or address a narrow set of policy issues. Examples of this sort of executive order include Executive Order 13,677, a mandate for the United States Agency for International Development to "integrat[e] climate-resilience considerations" into its development work[33] and Executive Order 13,690, a directive for FEMA to account for climate change when designating floodplains.[34] The second category—which is the object of this Part—consists of three cross-cutting executive orders that involve every federal agency and department.

Executive orders relating to federal energy efficiency and conservation have been issued since the Ford administration.[35] By the time President Obama entered office, these orders had expanded to address GHG emission reductions, recycling and waste reduction, and federal purchases of energy-efficient goods. However, President Obama's three orders successively expanded upon previous orders by imposing more rigorous planning requirements, placing a novel focus on adapting to the effects of climate change, and issuing more stringent GHG emission reduction goals with broader coverage of indirect emissions from federal activities.[36]

The first of the three orders, Executive Order 13,514, was issued in 2009. Most of the order's provisions focused on strengthening energy efficiency standards, emissions reductions goals, and other targets articulated in previous executive orders.[37] However, Executive Order 13,514 contained two novel requirements. First, the executive order directed the White House Council on Environmental Quality (CEQ) and Office of Management and Budget (OMB) to help

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[33] Exec. Order No. 13,677, 79 Fed. Reg. 58,231 (Sept. 23, 2014).

[34] 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.

[35] 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. 15.825 (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).

[36] *See infra* notes 37-46 and accompanying text.

[37] *Executive Order 13514—Focused on Federal Leadership in Environmental, Energy, and Economic Performance*, WHITE HOUSE OFF. OF THE PRESS SECRETARY (Oct. 5, 2009), https://www.whitehouse.gov/the-press-office/president-obama-signs-executive-order-focused-federal-leadership-environmental-ener ("The Executive Order builds on and expands the energy reduction and environmental requirements of Executive Order 13423 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.")

each agency create a "Strategic Sustainability Performance Plan."[38] 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;
- set a multi-year 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.[39]

Although not required by the Order, the Obama administration also subjected these sustainability plans to public comment.[40] Essentially, Executive Order 13,514 required departments and agencies to not only set abstract goals, but also establish concrete plans to achieve them. The order also ensured that each agency had a centralized process to account for the large number of environmental, energy, and climate change-related mandates that had built up between the Ford and Bush II administrations.

Second, Executive Order 13,514 mandated agencies to set targets for the reduction of indirect GHG emissions, or so-called "Scope 3" emissions.[41] This category includes emissions stemming from activities such as employee travel and commuting, emissions from contractors, and even emissions from visitors traveling to national parks.[42] This expanded the domain of the climate change impacts considered by agencies.

The two later executive orders—Executive Orders 13,653 and 13,693—continued to move beyond previous orders. In 2013, Executive Order 13,653 mandated—for the first time—a wide array of adaptive actions by agencies to make federal activities more resilient to climate-induced disruptions.[43] The Order also convened an Adaptation Task Force consisting of local, state, and tribal leaders,[44] whose recommendations spurred a wide array of executive initiatives to support

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[38] Id.
[39] Exec. Order No. 13,514, 74 Fed. Reg. 52,117 (Oct. 5, 2009).
[40] *Obama Administration Releases Agency Strategic Sustainability Performance Plans*, EXECUTIVE OFF. OF THE PRESIDENT, COUNCIL ON ENVTL. QUALITY (Feb. 7, 2013), https://www.whitehouse.gov/administration/eop/ceq/Press_Releases/February_07_2013.
[41] *Federal Greenhouse Gas Accounting and Reporting Guidance*, COUNCIL ON ENVTL. QUALITY 16 (June 4, 2012), https://www.whitehouse.gov/sites/default/files/microsites/ceq/revised_federal_greenhouse_gas_accounting_and_reporting_guidance_060412.pdf.
[42] *Id.* at 17.
[43] Exec. Order No. 13,653, 78 Fed. Reg. 66,819 (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, *supra* note 39; *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.
[44] President Obama Establishes Task Force and Council on Climate Change Preparedness, supra note 43.

climate adaptation and resilience measures by local, state, and tribal governments.[45] In 2015, Executive Order 13,693 revoked and replaced Executive Order 13,514. The order established a highly aggressive target for federal emissions reductions that outpaced California's widely lauded goal of reducing GHG emissions by 40% between 1990 and 2030.[46] The Order was announced along with a host of voluntary emission reduction pledges from major federal suppliers and contractors,[47] as well as a scorecard to benchmark and compare federal suppliers and contractors on their greenhouse gas reduction initiatives.[48]

In short, the Obama administration's broad executive orders are best characterized as evolutionary and not revolutionary. Executive efforts to enhance federal sustainability date back to President Ford, and pre-Obama executive orders have been marked by successively greater coverage and a sharper focus on climate change. However, the Obama administration substantially pushed the envelope by requiring agencies to engage in clear-eyed and deliberate planning processes; compelling agencies to consider adaptation and resilience measures, and attempting to influence major federal suppliers through both co-optation and competitive benchmarking.

B. Budgetary Control Through OMB

The Obama administration wielded its budgetary powers to ensure that federal departments and agencies followed its climate change-related executive orders. This fell squarely within the President's duty to submit a budget to Congress,[49] which empowers the President to deny agency budget requests that do not comport with her policy preferences.

OMB, the largest office in the Executive Office of the President, prepares the President's budget proposal and serves as a key leverage point for presidential administration by "embed[ding] the administration's various management initiatives in agency budget requests."[50] At the budget-setting stage, the President communicates her preferences to federal departments and agencies through ad hoc communication between the 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.[51] As much of Circular A-11 is technical and does

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[45] Fact Sheet: Recommendations of the President's State, Local and Tribal Leaders Task Force on Climate Preparedness and Resilience and New Executive Actions, COUNCIL ON ENVTL. QUALITY (Nov. 17, 2014) http://www.whitehouse.gov/administration/eop/ceq/Press_Releases/November_17_2014.

[46] 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.

[47] 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) https://www.washingtonpost.com/news/energy-environment/wp/2015/03/19/obama-to-cut-federal-governments-carbon-emissions/.

[48] *Federal Supplier Greenhouse Gas Management Scorecard*, COUNCIL ON ENVTL. QUALITY, https://www.whitehouse.gov/administration/eop/ceq/initiatives/sustainability/supplier-GHG.

[49] Budget and Accounting Act of 1921 (Good-McCormick Act), 42 Stat. 20 (1921).

[50] Eloise Pasachoff, The President's Budget as a Source of Agency Policy Control, 125 YALE L.J. 2182, 2210 (2016).

[51] *Circular No. A-11: Preparation, Submission and Execution of the Budget*, OFF. OF MGMT. & BUDGET (July 2016), https://www.whitehouse.gov/sites/default/files/omb/assets/a11_current_year/a11_2016.pdf.

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not change from year to year,[52] any non-technical change to the Circular sends a clear message to departments and agencies.[53]

During the first term of the Obama presidency, OMB was generally silent on climate change, save for a vague mention in a 2009 budget letter,[54] extended treatment of climate change in 2009 and 2010 memoranda outlining the President's "Science and Technology Priorities,"[55] and incidental references to climate change and energy efficiency.[56] In 2011, a Government Accountability Office 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 their effectiveness where they conflict[ed] with agency responsibilities and priorities."[57] 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 guidance[58] and a 2016 memorandum from OMB and CEQ addressed to all agency and department heads.[59] 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."[60] The revision also referenced two of President Obama's executive orders on climate change, requiring that "[i]f [an agency] is proposing construction of Federal facilities, [the agency] must: . . . Comply with Executive Order 13693 and associated implementing instructions to ensure that you are adhering to the Federal sustainable green buildings requirements. . . . Comply with Executive Order 13653, 'Preparing the United States for the Impact of Climate Change' and be consistent with agency-approved Climate Adaptation Plans."[61]

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[52] Pasachoff, *supra* note 50, at 2210. Note that OMB issues budget memoranda with much greater frequency.
[53] *Id.*
[54] Memorandum No. M-09-20 from Peter R. Orszag, Dir., Office of Mgmt. & Budget, to Heads of Dep'ts & Agencies (June 11, 2009), https://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_fy2009/m09-20.pdf.
[55] 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, 2009), https://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_2010/m10-30.pdf; 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), https://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_fy2009/m09-27.pdf.
[56] *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), https://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_2010/m10-09.pdf.
[57] GAO-11-317, *supra* note 2, at 25.
[58] *Circular No. A-11*, *supra* note 51.
[59] Memorandum No. M-16-09 from Shaun Donovan, Dir., Office of Mgmt. & Budget, and Christy Goldfuss, Managing Dir., Council on Envtl. Quality, to Exec. Dep'ts & Agencies (Apr. 29, 2016), https://www.whitehouse.gov/sites/default/files/omb/memoranda/2016/m-16-09.pdf.
[60] Al Zaidi, *Making Federal Investments Climate-Smart*, WHITE HOUSE (July 1, 2015), https://www.whitehouse.gov/blog/2015/07/01/making-federal-investments-climate-smart.
[61] *Circular No. A-11*, *supra* note 51, at 31-5 to 31-6.

