

AGENCY REASONS AT THE INTERSECTION OF EXPERTISE AND PRESIDENTIAL PREFERENCES

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Today, no one seriously challenges the descriptive premise that presidential preferences influence the decisions of administrative agencies. But this view of agency decisionmaking departs significantly from historical views. As the administrative state expanded in the early twentieth century, its proponents viewed agencies as bureaucratic experts capable of applying technical and scientific knowledge to pressing social problems. The expertise model of agency decisionmaking continues to inform contemporary judicial doctrine, even as some legal scholars have embraced the presidential-control model. This Article contributes to the debate regarding these two models of agency decisionmaking by analyzing the potential effects of each model on agencies' evaluation of scientific knowledge and judicial review of agency reasoning regarding science.

The Article begins with an overview of the history of the reason-giving requirement in judicial doctrine and a discussion of the role of "rationality" in reason giving. Both the expertise and the presidential-control models attempt to draw lines between rational (expert) judgment and political reasons. Line drawing is a futile exercise given the contingent nature of scientific knowledge, the value judgments inherent in policy science, and the post-positivist critique of knowledge generally. In addition, when agencies are subject to strong presidential control, they are likely to engage in "motivated reasoning" toward political ends.

The Article concludes by proposing an approach to judicial review that recognizes the reality of agencies' motivated reasoning about scientific knowledge, as well as the impossibility of drawing lines between scientific rationality and presidential preferences. By identifying the "danger signals" associated with motivated reasoning, judicial review can ensure that an

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agency's role as presidential policymaker does not interfere with the agency's statutory responsibilities to use expert judgment. Contrary to what some scholars have argued, when an agency is acting pursuant to a presidential directive, its decisions require more, not less, scrutiny.

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INTRODUCTION

Federal agencies under the Trump Administration have embraced the President’s agenda of environmental deregulation. For example, the U.S. Environmental Protection Agency (EPA) is currently in the process of rescinding or revising several Clean Air Act regulations, including greenhouse-gas-emissions standards for new and existing power plants, methane-emissions standards for new oil and gas operations, and the 2015 air quality standard for ozone pollution.¹ The EPA and U.S. Army Corps of Engineers (Army Corps) are also engaging in efforts to rescind and replace a Clean Water Act regulation that clarifies the reach of federal jurisdiction.² Other agencies, including those charged with managing federal public lands, are similarly following the anti-regulatory agenda.³ In many cases, agencies have sought to stay or postpone compliance deadlines and have attempted to circumvent the notice-and-comment rulemaking process by issuing guidance documents⁴ and limiting the public comment period for key policy changes.⁵

1. See Clay Taylor et al., *The Changing Regulatory and Legal Landscape of Air Quality and Climate Change Law under the Trump Administration 1–2* (Rocky Mtn. Min. L. Found. Special Inst. 2018). In addition, the Environmental Protection Agency (EPA) and U.S. Department of Transportation (DOT) recently sent proposed revisions to fuel efficiency standards to the White House Office of Management and Budget (OMB). See Maxine Joselow, *Revised Standards under Review at White House*, E&E NEWS (May 31, 2018), <https://www.eenews.net/greenwire/stories/1060083111/search?keyword=Revised+Standards+under+Review+at+White+House> (stating that EPA and DOT’s proposal is seen as rolling back Obama-era standards).

2. See Ariel Wittenberg, *White House Beefs Up WOTUS Repeal*, E&E NEWS (June 29, 2018), <https://www.eenews.net/eenewspm/2018/06/29/stories/1060087445> (stating that the Trump administration’s proposed supplement in effect repeals the 2015 regulation).

3. See Michael C. Blumm & Olivier Jamin, *The Trump Public Lands Revolution: Redefining “the Public” in Public Land Law*, 48 ENVTL. L. 311, 336 (2018); Adam Aton, *Jewell: Trump’s Rollbacks Fill 11 Pages—“Single-Spaced,”* E&E NEWS (June 27, 2018), <https://www.eenews.net/climatewire/stories/1060086589?t=https%3A%2F%2Fwww.eenews.net%2Fstories%2F1060086589>.

4. One example is the EPA’s guidance document on the Obama Administration’s rule phasing out the use of hydrofluorocarbons. See Amanda Reilly, *States, Enviro Beef Up Defense of Obama HFC Rule*, E&E NEWS (June 28, 2018), <https://www.eenews.net/climatewire/2018/06/28/stories/1060087185>.

5. For example, the Council on Environmental Quality recently issued an advance notice

Changes in administrative policy from one administration to the next are an expected part of our political system. The current shift in administrative policy is notable for two reasons. First, the political end, namely, deregulation, is an explicit presidential directive guiding all environmental policymaking. Second, the policy shift targets the kind of administrative policymaking that we often imagine is best left to “expert” agencies. The Trump Administration’s far-reaching effort to roll back environmental policies will lead to judicial review of numerous administrative policies based on evaluations of scientific knowledge.

This clear emphasis on political ends over technical means presents an opportunity to examine some of our assumptions about judicial review of agency science. Federal courts often quote language from a 1983 Supreme Court decision to support the idea that judicial review of agency decisionmaking is most deferential when an agency “is making predictions, within its area of special expertise, at the frontiers of science . . . as opposed to simple findings of fact.”⁶ Courts do not, however, uniformly apply this highly deferential standard to decisions requiring evaluation of science, often noting their responsibilities to engage in hard-look review.⁷ Moreover, substantial scholarly literature on the “science charade” has demonstrated how agencies mischaracterize scientific understanding in order to cloak policy judgments, suggesting the need for judicial oversight.⁸

Not surprisingly, courts and commentators have responded to the problems of industry influence and increased presidential control by requiring that agencies explain their decisions in strictly technical and apolitical terms.⁹

of proposed rulemaking (ANPRM) soliciting public comment on revisions to National Environmental Policy Act (NEPA) regulations. The notice asks for comments on virtually all aspects of the NEPA process, including the interpretation of well-established legal terms. Given the breadth of the notice, environmental groups have objected to the thirty-day time limit for public comment. See Cecelia Smith-Schoenwalder, *Groups Request More Time to Comment on NEPA Overhaul*, E&E NEWS (June 27, 2018), <https://www.eenews.net/eenewspm/stories/1060086657>.

6. *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 103 (1983).

7. See Emily Hammond Meazell, *Super Deference, the Science Obsession, and Judicial Review as Translation of Agency Science*, 109 MICH. L. REV. 733, 733 (2011).

8. See Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUM. L. REV. 1613, 1617 (1995).

9. Some scholars have argued that the Supreme Court’s holding in *Massachusetts v. EPA*, 549 U.S. 497 (2007), is an example of this trend toward requiring apolitical, expert-driven reasoning. See, e.g., Jody Freeman & Adrian Vermeule, *Massachusetts v EPA: From Politics to Expertise*, 2007 SUP. CT. REV. 51, 52 (2007).

In their view, political motivations are not legitimate reasons for agency decisionmaking.¹⁰ In focusing on the agency as expert, this literature has supported proposals for increasingly technical administrative records and inspired calls for judicial oversight of agency science.¹¹ Some commentators have even argued for a kind of regulatory “*Daubert*” standard that would arguably allow judges to question the reliability of an agency’s evaluation of the science.¹²

Nevertheless, other scholars have questioned these approaches to judicial review, arguing that presidential control of agencies is the practical, and perhaps desired, reality of the modern administrative state.¹³ These scholars observe that presidential control has expanded greatly since the Reagan Administration, but that administrative law has yet to adapt. According to these commentators, the view of agencies as experts results in “expertise forcing,” leading courts to characterize expert reasons as “good” and political motives as “bad,” instead of recognizing the legitimate role of politics in agency decisionmaking.¹⁴ In their view, because agencies may legitimately rely on presidential policy judgments, when Congress has not said otherwise, courts should not automatically reject political influence as a basis for reasoned decisionmaking when reviewing agency action.¹⁵

This Article contributes to the debate regarding the two models of agency decisionmaking by analyzing the potential effects of each model on the representation of scientific knowledge by agencies and courts. Given its focus on scientific reasoning, the expertise model may seem the stronger candidate for furthering reliable science communication among agencies, courts, and the public. Perhaps, however, the presidential-control model encourages more reliable representations of agency science because it allows agencies to be candid about political motivations, rather than hiding behind questionable scientific justifications.¹⁶

10. See *id.* at 93–94 (arguing that *Mass. v. EPA* was part of a larger trend towards increasing suspicions that the Bush Administration had politicized administrative decisions).

11. See *id.* at 70 (arguing that a generous application of the *Lujan* framework may expand the scope of standing and allow for more judicial oversight of executive action).

12. See 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 & CONTEMP. PROBS. 7, 7–8 (2003).

13. See, e.g., Elena Kagan, *Presidential Administration*, 114 HARV. L. REV. 2245, 2332–46 (2001) (arguing that presidential administration furthers democratic accountability and regulatory effectiveness).

14. See, e.g., Kathryn A. Watts, *Controlling Presidential Control*, 114 MICH. L. REV. 683, 683 (2016).

15. *Id.* at 731.

16. See Kathryn A. Watts, *Proposing a Place for Politics in Arbitrary and Capricious Review*, 119

Both models require a more nuanced understanding of agency decisionmaking than either side of the debate has acknowledged. This complexity is a result of both the intrinsic nature of scientific inquiry and the serious obstacles to effective communication about science. Scientific understanding is iterative and contingent.¹⁷ It is based on probabilistic inferences and complex models. Unlike legal determinations that seek certain and final resolution, scientific knowledge is by its nature uncertain and open to revision. Policy-relevant science also incorporates value judgments and assumptions, blurring the line between political reasoning and scientific reasoning. Post-modern turns in policy studies and other academic circles have also blurred this line, undermining the presidential-control model's assumption that disclosure of political reasons will lead to more transparency in scientific reasoning.

In addition, as scholars of behavioral economics and cultural-cognition studies have shown, people do not process information about science in an "objective" way.¹⁸ Our understanding of risk, for example, is often clouded by cognitive biases and a form of "motivated" reasoning that leads people to reject valid science when it challenges core cultural values and identities.¹⁹ These tendencies help explain the persistent denial of scientific evidence of human-caused climate change in some segments of the U.S. population, as well as other anti-science movements such as the anti-vaccine movement. In fact, these controversies have something in common. In each case, the science "deniers" are not simply rejecting the weight of scientific evidence; they are rejecting a clear scientific consensus.²⁰

The cultural-cognition literature on motivated reasoning explains this result. It also suggests that agencies subject to strong presidential control are likely to engage in motivated reasoning toward political ends. This literature therefore supports models of agency decisionmaking and judicial review that

YALE L.J. 2, 40 (2009) (suggesting that disclosing political factors might create a more effective separation between science and politics by removing some political pressure from science).

17. See generally PAUL DICKEN, *GETTING SCIENCE WRONG: WHY THE PHILOSOPHY OF SCIENCE MATTERS* (2018).

18. See, e.g., DANIEL KAHNEMAN, *THINKING, FAST AND SLOW* (2013); PAUL SLOVIC, *PERCEPTION OF RISK* 222 (Paul Slovic ed., 2000).

19. See DAN KAHAN, *On the Sources of Ordinary Science Knowledge and Extraordinary Science Ignorance*, *THE OXFORD HANDBOOK OF THE SCI. OF SCI. COMM.* 1, 15 (Kathleen Hall Jamieson et al. eds., 2017).

20. As it turns out, the emphasis on consensus may have had unintended consequences. Instead of settling the debate, it has allowed politically motivated interests to cherry pick and distort scientific understanding in the name of scientific uncertainty. See KATHLEEN HALL JAMIESON, *The Need for a Science of Science Communication: Communicating Science's Values and Norms*, *OXFORD HANDBOOKS OF THE SCI. OF SCI. COMM.* 1, 7–8 (Kathleen Hall Jamieson et al. eds., 2017).

protect the science communication environment by acknowledging the reality of motivated agency reasoning. Courts struggle with when and how much to defer to agency decisions and interpretations of law. This Article proposes an approach to judicial review that recognizes the reality of agencies' motivated reasoning about scientific knowledge, as well as the impossibility of drawing lines between scientific rationality and presidential preferences. Doctrines of judicial review should incorporate the "danger signals" associated with motivated reasoning to ensure that agencies further their statutory responsibilities. Indeed, when an agency is acting pursuant to a presidential directive, its decisions require more, not less, scrutiny.

The Article proceeds as follows. Part II explores the reason-giving requirement in judicial doctrine and historical models of agency decisionmaking, including the expertise and presidential-control models. This Part concludes by examining the constitutional, theoretical, and functional underpinnings of political reasons in agency decisionmaking. Part III first explores the place of rationality in agency decisionmaking in both the expertise and the presidential-control models. It then argues that the line between politics and science assumed by both models is tenuous because of the nature of scientific inquiry, the value judgments inherent in policy-relevant science, and the post-positivist turn in policy studies. The last section of Part III explores how behavioral economics and cultural-cognition studies have helped redefine rationality to capture how individuals actually assess risks and make decisions. Cultural-cognition studies and the broader literature on the science of science communication demonstrate how it can be rational for people to engage in "identity-protective" (or "motivated") reasoning that contradicts the weight of scientific evidence.

Part IV proposes ways in which courts can apply judicial-review doctrines as a check on motivated reasoning in agency decisions that rely on scientific knowledge and evidence. Traditional doctrines such as those governing arbitrary-and-capricious review and *Chevron* deference should be modified so that they explicitly provide less deference when agencies are most motivated to reach outcomes consistent with presidential preferences. Specifically, a hard-look review is necessary when a court can identify certain "danger signals" such as a polluted science communication environment, unsupported agency assumptions, or a reversal in an agency's position; these "danger signals" are red flags that the agency may be motivated to evaluate policy-relevant science not as a neutral expert, but as a presidential policymaker. Moreover, in reviewing agency interpretations of law, courts should adopt a default science-consideration rule for statutes governing environmental and public health risks. In these cases, courts should presume that agencies must consider all relevant scientific evidence in the absence of clear congressional intent to the contrary.

I. REASON GIVING IN ADMINISTRATIVE LAW: DOCTRINE AND THEORY

The reason-giving requirement in contemporary judicial doctrine and theory is a product of historical and political changes in the administrative state. Today, no one would seriously dispute the notion that agencies make laws and that the President influences the policy positions that these laws take. But this was not always the case. As the administrative state expanded in the early twentieth century, its proponents viewed agencies as bureaucratic experts capable of applying technical and scientific knowledge to pressing social problems. This conception of agencies as bureaucratic experts continues to inform contemporary judicial doctrine, even though some legal scholars have questioned it. This Part examines the reason-giving requirement with a focus on its historical development leading up to and ending with the presidential-control model.

A. *The Reason-Giving Requirement in Judicial Doctrine*

In the early years of U.S. administrative law, the legitimate reasons for an agency decision were limited to those showing an agency's highly constrained implementation of legislative directives.²¹ This early model of administrative law did not recognize agency discretion to fill "gaps" in legislative policymaking or to arrive at social policies using expert judgment. Only the legislature could enact laws that governed the conduct of private individuals; an administrative agency was simply a "transmission belt for implementing legislative directives in particular cases."²² Judicial review of agency action was therefore limited to ensuring that agencies remained within this constrained sphere.

As every student of administrative law knows, this dynamic changed dramatically with 1930s New Deal legislation that created administrative agencies like the National Labor Relations Board to whom Congress delegated considerable power and discretion.²³ In response to concerns about unchecked administrative power, Congress enacted the Administrative Procedure Act (APA) in 1946, which sets out different standards for judicial review of agency rules and actions.²⁴ Since then, courts have reviewed the majority

21. See Richard B. Stewart, *The Reformation of American Administrative Law*, 88 HARV. L. REV. 1667, 1673 (1975) (arguing that requiring agencies to conform to specific legislative directives not only legitimizes administrative action but also curbs officials' ability to vent private prejudices).

22. *Id.* at 1675 (claiming that this model justifies intrusions into private liberties by ensuring the intrusions are directed by the legislature).

23. See *id.* at 1677.

24. 5 U.S.C. § 706 (2012).

of agency decisionmaking—in the form of notice-and-comment rules and informal adjudications—under the APA’s “arbitrary and capricious” standard, which directs courts to “set aside agency action, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.”²⁵ In response to the expanded authority of New Deal agencies, courts acknowledged the need for discretion in exercising expert judgment, but nevertheless demanded that agencies articulate reasons for choosing one course of action over another in order to ensure a rational relationship to legislative goals.²⁶

As the administrative state continued to grow, culminating in the Great Society programs and environmental and health-and-safety legislation of the 1960s and 1970s, so did agency power and discretion. Contemporary doctrine governing an agency’s reason-giving responsibilities largely comes from this time period. In a 1971 case, *Citizens to Preserve Overton Park, Inc. v. Volpe*,²⁷ the Supreme Court made clear that agencies must explain how they reach their decisions.²⁸ The case involved a challenge to the Secretary of Transportation’s decision to authorize funds for a six-lane highway through a public park in Memphis.²⁹ The Court interpreted the APA’s language to require review of “whether the decision was based on a consideration of relevant factors and whether there has been a clear error of judgment.”³⁰ Applying this standard, the court held that the “‘post hoc’ rationalizations” offered by the Secretary in response to litigation did not adequately disclose the factors and evidence considered.³¹

Just over a decade later, the Supreme Court further elaborated on the reason-giving requirement in the context of an agency rulemaking. In *Motor Vehicle Manufacturers Ass’n v. State Farm Mutual Automobile Insurance Co.*,³² the Court vacated a National Highway Traffic Safety Administration rule re-

25. *Id.* § 706(2)(A). The reason-giving requirements imposed by judicial review under another standard—the “substantial evidence” standard—are similar, if not the same as those that apply to arbitrary and capricious review, even though the standards apply to decisions subject to different procedures.

26. *See, e.g., Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962) (invalidating agency action when the agency “made no findings specifically directed to the choice between two vastly different remedies with vastly different consequences” and failed to “articulate any rational connection between the facts found and the choice made”).

27. 401 U.S. 402 (1971).

28. *See, e.g., id.*

29. *See id.* at 406.

30. *Id.* at 416 (finding that the agency failed to supply the requisite “reasoned analysis”).

31. *Id.* at 419.

32. 463 U.S. 29 (1983).

scinding a previous requirement that car manufacturers install airbags or automatic seatbelts in all vehicles.³³ In addition to quoting language from *Overton Park*, the Court identified the flaws in agency reasoning that could result in an arbitrary and capricious rule:

Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.³⁴

Using this standard to scrutinize the agency's explanations, the Court held that the agency did not conduct a "reasoned analysis" because the agency failed to consider an airbags-only requirement and failed to adequately explain its rejection of both nondetachable and detachable automatic seatbelts.³⁵

State Farm's more searching review of an agency decisionmaking process clearly requires more than the "concise general statement of [a rule's] basis and purpose" that the APA requires for rules promulgated using the notice-and-comment process.³⁶ Indeed, commentators have questioned the legality of this expansion of judicial review under the APA.³⁷ Despite its apparent nonconformity with APA requirements, the requirement that an agency engage in a "paper hearing" that details the agency's "reasoned analysis" is well established.

