CLIMATE CHANGE REGULATION AND EPA DISINCENTIVES

BY
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This Article criticizes the U.S. Environmental Protection Agency's (EPA) climate change regulations and policies, arguing that EPA has failed to control the dangerous level of greenhouse gas discharges that have been causing the steady growth of global warming and climate change. Unlike other critiques of EPA climate change efforts, this Article focuses on the administrative incentives and disincentives shaping EPA's inadequate regulatory performance. The relevant disincentives include insufficient budgets and personnel, exposure to constant criticism from affected parties, especially congressional criticisms arising from the lobbying efforts of wealthy fossil fuel industries, the inability to resolve many scientific and economic uncertainties, and the continuing absence of widespread public support. This Article contends that adopting, revising, or extending ambitious climate change laws and regulations will never succeed in overcoming climate change hazards as long as EPA and other environmental protection, health, and safety agencies lack essential public backing, financial support, and positive professional and personnel incentives.

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I. INTRODUCTION

In 2007, the U.S. Supreme Court decided in *Massachusetts v. Environmental Protection Agency*[1] that the Clean Air Act (CAA)[2] authorizes the U.S. Environmental Protection Agency (EPA or Agency) to regulate greenhouse gas discharges if the air pollution endangers human health and welfare. The court further held that pursuant to CAA provisions, EPA must regulate greenhouse gas (GHG) discharges if the Agency finds that GHG pollution does endanger the American people.[3] In its unenthusiastic response, the Bush Administration EPA refused to make the necessary "endangerment" finding or to issue regulations to address current and future climate change risks.[4]

In his first presidential electoral campaign, Barack Obama stated: "[W]e cannot afford more of the same timid politics when the future of our planet is at stake. Global warming is not a someday problem, it is now."[5] In 2009, newly appointed Obama Administration EPA officials issued a formal finding stating that, under CAA section 202(a), "atmospheric concentrations of six

1 549 U.S. 497 (2007).

2 42 U.S.C. §§ 7401–7671q (2012).

3 *Massachusetts v. EPA*, 549 U.S. at 532–33; *see also* Robert V. Percival, *Presidential Power to Address Climate Change in an Era of Legislative Gridlock*, 32 VA. ENVTL. L.J. 134, 134 (2014) (discussing the Court's holding that EPA has authority to regulate GHGs).

4 *See* Thomas O. McGarity, *EPA at Helm's Deep: Surviving the Fourth Attack on Environmental Law*, 24 FORDHAM ENVTL. L. REV. 205, 223–24 (2012–2013) (noting the Bush Administration's rejection of EPA's endangerment findings and proposed GHG regulations).

5 David Roberts, *The Full Text of Obama's Energy Remarks*, GRIST, Oct. 9, 2007, http://grist.org/article/obamas-speech/ (last visited Feb. 14, 2015).

key, well-mixed greenhouse gases threaten[] both the public health and the public welfare of current and future generations."[6] This "endangerment" finding imposed a responsibility on EPA to begin regulating major GHG emissions sources to stabilize or reduce climate change dangers.[7]

In the first year of the new Administration, several environmental law academicians and officials from influential environmental groups joined the White House and EPA staffs in the hope of promoting effective climate change mitigation policies, as President Obama promised during his campaign.[8] Professor Lisa Heinzerling of the Georgetown University Law Center was one of these academic participants,[9] and she described the initial Obama Administration apppointments as:

> ardent proponents of action on climate change to head agencies and departments, and these officials in turn appointed like-minded individuals to help them in their tasks. Interagency meetings early in the Administration were crowded with people whose chief, if not sole, job was to imbue their agencies with an action-oriented perspective on climate change.[10]

In the past five years, sadly, President Obama's climate change action promises and priorities have not been met by EPA, which has accomplished very little to reduce GHG discharges from the worst American GHG pollution sources. The only partial exception to this disappointing regulatory record is the joint action undertaken in 2012 by EPA and the National Highway Traffic Safety Administration to mandate 50% higher fuel efficiency standards for new motor vehicles—but not until 2025—that would comparably reduce the future volume of GHG emissions from new vehicles.[11] EPA also adopted a disclosure program requiring large GHG dischargers to monitor and disclose their annual GHG emissions, but this program does not require any specific emissions reductions.[12]

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6 U.S. Envtl. Prot. Agency, *EPA's Endangerment Finding: Frequently Asked Questions*, http://www.epa.gov/climatechange/Downloads/endangerment/EndangermentFinding_FAQs.pdf (last visited Feb. 14, 2015) (providing an explanation of creation, scope, and purpose of the endangerment finding); Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 18,886, 18,887 (proposed Apr. 24, 2009) (to be codified at 40 C.F.R. ch. 1).

7 42 U.S.C. § 7521(a)(1).

8 Anne E. Kornblut, *Obama Rolls Out Energy and Climate Team*, WASH. POST, Dec. 15, 2008, http://voices.washingtonpost.com/44/2008/12/obama-rolls-out-energy-and-cli.html (last visited Feb. 14, 2015).

9 *See* Lisa Heinzerling, *Climate Change at EPA*, 64 FLA. L. REV. 1, 1 (2012) (noting Professor Heinzerling's tenure at EPA from July 2009 through December 2010 as both Senior Climate Policy Counsel and Associate Administrator of EPA's Office of Policy).

10 *Id.* at 6 (citation omitted).

11 U.S. ENVTL. PROT. AGENCY, EPA-420-F-12-051, EPA AND NHTSA SET STANDARDS TO REDUCE GREENHOUSE GASES AND IMPROVE FUEL ECONOMY FOR MODEL YEARS 2017–2025 CARS AND LIGHT TRUCKS 2 (2012), *available at* http://www.epa.gov/otaq/climate/documents/420f12051.pdf.

12 *See* U.S. Envtl. Prot. Agency, *Greenhouse Gas Reporting Program: Basic Information*, http://www.epa.gov/ghgreporting/basic-info/index.html (last visited Feb. 14, 2015) (explaining that the requirements of large sources of GHGs include mandatory reporting, with no mention of specific emissions reductions).

As a result of EPA's ineffectiveness during the past five years, existing coal-fired power plants, the largest source of GHG pollution in America, have not yet been formally regulated.[13] Petroleum refineries, with large GHG emissions from various oil processing functions, have not been regulated.[14] The large volume of GHG emissions from heavily polluting industries, including cement production and steel smelting, has not been regulated. Despite the 2025 transportation restrictions on future discharges from new light motor vehicles, GHG emissions from locomotives, ships, and aircraft have not been regulated.[15] The surprisingly high amount of GHGs from agricultural practices, livestock raising, and harmful forest exploitation has not been regulated.[16] And continuous negotiations with many other nations for the past twenty years to increase GHG emissions-reduction targets have repeatedly failed.[17]

It is regrettable but true that the early optimism of Obama Administration officials, leading EPA staff members, and millions of Americans concerned with climate change dangers, has proven completely unjustified. Under an array of frustrating regulatory conditions, academic participants, including Professor Heinzerling, resigned from their government positions shortly after they were exposed to the lack of sufficient administration, congressional, and EPA support and funding for ambitious climate change mitigation programs.[18]

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13 Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830, 34,830 (June 18, 2014) (to be codified at 40 C.F.R. pt. 60) [hereinafter EPA, 2014 Rule]. EPA has proposed a rule for existing power plants but it will not be approved before 2015. *Id.* at 34,838.

14 Elizabeth McGowan, *EPA Puts Greenhouse Gas for Oil Refineries on Backburner*, INSIDE CLIMATE NEWS, Mar. 8, 2012, http://insideclimatenews.org/news/20120308/epa-greenhouse-gas-emissions-rules-oil-refineries-power-plants-tailoring-rule-2012-elections-obama-climate-change (last visited Feb. 14, 2015); *see also* Ctr. for Climate and Energy Solutions, *Greenhouse Gas Standards for Refineries*, http://www.c2es.org/federal/executive/epa/greenhouse-gas-standards-for-refineries (last visited Feb. 14, 2015).

15 JAMES E. MCCARTHY & BRENT D. YACOBUCCI, CONG. RESEARCH SERV., R40506, CARS, TRUCKS, AND CLIMATE: EPA REGULATION OF GREENHOUSE GASES FROM MOBILE SOURCES, SUMMARY (2014), *available at* https://www.fas.org/sgp/crs/misc/R40506.pdf.

16 *See* J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 ECOLOGY L.Q. 263, 263 (2000) ("When combined, the active and passive safe harbors farms enjoy in most environmental laws amount to an 'antilaw' that finds no rational basis given the magnitude of harms farms cause."); Alice Kaswan, *Decentralizing Capand-Trade? State Controls within a Federal Greenhouse Gas Cap-and-Trade Program*, 28 VA. ENVTL. L.J. 343, 373 (2010) (noting lack of GHG emissions regulation in the agriculture and forestry sectors).

17 *See* HOWARD A. LATIN, CLIMATE CHANGE POLICY FAILURES: WHY CONVENTIONAL MITIGATION APPROACHES CANNOT SUCCEED 109 (2012) [hereinafter LATIN, CLIMATE CHANGE POLICY FAILURES] (explaining that since its adoption in 1992, the U.N. Framework Convention on Climate Change has, with a couple of exceptions, has achieved little agreement about international policy to counter global climate change).

18 *See, e.g.*, Heinzerling, *supra* note 9, at 12 (arguing "the Agency has moved backwards, from an accepting embrace of its duties under the Clean Air Act to bargaining with itself just to keep what it has"); Jeremy P. Jacobs, *Lisa Heinzerling Won't Back Down*, GREENWIRE, May 27, 2014, http://www.eenews.net/stories/1060000220 (last visited Feb. 14, 2015).