Memorandum No. M-16-09, jointly issued in 2016 by the OMB and CEQ, 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.[62] In other words, Memorandum No. 16-09 clearly conveyed that mere box-checking was not enough to comply with President Obama's executive orders. Also, 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."[63]

The update to Circular A-11 and the OMB/CEQ memorandum provide strong evidence that the Obama administration used 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 the opacity of OMB, the two documents served as a credible message to heed the executive orders. Otherwise, agency heads would presumably have to deal with the hassle of resubmitting their budget proposals or face budgetary consequences.

C. Environmental Impact Assessments Under the National Environmental Policy Act (NEPA)

Between 2010 and 2016, CEQ developed and released a guidance document that recommended government actors to consider climate change when reviewing the environmental consequences of their actions pursuant to the National Environmental Policy Act (NEPA). Although the guidance document was nonbinding, it reinforced the Obama administration's admonition that federal departments and agencies should make climate-conscious decisions. Further, as discussed in Parts II.B and III, CEQ's guidance was complemented and reinforced by judicial interpretations of NEPA that have increasingly imposed a *binding* duty 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.[64] NEPA does not focus on a specific medium (*e.g.* surface water, air, land) or specific human activities. Rather, NEPA aims to comprehensively "balance a broad range of environmental factors."[65] As "the centerpiece of environmental regulations in the United States,"[66] NEPA is administered by CEQ, whose "limited resources preclude extensive involvement in individual NEPA problems."[67] Instead, CEQ promulgates NEPA regulations, issues guidance, and exercises oversight over each agency's NEPA procedures.[68]

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[62] Memorandum No. M-16-09, *supra* note 61, at 2-3.
[63] *Id.* at 2.
[64] YOST, *supra* note 65, at 3.
[65] Nicholas C. Yost, NEPA Deskbook 1 (4th ed. 2014).
[66] New Mexico v. Bureau of Land Mgmt., 565 F.3d 683, 703 (10th Cir. 2009).
[67] *Id.* at 5.
[68] Id.

NEPA has broad applicability: NEPA applies to "all agencies of the Federal Government"[69] and requires compliance "to the fullest extent possible."[70] An agency triggers NEPA when it proposes legislation or an "action with effects that may be major and which are potentially subject to Federal control and scrutiny"[71] that "significantly affects the quality of the human environment."[72] If an agency suspects that legislation or an action might fall under NEPA, the agency first decides what type of evaluation the agency must undertake. Agencies can categorically exclude certain sets of actions from the NEPA process if the actions presumptively lack "significant" environmental consequences. Agencies may also specify certain categories of actions as categorically requiring Environmental Impact Statements (EISs). An EIS is a document that indicates how the agency plans to meet the goals of NEPA, 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.[73] NEPA also requires a narrow notice-and-comment process for EISs: the agency must circulate the EIS in a limited fashion, obtain comments, and respond to comments.[74]

For proposals that fall outside of categorical exclusions and inclusions, agencies 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 an assessment of the environmental consequences of the proposed action and its alternatives.[75] 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,[76] the agency is finished with the NEPA process. If EA finds that the proposed agency action will have a significant environmental impact, the agency must prepare an EIS.

In *Vermont Yankee*, the Supreme Court noted that NEPA's "mandate to the agencies is essentially procedural" despite "set[ting] forth significant substantive goals for the Nation."[77] Even so, NEPA meaningfully influences many federal decisions, stakeholders frequently comment in EIS processes, private litigants frequently bring challenges under NEPA, and the judiciary's comfort with enforcing procedural requirements means that NEPA litigation is often effective.[78]

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[69] National Environmental Policy Act § 102(2), 42 U.S.C. § 4332(2) (2012).
[70] Id.
[71] 40 C.F.R. § 1508.18.
[72] National Environmental Policy Act § 102(2)(c), 42 U.S.C. § 4332(2)(C) (2012). *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).
[73] YOST, *supra* note 65, at 15-21.
[74] *Id.* at 22.
[75] *Id.* at 10-11.
[76] This is known as a "mitigated FOSNI." Council on Environmental Quality, The National Environmental Policy Act: A Study of Its Effectiveness After Twenty-Five Years 19-20 (1997).
[77] Vermont Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc., 435 U.S. 519, 557 (1978).
[78] Jennifer Klein & Ethan Strell, *Legal Tools for Climate Adaptation Advocacy: NEPA* 6-8 (Colum. L. Sch. Sabin Ctr. for Climate Change L., Mar. 2015). *Cf.* U.S. Gov't Accountability Office, GAO-14-369, National Environmental Policy Act: Little Information Exists on NEPA Analyses 20-21 (2014).

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Before and during the Obama administration's first term, agencies did not always 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. 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.[79] A 2012 study by the Sabin Center for Climate Change Law found that although at least 227 EISs between 2009 and 2011 considered climate change, the EISs varied widely in their depth and care of treatment.[80]

Under these conditions, the CEQ in 2010 began to develop a guidance document on NEPA and climate change as part of a broader initiative to "Modernize and Reinvigorate the National Environmental Policy Act."[81] The CEQ issued a draft document in February 2010, which it opened to public comment. The CEQ issued a second draft in December 2014, which it again opened to public comment. The CEQ released a final guidance document in June 2016.[82] The final guidance document recommends that agencies consider climate change impacts, reasonable alternatives that may reduce climate change impacts, and emissions mitigation measures in their EAs and EISs.[83] To value the marginal impacts of greenhouse gas emissions, the guidance document endorses the use of a "social cost of carbon," an estimate of the present value of the social cost associated with an incremental unit of emissions.[84] However, the guidance does not advocate for hard cost-benefit analysis; rather, the guidance acknowledges that agencies might qualitatively consider climate change consequences that cannot be easily quantified or valued.[85] This moderate approach is consistent with NEPA's implementing regulations promulgated by CEQ, which instruct agencies to include poorly-understood or non-quantifiable impacts.[86]

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 leverage held by CEQ in the President's appropriations process suggest that the Obama administration intended that the guidance documents would meaningfully affect departments' and agencies' NEPA processes. Moreover, as discussed further in Part II.B, it appears that reviewing courts view climate change as an important factor for NEPA assessments. In sum, the NEPA guidance communicates to government actors that they should consider climate

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[79] Amy L. Stein, Climate Change Under NEPA: Avoiding Cursory Consideration of Greenhouse Gases, 81 U. COLO. L. REV. 473, 476-77, 505 (2010).
[80] Patrick Woolsey, *Consideration of Climate Change in Federal EISs, 2009-2011*, CTR. FOR CLIMATE CHANGE L., COLUM. L. SCH. 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.
[81] White House Council on Environmental Quality Announces Steps to Modernize and Reinvigorate the National Environmental Policy Act, COUNCIL ON ENVTL. QUALITY (Feb. 18, 2010), https://www.whitehouse.gov/administration/eop/ceq/Press_Releases/February_18_2010.
[82] Memorandum from Christy Goldfuss, Chair, Council on Envtl. Quality, to Heads of Fed. Dep'ts & Agencies (Aug. 1, 2016), https://www.whitehouse.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance.pdf.
[83] *Id.* at 5.
[84] *Id.* at 33 n.86.
[85] *Id.* at 33 & n.88.
[86] 40 C.F.R. § 1502.22 (2016).

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change when making major decisions, and provides recommendations on how departments and agencies might do so.

D. Regulatory Oversight for Non-Climate Regulations

There are some signs that the Obama administration has used centralized regulatory review at OMB's Office of Information and Regulatory Affairs (OIRA) to push agencies to account for climate change when weighing the costs and benefits of regulations. However, due to the opacity of OIRA, I cannot conclusively characterize OIRA's role.