Indeed, the reason-giving requirement is particularly entrenched in the field of environmental law due to a strand of doctrine crafted by Judge Leventhal on the D.C. Circuit Court of Appeals. In 1970, Judge Leventhal called for courts to scrutinize agency decisions when certain "danger signals" indicate that an agency has not taken a "hard look" at the salient problems.³⁸ "Danger signals" can be substantive, such as an agency decision that appears contrary to its statutory purpose, or procedural, such as a failure to respond to a significant factual objection.³⁹ They are essentially red flags

33. See *id.* at 57.

34. *Id.* at 43.

35. *Id.* at 57.

36. 5 U.S.C. § 553(c) (2012).

37. See Cass R. Sunstein & Adrian Vermeule, *The New Coke: On the Plural Aims of Administrative Law*, 2015 SUP. CT. REV. 41, 56 (2015) (discussing the arguments that "'hard look' review" is in conflict with the APA's text and the Supreme Court's decision in *Vermont Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc.*).

38. Greater Boston Television Corp. v. FCC, 444 F.2d 841, 851 (1970) (explaining that a court should exercise restraint in overturning agency decisions when the agency "genuinely engage[s] in reasoned decision-making").

39. See Samuel Estreicher, *Pragmatic Justice: The Contributions of Judge Harold Leventhal to Administrative Law*, 80 COLUM. L. REV. 894, 904–06 (1980) (discussing the "danger signals" identified in Judge Leventhal's opinions).

that suggest that the agency was influenced by the “unconscious preference and irrelevant prejudice” that undermine “reasoned decision-making.”⁴⁰

The Supreme Court quoted Judge Leventhal’s hard look language from a 1976 decision involving the National Environmental Policy Act (NEPA), and today the hard-look doctrine routinely appears in judicial decisions reviewing the adequacy of agencies’ environmental impact analyses under NEPA.⁴¹ It has no doubt played a role in the considerable judge-made law regarding reason-giving under NEPA. Agencies must analyze, for example, not only the direct environmental effects of their actions on the environment, but also the indirect and cumulative effects of their actions.⁴² Agencies may not rely on uncertainty in predicting or assessing these impacts; even if the extent of an impact is uncertain, the agency must nevertheless analyze the nature of reasonably foreseeable impacts.⁴³ Courts have, for example, rejected agency analyses that fail to take a hard look at indirect and cumulative climate costs of greenhouse gas emissions from federal mining authorizations, particularly when the agency estimated the benefits of a mining operation, but not the environmental (climate) costs.⁴⁴ Judge Leventhal would likely agree with these decisions because failure to include cost estimates in a cost-benefit analysis looks like a danger signal that the agency has failed to engage in reasoned decisionmaking.

B. Reasoned Decisionmaking and Political Reasons

1. From Experts to Policymakers: The Rise of the Presidential-Control Model

In the early years of the administrative state, Woodrow Wilson and other progressives envisioned an active role for government in correcting social

40. *Greater Boston Television Corp.*, 444 F.2d at 852.

41. *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n.21 (1976) (quoting *Nat. Res. Def. Council, Inc. v. Morton*, 458 F.2d 827, 838 (D.C. Cir. 1972) (opinion by Judge Leventhal)).

42. 40 C.F.R. §§ 1508.7–1508.8 (defining indirect and cumulative effects).

43. *See Mid St. Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549–50 (8th Cir. 2003) (finding that degradation in air quality must be addressed if it is “reasonably foreseeable”).

44. *See, e.g., WildEarth Guardians v. U.S. Bureau of Land Mgmt.*, 870 F.3d 1222, 1236–37 (10th Cir. 2017) (establishing that the Bureau of Land Management (BLM) irrationally analyzed the effects of increased coal consumption); *Mont. Env’tl. Ctr. v. U.S. Office of Surface Mining*, 274 F. Supp. 3d 1074, 1098 (D. Mon. 2017) (finding that agency’s failure to take a “hard look” at the costs of greenhouse gas emissions rendered its conclusions illogical); *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014) (concluding that an agency’s failure to quantify the costs of lease modifications rendered its decision arbitrary and capricious).

problems resulting from free-market externalities.⁴⁵ They believed that federal agencies could use their expertise to implement new federal statutes addressing social problems such as food safety and market monopolies. The expansion of the administrative state under the New Deal built on this idea that agencies—removed from politics and political influence—could implement legislative goals using their objective expert judgment. Courts reviewing agency decisions largely treated agencies as experts, rather than “policy” makers, and deferred to their expert judgments regarding how best to implement congressional goals.

In time, this technocratic “expertise” model of decisionmaking could not accommodate the reality of the administrative state.⁴⁶ Environmental and public health statutes directed agencies to achieve open-ended goals like clean air and workplace safety. In setting standards, agencies had to grapple with complex science and make decisions about how to assess environmental and health risks including how much risk to accept given the economic costs of regulation. The reality that agencies made value judgments was apparent. The industries and groups that would bear the costs of new regulation predictably used their organized concentrated power to influence agency judgments. Environmental and consumer groups organized in favor of more stringent protections. The interest-group era of agency decisionmaking had arrived.⁴⁷

There were attempts to give this new reality theoretical legitimacy by portraying agency decisionmaking as a democratic process that reconciles competing interests, a model that mirrors the interest-group theory of legislation.⁴⁸ Soon, however, commentators recognized the susceptibility of agencies to capture by concentrated interests and raised concerns about political accountability.⁴⁹ Indeed, unlike the legislature or the President, agen-

45. See Larry Walker, *Woodrow Wilson, Progressive Reform, and Public Administration*, 104 POL. SCI. Q. 509, 512 (1989) (characterizing early progressivism as a “rebellion against limited government and the individualism of nineteenth-century liberalism”); Karl Patterson Schmidt et al., *The Progressive Era, United States*, ENCYC. BRITANNICA, <https://www.britannica.com/place/United-States> (explaining the origins of progressivism as numerous local movements rather than a unified national crusade).

46. See Stewart, *supra* note 21, at 1677 (positing that it would be unwise for Congress to lay down overly detailed descriptions of regulations in advance and inefficient to require agency administrators to adhere to inflexible judicial procedures).

47. See *id.* at 1712 (analogizing the influence of interest groups in agency decisionmaking to the legislative process).

48. See *id.* at 1756–60 (emphasizing agency administrators’ duty to consider all participating interests in agency decisionmaking).

49. See *id.* at 1789 (raising the question whether the administrative law system assures the representation of all affected interests in agency proceedings).

cies are not elected by the people. To ensure a more democratic decisionmaking process, scholars suggested changes to administrative structures, including direct election of agency officials, selection of agency officials by interest groups, and negotiated rulemaking.⁵⁰ Except for negotiated rulemaking, these changes did not occur, and the problem of political accountability remained.

As this debate continued, presidential involvement in the administrative decisionmaking process was undergoing a tremendous change, culminating in the Reagan Administration's institutionalization of White House oversight of agency rulemaking. By executive order, President Reagan subjected agency rules to cost-benefit analysis in the White House Office of Management and Budget (OMB), a practice that (under Reagan) generally advanced a deregulatory agenda.⁵¹ President Clinton made modest changes to OMB oversight (notably increasing the transparency of White House review), but nevertheless continued the practice.⁵² He also used his power to issue executive orders to control the direction of agency policymaking⁵³—a practice President Obama enthusiastically embraced and President Trump has used, not only to further a general deregulatory agenda but also to order specific review of Obama-era rules.

The reality that presidents were shaping—and even determining—regulatory decisionmaking needed theoretical justification, a void that then-Professor Kagan filled with her seminal article *Presidential Administration*.⁵⁴ She

50. See *id.* at 1791–97. Calls for negotiation in rulemaking actually resulted in amendments to the Administrative Procedure Act (APA). See 5 U.S.C. §§ 561–70 (2012) (establishing a framework for the conduct of negotiated rulemaking).

51. See Kagan, *supra* note 13, at 2277–80 (explaining that President Reagan issued Executive Order 12,291 to limit agencies to regulating only when the benefits of doing so outweighed the costs). Executive Order 12,291 governs the White House review process; it requires agencies to conduct a regulatory impact analysis (including a cost-benefit comparison) and to submit this analysis to OMB's Office of Information and Regulatory Affairs before publication of a major rule. See Exec. Order No. 12,291, 46 Fed. Reg. 13,193, 13,193–97 (Feb. 17, 1981).

52. See Kagan, *supra* note 13, at 2285–86.

53. See *id.* at 2292. According to Kagan, President Reagan issued only nine directives to agency heads regarding regulatory policy. *Id.* at 2294. In comparison, President Clinton issued 107. *Id.*

54. *Id.* The view that the President should direct agency rulemaking has a much longer history, of course. President Roosevelt, for example, urged Congress to make agency structures more accountable to the President, and the contemporaneous Brownlow Committee Report concluded that the Constitution requires presidential oversight. See Adam J. White, *Executive Orders as Lawful Limits on Agency Policymaking Discretion*, 93 NOTRE DAME L. REV. 1569, 1579–80 (2018).

argued not only that presidents do influence agency policymaking, but also that presidents *should* influence agency policymaking.⁵⁵ This normative turn helped solve agencies' political accountability problem. If agencies' value judgments under statutory directives are shaped by presidential policy, citizens can hold them accountable. If they disagree with the policies, they can vote accordingly in the next presidential election.

2. *The Legitimacy of Political Reasons*

Of course, citizens cannot hold the President accountable unless policy preferences are clear. The presidential-control model therefore supports broad disclosure of presidential directives and influence. That is, it supports disclosure of explicitly *political* reasons as part of the reasoned decisionmaking process. Since the publication of Justice Kagan's article, a body of legal scholarship and judicial doctrine has engaged the core questions around the legitimacy of these political reasons. These questions implicate constitutional issues regarding separation of powers, democratic concerns about the political accountability of the administrative state, and bureaucratic values of efficiency and competency in administrative governance. The following discussion is by no means a comprehensive overview of the literature debating these questions. My intent is only to sketch the broad contours of recent developments to demonstrate that the debate about the presidential-control model of administrative agencies is of central and growing importance to administrative law.

a. *Constitutional Support*

The Constitution does not speak directly to whether and how much the President may direct an administrative official's policymaking authority.⁵⁶ As Kagan noted in first addressing the constitutional foundations of presidential administration, the body of Supreme Court precedent most on point

55. Kagan, *supra* note 13, at 2331.

56. Article II of the Constitution gives the President the power to appoint "officers of the United States" ("with the advice and consent of the Senate") and gives Congress the power to "vest the appointment of such inferior officers" in the President, the "courts of law," or "heads of departments," and the power to order department heads to submit written opinions. U.S. CONST. art. II, § 2. It also gives the President the responsibility to "take care that the laws be faithfully executed." *Id.* § 3. Although the Appointments Clause and the Take Care Clause certainly support presidential oversight of agencies' execution of federal law, they are silent about whether Congress may limit the President's removal power and whether the President may direct the discretion of an agency official to whom Congress has delegated authority. They obviously also fail to anticipate the contemporary role of agencies as lawmakers and managers of the administrative state.

is a line of cases regarding the President's removal power. The central question in these cases is whether Congress can limit the President's power to dismiss administrative officials at will, allowing dismissal for purely policy or personal reasons. The less power Congress has to limit this authority, the stronger the inference that the President is constitutionally vested with authority to control the exercise of administrative discretion.

At the time of Kagan's writing, the removal cases arguably permitted congressional restrictions on presidential removal of the heads of independent agencies as long as Congress did not reserve for itself a role in removal decisions (thereby "aggrandizing" legislative power at the expense of executive power).⁵⁷ Given this precedent, Kagan declined to adopt a "unitarian" view of executive power that would render all legislative limits on presidential control of agencies unconstitutional.⁵⁸ Instead, she argued that the question of whether the President may direct agency discretion is essentially one of statutory interpretation because Congress can make clear its intent to limit presidential control in the statute delegating authority to an agency official.⁵⁹ When Congress is silent about presidential influence, she would presume that it intended a delegation to an agency official to be "subject to the ultimate control of the President."⁶⁰

A statutory presumption based on congressional silence invites obvious objections, but the debate has largely shifted as the constitutional theory of the unitary executive has gained ground both in the Supreme Court and in legal scholarship. Writing for the Court in 2010, in *Free Enterprise Fund v. Public Co. Accounting Oversight Board*,⁶¹ Chief Justice Roberts struck down a dual for-cause requirement on presidential removal as inconsistent with "Article II's vesting of the executive power in the President."⁶² The Securities and Exchange Commission (SEC) could dismiss the relevant agency officials only for cause, and the Court assumed that the President could not dismiss SEC commissioners except for cause, creating a "dual for-cause" requirement.⁶³

57. See Kagan, *supra* note 13, at 2322–25.

58. See Kagan, *supra* note 13, at 2326 (arguing that Article II of the Constitution is not precise enough to support the "unitarian" position that the President has plenary power over the agencies and that Supreme Court cases limiting presidential removal authority are unlikely to be overturned).

59. See *id.* at 2327–28.

60. *Id.* at 2326–27. Nina Mendelson has made a similar argument. See Nina A. Mendelson, *Another Word on the President's Statutory Authority over Agency Action*, 79 *FORDHAM L. REV.* 2455, 2459, 2470 (2011) (employing Kagan's reasoning to reach conclusions that Congressional intent may impart executive control to the head of an agency rather than the President).

61. 561 U.S. 477 (2010).

62. *Id.* at 484 (5–4 opinion).

63. See *id.* at 492, 495–96 (clarifying that the law at issue has the effect of enabling the

In concluding that these congressional limits are unconstitutional, Chief Justice Roberts relied on arguments based in original meaning and democratic values to support an expansive view of presidential control over the administrative state.⁶⁴ In sum, to ensure the preservation of liberty and political accountability, the constitutional separation of powers requires that those who execute the law be subordinate to the President.⁶⁵ To permit otherwise, the argument goes, would be to turn independent administrative agencies into a “headless Fourth Branch” of government that is accountable to no elected official or body.⁶⁶

Justice Scalia was an early proponent of the unitary executive on the Court.⁶⁷ As a judge on the D.C. Circuit, Justice Kavanaugh articulated this view in unequivocal terms:

The independent agencies collectively constitute, in effect, a headless fourth branch of the U.S. Government. They hold enormous power over the economic and social life of the United States. Because of their massive power and the absence of Presidential supervision and direction, independent agencies pose a significant threat to individual liberty and to the constitutional system of separation of powers and checks and balances.⁶⁸

Supreme Court precedent has maintained the distinction between independent and executive agencies, but the unitary executive theory appears to be growing in strength, making the presidential-control model both a practical and perhaps soon-to-be constitutional reality.

SEC to exercise removal power without the President’s input, a scenario that is distinguishable from Supreme Court precedent since it results in the Commissioners being accountable only to themselves, as opposed to the President).

64. *See id.* at 496–98, 501 (suggesting that the Framers intended to limit how much the President could delegate his removal powers because power to delegate could vest accountability in individuals that the public did not elect).

65. *See id.* (emphasizing that preservation of the President’s removal power maintains the government’s structure as the Framers intended by preventing a branch from arbitrarily exercising its power against the public).

66. The phrase “headless fourth branch of government” likely originated with the Brownlow Commission that President Franklin D. Roosevelt created to study administrative procedure. *See* PRESIDENT’S COMM. ON ADMIN. MGMT: ADMINISTRATIVE MANAGEMENT IN THE GOVERNMENT OF THE UNITED STATES 29 (1937) (describing independent agencies as a “new and headless ‘fourth branch’ of the Government”).

67. *See, e.g.,* *Freytag v. Comm’r of Internal Revenue*, 501 U.S. 868, 906–07 (1991) (Scalia, J., concurring in part and concurring in the judgment) (arguing that the Constitution requires Congress to refrain from imposing on the President’s enumerated power to appoint the heads of departments and provides the President with “means to resist legislative encroachment upon that [appointment] power”).

68. *PHH Corp. v. Consumer Fin. Prot. Bureau*, 881 F.3d 75, 165 (D.C. Cir. 2018) (Kavanaugh, J., dissenting).

A telling example of the inroads of presidential administration in judicial thinking occurred this past term in an opinion authored by Justice Kagan. In *Lucia v. SEC*,⁶⁹ the Court held that SEC administrative law judges (ALJs) are “officers” subject to the Appointments Clause.⁷⁰ Given the holding in *Free Enterprise*, the APA’s requirement that ALJs be removed only for “good cause” may be an unconstitutional restriction on the President’s removal power, a result Justice Breyer highlights in his concurrence.⁷¹ Such a holding would open the door to political dismissals of ALJs. What is notable is that Justice Kagan did not even note the potential implications of the Court’s holding on the administrative state, a silence that perhaps suggests acceptance of the consequences that flow from the presidential-control model.

Although it now appears that the train may be leaving the station, its path is still unclear. Prominent jurists and legal scholars oppose the presidential-control model supported by proponents of a unitary executive. Some arguments challenge the constitutional underpinnings of the unitary executive either by emphasizing the absence of textual or historical evidence for this view,⁷² or by characterizing the unitary executive as an encroachment on the legislative branch.⁷³ Gillian Metzger has even argued that the reality of presidential administration coupled with broad delegations to agencies by Congress makes the administrative state a constitutional obligation: a President cannot fulfill the constitutional duty to “take care that the laws be faithfully executed” without a professional bureaucracy that can ensure effective government and manage delegated authority so that it is not used arbitrarily.⁷⁴

69. 138 S. Ct. 2044 (2018).

70. *Id.* at 2055.

71. *See id.* at 2059–60 (Breyer, J., concurring in the judgment in part and dissenting in part) (stressing that the Court’s holding is sensible only if it also applies to all administrative law judges (ALJs)).

72. *See, e.g.,* Lawrence Lessig & Cass R. Sunstein, *The President and the Administration*, 94 COLUM. L. REV. 1, 2 (1994) (arguing that an original understanding of the framers’ intent reveals that they “imagined not a clear executive hierarchy with the President at the summit, but a large degree of congressional power to structure the administration as it thought proper”); Robert V. Percival, *Presidential Management of the Administrative State: The Not-So-Unitary Executive*, 51 DUKE L.J. 963, 967 (2001) (discussing the paucity of constitutional text regarding “the role of the president in managing administrative agencies”). For an argument that the Constitution’s text supports a strong unitary executive, *see* Steven G. Calabresi & Saikrishna B. Prakash, *The President’s Power to Execute the Laws*, 104 YALE L.J. 541 (1994).

73. *See, e.g.,* Abner S. Greene, *Checks and Balances in an Era of Presidential Lawmaking*, 61 U. CHI. L. REV. 123, 144 (1994) (arguing that the “framers clearly understood that the executive would not exercise legislative powers”).

74. Gillian E. Metzger, *Foreword: 1930s Redux: The Administrative State Under Siege*, 131 HARV. L. REV. 1, 89–90 (2017).