Consider this discouraging example: On September 20, 2013, EPA proposed[19] New Source Performance Standards (NSPS) for new fossil fuel-fired power plants—covering mainly coal-burning and natural gas-burning electric generating units (EGUs).[20] After publishing hundreds of pages of commentary attempting to explain and justify the features of the 2013 proposed NSPS, EPA summarized the ostensible achievements of this rule in one paragraph:

> Under a wide range of electricity market conditions—including EPA's baseline scenario as well as multiple sensitivity analyses—EPA projects that the industry will choose to construct new units that already meet these standards, regardless of this proposal. As a result, EPA anticipates that the proposed EGU New Source GHG Standards will result in negligible CO_2 emission changes, energy impacts, benefits or costs for new units constructed by 2020. Likewise, the Agency does not anticipate any notable impacts on the price of electricity or energy supplies.[21]

The Regulatory Impact Analysis (RIA) for the 2013 power plant NSPS stated that "the proposed EGU New Source GHG Standards are not expected to change GHG emissions for newly constructed EGUs, and are anticipated to yield no monetized benefits and impose negligible costs, economic impacts, or energy impacts on the electricity sector or society."[22] The 2013 NSPS regulatory explanation similarly concluded: "based on the analysis

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19 When EPA published a number of documents supporting the 2013 proposed NSPS for fossil fuel power plants, these documents were accompanied by the following qualification:

> The EPA Administrator, Gina McCarthy, signed the following notice on 9/20/2013, and EPA is submitting it for publication in the *Federal Register* (FR). While we have taken steps to ensure the accuracy of this Internet version of the rule, it is not the official version of the rule for purposes of compliance. Please refer to the official version in a forthcoming FR publication, which will appear on the Government Printing Office's FDSys website (http://fdsys.gpo.gov/fdsys/search/home.action) and on Regulations.gov (http://www.regulations.gov) in Docket No. EPA-HQ-OAR-2006-0790. Once the official version of this document is published in the FR, this version will be removed from the Internet and replaced with a link to the official version.

U.S. ENVTL. PROT. AGENCY, EPA-HQ-OAR-2013-0495, STANDARDS OF PERFORMANCE FOR GREENHOUSE GAS EMISSIONS FROM NEW STATIONARY SOURCES: ELECTRIC UTILITY GENERATING UNITS (2013), *available at* https://www.procon.org/sourcefiles/epa-proposed-rule-carbon-pollution-from-power-plants-sep-2013.pdf. The formal proposed NSPS was eventually published on January 8, 2014. *See generally* Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1430 (Jan. 8, 2014) (to be codified at 40 C.F.R. pts. 60, 70, 71, and 98) [hereinafter EPA, 2013 NSPS]. I did not find any major changes with regard to new fossil fuel power plants. However, the introduction to the new revised NSPS observed: "This action also includes related proposals concerning permitting fees under Clean Air Act Title V, the Greenhouse Gas Reporting Program, and the definition of the pollutant covered under the prevention of significant deterioration program." *Id.*

20 79 Fed. Reg. at 1434–36, 1442.

21 U.S. ENVTL. PROT. AGENCY, EPA-452/R-13-003, REGULATORY IMPACT ANALYSIS FOR THE PROPOSED STANDARDS OF PERFORMANCE FOR GREENHOUSE GAS EMISSIONS FOR NEW STATIONARY SOURCES: ELECTRIC UTILITY GENERATING UNITS 5-54 (2013) [hereinafter EPA, 2013 RIA], *available at* http://www2.epa.gov/sites/production/files/2013-09/documents/20130920proposalria.pdf.

22 *Id.* at 5-1.

presented in Chapter 5 of the RIA, the EPA projects that this proposed rule will result in negligible CO_2 emission changes, quantified benefits, and costs by 2022."[23]

Taken together, these statements reveal that EPA's 2013 proposed NSPS for new fossil fuel-burning power plants will not achieve any appreciable GHG emissions reductions beyond what the fossil fuel energy industries are already planning to incorporate voluntarily into future power plant designs. Consequently, the 2013 NSPS will not produce any significant benefits, including notable GHG reductions, to say nothing of any major climate change improvements.

EPA did not conceal the striking conclusion that the 2013 proposed NSPS for new fossil fuel-fired power plants will not significantly reduce GHG emissions or related climate change hazards, and the Agency seemed almost proud of its negligible achievements.[24] Considering that climate change has been growing progressively worse in recent years and has already caused Americans hundreds of billions of dollars in damages and a significant number of deaths,[25] EPA's choice of an NSPS for new fossil fuel power plants that is "not expected to change GHG emissions"[26] is a travesty reflecting a wholly inadequate response to EPA's endangerment finding and its resulting climate change mitigation responsibilities.

A recently published article by this author challenges in detail the ineffectiveness and lack of mitigation ambition of EPA's 2013 proposed NSPS for new fossil fuel-fired power plants.[27] The article concludes that the 2013 NSPS rule will be completely inadequate for restricting GHG pollution from new power plants and for stabilizing or reducing growing climate change risks.[28] The article sharply criticizes EPA for *what* it has been doing to meet its climate change regulatory obligations, and more pointedly for *what* the Agency has not been doing.

This present Article primarily examines not *what* EPA has been doing wrong, but *why*. The Article presents an assessment of *why* an array of administrative disincentives in practice has prevented EPA's leaders and staff from achieving what they initially wanted to accomplish. The *why* may be even more important than the *what*, because the administrative disincentives discussed here are likely to negate or impede a broad range of EPA regulatory initiatives. The same administrative disincentives are also likely to undermine diverse regulations promulgated by other environmental, health, and safety agencies.

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23 79 Fed. Reg. at 1495.

24 *See supra* text accompanying notes 14–16.

25 *See, e.g.*, EXEC. OFFICE OF THE PRESIDENT, THE COST OF DELAYING ACTION TO STEM CLIMATE CHANGE 2, 10–11 (2014); NANCY D. ISRAEL, CERES, INACTION ON CLIMATE CHANGE: THE COST TO TAXPAYERS 3 (2013); Seth Borenstein, *Federal Report: Warming Disrupts American Lives*, ASSOCIATED PRESS ONLINE EDITION, May 6, 2014, http://bigstory.ap.org/article/fed-report-warming-disrupting-americans-lives (last visited Feb. 14, 2015).

26 EPA, 2013 RIA, *supra* note 21, at 5-1.

27 *See* Howard A. Latin, *Climate Change Mitigation and Decarbonization*, 25 VILL. ENVTL. L.J. 1, 39–55 (2014) [hereinafter H. Latin, *Climate Change Mitigation*].

28 *Id.* at 80–82.

A little more than twenty years ago, I published a widely read article[29] criticizing the 1990 Clean Air Act Amendments because they did not reflect sufficient congressional attention to EPA's likely behavioral responses to political and business confrontations, or to the EPA staff's personal and professional incentives. The first half of that article was entitled: "Eight Laws of Administrative Behavior," which I believe is equally topical and influential today in the context of GHG pollution causing progressively greater climate change dangers. The critical evaluation here of unambitious and ineffectual EPA regulatory choices on difficult climate change mitigation issues applies the same Eight Laws, which are really administrative agency behavioral patterns and policies rather than formal legal mandates.

These Eight Laws of Administrative Behavior are not separate implementation impediments or prescriptions for agency regulatory shortcomings that can be corrected on an individualized basis. Instead, they are overlapping, interacting, often synergistic behavioral patterns and corresponding administrative incentives or disincentives with multiple overlapping impacts that must be evaluated together. These Laws include:

1. In Conflicts Between Political Considerations and Technocratic Requirements, Politics Almost Always Prevails.
2. Agencies Avoid Making Regulatory Decisions That Would Create Severe Economic or Social Dislocation.
3. Agencies Avoid Resolving Disputed Issues Unless They Can Render Scientifically or Economically Credible Judgments.
4. Agencies Will Not Meet Statutory Deadlines If Budget Appropriations, Personnel, Information, or Other Resources Are Inadequate.
5. Regulators Are Often Influenced by Disciplinary Norms That May Conflict with Statutory Mandates.
6. Bureaucrats Are Partly Conditioned by Continuing Criticisms From Affected Parties or Other Forms of Negative Feedback.
7. Agency Behavior Is Partly Conditioned by Lobbying and Manipulative Tactics of the Regulated Parties.
8. Administrators of Multiple-Purpose Statutes Usually "Simplify" the Decisional Process to Emphasize Only One or Two Statutory Goals.[30]

These administrative behavioral patterns are especially applicable in the field of climate change regulation, which involves intense confrontations between environmental regulatory proponents and the world's wealthiest, most politically influential energy industries; between essential GHG

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[29] *See generally* Howard Latin, *Regulatory Failure, Administrative Incentives, and the New Clean Air Act*, 21 ENVTL. L. 1647 (1991) [hereinafter H. Latin, *Administrative Incentives*], *reprinted in* AN ENVIRONMENTAL LAW ANTHOLOGY 118 (Robert L. Fischman, Maxine I. Lipeles & Mark S. Squillace. eds., 1996), *also reprinted in* 24 LAND USE & ENV'T L. REV. 567 (Stuart L. Deutsch & A. Dan Tarlock, eds. 1993).

[30] *See* H. Latin, *Administrative Incentives*, *supra* note 29, at 1651–52.

emissions reductions for mitigation purposes and the economic welfare of a number of American states dependent on fossil fuel production for employment and revenues; and between climate change mitigation advocates and fervent climate change deniers with incompatible political ideologies.

To create and implement effective climate change mitigation policies under these unfortunate conditions, EPA would require active political support and public support, strong Obama Administration support, extensive budgetary funding and personnel support, persuasive scientific research support able to overcome many uncertainties and hostile challenges, innovative engineering and business cooperative support, and committed administrative leaders who would not surrender or dilute their regulatory efforts in the face of a broad spectrum of powerful opponents. Unfortunately, none of these critical prerequisites except perhaps scientific research support is present now or is looming on the horizon of climate change regulation.

When compared with a multitude of scientific studies advocating the rapid imposition of ambitious climate change mitigation measures,[31] which we have not even begun to approach, there is no reason to believe that EPA's recent proposed climate change regulations have met any of the prerequisites listed in the previous paragraph. If these characterizations are correct, it should not be surprising that EPA's minimal emissions-reduction treatments of GHG pollution standards for new and existing fossil fuel-burning power plants reflect the Agency's inadequate administrative and professional incentives that in essence guarantee climate change mitigation failures unless and until the administrative disincentive weaknesses are remedied.