Modern regulatory review emerged during the early years of the Reagan administration with Executive Order 12,291.[87] Executive Order 12,291 empowered OIRA—a small office within OMB—with veto authority over regulations and required agencies to show that the benefits of new regulations would exceed their costs. During this era, an expanding regulatory state had provoked a backlash from regulated parties, and anti-regulatory sentiment was high. The Reagan administration's "regulatory reformers" promoted cost-benefit analysis and centralized regulatory review to introduce a deregulatory slant into the regulatory state. Consequently, many environmental advocates came to revile cost-benefit analysis.[88]

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—that a rule's benefits *justify, but not necessarily exceed,* its costs. The Order also provided greater room for agencies to consider qualitative and non-quantifiable factors in decisionmaking and promoted transparency by directing agencies to explain any changes made to a regulation due to OIRA's recommendations.[89] These changes were intended to provide greater balance to cost-benefit analysis and ameliorate its deregulatory slant. Consequently, some environmental groups gradually changed their views on cost-benefit analysis and became regular participants in economically-oriented regulatory processes.[90]

Although the Bush administration revoked Clinton's Executive Order 12,866 with a more Reagan-like order for regulatory review, the Obama administration largely reinstated Executive Order 12,866 by issuing Executive Order 13,563.[91] Executive Order 13,563 slightly deviates from Executive Order 12,866 by placing greater emphases on the use of sound scientific information and the quantification of costs and benefits.[92] Interestingly, Executive Order 13,563 indirectly

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[87] Exec. Order No. 12,291, 46 Fed. Reg. 13,193 (Feb. 18, 1981); *see also* 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) (documenting the history of presidential regulatory review).

[88] Richard L. Revesz & Michael A. Livermore, Retaking Rationality: How Cost-Benefit Analysis Can Better Protect the Environment and Our Health 10 (2008).

[89] Exec. Order No. 12,866, 51 Fed. Reg. 51,735 (Sept. 30, 1993).

[90] REVESZ & LIVERMORE, *supra* note 88, at 33-45. In the last few decades, some environmental groups grew to see CBA as a beneficial too for incorporating environmental concerns into administrative decisionmaking. *See, e.g.*, Frederic C. Krupp, *New Environmentalism Factors in Economic Needs*, WALL. ST. J. (Nov. 20, 1986) (describing how under his leadership, the Environmental Defense Fund used cost-benefit analysis to advocate for pro-environmental goals).

[91] Exec. Order No. 13,563, 76 Fed. Reg. 3821 (Jan. 28, 2011).

[92] *Summary of Executive Order 12866 – Regulatory Planning and Review*, ENVTL. PROTECTION AGENCY, https://www.epa.gov/laws-regulations/summary-executive-order-12866-regulatory-planning-and-review.

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refers to climate change by incorporating a presidential memorandum that identifies 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.[93]

Although the memorandum did not necessarily mandate that agencies consider climate change when conducting regulatory impact analyses, the memorandum singled out climate change as a specific issue where scientific knowledge was particularly important. This represented a marked departure from the Bush II administration's concerted efforts to suppress and manipulate science that did not comport with the administration's policy objectives.[94]

Consonantly, the Obama administration has relied on cost-benefit analyses to help justify its expensive climate-focused regulations like the Clean Power Plan[95] and "Phase 2" medium- and heavy-duty vehicle fuel efficiency standards[96] by pointing to the high social costs of greenhouse gas emissions. The Obama administration's reliance on cost-benefit analysis is also demonstrated by the Mercury and Air Toxics Standards (MATS), a pollution regulation for coal-fired power plants that caused extensive power plant retirements[97] and was seen by many as a stealth climate change policy.[98] During litigation, the Obama administration unsuccessfully defended MATS by pointing to a vast array of regulatory "co-benefits" that supplemented the regulation's primary benefits.[99]

Still, during the Obama administration, the overall effect of regulatory review on environmental protection has been contested. The dispute has been headlined by Profs. Cass Sunstein and Lisa Heinzerling, who both served in the Obama administration. Sunstein—in a commentary published in the *Harvard Law Review*—claimed that the Obama OIRA mostly served as a middleman agency and "information aggregator" that gathered necessary information from

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[93] Memorandum from President Barack Obama to Heads of Exec. Dep'ts & Agencies (Mar. 9, 2009), https://www.whitehouse.gov/the-press-office/memorandum-heads-executive-departments-and-agencies-3-9-09.

[94] 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 OF 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.

[95] *Regulatory Impact Analysis for the Clean Power Plan Final Rule*, ENVTL. PROTECTION AGENCY (Oct. 23, 2015), https://www.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule-ria.pdf.

[96] Draft Regulatory Impact Analysis, 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), https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-0243.

[97] *EIA Electricity Generator Data Show Power Industry Response to EPA Mercury Limits*, U.S. ENERGY INFO. ADMIN. (July 7, 2016), https://www.eia.gov/todayinenergy/detail.php?id=26972.

[98] *The EPA's War on Jobs*, WALL ST. J. (June 13, 2011), http://www.wsj.com/articles/SB10001424052748703818204576206662079202844.

[99] *Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards*, U.S. ENVTL. PROTECTION AGENCY, at ES-1 (Dec. 2011), https://www3.epa.gov/ttnecas1/regdata/RIAs/matsriafinal.pdf; s*ee also* Michigan v. EPA, 135 S. Ct. 2699 (2015) (reviewing the MATS regulation and its cost-benefit analysis).

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the White House and other agencies to promote improved decisionmaking.[100] Sunstein attributed delays in the OIRA process to the difficulty of this sort of interagency consultation.[101] On the other hand, Heinzerling accused the Obama OIRA of stonewalling environmental regulatory efforts by deliberately introducing delays into the OIRA review process[102] and serving as a "pocket veto" for President Obama to stop meritorious but politically inconvenient regulations.[103] The resolution of this debate is far 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-conscious reasoning?

This question is difficult to answer because OIRA is famously opaque. During the Obama administration, OIRA has moved toward even greater opacity by abandoning the Bush II administration's practice of publicly releasing "return letters," letters that enumerate OIRA's reasons for rejecting regulatory actions and returning them to agencies.[104] Despite these constraints, I attempted an empirical review of regulatory impact assessments submitted to OIRA in 2007 and 2015 by five departments and agencies: EPA, the Department of Energy, the Department of Interior, the Department of Agriculture, the Department of Transportation, and the Department of Veterans Affairs. However, due to various limitations, I was unable to conduct a rigorous and full-fledged analysis. Nevertheless, I reached two valuable qualitative conclusions.

First, even in 2015, federal departments and agencies varied greatly in whether and how much they considered climate change in their RIAs. This variance appeared to roughly correspond to how much each agency's mandate related to energy, environmental, and climate change issues. The Department of Energy and EPA took climate change very seriously in their 2015 RIAs, consistently quantifying and monetizing emissions increases and reductions resulting from regulations.[105] The Department of Transportation considered climate change for regulations involving its physical assets, where the agency was concerned about climate-resilient infrastructure.[106] Interior, USDA, and VA were less attentive to climate change, ignoring climate change even for rules that clearly appeared to clearly implicate climate change.[107]

Second, even in 2007, climate change was not entirely absent from RIAs. The Department of Energy made particular efforts to quantify emissions reductions in its efficiency regulations,

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[100] Cass R. Sunstein, The Office of Information and Regulatory Affairs: Myths and Realities, 126 HARV. L. REV. 1838, 1840-41 (2013).
[101] *Id.* at 1842.
[102] Jeremy P. Jacobs, *Lisa Heinzerling Won't Back Down*, GREENWIRE (May 27, 2014), http://www.eenews.net/stories/1060000220.
[103] Molly Redden, *OIRA Antagonizing Environmentalists*, NEW REPUBLIC (Jan. 12, 2012) http://www.npr.org/2012/01/12/145095539/new-republic-oira-antagonizing-environmentalists.
[104] Stuart Shapiro, *Obama's Ozone Decision Shows Clearly Who's in Charge*, REGBLOG (Sept. 8, 2011), http://www.regblog.org/2011/09/08/obamas-ozone-decision-shows-clearly-whos-in-charge/ (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 Improving the Administrative Process: A Report to the President-Elect of the United States*, AM. BAR. ASS'N SEC. ON ADMIN. L. & REG. PRAC. 8 (2016) (exhorting the incoming administration to exercise openness and transparency in OIRA review).
[105] *See* Appx. A nn.12-18 and accompanying text.
[106] *See id.* nn. 7-8 and accompanying text.
[107] *See id.* nn. 6, 9-11 and accompanying text.

making such assessments in four of five RIAs in the 2007 sample.[108] In fact, an October 2008 RIA for an energy efficiency regulations attempted to *monetize* emissions reductions,[109] a difficult task given the wide uncertainty interval for the social cost of GHG emissions at the time.[110] Considering that the Bush II administration was noted for its vehement opposition to climate change action, these RIAs evince that imperfect presidential control permitted professional staff in the DOE to continue considering climate change when estimating regulatory benefits.