Although the constitutional debate regarding the *extent* of presidential control is important, it will not provide definitive answers to questions about the legitimacy of political reasons in agency decisionmaking unless a strong view of the unitary executive becomes settled doctrine. Barring this outcome, proponents of presidential control, as Justice Kagan argued, need only make the argument that the model is constitutionally permissive. Its legitimacy therefore depends on whether it furthers certain ends, namely political accountability and effective government. These justifications have their weaknesses as well.

b. Democratic Values: Political Accountability and Public Participation

Advocates of the presidential-control model largely ground its legitimacy in notions of political accountability.⁷⁵ Their argument is a compelling response to concerns regarding administrative lawmaking and democratic legitimacy. The transmission model that had once made agencies theoretically accountable to Congress had given way to the interest-group model, which soon suffered from the same vulnerabilities that public choice scholars had identified in pluralist models of legislation.⁷⁶ The reality of strong presidential control of agencies' agendas suggested a new path to democratic legitimacy. If the President is the ultimate decision maker, then agencies are accountable to the President, and the President is a popularly elected official accountable to the citizenry. Scholars have argued that a theoretical shift from congressional oversight to presidential oversight will make agencies even more accountable because the President can express clear unified policy preferences and is accountable to the entire electorate unlike individual members of Congress.⁷⁷

When the President publicly orders an agency to engage in rulemaking toward a specific end and the agency complies, the electorate arguably has an opportunity to express its support or disapproval of the policy in the next presidential election. For example, President Obama publicly directed the heads of the Department of Transportation (DOT) and EPA to promulgate

75. See, e.g., Kagan, *supra* note 13, at 2331–32 (arguing that presidential administration furthers transparency and responsiveness to the public); Lessig & Sunstein, *supra* note 72, at 103 (arguing that “a strong presumption of unitariness is necessary in order to promote the original constitutional commitments,” including the commitment to political accountability).

76. See Kagan, *supra* note 13, at 2331–32.

77. A rich debate about presidential accountability exists in the literature. Some scholars have argued that the President has no more majoritarian legitimacy than Congress because the electoral process does not necessarily result in a President elected by a majority of the U.S. population. See Cynthia R. Farina, *Faith, Hope, and Rationality or Public Choice and the Perils of Occam's Razor*, 28 FLA. ST. U. L. REV. 109, 128–29 (2000); Jide Nzelibe, *The Fable of the Nationalist President and the Parochial Congress*, 53 UCLA L. REV. 1217, 1231–33 (2006).

more stringent fuel economy standards for passenger vehicles and trucks.⁷⁸ Moreover, when the agencies issued final standards, the White House described them as standards set by the Administration (rather than the agencies).⁷⁹ Now, under President Trump, the same agencies have been directed to roll back these standards.⁸⁰ Because the President's role in setting agency policy is clear, the voting public can hold him accountable.

Whether this results in actual accountability, however, is unclear. Even if some highly publicized rulemaking does influence voter behavior, most agency policymaking does not garner public attention and even if it did, White House influence is not always transparent. For example, a substantial literature has exposed the lack of transparency in OMB's review of rules, a process that is particularly susceptible to interest-group influence.⁸¹ Indeed, the D.C. Circuit opinion often cited to support the *legitimacy* of political reasons in agency decisionmaking involved a challenge based on *undisclosed* presidential influence.⁸² The court described presidential influence as a factor "the courts could not police," as long as the factual record supports the agency's ultimate decision.⁸³ It follows that if courts cannot assess presidential influence, neither can the public.

The answer from scholars of the presidential-control model is a call for more explicit disclosure of political influence throughout the administrative

78. See Press Release, White House Off. of the Press Sec'y, *Remarks by the President on Fuel Efficiency Standards of Medium and Heavy-Duty Vehicles* (Feb. 18, 2014), <https://obamawhitehouse.archives.gov/the-press-office/2014/02/18/remarks-president-fuel-efficiency-standards-medium-and-heavy-duty-vehicl>.

79. See Press Release, White House Off. of the Press Sec'y, *Obama Administration Finalizes Historic 54.5 MPG Fuel Efficiency Standards* (Aug. 28, 2012), <https://obamawhitehouse.archives.gov/the-press-office/2012/08/28/obama-administration-finalizes-historic-545-mpg-fuel-efficiency-standard> ("The Obama Administration today finalized groundbreaking standards that will increase fuel economy to the equivalent of 54.5 mpg for cars and light-duty trucks by Model Year 2025. When combined with previous standards set by this Administration, this move will nearly double the fuel efficiency of those vehicles compared to new vehicles currently on our roads.").

80. See Paul A. Eisenstein, *Trump Rolls Back Obama-Era Fuel Economy Standards*, NBC NEWS (Mar. 16, 2017), <https://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256> (covering Trump's announcement of policy); Merrit Kennedy & Camila Domonoske, *White House Proposal Rolls Back Fuel Economy Standards, No Exception For California*, Nat'l Pub. Radio (Aug. 2, 2018), <https://www.npr.org/2018/08/02/631986713/white-house-proposal-rolls-back-fuel-economy-standards-no-exception-for-californ>.

81. See Simon F. Haeder & Susan Webb Yackee, *Influence and the Administrative Process: Lobbying the U.S. President's Office of Management and Budget*, 109 AM. POL. SCI. REV. 507, 507 (2015).

82. See *Sierra Club v. Costle*, 657 F.2d 298, 408 (D.C. Cir. 1981).

83. *Id.*

rulemaking process. But even if presidential preferences appeared in the administrative record, democratic legitimacy may demand more. As Lisa Schultz Bressman has argued, the political accountability argument depends on accepting majoritarianism (governing according to the majority's will) as the basis for our constitutional democracy.⁸⁴ Noting that constitutional scholars have questioned the majoritarian view and its implications for the legitimacy of judicial review, Bressman urges administrative law scholars to subject it to similar scrutiny, particularly because it fails to address arbitrariness in administrative decisionmaking.⁸⁵ Furthermore, focusing solely on political accountability may undermine other democratic values. As theories of deliberative democracy emphasize, democracy depends on meaningful public participation and deliberation. If an agency is working toward a preferred political outcome, how meaningful can public comment in the administrative process be?⁸⁶ For this reason, Mark Seidenfeld has called for increased judicial scrutiny of agency outcomes when a presidential preference is expressed before the agency proposes a rule.⁸⁷

c. Bureaucratic Values: Effective Management of Social Problems

Another objection to a strong presidential-control model is functional in nature: in order to ensure a "workable" government, the administrative state requires the technical and professional knowledge of competent experts who can apply this knowledge apolitically to society's most pressing problems. Justice Breyer has for some time held this view, which he emphasizes in his dissenting opinions in the Court's recent presidential appointment and removal cases.

For example, in *Free Enterprise Fund v. Public Co. Accounting Oversight Board*,⁸⁸ Justice Breyer emphasized the need to acknowledge the reality of the modern administrative state, noting that while the federal government employed about 2,000 people at the founding, it now employs about 4.4 million people

84. See Lisa Schultz Bressman, *Beyond Accountability: Arbitrariness and Legitimacy in the Administrative State*, 78 N.Y.U. L. REV. 461, 492–93 (2003).

85. *Id.* at 493–94.

86. See Jerry L. Mashaw & David Berke, *Presidential Administration in a Regime of Separated Powers: An Analysis of Recent American Experience*, 35 YALE J. ON REG. 549, 612 (2018) (explaining that a strong version of presidential control accepts this sacrifice, and precedent in the D.C. Circuit suggests that agencies do not have to respond to public comments that question an agency outcome directed by the President).

87. See Mark Seidenfeld, *The Role of Politics in a Deliberative Model of the Administrative State*, 81 GEO. WASH. L. REV. 1397, 1456–57 (2013) (arguing that public comment is meaningless unless courts are more willing to limit presidential influence).

88. 561 U.S. 477 (2010) (Breyer, J., dissenting).

to oversee a complex and varied regulatory landscape.⁸⁹ He argued that Congress is constitutionally permitted to create agencies independent from presidential influence in order to insulate the “technical expertise” necessary for “workable” government.⁹⁰ These arguments recall the arguments for bureaucratic management put forward at the beginning of the last century. In fact, Justice Breyer cited James M. Landis and Woodrow Wilson in support of his argument that Congress should be able to structure agencies capable of exercising apolitical, neutral expertise.⁹¹

Proponents of presidential control dismiss this argument by insisting that political accountability to the President is the paramount constitutional principle. For example, Chief Justice Roberts has noted the irrelevance of efficiency and other functional values to the constitutional inquiry.⁹² In his view, the growth of the administrative state does not suggest the need for flexibility, but rather a pressing need to ensure political oversight: “The growth of the Executive Branch, which now wields vast power and touches almost every aspect of daily life, heightens the concern that it may slip from the Executive’s control, and thus from that of the people.”⁹³

This tension between political accountability (to Congress or the President) and bureaucratic expertise has a long history.⁹⁴ But even if presidential control as a means of accountability appears to be gaining ground, the model of agencies as experts is deeply rooted in administrative law. The Court’s decision in *Massachusetts v. EPA*⁹⁵ is one such example. In the majority’s view, the EPA impermissibly based its decision not to regulate greenhouse gases on political preferences rather than reasons grounded in the agency’s evaluation of the relevant science.⁹⁶ Even the case often cited in support of presidential control—*Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.*⁹⁷—justifies judicial deference to an agency’s statutory interpretation by empha-

89. *Id.* at 520.

90. *Id.* at 531.

91. *See id.* (citing J. LANDIS, *THE ADMINISTRATIVE PROCESS* 23 (1938) and Woodrow Wilson, *Democracy and Efficiency*, 87 *ATLANTIC MONTHLY* 289, 299 (1901)).

92. *See id.* at 499 (Roberts, C.J., majority) (“[T]he fact that a given law or procedure is efficient, convenient, and useful in facilitating functions of government, standing alone, will not save it if it is contrary to the Constitution for convenience and efficiency are not the primary objectives—or the hallmarks—of democratic government.”) (quoting *INS v. Chadha*, 462 U.S. 919, 944 (1983) (internal quotations and alterations omitted)).

93. *Free Enter. Fund*, 561 U.S. at 499.

94. *See Metzger, supra* note 74.

95. 549 U.S. 497 (2007).

96. *Id.* at 533–34.

97. 467 U.S. 837 (1984).

sizing that (unlike courts) agencies can claim *both* expertise and political accountability to the Executive.⁹⁸

Another strand of doctrine regarding judicial review of agency decisions suggests courts should be at their most deferential when agencies make scientific or technical judgments within their areas of expertise. This “super-deference” principle can be traced back to *Baltimore Gas and Electric Co. v. Natural Resources Defense Council, Inc.*,⁹⁹ in which the Supreme Court claimed to apply heightened deference to decisions by the Nuclear Regulatory Commission: “[A] reviewing court must remember that the Commission is making predictions, within its area of special expertise, at the frontiers of science. When examining this kind of scientific determination, as opposed to simple findings of fact, a reviewing court must generally be at its most deferential.”¹⁰⁰ Courts frequently quote this language in reviewing agency decisions based on technical and scientific expertise. As Emily Hammond Meazell has demonstrated, courts may quote this language, but nevertheless engage in less deferential hard-look review.¹⁰¹ Even so, the fact that *Baltimore Gas*’s “super-deference” principle is frequently cited is evidence that courts continue to embrace an expertise model of agency decisionmaking.

II. “RATIONALITY” IN REASON GIVING

Most of the judicial and scholarly debate surrounding the legitimacy of different kinds of reasons assumes that agencies and courts can easily discern the line between expert, technocratic reasons and political, or value-laden reasons. For example, those who support the presidential-control model solve concerns regarding bias in policy-relevant science by requiring agencies to disclose how their decisions were affected by presidential influence, thereby assuming that political reasons can be isolated from “rationalist” conclusions based in agency science.¹⁰² For some time, however, scholars in various fields, including law, policy studies, and philosophy, have questioned this conception of rationality.¹⁰³ These critiques generally agree that policy-relevant science does not produce “objective,” neutral judgments, but instead produces contingent forms of socially constructed knowledge.

98. *Id.* at 865 (“Judges are not experts in the field[] and are not part of either political branch of the Government.”).

99. 462 U.S. 87 (1983).

100. *Id.* at 103.

101. See Meazell, *supra* note 7, at 772.

102. See *infra* PartPresidential-Control Model: Recognizing Political Reasons.

103. See *infra* PartQuestioning Scientific Objectivity: Blurring the Line Between Science and Politics.

A. *Traditional Rationality: Drawing the Line Between Science and Politics*

Both the presidential-control and expertise models of agency decisionmaking rely on traditional conceptions of rationality that assume technical judgments can be separated from political judgments. The implication is that anyone reviewing an agency's decisionmaking record should be able to differentiate between reasons grounded in scientific evidence and reasons based on presidential preferences. To draw a line between science and politics is not to deny that people often manipulate one to look like the other, but simply to accept that they can and should live in different spheres. Scholars that accept traditional accounts of rationality either explicitly or implicitly adopt this assumption. The next two sections explain different approaches to this line-drawing exercise in more detail.

1. *Presidential-Control Model: Recognizing Political Reasons*

Given the reality of presidential administration and the normative desirability of a politically accountable administrative state, the presidential-control model supports the legitimacy of political influence in agency rulemaking. The model does not replace expertise with politics; it recognizes the role of both. Kathryn Watts has, for example, argued that the acceptance of political reasons in agency decisionmaking "could help to take some of the political pressure off science creating a more effective separation between science and politics."¹⁰⁴ She argues that if agencies were encouraged to disclose political reasons, they would be less likely to cloak political reasons in scientific language and more likely to give "science its own rightful place that is separate from political or value-laden considerations."¹⁰⁵ This separation depends, as Watts and others have argued, on certain constraints, namely the two constraints discussed below: congressional limits on what factors agencies may consider and increased disclosure of political influence in the rulemaking process.

a. *Statutory Lines*

One seemingly uncontroversial limit on political reason-giving is Congress's intent under the relevant statute. As discussed above, in justifying the presidential-control model, Justice Kagan argues that courts should presume congressional silence evinces an intent to permit the President to direct agency policy.¹⁰⁶ Most statutes are silent on the matter. But as Professor Watts has observed, this does not resolve the question of whether agencies

104. Watts, *Proposing a Place for Politics*, *supra* note 16, at 40.

105. *Id.*

106. *See infra* Part The Legitimacy of Political Reasons.

may rely on presidential preferences in all cases. Her solution is to examine the substance of political reasons to ensure fidelity to the statute: agencies may consider presidential preferences “[s]o long as the substance of suggestions emanating from the White House relate[s] to policy choices and public values falling within the general rubric of the relevant statutory regime and so long as procedural requirements are not violated.”¹⁰⁷ This “statutorily facing rule,” as she calls it, ensures that the agency does not rely on reasons clearly outside the statutory text.¹⁰⁸

Professor Watts illustrates how this approach could constrain political influence by applying it to the Obama Administration’s handling of over-the-counter status of the contraceptive drug Plan B, popularly known as the “morning after” pill. In 2011, the Federal Drug Administration (FDA) concluded that Plan B should be approved for over-the-counter purchase by women under seventeen years of age.¹⁰⁹ Obama’s Secretary of Health and Human Services, Kathleen Sebelius, nevertheless directed the FDA to deny the application for over-the-counter status, a decision that appeared motivated by political concerns on the eve of an election year.¹¹⁰ Because the FDA’s statutorily defined task was to decide whether Plan B was “safe and effective” for over-the-counter purchase, Professor Watts concludes (as did the district court) that political influence rendered the FDA’s decision arbitrary and capricious.¹¹¹ In her view, more “generalized judgments about the morality of teen sex or the ethics of birth control” would likewise fall outside of the “safe and effective” inquiry.¹¹²

b. Agency Disclosure of Political Reasons

In addition to adherence to statutory text, proposals to recognize the legitimacy of political reasons also recommend measures to require or encourage agencies to disclose presidential influence during the rulemaking process. Nina Mendelson favors statutory rules that require disclosure of views expressed in interactions with other agencies, including OMB, during the rulemaking process and perhaps as part of the general statement of basis and purpose for the final rule under the APA.¹¹³ These disclosure rules would

107. Watts, *Controlling Presidential Control*, *supra* note 14, at 731–32.

108. *Id.* at 731.

109. *See id.* at 709 (inferring that Plan B was already available over the counter for people over 17).

110. *See id.*

111. *Id.* at 732.

112. *Id.*

113. Nina A. Mendelson, *Disclosing “Political” Oversight of Agency Decision Making*, 108 MICH. L. REV. 1127, 1164 (2010) (noting that in the absence of a statutory disclosure requirement,

not require detailed transcripts of these communications but would require some explanation of how presidential views affected the agency's final decision—for example, a rule requiring disclosure of OMB's economic cost-benefit analysis and how it changed (or not) the final rule.¹¹⁴

In addition to disclosure rules, Kathryn Watts has emphasized the critical role of the courts in encouraging transparency through disclosure of political reasons.¹¹⁵ She proposes that courts recognize some political reasons as legitimate for purposes of arbitrary-and-capricious review and *Chevron* review of agencies' statutory interpretations.¹¹⁶ By recognizing their legitimacy, agencies will have an incentive to disclose political reasons.¹¹⁷ For example, an agency might disclose a presidential preference as the reason for picking one reasonable interpretation of a statute over another at *Chevron* step two.¹¹⁸

These proposals bifurcate judicial review of agency reasons into political and expert reasons, essentially affording more deference to political reasons (within the bounds of a statute) but leaving “the legal and expertise-laden aspects of [an agency's] decision . . . as susceptible to judicial review as before.”¹¹⁹ So, for example, the Clean Air Act's provision that requires the EPA to set national ambient air quality standards “requisite to protect the public health” within “an adequate margin of safety”¹²⁰ requires both policy and scientific judgments.¹²¹ As Mendelson explains, “[a]lthough ‘requisite’ and ‘adequate’ both implicate policy issues, the standard still requires the agency to perform significant expert work relating to the health and safety issues presented by a particular air pollutant.”¹²² She acknowledges that this is a line-drawing exercise but concludes that the risk that a technical issue could be characterized as a policy issue (and therefore receive greater deference) is minimal.¹²³ But as the examples in Part IV illustrate, the risk may be greater than she assumes.

an executive order or agency rules could impose disclosure requirements).

114. *Id.*

115. See Watts, *Controlling Presidential Control*, *supra* note 14, at 737–38.

116. *Id.*

117. *Id.*

118. See *id.* (stating that under *Chevron*, agencies are not necessarily required or incentivized to disclose the impact of presidential influence on its legal conclusions, but if conceptualized in tandem with arbitrary-and-capricious review, agencies may be incentivized to disclose presidential influence).

119. Mendelson, *supra* note 113, at 1174.

120. 42 U.S.C. § 7409(b)(1) (2006).

121. Mendelson, *supra* note 113, at 1173.

122. *Id.* at 1173–74.