Part II of this Article presents summary descriptions of a dozen insufficient or mistaken EPA climate change policies and practices. The

31 *See, e.g.*, WORLD HEALTH ORG., QUANTITATIVE RISK ASSESSMENT OF THE EFFECTS OF CLIMATE CHANGE ON SELECTED CAUSES OF DEATH, 2030S AND 2050S, at 2 (Simon Hales et al. eds., 2014), *available at* http://www.who.int/globalchange/publications/quantitative-risk-assessment/en/ (discussing the future impacts of climate change and establishing the need for "economic growth, climate policies and health programmes [to] benefit the poorest and most vulnerable populations"); U.S. GLOBAL CHANGE RESEARCH PROGRAM, HIGHLIGHTS OF CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT 3 (Jerry M. Melillo et al. eds., 2014), *available at* www.globalchange.gov/browse/reports/highlights-climate-change-impacts-united-states-third-national-climate-assessment (discussing the increasing knowledge of climate change, its anthropogenic causes, and the importance of preparation to respond to the challenges of climate change); Justin Gillis, *Scientists Sound Alarm on Climate*, N.Y. TIMES, Mar. 18, 2014, http://www.nytimes.com/2014/03/18/science/scientists-sound-alarm-on-climate.html?_r=0 (last visited Feb. 14, 2015) (reviewing a report by the committee of the American Association for the Advancement of Science, which established that lowering emissions is the only way to lower risks); DR. JIM YONG KIM, *Foreword* to POTSDAM INSTITUTE FOR CLIMATE IMPACT RESEARCH AND CLIMATE ANALYTICS, TURN DOWN THE HEAT: WHY A 4°C WARMER WORLD MUST BE AVOIDED, ix–x (2012), *available at* http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2012/12/20/000356161_20121220072749/Rendered/PDF/NonAsciiFileName0.pdf (discussing future effects of climate change without mitigation measures and alleging that "[f]inding ways to avoid that scenario is vital for the health and welfare of communities around the world").

Agency is essentially tolerating or sometimes unintentionally promoting the growth of GHG discharges that are bound to make climate change worse. I believe anyone who reads these criticisms carefully could not possibly believe that EPA is responding effectively and responsibly to its "overcoming climate change endangerment" commitment.

Part III discusses the behavioral treatments identified in the Eight Laws of Administrative Behavior analysis as they apply to inadequate climate change mitigation efforts. The Eight Laws in combination show how powerful administrative disincentives and weak positive incentives can undermine idealistic regulatory aspirations, a dichotomy directly applicable to explaining EPA's feeble climate change policy choices during the past few years. Not all of the eight bureaucratic tendencies are necessarily relevant to all administrative regulations, but they all appear applicable to EPA's inadequate treatment of GHG pollution from new and existing fossil fuel-fired power plants.

II. A SUMMARY OF QUESTIONABLE EPA TREATMENTS

Before we discuss how several counterproductive administrative disincentives weakened EPA's policies and efforts to devise the 2013 proposed NSPS for new fossil fuel-burning power plants and the 2014 proposed regulations for existing fossil fuel power plants, we must consider a summary of what the Agency has done, or has not done, in these regulatory contexts. This summary of some of the flagrant EPA mitigation failures is primarily based on the findings and arguments in my 2014 symposium article.[32]

A. EPA's Feeble 2013 NSPS for Fossil Fuel Power Plants: The 2013 proposed NSPS will impose virtually no additional GHG emissions-reduction requirements beyond whatever GHG discharge cutbacks the fossil fuel energy industry, the world's dirtiest category of GHG polluters, is claiming they will voluntarily achieve in the next decade.[33]

B. Absence of Ambitious EPA Mitigation Regulations: All around the world, scientists, environmental groups, government officials from many vulnerable countries, United Nations officials, and various nongovernmental advocates for climate change mitigation have been requesting, demanding, and begging GHG-polluting countries for greater ambition in worldwide efforts to curtail GHG emissions sharply in order to prevent future climate-

[32] *See* H. Latin, *Climate Change Mitigation*, *supra* note 27, at 21. The criticisms of the proposed regulation of existing fossil fuel-burning power plants were drawn primarily from my essay for the American Bar Association Section on Environment, Energy, and Resources Newsletter. *See* Howard Latin, *Climate Change and Multi-Decade Mitigation Disasters*, 11:1 A.B.A. SEC. OF ENV'T, ENERGY, AND REC., SUPERFUND AND NAT. RESOURCE DAMAGES LITIG. COMM. NEWSL. 3 (Feb. 2015) [hereinafter H. Latin, *Climate Change Disasters*].

[33] *See supra* text accompanying notes 15–18.

related disasters.[34] And yet, it would be difficult to imagine a less ambitious GHG emissions control program than EPA's 2013 proposed NSPS for highly GHG-polluting new fossil fuel power plants.

C. Misinterpretation of the Best System of Emission Reduction: Under section 111(a)(1) of the CAA, the term "standard of performance" for new air pollution sources must "reflect[] the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated."[35] Notice that this provision emphasizes the goal of "emission limitation" and "emission reduction." It is hardly controversial to say that the CAA was adopted with the primary purpose of decreasing human and environmental damages by reducing air pollution levels. Therefore, I believe the phrase "best system of emission reduction" (BSER) should be interpreted to mean the *best affordable demonstrated* pollution-control methods consistent with projected non-air health, environmental, and energy impacts.

In contrast, EPA has adopted a definition of BSER in which the cost of pollution-control measures to the regulated industries is just as important, if not more important, than the degree of pollution control that could feasibly be achieved.[36] This treatment certainly seems incompatible with EPA's responsibility to overcome the growing endangerment of present and future human generations when climate change risks could be reduced in numerous ways at a feasible cost.[37]

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34 *See, e.g.*, CHARLOTTE CUNTZ ET AL., SHORT-TERM MITIGATION AMBITION PRE-2020: OPPORTUNITIES TO CLOSE THE EMISSIONS GAP 4 (2d ed. 2013), *available at* http://www.germanwatch.org/en/5762 (discussing how parties to the United Nations Framework Convention on Climate Change are concerned about the significant emissions gap and created a Work plan to solve this problem); ACTIONAID ET AL., TACKLING THE CLIMATE REALITY: A FRAMEWORK FOR ESTABLISHING AN INTERNATIONAL MECHANISM TO ADDRESS LOSS AND DAMAGE AT COP19, at 5 (2013), *available at* http://www.care.org/sites/default/files/documents/tackling-the-climate-reality-2013.pdf (discussing how developed countries agreed to take the lead on climate change but have failed to do so); Press Release, Secretary-General, Secretary-General Tells Leaders at Climate Change Conference in Poland 'We Must Rise to the Challenges with Wisdom, Urgency and Resolve,' U.N. Doc. No. SG/SM/15480-ENV/DEV/1398 (Nov. 19, 2013), http://www.un.org/press/en/2013/sgsm15480.doc.htm (last visited Feb. 14, 2015) (discussing the future threats from climate change and the need for governments, businesses, community groups, women, youth, and indigenous leaders to work together).

35 *See* Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1430, 1443 (Jan. 8, 2014) (discussing section 111(a)(1) of the CAA).

36 *See id.* at 1468 (noting that key factors in a BSER determination include both costs and technological feasibility); *see, e.g.*, H. Latin, *Climate Change Mitigation*, *supra* note 27, at 44 (discussing how EPA set the BSER for new coal-fired power plants).

37 *See* H. Latin, *Climate Change Mitigation*, *supra* note 27, at 46 (discussing how EPA did not want to impose additional requirements because it did not want to impose additional costs on industries instead of making reduction of GHG emissions a priority).

D. Full versus Partial Carbon Capture and Storage Efforts: EPA's 2013 NSPS was based on expected GHG emissions levels from combined-cycle (energy and heat) natural gas-fired power plants.[38] EPA initially determined that no new coal-burning EGUs could meet the specified GHG emissions-reduction standard without adopting a partial Carbon Capture and Storage (CCS) process to sequester a major portion of the CO_2 emissions underground.[39] Then the Agency compared the cost of partial CCS and full CCS (over 90% CO_2 sequestration), and chose to adopt the less demanding partial CCS requirement in the 2013 NSPS because it would be less expensive for new coal-burning plants.[40] Yet, EPA acknowledged that requiring new coal-burning facilities to use full CCS could reduce their GHG emissions by 80% or more in comparison to partial CCS.[41] EPA also never contended that new coal-burning power plants could not feasibly afford to adopt full CCS technologies, only that it would be more expensive for this heavily polluting industry to implement stronger CCS measures.[42]

E. The Travesty of Enhanced Oil Recovery: EPA's 2013 proposed NSPS documents repeatedly emphasize that the cost of partial CCS for new coal-burning power plants could be appreciably lowered by having these plants compress some portion of their CO_2 discharges and sell them to petroleum companies to promote Enhanced Oil Recovery (EOR).[43] The EOR process is similar to hydraulic fracturing, except instead of using chemically adulterated water, EOR would inject compressed CO_2 into currently depleted oil fields to push the remaining suspended oil through rock fissures into areas where the oil could be recovered at a reduced drilling cost.[44]

It is rather remarkable that EPA never seriously discussed the fact that its proposed EOR method to lower the aggregate costs of regulating new coal-fired power plants would directly lead to increasing the exploitation of formerly unattainable petroleum, another harmful fossil fuel. An active EOR process, which would require shipping compressed CO_2 through potentially unreliable pipelines, as well as potential CO_2 leakage from drilling operations in depleted oil fields and potential leakage from subsequent CO_2 storage facilities, could completely negate the limited GHG pollution-reduction benefits from requiring new coal-burning power plants to use partial CCS.[45] The primary EPA purpose of encouraging EOR is clearly to reduce new coal-

38 *Id.* at 44–45.

39 *Id.* at 32.

40 *Id.* at 47.

41 EPA, 2013 RIA, *supra* note 21, at 5-20.

42 Manuel Quiñones, *Subcommittee Stages Partisan Debate on Viability, Cost of 'Clean Coal'*, E&E NEWS, Feb. 12, 2014, http://www.eenews.net/eedaily/stories/1059994455 (last visited Feb. 14, 2015).

43 EPA, 2013 RIA, *supra* note 21, at 4-19, 4-20; *see* H. Latin, *Climate Change Mitigation*, *supra* note 27, at 43–44 (addressing EPA's motivation of price for not using full CCS without EOR).

44 EPA, 2013 RIA, *supra* note 21, at 4-18.

45 H. Latin, *Climate Change Mitigation*, *supra* note 27, at 49–50.

fired power plant compliance costs, not to reduce GHG pollution and climate change risks.