The limited evidence adduced in this Part does not provide an authoritative view as to whether the Obama administration used OIRA to advance climate-conscious administration. Moreover, even if the OIRA review process was transparent and easy to trace, RIAs might not tell the full story. For example, some departments and agencies might view NEPA, not OIRA review, as the appropriate vehicle for injecting climate change into decisionmaking. Yet, it remains probable—particularly given the Obama administration's pattern and practice of justifying climate change regulations through cost-benefit analysis—that OIRA served as one of several checkpoints that ensured that agency decisions comported with the administration's policy priorities.

E. Authoritative Scientific Reviews to Support Climate-Informed Decisionmaking

The Obama administration has expanded the intensity of government research into climate change, shifting away from the Bush administration's suppression of such government science.[111] The Obama administration has promoted climate change research at various scales—ranging from the impacts of climate change on individual species[112] to large-scale assessments of the United States' vulnerability to climate change.

In this Part, I focus my attention on two federal scientific efforts—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 processes have produced outputs that have incorporated rigorous consultative and peer-reviewed input.

In 1990, Congress passed the Global Change Research Act,[113] which established the GCRP and charged it with conducting "assessments every four years that 'analyzed' current trends in

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[108] Energy Conservation Standards, 74 Fed. Reg. 16,040, 16,078-80 (Apr. 8, 2009); Energy Conservation Standards, 71 Fed. Reg. 70,275, 70,280 (2006); *Environmental Assessment for Today's Energy Conservation Standards for Residential Furnaces and Boilers*, U.S. DEP'T OF ENERGY (Sept. 2007), https://www.regulations.gov/document?D=EERE-2006-STD-0102-0211; *Technical Support Document (TSD)*, U.S. DEP'T OF ENERGY ch. 10 (July 3, 2007), https://www.regulations.gov/document?D=EERE-2006-STD-0126-0021.

[109] Energy Conservation Standards, *supra* note 108, 74 Fed. Reg. at 16,078-80.

[110] *See infra* note 122 and accompanying text.

[111] This was discussed briefly in the discussion of "scientific integrity" in the previous section. *See supra* text accompanying note 94. 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, 2016), http://www.nytimes.com/2006/01/29/science/earth/climate-expert-says-nasa-tried-to-silence-him.html.

[112] Alaska Oil & Gas Ass'n v. Pritzker, No. 14-35806, slip. op. at 11-13 (9th Cir. Oct. 24, 2016) (detailing government scientists' work to determine whether a species of seal would be vulnerable to extinction due to future climatic conditions).

[113] 15 U.S.C. §§ 2921-2961 (2012).

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global change."[114] After a hiatus in assessments during the Bush II administration, a federal district court issued a mandamus order for the GCRP to discharge its statutory duties.[115] Following this order, the GCRP in 2009 issued the Second National Climate Assessment (NCA) after a truncated two-year production process.[116] Although the Assessment—at over 190 pages long—provided a sound overview of climate change impacts in the United States, the Second NCA was dwarfed by the Third NCA released in 2014. The Third NCA, *Climate Change Impacts in the United States*, required "a three-year analytical effort by a team of over 300 experts." The Third NCA was reviewed by a range of expert bodies including the National Research Council and the National Academy of Sciences, "establish[ing] a strong base that government at all levels of U.S. society can use in responding" to the demands of climate change. Compared to the Second NCA, the Third NCA incorporated more detailed sector-specific projections of climate impacts; more thorough assessments of how climate change would affect activities in different regions; and provided an initial look at how different policy responses to climate change would fit together. The breadth of the Third NCA reflects the Obama administration's strong support for GCRP. For example, GCRP reached $2.6 billion in funding for fiscal year 2014[117] despite attacks from Republican members of Congress[118]—a 19% increase over 2010 funding levels.[119] The Obama administration also took serious efforts to publicize the release of the Third NCA, organizing interviews between President Obama and major news organizations' meteorologists to bring attention to the NCA's findings.[120]

In addition to these broad national assessments, the Obama administration has also commissioned studies to address narrower issues.[121] Perhaps the most important effort involves the social cost of carbon (SCC), which is an estimate of the present value of the social cost associated with each marginal unit of carbon dioxide emissions. As documented by Jonathan Masur and Eric Posner, early attempts to estimate the SCC led to poorly constrained results, with estimates that ranged between $0 and $68 per ton of carbon dioxide emissions.[122] This meant that federal agencies struggled to value emissions increases or reductions when evaluating their

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[114] Connecticut v. Am. Elec. Power Co., 406 F. Supp. 2d 265, 269 (S.D.N.Y. 2005).
[115] *See* Ctr. for Biological Diversity v. Brennan, 571 F. Supp. 2d 1105 (N.D. Cal. 2007).
[116] *Global Climate Change Impacts in the United States*, U.S. GLOBAL CHANGE RES. PROGRAM (2009) https://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf.
[117] *Budget*, U.S. GLOBAL CHANGE RES. PROGRAM, http://www.globalchange.gov/about/budget.
[118] *See, e.g.*, Michael Bastasch, *Rand Paul Slams Obama for Wasting Billions on Duplicative Global Warming Research*, DAILY CALLER (Apr. 25, 2016), http://dailycaller.com/2016/04/25/rand-paul-slams-obama-for-wasting-billions-on-duplicative-global-warming-research/ (hailing Senator Rand Paul's opposition to climate change research funding).
[119] *The National Global Change Research Plan 2012-2021: A Strategic Plan for the U.S. Global Change Research Program*, NAT'L SCI. & TECH. COUNCIL 106 (2012), https://downloads.globalchange.gov/strategic-plan/2012/usgcrp-strategic-plan-2012.pdf.
[120] 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/.
[121] *See, e.g.*, *AMAP Assessment 2015: Black Carbon and Ozone as Arctic Climate Forcers*, ARCTIC MONITORING & ASSESSMENT PROGRAMME (2015), http://www.globalchange.gov/browse/reports/amap-assessment-2015-black-carbon-and-ozone-arctic-climate-forcers.
[122] Jonathan S. Masur & Eric A. Posner, *Climate Regulation and the Limits of Cost-Benefit Analysis*, 99 CAL. L. REV. 1557, 1560-61 (2011).

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decisions. Consequently, the Obama OMB in 2009 convened the IWG-SCC, which sought to establish an authoritative SCC figure that federal agencies could use in regulatory processes.[123]

The IWG-SCC's valuation model relies on three commonly used integrated assessment models (IAMs) for climate change undergirded by relatively simple macroeconomic models. The IAMs estimate GHG emissions as a function of economic growth and the expected carbon intensity of economic output.[124] The resulting estimates are translated into social costs by applying temperature sensitivity and social damage functions.[125] Ultimately, the IWG-SCC's model provides a shadow price for carbon that stretches four decades into the future.[126]

As noted by Masur, Posner and others, the IWG-SCC's methodology is imperfect.[127] Yet, the IWG-SCC has attempted to address objections with updates and improvements to its SCC methodology.[128] For example, the IWG-SCC has updated its valuation model to use updated versions of the three IAMs, subjected its methodology to review by the National Academy of Sciences, and exposed its methodology to a public comment process.[129] The IWG-SCC has also issued plans to release a comprehensive update to the SCC in 2017.[130] The IWG-SCC's open process tends to ensure that the model's assumptions are made transparently and with scrutiny from stakeholders.

In practice, the IWG-SCC provides a reliable SCC figure that removes the burden of estimation from agencies and aggregates the best scientific knowledge. Indeed, the IWG-SCC's estimates are now used widely by federal agencies, most notably the DOE and EPA. Furthermore, as discussed in Part II.A and Section III, the IWG-SCC's estimates have survived judicial scrutiny and mesh well with federal courts' demands for economically rigorous regulatory analyses.