123. See *id.* at 1174 (acknowledging that some issues will clearly be more technical or legal and that drawing precise boundaries would be challenging).

2. *Expertise Only: Rejecting Political Reasons*

The expertise model of agency decisionmaking has long been at the center of judicial doctrine, particularly the hard-look review advocated by Judge Leventhal. The reason-giving requirement of judicial review is essentially an *expert* or professional reason-giving requirement. Although courts, including the Supreme Court, have acknowledged that presidential preferences do influence agency outcomes, they have for the most part required agencies to justify their decisions in the neutral language of policy-relevant science and economic analysis.¹²⁴

Jody Freeman and Adrian Vermeule have argued that this judicial preference for technical reasons results in “expertise forcing,” which may cause agencies to cloak policy judgments in technical language or force them to act when sound political reasons caution restraint.¹²⁵ They explain the majority’s approach in *Massachusetts v. EPA*, for example, as a reaction to the politicization of administrative rulemaking:

[T]he majority believed that EPA was postponing the statutory judgment not because of the social benefits of waiting for more information, or as a result of a careful calibration by the agency of the costs and benefits of further delay given its resource constraints in light of other pressing priorities, or for other valid reasons. . . . Rather, EPA was postponing its decision in order to duck cross-cutting political pressures from the White House and business-friendly interest groups, on the one hand, and from green interest groups, scientists, and many states, on the other.¹²⁶

Thus, to cure the abuses of political influence, the Court drew a clear line, recognizing the validity of expert reasons only.

124. Two cases are often cited to support the notion that although political motives do influence administrative outcomes, courts will only look at the neutral, apolitical reasons in the administrative record. In *United States v. Morgan (Morgan IV)*, involving an agency adjudication that made four trips to the Supreme Court, the Court admonished the district court for “prob[ing] the mental processes” of the agency decision maker. 313 U.S. 409, 422 (1941). In addition, Judge Wald, writing for a panel of the D.C. Circuit in *Sierra Club v. Costle*, concluded that the EPA had not violated the Clean Air Act or due process by failing to disclose a meeting with the President as long as the final rules were based on neutral “information and data” in the record as required by statute. 657 F.2d 298, 407 (D.C. Cir. 1981). A narrow Supreme Court majority recently reaffirmed this approach to political pretext in reasoned decisionmaking, acknowledging the permissibility of political reasons under the APA while emphasizing that an agency’s stated reason for a decision must “match the explanation” the agency gives for its decision. *Dep’t of Commerce v. New York*, No. 18-966, slip op. at 27 (S. Ct. June 27, 2019). The Court held that the Secretary of Commerce’s sole justification for the decision to reinstate a citizenship question on the 2020 census questionnaire was “contrived” because it was “incongruent with what the record reveals about the agency’s priorities and decisionmaking process.” *Id.* at 28.

125. Freeman & Vermeule, *supra* note 9.

126. *Id.* at 82.

Contemporary legal scholars who caution against legitimizing political reasons also draw lines between political reasons and expertise.¹²⁷ These scholars recognize the blurry nature of these lines to various extents. For example, Jodi Short acknowledges that value-laden choices affect expert judgments, but nevertheless makes a compelling argument that courts should continue to require reasoned (namely rational) justifications.¹²⁸ To permit political reason-giving, she argues, would result in few, if any, benefits and impose serious costs by “erod[ing] the social mechanisms that shape agencies as organizations and discipline their day-to-day activities.”¹²⁹ Deliberative theorists such as Mark Seidenfeld similarly emphasize the costs associated with political reason-giving.¹³⁰ In his view, agency professionals can and do deliberate in reasoned ways, using their disciplinary expertise to make “factual determinations and predictions” and identify the trade-offs among policy choices.¹³¹ He urges courts to safeguard this deliberative process through hard-look review and increased scrutiny of rulemaking processes directed by the President.¹³²

Moreover, recognizing the reality of White House meddling in the administrative process, Lisa Heinzerling has called for the reevaluation of judicial precedent that condones this influence.¹³³ She acknowledges the interrelated

127. For example, Glen Staszewski has argued that neutral reason giving arising from agency deliberation produces optimal results: “[T]he underlying hope is that if we take unduly partial reasons for acting off the table, provide decisionmakers with the best available empirical information, and encourage them to resolve the problem through deliberations that are conducted in a spirit of mutual respect and cooperation, the final policy decision is likely to be the most legitimate and meritorious option under the circumstances.” Glen Staszewski, *Reason-Giving and Accountability*, 93 MINN. L. REV. 1253, 1288 (2009); see also Evan J. Criddle, *Fiduciary Administration: Rethinking Popular Representation in Agency Rulemaking*, 88 TEX. L. REV. 441, 471 (2010) (proposing a Madisonian model of agency decision makers as trustees, or fiduciaries, drawing upon their expertise to deliberate in the interests of the public). Expertise also plays an important role in how Emily Hammond Meazell resolves the “deference dilemma” created by congressional delegation of an issue to more than one agency. See Emily Hammond Meazell, *Presidential Control, Expertise, and the Deference Dilemma*, 61 DUKE L.J. 1763, 1803 (2012) (arguing that “the locus of expertise in a given multiagency scheme might be indicative of a congressional purpose to favor one agency over another”).

128. See Jodi L. Short, *The Political Turn in American Administrative Law: Power, Rationality, and Reasons*, 61 DUKE L.J. 1811, 1880 (2012).

129. *Id.* at 1816.

130. See Seidenfeld, *supra* note 87, at 1453–54.

131. *Id.* at 1446.

132. See *id.* at 1448, 1456–57.

133. See Lisa Heinzerling, *The FDA’s Plan B Fiasco: Lessons for Administrative Law*, 102 GEO. L.J. 927, 929–30 (2014).

nature of policy and technical judgments but uses administrative norms as a guide to draw lines between legitimate policy choices and political manipulation.¹³⁴ For example, in the Plan B context, she notes how the FDA's rejection departed from "ordinary practice," and stresses that "value judgments should embody sound technical assumptions and pay their respects to the underlying statutory scheme."¹³⁵ This too is a line-drawing exercise that requires an assessment of which value judgments are legitimate and which expert judgments are "sound."

B. Questioning Scientific Objectivity: Blurring the Line Between Science and Politics

Both the presidential-control and the expertise models accept traditional notions of rationality. Although they recognize that political outcomes can be cloaked in technical, scientific explanations, the underlying assumption is that objective scientific knowledge nevertheless exists. The "cloaking" of political influence is therefore a manipulation of that objective reality. Often courts characterize scientific theories and knowledge as "facts," implying that they convey a kind of empirical truth that can be verified.

But as the following section illustrates, scientific knowledge is best understood not as fact or truth, but as theory that approximates truth and is subject to ongoing processes of confirmation. The contingent nature of scientific understanding means that uncertainty is an inherent feature of scientific knowledge. Moreover, uncertainty can extend to basic premises and methodologies of science, making policy-relevant science susceptible to value-laden judgments that can be difficult to see. Not surprisingly, these inherent features of scientific knowledge have inspired critical assessments from other disciplines, including policy studies, that have embraced post-positivist critiques of rationality. These three threads—the uncertainty intrinsic in science, the value-laden judgments in scientific design, and post-positivists critiques of scientific objectivity—undercut attempts to divide the political from the scientific.

1. The Nature of Scientific Knowledge

We often think about science, particularly the natural sciences, as the epitome of objective, rational thought. Modern science is one of the legacies of the Enlightenment, also known as the Age of Reason. The industrial revolution, modern medicine, air and space travel, the digital age and so much more are products of scientific knowledge. If the theories that underlie these

134. *Id.* at 987.

135. *Id.*

modern advances were not “true,” then planes would fall from the sky and penicillin would not stop infections. Indeed, proponents of scientific realism within the philosophy of science make just such an argument, which they call the “No-Miracles Argument.”¹³⁶ In essence, they argue that the best explanation for the successful application of scientific theories is that these theories are at least “approximately true.”¹³⁷

Why “approximately” true? First, science relies on inductive, rather than deductive reasoning, which generalizes based on relatively small samples.¹³⁸ For example, in blind, randomized clinical trials (the gold standard), one group is given the drug while the “control” group is given a placebo. If the drug has a given effect on a sufficient number in the first group but not the second, scientists might make an inference that the drug produces this effect in all people. This inference does not follow *directly* from the premise that the drug produces this effect on the people in the clinical trial because it relies on the generalization that all people are similar in relevant ways to the people in the drug trial—a generalization that requires yet another inductive inference.¹³⁹

Scientists realize this, of course, which is why the various scientific disciplines have professional norms and methods that, if followed, strengthen the reliability of scientific theories and conclusions. Scientists speak in terms of “confirmation” rather than truth, often using probability theory to test the strength of an inductive inference.¹⁴⁰ The most widely used approach, frequentism, uses statistical analyses to test hypotheses, usually against each other or the “null” hypothesis.¹⁴¹ Using this approach, a correlation between a drug and a given effect in a clinical trial would be statistically significant if the analysis shows a certain probability value (usually a value less than .05).¹⁴² This analysis essentially means that the observed effect of the drug would occur by chance only one out of twenty times.¹⁴³

Even if scientific theories successfully survive rigorous processes of confirmation, they cannot be described as facts in the same way we describe our

136. STATHIS PSILLOS, *SCIENTIFIC REALISM: HOW SCIENCE TRACKS TRUTH* 70–71 (1999).

137. *Id.* at 71 (quoting Hilary Putnam, 1 *Philosophical Papers: Mathematics, Matter and Method* 73 (1975)).

138. See KENT W. STALEY, *AN INTRODUCTION TO THE PHILOSOPHY OF SCIENCE* 6–7 (2014).

139. See *id.*

140. See Franz Huber, *Confirmation and Induction*, *INTERNET ENCYC. OF PHILOSOPHY*, <https://www.iep.utm.edu/conf-ind/> (last visited May 19, 2019).

141. See STALEY, *supra* note 138, at 140–42.

142. See Kelly Servick, *It Will Be Much Harder to Call New Findings ‘Significant’ if This Team Gets Its Way*, *SCIENCE* (July 25, 2017), <https://www.sciencemag.org/news/2017/07/it-will-be-much-harder-call-new-findings-significant-if-team-gets-its-way>.

143. See *id.*

empirical observations as facts. Scientific understanding is always contingent and subject to some uncertainty. Moreover, some fields of scientific inquiry, such as climate change, use complex models to test hypotheses and predictions. The climate system has five components: the atmosphere, hydrosphere, cryosphere, land surface, and biosphere.¹⁴⁴ Modeling this complex system on multiple temporal and spatial scales and accounting for various external and internal influences is difficult indeed.¹⁴⁵ Climate scientists therefore rely on computer simulations based on a range of assumptions about the climate system.¹⁴⁶ Although scientists have a range of methods to strengthen the reliability of models, some uncertainties and inconsistencies are unavoidable.

Given the inherent uncertainty in scientific theory, it is tempting to fall back on the idea that something like the “scientific method” can be used to identify rational scientific reasoning. At one time in history, Karl Popper’s criterion of falsification¹⁴⁷ had some purchase (and indeed, courts still use it today), but it suffers from an underdetermination problem and fails to distinguish the scientific from the unscientific.¹⁴⁸ Consider the claim that creationism or intelligent design is a scientific theory. These theories do indeed make a number of falsifiable and testable predictions, such as the age of the earth, making them no less scientific than evolution using falsification as the sole criterion.¹⁴⁹

Furthermore, a uniform set of scientific methods or practices is difficult to identify given the diversity in the sciences, as philosopher Paul Dicken has explained: “There is an enormous difference in approach and outlook across the sciences, from the theoretical branches of the physical sciences to the more hands-on end of the biological sciences, and without even getting into the more murky waters of the social sciences.”¹⁵⁰ In other words, the underlying methodologies of science involve *value*-laden choices.

144. See WORKING GROUP I, IPCC, CLIMATE CHANGE 2001: THE SCIENTIFIC BASIS 87 (J.T. Houghton et al eds., 2001).

145. See WORKING GROUP I, IPCC, CLIMATE CHANGE, THE PHYSICAL SCIENCE BASIS 138 (Thomas F. Stocker et al. eds., 2013).

146. See *id.*

147. KARL R. POPPER, THE LOGIC OF SCIENTIFIC DISCOVERY 113 (Routledge 1992).

148. To test a hypothesis, a scientist must rely on a number of “auxiliary” assumptions, any one of which could be the reason an experiment appears to falsify a theory. Experimental observations therefore “underdetermine” the theories that they test. See STALEY, *supra* note 138, at 26.

149. See DICKEN, *supra* note 17, at 18.

150. See *id.* at 104–05. The methods and practices of the various sciences, Dicken argues, depend on underlying social and political factors. *Id.* at 105.

2. Value Judgments in Policy-Relevant Science

Environmental law scholars have long recognized that value judgments shape scientific inquiry, particularly in policy-relevant science. Indeed, Wendy Wagner's seminal article on the "science charade" detailed many years ago the ways in which agency scientists and policymakers hide the "trans-scientific" decisions behind their quantitative toxics standards and risk assessments in order to make them look more definitive and obscure uncertainties.¹⁵¹ These uncertainties are not those inherent in scientific inquiry described above; they are uncertainties created by questions science simply cannot (yet) answer in practice.¹⁵² For example, risk assessments of chemical toxicity in humans often rely on data produced in animal studies. If exposure at X level in mice produces cancer, what level of exposure will produce cancer in humans? Because we cannot conduct the human studies that would yield answers, this is a scientific question, but one science cannot resolve.¹⁵³ The answer requires an assumption based on a value judgment regarding how risk averse the standard should be.

Even methodological choices incorporate what might be characterized as political choices. For example, in the frequentist statistical analysis used to test the strength of a hypothesis, scientists test a possible association or correlation against the "null" or no-effect hypothesis.¹⁵⁴ So, if a researcher wants to know whether a drug causes a particular health effect, she tests this research hypothesis against the hypothesis that the drug will have no such effect. This conventional approach structures the statistical analysis in a way that minimizes the risk of rejecting the null hypothesis (no effect) when it is true (Type I error), rather than minimizing the risk of rejecting the hypothesized association (Type II error) when it is true.¹⁵⁵ The upshot is that the conventional approach incorporates a less precautionary risk preference. The test is constructed to be more cautious about finding no effect than it is about finding an actual association (e.g., a drug and a health effect).¹⁵⁶ It

151. Wagner, *supra* note 8, at 1629.

152. *Id.* at 1619.

153. *See id.* at 1621 (affirming testing on humans is directly prohibited by ethics rules).

154. Elisa Vecchione, *Science for the Environment: Examining the Allocation of the Burden of Uncertainty*, 2 EUR. J. RISK REG. 227, 230 (2011).

155. *Id.*

156. One scholar explains the bias for Type I error and its consequences for environmental policies: "[C]onsider a null hypothesis such as, for instance, 'chemical x does not produce effect y.' Accordingly[,] the statistical test is set to be less careful about failing to detect a relation between x and y when one does exist. In other words, the actual statistics strictly require a high degree of certainty of harm before any preventive actions are suggested, whereas a precautionary approach calls for action even though scientific certainty has not yet been achieved." *Id.*

effectively requires more certainty before acting to mitigate a risk.

Many of these methodological choices intentionally or unintentionally have distributional consequences that implicate environmental justice concerns. For example, as Catherine O'Neill has detailed, the EPA has historically used present-day data to calculate how much fish people eat.¹⁵⁷ The agency used the resulting "fish consumption rate" to set water quality criteria and standards.¹⁵⁸ But because the standards are based on existing practices, they establish limits that "support only modest levels of fish intake (relative to those that would be healthful or that would be consonant with heritage practices in the fishing tribes)."¹⁵⁹ She argues that because existing practices may reflect risk-avoidant behaviors, the EPA should be assessing exposure based on consumption rates that further human health and tribal heritage practices.¹⁶⁰ Another recent and very clear example of a policy choice embedded in methodological choices about data is the Trump administration's new \$1–7/ton social cost of carbon.¹⁶¹ The cost is shockingly low because it completely ignores the costs of global warming outside the United States, a value judgment that the costs of carbon pollution to the world's most vulnerable populations are irrelevant.

Value judgments and trans-scientific questions are unavoidable, of course, because environmental and public health statutes delegate broad authority to agencies. The EPA is, for example, charged with setting national ambient air quality standards that are "requisite to protect the public health" within "an adequate margin of safety."¹⁶² Given this broad charge, it is perhaps not surprising that two different EPA administrators (from different political parties) approved different revised National Ambient Air Quality Standards (NAAQS) standards for ozone on the exact same administrative record. As Thomas McGarity has argued, neither decision was irrational.¹⁶³ The underlying science could not definitively pinpoint a threshold level for unsafe exposure to ozone.¹⁶⁴ As such, the administrators' differing conclusions reflected their different value judgments about the costs and benefits of a precautionary

157. See Catherine A. O'Neill, *Exposed: Asking the Wrong Question in Risk Regulation*, 48 ARIZ. ST. L.J. 703, 705 (2016).

158. *Id.*

159. *Id.* at 708.

160. *Id.* at 711.

161. Brad Plumer, *Trump Put a Low Cost on Carbon Emissions. Here's Why It Matters*, N.Y. TIMES (Aug. 23, 2018), <https://www.nytimes.com/2018/08/23/climate/social-cost-carbon.html>.

162. Clean Air Act § 109(b)(1), 42 U.S.C. § 7409(b)(1) (2012).

163. See Thomas O. McGarity, *Science and Policy in Setting National Ambient Air Quality Standards: Resolving the Ozone Enigma*, 93 TEX. L. REV. 1783, 1783 (2015).

164. See *id.* at 1786.

approach to risk regulation when risks are uncertain.¹⁶⁵

These science-policy decisions under broad statutory mandates make line-drawing under the presidential-control model difficult to say the least. Consider the FDA's failure to approve the contraceptive Plan B for over-the-counter use by girls and women of all child-bearing ages. As discussed above, one proposal under the presidential-control model is to look to the agency's statutory mandate. Professor Watts argues that the political interference in the FDA's decision regarding Plan B was improper because the statute required the agency to decide whether the drug is "safe and effective" for the proposed use.¹⁶⁶ This language, in her view, limits the agency's inquiry to scientific evidence and prohibits political influence. But how is "safe and effective" more constraining than "requisite to protect the public health"?

In the case of Plan B, there is no doubt that political influence vetoed the consensus of career officials at the FDA. It is also true that the decision departed from the FDA's typical practice in various ways. For example, the FDA had not previously made distinctions among adolescents based on their less mature cognitive development; instead, the FDA had routinely based safety determinations for adolescents on studies of adults or older adolescents.¹⁶⁷ Notice, however, that this practice is itself an inductive, methodological leap based on the generalization that younger girls do not differ in meaningful ways from older ones. It is difficult to see how the statute's "safe and effective" language shields this judgment from political influence. Although other aspects of the Plan B fiasco may warrant deeper scrutiny, we simply cannot get there by arguing that the statute itself illuminates where and why political influence went too far.

