

## PRESIDENT TRUMP'S WAR ON REGULATORY SCIENCE

Albert C. Lin\*

*Abstract*

*The Trump administration has taken numerous actions that appear hostile to scientists, scientific research, and scientific data, leading some observers to assert that a war on science is underway. A more precise characterization is that the Trump administration is engaging in a war on regulatory science, as these actions take aim specifically at regulatory science—i.e., knowledge production and synthesis carried out by the Environmental Protection Agency and other government agencies in the course of developing government regulations. The Administrative Procedure Act and other laws may constrain some aspects of the war on regulatory science, provided that they are subject to judicial review. Internal administrative law and agency norms also can promote rule of law values, but their success depends largely on the good faith of executive branch actors and the willingness of Congress and the public to push back when norms of administrative legality are ignored. Absent such pushback, the Trump administration's war on regulatory science could lead to irrational policies and threaten democratic governance.*

---

\* Professor of Law, University of California, Davis, School of Law. Thanks to participants at the 2018 Sustainability Conference of American Legal Educators for helpful suggestions. Thanks also to Dean Kevin Johnson, Associate Dean Afra Afsharipour, former Associate Dean Madhavi Sunder, and the U.C. Davis School of Law for supporting this project, and to Chris Moskal and Tessa Opalach for their research assistance.

## Table of Contents

<b>Introduction</b> .....	<b>3</b>
<b>I. The War on Science Within Federal Agencies</b> .....	<b>4</b>
A. Questioning Accepted Science.....	5
1. EPA’s “Secret Science” Proposal .....	5
2. The Proposed “Red Team, Blue Team” Climate Debate .....	7
B. Devaluing and Sidelineing Scientific Expertise.....	10
C. Censorship of Agency Science.....	13
<b>II. A War on Regulatory Science, not a War on Science in General</b> ....	<b>16</b>
A. Research Science.....	16
B. Regulatory Science.....	18
C. Characterizing the Trump Administration’s Actions .....	21
<b>III. Laws Relevant to the War on Regulatory Science</b> .....	<b>22</b>
A. The Administrative Procedure Act.....	23
1. Judicial Review under the APA .....	23
2. APA Challenges to Delaying or Suspending Obama-Era Rules.....	25
3. APA Challenges to Substantive Rules .....	26
a. EPA’s Secret Science Rule.....	27
b. BLM Methane Rule.....	28
B. Statutes Governing Advisory Committees .....	29
1. Standing.....	30
2. Justiciability .....	31
3. Merits .....	32
C. Conflict of Interest Law .....	35
D. Scientific Integrity Policies .....	37
E. First Amendment and Whistleblower Protections.....	40
1. First Amendment.....	40
2. Whistleblower Protections .....	43
<b>IV. Sizing Up the War on Regulatory Science</b> .....	<b>46</b>
A. The Limited Reach of External Administrative Law .....	46
B. The Importance of Internal Administrative Law.....	48
C. Eroding Agency Norms with Respect to Science .....	49
1. Undermining the Role of Scientific Authority in Rulemaking .....	50
2. Ignoring Science as a Basis for Law and Policy .....	53
D. Collateral Effects on Research Science.....	56
<b>Conclusion</b> .....	<b>58</b>

## Introduction

Various actions of the Trump administration have departed from norms of how government should operate. Regulatory agencies that rely heavily on science—especially the Environmental Protection Agency (EPA) and Department of the Interior—have engaged in some of the most notable departures. For example, the Department of the Interior reassigned senior staff because of their previous work on climate change. Federal agencies have removed references to climate change from official agency pronouncements. And in setting pollution standards, EPA has decided to disregard studies relying on confidential data even though they have undergone scientific peer review. Whether these actions will survive legal challenge remains to be seen.

Some popular accounts have declared that the Trump administration is engaging in a “war on science.”<sup>1</sup> But is a “war on science” actually underway? On the one hand, scientific research still receives substantial public and private support, and technological innovation is flourishing, thanks to information technology, artificial intelligence, and other scientific advances.<sup>2</sup> Scientific inquiry seems healthy, suggesting that the “war on science” may be more a rhetorical device reflecting opposition to a deregulatory agenda than a fair characterization.

However, a closer examination of science’s role in policymaking indicates that the “war on science” is more than mere rhetoric. In an actual war on science, one might expect widespread resistance to scientific inquiry, denials of scientific findings, and a disregard of problems identified through science.<sup>3</sup> All of these features are present in the Trump administration’s systematic efforts to downplay scientific activity, expertise, and scientific data that might support regulation. To stifle scientific activity, the administration has proposed deep cuts to research funding on specific topics and ordered scientists not to present unfavorable results. To weaken the role of expertise, the administration has skewed membership on scientific advisory committees toward industry and reduced the role of such committees. And to undermine the use of science in policy making, the administration has questioned methodologies and truths that are widely accepted by the scientific community.

---

<sup>1</sup> See, e.g., Op-ed, *President Trump’s War on Science*, N.Y. TIMES, Sept. 9, 2017, at SR10.

<sup>2</sup> See Peter Aldhous, *Trump’s War on Science” Isn’t What You Think*, BUZZFEED NEWS, Jan. 18, 2018, [https://www.buzzfeed.com/peteraldhous/trumps-war-on-science-isnt-what-you-think?utm\\_term=.kuYKPd60Vo#.pmV8mLkWJM](https://www.buzzfeed.com/peteraldhous/trumps-war-on-science-isnt-what-you-think?utm_term=.kuYKPd60Vo#.pmV8mLkWJM); Albert C. Lin, *Preliminary Injunctive Regulation*, 58 ARIZ. L. REV. 1027, 1031-32 (2016) (discussing social acceleration).

<sup>3</sup> See SHAWN OTTO, THE WAR ON SCIENCE 7 (2016).

Efforts to manipulate or question the science underlying federal regulation are not unprecedented. The George W. Bush administration, for example, sought to distort or suppress scientific research on climate change and other issues in order to achieve deregulatory goals.<sup>4</sup> The Trump administration not only has engaged in similar tactics, but also has uniquely rejected science as a basis for regulation to protect human health and the environment.<sup>5</sup>

As this Article explains, the Trump administration's actions reflect a systematic threat to the science on which federal agencies rely to do their jobs. Part I describes these actions and places them in three general categories: questioning accepted science, devaluing and sidelining scientific expertise, and censoring agency science. Part II addresses whether an actual war on science is underway and finds that the Trump administration's actions specifically attack regulatory science, as opposed to research science. Part III considers various laws that courts might apply to these actions, including the Administrative Procedure Act, the Federal Advisory Committee Act, laws governing conflicts of interest, the First Amendment, and whistleblower protections. Congress also has the power to respond through legislation, committee hearings, and other forms of oversight, but many administration actions may remain unchecked. Part IV reflects on broader implications for regulatory science, including the erosion of agency norms with respect to science and the undermining of democratic governance.

## **I. The War on Science Within Federal Agencies**

This Part explores elements of the Trump administration's alleged war on science, including its proposed rule targeting "secret science," its replacement of academic experts on scientific advisory boards with industry

---

<sup>4</sup> See CHRIS MOONEY, *THE REPUBLICAN WAR ON SCIENCE* (2007); House Comm. on Oversight and Gov't Reform, U.S. House of Representatives, 110th Cong., *Political Interference with Climate Change Science Under the Bush Administration* (2007). In one incident, Bush White House officials demanded revision of an EPA report to eliminate the conclusion that climate change has global health and environmental consequences and to incorporate contrary language from a study funded by the American Petroleum Institute. See Jody Freeman & Adrian Vermeule, *Massachusetts v. EPA: From Politics to Expertise*, 2007 S. CT. REV. 51, 55 (2007); Michele Estrin Gilman, *The President as Scientist-in-Chief*, 45 WILLAMETTE L. REV. 565, 571-72 (2009). EPA ultimately chose to omit any discussion of climate change rather than make the revisions. Freeman & Vermeule, *supra*, at 55. Bush Administration officials minimized the significance of climate change and emphasized uncertainty in reports to Congress. See Comm. on Oversight and Gov't Reform, *supra*, at ii, 11-27; Holly Doremus, *Scientific and Political Integrity in Environmental Policy*, 86 TEX. L. REV. 1601, 1611-12 (2008).

<sup>5</sup> See *President Trump's War on Science*, *supra* note 1.

representatives, its personnel actions involving agency scientists, and its elimination of references to climate change on agency websites and in official pronouncements. These actions can be placed into three general categories: questioning accepted science, devaluing scientific expertise, and censoring agency science. The discussion illustrates the concerns at stake and lays the foundation for subsequent analysis.

### **A. Questioning Accepted Science**

Scientific inquiry is an ongoing process for “deepening our understanding of the natural world.”<sup>6</sup> Through the application of empirical, “value-neutral tools,” science generates knowledge that serves as a critical input to environmental policymaking.<sup>7</sup> This knowledge may demonstrate the existence of serious threats to human health and the environment. And if this knowledge is widely accepted, public and political pressure may build for government to respond to such threats. To attack accepted scientific knowledge, the Trump administration has isolated certain characteristics of the scientific process—transparency and skepticism—and sought to delegitimize scientific findings that the administration asserts do not fully exhibit these characteristics.

#### **1. EPA’s “Secret Science” Proposal**

A leading example of this approach is the administration’s proposal to prohibit EPA from issuing rules based on studies that use confidential data.<sup>8</sup> Touted as a measure to promote transparency and counter “secret science,” the proposal requires EPA to “clearly identify all studies (or other regulatory science) relied upon when it takes any final agency action” and to “ensure that *dose response data and models* underlying *pivotal regulatory science* are publicly available in a manner sufficient for independent validation.”<sup>9</sup> On its face, the proposed rule’s precise effect is uncertain, as it contains somewhat vague provisions and authorizes the EPA administrator to

---

<sup>6</sup> Holly Doremus, *Precaution, Science, and Learning While Doing in Natural Resource Management*, 82 WASH. L. REV. 547, 560 (2007).

<sup>7</sup> *Id.* [Doremus] at 560; see Wendy Wagner, *The “Bad Science” Fiction: Reclaiming the Debate over the Role of Science in Public Health and Environmental Regulation*, 66 LAW & CONTEMPORARY PROBLEMS 63, 64 (2003); Eric Biber, *Which Science? Whose Science? How Scientific Disciplines Can Shape Environmental Law*, 79 U. CHI. L. REV. 471, 476 (2012).

<sup>8</sup> EPA, *Strengthening Transparency in Regulatory Science*, 83 Fed. Reg. 18768 (Apr. 30, 2018).

<sup>9</sup> *Id.* at 18773 (emphasis in original). The proposal is patterned after legislation sponsored by Rep. Lamar Smith (R-Tex.) but never enacted. See Scott Waldman & Niina Heikkinen, *Smith Pitched Pruitt on “Secret Science.” Now It’s Happening*, CLIMATEWIRE, Apr. 20, 2018, <https://www.eenews.net/climatewire/stories/1060079655>.

make case-by-case exemptions.<sup>10</sup> However, the proposal appears to be aimed primarily at influential long-term studies that use private health data to link air pollution with serious health effects.<sup>11</sup> Excluding such studies presumably would result in the issuance of weaker health and environmental standards.<sup>12</sup>

Transparency in agencies' use of science can enhance accountability by allowing the public to evaluate the scientific and policy judgments contributing to agency decisions.<sup>13</sup> In general, an agency should explain the values and assumptions that influenced its decisions, identify the literature it considered, and discuss how it weighted or excluded various studies.<sup>14</sup> However, EPA's proposal misleadingly assumes that data transparency is a necessary condition of scientific validity.<sup>15</sup> The hallmark of the scientific process is peer review, rather than data transparency per se.<sup>16</sup> Prior to EPA's secret science rule, agencies were encouraged to disclose underlying data "to the extent practicable and permitted by law"—a limitation that reflects the importance of safeguarding personal privacy, trade secrets, and confidential business information.<sup>17</sup> This approach—which federal agencies other than EPA continue to follow—is consistent with accepted scientific practice and ethical standards, which guarantee data privacy to human subjects through confidentiality agreements and the like.<sup>18</sup> Indeed, the scientific community is able to judge the merits of studies that rely on confidential data: "as a core skill, scientists are trained in assessing research publications by judging the

---

<sup>10</sup> Strengthening Transparency, 83 Fed. Reg. at 18774.

<sup>11</sup> Scott Waldman, *Here Are 3 Studies that Might Be Hit by Pruitt's Rule*, CLIMATEWIRE, Apr. 26, 2018, <https://www.eenews.net/climatewire/stories/1060080167>; Robinson Meyer, *Scott Pruitt's New EPA Rule Would Transform the Agency*, ATLANTIC, Apr. 25, 2018, <https://www.theatlantic.com/science/archive/2018/04/how-the-epas-new-secret-science-rule/558878/>.

<sup>12</sup> See Waldman, *supra* note 11; Meyer, *supra* note 11.

<sup>13</sup> See Administrative Conference of the United States, Adoption of Recommendations, 78 Fed. Reg. 41352, 41357 (2013).

<sup>14</sup> See WENDY WAGNER, SCIENCE IN REGULATION: A STUDY OF AGENCY DECISIONMAKING APPROACHES 25 (2013).

<sup>15</sup> See Waldman & Heikkinen, *supra* note 9; see also David Michaels & Thomas Burke, *The Dishonest HONEST Act*, 356 SCIENCE 989 (2017) (criticizing similar legislative proposal as "an attempt by politicians to override scientific judgment and dictate narrow standards by which science is deemed valuable for policy").

<sup>16</sup> See Jeremy Berg et al., *Joint Statement on EPA Proposed Rule and Public Availability of Data*, SCIENCE, Apr. 30, 2018, <http://science.sciencemag.org/content/sci/early/2018/04/30/science.aau01116.full.pdf>.

<sup>17</sup> 78 Fed. Reg. at 41358 & n.12.

<sup>18</sup> See Waldman, *supra* note 11; see also Berg et al., *supra* note 16 (noting importance of data sharing while recognizing that data sets featuring personal identifiers "cannot be shared openly with all").

articulation and logic of the research design, the clarity of the description of the methods used for data collection and analysis, and appropriate citation of previous results.”<sup>19</sup>

## 2. The Proposed “Red Team, Blue Team” Climate Debate

In another example of questioning accepted science, former EPA Administrator Scott Pruitt repeatedly advocated a “red-team, blue team” exercise as a means of challenging the scientific consensus on climate change.<sup>20</sup> The U.S. military developed the “red-team, blue-team” technique to test assumptions associated with a particular action or set of circumstances.<sup>21</sup> The red team’s task is to challenge a strategy or preconceived notions by “fram[ing] a problem from the perspective of an adversary or sceptic.”<sup>22</sup> Vulnerabilities and uncertainties are identified through a back-and-forth debate between red and blue team analysts.<sup>23</sup>

Unlike the scientific method, the red-team, blue-team approach is “not designed to take a testable hypothesis and then look at whether observations and theory support or refute it.”<sup>24</sup> Accordingly, the technique is not suited to assess whether the evidence demonstrates the existence of particular risks—i.e., in the case of climate change, to determine whether climate change is occurring. Rather, the red-team, blue-team approach is designed to assist decisionmakers in deciding how to respond to particular risks —i.e., problems of risk management.<sup>25</sup> The technique can be used to map possible future scenarios, find gaps in plans, and develop alternative strategies.<sup>26</sup> Indeed, the “red-team, blue-team” technique differs substantially from scientific peer review, a process in which qualified experts review a work to provide feedback and assure that it meets scientific

---

<sup>19</sup> Berg et al., *supra* note 16.

<sup>20</sup> See Emily Holden, *Pruitt Will Launch Program to “Critique” Climate Science*, CLIMATEWIRE, June 30, 2017, <https://www.eenews.net/stories/1060056858>.

<sup>21</sup> See *id.* (Holden); Steven Koonin, *A “Red Team” Exercise Would Strengthen Climate Science*, WALL ST. J., Apr. 21, 2017.

<sup>22</sup> *Red Team*, FINANCIAL TIMES LEXICON, <http://lexicon.ft.com/term?term=red-team> (last visited June 12, 2018).

<sup>23</sup> See Koonin, *supra* note 21.

<sup>24</sup> Richard B. Rood, *Red Team-Blue Team? Debating Climate Science Should Not Be a Cage Match*, THE CONVERSATION, Aug. 13, 2017, <http://theconversation.com/red-team-blue-team-debating-climate-science-should-not-be-a-cage-match-80663>.

<sup>25</sup> See Defense Science Board Task Force, *The Role and Status of DoD Red Teaming Activities 2* (2003) (stating that purpose of red teams “is to reduce an enterprise’s risks and increase its opportunities”).

<sup>26</sup> See Financial Times Lexicon, *supra* note 22; Defense Science Board Task Force, *supra* note 25, at 4.

standards.<sup>27</sup> Unlike the “red-team, blue-team” approach, which is deliberately adversarial,<sup>28</sup> peer review is intended to be independent and objective, but not necessarily adversarial.

As contemplated by Pruitt, a red-team, blue-team debate on climate change would proceed as follows: first, the red team of scientists would critique the published science on climate change; second, the blue team of scientists would rebut the red team critique; and then further exchanges would follow.<sup>29</sup> Pruitt suggested this back-and-forth process be public and perhaps televised.<sup>30</sup> A highly visible process, advocates claim, would enhance understanding of the certainties and uncertainties of climate science among policy makers and the public.<sup>31</sup> In addition, the process could serve as a stepping stone for reversing EPA’s 2009 finding that greenhouse gas (GHG) emissions endanger public health or welfare.<sup>32</sup> Such a reversal could lead to the unwinding of federal regulation of GHG emissions under the Clean Air Act.<sup>33</sup>

Leading scientific organizations worry that a red-team, blue-team exercise on climate change would allow the “use [of] policy disagreements as a pretext to challenge scientific conclusions.”<sup>34</sup> The process would offer a prominent platform to climate change deniers and cultivate skepticism

---

<sup>27</sup> See Dino Grandoni, *The Energy 202: What Would Be the Point of Pruitt’s “Red Team-Blue Team” Climate Exercise?*, WASH. POST, July 3, 2017; Kelly Levin, *Pruitt’s “Red Team-Blue Team” Exercise a Bad Fit for EPA Climate Science*, June 20, 2017, <http://www.wri.org/blog/2017/06/pruitts-red-team-blue-team-exercise-bad-fit-epa-climate-science>.

<sup>28</sup> See Defense Science Board Task Force, *supra* note 25, at 4-5 (noting that red teams may serve as “surrogate adversaries” or as “devil’s advocates”).

<sup>29</sup> See Koonin, *supra* note 21; Scott Waldman, *Pruitt “Guaranteeing” Debate on Climate Science Soon*, CLIMATEWIRE, Dec. 1, 2017, <https://www.eenews.net/climatewire/stories/1060067811>.

<sup>30</sup> See Valerie Volcovici, *EPA Chief Wants Scientists to Debate Climate on TV*, REUTERS, July 11, 2017, <https://www.reuters.com/article/us-usa-epa-pruitt/epa-chief-wants-scientists-to-debate-climate-on-tv-idUSKBN19W2D0>.

<sup>31</sup> See Koonin, *supra* note 21.

<sup>32</sup> See Holden, *supra* note 20; EPA, *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, 74 Fed. Reg. 66496, 66523 (2009).

<sup>33</sup> See Bob Sussman, *Back to Basics or Slash and Burn? Scott Pruitt’s Reign as EPA Administrator*, 47 ENVTL. L. RPTR. 10917, 10923 (2017); see also *Utility Air Resources Group v. EPA*, 134 S. Ct. 2427, 2436-37 (2014) (discussing endangerment finding and subsequent EPA actions to regulate GHG emissions). A reversal of the 2009 endangerment finding would face an uphill struggle to survive judicial review. Sussman, *supra*, at 10923.

<sup>34</sup> Letter to Scott Pruitt from Rush Holt (CEO, American Association for the Advancement of Science) et al., July 31, 2017, <https://sciencepolicy.agu.org/files/2013/07/Joint-Society-letter-EPA-Pruitt-FINAL.pdf>.

regarding factual matters on which the scientific community has reached a consensus—namely, that climate change is occurring and human activities are primarily to blame.<sup>35</sup> Furthermore, the debate contemplated by Pruitt would hardly be a neutral exercise aimed at discovering scientific truth.<sup>36</sup> Potential participants include scientists who lack expertise in climatology or any field relating to climate change, as well as non-scientists who staunchly oppose vigorous climate policies.<sup>37</sup> In addition, a televised debate format would readily lend itself to magnifying dissension and conflict.<sup>38</sup>

Indeed, a red-team, blue-team debate would complement other efforts by the Trump administration to foster public doubt on climate change.<sup>39</sup> President Trump once described climate change as a “hoax” and has continued to dismiss scientific evidence of climate change since taking office.<sup>40</sup> In confirmation hearings and public pronouncements, numerous cabinet members have asserted that the science on climate change is unclear.<sup>41</sup> Even if the exercise never takes place, the mere prospect of a red-

---

<sup>35</sup> See Levin, *supra* note 27.