F. Failure to Impose CCS on Natural Gas-Fired Power Plants: EPA predicated its regulation of future GHG discharges from new coal-burning EGUs based on its contention that CCS would be feasible and would reduce the amount of coal-based air pollutants that would reach the environment.[46] However, EPA provided an extremely weak rationale for why the much more numerous future GHG emissions from combined-cycle natural gas plants should not also be subject to CCS requirements, thereby limiting the cumulative GHG emissions that would reach the atmosphere from U.S. sources.[47] Again, EPA failed to establish that natural gas-burning power plants could not afford to reduce their emissions by using CCS to sequester some portion of their emissions.

G. Weak Externality Regulations Imposing "Negligible" Costs: EPA appears determined to limit the regulatory costs it imposes on new fossil fuel power plants to approximately the same costs or prices that the private fossil fuel energy industry is willing to pay for cleaner new fossil fuel energy generators in the next decade. Thus, the 2013 proposed NSPS documents repeatedly state that these regulations will not raise the cost of power plant construction and operation beyond a "negligible" amount, and also will not raise the market prices of electricity production and consumption.[48] One EPA document accompanying the 2013 NSPS stated: "Because these standards are in line with current industry investment patterns, these standards are not expected to have notable costs and are not projected to impact electricity prices or reliability."[49]

And yet, EPA ignored the widely recognized fact that the market prices of energy from fossil fuel-burning power plants are greatly distorted because the energy industries benefit from large government subsidies[50] and massive

46 *See generally* Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1430, 1434 (Jan. 8, 2014) (identifying partial CCS as the "best system emissions reduction . . . adequately demonstrated" for new affected fossil fuel-fired boilers and Integrated Gasification Combined-Cycle units).

47 *See id.* at 1436. The RIA emphasizes the need for new coal-burning power plants to use CCS to reduce their air pollution emissions, but the RIA does not discuss in depth the corresponding value of using CCS to reduce GHG discharges from new natural gas-burning plants. The 2013 NSPS Proposal provided a terse, unpersuasive rationale for why we should use CCS for coal emissions but not for natural gas emissions. *See id. But see* H. Latin, *Climate Change Mitigation*, *supra* note 27, at 44–45 (criticizing this EPA treatment).

48 *See supra* text accompanying notes 13–16.

49 U.S. ENVTL. PROT. AGENCY, EPA FACT SHEET: REDUCING CARBON POLLUTION FROM POWER PLANTS: MOVING FORWARD ON THE CLIMATE ACTION PLAN 2 (2013), *available at* http://www2.epa.gov/sites/production/files/2013-09/documents/20130920factsheet.pdf.

50 *See, e.g.*, SHELAGH WHITLEY, TIME TO CHANGE THE GAME: FOSSIL FUEL SUBSIDIES AND CLIMATE 1 (2013), *available at* www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8668.pdf (stating global fossil fuel subsidies were $523 billion in 2011); Manuel Frondel et al., *Hard-Coal Subsidies: A Never-Ending Story?* 4 (Rheinisch-Westfälisches Institut, Discussion Paper No. 53, 2006), *available at* http://www.econstor.eu/bitstream/10419/18604/

harmful externalities inflicted on our society.[51] These industries have never been forced to pay for the severe pollution-linked harms they have imposed on vast numbers of Americans over the past century, to say nothing of the environmental destruction caused by coal mining as well as oil and natural gas drilling.[52]

In effect, the projected fossil fuel energy industry costs and market prices EPA chose to emphasize above its GHG mitigation responsibilities have resulted from extreme energy market imperfections.[53] If fossil fuel subsidies were removed and externality costs were internalized on fossil fuel-burning power plants, as they should be,[54] future energy market prices for fossil fuel generators would be much higher than in EPA's cost assessments. The corrected market prices that EPA could and should have used to set its 2013 NSPS mitigation targets would also have been correspondingly higher and could therefore have enabled a comparable increase in the fiscal resources allocated to clean renewable energy production and GHG emissions reduction.

H. Creating Competitive Advantages for the Coal Power Industry: Despite acknowledging that combined-cycle natural gas-fired generating plants produce substantially less GHGs per standardized unit of energy (megawatts per hour) than new coal-fired power plants,[55] EPA chose to give new coal-fired power plants approximately a 9% GHG emissions competitive advantage over combined-cycle natural gas facilities.[56] To be specific, the 2013 NSPS imposes on new coal-burning plants a limit of 1,100 lbs. of CO_2 discharges per megawatt hour of energy in comparison to the limit of 1,000 lbs. of CO_2 per megawatt hour allowed for large new combined-cycle natural

1/DP_06_053.pdf (discussing the large fossil fuel subsidies paid by the German federal government). *See generally* VIRGINIA BENNINGHOFF, PRIORITIZING FOSSIL-FUEL SUBSIDY REFORM IN THE UNFCCC PROCESS: RECOMMENDATIONS FOR SHORT-TERM ACTIONS 2 (2013), *available at* http://www.iisd.org/gsi/sites/default/files/pb16_prioritizing.pdf (discussing a phaseout reform for fossil fuel subsidies and its drastic effects on curbing climate change).

51 *See* NAT'L RESEARCH COUNCIL, HIDDEN COSTS OF ENERGY: UNPRICED CONSEQUENCES OF ENERGY PRODUCTION AND USE 5 (2010), *available at* http://www.nap.edu/catalog.php?record_id=12794; TEEB FOR BUSINESS COAL., NATURAL CAPITAL AT RISK: THE TOP 100 EXTERNALITIES OF BUSINESS 7 (2013), *available at* http://www.trucost.com/published-research/99/natural-capital-at-risk-the-top-100-externalities-of-business; Nicholas Stern, *The Economics of Climate Change*, AM. ECON. REV., May 2008, at 1, 2, *available at* pubs.aeaweb.org/doi/pdfplus/10.1257/aer.98.2.1; Martin Weitzman, *Can Negotiating a Uniform Carbon Price Help to Internalize the Global Warming Externality?* 2 (Nat'l Bureau of Econ. Research, Working Paper No. 19644, 2013), *available at* www.nber.org/papers/w19644.

52 *See* TEEB FOR BUSINESS COAL., *supra* note 51, at 9.

53 *See* BENNINGHOFF, *supra* note 50, at 2.

54 *See* Thomas L. Friedman, *The Price Is Not Right*, N.Y. TIMES, Apr. 1, 2009, http://www.nytimes.com/2009/04/01/opinion/01friedman.html?_r=0 (last visited Feb. 14, 2015); H. Latin, *Climate Change Mitigation*, *supra* note 27, at 44.

55 EPA, 2013 RIA, *supra* note 21, at 5-21.

56 H. Latin, *Climate Change Mitigation*, *supra* note 27, at 41.

gas plants.[57] The 2013 proposed NSPS documents did not adequately explain why EPA chose to give new coal-burning power plants a significant competitive advantage by allowing higher GHG pollution discharges per unit of energy from new coal-fired facilities, which in practice would enable relatively lower costs for this dirtiest category of GHG pollution sources.[58] In effect, EPA chose less stringent GHG discharge regulations for the worse polluting coal plants and comparatively more stringent GHG discharge regulations for the cleaner (but definitely not clean) natural gas combined-cycle EGUs.

I. Failure to Predict Cumulative Allowable GHGs under the NSPS: To the best of my knowledge, EPA never provided a quantitative estimate of how large the cumulative annual GHG emissions from new fossil fuel power plants authorized or allowed under the 2013 NSPS would be. If the Agency's prediction holds true that combined-cycle natural gas plants will be the dominant energy generators during the next few decades,[59] how much total annual GHG discharges will be approved for natural gas discharges at the rate of 1000 lbs. of CO_2 per megawatt hour of energy? As my recent book on climate change policy failures[60] and the companion symposium article cited above[61] both emphasize, in order to create an effective mitigation program we must know how much annual GHG pollution will be allowed to reach the atmosphere, where it will combine with the already-too-high cumulative concentration of GHGs in the air. EPA clearly stated that the 2013 NSPS will not significantly reduce GHG emissions from new fossil fuel power plants,[62] and yet the Agency has not identified how much annual GHG emissions from new and existing fossil fuel pollution sources—billions of tons of GHGs annually during the next four decades—will be authorized to continue degrading the climate by increasing the atmospheric concentration of GHGs.

In effect, the 2013 proposed NSPS for new fossil fuel power plants does not seek to impose significant GHG pollution-control restraints or mitigation measures on the fossil fuel energy industry beyond whatever GHG pollution-reduction targets the new power plants would voluntarily implement on their own. EPA is effectively putting our nation's most harmful GHG-polluting industries in charge of their own future GHG emissions-reduction restrictions and expenditures.

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57 U.S. ENVTL. PROT. AGENCY, EPA FACT SHEET, REDUCING CARBON POLLUTION FROM POWER PLANTS: DETAILS ABOUT THE PROPOSAL FOR NEW SOURCES 3 (2013), *available at* http://www2.epa.gov/sites/production/files/2013-09/documents/20130920technicalfactsheet.pdf.

58 *See id.* at 2–3 (comparing the two limits on the different types of plants).

59 *See* Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units, 77 Fed. Reg. 22,392, 22,392 (proposed Apr. 13, 2012) (to be codified at 40 C.F.R. pt. 60); Arnold W. Reitze, Jr., *Federal Regulation of Coal-Fired Electric Power Plants to Reduce Greenhouse Gas Emissions*, 32 UTAH ENVTL. L. REV. 391, 404 (2012).

60 LATIN, CLIMATE CHANGE POLICY FAILURES, *supra* note 17, at 9.

61 *See generally* H. Latin, *Climate Change Mitigation*, *supra* note 27, at 1–2.

62 *See supra* text accompanying notes 14–16.