3. *Post-Positivist Deliberative Rationality: Deconstructing the Line Between Science and Politics*

In 1962, Thomas Kuhn made a compelling challenge to the conception

165. *See id.* at 1798.

166. All new drug applications are subject to this standard. 21 U.S.C. § 355(b) (2012). A drug requires a prescription when, "because of its toxicity or other potentiality for harmful effect, or the method of its use, or the collateral measures necessary to its use, it is not safe for use except under the supervision of a practitioner licensed by law to administer such drug." 21 U.S.C. § 353(b)(1)(A) (2012). The Secretary may remove the prescription requirement and allow over-the-counter use when a prescription is "not necessary for the protection of the public health." *Id.* § 353(b)(3).

167. *See* Heinzerling, *supra* note 133, at 951 (explaining that the Federal Drug Administration's (FDA's) decision to deny changing Plan B to nonprescription status, on the basis that it would lead younger adolescents to engage in "unsafe sexual behavior" due to their immature cognitive development, was novel and not consistent with the FDA's traditional practices).

of the scientist as an impartial, objective observer of an external, fixed reality.¹⁶⁸ He described scientific inquiry as a process determined by, rather than detached from, shared social norms and practices.¹⁶⁹ A scientist observes the world through the lens of shared scientific beliefs (what Kuhn collectively called a “paradigm”).¹⁷⁰ Over time, scientists note “anomalies” that the paradigm cannot solve, and when these anomalies accumulate, they trigger a revolution that results in a new paradigm.¹⁷¹ Much of his argument draws from history.¹⁷² Copernican theories of the solar system replaced Earth-centered Ptolemaic views. Einstein’s theory of relativity supplanted Newton’s theory of gravity. And so on. Contemporary philosophers of science continue to recognize his basic premise that scientific practices are shaped by social and political factors, although they have refuted the idea that all science is equally uncertain simply because scientific theories have, in the past, been proven wrong.¹⁷³

Kuhn was not alone in questioning the foundations of rationality and objectivity. In the humanities and social sciences, post-modernism emerged to challenge modern notions of objectivity and expose the ways in which power and inequality are made to seem natural. Post-modern thought also had a profound impact on policy studies. No longer could the social and policy sciences “naively rely upon the positivist notion of the inevitable progress of humanity to an orderly industrial civilization.”¹⁷⁴ A policy analyst or social scientist could not gather objective knowledge about society, but had to strive to “loosen the bounds of the culture into which they are born by becoming aware of it” and seeking to test and create “personal and collective identities.”¹⁷⁵ In policy studies and later in legal scholarship, these thinkers borrowed much from the pragmatism of John Dewey, including his recognition that although science could advance human purposes, it was not the ““religion of humanity”” that nineteenth-century positivism had imagined.”¹⁷⁶

168. See THOMAS KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTION* (4th ed. 2012) (proposing that scientific inquiry should include consideration of social norms and practices).

169. See *id.* at 125–26 (stating that science selects different laboratory manipulations based on what scientists find to be relevant).

170. See *id.* at 64–65.

171. See *id.* at 89–90.

172. See *id.* at 68.

173. See generally DICKEN, *supra* note 17.

174. Douglas Torgerson, *Promoting the Policy Orientation: Lasswell in Context*, in *HANDBOOK OF PUBLIC POLICY ANALYSIS: THEORY, POLITICS, AND METHODS* 15, 17 (Frank Fischer et al. eds., 2007).

175. *Id.* at 23.

176. *Id.* at 16.

Not surprisingly, much of the literature inspired by post-positivist thought embraces deliberative models of human decisionmaking.

This critical strain of post-modernism—focused on the social construction of facts and the critical analysis of language—also produced the field of science studies. Shining a critical light on scientific discourse, critical theorists sought to reveal the social forces that constructed the “prematurely naturalized objectified facts” of science and in so doing illuminate the prejudices and biases hidden in scientific facts.¹⁷⁷ The post-positivist, critical orientation across academic disciplines tended to suggest that “facts are made up, that there is no such thing as natural, unmediated, unbiased access to truth, that we are always prisoners of language, that we always speak from a particular standpoint.”¹⁷⁸ By analyzing scientific fact and theory as products of social and political forces of power, post-positivism erased the line between scientific objectivity and political power.

It is perhaps no surprise, then, that one of the pioneers of science studies, Bruno Latour, has questioned the effect that this intellectual movement has had on social understandings of science. In a 2004 article, he worries about the consequences of critical theory. He quotes the following editorial from the *New York Times*:

Most scientists believe that [global] warming is caused largely by man-made pollutants that require strict regulation. Mr. Luntz [a Republican strategist] seems to acknowledge as much when he says that ‘the scientific debate is closing against us.’ His advice, however, is to emphasize that the evidence is not complete.

‘Should the public come to believe that the scientific issues are settled,’ he writes, ‘their views about global warming will change accordingly. Therefore, you need to continue to make the *lack of scientific certainty* a primary issue.’¹⁷⁹

Latour then wonders whether critical theory, which was once designed to reveal “ideological arguments posturing as matters of fact,” has led to “excessive *distrust* of good matters of fact disguised as bad ideological biases.”¹⁸⁰ He recognizes the thin line between critical theories and conspiracy theories: both inspire skepticism of “facts” influenced by “powerful agents hidden in

177. Bruno Latour, *Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern*, 30 CRITICAL INQUIRY 225, 227 (2004); see also SHAWN OTTO, *THE WAR ON SCIENCE: WHO’S WAGING IT, WHY IT MATTERS, WHAT WE CAN DO ABOUT IT* 175–77 (2016) (describing postmodern strains of academic thinking and the emphasis on knowledge as subjective and “inseparable from the knower”).

178. Latour, *supra* note 177, at 227.

179. *Id.* at 226 (quoting *Environmental Word Games*, N.Y. TIMES (Mar. 15, 2003) (alterations and emphasis in original)).

180. *Id.* at 227. For a legal scholar’s treatment of this issue, see Shi-Ling Hsu, *The Accidental Postmodernists: A New Era of Skepticism in Environmental Policy*, 39 VT. L. REV. 27 (2014).

the dark.”¹⁸¹ The agents in critical theory—structures of power such as capitalism—look different from the anti-science, anti-progress environmental alarmists of conspiracy theories, but they share, as Latour says, “something troublingly similar in the structure of the explanation.”¹⁸²

Today, scientific rationality must contend not only with intentional and unintentional efforts to hide trans-scientific and value-laden questions, but also with the post-positivist distrust of fact and deconstruction of objectivity. What began as an intellectual movement has its reverberations in a society often now described as “post-truth.” It is difficult to debunk a scientific controversy embraced by a segment of society even when scientists in the relevant field of study overwhelmingly deny its existence. Denial of human-caused global warming by groups on the political right is one such manufactured controversy but there are others, and sometimes they emerge on the political left. For example, no scientific evidence supports the claim that eating genetically modified food endangers human health, but skepticism persists.¹⁸³ The claim that certain vaccines are linked to autism and other disorders has also been discredited by scientists but continues to resonate in some communities nevertheless.¹⁸⁴

C. Rescuing Rationality: Lessons from Behavioral Economics and the Science of Science Communication

Given all the epistemological, practical, and social factors outlined in the previous section, one conclusion is clear: the presidential-control model of agency decisionmaking rests on a false assumption: that the line between scientific rationality and political influence can easily be drawn. Policy-relevant

181. See Latour, *supra* note 177, at 229.

182. *Id.* For example, a recent article in a right-leaning journal strikes a post-modern tone in arguing that the consensus around human-caused climate change masks a left-wing conspiracy. Three authors from the field of policy studies describe the theory of human-caused global warming as driven by a militant leftist ideology of “sustainable egalitarian societies based on suppression of economic growth in favor of smaller populations[] and relying to the maximum extent possible on renewables.” Brian J. L. Berry et al., *The Limits of Knowledge and the Climate Change Debate*, 36 CATO J. 589, 594 (2016). The authors also embrace post-positivist conceptions of scientific knowledge, emphasizing the “tentative nature of knowledge.” *Id.* at 598.

183. See OTTO, *supra* note 177, at 135 (noting that genetically modified foods raise legitimate concerns, including biodiversity effects, but that the “scientific consensus on the safety of eating GM foods is even stronger than that for the existence of human-caused global warming”).

184. See *id.* at 141–42 (explaining the lack of scientific evidence and noting CDC data that show large numbers of unvaccinated children in “liberal counties” in certain states).

science will always incorporate value judgments. Scientific knowledge is contingent; by its nature, it is open to contestation and evaluation. The epistemological reality makes characterizations regarding scientific certainty and uncertainty susceptible to manipulation by political, economic, and social forces, particularly in a world that has embraced post-positivist, skeptical notions of truth. A presidential-control model cannot rescue scientific knowledge from its embeddedness in politics because it is premised on a false dichotomy between science and politics. This false premise leads to the conclusion that once the political reasons are disclosed, the “scientific” reasons are free from political influence (or that they should be evaluated by courts “as if” they are).

Economic theory once made a similar argument about rationality. This section briefly tells the story of economic theory’s shift toward a more realistic account of human decisionmaking. It also describes recent work on decisionmaking in cognitive psychology and cultural-cognition studies. The central argument is that this literature suggests a model of agency decisionmaking that recognizes the political context in which agency decisions occur. Given the reality of presidential control, agency decisionmakers behave rationally when they engage in identity-protective reasoning that uses policy-relevant science to support an outcome consistent with presidential preferences. This view of agency decisionmaking suggests approaches to judicial review that are *less* deferential when an agency is clearly motivated to reach a preferred political outcome. The specific implications for doctrines of judicial review are the subject of the final section of the Article.

1. *The Behavioral Turn in Economics*

As economic theory gained academic prominence and became more mathematically formalized after World War II, two key premises, or assumptions, were fundamental to successful research in the field. First, economic actors are *rational* actors who make choices that optimize their preferences, meaning they make the choices that will most advance their well-being.¹⁸⁵ A consumer, for example, will buy the car she can afford with the best fuel efficiency. An investor will likewise buy stocks that are not overvalued. Second, the combined choices of these rational actors in the marketplace will produce a market in equilibrium where supply equals demand.¹⁸⁶

The rational choice model of economic theory was not seriously questioned until the mid-1980s when Richard Thaler and others began a sustained effort

185. See RICHARD H. THALER, *MISBEHAVING: THE MAKING OF BEHAVIORAL ECONOMICS* 5 (2015).

186. See *id.*

to show how the premises do not hold up to scrutiny.¹⁸⁷ People do not behave like rational actors optimizing preferences. For example, they do not always choose cars by analyzing which one is most fuel efficient and affordable. The response of proponents of the rational actor model was to acknowledge that people often cannot explain in rational terms how they solve complex problems such as buying a house or saving for retirement, but they nevertheless behave “as if” they do.¹⁸⁸ This response bears a striking similarity to how courts review administrative records, treating agencies “as if” they are acting as neutral experts.

The “as if” response eventually lost ground as more research revealed how consumers do in fact behave. To explain the behavior of actual consumers, Thaler and other challengers to the rational actor model looked to literature in the field of cognitive psychology, and the new field of behavioral economics was born. Research by psychologists such as Dan Kahneman demonstrates that people think in two different modes, or systems: (1) system one is instinctive, automatic, and intuitive (drawing on emotions and “gut-level” reactions); (2) system two is deliberative and reflective (and associated with self-control and rational reasoning).¹⁸⁹ In most everyday decisions, people actually rely on system one, calling into question the idea that consumers are, indeed, “rational” actors.¹⁹⁰

System one has its virtues; it is responsible, for example, for our flight or fight response to dangers. But it also means that people often make less-than-optimal choices because they rely on a number of “heuristics” or biases to make quick judgments.¹⁹¹ Space constraints prevent a full account of the many heuristics and biases that system one draws upon. A few examples should, however, illustrate how they work. The availability heuristic, for example, tends to make people overestimate the probability of a risk when a salient event occurs (e.g., fear of flying after a widely reported plane crash).¹⁹² Similarly, hindsight bias complicates efforts to evaluate an outcome or decision because it causes people to “assess the quality of a decision not by whether the process was sound but by whether its outcome was good or bad.”¹⁹³ This

187. *See id.* at 159.

188. *See id.* at 44.

189. *See generally* KAHNEMAN, *supra* note 18, at 415–18 (providing an overview of the field of behavioral economics and an analysis of consumer behaviors).

190. *See id.* at 24 (explaining that system two usually “adopts the suggestions of System 1,” changing “impressions and intuitions . . . into beliefs”).

191. *See id.* at 109.

192. *Id.* at 130.

193. *Id.* at 203.

has obvious implications for law because people, including juries, may attribute fault to decisions in hindsight that they would find reasonable at the time they were made. People also tend to overestimate or underestimate rare events depending on their own experiences and how the events are described.¹⁹⁴

The field of behavioral economics has drawn on this research to build a more realistic picture of the economic behavior not just of individual consumers, but also of markets. The premises that underlie the traditional theory of how markets behave—such as the efficient market hypothesis—also favor rationality. One key assumption is that prices are rational. Thaler refers to this as “the price is right,” explaining that “the idea is that any asset will sell for its true ‘intrinsic value.’”¹⁹⁵ The second premise is related to the first: “because all publicly available information is reflected in current stock prices [the price is right], it is impossible to reliably predict future prices and make a profit.”¹⁹⁶ In other words, there is no way to “beat the market.”¹⁹⁷ All of this depends once again on the rational actor optimizing preferences. But research in the field of behavioral economics has demonstrated that market actors overreact, and markets overheat.¹⁹⁸ Consider, for example, the housing bubble. In short, investors, like consumers, are human actors, rather than rational economic actors.

2. *Motivated Reasoning and the Science of Science Communication*

Even when people engage system two in an effort to evaluate complex arguments or scientific evidence, they sometimes reach conclusions contrary to the weight of scientific evidence. Social scientists began studying this tension in the 1970s and 1980s when the general public was more concerned than scientists about the risks of nuclear power.¹⁹⁹ Recently, the field of cultural-cognition studies has rediscovered and expanded upon the scientific study of science communication to explore contemporary divides between segments of the public and the scientific community. Why do people continue to deny human-caused global warming when presented with overwhelming evidence? Why do people reject the scientific consensus that vaccines do not cause autism? Studies in this field offer explanations that show

194. *See id.* 324–33.

195. THALER, *supra* note 185, at 206.

196. *Id.* at 207.

197. *Id.* at 206.

198. *See id.* at 218.

199. Dan M. Kahan, *Making Climate-Science Communication Evidence-Based*, CULTURE, POLITICS AND CLIMATE CHANGE: HOW INFORMATION SHAPES OUR COMMON FUTURE 203, 203 (Deseraï A. Crow & Maxwell T. Boykoff eds., 2014).

that a seemingly irrational response is an entirely rational one under certain conditions.

What these studies show is that people responding to these issues are engaging in “motivated reasoning,” by “selectively credit[ing] or discredit[ing] evidence in patterns that reflect their commitments to important or self-defining social groups.”²⁰⁰ In one study, when presented with the same “expert” scientific studies, people’s perceptions of risks associated with climate change, nuclear power, and gun control depended “strongly on the fit between the position the scientist was depicted as taking . . . and the position that predominates within the subjects’ own cultural groups.”²⁰¹ For example, when the expert advanced a high-risk stance on climate change, a person with egalitarian and communitarian views was 72% more likely than someone with hierarchical and individualist views to consider the person an expert on the issue.²⁰² When the same scientist advanced a low-risk stance on climate change, the person with hierarchical, individualist views was 54% more likely than an egalitarian-communitarian person to label the scientist an expert.²⁰³

The striking takeaway from these studies is that people’s views do not depend on their level of science literacy or education.²⁰⁴ Moreover, people are forming these conclusions after engaging in the deliberative system two mode of reasoning, the mode that can overcome the heuristics and cognitive biases that affect the many automatic system one decisions that they make all the time.²⁰⁵ In fact, the more scientific knowledge and the greater propensity to engage in system two reasoning, the more likely an individual is to engage in *motivated* reasoning.²⁰⁶ In short, people are engaging in *rational* deliberative thought and nevertheless reaching the wrong conclusions.

People engage in this “identity-protective cognition” because it is simply too costly to do otherwise. Being wrong relative to others on whom you rely daily can result in negative consequences. As Dan Kahan explains, for an individual, being wrong is the rational choice because the costs of contradicting a peer group far outweigh the individual costs of the mistaken choice.²⁰⁷ Given this lopsided cost-benefit analysis, “it is indeed *individually* rational for [an individual] to attend to information on climate change in a manner

200. *Id.* at 207.

201. *Id.* at 208–09.

202. *See id.*

203. *See id.* at 208–09.

204. *See id.* at 210 (finding no significant difference based on level of science literacy).

205. *See id.* at 211.

206. *See id.* at 211–12.

207. *See id.* at 212–13.

geared to conforming her position to that of others in her cultural group.”²⁰⁸ This phenomenon results in what he terms the “tragedy of the science communication commons,” a social condition that reduces the likelihood that laws and policies will respond to the best scientific evidence regarding environmental and public health risks.²⁰⁹

The literature on motivated reasoning, or identity-protective cognition, should inform the doctrines that govern judicial review of agency decisionmaking. In an era of presidential control and influence, we should pause before embracing political reasons and assuming agency decision makers can draw the line between science and politics. Some presidential administrations have tried to draw this line. President Clinton, for example, intentionally placed some distance between the White House and the EPA.²¹⁰ President Obama directed agencies to use “science and the scientific process” to “inform and guide decisions” on public health and environmental issues, including climate change.²¹¹ The irony is that the expansion of presidential influence under these and other administrations opens the door to presidential directives that explicitly seek political outcomes, thereby guaranteeing motivated reasoning on the part of agency decision makers.

III. JUDICIAL REVIEW AS A CHECK ON MOTIVATED REASONING IN AGENCY DECISIONMAKING

Politically appointed agency heads can be expected to engage in identity-protective reasoning as much or more than the general public. The costs of decisions that diverge from an agency official’s political commitments are high indeed. In the age of presidential administration, agency decisionmaking is expected to reflect the cultural worldviews of the President. Diverging from that agenda will cost an agency official her job.

Interestingly, a recent empirical study of judges and lawyers provides evidence that legal training and experience can counteract identity-protective reasoning when analyzing a legal problem.²¹² When asked to resolve statu-

208. *Id.* at 213.

209. *Id.*

210. Kagan, *supra* note 13, at 2356.

211. Memorandum on Sci. Integrity from President Barack Obama to Heads of Exec. Dep’ts & Agencies, Daily Comp. Pres. Doc. 1, 1–2 (Mar. 9, 2009), <https://obamawhitehouse.archives.gov/the-press-office/memorandum-heads-executive-departments-and-agencies-3-9-09>; see also Yumehiko Hoshijima, *Presidential Administration and the Durability of Climate-Consciousness*, 127 *YALE L.J.* 170, 185–215 (2017) (describing the policy tools that President Obama used to promote “climate consciousness” throughout the executive branch).