<sup>36</sup> See Grandoni, *supra* note 27; cf. Shannon M. Roesler, *Evaluating Corporate Speech About Science*, 106 GEO. L.J. 447, 498 (2018) (describing danger that a statement highlighting uncertainty regarding climate change can be misleading “precisely because it capitalizes on the cognitive biases and cultural predispositions of some people”).

<sup>37</sup> See Scott Waldman, *Picking “Red-Team” Roster Presents Minefield for Pruitt*, CLIMATEWIRE, Oct. 26, 2017, <https://www.eenews.net/climatewire/2017/10/26/stories/1060064729>.

<sup>38</sup> Cf. Jaeho Cho & Yerheen Ha, *On the Communicative Underpinnings of Campaign Effects: Presidential Debates, Citizen Communication, and Polarization in Evaluations of Candidates*, 29 POLITICAL COMMUNICATION 184, 184-85 (2012) (noting studies concluding that viewing of presidential debates reinforces viewers’ partisan preferences); Benjamin R. Warner & Mitchell S. McKinney, *To Unite and Divide: The Polarizing Effect of Presidential Debates*, 64 COMMUNICATION STUDIES 508, 522 (2013) (finding that viewing presidential debates increases polarization, especially among those who were least polarized before viewing debates).

<sup>39</sup> See OTTO, *supra* note 3, at 19.

<sup>40</sup> See Michael Biesecker et al., *Trump Wages Battle Against Regulations, Not Climate Change*, PBS NEWS HOUR, June 10, 2017, <https://www.pbs.org/newshour/politics/trump-wages-battle-regulations-climate-change>; Grace Guarnieri, *Trump Questions Climate Change in Piers Morgan Interview*, NEWSWEEK, Jan. 28, 2018, <https://www.pbs.org/newshour/politics/trump-wages-battle-regulations-climate-change>.

<sup>41</sup> See Scott Waldman, *Here’s How Science Fared in the First Year of Trump*, CLIMATEWIRE, Dec. 20, 2017, <https://www.eenews.net/stories/1060069521>; Emily Holden & Niina Heikkinen, *Top Officials Harden Against Climate Science Since Confirmation*, CLIMATEWIRE, July 25, 2017, <https://www.eenews.net/climatewire/stories/1060057850>. At his confirmation hearing, Administrator Pruitt questioned the degree of human influence on the climate and the extent of climate impacts. See Scott Waldman & Niina Heikkinen, *Pruitt Suggests Warming Can Help Humans*, CLIMATEWIRE, Feb. 7, 2018, <https://www.eenews.net/climatewire/stories/1060073119>.

team, blue team debate could sow further doubts among the public about the validity of climate science by suggesting that the matter is unresolved.<sup>42</sup>

### **B. Devaluing and Sidelining Scientific Expertise**

A second category in the alleged war on science consists of actions aimed at diminishing the role of scientific experts in government. Individual appointment decisions as well as broader changes in the makeup and use of scientific advisory committees have devalued expert contributions to policy.

Departing from decades of practice under presidents of both parties, President Trump has failed to appoint a presidential science advisor.<sup>43</sup> Such an advisor could assist the president in sorting through different perspectives on federal disaster response, North Korea's nuclear program, and other policy matters that raise scientific issues.<sup>44</sup> The President's Council of Advisers on Science and Technology, an advisory group of private sector experts that has provided reports on scientific and technological developments to the president since 1933, has also remained unpopulated and unstaffed.<sup>45</sup> Furthermore, the administration has nominated or appointed non-scientists to positions that require scientific expertise or have traditionally been held by scientists. Examples include: Sam Clovis, a former economics professor and talk radio host with no science background, nominated to a Department of Agriculture position that by statute must be filled by a "distinguished scientist[] with specialized training or significant experience in agricultural research, education, and economics";<sup>46</sup> Barry Myers, CEO of AccuWeather, nominated to lead the National Oceanic and Atmospheric Administration;<sup>47</sup>

---

<sup>42</sup> Robin Bravender, *Sources: Trump Supports Pruitt's Plan to Question Science*, CLIMATEWIRE, Dec. 11, 2017, <https://www.eenews.net/climatewire/stories/1060068567>.

<sup>43</sup> See Christa Marshall, *Trump Plans Shakeup of Science Council*, GREENWIRE, Feb. 6, 2018, <https://www.eenews.net/greenwire/stories/1060073025>. President George W. Bush's science adviser was confirmed nine months after Bush took office, and President Clinton's science adviser was confirmed just days after Clinton took office. See MOONEY, *supra* note 4, at 240.

<sup>44</sup> See Scott Waldman, *Will Trump Name a Scientist? A Poli-Sci Grad Runs the Show*, CLIMATEWIRE, Feb. 14, 2018, <https://www.eenews.net/climatewire/stories/1060073811>.

<sup>45</sup> See Rod Kuckro & Christa Marshall, *Top Advisory Groups Dormant at DOE, White House*, ENERGYWIRE, May 11, 2017, <https://www.eenews.net/energywire/stories/1060054375>; Christa Marshall, *Trump Order Will Revive Science Council*, GREENWIRE, Sept. 29, 2017, <https://www.eenews.net/greenwire/stories/1060062169>.

<sup>46</sup> See Marc Heller, *After Clovis, Groups Debate Need for Scientists in USDA Post*, GREENWIRE, Dec. 18, 2017, <https://www.eenews.net/greenwire/stories/1060069299>. Clovis withdrew from consideration prior to a confirmation vote. *Id.*

<sup>47</sup> See Rob Hotakainen, *Trump Picks CEO to Lead NOAA, Lockheed Exec for Defense*, E&E DAILY, Oct. 12, 2017, <https://www.eenews.net/eedaily/stories/1060063397>.

and Jim Bridenstine, a former congressman and Navy aviator, appointed as the first politician to lead NASA.<sup>48</sup>

Appointments of agency officials are not the only way in which the Trump administration has reduced the role of scientific expertise. An even more pervasive effort has involved changes in the staffing and operation of scientific advisory committees. EPA relies heavily on 22 scientific advisory committees to inform its work.<sup>49</sup> Input from these committees not only informs the agency's actions but also helps to persuade courts to defer to those actions.<sup>50</sup> Among the most prominent of EPA's advisory committees are its Science Advisory Board (SAB), Clean Air Scientific Advisory Committee (CASAC), and Board of Scientific Counselors (BOSC). The SAB, established to provide scientific advice to EPA or to Congress upon request, reviews whether the scientific and technical basis of proposed regulations is adequate.<sup>51</sup> By statute, the SAB must be "composed of at least nine members . . . qualified by education, training, and experience, to evaluate scientific and technical information on matters referred to the Board."<sup>52</sup> The CASAC advises EPA on setting and revising ambient air quality standards and on research regarding the adequacy of such standards.<sup>53</sup> The CASAC's seven members must include "at least one member of the National Academy of Sciences, one physician, and one person representing State air pollution control agencies."<sup>54</sup> Finally, the BOSC advises EPA on the technical and

---

<sup>48</sup> See Scott Waldman, *Trump's Pick for NASA Chief Hits a Senate Roadblock*, CLIMATEWIRE, Jan. 25, <https://www.eenews.net/climatewire/stories/1060071873>.

<sup>49</sup> See EPA, All Advisory Committees at EPA, June 7, 2018, <https://www.epa.gov/faca/all-federal-advisory-committees-epa>.

<sup>50</sup> See, e.g., *Mississippi v. EPA*, 744 F.3d 1334, 1344-45 (D.C. Cir. 2013) (upholding EPA's setting of ambient pollution standard based in part on unanimous recommendation by Clean Air Scientific Advisory Committee); *NRDC v. EPA*, 808 F.3d 556, 573-76 (2d Cir. 2015) (finding that EPA failed to adequately consider ballast water treatment options where letter from members of science advisory committees indicated that agency had prevented development of relevant information). See generally Pasky Pascual et al., *Making Method Visible: Improving the Quality of Science-Based Regulation*, 2 MICH. J. ENVTL. & ADMIN. L. 429, 457 (2013) ("courts seem to defer more heavily to agency outputs that have been reviewed and endorsed by science advisory panels").

<sup>51</sup> 42 U.S.C. § 4365; U.S. Government Accountability Office, EPA's Science Advisory Board: Improved Procedures Needed to Process Congressional Requests for Scientific Advice 1, 4 (2015).

<sup>52</sup> 42 U.S.C. § 4365(b). The SAB is currently composed of approximately 45 members. 2017 SAB Renewal Membership Balance Plan, Aug. 15, 2017, available at <https://www.facadatabase.gov/committee/charters.aspx?cid=644&aid=51>.

<sup>53</sup> 42 U.S.C. § 7409(d)(2); U.S. Government Accountability Office, *supra* note 51, at 1, 5.

<sup>54</sup> 42 U.S.C. § 7409(d)(2)(A).

management aspects of its research programs.<sup>55</sup> Created under the agency's discretionary authority,<sup>56</sup> the BOSC is composed of twenty members selected "from the environmental scientific and technical fields, human health care professions, academia, industry, public and private research institutes and organizations, and other relevant interest areas."<sup>57</sup>

Under Administrator Pruitt, EPA has taken several steps to alter the composition of these committees or reduce their influence. In June 2017, EPA announced that it would not renew BOSC members with expiring appointments—contrary to past practice—and cancelled upcoming meetings of the board's subcommittees.<sup>58</sup> EPA similarly departed from longstanding precedent in declining to renew members of its SAB.<sup>59</sup> In the most far-reaching measure to date, Pruitt issued a directive barring scientists receiving EPA grants from serving on any of the agency's advisory committees.<sup>60</sup> The directive's stated purpose was to avoid "the appearance or reality of potential interference with [committee members'] ability to independently and objectively serve."<sup>61</sup> However, the directive has been widely criticized. Noting that pre-existing policies already addressed the alleged conflicts, one prominent scientific organization denounced the directive as "motivated by politics, not the desire for quality scientific information."<sup>62</sup> Other critics contended that the directive ignores far more serious conflicts faced by committee members who work for industry or receive industry funding.<sup>63</sup>

Historically, EPA advisory committees have been comprised primarily of academics.<sup>64</sup> However, the recent changes have sidelined

---

<sup>55</sup> BOSC Renewal Charter, May 9, 2018, *available at*

<https://facadatabase.gov/committee/charters.aspx?cid=1577&aid=51>.

<sup>56</sup> Memorandum from E. Scott Pruitt to Assistant Administrators et al. re Strengthening and Improving Membership on Federal Advisory Committees, Oct. 31, 2017, at 1 n.7.

<sup>57</sup> BOSC Renewal Charter, *supra* note 55.

<sup>58</sup> See Sean Reilly, *38 Science Advisers Get Pink Slips—Internal Email*, GREENWIRE, June 20, 2017, <https://www.eenews.net/stories/1060056308>.

<sup>59</sup> See Center for Science & Democracy of the Union of Concerned Scientists (CSD), *Abandoning Science Advice 5* (2018).

<sup>60</sup> Directive from E. Scott Pruitt, EPA Administrator, Strengthening and Improving Membership on Federal Advisory Committees, Oct. 31, 2017.

<sup>61</sup> *Id.*

<sup>62</sup> American Association for the Advancement of Science, *Statement on EPA Science Adviser Boards*, Oct. 31, 2017, [https://mcmprodaaas.s3.amazonaws.com/s3fs-public/AAAS%20Statement%20on%20EPA%20Science%20Adviser%20Boards.pdf?B.JgTolmyA03HAPz8iDZAUTQ\\_E5TGxcN](https://mcmprodaaas.s3.amazonaws.com/s3fs-public/AAAS%20Statement%20on%20EPA%20Science%20Adviser%20Boards.pdf?B.JgTolmyA03HAPz8iDZAUTQ_E5TGxcN).

<sup>63</sup> See Kevin Bogardus & Sean Reilly, *Pruitt Bars Science Advisers with Agency Grants*, E&E NEWS PM, Oct. 31, 2017.

<sup>64</sup> See Sean Reilly, *Pruitt Extends Grant Policy to New Advisory Panels*, E&E NEWS PM, Nov. 29, 2017; Scott Waldman, *The Skeptics Who Could Snag Science Adviser Slots*, CLIMATEWIRE, Sept. 14, 2017.

academic experts in favor of expanded industry representation.<sup>65</sup> Reliance on industry experts for advice can be problematic because such experts' employers often have a financial stake in resulting regulations.<sup>66</sup> Recent appointees to the SAB include leading proponents of deregulation, climate change skeptics, and recipients of industry funding who have attacked mainstream climate science and questioned widely recognized pollution problems.<sup>67</sup> For example, the newly appointed chair of the SAB, Michael Honeycutt, has attracted attention for downplaying the risks of exposure to ozone and mercury.<sup>68</sup>

Measures to stack, alter, or sideline scientific advisory boards have not been limited to EPA or to narrow issues. In 2017, the majority of scientific advisory committees at EPA, the Food and Drug Administration (FDA), and the Interior Department held fewer meetings than their charters require.<sup>69</sup> And across the federal government, advisory committees that work on climate change-related issues have been dissolved or allowed to expire.<sup>70</sup>

### C. Censorship of Agency Science

A third category of Trump administration actions hostile to science includes political interference with the work of agency scientists and politicization of speech relating to climate change and other subjects. These actions raise concerns regarding scientific integrity and censorship.

---

<sup>65</sup> See Juliet Eilperin, *EPA's New Science Advisers Add More Industry Experts, Conservatives to the Mix*, WASH. POST, Nov. 4, 2017; Sean Reilly, *Pruitt Extends Grant Policy to New Advisory Panels*, E&E NEWS PM, Nov. 29, 2017; Waldman, *supra* note 64.

<sup>66</sup> See Jennifer Sass, correspondence, *Credibility of Scientists: Conflict of Interest and Bias*, 114 ENVTL. HEALTH PERSPECTIVES A147, A147-A148 (2006); see also Sheldon Krinsky & Tim Schwab, *Conflicts of Interests among Committee Members in the National Academies' Genetically Engineered Crop Study*, 12 PLOS ONE e0172317, at 2 (2017) (describing "funding effect," in which studies funded by private companies tend to produce outcomes consistent with those companies' financial interests).

<sup>67</sup> See Waldman, *supra* note 64; Brady Dennis & Juliet Eilperin, *Scott Pruitt Blocks Scientists with EPA Funding from Serving as Agency Advisers*, WASH. POST, Oct. 31, 2017; Scott Waldman, *Some Agency Advisers Reject Smog. Pruitt Contradicted Them*, CLIMATEWIRE, Dec. 8, 2017, <https://www.eenews.net/climatewire/stories/1060068481>.

<sup>68</sup> See Jennifer Lu, *Outsider from Texas Now Setting EPA's Science Panel Agenda*, BNA ENERGY & ENV'T REPORT, Nov. 7, 2017, <https://www.bna.com/outsider-texas-setting-n73014471751/>.

<sup>69</sup> See CSD, *supra* note 59, at 4.

<sup>70</sup> See Scott Waldman & Brittany Patterson, *Trump Team Has Slowed Down or Disbanded 3 Climate Panels*, CLIMATEWIRE, Aug. 22, 2017, <https://www.eenews.net/climatewire/stories/1060059025> (discussing dissolution of NOAA's advisory committee for the National Climate Assessment and the Interior Department's Advisory Committee on Climate Change and Natural Resource Science).

Agencies rely on their own scientists to conduct research and to review and analyze the work of scientists outside the agency.<sup>71</sup> However, political interference can undermine the integrity of government scientists' work and the science-driven policies that rely on their work. In one example of such interference, EPA blocked one of its research ecologists from delivering a keynote conference address on climate change and other factors affecting the health of Rhode Island's Narragansett Bay.<sup>72</sup> While an agency spokesman contended that "EPA scientists . . . are not presenting, it is not an EPA conference,"<sup>73</sup> the incident prompted Senator Sheldon Whitehouse (D-R.I.) to express concern that EPA was censoring scientific findings on climate change. Administrator Pruitt responded with a pledge that "[p]rocedures have been put in place to prevent such an occurrence in the future" and reaffirmed the agency's commitment to its policy of scientific integrity.<sup>74</sup>

Pruitt's pledge has not eased concerns about censorship. The Trump administration's skepticism toward climate change has prompted worries that political officials would alter scientific reports or suppress scientific inquiry in order to reduce climate change's public visibility and undermine the case for a government response.<sup>75</sup> Online access to climate change data and reports at EPA, the Department of the Interior, and other agencies has been

---

<sup>71</sup> See NATIONAL RESEARCH COUNCIL, BUILDING A FOUNDATION FOR SOUND ENVIRONMENTAL DECISIONS 49-58 (1997).

<sup>72</sup> See Arianna Skibell, *Agency Keeps Scientists from Speaking at Watershed Conference*, GREENWIRE, Oct. 23, 2017. Another agency scientist and a contractor were also barred from presenting at the conference. *Id.*; Lisa Friedman, *EPA Cancels Talk on Climate Change by Agency Scientists*, N.Y. TIMES, Oct. 23, 2017, at A16. The administration has also pressured scientists outside the agency to alter the content of scientific presentations. For example, the National Park Service compelled a Colorado College environmental science professor to eliminate references to climate change from a class he was teaching at a national monument. See Juliet Eilperin & Lena H. Sun, *Trump Administration Targets Certain Words, and the Bureaucracy Pushes Back*, WASH. POST, Dec. 21, 2017.

<sup>73</sup> Skibell, *supra* note 72.

<sup>74</sup> Letter from E. Scott Pruitt to Sheldon Whitehouse, Dec. 4, 2017, [https://www.eenews.net/assets/2017/12/06/document\\_pm\\_01.pdf](https://www.eenews.net/assets/2017/12/06/document_pm_01.pdf); Arianna Skibell, *Scientists Will Be Free to Discuss Their Work—Pruitt*, E&E NEWS PM, Dec. 6, 2017. In a similar incident, the Bureau of Land Management blocked several archaeologists from attending a conference to discuss protecting cultural resources on public lands. See Michael Doyle, *BLM Nixes Archaeologists from Big Annual Conference*, GREENWIRE, May 3, 2018.

<sup>75</sup> *But see* Brady Dennis et al., *Trump Administration Releases Report Finding "No Convincing Alternative Explanation for Climate Change"*, WASH. POST, Nov. 3, 2017 (reporting release of legally mandated National Climate Assessment, apparently without alteration of scientific conclusions by political officials).

curbed.<sup>76</sup> References to climate change have disappeared from agency websites.<sup>77</sup> Agency staffers have scrubbed reports to remove mentions of climate change and rescinded directives relating to climate change.<sup>78</sup> Additionally, researchers outside the government have been asked to remove the terms “climate change” and “global warming” from federal grant proposals.<sup>79</sup> In an unprecedented step, political appointees at EPA and the Department of the Interior now review grants to universities and outside groups—a move that could undermine the integrity of contracting processes and subvert research priorities previously determined by Congress.<sup>80</sup> While some climate change work continues within the federal government, it is subject to the messaging efforts and potential interference of political officials.<sup>81</sup>

Adverse personnel actions also may constitute censorship. The Interior Department’s top climate change official, Joel Clement, was reassigned to an office responsible for collecting oil and gas royalty payments

---

<sup>76</sup> See *id.*; Maxine Joselow, *More Climate Change References Missing From Webpages*, E&E NEWS PM, Dec. 8, 2017.

<sup>77</sup> See Scott Waldman, *Missing Agency Webpages Return Without Climate Info*, CLIMATEWIRE, Oct. 20, 2017; Corbin Hiar, *Missing EPA Report Warned of Flooding at Superfund Dumps*, CLIMATEWIRE, Sept. 18, 2017 (reporting loss of access to agency report warning that climate change could intensify storms and thereby increase the risk of contamination from flooded Superfund sites); Brittany Patterson, *Climate Skeptic Oversaw Sprawling Review of Agency Policy*, CLIMATEWIRE, Mar. 8, 2018 (describing efforts of Indur Goklany, an electrical engineer, to revise Department webpages and policies to delete references to climate change).

<sup>78</sup> See Adam Aton, *Parks Officials Scrubbed Climate Report*, CLIMATEWIRE, Apr. 3, 2018, <https://www.eenews.net/climatewire/stories/1060077989/>; Brittany Patterson, *Order Scrapping Climate Plans Could Hurt National Parks*, CLIMATEWIRE, Jan. 8, 2018.