F. Military and Defense Planning

During the Obama presidency, the Department of Defense—which lies squarely within the President's traditional Article II powers—has greatly expanded its work on climate change. In fact, some observers have claimed that during the Obama presidency, the Pentagon has done more than any other part of government to prepare for climate change impacts.[131] A 2014 speech delivered

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[123] *Social Cost of Carbon*, ENVTL. PROTECTION AGENCY (Dec. 2015), https://www3.epa.gov/climatechange/Downloads/EPAactivities/social-cost-carbon.pdf.
[124] Masur & Posner, *supra* note 122, at 1578.
[125] *Id.*
[126] *Id.*
[127] *Id.* at 1580-85, 1588.
[128] *Response to Comments: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Oder 12866*, INTERAGENCY WORKING GROUP ON SOC. COST OF CARBON (July 2015), https://www.whitehouse.gov/sites/default/files/omb/inforeg/scc-response-to-comments-final-july-2015.pdf.
[129] *Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866*, INTERAGENCY WORKING GROUP ON SOC. COST OF CARBON (May 2013), https://www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf.
[130] *New Report Finds Near-Term Update to Social Cost of Carbon Unwarranted*, NAT'L ACAD. OF SCIS. (Jan. 26, 2016), http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=21898.
[131] *See, e.g.*, Danny Vinik, *Why the GOP Is Trying to Stop the Pentagon's Climate Plan*, POLITICO (June 23, 2016), http://www.politico.com/agenda/story/2016/06/republicans-trying-to-stop-pentagon-climate-plan-000149 (noting

by Defense Secretary Chuck Hagel to announce the DoD's "Climate Change Adaptation Roadmap" illustrates the military's stance 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.
>
> We have already seen these events unfold in other regions of the world, and there are worrying signs that climate change will create serious risks to stability in our own hemisphere. Two of the worst droughts in the Americas have occurred in the past ten years, droughts that used to occur once a century.
>
> These climate 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.[132]

By 2014, the military's focus on climate change had already moved far beyond preparing facilities and equipment for the impacts of climate change. Rather, the military had come to see climate change as a key strategic issue—even incorporating climate change into the curricula of military academies.[133] With growing recognition that contemporary instability in Syria[134] was linked to climate change, climate change had become a key concern for military leaders.

Of course, the Department of Defense has grappled with climate change with a long time, investing in research on climate change long before Obama administration directives like the 2015 National Security Strategy[135] and the 2016 presidential memorandum on "Climate Change and National Security."[136] As early as 2003, the Department of Defense had started to study the security implications of abrupt climate change[137]; in 2008, the Department of Defense started to extensively discuss climate change in its National Defense Strategy[138]; and in 2010, the Department of Defense spent much of its Quadrennial Defense Review discussing the implications

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that the Department of Defense has been at the "vanguard" of federal departments and agencies in addressing climate change)

[132] Chuck Hagel, Sec'y of Def, speech at the Conference of Defense Administers of the Americas, Arequipa, Peru (Oct. 13, 2014), http://www.defense.gov/News/Speeches/Speech-View/Article/605617.

[133] Ian Duncan, *For Naval Academy, Climate Change Is a Challenge Both Global and Local*, BALT. SUN (JULY 17, 2017), http://www.baltimoresun.com/news/maryland/bs-md-naval-climate-change-20150717-story.html.

[134] John Wendle, *The Ominous Story of Syria's Climate Refugees*, SCI. AM. (Dec. 17, 2015), https://www.scientificamerican.com/article/ominous-story-of-syria-climate-refugees/.

[135] *National Security Strategy*, WHITE HOUSE (2015) https://www.whitehouse.gov/sites/default/files/docs/2015_national_security_strategy.pdf.

[136] Memorandum from President Barack Obama to Heads of Exec. Dep'ts & Agencies (Sept. 21, 2016), https://www.whitehouse.gov/the-press-office/2016/09/21/presidential-memorandum-climate-change-and-national-security

[137] Peter Schwartz & Doug Randall, *An Abrupt Climate Change Scenario and Its Implications for United States National Security*, CAL. INSTITUTE OF TECH. JET PROPULSION LAB (OCT. 2003), http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA469325.

[138] *National Defense Strategy*, U.S. DEP'T OF DEF. (June 2008), http://archive.defense.gov/pubs/2008NationalDefenseStrategy.pdf.

of climate change, describing it as an "accelerant of instability." A 2015 DoD response to a congressional inquiry, for example, reveals that most of the U.S. military's combatant commands have already started to deeply integrate climate change into their training, planning, engagement with foreign forces, data analyses, and disaster response planning.[139]

Yet, the Department of Defense has been attentive to President Obama's climate-related executive orders. 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 relating to climate change adaptation and resilience.[140] Although the Directive "released little coverage when it was first published," some military experts believe that the Directive took "a critical step toward streamlining" the DoD's climate preparedness initiatives by clearly delegating responsibilities for climate responses.[141] Also, President Obama[142] and other senior administration officials[143] have been vocal about the relationship between climate change and national security.

All in all, it appears that President Obama inherited a Pentagon that had already started to take climate change seriously, encouraged this focus on climate change to flourish, and reinforced these efforts by targeting presidential directives at the Pentagon and voicing public support for such efforts.

II. COMPLEMENTARY JUDICIAL PRECEDENTS

Many powers of presidential administration are well-established and unconstrained by the federal courts.[144] However, where climate-conscious presidential administration results in judicially reviewable outcomes, recent precedents have complemented and reinforced the Obama administration's efforts to embed climate change as a key decisional criterion for federal departments and agencies. In this Section, I examine three lines of caselaw that relate to the Obama administration's presidential administration efforts: 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, recent decisions that heighten the importance of considering costs and benefits in reasoned decisionmaking.

A. Caselaw on Scientific Assessments

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[139] *National Security Implications of Climate-Related Risks and a Changing Climate*, U.S. DEP'T OF DEF. (July 23, 2015), http://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf.

[140] *DoD Directive 4715.21*, U.S. DEP'T OF DEFENSE (Jan. 14, 2016) http://www.defense.gov/Portals/1/Documents/pubs/471521p.pdf

[141] Vinik, *supra* note 131.

[142] Susan Jones, *Obama at West Point: 'Effort to Combat Climate Change . . . Will Help Shape Your Time in Uniform*, CNS NEWS (May 29, 2014) http://www.cnsnews.com/news/article/susan-jones/obama-west-point-effort-combat-climate-changewill-help-shape-your-time.

[143] Steve Almasy, *John Kerry: Climate Change as Big a Threat as Terrorism, Poverty, AIDS*, CNN (Feb. 17, 2014) http://www.cnn.com/2014/02/16/politics/kerry-climate/.

[144] In particular, President Obama's executive orders, the OMB's power to create a budget proposal for the president, and the military's ability to plan for climate change rest comfortably within the President's constitutionally protected powers.

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The Obama administration's efforts to authoritatively assess climate change fit neatly into the judiciary's historic treatment of systematic scientific reviews. Reviewing courts have traditionally entrusted factual findings about contested scientific issues to administrative agencies.[145] For issues like climate change, a highly complex phenomenon whose components involve varying degrees of certainty,[146] adjudicating the validity of agency judgments is understandably difficult. Two lines of precedent aid our understanding of this area of law.

The first line begins with *Ethyl Corp. v. Environmental Defense Fund*, which addressed the appropriate scope of judicial scrutiny in a situation where there was no authoritative scientific consensus. The *Ethyl* court found that for contested issues on the "frontier 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.[147] Still, the *Ethyl* court conducted an extensive rational-basis review of EPA's factual findings that undergirded a regulation, finding that the agency made reasonable logical steps in the face of conflicting scientific evidence.[148] Later courts have maintained the position that when issues test the limits of scientific knowledge, judges cannot expect consensus among experts. In those instances, agencies are judgments are generally upheld because "[i]t is not [the courts'] function to resolve disagreement among the experts or to judge the merits of competing expert views."[149]

The second line involves situations where reputable scientific bodies have made authoritative judgments about complex phenomena. In such situations, if administrative agencies' judgments contradict authoritative findings, reviewing courts have required agencies to justify the contradictions. In reviewing EPA's judgment that an emissions control technology for motor vehicles was technically feasible, Judge Leventhal in *International Harvester Co. v. Ruckelshaus* dealt with disparities between a report by the National Academy of Sciences and a decision rendered by EPA:

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[145] *See, e.g.*, American Electric Power Co. v. Connecticut, 131 S. Ct. 2527, 2539-40 (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. Resources Def. Council, Inc., 467 U.S. 837, 865-66 (1984)); Citizens to Preserve Overton Park 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.")

[146] For example, the Intergovernmental Panel on Climate Change (IPCC) states that "[w]arming of the climate system is unequivocal." Intergovernmental Panel on Climate Change, *2013: Summary for Policymakers*, *in* CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS, at 4. However, the IPCC is less certain about other attributes of climate change. For example, the IPCC only has "low confidence" in its assessment that there have been global "[i]ncreases in intense cyclone activity." *Id.* at 7.

[147] Ethyl Corp. v. EPA, 541 F.2d 28-29 (D.C. Cir. 1976). The D.C. Circuit mentioned the voluminous 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.

[148] *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.

[149] Lead Industries Ass'n, Inc. v. EPA, 647 F.2d 1130, 1160 (D.C. Cir. 1980). Deference is even stronger when agencies are making such reasoned judgments within their "special areas of expertise." Baltimore Gas & Elec. Co. v. Nat. Resources Def. Council, Inc., 462 U.S. 87, 103 (1983).