J. Failure to Impose Effective GHG Controls on Existing Power Plants: On June 18, 2014, EPA issued proposed GHG regulations for existing fossil fuel power plants, the largest category of GHG polluters in the United States.[63] The EPA's proposed GHG pollution-control plan calls for a 30% emissions reduction by 2030, with the fifty states responsible for choosing which mitigation methods will be most locally effective in light of their different economic conditions and political preferences.[64]

This deferred 30% emissions-reduction target means that EPA's proposed rule will allow 70% of the GHGs from existing fossil fuel-burning power plants to be discharged into the air in 2030 and an even larger percentage of allowable GHG emissions in the years before 2030.[65] Rather than substantially reducing the level of GHG pollutants discharged into the air during the next two decades, EPA's proposed regulation of existing fossil fuel EGUs would allow a very large amount of annual GHGs to reach the atmosphere and to combine with the already-too-high GHG concentration in the air.[66]

K. Failure to Consider the Centuries-Long Persistence of CO2 Discharges: Too many climate policy makers—including EPA staff leaders—apparently presume that if we adopt relatively weak emissions-reduction targets during the next few decades to reduce the costs and burdens of mitigation, we will be able to impose more stringent emissions-reduction targets in the future that will be sufficient to overcome intensifying climate change risks. Yet CO_2, the most prevalent GHG, which constitutes approximately 85% of all GHG air pollution discharges, is also the most persistent.[67]

Scientific studies in the past decade have found that CO_2 emissions will often remain in the atmosphere for hundreds or thousands of years.[68] As a

63 Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830, 34,830 (proposed June 18, 2014) (to be codified at 40 C.F.R. pt. 60).

64 U.S. ENVTL. PROT. AGENCY, FACT SHEET, CLEAN POWER PLAN: NATIONAL FRAMEWORK FOR STATES: SETTING STATE GOALS TO CUT CARBON POLLUTION 1 (2013), *available at* http://www2.epa.gov/sites/production/files/2014-05/documents/20140602fs-setting-goals.pdf.

65 *See id.* at 1–2 (showing that a 30% reduction goal allows for 70% emissions to continue).

66 *See* U.S. ENVTL. PROT. AGENCY, FACT SHEET, CLEAN POWER PLAN: BY THE NUMBERS: CUTTING CARBON POLLUTION FROM POWER PLANTS 1 (2014), *available at* http://www2.epa.gov/sites/production/files/2014-06/documents/20140602fs-important-numbers-clean-power-plan.pdf (showing the amount of carbon being cut, allowing the calculation that 1.64 billion metric tons of pollution will still be permitted under this plan).

67 H. Latin, *Climate Change Mitigation*, *supra* note 27, at 2.

68 *See* Susan Solomon et al., *Irreversible Climate Change Due to Carbon Dioxide Emissions*, 106 PROC. NAT'L ACAD. SCI. 1704, 1704–05 (2009), *available at* http://www.pnas.org/content/early/2009/01/28/0812721106.full.pdf+html; *see also* Mason Inman, *Carbon is Forever*, 12 NATURE REP. CLIMATE CHANGE 156, 157 (2008), *available at* http://www.nature.com/climate/2008/0812/pdf/climate.2008.122.pdf (looking at why CO_2 emissions could last much longer than expected); Tamara S. Ledley et al., *Climate Change and Greenhouse Gases*, 80 EOS 453, 454 (1999), *available at* http://ecosystems.wcp.muohio.edu/studentresearch/climatechange02/kyoto/articles/greenhousegas.pdf (noting the long-term persistence in the atmosphere of GHGs including CO_2); H. Damon Matthews & Ken Caldeira, *Stabilizing Climate Requires Near-Zero*

consequence, the harmful impacts of persistent GHG pollution in the next few decades will continue to increase steadily while we dawdle, and there will probably be no practical way to undo the disastrous effects of the huge volume of CO_2 emissions that will reach the atmosphere during this period.[69] EPA's NSPS for new fossil fuel EGUs and the Agency's proposed regulations for existing fossil fuel power plants are both restricted only to limiting CO_2 pollution.[70] EPA certainly has recognized the dangers of the high persistence of CO_2,[71] and yet it is far from clear that EPA took this persistence into account in designing sluggish CO_2 pollution control standards.

Despite a declared mission of environmental protection, EPA is not taking a sufficiently active or timely role in reducing GHG emissions originating from new fossil fuel power plants or from existing fossil fuel facilities. Emissions from these EGUs will continue to increase the GHG concentration in the atmosphere and related climate change dangers.[72] The contrast between the action-oriented enthusiasm of the EPA staff in the Obama Administration's first year and since then the do-almost-nothing 2013 NSPS rules for new power plants and 2014 proposed rules for existing fossil fuel-fired power plants could hardly be more disappointing for proponents of meaningful climate change mitigation.

These summary criticisms of EPA's proposed pollution-control treatments for new and existing fossil fuel power plants are not as extensive as those described in the companion symposium article previously mentioned[73] and in my other recent writings on climate change.[74] However, the list here of inexplicable or indefensible regulatory choices should be sufficient to encourage concerned readers to wonder *why* an administrative agency with the words "Environmental Protection" in its name would produce a series of minimal pollution-control treatments in which overcoming the endangerment caused by increasing GHGs in the

Emissions, GEOPHYSICAL RES. LETTERS, Vol. 35, L04705, at 1 of 5 (2008) (exploring ways to stabilize the climate in light of the fact that carbon emissions remain in the atmosphere for thousands of years); Andreas Schmittner et al., *Future Changes in Climate, Ocean Circulation, Ecosystems, and Biogeochemical Cycling Simulated for a Business-as-Usual CO_2 Emission Scenario Until Year 4000 AD,* GLOBAL BIOGEOCHEMICAL CYCLES, Vol. 22, GB1013, at 2 of 21 (2008), *available at* http://onlinelibrary.wiley.com/doi/10.1029/2007GB002953/abstract (studying the impacts of ocean circulation and ventilation on long-term climate impacts and CO_2 levels).

69 *See* Solomon et al., *supra* note 68, at 1704.

70 Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830, 34,830 (proposed June 18, 2014) (to be codified at 40 C.F.R. pt. 60) (noticing a proposed rule to reduce carbon emissions from existing EGUs); Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1430, 1430 (proposed Jan. 8, 2014) (to be codified at 40 C.F.R. pt. 60, 70, 71, 98) (noticing a proposed rule to reduce carbon emissions from new EGUs).

71 *See* U.S. Envtl. Prot. Agency, *Overview of Greenhouse Gases: Carbon Dioxide Emissions*, http://www.epa.gov/climatechange/ghgemissions/gases/co2.html (last visited Feb. 14, 2015).

72 *See* 79 Fed. Reg. at 1433.

73 *See* H. Latin, *Climate Change Mitigation*, *supra* note 27.

74 *See* LATIN, CLIMATE CHANGE POLICY FAILURES, *supra* note 17, at 177–86; *see also* H. Latin, *Climate Change Disasters*, *supra* note 32.

atmosphere clearly is not the Agency's highest priority, if it is a priority at all.

Why has EPA adopted regulatory treatments favoring the worst GHG-polluting energy industries when its statutory mission under the CAA is to reduce air pollution as much as feasible? Why is EPA putting reduced regulatory costs for the most heavily polluting fossil fuel energy industries on an equal or higher plane than its designated regulatory mission to protect the American people and environment against climate change endangerment, which the Agency has previously found to be a consequence of increasing GHG emissions? Why is EPA apparently putting its own convenience and self-protection above the needs of many millions of American citizens and countless other people around the world who are vulnerable to diverse harms from climate change risks? These important *why* questions will be addressed, though not completely resolved, in the subsequent discussion applying the "Eight Laws of Administrative Behavior" that have played a critical role in leading to inadequate EPA performance in its negligible efforts to regulate or mitigate climate change hazards.

III. EIGHT LAWS OF ADMINISTRATIVE BEHAVIOR AND CLIMATE CHANGE

The main objective of this Part is to apply the "Eight Laws of Administrative Behavior" to climate change issues for the first time. When I initially wrote about these laws, climate change had not even been recognized as a critical air pollution problem, and my article focused on acid rain, photochemical smog, and other more conventional environmental problems. Now I believe climate change is the most serious pollution-control problem in our present and future, and it may also be the most crucial social problem on which we have made the least progress. My thesis here is that the Eight Laws are contributing to many mitigation failures in ways we cannot afford to ignore. Please keep in mind that these laws are primarily agency behavioral guidelines necessary to understand administrative processes and to improve the prospects of achieving regulatory successes or avoiding regulatory failures.

A. In Conflicts Between Political Considerations and Technocratic Requirements, Politics Usually Prevails

In *The Illusion of the Ideal Administration*, a once-famous article published forty years ago, Professor Louis Jaffe contended that regulatory agencies cannot function effectively without widespread political and public support, regardless of how much legal authority or guidance the organic regulatory statutes appear to provide.[75] Professor Jaffe was writing primarily about the characteristics of economic regulatory agencies, because environmental and health regulations had only recently begun to be enacted

[75] *See* Louis L. Jaffe, *The Illusion of the Ideal Administration*, 86 HARV. L. REV. 1183, 1198 (1973).

by Congress and the states.[76] Nevertheless, his perceptive generalization is directly applicable to EPA's inadequate attempts to regulate GHG emissions and to limit climate change risks.

Unfortunately, EPA's efforts to impose effective climate change mitigation have not achieved a sufficient degree of political support to overcome the many hostile forces opposing strong GHG pollution-control measures, and consequently EPA's various mitigation initiatives are virtually certain to fail the Jaffe test.[77] The Agency knows that there is insufficient political support in Congress and in a number of states for strict GHG regulation, limited tangible support from the Obama Administration, and a lack of widespread public support from many businesses and American citizens.[78] As a result, EPA has been playing it safe by attempting to avoid or minimize political confrontations and by following established CAA statutory patterns very closely, although they do not respond to the specific characteristics of climate change risks in several important ways. I believe that EPA is trying to defuse political opposition and to survive frequent attacks from diverse critics of the Agency, rather than attempting to meet its legal obligation to reduce the endangerment substantially by ambitiously decreasing GHG emissions and related climate change hazards.

Let us consider some of the forms of political opposition that EPA is being forced to confront. Some influential American politicians reject the extensive scientific findings that climate change is actually occurring and is largely the consequence of human activities. As an extreme example, in 2012 Senator James Inhofe of Oklahoma published a book, *The Greatest Hoax: How the Global Warming Conspiracy Threatens Your Future*, in which he contends that thousands of scientists are engaging in a conspiracy to obtain better research funding by falsely asserting that climate change exists and is a serious danger to our people.[79] This is an absurd form of climate change denial[80] providing a splendid example of the long-established cognitive

76 *See, e.g.*, *id.* at 1191, 1198 (demonstrating the ways in which the Federal Communications Commission is influenced by political pressure, and noting how newly-passed environmental laws may follow the same path).