212. See Dan M. Kahan et al., “Ideology” or “Situation Sense”? *An Experimental Investigation of*

tory interpretation questions with underlying facts designed to trigger identity-protection cognition, the majority of judges and lawyers of differing worldviews converged on the *same* answer.²¹³ Conversely, the answers of nonlawyer members of the public were consistent with identity-protective reasoning.²¹⁴ Moreover, when judges and lawyers were asked to evaluate risks outside of a legal context, they engaged in identity-protective reasoning, providing answers consistent with their cultural worldviews.²¹⁵ This suggests that the immunity provided by professional judgment counteracts motivated reasoning only for “in-domain” decisions governed by professional judgment.²¹⁶

The study’s authors also note that the results provide “at least some evidence for discounting the likelihood of the hypothesis that climate scientists or other comparable experts are being influenced by identity-protective reasoning.”²¹⁷ The hypothesis posits that climate scientists discount evidence that is contrary to the “consensus” view to protect their own cultural identities.²¹⁸ But professional judgment may counteract this tendency among scientists just as it does among judges. The theoretical explanation for this immunity is that both groups acquire “specialized prototypes that enable those possessing the relevant form of expertise to converge on the recognition of phenomena of consequence to their special decisionmaking responsibilities.”²¹⁹ In short, judges think like judges when engaged in legal reasoning, and scientists think like scientists when engaged in scientific reasoning.

Hence, judges reviewing agency decisions are less likely to be influenced by their own cultural identities, particularly if judicial doctrines of review provide clear guidelines for the evaluation of agency communications regarding science. Conversely—and contrary to the presidential-control model—agency communication about science is not likely to be less politicized if political reasons are disclosed. Cultural-cognition studies provide support for the opposite conclusion: long, deliberative agency records are

Motivated Reasoning and Professional Judgment, 164 U. PA. L. REV. 349, 354 (2016).

213. *See id.* at 410 (citing a controlled Universal Vulnerability study concluding “[n]either judges nor lawyers displayed practically or statistically meaningful signs of being influenced by the cultural congeniality of the experimentally manipulated case outcomes”).

214. *See id.* (citing findings of “strong evidence of identity-protective cognition—the form of biased information processing associated with political polarization—in members of the general public, *but not* in lawyers or judges”).

215. *Id.* at 411 (stating that lawyers, judges, and law students all demonstrated identity-protective reasoning with regard to “contested matters of public policy”).

216. *See id.* at 355.

217. *Id.* at 416.

218. *See id.* at 415–16.

219. *Id.* at 416 (describing the work of Howard Margolis).

likely to exacerbate the effects of motivated reasoning, leading to further distortions of policy-relevant science.²²⁰

If judges acting as judges are less susceptible to identity-protective reasoning, judicial review of agency decisionmaking can serve as an important check on the identity-protective reasoning of agencies acting as both presidential policymakers and bureaucratic experts. This insight has clear implications for how courts should approach judicial review under the APA and deference doctrines such as *Chevron*. The following section explains how doctrines of judicial review can help offset the dangers of motivated reasoning.

In addition to abandoning ideas of “super-deference” to agency reasoning regarding science, courts should embrace traditional hard-look-review “danger signals” when “red flags” of motivated reasoning are present. Scholars of administrative law have long debated the costs and benefits of hard-look review. Perhaps the most debated issue is that of “ossification”—that is, whether hard-look review causes an inefficient, litigation-style rulemaking process that results in the “ossification” of rules.²²¹ The danger-signals approach to hard-look review is less susceptible to these objections because it does not apply in all cases. The argument here is that hard-look review is a necessary approach in certain cases where politically motivated agencies are interpreting policy-relevant science. It is also a necessary addition to judicial review premised on the expertise model precisely because it provides a framework for assessing when judges *should* approach agencies as experts and when they should defer to agencies as presidential policymakers.

The scholarship regarding the merits of *Chevron* deference is even more vast than scholarly debates regarding hard-look review. Some scholars and jurists reject deference doctrines entirely, arguing that courts abdicate their constitutional responsibility to interpret the law when they defer to agency interpretations.²²² Others would return to older doctrines that promise less deference or choose not to apply *Chevron* deference unless certain conditions are met.²²³ Recent empirical scholarship suggests that the Supreme Court actually applies a “continuum” of deference.²²⁴ When an agency relies on its expertise,

220. See *id.* at 355.

221. For a concise overview of the ossification debate, see Sidney A. Shapiro, *Rulemaking Ossification and the Debate Over Reforming Hard Look Review*, 41 ADMIN. & REG. L. NEWS 13, 13–14 (2015) (providing a concise overview of the ossification debate).

222. See Nicholas R. Bednar & Kristin E. Hickman, *Chevron’s Inevitability*, 85 GEO. WASH. L. REV. 1392, 1416–18 (detailing “calls to overturn *Chevron*”).

223. See *id.* at 1437–41 (discussing Justice Breyer’s and Chief Justice Roberts’ more limited approaches to *Chevron* in subsequent jurisprudence).

224. William N. Eskridge, Jr. & Lauren E. Baer, *The Continuum of Deference: Supreme Court Treatment of Agency Statutory Interpretations from Chevron to Hamdan*, 96 GEO. L.J. 1083, 1188 (2008).

for example, and its interpretation remains consistent over time, the Court is more likely to defer to its interpretation. As the final section of this Part explains, this continuum of deference can and should afford more deference to agency interpretations that connect scientific knowledge to statutory language and less deference to interpretations based solely on presidential preferences.

A. *Ending “Super-Deference” for Agency Decisions Regarding Science*

Rejection of the presidential-control model’s deference to political reasons does not mean courts should uncritically apply the expertise model of agency decisionmaking. The model of agencies as experts fails to recognize agencies as political actors engaged in identity-protective reasoning. The expertise model’s notion that agencies act as neutral experts in evaluating and applying policy-relevant science suggests that courts should afford agencies the most deference when reviewing technical, science-based judgments. Indeed, this view supports the “super-deference” language that courts use in reviewing agency decisions that require assessments of scientific and technical knowledge.

Courts must recognize the reality of presidential influence and control and approach agency reasoning as motivated reasoning to ensure that agencies adhere to their statutory mandates to protect human health and the environment. The idea of “super-deference” is therefore obsolete. Instead, courts should engage in the hard-look review discussed below.

Retiring the principle of “super-deference” may be more form than substance. As Emily Meazell has demonstrated, courts do not uniformly apply “super-deference,” and even when they say they are applying it, they sometimes engage in more searching review nonetheless.²²⁵ In fact, the Supreme Court case from which the principle originates, *Baltimore Gas & Electric Co.*, falls in the latter category. The Court said that it is “at its most deferential” in reviewing an agency decision “within its area of special expertise, at the frontiers of science,” but proceeded to carefully review the Nuclear Regulatory Commission’s zero-release assumption for long-term storage of nuclear wastes.²²⁶ The inconsistent use of super deference may be sufficient reason to abandon it. The reality that agencies are both experts and political actors simply strengthens the argument that courts should avoid the language of “super-deference” in judicial review of agency reasoning.

B. *Hard-Look Review: Spotting the “Danger Signals” of Motivated Reasoning*

The next step to checking the dangers of motivated political reasoning is to embrace something like Judge Leventhal’s notion of “danger signals” in

225. Meazell, *supra* note 7, at 764.

226. *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 103–04 (1983).

agency reasoning. For Leventhal, these were signs that the agency had not taken a hard look at the relevant issues and engaged in reasoning decisionmaking. He identified numerous red flags, ranging from agency decisions in tension with other aspects of law to procedural irregularities.²²⁷ Courts engaging in hard-look review today sometimes identify red flags such as an agency's failure to explain its disregard of expert opinion or evidence or its failure to respond to a factual challenge.

The literature on identity-protective cognition strongly suggests that courts should look for the "danger signals" of motivated reasoning when an agency is regulating pursuant to a presidential directive. In addition, when the subject matter of an agency decision is an issue that divides the public along cultural and political lines despite consensus within relevant scientific circles, the science communication environment may be "polluted," magnifying political actors' tendencies to engage in identity-protective reasoning. Furthermore, when the administrative record relies on unexplained, unsupported assumptions or cherry picks scientific evidence to reach a politically preferred outcome, a court should require further explanation.

This section provides some examples of these "danger signals." Judicial attention to these signals does not require heightened scrutiny or otherwise overburden courts with *Daubert*-like review of policy-relevant science. The scrutiny triggered by the "danger signals" of motivated reasoning is focused on agency evaluations of scientific and expert knowledge and would not therefore apply in every case. A threshold condition in all cases is the presence of either a polluted science communication environment or presidential influence in the form of an expressed presidential preference regarding the regulatory outcome.

1. *Polluted Science Communication Environments*

The litigation challenging the FDA's decision not to approve over-the-counter use of the Plan B contraceptive for younger girls illustrates how a court should respond to agency decisionmaking in a polluted science communication environment. In that case, the district court recognized the danger of motivated reasoning regarding a politically polarized issue and took the unusual step of allowing discovery outside the administrative record.²²⁸ Further scrutiny uncovered clear evidence of political bias. The FDA decision was contrary to the support of the agency's professional staff and a recommendation from an advisory panel.²²⁹ It was also clear that the FDA had

227. See *supra* notes 38–40 and accompanying text.

228. See Heinzerling, *supra* note 133, at 953.

229. See *id.* at 953–54.

departed from its prior practices in choosing not to rely on studies of older adolescents in making judgments regarding younger girls.²³⁰ The court rightly understood the need to question the agency's process. Although the scientific community agreed that Plan B was safe for use by younger girls, people's views on the issue aligned with their cultural worldviews, not with the scientific evidence, producing a tragedy of the science communication commons. For some, Plan B was an abortion pill; exposure to scientific evidence or expert opinion about how the pill works would do little to change that view.

Today, of course, the most polarizing public health issue is climate change. President Trump has questioned the science of human-caused climate change.²³¹ He has also made his regulatory priorities quite clear, directing environmental agencies to pursue a deregulatory agenda and to promote traditional (fossil-fuel) energy production.²³² Former EPA Administrator Scott Pruitt and Acting Administrator Andrew Wheeler have energetically pursued this agenda. Indeed, the EPA has devoted a web page to the many deregulatory actions it has taken in response to the President's executive order.²³³ At the heart of this agenda is a comprehensive effort to roll back Obama-era rules designed to mitigate greenhouse gas emissions.

Judicial review of these roll backs should approach them as products of identity-protective reasoning even when they are cloaked in the language of cost-benefit analysis. For example, in proposing amendments to a rule designed to limit emissions of methane and other pollutants by the oil and gas industry, the EPA's analysis shows industry savings of \$380 to \$484 million and calculates the foregone climate benefits at only \$13.5 to \$54 million between 2019 and 2025.²³⁴ This lopsided cost-benefit analysis is a result of the Trump Administration's new social cost of carbon (SCC). Whereas the Obama Administration had set the SCC at \$50 per ton, the Trump Administration is using a cost estimate of \$1–\$7 per ton.²³⁵ The low number reflects

230. *See id.*

231. *See, e.g.,* Lisa Friedman, *Fact-Check: "I Don't Know That It's Man-Made," Trump Says of Climate Change. It Is.*, N.Y. TIMES (Oct. 15, 2018), <https://www.nytimes.com/2018/10/15/climate/trump-climate-change-fact-check.html>.

232. *See* Exec. Order No. 13,783, Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16,093 (Mar. 31, 2017) (directing agencies to "avoid[] regulatory burdens that unnecessarily encumber energy production").

233. *EPA Deregulatory Actions*, EPA, <https://www.epa.gov/laws-regulations/epa-deregulatory-actions> (last visited Apr. 17, 2019).

234. *See* Niina Heikkinen, *EPA Publishes Methane Rule Redo*, E&E NEWS (Oct. 12, 2018), <https://www.eenews.net/greenwire/stories/1060102439>.

235. *See* Brad Plumer, *Trump Put a Low Cost on Carbon Emissions, Here's Why It Matters*, N.Y. TIMES (Aug. 23, 2018), <https://www.nytimes.com/2018/08/23/climate/social-cost-carbon.html>.

a number of questionable political judgments, including the decision to count only domestic (U.S.) impacts of climate change and to increase the discount rate used to value future impacts.²³⁶

In any event, a court need not engage in its own cost-benefit analysis to conclude that the current SCC is arbitrary and capricious. A recent IPCC report calls on governments to reduce emissions to net zero globally by 2050 in order to avoid the 1.5 degrees Celsius increase in global temperature that scientists warn will come with serious consequences.²³⁷ Warming beyond 1.5 degrees will intensify climate impacts such as sea-level rise, extreme weather, heat waves, and infrastructure disruption.²³⁸ Not surprisingly, after receiving requests from seven Democratic senators, the GAO agreed to review the Trump Administration's SCC.²³⁹ This development parallels the Plan B story; members of Congress asked the GAO to investigate the FDA's refusal, leading to a report demonstrating how the FDA had departed from its typical practices (and engaged in motivated reasoning).²⁴⁰

Although climate change provides a particularly salient example of how a polluted science communication environment can take shape, other issues of scientific consensus have similarly become controversies because of polluted science communication environments. This is a critical point because, like the Plan B controversy, the segment of the public that rejects a scientific consensus sometimes identifies with the political left or aligns with no particular political affiliation. For example, the communities that continue to believe in the link between vaccines and autism despite a clear scientific consensus tend toward the political left.²⁴¹ The segment of the U.S. public that today rejects the scientific consensus that genetically modified (GM) food is safe for human consumption does not share a political ideology.²⁴²

236. See *id.*

237. See *Special Report on Global Warming of 1.5°C 15*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (2018), at 6, 15, https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_version_stand_alone_LR.pdf [hereinafter IPCC, Special Report]. For an overview of the report, see Stephen Leahy, *Climate Change Impacts Worse Than Expected, Global Report Warns*, NAT'L GEOGRAPHIC (Oct. 7, 2018), <https://www.nationalgeographic.com/environment/2018/10/ipcc-report-climate-change-impacts-forests-emissions/>.

238. See IPCC, Special Report, *supra* note 237, at 9–12. If emissions continue at current rates, warming beyond 1.5 degrees Celsius will occur between 2030 and 2052. See *id.* at 6.

239. See Miranda Green, *GAO to Look Into Trump's Reduction of Carbon Social Costs*, THE HILL (June 13, 2018), <https://thehill.com/policy/energy-environment/392066-gao-to-look-into-trump-administrations-reduction-of-social-cost-of>.

240. See Heinzerling, *supra* note 133, at 951.

241. See OTTO, *supra* note 177, at 141–44.

242. A 2016 report by the National Academies of Sciences, Engineering, and Medicine

We could therefore imagine how a polluted science communication environment would affect a different case such as the regulation of GM foods. At present, three federal agencies (EPA, USDA, and FDA) have some role in the regulation of GM foods.²⁴³ The FDA plays a particularly important role. As the gatekeeper for which foods are allowed on the market, the FDA generally evaluates GM foods as “food additives” under the Food, Drugs and Cosmetics Act,²⁴⁴ applying the statutory provisions directly to each application to introduce a new GM food.²⁴⁵ Instead of issuing regulations governing this process, the FDA has published guidance documents that outline a consultation process that though technically voluntary, is effectively mandatory because all GM-food manufacturers follow it.²⁴⁶ The process is time consuming and costly, taking approximately ten years and requiring scientific evidence of safety and nutrition compared to comparable conventional food.²⁴⁷ In contrast, the FDA generally treats non-GM food as substances generally recognized as safe (GRAS), a statutory designation that requires little FDA review.²⁴⁸

Some scholars have called on the FDA to subject this pre-market approval

(NASEM) reviewed the scientific literature on GM foods and “found no substantiated evidence that foods from GE crops were less safe than foods from non-GE crops.” NASEM, GENETICALLY ENGINEERED CROPS: EXPERIENCES AND PROSPECTS 2 (2016), <https://www.nap.edu/catalog/23395/genetically-engineered-crops-experiences-and-prospects> [hereinafter NASEM]. Unlike public opinion regarding climate change, public opinion regarding the safety of GM foods does not appear linked to people’s political affiliations: “[R]oughly equal shares of Republicans (39%) and Democrats (40%) feel that GM foods are worse for people’s health. And, half of Republicans (50%) and 60% of Democrats have positive views about the health benefits of organic foods.” Cary Funk & Brian Kennedy, THE NEW FOOD FIGHTS: U.S. PUBLIC DIVIDES OVER FOOD SCIENCE 6–7 (2016), <http://www.pewresearch.org/science/2016/12/01/the-new-food-fights/>.

243. The EPA regulates plants that are genetically modified to be pest resistant under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). 7 U.S.C. § 136 (2012). USDA’s Animal and Plant Health Inspection Service (APHIS) regulates plants that have been genetically modified using genetic sequences from designated plant pests. 7 C.F.R. § 340.1 (2012). An overview of FDA regulation is provided in the text. For more on U.S. regulatory approaches, see NASEM, *supra* note 242, at 466–72.

244. 21 U.S.C. § 301 (2012).

245. See Edward L. Rubin & Joanna K. Sax, *Administrative Guidance and Genetically Modified Food*, 60 ARIZ. L. REV. 539, 561 (2018) (stating that the FDA evaluates each application for approval of a food additive on an individual basis).

246. See *id.* (asserting that the consultation process is not voluntary because every genetically modified (GM) product goes through the process).

247. See *id.* at 562 (explaining that the process takes about ten years and costs \$136 million).

248. See *id.* Non-GM food is subject to less regulation even though it often uses large-scale mutagenic processes to alter a crop’s genetic composition. See *id.*

process to notice-and-comment rulemaking so that the agency can gather all relevant information and data on GM foods and further democratic ideals of participation through rulemaking.²⁴⁹ But because 39% of the U.S. public believes that GM foods are worse for human health than non-GM foods (contrary to the scientific consensus), the rulemaking would take place in a polluted science communication environment.²⁵⁰ Although the current presidential administration is likely to favor a less cumbersome process for approval of GM foods, we could imagine a political climate that would push in the other direction. Coupled with public misconceptions, a presidential directive to regulate GM foods differently from non-GM foods could produce identity-protective reasoning regarding science. In this circumstance, courts would ideally engage in a more searching review of the FDA's evaluation of the scientific evidence.

As the Plan B, climate-change, and GM-food examples illustrate, when a scientific issue is clouded by a polluted science communication environment, that environment can influence political leaders who set administrative agendas. Although this is separate from general political preferences for more or less regulation, an across-the-board deregulatory agenda obviously presents more opportunities for agency heads to engage in identity-protective reasoning. Instead of approaching a putative environmental or health risk with questions about whether and how much to regulate, decision makers charged with deregulation begin with a conclusion (no or less regulation) and evaluate policy-relevant science with that end in mind. Presidential directives to deregulate in a given area are therefore red flags for potential motivated reasoning.