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> [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 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.[150]

With respect to climate change, it is unequivocal that climate change is occurring, is caused by human activity, and poses potentially severe consequences unless emissions are controlled. In other words, climate change no longer falls into the *Ethyl* line of cases. Rather, climate change falls into the *International Harvester* line of cases. Three recent decisions demonstrate that courts view expert consensus as being settled on the question of climate change. In *Massachusetts v. EPA*,[151] the Court relied on the history of congressional action on climate change[152] and expert reports to find that carbon dioxide fell under the broad definition of the term "air pollutant" in the Clean Air Act.[153] These expert reports included the First Assessment Report by the United Nations Intergovernmental Panel on Climate Change (IPCC)[154]; the IPCC's Second Assessment Report[155]; a 2001 study by the National Research Council[156]; and testimony by Michael MacCracken, the former director of the GCRP.[157] Although the *Massachusetts* Court did not compel a regulatory action by EPA, the *Massachusetts* Court relied on authoritative assessments to support its view that EPA needed to give more substantial reasons for inaction.[158]

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[150] International Harvester Co. v. Ruckelshaus, 478 F.2d 615, 648-49 (D.C. Cir. 1973). *See also* Small Refiner Lead Phase-Down Task Force v. EPA, 705 F.2d 506, 530 (D.C. Cir. 1983) (making note of the fact that "EPA's decision to reduce gasoline lead further 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 the decision was consistent with a report by the National Academy of Sciences).
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.
Id. at 641; *see also Lead Industries Ass'n, Inc*., 647 F.2d at 1146 (expressing similar "diffidence"). Ultimately, Judge Leventhal remanded the action to the agency with a vague mandate to reconsider the decision and provide thicker reasons for the action. *Id.* at 650.
[151] 549 U.S. 497 (2007)
[152] *Id.* at 507-09.
[153] *Id.* at 527-29.
[154] *Id.* at 508-09.
[155] *Id.* at 509.
[156] *Id.* at 511; *see also id.* at 521 (noting specific forms of climate change damage detailed in the 2001 National Research Council report).
[157] *Id.* at 515.
[158] The *Massachusetts* litigation also involved allegations that the Bush administration had interfered in the EPA's expert judgments about climate change. Although the *Massachusetts* decision does not mention this, the Court was—no doubt—aware of this as a background condition. Jody Freeman & Adrian Vermeule, Massachusetts v. EPA: *From Politics to Expertise*, 2007 SUP. CT. REV. 51, 54-64.

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Judicial trust in expert knowledge is perhaps best embodied by the D.C. Circuit's per curiam opinion in *Coalition for Responsible Regulation v. EPA*,[159] a case that—in part—involved an "endangerment finding"[160] that greenhouse gases may "reasonably be anticipated to endanger public health or welfare."[161] 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, National Research Council, and GCRP.[162] 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."[163] Second, the court distinguished between the use of assessment reports "as substitutes for [an agency's] own judgment" and the use of "evidence upon which [an agency] relie[s] to make [a] judgment."[164] In other words, the court permitted EPA to make reasonable judgments about the quality of a scientific assessment, then rely upon the assessment in its decisionmaking. Third, the court rejected an attempt by litigants to undermine the credibility of the assessment reports by pointing to errors in a small number of the underlying studies.[165] In sum, the *Coalition for Responsible Regulation* court overwhelmingly confirmed the primacy of scientific expertise, as well as the trust placed in assessment reports that synthesize the state of scientific knowledge with rigorous processes.

In *Zero Zone, Inc. v. Department of Energy*,[166] a Seventh Circuit panel extended this logic to an application of the IWG-SCC's SCC estimates. In *Zero Zone*, petitioners challenged the credibility of the SCC estimates with several claims, 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.[167]

As discussed in Part I.D, the Obama administration has expended considerable effort on authoritative scientific reviews. Federal courts' longstanding trust in scientific expertise, which is manifested in a judicial track record of relying on assessment reports, complement the Obama administration's use of scientific outputs to support decisionmaking. As discussed in the next Section, the sheer strength of the scientific and technical record compiled by the Obama administration may constrain the ability of the Trump administration to take contrary actions.

B. Caselaw on NEPA and Climate Change

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[159] 684 F.3d 102 (D.C. Cir. 2012) (per curiam), *aff'd in part, rev'd in part by* Utility Air Regulatory Group v. EPA, 134 S. Ct. 2427 (2014).
[160] Endangerment and Cause and Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009).
[161] Clean Air Act § 202(a)(1), 42 U.S.C. § 7521(a)(1) (2012).
[162] Coalition for Responsible Regulation, 684 F.3d at 120.
[163] *Id.* at 119.
[164] *Id.* at 121.
[165] *Id.* at 125.
[166] 832 F.3d 654 (7th Cir. 2016).
[167] *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. Petitioners 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. This is discussed in greater detail below. *See infra* Section II.C.

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Federal courts have long seen climate change as a topic worthy of discussion in NEPA analyses. Until recently, however, federal courts have frequently permitted agencies to ignore climate change in NEPA processes because they "[fe]ll below the threshold of significance."[168] Between 2003 and 2007, federal courts gradually expanded their view of significant climate change impacts and the level of detail needed to address them in an Environmental Assessment (EA) or Environmental Impact Statement (EIS).[169]

In *Center for Biological Diversity v. NHTSA*, the Ninth Circuit required NHTSA to correct a deficient EIS for a fuel economy regulation. The decision rested on several grounds, including NHTSA's failure to consider climate change in its EIS.[170] The case was one of several decisions indicating that NEPA caselaw has gradually shifted from *permitting* agencies to consider climate change, to *mandating* agencies to consider climate change for regulatory actions with obviously significant effects on greenhouse gas emissions.

Additionally, reviewing courts have taken an increasingly broad view of standing for climate change challenges under NEPA. Petitioners claiming procedural injuries relating to climate change have traditionally struggled to prove standing.[171] 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 a non-climate change injury.[172] This theory opened the door for a wider range of climate change suits under NEPA.[173]

Although courts have claimed to take a "hard look" at how agencies address climate change in EISs and EAs, courts have been hesitant to impose thicker requirements such cost-benefit analyses,[174] enumeration of specific climate change impacts that might arise from a project,[175] and quantification of emissions.[176] However, reviewing courts' reticence to impose more rigorous

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[168] Michael Gerrard, *Climate Change and the Environmental Impact Review Process*, NAT. RESOURCES & ENV'T, vol. 22, no. 3 (2008), at 20.
[169] *See id.* at 20-21 (discussing several cases that developed between those years, including *Center for Biological Diversity v. NHTSA*, 538 F.3d 1172 (9th Cir. 2008)).
[170] *See* Ctr. for Biological Diversity v. NHTSA, 538 F.3d at 1215.
[171] Mark Squillace & Alexander Hood, *NEPA and Climate Change*, *in* NEPA LITIGATION GUIDE 261, 262-63 (Albert M. Ferlo et al. eds., 2d ed. 2012).
[172] Ctr. for Biological Diversity v. U.S. Dep't of Interior, 563 F.3d 466, 479 (2009).
[173] *See, e.g.*, WildEarth Guardians v. Jewell, 738 F.3d 298, 307 (D.C. Cir. 2013); High Country Conservation Advocates v. U.S. Forest Serv., 52 F. Supp. 3d 1174 (D. Colo. 2014); WildEarth Guardians v. Bureau of Land Mgmt., 8 F. Supp. 3d 17 (D.D.C. 2014); San Diego Navy Broadway Complex Coal. v. U.S. Dep't of Def., 904 F. Supp. 2d 1056 (S.D. Cal. 2012).
[174] *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).
[175] *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")
[176] *San Diego Navy Broadway Complex Coal.*, 904 F. Supp. 2d at 1068 (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").

requirements appears to be driven by a view that it is *technically* challenging to determine the causal relationship between emissions and environmental impacts, not by skepticism that climate change is worthy of careful analysis.[177]

Therefore, it appears that the NEPA climate change guidance released by CEQ is in part a codification of a rapidly developing common law around NEPA and climate change. However, the NEPA guidance does more than counsel agencies about the importance of considering climate change in EAs and EISs: the NEPA guidance instructs agencies on *how* they should consider climate change.[178] These instructions from CEQ, combined with scientific assessments produced by the Obama administration,[179] empower agencies to consider climate change more fully.[180] Of course, the Obama administration's NEPA climate change guidance is likely to be rescinded by the Trump administration.[181] Even so, the caselaw and the scientific assessments developed before and during the Obama administration may prevent the Trump administration from significantly weakening the emerging obligation to consider climate change in NEPA analyses.