77 *Id.* at 1188 (explaining that the effectiveness of the political process in a given situation depends on the balance between "the intensity of a given problem, the degree to which it is felt throughout an organized and stable constituency, and the representation (or lack thereof) of varying interests within and without the lawmaking body").

78 Public support for climate change regulation has been growing in recent years, but not nearly to the extent needed for effective political support. *See, e.g.*, David Biello, *Science Shows Up in Force at People's Climate March*, SCI. AM., Sept. 20, 2014, http://www.scientificamerican.com/article/science-shows-up-in-force-at-people-s-climate-march/ (last visited Feb. 14, 2015); Deborah D. Stine, *Public Opinion on Climate Change: Is the Glass Half-Full or Half-Empty for Policymakers?*, THE HILL, July 11, 2014, http://thehill.com/blogs/pundits-blog/energy-environment/211886-public-opinion-on-climate-change-is-the-glass-half-full (last visited Feb. 14, 2015).

79 *See generally* JAMES INHOFE, THE GREATEST HOAX: HOW THE GLOBAL WARMING CONSPIRACY THREATENS YOUR FUTURE (2012).

80 *See* David G.Victor, *Why Do Smart People Disagree About Facts? Some Perspectives on Climate Denialism* 8 (Lab. On Int'l Law & Regulation, Working Paper No. 20, 2014) (describing a category of denialists he calls "hobbyists" whose arguments are meant solely to create controversy).

psychology finding that, when confronted by new information, many people see what they want to see and believe what they want to believe.[81]

Numerous other prominent Republicans have denied the existence of climate change or have denied that human activity is the major cause of growing climate change dangers. This group of politicians, who are hostile toward climate change mitigation efforts includes Ted Cruz, Rand Paul, Marco Rubio, Bobby Jindal, Rick Santorum, and Paul Ryan.[82] For example, one *New York Times* columnist wrote that Governor Jindal "thinks climate change is just a 'Trojan horse' for leftists who want to mess with freedom of choice."[83] As another instance of denial, Dan Sullivan, a Republican Senate candidate from Alaska, claimed, "there is no concrete scientific consensus on the extent to which humans contribute to climate change."[84] These climate change denials are directly contradictory to the consistent conclusions of many thousands of genuine scientists.[85] In an effort to explain the thinking of the deniers, George Marshall recently published an interesting psychological assessment, *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*, focusing on denial by politicians and by a considerable portion of the American public.[86]

Other commentators have argued that climate change denial is a result of an orchestrated campaign funded mainly by large fossil fuel companies, with the purpose of casting doubts upon the scientific consensus that climate change is a rapidly growing danger that must be confronted and overcome in the near future or the consequences for all will be disastrous. As one example, Naomi Oreskes and Erik Conway wrote a well-documented book entitled *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming*.[87] There should be little doubt that wealthy fossil fuel producers have been paying lobbyists,

81 *See* Howard A. Latin, *"Good" Warnings, Bad Products, and Cognitive Limitations*, 41 UCLA L. REV. 1193, 1227–28, 1228 nn.152–54 (1994).

82 Ben Adler, *Meet the Climate Deniers Who Want to be President*, GRIST, Aug. 20, 2014, http://grist.org/politics/meet-the-climate-deniers-who-want-to-be-president/ (last visited Feb. 14, 2015); Richard Cohen, *The Tea Party Would Rather Burn Than Submit to Washington*, WASH. POST, June 30, 2014, http://www.washingtonpost.com/opinions/richard-cohen-on-climate-the-tea-party-would-rather-burn-than-submit-to-washington/2014/06/30/35166398-007d-11e4-b8ff-89afd3fad6bd_story.html (last visited Feb. 14, 2015); Gail Collins, *The Walrus and the Politicians*, N.Y. TIMES, Oct. 3, 2014, http://www.nytimes.com/2014/10/04/opinion/gail-collins-the-walrus-and-the-politicians.html (last visited Feb. 14, 2015).

83 Gail Collins, *The Walrus and the Politicians*, N.Y. TIMES, Oct. 3, 2014, http://www.nytimes.com/2014/10/04/opinion/gail-collins-the-walrus-and-the-politicians.html (last visited Feb. 14, 2015).

84 *Id.* (internal quotation marks omitted).

85 *See Nat'l Aeronautics and Space Admin.*, *Consensus: 97% of Climate Scientists Agree*, http://climate.nasa.gov/scientific-consensus/ (last visited Feb. 14, 2015).

86 *See generally* GEORGE MARSHALL, DON'T EVEN THINK ABOUT IT: WHY OUR BRAINS ARE WIRED TO IGNORE CLIMATE CHANGE (2014); John D. Sterman & Linda Booth Sweeney, *Understanding Public Complacency About Climate Change: Adults' Mental Models of Climate Change Violate Conservation of Matter*, 80 CLIMATE CHANGE 213, 213–238 (2007).

87 *See generally* NAOMI ORESTES & ERIK M. CONWAY, MERCHANTS OF DOUBT: HOW A HANDFUL OF SCIENTISTS OBSCURED THE TRUTH ON ISSUES FROM TOBACCO SMOKE TO GLOBAL WARMING (2011).

public relations experts, and contrarian scientists for the express purposes of confusing public perceptions about climate change and of preventing ambitious regulation of GHG emissions.[88]

A second source of political opposition to EPA mitigation efforts stems from the inflexible ideological opposition of conservatives to government regulation, especially when it requires some form of taxes to finance the regulatory program. As one illustration, former vice-presidential candidate and Congressman Paul Ryan was quoted as claiming that efforts to stop climate change are just "an excuse to grow government, raise taxes and slow down economic growth."[89] A recent *New York Times* article observed that the rise of the Tea Party has made a tax increase to promote climate change mitigation unlikely.[90] A similar article in the *Washington Post* concluded that: "It will take national and international agreements to deal with global warming, and Tea Party types would rather—almost literally—burn in a kind of hell than submit to Washington or, God forbid, the United Nations."[91]

This *Washington Post* article cited a 2014 report funded by Henry Paulson, Michael Bloomberg, and Tom Steyer, on the severe business losses likely to result from various climate change risks.[92] The newspaper article characterized Mr. Paulson, a lifelong Republican, as "the very epitome of the Republican establishment so loathed by the tea party."[93] Paulson was cited as believing "purely from the evidence, that human beings have contributed to the coming crisis."[94] But then, in contrast, the article identified several Tea Party members and potential Republican presidential candidates who flatly disagreed with Mr. Paulson. The article followed this political conflict by asking: "What possesses the tea party on climate change? Some of it has to do with traditional antiestablishment sentiment. If the elite say it's getting

88 *See, e.g.*, Riley E. Dunlap & Aaron M. McCright, *Organized Climate Change Denial*, *in* THE OXFORD HANDBOOK OF CLIMATE CHANGE AND SOCIETY 144–60 (J.S. Dryzek et al. eds., 2011); Coral Davenport, *Political Rifts Slow U.S. Effort on Climate Laws*, N.Y. TIMES, Apr. 14, 2014, http://www.nytimes.com/2014/04/15/us/politics/political-rifts-slow-us-effort-on-climate-laws.html?_r=0 (last visited Feb. 14, 2015) [hereinafter Political Rifts]; Donald Brown, *The Climate Change Disinformation Campaign: What Kind of Crime Against Humanity, Tort, Human Rights Violation, Malfeasance, Transgression, Villainy or Wrongdoing Is It? Part One: Is The Disinformation Campaign a Crime Against Humanity or a Civil Tort?*, ETHICS AND CLIMATE BLOG (Jan. 30, 2013, 5:56 AM), http://blogs.law.widener.edu/climate/2013/01/30/the-climate-change-disinformation-campaign-what-kind-of-crime-against-humanity-tort-human-rights-violation-malfeasance-transgression-villainy-or-wrongdoing-is-it-part-one-is-the-disinformati/.

89 Timothy Cama, *Paul Ryan Doubts Human Role in Climate Change*, THE HILL, Oct. 14, 2014, http://thehill.com/policy/energy-environment/220642-paul-ryan-doubts-human-role-in-climate-change (last visited Feb. 14, 2015).

90 Political Rifts, *supra* note 88.

91 Richard Cohen, *The Tea Party Would Rather Burn than Submit to Washington*, WASH. POST, June 30, 2014, http://www.washingtonpost.com/opinions/richard-cohen-on-climate-the-tea-party-would-rather-burn-than-submit-to-washington/2014/06/30/35166398-007d-11e4-b8ff-89afd3fad6bd_story.html (last visited Feb. 14, 2015).

92 *Id.*

93 *Id.*

94 *Id.*

hot, then it must be getting cold. Mostly, though, its position is rooted in a raging antipathy toward (hiss!) big government."[95]

As a *New York Times* columnist recently noted: "These days, it takes courage for a Republican to acknowledge that human beings have anything to do with climate change at all."[96] Another reporter observed: "[M]any in the Republican establishment think that talking about climate change—and, particularly, any policy endorsing a tax on fossil fuels—would be political suicide for a Republican seeking to win the party's nomination in 2016."[97]

In a guest commentary on climate change policy, Oliver Houck, among the best-known and widely respected American environmental law professors, complained that: "One of the unusual drivers of the coming election is the demonization of an agency charged with protecting human health and the environment, the Environmental Protection Agency."[98] Houck continued: "Republicans are now talking about putting EPA under 'permanent investigation' should they win the Senate. Adding his part, Louisiana Sen. David Vitter has assured a reporter that 'we'll keep the foot on their neck.'"[99] Professor Houck attributed the constant Republican attacks on EPA as a response to their loss of the 2008 election to President Obama and also to their financial campaign support from fossil fuel industries.[100] And then Houck observed: "If strangled environmental protection is what we want, we can have that happen very soon."[101]

A third important source of political opposition to climate change mitigation efforts comes from politicians in states that benefit from fossil fuel production and processing. For example, Pennsylvania Representative Mike Kelly, a Republican, compared EPA's climate change and coal regulation efforts to "terrorism" and said he "invited President Obama to visit his district in western Pennsylvania to tour coal mines and meet families who will be affected by EPA's pending climate regulations."[102] Congressman Kelly continued: "I want him to look those folks in the eye and tell them there's no longer a place in America for them."[103] Clearly, Mr. Kelly is not very concerned about the millions of Americans who have been suffering from droughts, floods, crop failures, perilous storms, increased

95 *Id.*

96 Gail Collins, *The Walrus and the Politicians*, N.Y. TIMES, Oct. 3, 2014, http://www.nytimes.com/2014/10/04/opinion/gail-collins-the-walrus-and-the-politicians.html (last visited Feb. 14, 2015).