Another, more serious red flag of motivated anti-science reasoning is the suppression or disregard of established institutional mechanisms for communicating about policy-relevant science. Agency and White House officials in the Trump Administration have engaged in this very behavior. For example, as acting EPA Administrator, Andrew Wheeler eliminated the advisory panels of scientific experts charged with assisting in the review of air quality standards, leaving the considerable task of reviewing all the relevant scientific literature to a seven-member committee dominated by political appointees.²⁵¹ Moreover, such actions are part of a much larger effort to transform science advisory panels and committees by replacing academic experts with industry representatives.²⁵² Even more concerning are reports that EPA

249. *See id.* at 594–97.

250. *Id.* at 595.

251. Sean Reilly, *EPA Scraps Science Panel: "Your Service . . . Has Concluded,"* E&E NEWS (Oct. 12, 2018), <https://www.eenews.net/stories/1060102455/>.

252. *See* Juliet Eilperin, *EPA's New Science Advisers Add More Industry Experts, Conservatives to the Mix,* WASH. POST. (Nov. 4, 2017), <https://www.washingtonpost.com/news/energy-envir>

political appointees may have sought to suppress a government study about the human health risks of PFAS, a contaminant found in drinking water.²⁵³ Another example (discussed below) is the effort by EPA to preclude regulatory consideration of scientific studies that rely on confidential data.²⁵⁴

Some have described the Trump Administration's repeated efforts to undermine established channels of science communication as a "war on science."²⁵⁵ Whatever its origins or purpose, this pattern of behavior is—at the very least—an indication that scientific knowledge is not a priority in setting policies regarding environmental and public health risks. This is perhaps the clearest danger signal of motivated reasoning because it reveals a presidential preference for policy over expertise in *all* decisionmaking.

2. *Unsupported Assumptions and Cherry Picking*

Even when evidence of a polluted science environment is lacking, certain "danger signals" in an agency's reasoning can put a court on notice that the agency may be engaging in motivated reasoning and therefore more likely to manipulate or obfuscate scientific knowledge and evidence. For example, when agencies are following presidential directives to reach a certain result, courts should carefully scrutinize assumptions and conclusions that are not clearly supported or explained. A related danger signal is reliance on a particular scientific prediction or theoretical model without acknowledging uncertainties or placing the prediction within the context of the relevant scientific literature. A decision not to regulate based on scientific uncertainty also requires further explanation.²⁵⁶

onment/wp/2017/11/04/pruitts-new-science-advisers-add-more-industry-experts-conservatives-to-the-mix/?noredirect=on&utm_term=.c60fe7e353b3 (noting that former EPA Administrator "Pruitt has placed 66 new experts on three different EPA scientific committees, many of whom hail from industry or state government, and espouse more conservative views than their predecessors").

253. See Corbin Hiar, *Vulnerable Republicans Push for Releasing Health Study*, E&E DAILY (May 21, 2018), <https://www.eenews.net/eedaily/stories/1060082209/> (stating that the EPA Administrator Scott Pruitt is withholding the health study on fire-resistant chemicals). Eventually released, the draft report concludes that the "minimum risk levels" for the [PFAS] toxins should be seven to 10 times lower than [the drinking water] standards set by EPA in 2016." Ariel Wittenberg, *Federal Study Sounds Alarm on Nonstick Materials*, E&E NEWS (June 20, 2018), <https://www.eenews.net/stories/1060085217/>.

254. See *infra* Part Interpreting Statutory Language—and Agency Interpretations—with Science in Mind.

255. See, e.g., Editorial Board, *Present Trump's War on Science*, N.Y. TIMES (Sept. 9, 2017), <https://www.nytimes.com/2017/09/09/opinion/sunday/trump-epa-pruitt-science.html>.

256. Indeed, in rejecting the EPA's reasons for not making a decision in *Massachusetts v. EPA*, the Court explicitly stated that EPA's "policy judgments" for not regulating do not

Courts already scrutinize unsupported assumptions, particularly in the NEPA context. For example, in a recent case before the Tenth Circuit, the court reviewed the Bureau of Land Management's (BLM's) final environmental impact statement (EIS) for its approval of four coal leases in Wyoming's Powder River Basin.²⁵⁷ In its EIS, the BLM concluded that the no-action alternative (not approving the leases) was not likely to decrease carbon emissions from coal usage.²⁵⁸ The BLM reached this conclusion by forecasting an increased demand for coal regardless of the leases' approval.²⁵⁹ The court emphasized the unsupported assumptions underlying this conclusion: "This long logical leap presumes that either the reduced supply will have no impact on price, or that increase in price will not make other forms of energy more attractive and decrease coal's share of the energy mix, even slightly."²⁶⁰ In light of this logical leap, the court found the BLM's "perfect substitution assumption"—that coal from other sources would fill demand at no cost increase—unsupported and irrational (and therefore arbitrary and capricious).²⁶¹

Similarly, a newly proposed rule that rolls back Obama-era corporate average fuel economy (CAFE) standards for passenger cars and light trucks relies on the questionable assumption that more fuel-efficient vehicles will encourage consumers to drive more because they cost less to operate, and the increased vehicle miles traveled will result in more car accidents.²⁶² It also assumes that heavier vehicles are safer, and the cost savings of less fuel-efficient vehicles will cause consumers to buy newer cars and retire older, less-efficient ones.²⁶³ None of these assumptions have much support in the notice of proposed rulemaking (NPRM), as commentators have noted.²⁶⁴ In addition, the NPRM concludes that holding standards at 2020 levels through

"amount to a reasoned justification for declining to form a scientific judgment." 549 U.S. 497, 533–34 (2007). This language suggests that the Court majority was well aware of how motivated reasoning affects agency's representations of science.

257. *Wildearth Guardians v. Bureau of Land Mgmt.*, 870 F.3d 1222, 1226 (10th Cir. 2017).

258. *Id.* at 1228–29.

259. *Id.* at 1229.

260. *Id.*

261. *Id.* at 1235.

262. *See* Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks, 83 Fed. Reg. 42,986, 43,107 (proposed Aug. 24, 2018) [hereinafter SAFE Rule].

263. *See id.* at 43, 107 (explaining the impact of corporate average fuel economy (CAFE) standards on vehicle sales and use).

264. *See* Jason S. Miller & Shoshana Lew, *The Trump Administration's Fuel-Economy Proposal is Unnecessary and Harmful*, BROOKINGS (Aug. 3, 2018), <https://www.brookings.edu/blog/the-avenue/2018/08/03/the-trump-administrations-fuel-efficiency-proposal-is-unnecessary-and>

2026 is the “maximum feasible” level for CAFE standards and “appropriate” for carbon dioxide emissions.²⁶⁵ This conclusion is likely inaccurate given that leaders of major U.S. car companies are opposed to the rule, objecting to the extent of the rollback and to the NPRM’s withdrawal of California’s preemption waiver.²⁶⁶

The draft EIS for the proposed fuel economy rule also projects a nearly 3.5 degrees Celsius increase in global mean surface temperature by 2100 regardless of whether the more stringent rules for 2020–2026 remain in place.²⁶⁷ The draft EIS then concludes that because avoiding this warming scenario requires “drastic” reductions globally from all sectors and would require “substantial increases in technology innovation,” the increased emissions from relaxed fuel economy standards will make no difference.²⁶⁸ Indeed, the report predicts only a “three thousandths of a degree increase” in global temperature if its least stringent alternative is adopted.²⁶⁹ In other words, it assumes a global business as usual approach to greenhouse gas emissions that makes any incremental change look inconsequential.²⁷⁰

This is an example of “cherry picking” in that it fails to analyze different trajectories to reducing greenhouse gas emissions. It also obscures the factual reality that the proposed rule would add eight billion additional tons of carbon dioxide by 2100, a figure that exceeds total U.S. emissions for one year.²⁷¹ Picking one emissions scenario, in which global emissions remain

-harmful/ (questioning conclusions reached for CAFE’s notice of proposed rulemaking).

265. See SAFE Rule, 83 Fed. Reg. at 42,991.

266. See Timothy Puko & Chester Dawson, *Trump Administration Irked with Car Makers on Fuel-Economy Policy*, WALL. ST. J. (May 10, 2018), <https://www.wsj.com/articles/trump-administration-irked-with-car-makers-on-fuel-economy-policy-1525964401> (emphasizing the division between the White House and California on fuel-efficiency requirements). The new rules would actually harm the auto industry, rather than help it. See Susan Helper et al., *Why Undermining Fuel Efficiency Standards Would Harm the U.S. Auto Industry*, BROOKINGS (July 2, 2018), <https://www.brookings.edu/blog/the-avenue/2018/07/02/why-undermining-fuel-efficiency-standards-would-harm-the-us-auto-industry/> (discussing the White House’s quieter agenda on fuel-efficiency requirements).

267. See NHTSA, No. NHTSA-2017-0069, Draft Envtl. Impact Statement, Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021–2026 Passenger Cars and Light Trucks S-15 (2018), https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/ld_cafe_my2021-26_deis_0.pdf.

268. *Id.* at 5-30.

269. *Id.* at S-20.

270. See *id.* (analyzing climate change impacts without a no action alternative).

271. Juliet Eilperin et al., *Trump Administration Sees a 7-Degree Rise in Global Temperatures by 2100*, WASH. POST (Sept. 28, 2018), <https://www.washingtonpost.com/national/health-science/trump-administration-sees-a-7-degree-rise-in-global-temperatures-by-2100/2018/09/27/b>

constant, is—in the words of one expert—“a textbook example of how to lie with statistics.”²⁷² The proposed fuel efficiency standards “do almost nothing” to mitigate global warming, and then the draft EIS “makes their impact seem even smaller by comparing their proposals to what would happen if the entire world does nothing.”²⁷³ This kind of cherry picking is yet another danger signal of motivated reasoning.

One caveat is critical, however, in thinking about how to review agencies’ assumptions and analyses of alternatives. As discussed above, an agency must often make risk-management decisions in the context of legitimate scientific uncertainty regarding the probability and severity of a given risk.²⁷⁴ For example, the wildlife agencies charged with species protection under the Endangered Species Act (ESA) must make decisions about whether certain courses of action will jeopardize a protected species on the basis of incomplete or uncertain scientific information. In one illustrative case, before issuing a Clean Water Act permit for a proposed development, the Army Corps decided to forego consultation with the Fish and Wildlife Service (FWS) under ESA Section 7 regarding possible impacts to a protected owl species.²⁷⁵ FWS argued that consultation was necessary because the project threatened to interfere with the species’ “habitat connectivity.”²⁷⁶ The district court held that the Army Corps’ decision was not arbitrary and capricious and characterized FWS’s arguments as “undocumented assertions.”²⁷⁷

Although the Ninth Circuit affirmed the district court’s decision, the appellate panel was not unanimous.²⁷⁸ The majority affirmed the lower court because no evidence supported a finding that the protected species lived in the project area and FWS had not designated the project area as critical habitat.²⁷⁹ Judge Ferguson, in dissent, emphasized that the development could have effects on the species even if they are not present in the project area and that this would be sufficient to trigger the consultation requirement.²⁸⁰ He then recognized the science-policy question at the heart of the dispute: “At its core, this case is about exercising ‘institutionalized caution’ in safeguarding endangered species.”²⁸¹ That is, the case is not about FWS’s evaluation

9c6fada-bb45-11e8-bdc0-90f81cc58c5d_story.html?noredirect=on&utm_term=.83d2905f49b5.

272. *Id.*

273. *Id.*

274. *See supra* Part III.B.2.

275. *Defs. of Wildlife v. Flowers*, 2003 WL 22143266 *2–4 (D. Ariz. Aug. 18, 2003).

276. *Id.* at *3.

277. *Id.* at *4–5.

278. *Defs. of Wildlife v. Flowers*, 414 F.3d 1066, 1066 (9th Cir. 2005).

279. *Id.* at 1070–71.

280. *Id.* at 1073 (Ferguson, J., dissenting).

281. *Id.* at 1074.

of scientific evidence, but about a science-policy judgment made in the context of incomplete or uncertain scientific knowledge. Because FWS knew the protected species lived near the project and could not rule out the possibility that it would occupy the project area in the future, it opted for precaution.

The choice to employ the precautionary principle when scientific evidence cannot rule out harm to a species raises a host of issues, such as whether the costs associated with the possible harm are seriousness enough to forego a wait and see approach. It is, however, a policy judgment rather than an unsupported assumption. In other words, it is a choice to rely on a particular approach to risk management (precautionary or not) rather than an evaluation of the underlying scientific knowledge relevant to the risk; it is a second-order judgment about how and when to regulate when scientific information is incomplete or fails to satisfy conventional methods for confirming a hypothesis.²⁸² These kinds of science-policy judgments are not among the “danger signals” or red flags of motivated reasoning regarding an agency’s evaluation of policy-relevant science, although the choice of a risk-management policy may very well be dictated by political preferences.

3. *A Reversal in Position*

Administrative agencies must be allowed to respond to changing circumstances and new information and technology. Changes in policy are therefore expected. But when an agency completely reverses its position (particularly one it has promulgated by regulation) in response to a new presidential preference rather than in response to new scientific or technological information, this is a danger signal that the agency is engaging in motivated reasoning in its evaluation of scientific evidence.

The key Supreme Court precedent on agency reversals is *FCC v. Fox Television Stations, Inc.*²⁸³ The case involved a challenge to a change in the FCC’s policy regarding the “indecent” language that can trigger an enforcement action against a broadcaster.²⁸⁴ Although the agency had previously followed a policy finding only repeated use of expletives actionable, it changed

282. J.B. Ruhl characterizes this kind of policy judgment as a choice about the acceptable level of confidence in evaluating scientific hypotheses. See J.B. Ruhl, *The Battle Over Endangered Species Act Methodology*, 34 ENVTL. L. 555, 559 (2004). He identifies three possible “methodologies” for making these choices: the scientific method, the professional judgment method, and the precautionary principle. See *id.* He argues that the professional judgment method (grounded in the Environmental Species Act’s “best available scientific evidence” standard) is the right approach most of the time, but an agency may use the precautionary principle when scientific evidence is inconclusive, and inaction could lead to the species’ extinction. *Id.* at 600.

283. 556 U.S. 502 (2009).

284. See *id.* at 510 (deeming expletives that were uttered during two live broadcasts aired

course by issuing orders that found “fleeting” uses actionable.²⁸⁵ Writing for a plurality of the Court, Justice Scalia rejected the argument that an agency policy change must undergo “more searching review” than the agency’s initial policy decision.²⁸⁶ Five justices disagreed, however, with Justice Scalia’s treatment of the change as irrelevant and stressed that “the agency must explain why ‘it now reject[s] the considerations that led it to adopt that initial policy.’”²⁸⁷

In his concurrence, Justice Kennedy agreed with the four dissenting justices on this point, writing separately to emphasize the role of agency expertise and the importance of “neutral”—presumably apolitical—reasons:

The question in each case is whether the agency’s reasons for the change, when viewed in light of the data available to it, and when informed by the experience and expertise of the agency, suffice to demonstrate that the new policy rests upon principles that are rational, neutral, and in accord with the agency’s proper understanding of its authority.²⁸⁸

In addition to the agency’s explanation for the change, an agency’s treatment of facts plays a prominent role in Justice Kennedy’s concurrence. If an agency changes course, it cannot “ignore[] or countermand[] its earlier factual findings without reasoned explanation for doing so.”²⁸⁹ This focus on facts led Justice Kennedy to concur in the Court’s judgment that the FCC’s change was not arbitrary or capricious; he concluded that the FCC had based its previous policy on its understanding of Supreme Court precedent rather than factual findings.²⁹⁰

Applied to changes in policies involving evaluation of science, Justice Kennedy’s approach would require explicit acknowledgement of previous agency statements regarding the nature and strength of science evidence. Statements characterizing the scientific literature—such as statements about the strength of the scientific consensus surrounding human-caused climate change—are factual statements. A decision to disregard or ignore such statements would require explanation under *Fox Television*. For example, the Trump Administration’s reversals of Obama-era regulations such as the CAFE standards should withstand judicial review only if the records can explain why current administrative officials are discounting or ignoring facts

by *Fox Television Stations, Inc.* as actionably indecent).

285. *See id.* at 508. “Fleeting” means that the word is used only once.

286. *Id.* at 514 (plurality opinion).

287. *Id.* at 535 (Kennedy, J., concurring in part and concurring in judgment) (quoting Justice Breyer’s dissent).

288. *Id.* at 536.

289. *Id.* at 537.

290. *Id.* at 538.

relied upon in previous rulemakings.²⁹¹

A recent decision by the Fourth Circuit illustrates how a change of position, unaccompanied by neutral explanation, can be a danger signal of motivated political reasoning. In *Cowpasture River Preservation Ass'n v. Forest Service*,²⁹² the court reviewed the Forest Service's authorization of the construction of a pipeline through portions of the George Washington and Monongahela National Forests as well as the grant of a right-of-way across the Appalachian National Scenic Trail.²⁹³ The court vacated the Forest Service's decisions, concluding that they violated federal statutes.²⁹⁴ In reviewing the record, the court emphasized the Forest Service's abrupt changes in position.²⁹⁵ For example, in October 2016, the Forest Service had originally required that the project developer submit ten "site-specific stabilization designs" for the management of slope and soil instability in steep, high-risk areas.²⁹⁶ Then in May 2017, the Forest Service reversed course and announced it would not require the remaining eight designs—two had already

291. See Pamela King, *Trump's Deregulatory Agenda in Court*, E&E NEWS (Jan. 23, 2019), <https://www.eenews.net/stories/1060118017> (concluding that courts will overturn regulation reversals that do not sufficiently explain how the new approach to a legal or statutory requirement is superior to the previous administration's approach); Nick Sobczyk, *Republicans Say Rollback Paints Rosy Picture for Coal*, E&E NEWS (Dec. 7, 2018), <https://www.eenews.net/eedaily/stories/1060109037?t=https%3A%2F%2Fwww.eenews.net%2Fstories%2F1060109037> (stating that a current administration's proposal ignored the EPA's economic analysis that found contradictory predictions). Courts should draw the line between fact and policy carefully and resist the temptation to treat all agency determinations as facts. For example, in vacating the Trump State Department's decision that construction of the Keystone XL pipeline was in the national interest, the district court treated the Obama Administration's assessment of the "United States's role in climate leadership" as "factual findings related to climate change." *Indigenous Envtl. Network v. Dep't of State*, 347 F. Supp. 3d 561, 583–84 (D. Mont. 2018), *vacated as moot by* *Indigenous Envtl. Network v. Dep't of State*, No. 18-36068, 2019 WL 2542765 (9th Cir. June 6, 2019). The Obama Administration's decision was based on a time-sensitive policy concern that the pipeline's approval would weaken the United States' position in international climate negotiations, rather than a factual finding about the pipeline's contribution to climate change. See *Recent Cases: Administrative Law—Agency Policy Change—Montana District Court Holds State Department's National Interest Determination for Keystone XL Pipeline Violated APA by Disregarding Prior Factual Findings*, 132 HARV. L. REV. 2368, 2376 (2019).

292. 911 F.3d 150 (4th Cir. 2018).