C. Caselaw on Cost-Benefit Analysis and Reasonableness

Over the last several years, federal courts have both magnified the role of cost-benefit analyses in substantive reviews of agency actions, and increasingly required climate change to be considered in cost-benefit analyses. The Obama administration's establishment of the IWG-SCC[182] fits neatly into these prevailing trends.

Michigan v. EPA is the case the most strongly reflects[183] the rising importance of cost-benefit analysis in reason-giving. *Michigan* involved a section of the Clean Air Act[184] that directed EPA to evaluate whether "regulation is appropriate and necessary." 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 decision to regulate power plants. The Agency must consider cost . . . ."[185] Moreover, although the Court divided 5-4, Justice Kagan's

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[177] *See supra* notes 175-176.
[178] *See supra* notes 82-86 and accompanying text.
[179] *See, e.g.*, *High Country Conservation Advocates*, 52 F. Supp. 3d at 1193 (ruling that the Forest Service was required to 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).
[180] Of course, CEQ's NEPA guidance on climate change is only entitled to *Skidmore* deference. However, CEQ is an agency that has historically received higher-than-usual deference. *See, e.g.*, Andrus v. Sierra Club, 442 U.S. 347, 358 (1979) (noting that CEQ's regulations demanded\ "substantial deference"); WildEarth Guardians v. Jewell, 738 F.3d 298, 309 (D.C. Cir. 2013) (giving substantial weight to a *draft* version of CEQ's climate change guidance).
[181] *See* Jody Freeman, *Implications of Trump's Victory and the Republican Congress for Environmental, Climate and Energy Regulation*, ENVTL. L. PROGRAM EMMETT CLINIC POL'Y INIT. (Nov. 10, 2016), http://environment.law.harvard.edu/postelection/.
[182] *See supra* Part I.E. As detailed in Part I.D, the extent to which the Obama administration has used the OIRA regulatory review process to promote agency consideration of climate change is unclear. There is weak evidence—within a small sample of RIAs examined—that some agencies have taken climate change more seriously in their RIAs under the Obama administration.
[183] There are other cases that reflect this trend. *See, e.g.*, Business Roundtable v. SEC, 647 F.3d 1144 (D.C. Cir. 2011).
[184] 42 U.S.C. § 7412 (2012).
[185] *Michigan*, 135 S. Ct. at 2711.

dissent—joined by the three other dissenting Justices—also accepted the premise that EPA was required to consider costs in its regulatory finding.[186] As Prof. Lisa Heinzerling observes,[187] both Justice Scalia's majority opinion and Justice Kagan's dissent moved beyond *Entergy Corp. v. Riverkeeper*,[188] in which the Court held that open-ended language in the Clean Water Act did not prevent EPA from considering costs.[189] *Michigan* was the first Court decision that interpreted open-ended statutory language to *require* an agency to consider costs.

Michigan is a precedent that can be read broadly or narrowly. Parts of Justice Scalia's opinion suggest that the decision is narrowly tailored to Section 112 of the Clean Air Act,[190] and other parts make sweeping claims about the importance of cost in reasoned decisionmaking.[191] Some lower courts have deployed this ambiguous precedent expansively. For example, in *MetLife Inc. v. Financial Stability Oversight Council*,[192] the District Court for the District of Columbia invalidated the Council's designation of MetLife as a nonbank entity for whom "material financial distress" could "post a threat the financial stability of the United States." The court found that the Council erred in not considering the costs of the designation to MetLife, the regulated entity.[193] The *MetLife* decision appears to interpret *Michigan* to mean that the consideration of cost is an integral part of basic rationality.

Recent cases relating to cost-benefit analysis that specifically address climate change have indicated two possible principles for reasoned decisionmaking. First, if an agency conducts a cost-benefit analysis, climate change must be considered if it poses significant costs or benefits[194]; and second, an agency must monetize changes in GHG emissions if an authoritative figure for the SCC is available.[195] As with the *Michigan* decision, the reach of these principles is still uncertain. At the very least, there appears to be some inclination by the judiciary to—in some cases—require cost-benefit analysis as part of a "demand for synoptic rulemaking."[196] If so, the Obama

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[186] *Id.* at 2716 (Kagan, J., dissenting) ("Cost is almost always a relevant—and usually, a highly important—factor in regulation.").
[187] Lisa Heinzerling, *The Power Canons*, 58 WM. & MARY L. REV. ___ (forthcoming), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2757770.
[188] 556 U.S. 208 (2009).
[189] Heinzerling, *The Power Canons*, *supra* note 187, at *24.
[190] *Michigan*, 135 S. Ct. at 2709 ("And as we have discussed, context establishes that this expansive standard encompasses cost.").
[191] *Id.* 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.")
[192] 177 F. Supp. 3d 219 (2016).
[193] Id.
[194] Ctr. for Biological Diversity v. NHTSA, 538 F.3d 1172, 1198-1202 (9th Cir. 2008) ("NHTSA . . . cannot put a thumb on the scale . . . .")
[195] High Country Conservation Advocates v. U.S. Forest Service, 52 F. Supp. 3d 1174, 1192 ("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."); Ctr. for Biological Diversity v. NHTSA, 538 F.3d 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 National Academy of Sciences, and faulting NHTSA for not using the figure in its cost-benefit analysis); *see also* Zero Zone, Inc. v. Dep't of Energy, 832 F.3d 654, 678 (2016) (defending DOE's use of the IWG-SCC's estimates).
[196] Martin Shapiro, *The Giving Reasons Requirement*, 1992 U. CHI. L. F. 179, 195.

administration's economically minded approach to accounting for climate change accords with this trend.

III. THE DURABILITY OF CLIMATE-CONSCIOUS REASONING

When examining this "fourth pillar" of climate policy, the natural intuition is that the fruits of presidential administration will be easily reversed by the Trump administration. Scholars commonly—and justifiably—presume that presidential power is expansive,[197] even leading some to express fears of an "imperial" executive with little to constrain it.[198] Consequently, some have opposed the unitary executive branch and argued for an "overseer, not decider" function for the President.[199] Others have viewed presidential power as more limited, claiming although the President is largely free from formal legal constraints, the President is meaningfully bound by other factors.[200] In this Part, I forecast whether climate-conscious reasoning will prove to be durable or easily unraveled.

A. Formal Legal Constraints

First, the judiciary and constitutional constraints—the tools favored by liberal legal theorists—might limit President Trump. Of course, President Trump will come into office in an age when presidential administration is well-established and presidents operate as if the executive is unitary.[201] In this present constitutional order, we cannot readily expect courts to reinforce climate-conscious administration except for situations where agency judgments clearly belie a well-established scientific conclusion,[202] litigants challenge NEPA EAs or EISs for deficient treatments of climate change,[203] or agency cost-benefit analyses are clearly skewed.[204] Yet, some scholars have raised the possibility that the Court is slowly clawing back the power of the administrative state and limiting the *Chevron* doctrine.[205] This view is reinforced by conservative judges' vocal skepticism about the administrative state.[206] If this claw-back is occurring, the

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[197] *See, e.g.*, Adrian Vermeule, *Our Schmittian Administrative Law*, 122 HARV. L. REV. 1095 (2009).
[198] *See generally* Bruce Ackerman, The Decline and Fall of the American Republic (2010); Peter M. Shane, Madison's Nightmare: How Executive Power Threatens American Democracy (2009); Arthur M. Schlesinger Jr., The Imperial Presidency (1973).
[199] Peter L. Strauss, *"The Decider"? The President in Administrative Law*, 75 GEO. WASH. L. REV. 696, 704 (2007).
[200] *See, e.g.*, Eric Posner & Adrian Vermeule, The Executive Unbound (2010).
[201] CALABRESI & YOO, *supra* note 27, at 384-412 (2008) (documenting the extensive powers of presidential administration used by Presidents George H.W. Bush, Bill Clinton, and George W. Bush).
[202] *See supra* Part II.A.
[203] *See supra* Part II.B.
[204] *See supra* Part II.C.
[205] *See, e.g.*, Philip Hamburger, *Chevron Bias*, __ GEO. WASH. L. REV. ___ (forthcoming), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2477641; Heinzerling, *The Power Canons*, *supra* note 187; Jody Freeman, *The* Chevron *Sidestep: Professor Freeman on* King v. Burwell, ENVTL. L. PROGRAM EMMETT CLINIC POL'Y INIT. (June 2015), http://environment.law.harvard.edu/2015/06/the-chevron-sidestep/; Patrick Gregory, *Scholars Concerned About Chevron Deference 'Retreat,'* BLOOMBERG BNA (June 9, 2016), https://www.bna.com/scholars-concerned-chevron-n57982073856/ (interviewing Prof. Daniel A. Farber at Boalt Hall and Prof. Catherine Sharkey of NYU Law School).
[206] Robin Bravender, *Alito Snubs* Chevron, *Obama EPA's 'Eraser,'* GREENWIRE (Nov. 17, 2016), http://www.eenews.net/greenwire/2016/11/17/stories/1060045952 (reporting on a talk by Justice Alito at the Federalist Society's annual conference, where Justice Alito described his and the late Justice Scalia's skepticism about *Chevron*). Some lower-court judges have embraced this trend as well, including Judge Gorsuch on the Tenth

decline in deference would deeply implicate the durability of climate-conscious administration. To explore this possibility, I make three assumptions. First, I assume that the *Chevron* doctrine is meaningfully applied—a view that has been rebutted by scholars who argue that *Chevron* is a malleable and arbitrary canon.[207] Second, I assume that the administrative state is being incrementally limited by courts. Third, I assume that *Michigan v. EPA* is part of a rollback of *Chevron* deference. In other words, I assume that *Michigan* limits agency statutory interpretation by holding that agency actions under open-ended delegations require the consideration of costs.[208]