97 Political Rifts, *supra* note 88.

98 Oliver Houck, *Guest Commentary: Republicans Launch Relentless Attacks on EPA*, THE ADVOCATE, Oct. 16, 2014, http://theadvocate.com/news/opinion/10541832-123/guest-commentary-republicans-launch-relentless (last visited Feb. 14, 2015).

99 *Id.*

100 *Id.*

101 *Id.*

102 Robin Bravender, *House Republican Compares Climate, Coal Rules to 'Terrorism'*, E&E NEWS, July 28, 2014, http://www.eenews.net.lawpx.lclark.edu/greenwire/stories/1060003625/print (last visited Feb. 14, 2015).

103 *Id.*

health risks, and other dangers caused in part or in whole by the continuing growth of climate change hazards.[104]

Senator Mitch McConnell, who became the Senate majority leader in January 2015 because the Republicans won a majority of Senate seats in the midterm election, is from "Kentucky, where coal—the world's largest source of carbon pollution—is the lifeblood of the state's economy."[105] Senator McConnell recently stated: "President Obama's war on coal won't have any meaningful impact on global carbon emissions. What it will do is ship American jobs overseas, raise the cost of living substantially for middle and working-class families and throw thousands more Kentuckians out of work."[106]

It is paradoxical that Senator McConnell refuses to acknowledge the existence and danger of climate change when his state has recently received federal disaster relief because, as President Obama explained, "the damage in certain areas of the Commonwealth of Kentucky resulting from severe storms, flooding, landslides, and mudslides during the period of August 18–23, 2014, is of sufficient severity and magnitude to warrant a major disaster declaration."[107] This is exactly the type of extreme storm damage that is regarded as characteristic of climate change risks by the great majority of scientists in the field.[108]

The Republicans are not the only politicians looking out for their immediate state constituents rather than for the American people as a whole. Democrats from coal mining and processing states have opposed EPA regulatory requirements that the politicians claimed would disadvantage U.S. industry.[109] For example, Senator Joe Manchin, a Democrat from West Virginia, has coauthored a bill with Republican Representative Ed Whitfield of Kentucky "that would sharply restrict greenhouse gas rules for the power sector."[110] Whitfield said Republican

104 *See, e.g.*, Cohen, *supra* note 91 (describing projections of drought, storms, flooding, and health risks associated with climate change).

105 Coral Davenport, *President's Drive for Carbon Pricing Fails to Win at Home*, N.Y. TIMES, Sept. 27, 2014, http://www.nytimes.com/2014/09/28/world/americas/presidents-drive-for-carbon-pricing-fails-to-win-at-home.html?_r=0 (last visited Feb. 14, 2015).

106 *Id.*

107 Federal Emergency Management Agency, Kentucky; Major Disaster and Related Determinations, 79 Fed. Reg. 63,155, 63,156 (Oct. 22, 2014).

108 *See, e.g.*, DANIEL G. HUBER & JAY GULLEDGE, CTR. FOR CLIMATE AND ENERGY SOLUTIONS, EXTREME WEATHER AND CLIMATE CHANGE: UNDERSTANDING THE LINK AND MANAGING THE RISK 9 (2011), *available at* http://www.c2es.org/publications/extreme-weather-and-climate-change ("There is supporting evidence in all three areas (theory, modeling, and observation) pointing to a global-warming induced increase in risk for four important categories of weather-related extreme events: extreme heat, heavy downpours, drought and drought-associated wildfires.").

109 Jody Freeman & Kate Konschnik, *U.S. Climate Change Law and Policy: Possible Paths Forward*, *in* GLOBAL CLIMATE CHANGE AND U.S. LAW 795, 795–96 (Michael B. Gerrard & Jody Freeman eds., 2d ed. 2014).

110 Jean Chemnick, *Senate Democrats Show Philosophical Divisions on Warming Agenda*, E&E NEWS, Jan. 10, 2014, http://www.eenews.net/eedaily/stories/1059992695/ (last visited Feb. 14, 2015). For a more detailed description of the bill, see Jean Chemnick, *Whitfield Drops Bill Taking Aim at EPA Carbon Rules*, E&E NEWS, Jan. 9, 2014, http://www.eenews.net/eenewspm/stories/1059992665/ (last visited Feb. 14, 2015).

members of Congress would "continue [their] vigorous oversight of this rulemaking, which has been fraught with irregularities, and [they] continue to believe that EPA is acting far beyond the scope of its legal authority at the detriment of the American public."[111]

Other Democrats have also focused on the benefits or costs to their constituents, rather than to the nation as a whole. Former Senator Mary Landrieu of Louisiana was expected to become the chair of the Senate Energy and Natural Resources Committee if the Democrats had retained control of the Senate in 2014, which they did not, and yet she "has long been close with fossil fuel producers."[112] Landrieu opposes EPA attempts to restrict coal energy, in particular, and she has stated: "Natural gas and coal provide our nation with abundant and affordable energy, but these [EPA] proposed regulations will drive domestic energy production down and electricity costs up for our families."[113] Landrieu also expressed her opposition to EPA "using the Clean Air Act to regulate greenhouse gas emissions. And she has supported efforts to prevent the agency from doing so, a major coal industry priority."[114]

Democratic Senator Ron Wyden of Oregon, who has generally been an active proponent of environmental protection, has recently "questioned the Bureau of Land Management's leasing process [for coal] but also has expressed openness to exploring increased exports."[115] On the one hand, coal exports from a train terminus and port in Oregon would provide new jobs for the state's residents.[116] On the other hand, GHGs from coal, the world's worst source of GHG pollution, are fungible and will be circulated around the world by the jet stream and other air currents.[117] As a result, the combustion of exported American coal in another country will be just as much of a contribution to increasing climate change damages as if the coal were burned in Oregon or any other U.S. state.[118] The point here is that Senator Wyden, usually an environment supporter, is weighing a few

111 Jean Chemnick, *Whitfield Drops Bill Taking Aim at EPA Carbon Rules*, E&E NEWS, Jan. 9, 2014, http://www.eenews.net/eenewspm/stories/1059992665/ (last visited Feb. 14, 2015) (internal quotation marks omitted).

112 Manuel Quiñones, *Industry Welcomes Landrieu's Ascension*, E&E NEWS, Feb. 12, 2014, http://www.eenews.net/eedaily/stories/1059994450/ (last visited Feb. 14, 2015).

113 *Id.* (internal quotation marks omitted).

114 *Id.*

115 *Id.*

116 *See* THE MORROW PACIFIC PROJECT, ECONOMIC IMPACTS OF THE MORROW PACIFIC PROJECT 1 (2014), *available at* http://morrowpacific.com/wp-content/uploads/2014/03/ECONorthwest-Exec Summary-32414.pdf (claiming the project will create more than 2,100 construction jobs and more than 1,000 operations jobs).

117 Melanie Hart & Jeffrey Cavanaugh, *Environmental Standards Give the United States an Edge Over China*, CTR. FOR AM. PROGRESS, Apr. 20, 2012, https://www.americanprogress.org /issues/green/news/2012/04/20/11503/environmental-standards-give-the-united-states-an-edge-ov er-china/ (last visited Feb. 14, 2015).

118 *See* Nick Juliano, *CAP Study Shows Exports Raise Emissions as Debate Rages On*, E&E NEWS, Aug. 19, 2014, http://www.eenews.net/eenewspm/stories/1060004685/ (last visited Feb. 14, 2015) (explaining that exporting coal to Asia from the Pacific Northwest would actually create a rise in demand and therefore a corresponding rise in emissions).

hundred new jobs in Oregon against the extensive long-term harm from the combustion of exported coal. This is shortsighted American politics at work.

Politicians may also have the pragmatic viewpoint that if they vote for, or against, the EPA's emissions-reduction regulations, their constituents may refuse to re-elect them depending on the economic and social conditions in each state. For example, although the proportion of voters in favor of undertaking climate change mitigation efforts has been growing in recent years, a poll conducted on behalf of the National Mining Association found that 55.2% of voters "in eight coal-heavy states would oppose a Senate candidate who supports the Environmental Protection Agency's latest carbon pollution rules for power plants."[119] This may not be the most reliable evidence given the sponsor of the poll, but it does appear likely that many voters in states that benefit directly from fossil fuel production and the corresponding employment are more likely to oppose restrictions on energy production from fossil fuel combustion.

When the Republicans gained control of both houses of Congress in January 2015, it became even more difficult for the Obama Administration and EPA to impose stronger mitigation measures. It is a sad reflection on our political system that the primary opposition to EPA's feeble regulations of GHG emissions from new and existing fossil fuel power plants will come not from people who want to do more to curtail American contributions to climate change, but rather from politicians who want to do even less.

A fourth source of political opposition to the EPA's mitigation efforts comes directly from lobbying and campaign contributions by some of the wealthiest companies in the world. Senator Mitch McConnell received more contributions from the oil and gas industry than any other member of Congress from 2007 to 2012.[120] He also received more contributions from the coal mining industry than anyone else in Congress during 2013 and 2014.[121] With regard to former Senator Landrieu, one commentator on energy issues stated: "Oil and gas companies remain among Landrieu's top donors, reflecting the economic realities of her state. Coal and mining companies, however, have also pitched in."[122] Wealth counts for political campaign contributions, and therefore it cannot be surprising that "lawmakers' ties to the fossil fuel industry have made them resistant to change."[123]

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119 Deborah D. Stine, *Public Opinion on Climate Change: Is the Glass Half-Full or Half-Empty for Policymakers?*, THE HILL, July 11, 2014, http://thehill.com/blogs/pundits-blog/energy-environment/211886-public-opinion-on-climate-change-is-the-glass-half-full (last visited Feb. 14, 2015). Magellan, on behalf of the National Mining Association, conducted a poll in eight "coal-heavy" states: Arkansas, Colorado, Georgia, Kentucky, Louisiana, Michigan, Montana, and North Carolina on June 12, 2014. *Id.*

120 Andy Kroll & Katie Rose Quandt, *"More Money than I Could Count": Mitch McConnell's Very Special Relationship with Lobbyists*, MOTHER JONES, Oct. 17, 2014, http://www.motherjones.com/politics/2014/10/mitch-mcconnell-k-street-lobbyists-senate (last visited Feb. 14, 2015).