<sup>79</sup> See Jeff Tollefson & Amy Maxmen, *US Energy Agency Asked Scientists to Scrub References to Climate Change*, NATURE, Aug. 25, 2017, <https://www.nature.com/news/us-energy-agency-asked-scientists-to-scrub-references-to-climate-change-1.22513>.

<sup>80</sup> See Juliet Eilperin, *Interior Puts Science Grants Through Political Review*, WASH. POST, Jan. 9, 2018.

<sup>81</sup> See Robin Bravender, *“Can We Say . . . Climate?” Agency Grapples with Trump’s Views?*, CLIMATEWIRE, Apr. 2, 2018; Scott Waldman, *Agency Leaders Tout “Great Work” on Climate under Trump*, CLIMATEWIRE, Apr. 13, 2018; Chris Mooney & Juliet Eilperin, *In an Internal Memo, the White House Considered Whether to Simply “Ignore” Federal Climate Research*, WASH. POST, May 23, 2018; see also Zack Colman, *Trump Didn’t Mess with Climate Study. But He Might Ignore It*, CLIMATEWIRE, Nov. 6, 2017 (reporting that Trump administration released a legally mandated climate report in November 2017 apparently without interfering with its content). Secrecy has not been limited to climate science. The Agency for Toxic Substances and Disease Registry’s release of a draft toxicology profile of toxic nonstick chemicals was delayed as EPA met with industry to decide how to respond. See Corbin Hiar, *EPA Met with Industry after White House Flagged Health Study*, E&E NEWS PM, May 21, 2018.

after Clement highlighted the dangers climate change poses for Alaska Native communities.<sup>82</sup> Indeed, Clement was one of multiple senior Interior Department staffers with scientific or technical expertise who were apparently reassigned because of their work on climate change and other scientific issues.<sup>83</sup> EPA also has witnessed personnel changes that could negatively impact scientific inquiry critical to protecting public health and the environment. Within the first year under President Trump, hundreds of scientists left the agency in the wake of proposed budget cuts and harsh criticism from political leaders.<sup>84</sup>

## II. A War on Regulatory Science, not a War on Science in General

As the preceding discussion demonstrates, the Trump administration has taken many actions that appear hostile to science. But is the Trump administration waging a war on science, as some critics claim? One might imagine a war on science as a systematic effort to discredit scientists, defund scientific research, and erode the norms of scientific inquiry across a range of scientific fields. Perhaps the Trump administration is only undertaking a limited assault on certain areas of research. Or perhaps it is merely exploiting scientific uncertainties in order to weaken health and environmental regulations, as some of its predecessors have done. To better understand the issue, this Part distinguishes research science (scientific inquiry as practiced by scientists in general) from regulatory science (science practiced by administrative agencies). This distinction is useful in revealing that the Trump administration's actions are aimed specifically at undermining regulatory science.

### A. Research Science

Science is the pursuit of “empirically based knowledge”<sup>85</sup> or “an effort to understand what is real and true in an enduring sense.”<sup>86</sup> To obtain knowledge, scientists practice the scientific method, “a mode of investigation characterized by cycles of systematic empirical observation and hypothesis

---

<sup>82</sup> See Joel Clement, op-ed, *I'm a Scientist. I'm Blowing the Whistle on the Trump Administration*, WASH. POST, July 19, 2017; Juliet Eilperin, *Senate Democrats Call for an Investigation of Climate Scientist Whistleblower Complaint*, WASH. POST, July 24, 2017.

<sup>83</sup> See Kellie Lunney, *Dems Slam Zinke after IG Report on Staff Moves*, E&E NEWS PM, Apr. 11, 2018.

<sup>84</sup> See Lisa Friedman et al., *EPA Officials, Disheartened by Agency's Direction, Are Leaving in Droves*, N.Y. TIMES, Dec. 22, 2017.

<sup>85</sup> Deborah M. Hussey Freeland, *Speaking Science to Law*, 26 GEO. INT'L ENVTL. L. REV. 289, 296 (2013).

<sup>86</sup> ROBIN FELDMAN, *THE ROLE OF SCIENCE IN LAW* 137 (2009).

formation.”<sup>87</sup> The knowledge generated through the scientific method is provisional, meaning that it is subject to revision in light of future data.<sup>88</sup> Features that distinguish a scientific theory from non-scientific ones include: whether the theory is based on independently verifiable empirical observations, whether it can generate testable predictions, and the extent to which it accounts for various phenomena and uncertainties.<sup>89</sup>

Science is sometimes framed as an objective process that generates definitive results.<sup>90</sup> Scientists pursue objectivity by following specific conventions, such as seeking replicable results and using a 95% confidence interval to identify statistically significant results.<sup>91</sup> Other norms of science that promote objectivity include suspending personal feelings, avoiding the appearance of bias, and shying away from advocacy.<sup>92</sup> Notwithstanding adherence to such norms, some subjectivity is inevitable.<sup>93</sup> Deciding what objects to study and how to study them, how to interpret data, and whether evidence justifies acceptance of a theory all involve a degree of subjectivity.<sup>94</sup>

Just as science is not purely objective, neither does science yield completely definitive results. Results are probabilistic rather than absolute.<sup>95</sup> The very nature of scientific inquiry—an ongoing process whose results are

---

<sup>87</sup> Freeland, *supra* note 85, at 296; *see also* OTTO, *supra* note 3, at 178 (identifying techniques deployed by the scientific method, including “observation, inductive reasoning, hypothesizing, unique prediction, experimentation, recording, critical peer review, and replication”).

<sup>88</sup> *See* Holly Doremus, *Natural Resource Management in the Bush Administration*, 32 *ECOL. L.Q.* 249, 303 (2005) (explaining that the scientific process is “continually gathering additional information and re-evaluating beliefs about the system in light of that information”); Deborah M. Hussey Freeland, *Law & Science: Toward a Unified Field*, 47 *CONN. L. REV.* 529, 538, 540 (2014); Roesler, *supra* note 36, at 471 (“[T]he ultimate objective of scientific understanding . . . is not truth per se, but something that approximates truth and is always open to revision.”).

<sup>89</sup> *See* FELDMAN, *supra* note 86, at 134-35; Freeland, *supra* note 88, at 538; *cf.* *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 593-94 (1993) (listing factors relevant to determining whether a theory or technique is scientifically valid, including testability, whether it has been subjected to peer review and publication, known or potential error rates, the existence of standards controlling a technique’s operation, and general acceptance within the relevant scientific community).

<sup>90</sup> *See* Freeland, *supra* note 88, at 537.

<sup>91</sup> *See* DAVID L. FAIGMAN, *LEGAL ALCHEMY* 192 (1999).

<sup>92</sup> *See* Freeland, *supra* note 85, at 305-07.

<sup>93</sup> *See* Doremus, *supra* note 88, at 254, 297; Freeland, *supra* note 85, at 301-02; *see also* FELDMAN, *supra* note 86, at 124 (explaining Thomas Kuhn’s view that objectivity arises out of scientific consensus, which is itself subjective).

<sup>94</sup> *See* FELDMAN, *supra* note 86, at 123; FAIGMAN, *supra* note 91, at 192; Doremus, *supra* note 88, at 254.

<sup>95</sup> *See* Freeland, *supra* note 88, at 540, 545; OTTO, *supra* note 3, at 234-35.

subject to future revision—ensures uncertainty.<sup>96</sup> Natural variation, inaccurate measurement, modeling limitations, and incomplete data all contribute to uncertainty.<sup>97</sup> Environmental science is especially prone to uncertainty because the environment often involves dynamic change and many interacting variables.<sup>98</sup>

Peer review—the independent evaluation of others’ work before publication—is a critical feature of scientific inquiry.<sup>99</sup> The object of peer review is to ensure the quality of scientific work and to certify scientific knowledge.<sup>100</sup> Although peer review is not without its flaws, it is an important check on subjectivity and is a widely accepted mechanism for evaluating scientific quality.<sup>101</sup> As a critical mass of scientists come to accept peer reviewed and published results, a scientific consensus regarding the truth of an observation or the validity of a theory may develop.<sup>102</sup>

## **B. Regulatory Science**

Science intersects with law in the courts and in regulatory agencies. Courts use scientific facts to resolve disputes fairly and efficiently.<sup>103</sup> Of particular interest here, agencies practice regulatory science by undertaking scientific inquiry and using scientific data to make policy. Statutes governing policymaking by agencies may explicitly demand that agencies employ the best available science.<sup>104</sup> But even statutes that are less explicit about the role of science, such as those requiring agencies to demonstrate the benefits of a regulatory standard, implicitly require agencies to have supporting scientific data.<sup>105</sup> In contrast to courts, which typically resolve disputes with

---

<sup>96</sup> See *Daubert*, 509 U.S. at 597 (“Scientific conclusions are subject to perpetual revision.”); Doremus, *supra* note 88, at 297 (explaining that the science process is “designed to illuminate the extent and reliability of knowledge about studied systems and to increase the reliability and extent of that knowledge over the course of time”).

<sup>97</sup> See Deborah M. Brosnan, *Science, Law, and the Environment: The Making of a Modern Discipline*, 37 ENVTL. L. 987, 994, 999-1000 (2007); Freeland, *supra* note 88, at 545.

<sup>98</sup> See Biber, *supra* note 7, at 477.

<sup>99</sup> See Linda Greer & Rena Steinzor, *Bad Science*, ENVTL. F., Jan./Feb. 2002, at 28, 32.

<sup>100</sup> See SHEILA JASANOFF, *THE FIFTH BRANCH: SCIENCE ADVISERS AS POLICYMAKERS* 61 (1990); Brosnan, *supra* note 97, at 1002.

<sup>101</sup> See JASANOFF, *supra* note 100, at 69-76; Richard Smith, *Peer Review: A Flawed Process at the Heart of Science and Journals*, J. ROYAL SOC’Y MEDICINE 178, 179 (2006).

<sup>102</sup> See Freeland, *supra* note 85, at 301-02.

<sup>103</sup> See *Daubert*, 509 U.S. at 597 (“Law . . . must resolve disputes finally and quickly.”); JASANOFF, *supra* note 100, at 9.

<sup>104</sup> See *infra* note 142.

<sup>105</sup> For example, the Clean Air Act authorizes EPA to set ambient air quality standards at a level that protects the public health with an adequate margin of safety. 42 U.S.C. § 7409(b)(1). The standards are to be based on air quality criteria that “shall accurately reflect the latest scientific knowledge . . .” *Id.* § 7408(a)(2). Even statutes that authorize

finality, agencies often have an opportunity to revisit previously established standards in light of subsequent scientific discoveries. Indeed, a basic assumption of the modern administrative state is that agencies' expertise enables them to address societal challenges in a more informed and responsive manner than legislatures or courts.<sup>106</sup>

Regulatory science differs from the model of inquiry applicable to research science. Unlike research science, regulatory science does not seek out truth for its own sake. Rather, the task of regulatory science is to provide, within a specific timeframe, the answers to questions articulated by agencies and framed by legal standards.<sup>107</sup> Moreover, whereas research science focuses on knowledge production, regulatory science engages in knowledge synthesis and prediction as well as knowledge production.<sup>108</sup> Properly employed, regulatory "science can play a role by providing informed opinions about the plausible consequences of our actions (or inactions), and by monitoring the effects of our choices."<sup>109</sup>

In synthesizing knowledge and making predictions, agencies use available scientific evidence to assess relationships between possible causes and effects.<sup>110</sup> "The expert considers all available studies and determines the weight to be afforded to each on the basis of the strengths and weaknesses of the individual studies."<sup>111</sup> The information that agencies use may incorporate unpublished "grey literature" which has not been subject to formal peer review, as well as peer-reviewed research.<sup>112</sup> Grey literature includes

---

precautionary regulation require some scientific basis for agency action. *See Ethyl Corp. v. EPA*, 541 F.2d 1, 28 (D.C. Cir. 1976).

<sup>106</sup> *See generally* JASANOFF, *supra* note 100, at 40-45.

<sup>107</sup> *See* JASANOFF, *supra* note 100, at 78; Brosnan, *supra* note 97, at 994, 1002.

<sup>108</sup> *See* JASANOFF, *supra* note 100, at 77 (defining knowledge synthesis as the evaluation, screening, and meta-analysis of data from other studies); *see also* Greer & Steinzor, *supra* note 99, at 33 (noting that in-house scientists at EPA support decisionmaking by analyzing outside studies and reassessing toxicological profiles).

<sup>109</sup> Naomi Oreskes, *Science and Public Policy: What's Proof Got to Do With It?*, 7 ENVTL. SCI. & POL'Y 369, 381 (2004).

<sup>110</sup> Thomas O. McGarity & Sidney A. Shapiro, *Regulatory Science in Rulemaking and Tort: Unifying the Weight of the Evidence Approach*, 3 WAKE FOREST J. L. & POL'Y 65, 78, 91 (2013).

<sup>111</sup> *Id.* at 78; *see also* Pascual et al., *supra* note 50, at 444 ("The most challenging aspect of scientific inference—the challenge that lies at the intersection of law and science—is to determine which combination of data and methods best contributes to the weight of evidence supporting one inference versus other competing inferences.").

<sup>112</sup> *See* Kirsten Engel & Jonathan Overpeck, *Adaptation and the Courtroom: Judging Climate Science*, 3 MICH. J. ENVTL. & ADMIN. L. 1, 19 (2013); JASANOFF, *supra* note 100, at 77. Agencies nonetheless may adapt some elements of peer-reviewed science to the policy making context, such as openly evaluating opposing viewpoints and publicly disclosing studies relied upon. Brosnan, *supra* note 97, at 997-98.

technical reports, conference proceedings, and datasets generated for policy making.<sup>113</sup>

Notably, the regulatory science that supports a particular standard need not meet the stringent standards that research science conventionally requires for statistical significance. Statutes can empower an agency to act at levels of uncertainty that would lead a scientist to hesitate to certify a fact.<sup>114</sup> Often, an agency may regulate based on substantial evidence or a preponderance of the evidence and need not demonstrate statistical significance at a 95% level of certainty. For example, the Clean Air Act requires EPA to regulate new motor vehicle pollution “which may reasonably be anticipated to endanger public health or welfare.”<sup>115</sup> Interpreting similar statutory language in *Ethyl Corp. v. EPA*, the D.C. Circuit explained:

The Administrator may apply his expertise to draw conclusions from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections from imperfect data, from probative preliminary data not yet certifiable as “fact,” and the like.<sup>116</sup>

In other words, legal processes may focus on obtaining “good enough knowledge”—i.e., “knowledge that satisfies tests of scientific acceptability and supports reasoned decision making but also assures those exposed to risk that their interests have not been sacrificed on the altar of an impossible scientific certainty.”<sup>117</sup>

The discrepancy between research science and regulatory science—and the corresponding distinction between scientific uncertainty and legal uncertainty—have long served as a battleground between advocates and opponents of regulation. The George W. Bush administration, for example, frequently used scientific uncertainty to question the need for regulation.<sup>118</sup>

---

<sup>113</sup> See Engel & Overpeck, *supra* note 112, at 19; Brosnan, *supra* note 97, at 1002.

<sup>114</sup> See Sidney A. Shapiro, “Political” Science: Regulatory Science After the Bush Administration, 4 DUKE J. CONST. L. & PUB. POL’Y 31, 37 (2009) (“The lack of definitive scientific evidence does not mean that regulation is inappropriate. . . . Congress has required agencies to regulate on the basis of potential risk to humans, rather than waiting for definitive evidence that a substance is harmful.”); SIDNEY A. SHAPIRO & ROBERT L. GLICKSMAN, RISK REGULATION AT RISK: RESTORING A PRAGMATIC APPROACH 33 (2003) (discussing risk-based thresholds under which agencies must prove exposure to a hazard “that is potentially dangerous”).

<sup>115</sup> 42 U.S.C. § 7521(a)(1).

<sup>116</sup> 541 F.2d 1, 28 (D.C. Cir 1976) (interpreting a Clean Air Act provision that authorized the regulation of gasoline additives whose emissions “will endanger the public health or welfare”).

<sup>117</sup> JASANOFF, *supra* note 100, at 1730.

<sup>118</sup> See Doremus, *supra* note 88, at 263, 297. For a discussion of the Reagan administration’s treatment of science, see MOONEY, *supra* note 4, at 35-48.

Its “sound science” strategy exploited the common yet simplistic view of science as an objective process that “produces clean yes or no answers to questions about the necessity or effectiveness of regulation.”<sup>119</sup> Such a view can foster unrealistic expectations regarding the science supporting regulatory standards. Against such expectations, the uncertainty that inevitably accompanies research offered an argument for blocking or delaying regulation.<sup>120</sup> The “sound science” strategy also allowed fundamental disagreements over policy to be disguised as disputes over the scientific validity of data. Science does not—and should not—dictate regulatory policy: whether, whom, and how to regulate are policy questions that rest on value judgments rather than scientific facts.<sup>121</sup> Opponents of regulation nevertheless sought to sidestep these policy questions by asserting an absence of sound science.

### C. Characterizing the Trump Administration’s Actions

Viewed against the President’s penchant for misleading claims, the Trump administration’s disregard of scientific facts and expertise is no surprise.<sup>122</sup> Indeed, there is a risk of overstating the broader effects of the administration’s anti-scientific measures. Despite outcries regarding the “war on science,” the Trump administration is hardly dismantling science itself, nor is it clear that it could do so. Government-supported research continues, and much scientific inquiry takes place outside the government.<sup>123</sup> Overall levels of public confidence in science and scientists remain relatively high.<sup>124</sup> And the Trump administration has expressed enthusiasm for certain

---

<sup>119</sup> Doremus, *supra* note 88, at 297; *see also id.* at 255 (“Science is a politically appealing justification because it promises objective, rational decisions.”).

<sup>120</sup> *See* Brosnan, *supra* note 97, at 1000; Freeland, *supra* note 88, at 548.

<sup>121</sup> *See* Doremus, *supra* note 88, at 254, 297; Doremus, *supra* note 6, at 560; Wagner, *supra* note 7, at 64-65; FELDMAN, *supra* note 86, at 197 (“science itself lacks the capacity to answer the questions that law must address”). Indeed, agencies often face a slew of “science policy” questions—such as how data should be interpreted—that raise both scientific and policy considerations. *See* Thomas O. McGarity, *Substantive and Procedural Discretion in Administrative Resolution of Science Policy Questions: Regulating Carcinogens in EPA and OSHA*, 67 GEO. L.J. 729, 732-47 (1979).

<sup>122</sup> *See* Glenn Kessler & Meg Kelly, *President Trump Made 2,140 False or Misleading Claims in His First Year*, WASH. POST, Jan. 20, 2018; *see also* Daniel A. Farber, *Presidential Administration Under Trump*, at [28] (suggesting “clear reasons for concern about Trump’s respect for expertise, whether in agencies or elsewhere”).

<sup>123</sup> *See, e.g.*, Christa Marshall, “It’s a Mess”: Employees Fret Over Spending Spree, E&E NEWS, June 7, 2018 (reporting on research grants awarded by Department of Energy).

<sup>124</sup> *See* Cary Funk, Pew Research Center, *Mixed Messages About Public Trust in Science*, Dec. 8, 2017, <http://www.pewinternet.org/2017/12/08/mixed-messages-about-public-trust-in-science/> (reporting results of 2016 survey).

categories of science and technology, including artificial intelligence and manned space exploration.<sup>125</sup>

Further reflection on the contrasts between research science and regulatory science suggests that *the Trump administration is engaged in a war on regulatory science, not a war on research science*. Like other recent Republican administrations, the Trump administration is reversing numerous regulatory measures aimed at protecting health and the environment. Those regulatory measures rely heavily on scientific data, and thus it is unsurprising that conservatives “attack science’s forms of truth-making, its databases, and its budgets . . . as part of a coherent strategy to weaken the power of the federal agencies that rely on them.”<sup>126</sup> Scientific data does not always lead to regulation, but in its absence, regulation is unlikely to emerge or survive. As former EPA administrator Gina McCarthy and a colleague put it, “Mr. Pruitt’s goal is simple: No studies, no data, no rules.”<sup>127</sup> In the “deconstruction of the administrative state” pledged by Trump advisor Steve Bannon, regulatory science is a prime target.<sup>128</sup>

In this struggle, regulatory science is not defenseless. As the next Part explains, many of the administration’s actions are (or will be) subject to litigation, and courts have an essential role in ensuring those actions are reasoned and empirically based. Nonetheless, some of the administration’s actions lie beyond the reach of the judiciary and could have lasting impacts on the relationship between law and science.