Traditionally, *Chevron* has been viewed as a pro-regulatory canon. Efforts to limit *Chevron* have been the province of conservative judges and legal scholars who have constitutional concerns about the legitimacy of the expansive administrative state.[209] 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 pro-labor and pro-environment interests to be skeptical of cost-benefit analysis.[210] To this day, left-leaning scholars criticize the inability of cost-benefit analysis to account for many of the benefits of environmental protection.[211] However, as Profs. Richard Revesz and Michael Livermore have posited, cost-benefit analysis—if conducted properly—need not have a pro-regulatory or anti-regulatory bias.[212] Instead, cost-benefit analysis can be rectified by developing ways to account for difficult-to-quantify values, considering ancillary benefits,[213] and acknowledging its inherent limitations.[214] From this point of view, cost-benefit analysis can be a tonic for flawed regulations that might over-regulate, under-regulate, or mis-regulate in various ways.[215] Thus, if *Michigan v. EPA* is an attempt to limit the reach of *Chevron* 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 decisionmaking, as Obama-era studies make it easy to value the

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Circuit. 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.").

[207] *See, e.g.*, William N. Eskridge, Jr. & Lauren E. Baer, *The Continuum of Deference: Supreme Court Treatment of Agency Statutory Interpretations from* Chevron *to* Hamdan, 96 GEO. L.J. 1083 (2008); Connor M. Raso & William N. Eskridge, Jr., Chevron *as a Canon, Not a Precedent: An Empirical Study of What Motivates Justices in Agency Deference Cases*, 110 COLUM. L. REV. 1727 (2010).

[208] *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*); 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; Heinzerling, *The Power Canons*, *supra* note 187.

[209] *See, e.g.*, Philip Hamburger, Is Administrative Law Unlawful? (2014).

[210] REVESZ & LIVERMORE, *supra* note 88, at 24-29; *see also* SHANE, *supra* note 198, at 149-54 (documenting the role of OIRA in the Reagan, H.W. Bush, and Clinton administrations).

[211] *See, e.g.*, Frank Ackerman & Lisa Heinzerling, Priceless (2004); Douglas A. Kysar, Regulating from Nowhere: Environmental Law and the Search for Objectivity (2010).

[212] *See* REVESZ & LIVERMORE, *supra* note 88, at 50-51 (pointing out that EPA developed improved cost-benefit guidelines to counter OIRA's deregulatory bias).

[213] *Id.* at 58-67

[214] See generally id.

[215] *See, e.g.*, STEPHEN BREYER, BREAKING THE VICIOUS CIRCLE 3-29 (1993) (comparing risks that are overestimated and overregulated, with risks that are underestimated and underregulated); 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 overregulation and under-regulation).

substantial costs of climate change in both monetary and qualitative terms. Accordingly, litigants bringing claims against the Trump administration would be better-equipped to "ossify"[216] executive actions.

Yet, there are some significant reasons to believe that the judiciary will not strongly protect climate-conscious administration absent a fundamental change in the balance of power between the judicial and executive branches. First, President Trump will have broad supervisory powers to inject policy considerations into rulemaking processes.[217] As Prof. Nina Mendelson argues, few forms of presidential pressure are "clearly out of bounds."[218] Second, the cost-benefit requirement foreshadowed by *Michigan* may turn out to be more procedural than substantive.[219] Even if lower courts interpret *Michigan* expansively, President Trump could easily fulfill the *Michigan* mandate to "consider" costs while ignoring climate change by providing colorable reasons to weigh non-climate factors more heavily. Third, modern administrative law is hesitant to entertain agency-forcing actions. If the Trump administration refuses to issue necessary regulations or enforce them, there is very little that litigants can do.

B. Time, Inertia, and Imperfect Presidential Administration

Second, the durability of climate-conscious administration might be enhanced on time, inertia, and other barriers to centralized presidential administration. It has long been recognized that presidential administration, however well-executed, is imperfect: 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."[220]

To the extent that President Obama's "fourth pillar" succeeded in influencing bureaucratic decisionmaking, climate-conscious reasoning will be entrenched deep within federal departments and agencies. As noted in Part I.D, some agencies like the Department of Energy tend to consider climate change even in the absence of presidential admonition, and as noted in Part I.F, key decisionmakers in the Pentagon have viewed climate change as a key strategic issue since at least the early 2000s. Moreover, climate change consciousness is not only deeply embedded; it is also widely scattered throughout the federal government. As the Government Accountability Office 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."[221]

The deeply ingrained and fragmented nature of bureaucratic climate-consciousness may frustrate Trump administration efforts to undo it. For example, even if a Trump CEQ rescinds the

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[216] See Thomas O. McGarity, Some Thoughts on "Deossifying" the Rulemaking Process, 41 DUKE L.J. 1385 (1992).
[217] *See, e.g.*, *Motor Vehicles Manufacturers Ass'n v. State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29, 59 (1983) (Rehnquist, J., dissenting) ("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.3d 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.").
[218] Nina M. Mendelson, *Disclosing "Political" Oversight of Agency Decision Making*, 108 MICH. L. REV. 1127, 1141 (2010).
[219] As discussed throughout this paper, NEPA is ultimately a procedural statute.
[220] Richard Neustadt, Presidential Power 10 (1990).
[221] http://www.gao.gov/assets/320/318556.pdf

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NEPA guidance on climate change, it is conceivable that some agencies will—out of sheer habit[222]—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. It is even conceivable that some agencies will "self-insulate" themselves to evade presidential scrutiny.[223] Even in the military, where presidential control is at its zenith, the Pentagon may retain some climate change-friendly policies.[224]

Yet, it seems unlikely that career civil servants will openly oppose President Trump's efforts to unravel climate-conscious reasoning. This view is supported by historical precedents from the Reagan Revolution—another period of drastic political change. After President Reagan's victory, career civil servants generally complied with the demands of the new presidential administration[225] and followed their self-perceived subordinate roles as unelected government officials.[226]

On balance, President Obama's "fourth pillar" has some elements that shield it from immediate reversal by the Trump administration. The fate of climate-conscious reasoning may depend on whether President Trump wins a second term in office, whether President Trump's White House exercises his powers of presidential administration in a competent manner, and whether career civil servants actively resist the Trump administration's denial of climate change. In any case, however, President Obama's efforts provide a blueprint for how presidents may motivate the vast federal bureaucracy to attend to complex and cross-cutting public problems.

CONCLUSION

Presidential administration has gradually grown more complex over the years. Although President Clinton is often characterized as the president who most aggressively expanded the scope of presidential administration, President Obama's promotion of climate-conscious reasoning may—in hindsight—be viewed as surpassing President Clinton.

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[222] *See* JERRY L. MASHAW, CREATING THE ADMINISTRATIVE CONSTITUTION 313-14 (2012) (stressing the need to pay attention to ingrained patterns of agency practice).
[223] See Jennifer Nou, Agency Self-Insulation Under Presidential Review, 126 HARV. L. REV. 1755 (2013).
[224] *See, e.g.*, Erika Bolstad, *Trump Likely to Downplay Climate as Security Threat*, CLIMATEWIRE (Nov. 28, 2016), http://www.eenews.net/climatewire/stories/1060046229/ (quoting interviewees who suspect that some Pentagon climate change policies will survive due to their cost-saving or life-saving qualities).
[225] MARISSA MARTINO GOLDEN, WHAT MOTIVATES BUREAUCRATS?: POLITICS AND ADMINISTRATION DURING THE REAGAN YEARS 156 (2000).
[226] *Id.* at 156-67.

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