293. *Id.* at 154–55.

294. *Id.* at 155.

295. See *id.* at 158 (noting that the approaching deadlines changed the Forest Service's "tenor" regarding the possible "adverse impacts" of the project).

296. See *id.* at 156 (noting the purpose of the Forest Service's request was to demonstrate the effectiveness of the project).

been submitted—before authorizing the project.²⁹⁷ The Forest Service also changed its position on whether the project would result in a “loss of viability” for three species, first deciding that it would and then concluding that a loss of viability was unlikely.²⁹⁸ In both cases, the Forest Service provided no explanation for its change in position.²⁹⁹

The court clearly treated the unexplained changes in position as red flags of arbitrary and capricious decisionmaking. It rejected the Forest Service’s argument that the change in requiring stabilization designs was just one of timing, emphasizing that the change “meant the Forest Service approved the pipeline without information it previously determined was necessary to making its decision, and it did so without acknowledging, much less explaining, its change in position.”³⁰⁰ Using strong language, the court concluded that the Service had “abdicated its responsibility to preserve national forest resources” and explained that its “conclusion is particularly informed by the Forest Service’s serious environmental concerns that were suddenly, and mysteriously, assuaged in time to meet a private pipeline company’s deadlines.”³⁰¹ In short, the court recognized that in the absence of a neutral explanation, a change in a policy previously informed by scientific evidence looks like it is motivated solely by political preferences.

C. *Interpreting Statutory Language—and Agency Interpretations—with Science in Mind*

Judicial review should also serve to check identity-protective reasoning in agencies’ interpretations of their statutory responsibilities. Rarely will agencies contradict statutory authority so clearly as to violate the plain meaning of the statute under the first step in a deferential *Chevron* analysis. But an agency interpretation of an environmental or public health statute that disregards policy-relevant science could easily be unreasonable under step two of *Chevron*. Another way in which deference doctrine could guard against motivated reasoning would be to consider whether an agency’s interpretation is informed by its expertise in deciding how much deference to afford that interpretation in the first place. This final Section briefly discusses both approaches and applies them to agency decisions subject to current litigation.

297. *See id.* at 158–59 (stating that the Forest Service’s letter merely stated the change in position).

298. *Id.* at 159 (internal quotations omitted).

299. *See id.* at 159–60 (providing no explanation behind the Forest Service’s change of course).

300. *Id.* at 175.

301. *Id.* at 183.

Should a court decide that an agency's interpretation is due *Chevron* deference, its analysis of whether the interpretation is reasonable should include an inquiry into whether the agency reasonably considered policy-relevant science, provided that the authorizing statute allows for such an inquiry. In other words, even if the statute does not direct the agency to review relevant scientific knowledge, consideration of policy-relevant science should be a default rule for interpreting statutes that regulate public health and environmental risks. Courts should presume that agencies must consider all relevant scientific evidence in the absence of clear intent to the contrary.

A science-consideration default rule would look much like the cost-consideration default rule that the Court adopted in *Michigan v. EPA*.³⁰² Writing for the Court, Justice Scalia found the EPA's interpretation of the words "appropriate and necessary" unreasonable because it did not include consideration of cost.³⁰³ He explained that because cost consideration is a long-established practice, "it is unreasonable to read an instruction to an administrative agency to determine whether 'regulation is appropriate and necessary' as an invitation to ignore cost."³⁰⁴ As the examples below demonstrate, it would be similarly unreasonable to interpret language in environmental statutes in a manner that ignores relevant science.³⁰⁵

Another way to ensure consideration of policy-relevant science is to recognize its place within deference doctrine generally. If *Chevron* does not apply to the agency interpretation in a given case, the lesser deference afforded by *Skidmore v. Swift & Co.*³⁰⁶ would turn on factors tied to the agency as expert, rather than the agency as policymaker: "The weight of such a[n] [interpretive] judgment in a particular case will depend upon the thoroughness evi-

302. 135 S. Ct. 2699, 2711 (2015) (holding the EPA "must consider cost—including, most importantly, cost of compliance—before deciding whether regulation is appropriate and necessary").

303. *See id.* at 2706–07 (stating that by deciding that it could ignore cost, the EPA "strayed far beyond the bounds" of the EPA's regulatory power under the appropriate and necessary standard).

304. *Id.* at 2708.

305. This approach to the reasonableness of policy-relevant science mirrors that of the business judgment rule. Under this well-known rule, courts presume that "in making a business decision the directors of a corporation acted on an informed basis, in good faith, and in the honest belief that the action taken was in the best interests of the company." *In re. Walt Disney Co. Derivative Litigation*, 906 A.2d 27, 52 (Del. 2006) (internal quotation omitted). *Chevron* step two should recognize a similar presumption—that agencies are informed by the relevant scientific literature, act in good faith, and seek to further their enabling statute's purposes.

306. 323 U.S. 134 (1944).

dent in its consideration, the validity of its reasoning, its consistency with earlier and later pronouncements, and all those factors which give it power to persuade, if lacking power to control.”³⁰⁷ Indeed, in *Barnhart v. Walton*,³⁰⁸ Justice Breyer approached the threshold question of whether to apply *Chevron* deference by applying *Skidmore*-like factors.³⁰⁹ Writing for the Court, he concluded that *Chevron* applied in part because of the nature of the question and “related expertise of the Agency,” along with the consistency of the agency’s interpretation over time.³¹⁰ Following this approach, when an agency applies policy-relevant science to an interpretation, that expertise entitles the agency interpretation to more deference either under the conventional *Chevron* framework or in terms of the *Skidmore* factors’ “power to persuade.”³¹¹

To be sure, courts should not use these approaches as a means of imposing their own judgments regarding science-policy issues. Both a background rule regarding science-consideration and a *Barnhart* recognition of expertise require a reviewing court to recognize the nature of scientific inquiry and knowledge. Regulations that protect the environment and public health often rely on scientific knowledge that is uncertain in ways discussed above. Interpreting a statute to require certainty—even in the legal sense of more likely than not—misunderstands the scientific process and undercuts the agency’s ability to fulfill its statutory mandate.

The classic case that illustrates how courts can fail to appreciate the fundamentally different nature of scientific knowledge is the “benzene” case, in which the Supreme Court struck down the Occupational Safety and Health Administration’s (OSHA’s) 1 ppm exposure limit on benzene in the workplace.³¹² Justice Stevens, writing for a plurality, interpreted the statutory lan-

307. *Id.* at 140.

308. 535 U.S. 212 (2002).

309. *See id.* at 222 (factoring the nature and importance of the legal question, the expertise of the agency, and the complexity of administration when deciding whether to apply *Chevron* deference).

310. *Id.*

311. Scholars have argued that the core of *Skidmore* is about the “power to persuade” based on agency expertise. In their article examining the Court’s use of different “deference regimes,” Eskridge and Baer “urge the Court to make clear that an agency’s ‘power to persuade’ under *Skidmore* be understood by reference to the substantive factors . . . especially comparative agency expertise: Is the issue a technical one where the agency has exercised intelligent expert judgment, based upon a factual connection between its choice and the (complex) statutory purpose? If so, there is greater reason for the Court to defer.” Eskridge & Baer, *supra* note 224, at 1188.

312. *See Indus. Union Dep’t v. Am. Petroleum Inst.*, 448 U.S. 607, 613–15 (1980) (plurality opinion) (affirming the Fifth Circuit’s decision that the Occupational Safety and

guage that empowered OSHA to promulgate workplace standards “reasonably necessary and appropriate to provide safe or healthful employment” to require a showing that the standard is “reasonably necessary and appropriate to remedy a *significant* risk of material health impairment.”³¹³

As the dissenting justices argued, the plurality’s interpretation of the statute failed to acknowledge the nature of scientific inquiry and knowledge.³¹⁴ Scientists must extrapolate from epidemiological and animal studies to make risk assessments; their conclusions necessarily incorporate trans-scientific judgments and uncertainties because they cannot conduct double-blind clinical studies that expose people to a known carcinogen.³¹⁵ A court applying the science-consideration default rule would ask whether the agency considered the relevant scientific literature and used its expertise to further the statute’s purposes—in this case, the health and safety of workers.

When viewed from this perspective, the agency’s decision to exercise precaution (because it could not identify a safe exposure limit) and set the limit based on economic feasibility is reasonable. Similarly, on the *Barnhardt* continuum, the agency’s interpretation is entitled to judicial deference because it is using its expertise to interpret the statute in light of scientific uncertainty. In regulating benzene in the workplace, OSHA was drawing on its expertise to make policy judgments protective of human health in face of scientific uncertainty. These kinds of informed judgments are entitled to deference.

Conversely, when agency interpretations of environmental and public health statutes are not informed by relevant science or in keeping with statutory purposes, they are either due less deference or are unreasonable under step two of *Chevron*. For example, the EPA and Army Corps’ proposed rescission of the Obama Administration’s Clean Water Rule is unreasonable because it does not adequately consider scientific knowledge in determining the extent to which wetlands are covered by the phrase “waters of the United States” in the Clean Water Act.³¹⁶ The Obama-era interpretation of the Act’s coverage was based on a 400-page “connectivity report” that detailed scien-

Health Administration (OSHA) exceeded its authority by failing to show benzene poses a significant health risk in the workplace, such that OSHA’s standard was reasonably necessary or appropriate).

313. *Id.* at 639 (emphasis added).

314. *See id.* at 690 (Marshall, J., dissenting) (“The critical problem in cases like the ones at bar is scientific uncertainty. While science has determined that exposure to benzene levels above 1 ppm creates a definite risk of health impairment, the magnitude of the risk cannot be quantified at the present time.”).

315. *See supra* Part Value Judgments in Policy-Relevant Science.

316. Clean Water Act § 502(7), 33 U.S.C. § 1362(7) (2012) (defining “navigable waters” [as] the waters of the United States”).

tific research on the connection between wetlands, including isolated wetlands, and downstream rivers, lakes, and streams.³¹⁷ In a Notice of Proposed Rulemaking, the current EPA and Army Corps accuse the previous administration of relying too much on science: “The agencies now believe that they previously placed too much emphasis on the information and conclusions of the Connectivity Report when setting jurisdictional lines in the 2015 Rule.”³¹⁸ This alone might not constitute an unreasonable interpretation of the Clean Water Act, but failure to accurately represent the scientific research on water quality and wetlands would entitle the final rule to less deference.³¹⁹

Another example of a proposed rule that affects regulatory science is EPA’s proposed rule entitled “Strengthening Transparency in Regulatory Science.”³²⁰ This rule would require that the scientific data underlying policy-relevant scientific studies “are publicly available in a manner sufficient for independent validation.”³²¹ Scientists and legal scholars have objected to this rule as unnecessary and contrary to best scientific practices because it

317. See Rule Defining Waters of the United States, 80 Fed. Reg. 37,054, 37,057 (June 29, 2015) (stating the EPA’s Office of Research and Development prepared the comprehensive report).

318. Definition of “Waters of the United States”—Recodification of Preexisting Rule, 83 Fed. Reg. 32,227, 32,241 (proposed July 12, 2018).

319. The recently published proposed rewrite of the 2015 rule does not explicitly discount the value of the connectivity report, but its treatment of the report and the EPA Science Advisory Board’s (SAB’s) review of the draft report are highly misleading. The discussion of the SAB’s review in the proposed rule implies that the SAB was critical of the connectivity report’s conclusion that “ephemeral” streams (in addition to “intermittent” and “perennial” streams) are connected to downstream waters. See Revised Definition of “Waters of the United States,” 84 Fed. Reg. 4154, 4176 (proposed Feb. 14, 2019). Contrary to this implication, the SAB review recognized “strong scientific support” in the literature for these conclusions and simply suggested that the EPA acknowledge a “gradient of connectivity” as one of *several* recommendations to strengthen its connectivity conclusions. See SCIENCE ADVISORY BOARD (SAB), EPA-SAB-15-001, SAB REVIEW OF THE DRAFT EPA REPORT CONNECTIVITY OF STREAMS AND WETLANDS TO DOWNSTREAM WATERS: A REVIEW AND SYNTHESIS OF THE SCIENTIFIC EVIDENCE 3–4 (2014). Overall, in fact, the SAB’s review suggests that the scientific literature supports even stronger conclusions regarding connectivity in key contexts. For example, the SAB disagreed with the connectivity report’s statement that the literature was too uncertain to draw conclusions about the connectivity of non-floodplain wetlands and their downstream effects. See *id.* at 58 (“The SAB finds that the scientific literature, including references cited in the EPA [connectivity] Report, provides ample information to support a more definitive statement . . .”).

320. Strengthening Transparency in Regulatory Science, 83 Fed. Reg. 18,768 (proposed Apr. 30, 2018).

321. *Id.*

would preclude the use of valid scientific studies based on data that is unavailable due to confidentiality agreements with study participants or the proprietary interests of investigators.³²² As a comment submitted by law faculty argues, the statutory provisions upon which the EPA relies in the rulemaking only authorize the EPA to establish research programs.³²³ None of the provisions speak to the nature of a study's underlying data. Indeed, the data disclosure requirement would seriously limit the EPA's ability to rely on the best available scientific evidence in fulfilling its mission to protect public health and the environment. It is therefore unreasonable in light of the background principle of science consideration and entitled to little deference under *Barnhart* given the agency's failure to employ its expertise.

The last example is from the ESA litigation regarding the dusky gopher frog, a case that made it all the way to the Supreme Court this past term.³²⁴ The ESA lists the dusky gopher frog as an endangered species.³²⁵ Consistent with statutory directives, FWS designated "habitat" of the endangered frog that it was "considered to be critical habitat."³²⁶ Landowners whose property fell within the designation challenged FWS's decision.³²⁷

A key issue in the case involves the ESA's provision defining "critical habitat." The ESA contains a definition of "critical habitat" that includes areas occupied by the species and areas currently not occupied by the species if the agency deems "such areas essential for the conservation of the species."³²⁸ The word "habitat" is not separately defined. The landowners argued that

322. See, e.g., Robinson Meyer, *Even Geologists Hate the EPA's New Science Rule*, ATLANTIC (Jul. 17, 2018), <https://www.theatlantic.com/science/archive/2018/07/scott-pruitts-secret-science-rule-could-still-become-law/565325/> (noting that "scientific and medical institutions have rejected the proposal en masse because it would paralyze most medical researchers").

323. See Sarah Adams-Schoen et al., *Comment on Proposed Rule Strengthening Transparency in Regulatory Science* 3–4 (Aug. 14, 2018), <https://www.regulations.gov/document?D=EPA-HQ-OA-2018-0259-6188> (submitted on behalf of 68 law professors and concluding that "the EPA offers no legal authority upon which to base a rulemaking of this significance").

324. See *Weyerhaeuser Co. v. U.S. Fish & Wildlife Serv.*, 139 S. Ct. 361, 364 (2018) (reviewing the lower court's ruling that the Endangered Species Act (ESA) did not impose a limitation on the scope of critical habitat).

325. See *id.* at 365 (noting the Fish and Wildlife Service (FWS) listed the dusky gopher frog as an endangered species in 2001).

326. 16 U.S.C. § 1533(a)(3)(A)(i) (2012) (requiring that after deeming a species endangered or threatened, the Secretary must designate that species' habitat, "which is then considered to be critical habitat").

327. See *Weyerhaeuser*, 139 S. Ct. at 364 (arguing "[t]hat their land cannot be *critical* habitat because it is not *habitat*, which they contend refers only to areas where the frog could currently survive").

328. 16 U.S.C. § 1532(5)(A) (2012) (defining critical habitat).

FWS could not designate their land as “habitat” because it is currently not occupied by the frog and the frog could not survive on the land in its current condition.³²⁹ The Supreme Court held that although “critical habitat” is defined in the statute, it is a “subset” of the larger category of “habitat,” which the statute does not define.³³⁰ Because the Fifth Circuit had relied on the “critical habitat” definition and had not interpreted the term “habitat,” the Court remanded the case, signaling that the appellate court should consider whether the term “habitat” contains a “habitability requirement.”³³¹

Recognizing a background, or default, rule requiring FWS to interpret “habitat” with relevant science in mind would help resolve this case. FWS’s interpretation allows for the designation of “habitat” that is unoccupied and currently unsuitable for the species precisely because this is what is scientifically sound for the recovery of the species. As scientists argued in an amicus brief before the Court, “habitat” should be defined according to scientific understanding rather than a general dictionary definition because “habitat may vary in quality over space and time.”³³² For this reason, “habitat” should not be interpreted in a static way, but at a “landscape scale” that acknowledges the dynamic nature of habitat and species conservation.³³³ A definition that does not include unoccupied lands or lands in need of restoration would undermine FWS’s ability to fulfill its conservation mission under the ESA.³³⁴ To ensure the recovery of a species, FWS must be able to plan on larger spatial and temporal scales. In short, FWS’s scientific understanding of “habitat” is not likely a product of political preferences but is instead a result of expert judgment and therefore entitled to deference.

329. See generally *Weyerhaeuser*, 139 S. Ct. at 369 (noting, however, that habitat may include areas where species do not currently live, given that the statute includes unoccupied areas in the critical habitat definition).

330. See *id.* (pointing out that the definition “[l]eaves the larger category of habitat undefined”).

331. See *id.* (vacating the judgment and remanding for the Fifth Circuit to consider if there is a habitability requirement).

332. Brief for Scientists as Amici Curiae Supporting Respondents at *8; *Weyerhaeuser*, 139 S. Ct. 361 (2018) (No. 17–71).

333. *Id.* at *15–16.

334. See *id.* at *9 (“Without landscape scale planning and the ability to designate of a broad range of habitat, including restorable habitat, as critical habitat, the [Fish and Wildlife] Service cannot fulfill Congress’s mandates under the Act.”). An amicus brief filed by former Department of Interior officials echoed this scientific understanding of habitat, noting that even currently *occupied* habitat could suddenly prove inadequate as a result of natural events such as hurricanes or climate change or as a consequence of land development. Brief for Former Dep’t of the Interior Officials as Amici Curiae Supporting Respondents at *11, *Weyerhaeuser Co. v. U.S. Fish & Wildlife Serv.*, 139 S. Ct. 361 (2018) (No. 17–71).

CONCLUSION

Reason giving has a long history in administrative law. That history reflects the changes in the structure and extent of the administrative state, as well as changes in conceptions of scientific knowledge and rationality. A contemporary model of agency decisionmaking must balance the reality of increased presidential influence against congressional mandates to protect public health and the environment. A realistic model that acknowledges that agencies are political decision makers subject to motivated reasoning provides a foundation upon which to build doctrines of judicial review that keep political influence from swallowing expert judgment. Although the line between science and policy is not clear, courts can identify the “danger signals” of motivated reasoning in reviewing an agency’s record. When these “danger signals” are present, hard-look review can discern whether an agency’s discussions of policy-relevant science are predetermined by presidential preferences. Similarly, the adoption of a science-consideration presumption in interpreting environmental and public health statutes would provide a check on motivated reasoning and reduce the likelihood that presidential preferences will undermine legislative directives.