### III. Laws Relevant to the War on Regulatory Science

Various laws are relevant to the war on regulatory science, including the Administrative Procedure Act (APA), the Federal Advisory Committee Act (FACA), laws governing conflicts of interest, the First Amendment, and whistleblower protections. As it turns out, a limited subset of the Trump administration’s anti-scientific actions are subject to enforceable legal constraints. In some instances, applicable law grants the executive branch wide discretion, and in other instances, no enforceable laws apply.

---

<sup>125</sup> See John D. McKinnon, *Trump Administration Vows to Maintain U.S. Edge in AI Technology*, WALL ST. J., May 10, 2018; Presidential Memorandum on Reinvigorating America’s Human Space Exploration Program, Dec. 11, 2017.

<sup>126</sup> Clark A. Miller, *Perspective: It’s Not a War on Science*, ISSUES SCI. & TECH., Vol. 33, No. 3 (Spring 2017).

<sup>127</sup> Gina McCarthy & Janet G. McCabe, op-ed, *Scott Pruitt’s Attack on Science Would Paralyze the EPA*, N.Y. TIMES, Mar. 26, 2018.

<sup>128</sup> See Miller, *supra* note 126.

## A. The Administrative Procedure Act

Final agency actions, including the issuance of new rules, revocation of previously issued rules, and granting of permits, are generally subject to judicial review under the APA. Indeed, several of the Trump administration's actions delaying or suspending Obama-era rules have been successfully challenged for failing to comply with APA requirements.<sup>129</sup> Further litigation can be expected once new substantive rules are finalized. With federal agencies serving as the central battleground for the war on regulatory science, judicial review under the APA offers an important mechanism for guarding against some abuses of science.

### 1. Judicial Review under the APA

The APA authorizes judicial review of “[a]gency action made reviewable by statute and final agency action for which there is no other adequate remedy in a court.”<sup>130</sup> Such review most commonly occurs under the “arbitrary and capricious” standard<sup>131</sup>—“a collection of more particularized inquiries into specific components of agency decision making, rather than a uniform assessment of the rationality of an agency’s decision.”<sup>132</sup> Courts examine whether an agency relied only on factors intended by Congress, considered important aspects of a problem, articulated a rational connection between its choice and the underlying facts, or offered an explanation supported by the evidence before it.<sup>133</sup> While sometimes characterized as “hard look” review, arbitrary and capricious review is a deferential approach that reflects notions of agency expertise and political accountability.<sup>134</sup>

How might arbitrary and capricious review apply to the war on regulatory science? Environmental regulatory decisions typically incorporate “a series of sub-decisions that alternate or zigzag between science

---

<sup>129</sup> See Lisa Heinzerling, *The Legal Problems (So Far) of Trump’s Deregulatory Binge*, at 6-7; Bill Funk, *Breaking the Law: Many Trump Regulatory Rollbacks and Delays Are Unlawful*, CPR Blog, Jan. 30, 2018, <http://www.progressivereform.org/CPRBlog.cfm?idBlog=A7CF1677-A352-5BB7-E0B44D50EF790B2B>.

<sup>130</sup> 5 U.S.C. § 704.

<sup>131</sup> 5 U.S.C. § 706(A); see Emily Hammond Mezell, *Super Deference, the Science Obsession, and Judicial Review as Translation of Agency Science*, 109 MICH. L. REV. 733, 739-40 (2011) (noting that while “substantial evidence” standard of review applies to formal agency action, arbitrary and capricious review “serve[s] as a catch-all standard that generally applies” to informal agency action).

<sup>132</sup> Louis J. Virelli, *Deconstructing Arbitrary and Capricious Review*, 92 N.C. L. REV. 721, 725 (2014).

<sup>133</sup> See *Motor Vehicle Mfrs. Ass’n v. State Farm Mut.*, 463 U.S. 29, 43 (1983).

<sup>134</sup> See Virelli, *supra* note 132, at 762-64; Mezell, *supra* note 131, at 756.

and science-policy.”<sup>135</sup> Courts might be asked to review scientific data or policy judgments, and substantive as well as procedural issues.<sup>136</sup> Challenges might allege that an agency ignored credible scientific data, based its decision on unreliable or insufficient data, incorporated unreasonable scientific models, relied on a biased advisory committee, or disregarded input from an advisory committee.<sup>137</sup>

In evaluating such challenges, courts may hesitate to second-guess an agency’s scientific determinations.<sup>138</sup> As noted above, agencies typically assess health and environmental risks through a “weight-of-the-evidence” approach that considers the totality of the available scientific information.<sup>139</sup> Courts’ “super deference” to agencies’ scientific assessments is based on a sense that agencies possess scientific expertise that generalist judges do not.<sup>140</sup>

However, many issues that courts review in fact do not require scientific expertise and thus neither warrant nor receive super deference.<sup>141</sup> For example, determining whether an agency included adequate procedures for ensuring data reliability or whether an agency ignored relevant data are

---

<sup>135</sup> Wagner, *supra* note 7, at 65.

<sup>136</sup> See, e.g., J.B. Ruhl, *Reconstructing the Wall of Virtue: Maxims for the Co-Evolution of Environmental Law and Environmental Science*, 37 ENVTL. L. 1063, 1072-73 (2007) (listing various principles and criteria that may be at issue when courts review agency implementation of Endangered Species Act).

<sup>137</sup> See Meazell, *supra* note 131, at 749 (noting that successful challenges to use of “bad science” by agencies often involve agency failure to provide reasoned decision making); Virelli, *supra* note 132, at 745 (discussing judicial review of agency procedures for ensuring reliability of informational inputs as an element of arbitrary and capricious review); Alan Charles Raul & Julie Zampa Dwyer, “Regulatory Daubert”: *A Proposal to Enhance Judicial Review of Agency Science by Incorporating Daubert Principles into Administrative Law*, 66 LAW & CONTEMPORARY PROBS. 7, 19-20 (2003). Notably, the Information Quality Act’s requirement that agencies “issue guidelines ensuring and maximizing the quality, objectivity, utility, and integrity of information . . . disseminated by the agency” does not create a judicially enforceable right. *Salt Inst. v. Leavitt*, 440 F.3d 156, 158-59 (4th Cir. 2006).

<sup>138</sup> Meazell, *supra* note 131, at 734; see *Baltimore Gas & Elec. v. NRDC*, 462 U.S. 87, 103 (1983) (urging judicial review to “be at its most deferential” when examining agency predictions “within its area of special expertise, at the frontiers of science”).

<sup>139</sup> See *supra* text accompanying notes 110-111.

<sup>140</sup> See Virelli, *supra* note 132, at 746-47; *but cf.* Meazell, *supra* note 131, at 756, 778 (suggesting that while courts sometimes invoke super-deference, they do not appear to apply it in any principled way).

<sup>141</sup> See Virelli, *supra* note 132, at 766-70; Meazell, *supra* note 131, at 738 (contending that courts are “trend[ing] away from super deference toward hard-look review, albeit couched in super-deference terminology”).

relatively straightforward questions of administrative law.<sup>142</sup> Furthermore, many challenges to science-based decisions involve an agency's alleged failure to explain itself in a reasoned manner—another issue courts are well-equipped to review.<sup>143</sup> In practice, courts rarely are called on to address actual errors in the science or other purely scientific questions that demand scientific expertise.<sup>144</sup>

## 2. APA Challenges to Delaying or Suspending Obama-Era Rules

In President Trump's first year, regulatory agencies focused on delaying or suspending rules issued by the Obama administration.<sup>145</sup> Challenges to these actions have centered on basic questions of administrative law rather than on agency science, and courts have invalidated several actions that were taken without notice-and-comment rulemaking.<sup>146</sup>

---

<sup>142</sup> See Virelli, *supra* note 132, at 766-70. A handful of statutes require agencies to make decisions using the "best available science." See, e.g., 16 U.S.C. § 1533(b)(1)(A) (Endangered Species Act provision governing listing of protected species); *id.* § 1536(a)(2) (Endangered Species Act provision governing determination of whether proposed federal action jeopardizes continued existence of species or adversely modifies critical habitat); *id.* § 1371(a)(3)(A) (Marine Mammal Protection Act provision governing permits to allow take of marine mammals); *id.* § 1851(a)(2) (Magnuson-Stevenson Act provision governing fishery conservation and management measures). Various commentators have concluded, however, that these provisions "essentially duplicate the background requirements of the [APA] and other general limitations on agency decisions making." Holly Doremus, *The Purposes, Effects, and Future of the Endangered Species Act's Best Available Science Mandate*, 34 ENVTL. L. 397, 421 (2004); see also J.B. Ruhl, *The Battle Over Endangered Species Act Methodology*, 34 ENVTL. L. 555, 581-82 (2004); Elizabeth Kuhn, *Science and Deference: The "Best Available Science" Mandate Is a Fiction in the Ninth Circuit*, 10/23/2016 GEO. ENVTL. L. REV. ONLINE 1 (2016).

<sup>143</sup> See Meazell, *supra* note 131, at 749, 779.

<sup>144</sup> See Wagner, *supra* note 7, at 72 (suggesting that "there are surprisingly few examples of EPA using unreliable science or using science inappropriately to support a final regulation").

<sup>145</sup> See Heinzerling, *supra* note 129, at 2.

<sup>146</sup> See, e.g., *Clean Air Council v. Pruitt*, 862 F.3d 1, 8-14 (D.C. Cir. 2017) (vacating EPA stay of rule regulating methane emissions from oil and gas facilities, and rejecting EPA contention that it had inherent or statutory authority to issue stay); *Becerra v. Dep't of Interior*, 276 F. Supp. 3d 953, 964-65 (N.D. Cal. 2017) (holding that APA did not authorize defendants to postpone implementation of final rule on mineral valuation where effective date of rule had already passed); *California v. Bureau of Land Management*, 277 F. Supp. 3d 1106, 1118-24 (N.D. Cal. 2017) (vacating postponement of compliance date for Bureau of Land Management rule limiting natural gas waste from federal leases on ground that postponement without notice and comment was unauthorized); *NRDC v. Perry*, No. 17-cv-03404-VC, slip op. (N.D. Cal., Feb. 15, 2018) (ordering Department of Energy to publish energy conservation standards adopted in December 2016 but never published in the Federal Register), available at [https://www.eenews.net/assets/2018/02/16/document\\_gw\\_04.pdf](https://www.eenews.net/assets/2018/02/16/document_gw_04.pdf).

In these actions, Lisa Heinzerling observes, agencies paid “little attention to legal authority, process, or reason giving, and in doing so . . . violated basic principles of administrative law.”<sup>147</sup>

To buy additional time to issue substantive replacements for the Obama rules, agencies in several instances issued a second round of rule suspensions.<sup>148</sup> In one example, the Bureau of Land Management (BLM) suspended a 2016 rule governing methane emissions from oil and gas operations.<sup>149</sup> In another instance, EPA and the Corps of Engineers purported to establish a 2020 “applicability date” for a 2015 rule defining the “waters of the United States” subject to regulation under the Clean Water Act.<sup>150</sup> In neither case did the agencies meaningfully grapple with the substantive justification for the rule being suspended, a point underscored in legal challenges.<sup>151</sup> To support its suspension, BLM cited “concerns regarding the [rule’s] statutory authority, cost, complexity, feasibility, and other implications.”<sup>152</sup> And to support their action, EPA and the Corps simply cited the need to “provid[e] continuity and regulatory certainty . . . while the agencies continue to consider possible revisions to the 2015 Rule.”<sup>153</sup> In light of the agencies’ proffered rationales, legal challenges may be resolved without any scientific expertise by applying basic principles of administrative law.

### 3. APA Challenges to Substantive Rules

The final content of the Trump administration’s substantive rules and the rationales supporting those rules are largely undetermined. However, consideration of EPA’s secret science proposal and BLM’s proposed rule on methane emissions suggests issues that are likely to arise.

---

<sup>147</sup> Heinzerling, *supra* note 129, at [3].

<sup>148</sup> BLM, Waste Prevention, 82 Fed. Reg. at 58051 (expressing desire to avoid enforcing 2016 rule requirements “that might be rescinded or significantly revised in the near future”); Department of Defense, Definition of “Waters of the United States, 82 Fed. Reg. at 5200 (stating intent to continue to administer pre-2015 regulations while considering revisions to 2015 rule).

<sup>149</sup> BLM, Waste Prevention, Production Subject to Royalties and Resource Conservation, 82 Fed. Reg. 58050 (2017).

<sup>150</sup> Department of Defense, Definition of “Waters of the United States”—Addition of an Applicability Date to 2015 Clean Water Rule, 83 Fed. Reg. 5200, 5200 (2018).

<sup>151</sup> For a summary of litigation surrounding the BLM actions, see Ellen M. Gilmer, *Everyone’s Fighting over BLM’s Methane Rule—Again*, ENERGYWIRE, Dec. 20, 2017. For a discussion of the litigation involving the waters of the U.S. rule, see Ariel Wittenberg, *States, Greens Sue over Trump Admin’s WOTUS Delay*, E&E NEWS PM, Feb. 6, 2018.

<sup>152</sup> 82 Fed. Reg. at 58051.

<sup>153</sup> 83 Fed. Reg. at 5200.

### a. EPA's Secret Science Rule

As proposed, EPA's "secret science" rule would prohibit the agency from issuing rules based on studies that use confidential data.<sup>154</sup> Assuming it is finalized, the rule would function as a meta-rule governing future rulemaking by EPA.<sup>155</sup> A direct legal challenge to the rule might run afoul of ripeness and standing defenses, based on an argument that the rule's actual effects are too uncertain to be evaluated.<sup>156</sup> However, the substance of the rule would be reviewable once the rule is applied in a subsequent rulemaking.

At that stage, courts would face the question of whether it is arbitrary and capricious for EPA to disregard scientific studies that rely on confidential data. Some statutes—such as the Toxic Substances Control Act and the Safe Drinking Water Act—require EPA to rely on the "best available science" when issuing regulations.<sup>157</sup> Ignoring peer-reviewed and validated studies solely because they rely on confidential data seemingly would violate that mandate. Even rules promulgated under statutes that do not explicitly demand use of the "best available science" would be subject to hard look review requiring "an agency making a decision with substantial scientific content [to] explain how its decision follows from, or at least is not inconsistent with, scientific evidence of which the agency has been made aware."<sup>158</sup>

Challenges to EPA rules have sometimes argued that EPA must obtain and publicize the data underlying the studies that the agency relies on.<sup>159</sup> However, the D.C. Circuit has twice rejected that argument, explaining that such a requirement would be "impractical and unnecessary," and "much plainly relevant scientific information would become unavailable" as a result.<sup>160</sup> This line of reasoning undercuts the secret science rule and suggests

---

<sup>154</sup> See *supra* Part I.A.1.

<sup>155</sup> See Eric Roston, *Pruitt Proposes Limits to Scientific Research Used by EPA Staff*, BLOOMBERG, Apr. 24, 2018, <https://www.bloomberg.com/news/articles/2018-04-24/pruitt-proposes-limits-to-scientific-research-used-by-epa-staff>. Administrator Pruitt emphatically characterized the measure as a binding "rule," as opposed to a guiding "memo" or "policy." *Id.*

<sup>156</sup> In *Public Citizen, Inc. v. Trump*, the court dismissed a challenge to President Trump's executive order requiring the elimination of two regulations for every new regulation issued. Among the reasons for dismissal was the failure to identify particular persons who would be harmed and the failure to allege that the relevant agency would have issued a desired rule. 297 F. Supp. 3d 6, 12-13 (D.D.C. 2018). The government would likely seek to dismiss a direct challenge to EPA's secret science rule on similar grounds.

<sup>157</sup> 15 U.S.C. § 2625(h); 42 U.S.C. § 300g-1(b)(3)(A).

<sup>158</sup> Doremus, *supra* note 142, at 423.

<sup>159</sup> *American Trucking Ass'n v. EPA*, 283 F.3d 355, 372 (D.C. Cir. 2002); *Coalition of Battery Recyclers Ass'n v. EPA*, 604 F.3d 613, 623 (D.C. Cir. 2010).

<sup>160</sup> *American Trucking Ass'n*, 283 F.3d at 372.

that it would be arbitrary and capricious for EPA to disregard studies because they are based on confidential data.

### **b. BLM's Methane Rule**

BLM's expected rule on methane emissions also could be legally vulnerable. Under President Obama, BLM issued a rule to reduce atmospheric releases of methane, a powerful greenhouse gas, from oil and gas operations on federal lands.<sup>161</sup> In proposing to eliminate significant portions of that rule, BLM now questions its authority to issue the rule and cites reasons relating primarily to cost: according to the agency, "the 2016 final rule is more expensive to implement and generates fewer benefits than initially estimated," and compliance burdens could make it uneconomical for marginal or low-producing wells to continue to operate.<sup>162</sup>

At first glance, scientific rationales appear absent from the agency's reasoning. However, a closer examination of BLM's assertions reveals a mix of scientific, economic, and policy determinations.<sup>163</sup> Namely, calculations of the rule's costs and benefits depend in large part on the social cost of carbon—an estimate of the long-term economic damage done by a ton of carbon emissions in a given year.<sup>164</sup> Shortly after taking office, the Trump administration drastically reduced official estimates of the social cost of carbon from about \$42 per ton to between \$1 and \$6 per ton.<sup>165</sup> To achieve this result, the new administration ignored the non-domestic benefits of reduced GHG emissions, increased the discount rate used to value future impacts (thus giving those impacts less weight), reduced estimates of damage from climate change, and altered the projected relationship between higher temperatures and economic impacts.<sup>166</sup> In short, embedded in the cost-

---

<sup>161</sup> BLM, Waste Prevention, Production Subject to Royalties, and Resource Conservation, 81 Fed. Reg. 83008, 83014 (2016).

<sup>162</sup> BLM, Waste Prevention, Production Subject to Royalties, and Resource Conservation; Rescission or Revision of Certain Requirements, 83 Fed. Reg. 7924, 7925-26 (2018); *see also id.* at 7924 (noting cost, complexity, and "unnecessary compliance burdens" associated with 2016 rule); *cf.* Executive Order 13783, Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16093 (2017) (emphasizing need to "avoid[] regulatory burdens that unnecessarily encumber energy production").

<sup>163</sup> BLM, Regulatory Impact Analysis for the Proposed Rule to Rescind or Revise Certain Requirements of the 2016 Waste Prevention Rule, Feb. 5, 2018, *available at* <https://www.regulations.gov/document?D=BLM-2018-0001-0002>.

<sup>164</sup> EPA, The Social Cost of Carbon, <https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon.html>.

<sup>165</sup> Executive Order 13783, § 5, Chelsea Harvey, *Trump Team's Wonky CO2 Calculation is a Big Deal*, E&E NEWS, Oct. 25, 2017, <https://www.eenews.net/stories/1060064593>.

<sup>166</sup> *See* Harvey, *supra* note 165; Richard L. Revesz & Jack Lienke, op-ed, *The EPA's Smoke and Mirrors on Climate*, N.Y. TIMES, Oct. 9, 2017; *see also* Richard S.J. Tol, *The Social Cost of Carbon*, in THE OXFORD HANDBOOK OF THE MACROECONOMICS OF GLOBAL

benefit analysis of the rule are complex scientific and economic judgments that require justification and supporting data. If agencies disregard scientific data or exhibit unreasoned decisionmaking in the face of such data, the APA authorizes courts to invalidate such rules.

### **B. Statutes Governing Advisory Committees**

Review under the APA is likely to be the most important judicial check on the Trump administration's war on regulatory science. Other, more specific, statutes that operate in conjunction with the APA or authorize their own cause of action also may be relevant to the war on regulatory science.

Notably, changes to science advisory committees may implicate the Federal Advisory Committee Act. Enacted to increase the transparency and accountability of federal advisory committees, FACA sets out standards governing how these committees are established and operated.<sup>167</sup> Advisory committee meetings must be open to the public, and committee documents must be publicly available.<sup>168</sup> Committee membership must "be fairly balanced in terms of the points of view represented and the functions to be performed," and there must be adequate assurance "that the advice and recommendations of the advisory committee will not be inappropriately influenced by the appointing authority or by any special interest."<sup>169</sup> However, as explained below, plaintiffs seeking to enforce FACA's requirements may encounter challenges in demonstrating standing and justiciability.<sup>170</sup> Furthermore, even if a court reaches the substantive merits, FACA allows agencies fairly broad discretion in appointing and using advisory committees.

---

WARMING § 13.3 (Lucas Bernard & Willi Semmler, eds. 2014) (discussing various parameters that affect social cost of carbon).

<sup>167</sup> 5 U.S.C. app. 2 §§ 1-16; *see* Alabama-Tombigbee Rivers Coalition v. Dept. of Interior, 26 F.3d 1103, 1106 (11th Cir. 1994).

<sup>168</sup> 5 U.S.C. app. 2 § 10.

<sup>169</sup> 5 U.S.C. app. 2 § 5(b) (establishing requirements for advisory committees created by Congress); *see also id.* § 5(c) (applying same requirements to advisory committees created by President or agency officials).

<sup>170</sup> Although FACA itself does not provide a cause of action, claims that an agency has failed to comply with FACA may be brought under the APA's judicial review provisions. *See* Center for Biol. Diversity v. Tidwell, 239 F. Supp.3d 213, 221 (D.D.C. 2017); *Judicial Watch, Inc. v. U.S. Dep't of Commerce*, 736 F. Supp. 2d 24, 30-31 (D.D.C. 2010) (citing cases from other circuits). Indeed, plaintiffs need not wait for an agency to act on the recommendations of a faulty committee; creation of an improperly constituted committee and a committee's failure to adhere to procedural requirements are reviewable final actions. *Judicial Watch*, 219 F. Supp. 2d at 39-40.

## 1. Standing

Standing requires plaintiffs in federal court to demonstrate that they have suffered a particularized injury, the defendant caused the injury, and a legal judgment would redress the injury.<sup>171</sup> Ordinary members of the public may face difficulty in establishing that an “inappropriately influenced” or not “fairly balanced” advisory committee caused them to suffer particularized injury.<sup>172</sup> A regulated industry might present a stronger case for particularized injury,<sup>173</sup> but not if advisory committees are fashioned in industry’s favor. Perhaps the strongest claimants of particularized injury—and standing to challenge the Trump administration’s policies regarding advisory committee membership—would be individuals who are removed from an advisory committee or who lost an opportunity to be considered for appointment.<sup>174</sup> Similarly, committee members who are now ineligible to receive EPA grants are potential candidates to challenge EPA’s directive excluding grant recipients from advisory committee service.<sup>175</sup>

---

<sup>171</sup> *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560 (1992).

<sup>172</sup> *Lujan*, 504 U.S. at 574-74 (discussing cases holding that plaintiffs may not raise generalized grievances). *Cf.* *Federal Election Comm’n v. Akins*, 524 U.S. 11, 23-25 (1998) (noting that widely shared injuries may be sufficiently concrete to constitute injury in fact, as where many individuals are injured in a mass tort case, many voters suffer interference with voting rights, or many persons are deprived of information directly related to voting).

<sup>173</sup> *See Cargill*, 173 F.3d at 330 (holding that mine owners had suffered an injury in fact from alleged FACA violations and therefore had standing to bring FACA claims).

<sup>174</sup> *See Wenker*, 353 F.3d at 1235 (finding standing based on “plaintiffs’ claim of an interest in a fair opportunity to be appointed,” which was denied when fair balance requirement not met); *Northwest Ecosystem Alliance v. Office of the U.S. Trade Representative*, 1999 WL 33526001 (W.D. Wash. 1999) (holding that plaintiffs suffered injury sufficient to establish standing “from the very act of being omitted: lack of access to sensitive information and the inability to provide decisionmakers with contrary viewpoints”); *cf.* *Compl., Physicians for Social Responsibility et al. v. Pruitt*, No. 1:17-cv-02742, ¶¶ 89-100 (D.D.C.) (alleging that EPA grantees wishing to serve on advisory committees have standing to challenge EPA directive excluding EPA grant recipients from committee service).

<sup>175</sup> *See Sharon Jacobs, Advising the EPA: The Insidious Undoing of Expert Government*, HARV. L. REV. BLOG, Dec. 6, 2017, <https://blog.harvardlawreview.org/advising-the-epa-the-insidious-undoing-of-expert-government/>. Redressability also may pose an obstacle for would-be FACA plaintiffs. While one judge has contended that a FACA violation can be “easily remedied by . . . an injunction suspending operation of the Committee until [the interests allegedly omitted] are represented on it,” *Public Citizen*, 886 F.2d at 434 (Edwards, J., concurring in part and dissenting in part), other judges might hesitate to determine whether a committee is fairly balanced. *Public Citizen*, 886 F.2d at 431 (Silberman, J., concurring). And even if a plaintiff succeeds in obtaining an injunction, an agency might choose to proceed without a functioning advisory committee in place.

## 2. Justiciability

The justiciability doctrines offer additional grounds to dismiss a FACA challenge as unsuited for judicial review.<sup>176</sup> Among the more serious justiciability concerns is a lack of judicially manageable standards. Namely, how can a court determine (1) which groups should be represented on a “fairly balanced” committee, (2) that such groups are not currently represented, (3) that the existing balance of viewpoints is not fair, and (4) that addition of a specific number of representatives would make the balance fair?<sup>177</sup>

The federal appellate courts have largely deemed such challenges justiciable, but not without some disagreement. *Public Citizen v. National Advisory Committee on Microbiological Criteria for Foods* featured contrasting views of justiciability from two respected D.C. Circuit judges.<sup>178</sup> Finding “[t]he relevant points of view on issues to be considered by an advisory committee [] virtually infinite,” Judge Laurence Silberman concluded that FACA offers “no principled basis for a federal court to determine which among the myriad points of view deserve representation on particular advisory committees.”<sup>179</sup> In contrast, Judge Harry Edwards found “nothing in FACA or its legislative history to indicate that the ‘fairly balanced’ requirement affords executive discretion sufficient . . . to find that ‘there is no law to apply.’”<sup>180</sup> Relying heavily on D.C. Circuit precedents, the Fifth Circuit subsequently concluded that “[t]he weight of the case law” supported a finding of justiciability.<sup>181</sup> The Tenth Circuit later “adopt[ed] the reasoning of the Fifth and D.C. Circuits” without analyzing justiciability in depth.<sup>182</sup>

The justiciability of a “fairly balanced” claim may depend on whether a specific statute governs the composition of an advisory committee. For instance, the Ninth Circuit held the fairly balanced requirement nonjusticiable

<sup>176</sup> See Jonathan R. Siegel, *A Theory of Justiciability*, 86 TEX. L. REV. 73, 76-77 (2007).

<sup>177</sup> *Public Citizen*, 886 F.2d at 431 (Silberman, J., concurring).

<sup>178</sup> *Public Citizen v. National Advisory Committee on Microbiological Criteria for Foods*, 886 F.2d 419 (D.C. Cir. 1989). In several cases, courts have addressed the substantive merits of “fairly balanced” challenges without explicitly addressing justiciability. See, e.g., *National Anti-Hunger Coalition v. Executive Committee*, 711 F.2d 1071 (D.C. Cir. 1983).

<sup>179</sup> 886 F.2d at 426.

<sup>180</sup> 886 F.2d at 433. The other panel member, Judge Friedman, wrote separately without discussing justiciability and found no violation of the “fairly balanced” requirement. *Id.* at 420-26.

<sup>181</sup> *Cargill Inc. v. U.S.*, 173 F.3d at 334-35 (noting that courts could ensure that persons directly affected by an advisory’s committee work have some committee representation).

<sup>182</sup> *Colorado Envtl. Coalition v. Wenker*, 353 F.2d 1221, 1232-33 (10th Cir. 2004).

as applied to the Trade Act of 1974.<sup>183</sup> Noting that FACA “does not . . . articulate what perspectives must be considered in determining if an advisory committee is fairly balanced,” the Ninth Circuit explained that the political branches, rather than the courts, were best suited to apply and review the “fairly balanced” requirement in light of the complexities of U.S. trade and the lack of statutory guidance.<sup>184</sup>

### 3. Merits

A FACA plaintiff who overcomes preliminary obstacles to substantive review is hardly guaranteed success on the merits. With respect to whether committee membership is “fairly balanced” or a committee’s recommendations “inappropriately influenced,” agencies have broad discretion.

The “fairly balanced” requirement applies to the “functions to be performed” and “the points of view represented” by an advisory committee.<sup>185</sup> Agencies might satisfy the requirement by selecting members from diverse educational and professional backgrounds or a range of interest groups or other affiliations.<sup>186</sup> Agencies have “considerable discretion” in establishing advisory committees, as a D.C. Circuit case, *National Anti-Hunger Coalition*, illustrates.<sup>187</sup> That opinion upheld a lower court finding that a committee appointed to study social service programs was fairly balanced even though “no public interest representative or beneficiaries of [those] programs” were included.<sup>188</sup> Exclusive reliance on corporate executives, the court concluded, was an appropriate way to achieve the committee’s function of “apply[ing] private sector expertise to attain cost-effective management.”<sup>189</sup>

A Fifth Circuit opinion, *Cargill v. U.S.*, similarly acknowledged agencies’ broad discretion to compose advisory committees in light of their

---

<sup>183</sup> Center for Policy Analysis on Trade and Health v. Office of the U.S. Trade Representative, 540 F.3d 940, 945-46 (9th Cir. 2008).

<sup>184</sup> 540 F.3d at 945-47. Similarly, the “inappropriate influenced” language of FACA has been held nonjusticiable in at least some circumstances. Physicians Committee for Responsible Medicine v. Vilsack, 2016 WL 5930585, at \*3-\*8 (N.D. Cal. 2016).

<sup>185</sup> 5 U.S.C. app. 2 § 5(b)(2). See *Cargill*, 173 F.3d at 332-38.

<sup>186</sup> See Sidney A. Shapiro, *Public Accountability of Advisory Committees*, 1 RISK: ISSUES HEALTH & SAFETY 189, 194-95 (1990).

<sup>187</sup> *National Anti-Hunger Coalition*, 711 F.2d at 1074; see also *Cargill*, 173 F.3d at 336; *Public Citizen*, 886 F.2d at 424 (Friedman, J., concurring) (“fairly balanced” determination “necessarily lies largely within the discretion of the official who appoints the committee”); Daniel E. Walters, Note, *The Justiciability of Fair Balance Under the Federal Advisory Committee Act: Toward a Deliberative Process Approach*, 110 MICH. L. REV. 677, 681 (2012) (discussing cases).

<sup>188</sup> *National Anti-Hunger Coalition*, 711 F.2d at 1074.

<sup>189</sup> 711 F.2d at 1074.

intended functions. The court rejected an argument by mine owners for including company representatives or scientists on a committee charged with reviewing a scientific protocol.<sup>190</sup> As the court explained, “[t]he task of the committee—providing *scientific* peer review—is politically neutral and technocratic.”<sup>191</sup> Accordingly, the exclusion of mine company representatives and scientists did not demonstrate bias in the points of view represented by committee members.<sup>192</sup>

Plaintiffs also face an uphill battle in establishing that the advice of an advisory committee is “inappropriately influenced.” The “inappropriately influenced” standard is intended to counter “the danger of allowing special interest groups to exercise undue influence upon the Government through the dominance of advisory committees which deal with matters in which they have vested interests.”<sup>193</sup> However, neither the participation of industry representatives, agency grant recipients, or former or potential employees demonstrates inappropriate influence per se.<sup>194</sup> As the Fifth Circuit stated in *Cargill*:

Working for or receiving a grant from HHS [the Department of Health and Human Services], or co-authoring a paper with a person affiliated with the department, does not impair a scientist’s ability to provide technical, scientific peer review of a study sponsored by HHS or one of its agencies. Moreover, if HHS were required to exclude from peer review committees all scientists who somehow had been affiliated with the department, it would have to eliminate many of those most qualified to give advice.<sup>195</sup>

This language underscores agencies’ discretion to constitute advisory committees as appropriate. At the same time, its reasoning directly contradicts EPA’s current policy of barring EPA grant recipients from serving on its advisory committees.

How might FACA apply to the Trump EPA’s handling of advisory committees? Although the case law is generally unfavorable to plaintiffs, a “fairly balanced” or “inappropriately influenced” challenge to an EPA advisory committee might be successful under some circumstances. A facial

---

<sup>190</sup> 173 F.3d at 338.

<sup>191</sup> 173 F.3d at 338.

<sup>192</sup> *See id.*

<sup>193</sup> *Public Citizen*, 886 F.2d at 424 (Friedman, J., concurring) (quoting H.R. Rep. No. 1017, at 6, *reprinted in* 1972 U.S.C.C.A.N. 3496).

<sup>194</sup> *Cargill*, 173 F.3d at 339; *Public Citizen*, 886 F.2d at 424 (Friedman, J., concurring) (rejecting claim of inappropriate influence where six of eighteen committee members were employed by industry and four other members had done consulting or other work on behalf of industry).

<sup>195</sup> 173 F.3d at 339.

challenge to EPA's directive on grant recipients would be difficult. Even with the directive in place, a specific advisory committee may be "fairly balanced" and not "inappropriately influenced." However, heavy reliance on industry representatives to populate advisory committees could run afoul of FACA's text as well as its purpose of ending industry domination of advisory bodies.<sup>196</sup> Committees that address substantive policy issues may have to include representatives of those affected by potential policy changes.<sup>197</sup> For example, a committee making recommendations on pollution standards should include a voice for persons who might suffer ill effects of pollution exposure. Likewise, committees charged with reviewing the scientific basis of proposed regulations should have members with relevant scientific expertise.<sup>198</sup> If a FACA violation is found, a trial court has discretion to craft injunctive relief "that will encourage compliance with FACA's strictures while remaining sensitive to its principal purposes of public accountability and avoidance of wasteful expenditures."<sup>199</sup>

In addition to FACA, specific statutes govern the composition and duties of individual EPA advisory committees.<sup>200</sup> For example, the Clean Air Scientific Advisory Committee must consist of "seven members including at least one member of the National Academy of Sciences, one physician, and one person representing State air pollution control agencies."<sup>201</sup> And by statute, the committee must review ambient air quality standards and advise the administrator on research for appraising the adequacy and basis of those standards.<sup>202</sup> Failure to include a required type of panel member or to make required recommendations may give rise to an

---

<sup>196</sup> See Northwest Ecosystem Alliance, 1999 WL 33526001 at \*6.

<sup>197</sup> See *National Anti-Hunger Coalition v. Executive Comm.*, 566 F. Supp. 1515, 1517 (D.D.C. 1983) (holding that task force was not fairly balanced with respect to recommendations to repeal benefits, where task force included no representatives of benefits programs); see also *Public Citizen*, 886 F.2d at 436-37 (Edwards, J., concurring and dissenting) (contending that committee charged with recommending regulations affecting health and safety of food products was required to include representatives of consumer interests).

<sup>198</sup> See Jacobs, *supra* note 175 (opining that as-applied challenges to the makeup of specific EPA advisory committees are "more likely to succeed" than facial challenges to EPA's directive excluding grant recipients).

<sup>199</sup> *Cargill*, 173 F.3d at 342 (noting that a district court may bar use of a committee's work product as a "last resort"); see also *Alabama-Tombigbee*, 26 F.3d at 1107 (affirming injunction barring use of advisory committee report prepared in violation of FACA).

<sup>200</sup> See, e.g., 42 U.S.C. § 4365 (establishing Science Advisory Board); 7 U.S.C. § 136w(d) (establishing Federal Insecticide, Fungicide, and Rodenticide Scientific Advisory Panel).

<sup>201</sup> 42 U.S.C. § 7409(d)(2)(A).

<sup>202</sup> 42 U.S.C. § 7409(d)(2)(B), (C).

APA claim by would-be panel members of arbitrary and capricious agency action.

### C. Conflict of Interest Law

Conflict of interest concerns, a motivating factor behind FACA, are addressed directly by the federal statute governing conflicts of interest. Advisory committee members are considered “special government employees” who must comply with this criminal statute.<sup>203</sup>

Only the government may prosecute individuals for violating the conflict of interest statute.<sup>204</sup> However, private parties may assert claims under the APA that federal agencies have violated the statute. In *Lorillard, Inc. v. FDA*, for example, tobacco companies alleged the appointment of advisory committee members with conflicts of interest.<sup>205</sup> The district court found standing based on allegations that the plaintiffs’ confidential information had been disclosed and that they had suffered injury to their right to fair decisionmaking.<sup>206</sup> The court also deemed the alleged “creation and maintenance of an advisory committee tainted by conflicts of interest” to be judicially reviewable.<sup>207</sup>

The conflict of interest statute prohibits federal employees, including special government employees, from “participat[ing] personally and substantially . . . through . . . recommendation, the rendering of advice, investigation, or otherwise” in a “particular matter” in which they have a financial interest.<sup>208</sup> The prohibition applies if the particular matter will have a “direct and predictable effect” on that interest<sup>209</sup>—i.e., “matters that involve deliberation, decision, or action that is focused upon the interests of specific persons, or a discrete and identifiable class of persons.” Policymaking “directed to the interests of a large and diverse group of persons” lies outside this prohibition.<sup>210</sup>

Even as to particular matters, various exceptions may allow an individual having a financial interest to serve on an advisory committee. For example, such an individual may participate after disclosing her financial interest and receiving a waiver finding that the interest is not likely to affect

---

<sup>203</sup> 18 U.S.C. § 208 (imposing penalties for acts affecting a personal financial interest); 18 U.S.C. § 202 (defining “special government employee”); see Joe G. Conley, Note, *Conflict of Interest and the Science Advisory Board*, 86 TEX. L. REV. 165, 168-69 (2007).

<sup>204</sup> 18 U.S.C. § 216; *Judicial Watch, Inc. v. Clinton*, 880 F. Supp. 1, 5 n.3 (D.D.C. 1995); *Scherer v. United States*, 241 F. Supp.2d 1270, 1285 (D. Kan. 2003).

<sup>205</sup> 2012 WL 2542228, at \*1 (D.D.C. 2012).

<sup>206</sup> *Id.* at \*2.

<sup>207</sup> *Id.* at \*2.

<sup>208</sup> 18 U.S.C. § 208(a).

<sup>209</sup> 5 C.F.R. § 2635.402(a); 5 C.F.R. § 2640.103(a)(1).

<sup>210</sup> 5 C.F.R. § 2640.103(a)(1).

the integrity of the services provided or that the need for her services outweighs the potential conflict.<sup>211</sup> Moreover, persons serving on advisory committees “may participate in any particular matter of general applicability where the disqualifying financial interest arises from his non-Federal employment . . . , provided that the matter will not have a special or distinct effect on the employee or employer other than as part of a class.”<sup>212</sup>

Is EPA’s policy excluding grant recipients from advisory committees required by the conflict of interest statute? Under the regulations governing participation in particular matters of general applicability, grant recipients should be eligible to serve on advisory committees because their advice would have no more than a general or indirect effect on the universities they work for.<sup>213</sup> Furthermore, scientists who receive funding from companies subject to EPA regulations—whom the present EPA allows to serve on advisory committees—would seem to be at least as conflicted as scientists who receive EPA funding.<sup>214</sup> However, the conflict of interest statute merely prohibits participation when a conflict exists; it confers no right to participate on persons without a conflict. As a result, the statute offers no basis for challenging EPA’s directive.

Does industry representative participation on advisory committees violate the conflict of interest statute? EPA use of advice from an industry-dominated committee in setting a standard for that industry would seem problematic.<sup>215</sup> Under Office of Government Ethics regulations, even the appearance of a lack of impartiality can be sufficient to bar participation where a particular matter is likely to have a direct and predictable effect on a member’s financial interests.<sup>216</sup> Nevertheless, proving a violation may be difficult. A “direct and predictable effect” requires “a close causal link” and

---

<sup>211</sup> 18 U.S.C. § 208(b)(1), (3); 5 C.F.R. § 2635.402(d)(3). The government official making the appointment must issue the waiver prior to committee service. 5 C.F.R. § 2635.301(a), 302(a).

<sup>212</sup> 5 C.F.R. § 2640.203(g).

<sup>213</sup> See Michael Burger, *Scott Pruitt’s Attack on Scientists Serving on EPA Advisory Boards is Illegal*, Nov. 3, 2017, <http://blogs.law.columbia.edu/climatechange/2017/11/03/scott-pruitts-attack-on-scientists-serving-on-advisory-boards-is-illegal/>. Cf. *Grassetti v. Weinberger*, 408 F. Supp. 142, 152 (N.D. Cal. 1976) (rejecting grant applicant’s argument that grant recipients’ participation in application decision constituted conflict of interest, as argument “that their denial to him would leave more money in the pot for future proposals from themselves” presented “too remote” a possible conflict of interest).

<sup>214</sup> See Burger, *supra* note 213.

<sup>215</sup> See *id.* [Burger].

<sup>216</sup> 5 C.F.R. § 2635.502(a). An employee may receive a waiver allowing participation if the government’s interest in the employee’s participation outweighs the concern regarding the appearance of lack of impartiality. *Id.* § 2635.502(d).

a “real, as opposed to a speculative possibility that the matter will affect the financial interest.”<sup>217</sup> Demonstrated violations typically involve a government employee’s participation in discrete matters that directly impacted the employee’s finances.<sup>218</sup> In the wake of an alleged conflict involving an advisory committee member, EPA might contest the causal links between the committee’s advice and the member’s finances. Specifically, the government might contend that the committee’s advice did not bind the agency in its rulemaking, that EPA’s chosen regulatory standard did not affect the member’s company, and that any effect on the company did not directly impact the member’s finances.

Ultimately, absent evidence of a direct link between a committee member’s conduct and her financial interests, the conflict of interest statute appears to be a relatively unpromising tool to combat controversial appointments.

#### **D. Scientific Integrity Policies**

Most, if not all, aspects of the war on regulatory science raise concerns of scientific integrity. Broadly speaking, scientific integrity refers to adherence to professional values and practices when conducting science and applying its results.<sup>219</sup> Under President Obama, EPA and other federal agencies adopted scientific integrity policies to govern their scientific activities and use of scientific information.<sup>220</sup> These policies underscore agencies’ commitments to scientific integrity and are in some instances far-reaching. Ultimately, however, they do not give rise to legally enforceable constraints.

The following discussion focuses on EPA’s scientific integrity policy, which seeks to “[e]nsure that the Agency’s scientific work is of the highest quality [and] free from political interference or personal motivations.”<sup>221</sup>

---

<sup>217</sup> 5 C.F.R. § 2635.402(b).

<sup>218</sup> *See, e.g.*, *U.S. v. White Eagle*, 721 F.3d 1108, 1118-19 (9th Cir. 2013) (recounting cases and reversing conviction where defendant allegedly concealed subordinate employee’s fraudulent operation of government loan program in order to ensure that program would continue and defendant would keep her own job).

<sup>219</sup> *See* EPA, Basic Information About Scientific Integrity, <https://www.epa.gov/osa/basic-information-about-scientific-integrity> (last visited June 10, 2018).

<sup>220</sup> Presidential Memorandum for the Heads of Executive Departments and Agencies re Scientific Integrity, Mar. 9, 2009, <https://obamawhitehouse.archives.gov/the-press-office/memorandum-heads-executive-departments-and-agencies-3-9-09>; Scientific Integrity Policies: An Update, Dec. 19, 2016, <https://obamawhitehouse.archives.gov/blog/2016/12/19/scientific-integrity-policies-update>.

<sup>221</sup> EPA Scientific Integrity Policy 3 (2012), [https://www.epa.gov/sites/production/files/2014-02/documents/scientific\\_integrity\\_policy\\_2012.pdf](https://www.epa.gov/sites/production/files/2014-02/documents/scientific_integrity_policy_2012.pdf).

Issued in 2012, the policy applies to all agency personnel, scientists and political appointees alike, when engaging in or supervising scientific activities, communicating information about scientific activities, and utilizing scientific information in making policy decisions.<sup>222</sup> The policy provides for a Scientific Integrity Committee, chaired by the agency's Scientific Integrity Official, to oversee its implementation.<sup>223</sup>

EPA's scientific integrity policy focuses on four areas—agency culture, public communications, peer review and advisory committees, and professional development.<sup>224</sup> To promote a culture of scientific integrity, the policy prohibits employees from “impeding the timely release of scientific findings and conclusions,” bars agency leadership “from intimidating or coercing scientists to alter scientific data, findings, or professional opinions or inappropriately influencing scientific advisory boards,” and advises that candidates for scientific positions be selected primarily on their scientific qualifications.<sup>225</sup> In public communications, the agency should “ensur[e] that scientific research and results are presented openly and with integrity.”<sup>226</sup> Selection of advisory committee members “should be based on expertise . . . , balance of the scientific or technical points of view represented by the members, and the consideration of conflicts of interest.”<sup>227</sup> And with respect to professional development, the policy encourages government scientists to present their work at scientific meetings and participate actively in professional societies.<sup>228</sup>

Various EPA actions appear to violate core elements of this policy, if not its spirit. Blocking agency scientists from presenting their findings at a conference conflicts with the policy's professional development provisions. Ordering or pressuring employees to avoid mentioning climate change seems to run afoul of the policy's provisions regarding public communications. Appointing advisory committee members who lack scientific qualifications or have close industry connections runs counter to a culture of scientific integrity. And EPA's secret science rule, while purporting to promote transparency, undermines the integrity of the policymaking process.

Notwithstanding the existence of scientific integrity policies, political interference with science seems commonplace at EPA and perhaps other agencies as well. Unfortunately, legal options for redressing violations of

---

<sup>222</sup> *Id.* at 2.

<sup>223</sup> *Id.* at 3.

<sup>224</sup> *Id.* at 3.

<sup>225</sup> *Id.* at 4-5.

<sup>226</sup> *Id.* at 5.

<sup>227</sup> *Id.* at 9.

<sup>228</sup> *Id.* at 9.

such policies are limited. EPA's policy expressly states that it offers internal guidance and creates no enforceable obligations.<sup>229</sup> The agency's Scientific Integrity Official and Scientific Integrity Review Panel may investigate potential violations, however.<sup>230</sup> EPA's inspector general also may look into instances of research misconduct, including "fabrication, falsification or plagiarism" in performing research or "ordering, advising, or suggesting that subordinates engage in such misconduct."<sup>231</sup>

Within the limited available procedures, establishing a violation of EPA's scientific integrity policy may not be easy. An investigation of remarks by Administrator Pruitt illustrates potential difficulties associated with enforcing the policy. In response to a question regarding whether "it's been proven that carbon dioxide is the primary control knob for climate," Pruitt replied, "No. I think that measuring with precision human activity on the climate is something very challenging to do . . . . So no, I would not agree that it's a primary contributor to the global warming that we see."<sup>232</sup> On its face, the statement appears to misrepresent scientific conclusions regarding climate change and to exaggerate the uncertainty associated with it. EPA's Scientific Integrity Review Panel nonetheless characterized the statement as an opinion and noted that it was not made in a decisional context.<sup>233</sup> Thus, the panel concluded, the statement fell squarely within the scientific integrity policy's protections for free expression of opinions by EPA employees.<sup>234</sup>

While the panel may have properly applied the policy to Pruitt's remarks, the decision reflects some of the policy's limits. Scientifically questionable statements often may be characterized as opinions and thus lie beyond the policy's scope. The panel seemed to limit the reach of the policy outside of decisional contexts. And although the agency may administer corrective discipline, such discipline focuses on instances of blatant scientific misconduct—"fabrication, plagiarism, misrepresentation," and the like.<sup>235</sup>

---

<sup>229</sup> *Id.* at 2.

<sup>230</sup> *Id.* at 10; U.S. EPA Scientific Integrity Program, Determination regarding Allegations of a Loss of Scientific Integrity concerning Remarks by Administrator Pruitt, at 1, Aug. 2, 2017, [https://www.eenews.net/assets/2017/08/02/document\\_pm\\_04.pdf](https://www.eenews.net/assets/2017/08/02/document_pm_04.pdf).

<sup>231</sup> EPA, Policy and Procedures for Addressing Research Misconduct (2003); EPA Office of the Science Advisor, Coordination Procedures between the Scientific Integrity Official and the Office of Inspector General regarding Research Misconduct Allegations, Mar. 30, 2015.

<sup>232</sup> U.S. EPA Scientific Integrity Program, *supra* note 230, at 2.

<sup>233</sup> *Id.* at 4.

<sup>234</sup> *Id.* at 4. Although Pruitt's statement was left unsanctioned, a Freedom of Information Act lawsuit resulted in an order requiring EPA to turn over any evidentiary basis it has for Pruitt's claims. See Scott Waldman, *Judge to EPA: Show Your Science*, CLIMATEWIRE, June 5, 2018.

<sup>235</sup> U.S. EPA Scientific Integrity Program, *supra* note 230, at 10.

Allegations of research misconduct are subject to anti-fraud statutes and research misconduct policies as well as scientific integrity policies. Each federal agency has an inspector general charged with investigating and reporting on fraud, waste, and violations of law within the agency.<sup>236</sup> Appointed by the President with Senate consent and supervised by agency heads, inspectors general report results of investigations to agency heads and to Congress.<sup>237</sup> EPA's inspector general is also authorized to investigate allegations of research misconduct<sup>238</sup>—including interference with the work of agency scientists or ordering or suggesting that subordinates engage in research misconduct.<sup>239</sup> However, aside from criminal matters, which are referred to the Department of Justice, any investigations of the agency head could itself give rise to a conflict of interest because the inspector general would be investigating “the one individual to whom the Act makes him responsible on a day-to-day basis.”<sup>240</sup>

### **E. First Amendment and Whistleblower Protections**

Finally, government efforts to restrict the speech of its employees raise potential First Amendment concerns. If government scientists suffer adverse employment actions for the research they undertake or for the research results they produce, whistleblower protections may be relevant as well.

#### **1. First Amendment**

The First Amendment does not restrict the government's own speech, even if misguided or erroneous.<sup>241</sup> Thus, the First Amendment does not prevent government agencies from publishing inaccurate or even false statements about climate change. Moreover, “when public employees make statements pursuant to their official duties, the employees are not speaking as citizens for First Amendment purposes, and the Constitution does not insulate their communications from employer discipline.”<sup>242</sup> Accordingly, the First

---

<sup>236</sup> 5 U.S.C. app. 3, §§ 2, 3, 4 (Inspector General Act of 1978).

<sup>237</sup> 5 U.S.C. App. 3, §§ 3(a), 4(a)(5), 5.

<sup>238</sup> EPA, Policy and Procedures for Addressing Research Misconduct, at 3 (2003), <https://www.epa.gov/sites/production/files/2014-04/documents/epapolicy.pdf>.

<sup>239</sup> EPA, Policy and Procedures for Addressing Research Misconduct, at 2 (defining research misconduct).

<sup>240</sup> Dan W. Reicher, Note, *Conflicts of Interest in Inspector General, Justice Department, and Special Prosecutor Investigations of Agency Heads*, 35 STAN. L. REV. 975, 986-87 (1983) (discussing potential conflicts inherent in 1982 inspector general investigation of EPA Administrator Anne Gorsuch). 5 U.S.C. app. 3, § 4(d).

<sup>241</sup> *Pleasant Grove City v. Sumnum*, 555 U.S. 460, 467 (“The Free Speech Clause restricts government regulation of private speech; it does not regulate government speech.”).

<sup>242</sup> *Garcetti v. Ceballos*, 547 U.S. 410, 421 (2006).

Amendment does not prohibit EPA from restricting its employees from discussing climate change at conferences pursuant to their official duties.

The First Amendment does place some limits on the government's ability to censor the speech of its employees, however. When a public employee "speaks as a citizen addressing a matter of public concern," the government employer may impose "only those speech restrictions that are necessary . . . to operate efficiently and effectively."<sup>243</sup> Two Supreme Court decisions illustrate the distinction between speaking as a public employee and speaking as a citizen. *Garcetti v. Ceballos* held that First Amendment protections did not apply to a deputy district attorney's memorandum recommending dismissal of a pending case.<sup>244</sup> In contrast, *Pickering v. Board of Education* found a teacher's letter to a local newspaper regarding the funding policies of the local school board to be protected speech.<sup>245</sup> The letter, unlike the *Garcetti* memorandum, "had no official significance and bore similarities to letters submitted by numerous citizens every day."<sup>246</sup>

Whether an employee is speaking as part of their official duties or as a citizen may not be obvious. Neither the location of the speech, nor its subject matter, nor the fact that the employee learned of the speech's subject matter through her employment, is dispositive.<sup>247</sup> The critical issue is whether the speech was made pursuant to the employee's duties, a practical inquiry that looks beyond the employee's formal job description.<sup>248</sup> Factors relevant to the inquiry include the employee's job responsibilities, the nature and subject matter of the speech, whether the communication was made outside the chain of command, and how and to whom the message was communicated.<sup>249</sup> If a public employee is speaking as a citizen, the *Pickering* test balances the employee's interest "in commenting upon matters of public

---

<sup>243</sup> *Id.* at 419, 423.

<sup>244</sup> *Id.* at 413-14, 421-22.

<sup>245</sup> 391 U.S. 563, 566 (1968).

<sup>246</sup> *Garcetti*, 547 U.S. at 422.

<sup>247</sup> *See Lane v. Franks*, 134 S. Ct. 2369, 2370 (2014); *Garcetti*, 547 U.S. at 420-21.

<sup>248</sup> *See Garcetti*, 547 U.S. at 420-21, 424-25.

<sup>249</sup> *See Ross v. Breslin*, 693 F.3d 300, 306 (2d Cir. 2012); *Dahlia v. Rodriguez*, 735 F.3d 1060, 1074-75 (9th Cir. 2013); *see also Andrew v. Clark*, 561 F.3d 261, 267 (4th Cir. 2009) (concluding "there is 'room for serious debate'" regarding whether police department employee's official duties included submitting of memorandum to police commissioner and news reporter, where employee was not part of official investigation that was the subject of the memorandum); *Freitag v. Ayers*, 468 F.3d 528, 546 (9th Cir. 2006) (holding that prison guard's complaints to state senator and inspector general regarding sexually abusive behavior were constitutionally protected, whereas internal complaints were not).

concern” against the government’s interest “as an employer, in promoting the efficiency of the public services it performs through its employees.”<sup>250</sup>

How might First Amendment protections apply to speech by government employees on climate change? Climate change is indisputably a “matter of political, social or other concern to the community” and a “subject of legitimate news interest.”<sup>251</sup> Whether an employee is speaking as a citizen or pursuant to official duties may present a difficult question, however. For example, suppose that the EPA employees at the Narragansett Bay conference had participated in their personal capacity, taking personal leave in order to attend, identifying themselves only as private citizens, and making clear that their remarks represented their personal views. Or suppose that EPA employees, after being ordered by their supervisors not to report their findings of climate change’s impacts, privately contacted the media to distribute those findings.

The employee speech in each instance likely would qualify as citizen speech. That the employees may have derived their data and findings from their employment would not be dispositive. “The critical question . . . is whether the speech at issue is itself ordinarily within the scope of an employee’s duties, not whether it merely concerns those duties.”<sup>252</sup> Employees who express their personal views on their own time at a conference or in a letter to the editor are acting as ordinary citizens. Moreover, if an employee speaks in contravention of a supervisor’s orders not to discuss a particular subject, such defiance suggests that the speech in question lies outside of the employee’s professional duties.<sup>253</sup>

---

<sup>250</sup> 391 U.S. at 568. These principles apply not only to punishment or retaliation for an employee’s speech, but also to requirements that employee speech be approved by the government prior to publication. *Harman v. City of New York*, 140 F.3d 111, 119-24 (2d Cir. 1998); *cf. Weaver v. U.S. Information Agency*, 87 F.3d 1429, 1439-43 (D.C. Cir. 1996) (upholding requirement that an employee submit articles and speeches on official matters for pre-publication review where review only allowed agency to advise employee of inaccurate or disruptive statements, not to prohibit publication or punish employee).

<sup>251</sup> *Connick v. Myers*, 461 U.S. 138, 146 (1983); Lane, 134 S. Ct. at 2380. *See generally* RODNEY A. SMOLLA, SMOLLA AND NIMMER ON FREEDOM OF SPEECH § 18:10 (2013) (noting that courts are more likely to find that employee comments on internal workplace matters, “ranging from anything to office gossip and chit-chat to the affairs and operations of a particular agency or office,” are less likely to be deemed matters of public concern than comments on “matters outside the issues of their workplace”).

<sup>252</sup> Lane, 134 S. Ct. at 2379.

<sup>253</sup> *See Dahlia*, 735 F.3d at 1075 (“Indeed, the fact that an employee is threatened or harassed by his superiors for engaging in a particular type of speech provides strong evidence that the act of speech was not, as a ‘practical’ matter, within the employee’s job duties[.]”); *but cf. Bowie v. Maddox*, 653 F.3d 45, 48 (D.C. Cir. 2011) (“the illegality of a government employer’s order [to file a false report] does not necessarily mean the

Assuming that the elements of public concern and speaking as a citizen are satisfied, courts apply the *Pickering* balancing test to determine whether the injury to the government caused by the speech outweighs the employee's interest in free expression.<sup>254</sup> A government order limiting employee speech on climate change would not fare well under this test. The government interests typically asserted in favor of speech restrictions—ensuring operational efficiency, or maintaining discipline and respect among co-workers<sup>255</sup>—are unlikely to be present when employees speak out on climate change. Merely preventing employees from speaking in a manner contrary to the government's position on climate change does not appear to be the sort of interest that would outweigh an employee's free speech interests.<sup>256</sup> Indeed, the fact that climate change is a matter of great public concern demands an especially strong showing by the government of harm to its interests.<sup>257</sup>

## 2. Whistleblower Protections

Adverse actions against government employees for speaking out could implicate not only the First Amendment but also whistleblower protections. Reporting environmental risk data, disclosing efforts to suppress research, or revealing politically motivated tinkering with research results all could qualify as protected activity.

The Whistleblower Protection Act prohibits adverse personnel action against a government employee for disclosing information that the employee reasonably believes to demonstrate a violation of any law or regulation or “gross mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety.”<sup>258</sup> A 2012 statutory amendment specifically protects disclosures that reveal “censorship related to research, analysis or technical information”—a term defined as “any effort to distort, misrepresent, or suppress research, analysis or technical information.”<sup>259</sup> The amendment thus extends whistleblower protections to

---

employee has a cause of action *under the First Amendment* when he contravenes that order”).

<sup>254</sup> *Pickering*, 391 U.S. at 568.

<sup>255</sup> *See Waters v. Churchill*, 511 U.S. 661, 675 (1994); SMOLLA, *supra* note 251, §§ 18:16-18:19.

<sup>256</sup> *Cf. Hoover v. Morales*, 164 F.3d 221 (5th Cir. 1998) (“[t]he notion that the State may silence the testimony of state employees simply because that testimony is contrary to the interests of the State in litigation or otherwise, is antithetical to the protection extended by the First Amendment”).

<sup>257</sup> *See Connick*, 461 U.S. at 152 (“a stronger showing may be necessary if the employee’s speech more substantially involved matters of public concern”).

<sup>258</sup> 5 U.S.C. § 2302(b)(8)(A).

<sup>259</sup> Pub. L. No. 112-199, § 110(a)(3), (b)(1).

government scientists who make disclosures in defense of scientific integrity.<sup>260</sup> At the same time, protected activity under the statute does not include policy disagreements or general criticism of an agency.<sup>261</sup>

In addition to the Whistleblower Protection Act, several environmental statutes prohibit public or private employers from retaliating against employees who institute, assist, or otherwise participate in the administration or enforcement of those statutes.<sup>262</sup> To establish a prima facie case of retaliation, an employee must show that her employer is covered by the act, that she engaged in protected activity, and that she suffered adverse employment action as a result.<sup>263</sup> The employer may rebut this showing by producing evidence of a legitimate, nondiscriminatory reason for the adverse action, which shifts the burden to the employee to show that the protected activity was the reason for the discharge.<sup>264</sup>

The various whistleblower statutes protect a broad range of government scientist activities. However, merely engaging in disfavored research is not a protected activity.<sup>265</sup> Nor is it enough for an employee's research to demonstrate harm to human health or the environment.<sup>266</sup> Rather, the employee must engage in whistleblowing—for example, by disseminating his or her concerns to the media—and must prove that adverse personnel action was taken as a result.<sup>267</sup> In addition, under the environmental whistleblowing statutes, the employee's actions must contribute to “a proceeding for the administration or enforcement” of the

---

<sup>260</sup> See S. Rep. No. 112-155, at 24-25; Jason Zuckerman, Congress Strengthens Whistleblower Protections for Federal Employees, ABA Section of Labor & Employment Law, Nov.-Dec. 2012, [https://www.americanbar.org/content/newsletter/groups/labor\\_law/ll\\_flash/1212\\_abalel\\_flash/lel\\_flash12\\_2012spec.html](https://www.americanbar.org/content/newsletter/groups/labor_law/ll_flash/1212_abalel_flash/lel_flash12_2012spec.html).

<sup>261</sup> See S. Rep. No. 112-155, at 7 & n.20 (2012) (quoting S. Rep. No. 969, 95th Cong., 2d Sess. 8 (1978) that “only disclosures of public health or safety dangers” are protected, not “general criticisms by an employee . . . that the agency is not doing enough to protect the environment”).

<sup>262</sup> 15 U.S.C. § 2622(a) (Toxic Substances Control Act); 33 U.S.C. § 1367(a) (Clean Water Act); 42 U.S.C. § 7622(a) (Clean Air Act); 42 U.S.C. § 300j-9(i) (Safe Drinking Water Act); 42 U.S.C. § 6971(a) (Resource Conservation and Recovery Act); 42 U.S.C. § 9610(a) (Comprehensive Environmental Response, Compensation and Liability Act).

<sup>263</sup> See Emily Becker, *Calling Foul: Deficiencies in Approaches to Environmental Whistleblowers and Suggested Reforms*, 6 WASH. & LEE J. ENERGY, CLIMATE & THE ENV'T 63, 84 (2014).

<sup>264</sup> See Marcus, 1994 WL 897260 at \*3 (citing *St. Mary's Honor Ctr. v. Hicks*, 125 L. Ed. 2d 407, 416 (1993)).

<sup>265</sup> See Robert R. Kuehn, *Suppression of Environmental Science*, 30 AM. J. L. & MED. 333, 357 (2004).

<sup>266</sup> See *id.* [Kuehn] at 358.

<sup>267</sup> 5 U.S.C. § 2302(b)(8)(A); see Kuehn, *supra* note 265, at 355, 358.

requirements of the relevant environmental statute.<sup>268</sup> Examples of protected activities include: (1) “criticizing a draft report, concerning toxicology and carcinogenesis studies, which EPA contemplated using in regulating fluoride levels;”<sup>269</sup> (2) complaining to Congress about EPA’s failure to disclose and address toxic exposures and its attempts to misrepresent a study establishing that a pesticide was carcinogenic;<sup>270</sup> (3) providing an affidavit to a public interest group supporting a causal relationship between dioxin and human health effects, contrary to statements made by EPA’s administrator;<sup>271</sup> and (4) expressing concerns about the safety of sludge fertilization in writings, speeches, and testimony.<sup>272</sup>

A number of incidents under the Trump administration have triggered whistleblower concerns. In July 2017, the Interior Department reassigned fifty senior career officials, ostensibly to “match[] . . . their skill sets with mission and operational requirements.”<sup>273</sup> Among those reassigned was the department’s top climate change official, Joel Clement, who filed a whistleblower complaint.<sup>274</sup> The reassignments as a whole are the subject of ongoing departmental and congressional inquiries.<sup>275</sup> In addition, gag orders issued at the start of the Trump administration ran afoul of Whistleblower Protection Act provisions governing agency nondisclosure policies.<sup>276</sup> The orders demanded that employees inform the agency before communicating with Congress and forbade employees from making public statements, but failed to include a required disclaimer affirming employees’ whistleblower rights and protections.<sup>277</sup>

---

<sup>268</sup> See also Kuehn, *supra* note 265, at 357.

<sup>269</sup> In re Marcus v. EPA, No. 92-TSC-5, 1994 WL 897260 at \*3 (DOL Off. Adm. App., Feb. 7, 1994).

<sup>270</sup> In re Jenkins, No. 92-CAA-6, 1994 WL 897221 at \*5 (DOL Off. Adm. App., May 18, 1994) (noting that parties had stipulated that such actions constituted protected activity).

<sup>271</sup> Jenkins at \*6.

<sup>272</sup> In re Lewis v. EPA, No. 04-117, 2007 WL 1031361 (DOL Adm. Rev. Bd. Mar. 30, 2007).

<sup>273</sup> Jennifer Yachnin & Corbin Hiar, *Zinke Shaking Up Senior Staff*, GREENWIRE, June 16, 2017.

<sup>274</sup> See *supra* text accompanying note 82.

<sup>275</sup> See Michael Doyle, *IG Looking into Why Senior Staffers Were Moved*, GREENWIRE, Sept. 11, 2017.

<sup>276</sup> 5 U.S.C. § 2302(b)(13); Pub. L. No. 112-199, § 115.

<sup>277</sup> See Pamela Wolf, Republican Lawmakers Warn HHS Secretary That Memo May Violate Whistleblower Protections, May 10, 2017, <http://www.employmentlawdaily.com/index.php/2017/05/10/republican-lawmakers-warn-hhs-secretary-that-memo-may-violate-whistleblower-protections/>; Testimony of Thomas Devine, Government Accountability Project, Sept. 9, 2017, at 14-15, <https://oversight.house.gov/wp-content/uploads/2017/02/Devine-GAP-Statement-Whistleblower-2-1.pdf>.

Ultimately, whistleblower provisions offer some protections to government scientists but are subject to important limitations. First, these provisions are defensive: they protect employees from adverse employment actions, but require employees to put their employment status at risk. Second, pursuing a whistleblowing claim is not easy. Complainants' success rate in obtaining administrative remedies has historically been low.<sup>278</sup> Third, the environmental whistleblower statutes establish short timeframes for seeking relief, requiring that a claim be filed within thirty days of an adverse action.<sup>279</sup>

#### **IV. Sizing Up the War on Regulatory Science**

One can easily get lost in the frequent skirmishes, multiple fronts, and wide range of legal doctrines that characterize the war on regulatory science. This Part steps back from the minutiae and assesses the war's broader ramifications. External administrative law, enforced through judicial oversight, provides only a partial constraint. Measures internal to the executive branch are also important—but of limited effect. Beyond the immediate legal concerns, the war on regulatory science has long-term implications for the relationship between law and science and for the practice of regulatory science within the federal government.

##### **A. The Limited Reach of External Administrative Law**

As just discussed, numerous laws are relevant to the war on regulatory science. The APA is perhaps the most important bulwark against agency decisions based on inadequate or flawed science. Judicial review under the APA will be critical in ensuring that agencies follow appropriate procedures and support their rules with reasoned decisionmaking. However, because APA review is limited to final agency action, “litigants may obtain review only of particular discrete actions of agencies, rather than the internal programs and structures that brought about those actions.”<sup>280</sup> Indeed, a brief re-examination of the Trump administration's actions reveals that many aspects of the war on regulatory science are governed only loosely by law or may escape judicial review completely.

First, EPA's secret science rule initially may sidestep direct legal challenge. The rule is likely to encounter judicial review once it is applied in

---

<sup>278</sup> See Devine, *supra* note 277, at 8-13.

<sup>279</sup> See, e.g., 15 U.S.C. § 2622(b)(1); 33 U.S.C. § 1367(b)(1). By contrast, the Whistleblower Protection Act contains no statute of limitations for filing a complaint with the Office of Special Counsel. See Thomas M. Devine, *The Whistleblower Protection Act of 1989: Foundation for the Modern Law of Employment Dissent*, 51 ADMIN. L. REV. 531, 542 (1999).

<sup>280</sup> Gillian E. Metzger & Kevin M. Stack, *Internal Administrative Law*, 115 MICH. L. REV. 1239, 1264 (2017).

subsequent rulemakings, but perhaps only on a case-by-case basis.<sup>281</sup> Regardless of whether those subsequent rules are upheld, the secret science rule in the meantime will drain agency resources as scientists and agency staff track down data and redact personal information.<sup>282</sup>

A red-team, blue-team debate on climate change, if it takes place, could prove nonjusticiable. Because such a debate would not determine “rights or obligations . . . from which legal consequences will flow,” courts may conclude that it does not constitute reviewable final agency action.<sup>283</sup> This is not to say that such a debate would have no impact. The debate could sow unwarranted doubts on climate change and serve as a foundation for deregulating GHG emissions.

Advisory committee appointments and other executive branch appointments also may avoid judicial review. Domination of advisory committees by industry representatives may not give rise to justiciable claims. Even if courts reach the substantive merits, FACA and conflict of interest rules offer only a modest check on agencies’ broad discretion over committee appointments and operations. As for the appointment of executive officials, Congress has a greater role than the courts in ensuring such officials possess the requisite qualifications, but neither can do much to compel the executive to appoint an agency head or scientific advisor when the chief executive declines to do so.

Finally, adverse personnel actions and direct censorship of agency scientists may give rise to whistleblower and First Amendment claims. However, these claims are not easy to pursue. Furthermore, existing law provides little safeguard for the integrity of agency speech itself. Scientific integrity policies speak to this concern as well as other elements of the war on regulatory science, but enforcement of such policies is left largely to the agency itself.

Elements of the war on regulatory science that escape judicial review could have serious implications beyond the Trump presidency. EPA’s secret science rule may discourage potential research subjects from participating in health studies—many of which span years or even decades—for fear that their personal information will be disclosed.<sup>284</sup> More generally, a failure to collect health and environmental data could leave significant gaps in the

---

<sup>281</sup> See *supra* Part III.A.3.a.

<sup>282</sup> See Scott Waldman & Robin Bravender, *Pruitt Is Expected to Restrict Science. Here’s What It Means*, E&E NEWS, Mar. 16, 2018, <https://www.eenews.net/stories/1060076559>.

<sup>283</sup> *Bennett v. Spear*, 520 U.S. 154, 178 (1997); see 5 U.S.C. § 704 (authorizing judicial review of final agency action); Metzger & Stack, *supra* note 280, at 1264.

<sup>284</sup> See Juliet Eilperin & Brady Dennis, *Pruitt Unveils Controversial “Transparency” Rule Limiting What Research EPA Can Use*, WASH. POST, Apr. 24, 2018 (reporting concerns of former EPA administrator Gina McCarthy).

knowledge base for future policymaking. A red-team, blue-team debate could entrench already polarized attitudes on climate change. Personnel decisions driven by hostility to scientific findings may undermine civil service protections and discourage scientists from serving as government employees or advisory committee members. And a lack of scientific integrity in what agencies say and do under the Trump administration could undermine agencies' credibility with courts and the general public even under subsequent administrations.

### **B. The Importance of Internal Administrative Law**

The foregoing discussion offers an important reminder that “[s]o much of administrative law happens without courts.”<sup>285</sup> Describing this universe of “internal administrative law,” Gillian Metzger and Kevin Stack point to “measures governing agency functioning that are created within the agency or the executive branch and that speak primarily to government personnel.”<sup>286</sup> Indeed, much of the war on regulatory science implicates internal administrative law governing the composition and use of scientific advisory committees, assignment of agency personnel, statements by agencies or agency employees, and the like.

External administrative law is insufficient to constrain agencies, Metzger and Stack explain, because “the vast majority of agency actions and decisions, including those that lead to the adoption of a particular rule or policy, will never be subject to review.”<sup>287</sup> Judicial review requires final agency action and a justiciable claim, as well as a plaintiff with the will and resources to pursue litigation.<sup>288</sup> Expanding judicial review by tightening standards of judicial scrutiny or reducing barriers to litigation would not necessarily be desirable, however, lest such measures leave administrative agencies unable to act.<sup>289</sup> In any instance, judicial review usually operates after the fact, when the damage may already be done.<sup>290</sup>

One possible response to the insufficiency of external administrative law is to strengthen institutional checks other than the courts, such as

---

<sup>285</sup> Christopher J. Walker, *Administrative Law Without Courts*, 65 UCLA L. REV. \_\_\_, at [4] (2018).

<sup>286</sup> Metzger & Stack, *supra* note 280, at 1251.

<sup>287</sup> *Id.* at 1264; Robert L. Glicksman & Emily Hammond, *Agency Behavior and Discretion on Remand*, 32 J. LAND USE & ENVT. L. 483, 487-88 (2017).

<sup>288</sup> See Metzger & Stack, *supra* note 280, at 1264.

<sup>289</sup> See Thomas O. McGarity, *On the Prospect of “Daubertizing” Judicial Review of Risk Assessment*, 66 LAW & CONTEMPORARY PROBS. 155, 171 (2003). (contending that stringent judicial review of agency risk assessments would result in “fewer rules to impede the regulated community and fewer protections for the beneficiaries of congressionally mandated programs”).

<sup>290</sup> See Metzger & Stack, *supra* note 280, at 1264.

inspector general offices, internal “offices of goodness,” and civil service protections.<sup>291</sup> Similarly, Metzger and Stack urge the executive branch to establish internal administrative law that reflects “rule-of-law values including transparency, argumentation, and consistency.”<sup>292</sup> While such approaches seem generally desirable, their success depends on the good faith of executive branch actors and the willingness of Congress and the public to push back when norms of administrative legality are ignored.<sup>293</sup> Congress has the power to supervise agencies through agency appropriations, oversight hearings, confirmation votes, and legislation.<sup>294</sup> And the public can register its views at the ballot box, in formal comment processes, and through public protests and social media.

### C. Eroding Agency Norms with Respect to Science

The fact that much agency action lies outside the reach of the courts points to the importance of not only internal administrative law, but also agency norms. Norms are more than behavioral regularities; they are informal rules that provide reasons for compliance and establish standards for evaluating an actor’s behavior.<sup>295</sup> Norms are enforced and reinforced through

---

<sup>291</sup> See Shirin Sinnar, *Protecting Rights from Within? Inspector Generals and National Security Oversight*, 65 STAN. L. REV. 1027 (2013) (detailing significant role of inspectors general in protecting rights within the national security context, but also noting that inspector general reviews “rarely led to individual relief for most victims, repercussions for high-level executive officials, or significant rights-protective constraints on agency discretion”); Margo Schlanger, *Offices of Goodness: Influence Without Authority in Federal Agencies*, 36 CARDOZO L. REV. 53, 55 (2014) (describing offices of goodness as subsidiary agency offices created by Congress or the president to further values that may differ from the agency’s primary goals); Jon D. Michaels, *An Enduring, Evolving Separation of Powers*, 115 COLUM. L. REV. 515, 540-41 (2015) (discussing role of civil service as a counterweight to unilateral and potentially abusive exercises of authority by agency leaders).

<sup>292</sup> Metzger & Stack, *supra* note 280, at 1297.

<sup>293</sup> See Walker, *supra* note 285, at [18] (“Administrative law must look beyond courts for additional safeguards. Congress, for example, could use its oversight powers to rein in instances of administrative law without courts. . . . The President and civil society could no doubt also play meaningful roles.”); *cf.* Metzger & Stack, *supra* note 280, at 1301 (noting that a new presidential administration that changes substantive direction without heeding internal constraints and values of transparency, reasoned justification, and consistency may achieve faster policy change “but at the cost of an opportunity to embed norms of administrative legality that are important checks against abuse of executive power”).

<sup>294</sup> See HOLLY DOREMUS ET AL., ENVIRONMENTAL POLICY LAW: PROBLEMS, CASES, AND READINGS 105 (6th ed. 2012).

<sup>295</sup> See Daphna Renan, *Presidential Norms and Article II*, 131 HARV. L. REV. 2188, 2196-98 (2018). See also Richard H. McAdams, *The Origin, Development, and Regulation of Norms*, 96 MICH. L. REV. 338, 350 (1997) (contending that norms “are enforced by some means other than legal sanctions”).

electoral politics, public pressure, and institutional actors such as Congress, the bureaucracy, and the media.<sup>296</sup> But norms can dissolve if they are disregarded and if political forces or the public fail to reinforce them.<sup>297</sup> Various norms govern how agencies handle science and scientific experts: agencies should allow experts to discuss their work; agencies should base their decisions on scientific evidence; political officials should not direct agencies' scientific findings; and agencies should not stack scientific advisory boards with political appointees.<sup>298</sup>

### **1. Undermining the Role of Scientific Authority in Rulemaking**

A number of the Trump administration's actions could undermine the role of scientific authority in the rulemaking process. Science's role is vulnerable because agency policy and custom, as well as law, define that role. The establishment and operation of scientific advisory committees illustrates the combined influence of law and norms. As discussed above, FACA governs the hundreds of scientific and technical advisory committees that assess scientific research and offer policy recommendations.<sup>299</sup> Yet agencies retain broad discretion in matters such as how often a committee meets, how they use a committee's advice, and whether committee members may expect their terms to be renewed. Until recently, past practice has strongly influenced agencies' exercise of that discretion.

The Trump administration has departed repeatedly from historical norms in using and managing science advisory committees, with each departure in the direction of lessening scientific input. These committees have fewer members and have met less frequently than at any time since the government began collecting such data in 1997.<sup>300</sup> Advisory committees at the Department of Energy, Department of the Interior, and FDA have been disbanded or failed to meet.<sup>301</sup> EPA's SAB has yet to issue any reports

---

<sup>296</sup> See Renan, *supra* note 295, at 2198, 2204 (discussing enforcement of presidential norms); cf. Jessica M. Nolan, *Social Norms and Their Enforcement*, in THE OXFORD HANDBOOK OF SOCIAL INFLUENCE (Stephen G. Harkins et al., eds. 2017), at 3 (describing social norms as rules "that guide morally relevant social behavior by way of social sanctions, instead of the force of laws").

<sup>297</sup> Cf. Renan, *supra* note 295, at 2191 (suggesting that presidential norms break down "when the extralegal system ceases to enforce them").

<sup>298</sup> See Wendy E. Wagner, *A Place for Agency Expertise: Reconciling Agency Expertise with Presidential Power*, 115 COLUM. L. REV. 2019, 2029-30 (2015) (discussing examples of norms the violation of which have historically triggered outrage and bipartisan disapproval).

<sup>299</sup> See *supra* Part III.B; see also CSD, *supra* note 59, at 3.

<sup>300</sup> See CSD, *supra* note 59, at 2. Many advisory committees have met less frequently than their committee charters require. *Id.* at 4.

<sup>301</sup> See *id.* at 3.

initiated by the Trump administration.<sup>302</sup> And EPA's new policy barring grant recipients from advisory committees, along with its unprecedented nonrenewal of BOSC and SAB members with expiring terms, has dramatically shifted the composition of these committees in industry's favor.<sup>303</sup> These moves reflect a view that the provision of scientific advice is just another target for political maneuvering rather than a source of objective expertise.

Worries about the politicization of advisory committee appointments are not novel. President Obama's CASAC appointments were criticized for lacking geographical and ideological diversity.<sup>304</sup> The George W. Bush administration was attacked for appointing scientists with ties to industry and asking potential nominees about their political preferences and their views on capital punishment and abortion.<sup>305</sup> And under President Reagan, EPA compiled a covert "hit list" of scientific advisors to eliminate from its advisory boards.<sup>306</sup> Nonetheless, the Trump administration has introduced new techniques of politicization and blatantly disregarded norms against politicization.

One might argue that the Trump administration's actions to politicize advisory committees, even if novel, are of fleeting significance. A subsequent administration could reconstitute committees that have been disbanded and repopulate advisory committees with well-respected and open-minded experts from diverse backgrounds. However, the damage from disregarding norms against politicization may be lasting. An advisory committee's credibility may suffer long-term damage if it is perceived as a politicized body.<sup>307</sup> Recruitment of qualified candidates may be difficult if

---

<sup>302</sup> See Emily Atkin, *The War on Science Is Over. The Republicans Won.*, NEW REPUBLIC, Apr. 5, 2018, <https://newrepublic.com/article/147729/war-science-over-republicans-won>.

<sup>303</sup> For instance, as of early 2018, industry representatives comprised 23% of SAB membership, up from 6% just a year before. See CSD, *supra* note 59, at 6 fig. 4.

<sup>304</sup> See Jason Plautz, *Republicans Take Science Advisory Panels to Task Over Potential Bias*, E&E DAILY, Mar. 21, 2013; Sean Reilly, *EPA Seeks Comments on Nominees to Hot-Button Science Panel*, GREENWIRE, June 22, 2016, <https://www.eenews.net/greenwire/stories/1060039232>.

<sup>305</sup> See MOONEY, *supra* note 4, at 241, 251-52, 258; House Committee on Government Reform, *supra* note 4, at ii-iii.

<sup>306</sup> See Scott Waldman, *Political Appointees Once Kept a Scientist "Hit List,"* CLIMATEWIRE, May 14, 2018; JASANOFF, *supra* note 100, at 89. Although EPA denied using the list to decide on SAB appointments, a number of scientists on the list were not reappointed. See *id.* The controversy ultimately prompted Congress to expand the SAB and to require EPA to consider a broader range of potential appointees. See *id.*

<sup>307</sup> See JASANOFF, *supra* note 100, at 244 (explaining that authority of advisory committees derives in part from fact that work is perceived as scientific); cf. Doremus, *supra* note 4, at 1619 (discussing danger that politicized scientific debate undermines the role of science).

committee service seems subject to political whims.<sup>308</sup> And future administrations may consider themselves less constrained by norms against politicization.

Nor are such concerns alleviated by the fact that these committees are merely advisory. Granted, advisory committees have neither the ability nor the authority to decide policy questions. However, regulatory agencies need impartial scientific knowledge in order to make well-informed policy decisions. Advisory committees—if unbiased and free of conflicts—are an important mechanism for providing such knowledge.<sup>309</sup> In addition to informing present agency decisions, advisory committees also help to set research priorities. In doing so, they play a critical role in identifying health and environmental concerns, aligning the goals of regulatory science with those of research science, and building up an agency's reputation and expertise.<sup>310</sup>

Politicization of regulatory science and scientific advisory committees undermines the scientific basis and political legitimacy of government policies.<sup>311</sup> Politicized advisory committees facilitate agency capture, rather than providing a bulwark against improper influence. Likewise, censorship of agency scientists reduces transparency and deprives the agencies, courts, and public of critical information.<sup>312</sup> Resulting agency decisions are likely to be poorly informed, ineffective, or even harmful.<sup>313</sup> In some instances, agency employees may engage in bureaucratic resistance by insisting on adherence to norms, whistleblowing, or otherwise resisting

---

<sup>308</sup> Cf. Walters, *supra* note 187, at 693 (suggesting that proceduralization of advisory committee membership requirements may deter qualified potential members from serving).

<sup>309</sup> Cf. Greer & Steinzor, *supra* note 99, at 37-38 (discussing danger of EPA's Science Advisory Board operating "in a context where self-interested research dominates the agenda of the outside experts recruited for peer review").

<sup>310</sup> See JASANOFF, *supra* note 100, at 237.

<sup>311</sup> See Conley, *supra* note 203, at 165 ("the success and legitimacy of scientific advisory committees depend upon their remaining uncontaminated by political and economic pressures"); cf. JASANOFF, *supra* note 100, at 86-87, 103 (discussing functions of EPA SAB and CASAC); *id.* at 242 (identifying primary function of scientific advisory committees as "to engage the scientific community in negotiating a consensus over regulatory science").

<sup>312</sup> See Shapiro, *supra* note 114, at 41 (discussing how political manipulation of scientific results undermines courts' ability to review agency actions).

<sup>313</sup> See Gilman, *supra* note 4, at 588 (explaining that the Bush administration's efforts to distort and suppress scientific findings caused harm "by making bad policy, demoralizing government scientists, and misinforming the public about important issues."). The Supreme Court's decision in *Massachusetts v. EPA*, 549 U.S. 497 (2007), can be understood as an effort to push back against the politicization of agency expertise and "to ensure that agencies exercise expert judgment free from outside political pressures." Freeman & Vermeule, *supra* note 4, at 52.

superiors' directives.<sup>314</sup> However, such measures may not be effective and can come at a high personal cost.<sup>315</sup> Over the long term, scientists may hesitate to work in an environment subject to politicization, and public confidence in the work of government agencies may erode.<sup>316</sup>

## 2. Ignoring Science as a Basis for Law and Policy

Relatedly, many aspects of the war on regulatory science reflect an unprecedented rejection of science as a basis for law and policy. In contrast to its predecessors, the Trump administration has pursued its deregulatory agenda by crippling, ignoring, or suppressing regulatory science. Its violation of norms regarding the use of science in reasoned decisionmaking indeed pose a threat to the modern administrative state.

Although prior administrations sometimes exploited the gap between what science can do and what people expect it to do, they generally continued to express a high regard for science. Most prominently, the George W. Bush administration was criticized for “manipulat[ing] the scientific process and distort[ing] or suppress[ing] scientific findings.”<sup>317</sup> In climate change and other areas, that administration repeatedly pointed to scientific uncertainty as a reason not to regulate.<sup>318</sup> Yet the Bush administration also touted scientific inquiry and proclaimed adherence to the highest scientific standards. The Bush White House proposed that agencies apply rigorous peer review to all significant regulatory information (although the proposal was seen by some as an effort to hamstring agencies).<sup>319</sup> President Bush appointed in a timely fashion a chief science adviser, who underscored “the President’s policy of

---

<sup>314</sup> See Adam Shinar, *Dissenting from Within: Why and How Public Officials Resist the Law*, 40 FLA. ST. U. L. REV. 601, 622-23 (2013); Rebecca Ingber, *Bureaucratic Resistance and the National Security State*, 104 IOWA L. REV. \_\_, [23-33] (forthcoming 2018).

<sup>315</sup> See, e.g., Doremus, *supra* note 4, at 1607-08 (discussing agency biologist’s efforts to resist apparent efforts to politically influence biological opinion).

<sup>316</sup> See Gilman, *supra* note 4, at 588.

<sup>317</sup> House Committee on Government Reform, *supra* note 4, at I; see also Shapiro, *supra* note 114, at 31-32 (discussing political interference with science under Bush administration). Disregard of agency scientists is not the sole province of Republicans; President Obama occasionally “ran roughshod over the views of agencies’ scientific experts.” Farber, *supra* note 122, at [4].

<sup>318</sup> See Doremus, *supra* note 88, at 256-57, 266-74. The Bush administration applied this approach to climate change as well as to various decisions not to list species as endangered. See *id.* at 267-74 (discussing endangered species listing decisions); EPA, Control of Emissions from New Highway Vehicles and Engines, 68 Fed. Reg. 52922, 52930 (2003) (deciding not to regulate GHGs in part because of scientific uncertainty); see also OTTO, *supra* note 3, at 287.

<sup>319</sup> See Freeman & Vermeule, *supra* note 4, at 57 (discussing Office of Management and Budget’s Proposed Bulletin on Peer Review and Information Quality, 68 Fed. Reg. 54023 (2003)).

strongly supporting science and applying the highest scientific standards in decision making.”<sup>320</sup> And as that adviser noted, federal research and development budgets increased significantly under President Bush.<sup>321</sup> The Bush administration may have concealed political decisions “behind a cloak of science,” but it did not question the importance of science in making and implementing environmental policy.<sup>322</sup>

The Trump administration, in contrast, has systematically expressed disdain for regulatory science.<sup>323</sup> The president has failed to appoint a presidential science advisor, chosen non-scientists to head agencies that deal with science-related matters, and proposed stark reductions in scientific research funding.<sup>324</sup> Furthermore, the administration has halted research projects aimed at identifying health and safety risks associated with fossil fuel extraction.<sup>325</sup> To make policy decisions, EPA Administrator Pruitt reportedly relied on lawyers, lobbyists, and Republican state attorneys general rather than agency scientists and staff.<sup>326</sup> In one rulemaking, EPA cited as scientific support a source that did not involve a scientific study at

---

<sup>320</sup> Statement of the Honorable John H. Marburger, III on Scientific Integrity in the Bush Administration, Apr. 2, 2004, [https://stephenschneider.stanford.edu/Publications/PDF\\_Papers/ResponsetoCongressonUCSDocumentApril2004.pdf](https://stephenschneider.stanford.edu/Publications/PDF_Papers/ResponsetoCongressonUCSDocumentApril2004.pdf).

<sup>321</sup> *See id.*

<sup>322</sup> Doremus, *supra* note 88, at 252-53 (noting value that the Bush administration and its opponents “place[d] on laying claim to the mantle of science”). *Cf.* Roger A. Pielke, Jr., *When Scientists Politicize Science: Making Sense of Controversy Over The Skeptical Environmentalist*, 7 ENVTL. SCI. & POL’Y 405, 408-10 (2004). (discussing linear model that assumes that “first getting the science ‘right’ [is] a necessary, if not sufficient, basis for decision making”). This is not meant to suggest that the Bush Administration did not undermine public confidence in science by editing government scientific reports or by employing scientific findings opportunistically. *See* MOONEY, *supra* note 4, at 257.

<sup>323</sup> Adam Aton, “Bullied” and “Harassed”—Zinke Foes Recall Past Scandals, E&E NEWS, May 15, 2018 (contrasting Bush administration approach of “looking for science to support its messaging” with Trump administration approach of “sidelining inconvenient science”).

<sup>324</sup> *See supra* Part I.B; Scott Waldman, *Trump Seeks Big Cuts to Science Across Agencies*, CLIMATEWIRE, Feb. 13, 2018, <https://www.eenews.net/climatewire/stories/1060073703/>.

<sup>325</sup> The Department of the Interior ordered the National Academies of Sciences, Engineering and Medicine to stop a study of health risks from living near mountaintop removal coal mining sites and a study of the government’s offshore oil and gas operations safety inspection program. Darryl Fears, *Trump Administration Halted a Study of Mountaintop Coal Mining’s Health Effects*, WASH. POST, Aug. 21, 2017; Statement on Stop-Work Order for National Academies Study on the Department of the Interior’s Offshore Oil and Gas Operations Inspection Program, Dec. 21, 2017, [http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=12212017&\\_ga=2.113900801.701355706.1518566592-1998370391.1518566592](http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=12212017&_ga=2.113900801.701355706.1518566592-1998370391.1518566592).

<sup>326</sup> *See* Farber, *supra* note 122, at 28-29.

all.<sup>327</sup> In another rulemaking, the administration criticized an Obama-era rule for “plac[ing] too much emphasis” on information and conclusions from a scientific report.<sup>328</sup> Suppression of speech and inquiry on climate change, including the scrubbing of references to climate change from agency websites and reduction of access to climate-related data sets, reflects a rejection not only of scientific findings but also of norms regarding transparency and rational agency decisionmaking.<sup>329</sup> Finally, EPA’s secret science rule, while purporting to adhere to norms of transparency and objectivity, actually redefines acceptable regulatory science in a manner inconsistent with scientific standards of validity.<sup>330</sup>

It would be naïve to suggest that regulatory science is free of politics. Regulatory science blends science and policy, and agencies—the practitioners of regulatory science—are subject to political demands from Congress, the president, and the public. Nevertheless, agencies are supposed to exercise their expertise and engage in rational decisionmaking; they are not supposed to make purely political decisions.<sup>331</sup> Prior administrations have operated on the assumption that science is foundational to rational policy making with good reason: an agency that acts without accounting for relevant scientific data is practically inviting courts to invalidate such action.<sup>332</sup> But agencies take account of scientific data for an additional reason: reasoned decisionmaking is a norm that agencies have internalized.<sup>333</sup> Adherence to this norm helps to legitimize their decisions, regardless of the possibility of judicial review.<sup>334</sup>

---

<sup>327</sup> See Juliet Eilperin & Brady Dennis, *Amid Ethics Scrutiny, EPA’s Pruitt also Finds his Regulatory Rollbacks Hitting Bumps*, WASH. POST, May 20, 2018.

<sup>328</sup> Department of Defense & EPA, Definition of “Waters of the United States”—Recodification of Preexisting Rule, Supplemental Notice of Proposed Rulemaking, \_\_ Fed. Reg. \_\_ [at 54] (June 29, 2018).

<sup>329</sup> See *supra* Part I.A, B; Scott Waldman, *Climate Webpages Erased, Obscured Under Trump—Report*, CLIMATEWIRE, Jan. 10, 2018, <https://www.eenews.net/climatewire/stories/1060070605>.

<sup>330</sup> See *supra* Part I.A.1; Atkin, *supra* note 302; Waldman & Bravender, *supra* note 282.

<sup>331</sup> Cf. Farber, *supra* note 122, at [5] (contending that the balance between agency expertise and political accountability “has shifted too far in the direction of politics rather than expertise”); Elena Kagan, *Presidential Administration*, 114 HARV. L. REV. 2245, 2356 (2001) (urging that Presidents exhibit greater deference to agency experts for “regulatory action that in large measure depends on scientific methodology and conclusions”).

<sup>332</sup> See *supra* Part III.A.

<sup>333</sup> See Thomas W. Merrill, *Presidential Administration and the Traditions of Administrative Law*, 115 COLUM. L. REV. 1953, 1955-56 (2015). Cf. Renan, *supra* note 295, at 2221-30, 2276 (discussing norm of deliberative presidency).

<sup>334</sup> See Merrill, *supra* note 333, at 1955-56; Kevin M. Stack, *An Administrative Jurisprudence: The Rule of Law in the Administrative State*, 115 COLUM. L. REV. 1985,

Courts do serve as a critical safeguard of reasoned decisionmaking when agency actions ignore relevant science. However, when an agency *fails to act* in the face of data that calls for action, judicial review is far less likely.<sup>335</sup> Doctrinal hurdles of standing and nonreviewability often bar courts from reviewing agency inaction.<sup>336</sup> In addition, the judicial review that may occur after a rulemaking petition is denied rarely results in an order to promulgate specific rules.<sup>337</sup> Thus, where inaction is at issue, the norm of reasoned decisionmaking serves as an essential mechanism for prompting an agency to respond to the science. When that norm is flouted—i.e., when an agency fails to respond to clear threats despite having the authority, mandate, and resources to do so—political and public pressure to adhere to the norm may be the only viable response.

#### **D. Collateral Effects on Research Science**

Finally, the Trump administration's actions have the potential to exacerbate the erosion of societal norms, not just agency norms, regarding science. Although the Trump administration's actions are better described as a war on regulatory science than as a war on research science, harm to research science may result as scientists avoid particular lines of inquiry or are dragged into political advocacy. Moreover, the administration's war on regulatory science is occurring against a backdrop of developments that are more broadly weakening scientific authority and influence in society.

The administration's attacks on regulatory science, including the proposed slashing of scientific research budgets, have prompted political activism by some scientists. The April 2017 March for Science, for example, attracted an estimated one million people to rallies in hundreds of locations

---

2009 (2015) (noting that “reason-giving requirements emerged for administrative agencies before courts imposed them”).

<sup>335</sup> See Lisa Schultz Bressman, *Judicial Review of Agency Inaction: An Arbitrariness Approach*, 79 N.Y.U. L. REV. 1657, 1691-92 (2004); Glen Staszewski, *The Federal Inaction Commission*, 59 EMORY L.J. 369, 376-80 (2009); see also *id.* at 384 (“The most obvious problem with the judiciary’s reluctance to review agency inaction is that it allows the Executive Branch to deviate from statutory mandates and render arbitrary and capricious decisions with impunity.”); Shapiro, *supra* note 114, at 39-40 (“The courts . . . have difficulty policing the lack of action by an agency, which can result from political pressure by regulated entities opposing regulation.”).

<sup>336</sup> See Bressman, *supra* note 335, at 1666-74. Nonreviewability doctrine is rooted in APA § 701(a), which provides that judicial review is not available under the APA where “statutes preclude judicial review” or “agency action is committed to agency discretion by law.” 5 U.S.C. § 701(a)(1), (2).

<sup>337</sup> See Staszewski, *supra* note 335, at 381-82. Indeed, even after a court has remanded an agency’s refusal to issue a rule, the agency still has little incentive to move forward with affirmative regulation. See Mark Seidenfeld, *The Long Shadow of Judicial Review*, 32 J. LAND USE & ENVTL. L. 579, 592-93 (2017).

worldwide.<sup>338</sup> While public advocacy by scientists is not inherently problematic, partisan activity by scientists risks the credibility of the scientific community.<sup>339</sup> If scientists are perceived as partisan actors, society may view their research findings as politically motivated arguments rather than as expert knowledge and accordingly discount those findings. This is problematic because science is foundational to rational agency decisionmaking as well as democratic governance.<sup>340</sup> A democratic society can identify and confront the problems it faces only if voters are informed about those problems.<sup>341</sup>

All else being equal, partisan activity by the scientific community might not be too worrisome. But not all else is equal. Postmodernist critiques have weakened science's claim to represent objective reality.<sup>342</sup> For years, powerful industries—most notably, tobacco and fossil fuel companies—have attacked and sought to defund scientists whose findings threaten their economic interests.<sup>343</sup> At the same time, technological developments—think Google, Wikipedia, and Facebook—have increased the availability but not necessarily the quality of information, undermining traditional sources of authority.<sup>344</sup> Furthermore, the Internet and splintering of media allow individuals to indulge in confirmation bias and choose their preferred versions of reality.<sup>345</sup> Together, these attacks and trends have diminished respect for scientific and other kinds of expertise.<sup>346</sup> Partisan activity by

---

<sup>338</sup> See Rebecca Leber, *Anti-Trump Science Protesters Finally Released Their Thoroughly Fact-Checked Crowd Estimates*, MOTHER JONES, May 19, 2017, <https://www.motherjones.com/environment/2017/05/how-scientists-estimate-crowds-versus-trump/>.

<sup>339</sup> See Scott Waldman, *Study Finds Public Will Tolerate Scientists as Advocates*, CLIMATEWIRE, Feb. 28, 2017, <https://www.eenews.net/climatewire/stories/1060050658>; Aldous, *supra* note 2 (suggesting risk that scientists may be perceived as “part of a liberal elite aligned with big-government Democrats”); Pielke, *supra* note 322, at 412-13 (discussing risks that science may lose its power and credibility when scientists engage in political battles).

<sup>340</sup> Cf. OTTO, *supra* note 3, at 45 (“Because it takes nothing on faith, science is inherently antiauthoritarian, and a great equalizer of political power.”).

<sup>341</sup> See *id.* (OTTO) at 53.

<sup>342</sup> See *id.* (OTTO) at 194.

<sup>343</sup> See *id.* (OTTO) at 257-337 (discussing the “industrial” war on science).

<sup>344</sup> See HARRY COLLINS, *ARE WE ALL SCIENTIFIC EXPERTS NOW?* 131 (2014) (“If we start to believe we are all scientific experts, society will change: it will be those with the power to enforce their ideas or those with the most media appeal who will make out truths, according to whatever set of interests they are pursuing.”); TOM NICHOLS, *THE DEATH OF EXPERTISE* 105-33 (2017).

<sup>345</sup> See NICHOLS, *supra* note 344, at 134-66; Allison Orr Larsen, *Constitutional Law in an Age of Alternative Facts*, 93 N.Y.U. L. REV. 175, 190-93 (2018).

<sup>346</sup> See OTTO, *supra* note 3, at 194, 203-04; Larsen, *supra* note 345, at 188-89.

scientists might provoke further attacks by a president bent on fueling populist rage at elites and experts.<sup>347</sup> While overall public confidence in scientists to act in the public interest has remained relatively high compared to other groups,<sup>348</sup> trust in scientists is generally “soft” rather than strong, and trust in scientists with respect to certain issues—including climate change—is comparatively low.<sup>349</sup>

Trump’s war on regulatory science could cause long-term damage to research science in other ways as well. Budding scientists might choose other fields of study or avoid much-needed research on disfavored topics; indeed, anecdotal evidence indicates that some scientists are avoiding any mention of climate change in grant proposals.<sup>350</sup> Further effects, such as a decline in overall scientific productivity, are possible though perhaps not immediately measurable. Canada’s experience under Prime Minister Stephen Harper offers a warning: following years of censorship of government scientists and cuts to scientific research, as well as elimination of the position of national science adviser, “Canada’s share of global scientific publications slipped, as did the number of patents attributed to inventors in Canada and the number of people enrolled in science Ph.D.s.”<sup>351</sup> The war on regulatory science in the United States could have similar effects if it is prolonged.

## Conclusion

Collectively, the Trump administration’s actions constitute a war on regulatory science. The war is being waged on multiple fronts, and itself is a subset of broader efforts to deconstruct the regulatory state. The war on regulatory science also complements other attacks and trends that have undermined traditional sources of authority. Left unchecked, the war on

---

<sup>347</sup> See GARY E. MACHLIS AND JONATHAN B. JARVIS, *THE FUTURE OF CONSERVATION IN AMERICA: A CHART FOR ROUGH WATER* 36-37 (2018); Cathleen Decker, *Trump’s War Against Elites and Expertise*, L.A. TIMES, July 27, 2017.

<sup>348</sup> See National Science Board, *Science & Engineering Indicators 2018*, at 7-61 to 7-63 (2018); Cary Funk, Pew Research Center, *Mixed Messages About Public Trust in Science* (2017), <http://www.pewinternet.org/2017/12/08/mixed-messages-about-public-trust-in-science/>.

<sup>349</sup> See Funk, *supra* note 348.

<sup>350</sup> See Scott Waldman, *Future Climate Scientists Concerned But Not Cowed by Trump*, CLIMATEWIRE, May 8, 2017; “*Self-Censorship*” as “*Climate Change*” Is Omitted from Grant, CLIMATEWIRE, Nov. 30, 2017.

<sup>351</sup> Christopher Flavelle, *For the Impact of Trump Slashing Science Funding, Look North*, BLOOMBERG, July 21, 2017, <https://www.bloomberg.com/news/articles/2017-07-21/for-the-impact-of-trump-slashing-science-funding-look-north>; see Nicola Jones, *Science Vies for Notice in Canadian Election*, 525 NATURE 437, 437 (2015).

regulatory science threatens vital health and environmental protections and even our democracy.

How can the war on regulatory science be countered? Courts offer one partial avenue for responding, but their reach is limited. Much agency activity lies beyond effective judicial review. Internal administrative law and agency norms are also important, but their enforcement cannot be entrusted to the executive branch alone. Ultimately, broad-based and multi-pronged resistance—at the ballot box, through public protests and political pressure, and via nonfederal and private support for scientific inquiry and data availability—may be necessary to ensure the vitality of science-based decisionmaking in the public interest.