121 *Id.*

122 Manuel Quiñones, *Industry Welcomes Landrieu's Ascension*, E&E NEWS, Feb. 12, 2014, http://www.eenews.net/eedaily/stories/1059994450/ (last visited Feb. 14, 2015).

123 Davenport, Political Rifts, *supra* note 88.

It is a sad reality of American politics that climate change has become a highly partisan issue. In one survey, 66% of Democrats said, "human activity is the main cause of global warming" while only 24% of Republicans agreed.[124] A Pew Research Center poll in November 2013 reported:

> 67 percent of Americans think the planet is indisputably getting warmer. Among Democrats and Democratic leaners, however, the figure is 84 percent, but among tea party types it's 25 percent. Maybe more to the point, only 9 percent of tea party members think "human activity" has contributed to global warming.[125]

Professor Jody Freeman of Harvard Law School, another early academic participant in the Obama Administration climate change programs, recently noted: "[I]n 2012, the Republican Party amended its national platform to state its opposition to 'any and all cap and trade legislation' to curtail GHG emissions, and to demand that Congress 'take quick action to prohibit the EPA from moving forward with new GHG regulations.'"[126] With regard to the unsuccessful Waxman–Markey bill of 2009, Professor Freeman stated: "Republicans remained united in opposition—as much to the [P]resident's agenda as to this specific legislation. Getting climate and energy legislation over the finish line proved, in the end, too much."[127]

The political opponents of EPA mitigation programs and other environmental protection initiatives can adopt a variety of means to block the progress of regulations they dislike. As an illustration of "the power of the purse," Representative Tom Cotton, who was recently elected to a Senate seat from Arkansas, said that if the Republicans win control of the Senate in 2014, as they did, they will review "EPA regulations that are going to hurt our economy, perhaps using the spending process to prevent money from being spent on implementing them."[128]

When President Obama nominated Regina (Gina) McCarthy, who was formerly the Assistant Administrator responsible for EPA air pollution and radiation programs including climate change regulation, to serve as the new EPA Administrator, her approval by the Senate was held up for months as a

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124 Nicholas Kristof, *'Neglected Topic' Winner: Climate Change*, N.Y. TIMES, Jan. 18, 2014, http://www.nytimes.com/2014/01/19/opinion/sunday/kristof-neglected-topic-winner-climate-change.html (last visited Feb. 14, 2015).

125 Richard Cohen, *The Tea Party would Rather Burn than Submit to Washington*, WASH. POST, June 30, 2014, http://www.washingtonpost.com/opinions/richard-cohen-on-climate-the-tea-party-would-rather-burn-than-submit-to-washington/2014/06/30/35166398-007d-11e4-b8ff-89afd3fad6bd_story.html (last visited Feb. 14, 2015).

126 Freeman & Konschnik, *supra* note 109, at 798.

127 *Id.* at 796.

128 U.S. House of Representatives, *History, Art, & Archives: Power of the Purse*, http://history.house.gov/Institution/Origins-Development/Power-of-the-Purse/ (last visited Feb. 14, 2015) (explaining the term comes from Congress's "ability to tax and spend public money for the national government); Jennifer Yachnin, *Arkansas: Challenger Promises a GOP Senate Would Block EPA Rules*, E&E NEWS, Sept. 26, 2014, http://www.eenews.net/greenwire/stories/1060006511 (last visited Feb. 14, 2015).

result of conflicting political objectives.[129] As one commentator stated, "the months-long process 'hamstrings her ability to do her current job and future job—which is one of her opponents' goals.'"[130] Until the Democrat-controlled Senate adopted new rules that effectively eliminated filibusters, at least six high-level EPA appointments were also held up for an inexcusably long time.[131]

Congressional committees often require detailed testimony from EPA officials on controversial regulations and deliberately make those officials struggle through a gauntlet of hostile criticisms.[132] This informal mechanism for shaping EPA programs can divert the attention of senior EPA staff from operating effective regulatory programs to defending themselves and their agency.

Opponents of EPA proposals for GHG regulations may present exaggerated claims that climate change mitigation programs will cost consumers substantial money and will kill employment opportunities.[133] EPA may not be bound by inaccurate criticisms, such as that climate change regulations constitute a "war on coal," but EPA leaders must find ways to discredit these claims without weakening their less-than-sufficient political support.

Hostile politicians may encourage lawsuits challenging EPA's authority to promulgate ambitious climate change regulations under the CAA, using fossil-fuel producing states or well-funded right-wing nongovernmental organizations as surrogate plaintiffs.[134] Even if these lawsuits have little chance of succeeding in court, they are bound to divert a large amount of EPA budgetary resources and staff time from more valuable regulatory implementation activities.

In light of these various political pressures and constant partisanship, there is no reason for optimism about EPA's present accomplishments or

129 Wendy Koch, *Senate Approves Obama-Pick McCarthy to Head EPA*, USA TODAY, July 18, 2013, http://www.usatoday.com/story/news/nation/2013/07/18/gina-mccarthy-epa-thomas-perez/2554437 (last visited Feb. 14, 2015).

130 Valerie Volcovici, *EPA Confirmation Delay Raises Questions About U.S. Carbon Rules*, REUTERS, June 14, 2013, http://www.reuters.com/article/2013/06/14/usa-climate-epa-idusl2n0eq1ur20130614 (last visited Feb. 14, 2015) (citing the comments of Daniel Weiss, director of climate strategy at the progressive Center for American Progress).

131 *See* Robin Bravender, *Top Jobs Vacant As Nominees Languish in Confirmation Limbo*, E&E NEWS, July 1, 2014, http://www.eenews.net/greenwire/stories/1060002220 (last visited Feb. 14, 2015) (cataloguing six delayed EPA appointments, including five assistant administrators and the chief financial officer).

132 *See* Tim McDonnell, *How the GOP's Senate Takeover Could Derail Global Climate Action*, MOTHER JONES, Nov. 11, 2014, http://www.motherjones.com/environment/2014/11/gop-senate-takeover-midterms-climate-agreement-paris (last visited Feb. 14, 2015).

133 *See* Nicolas D. Loris et al., *EPA Power Plant Regulations: A Backdoor Energy Tax*, BACKGROUNDER, Dec. 5, 2013, at 1, 1, 4, *available at* http://thf_media.s3.amazonaws.com/2013/pdf/BG2863%20update.pdf.

134 *See, e.g.*, Roby Brock, *Hutchinson Vows to Fight EPA Rules, AG McDaniel Meets with EPA Official*, THE CITY WIRE, Aug. 4, 2014, http://www.thecitywire.com/node/34114#.vmvcz_7f98e (last visited Feb. 14, 2015) (cataloguing gubernatorial candidate Asa Hutchinson's pledge to join litigation brought by Arkansas challenging EPA's climate change regulations, should he be elected).

future plans. Nevertheless, we must consider how EPA has tried to function under these difficult political constraints and whether it could do appreciably better. EPA's responses will be evaluated in the framework provided by the other seven laws of administrative behavior. It is hardly an exaggeration to say that politics influences virtually all aspects of environmental regulatory programs, but an analysis of every political ramification in this discussion would leave little to say in the next seven behavioral analyses.

B. Agencies Avoid Making Regulatory Decisions That Would Create Severe Social or Economic Dislocation

EPA has a history of attempting to avoid the imposition of strict regulations that would lead to substantial economic and employment losses in especially vulnerable regions.[135] EPA has also attempted to avoid implementing regulatory programs that would create a competitive advantage for some states or areas at the expense of others.[136] For twenty years after the 1970 adoption of the CAA, EPA refused to regulate Midwest air pollution discharges that were carried eastward by prevailing winds and eventually came down as acid rain harming ecosystems of eastern states and Canadian provinces.[137] EPA did not want to resolve the controversy caused by interstate air pollution affecting more than a dozen states, and the Agency did not want to impose stricter pollution-control standards on rust belt states that arguably could not afford to implement them.[138] Instead, EPA waited two decades for Congress to make the crucial decisions.[139] The acid rain conflict was not resolved through EPA administrative actions, but only in the thousand-page Clean Air Act Amendments of 1990.[140] EPA's attitude was: Let Congress Do It!

EPA faces the same dilemma in attempting to achieve progress on climate change mitigation while trying to avoid substantial economic and social dislocation. Replacing fossil-fuel combustion technologies with clean GHG-free or very-low-GHG alternative technologies and processes undoubtedly will be expensive and will lead to widespread business losses and job losses in the fossil fuel energy industries.[141] From a national perspective, these losses will probably be more than counterbalanced by innovative energy technologies and emerging jobs that benefit the people in

135 *See* H. Latin, *Administrative Incentives*, *supra* note 29, at 1657–58.

136 *See id.* at 1658.

137 *See id.* 1658–59.

138 *See id.* at 1658.

139 *Id.* at 1658, 1671, 1695–96.

140 *Id.* at 1695–96.

141 *See* H. Latin, *Climate Change Mitigation*, *supra* note 27, at 59 ("No other pollutant than GHGs has presented such difficult and consequential choices for each and every state. In states with major fossil fuel production, distribution, and combustion industries, with many thousands of related jobs, large revenues from fossil fuel resources exploitation, and long-established energy industry and political links, it is difficult to imagine that these states would undertake aggressive GHG mitigation programs jeopardizing state revenues and employment.").

different locations.[142] The employment losses would likely be offset by new clean energy jobs and improved public health and welfare.[143] However, national benefits cannot always overcome regional losses in states dependent on fossil fuel energy production.

EPA does not want to be the fall guy blamed for business and employment losses in the fossil fuel states that will inevitably occur. Although the total costs of present and future climate change damages will be vastly higher than effective mitigation costs,[144] EPA does not want to take controversial actions that will cause substantial business and labor dislocations. EPA's attitude is still: Let Congress Do It! And yet, in recent years Congress has been almost completely paralyzed by constant contention and partisan fervor.[145]

This second law of administrative behavior may help explain why EPA has been so determined to follow the CAA by regulating *existing* GHG pollution sources in a less stringent, more decentralized manner than its regulation of more efficient new GHG sources. When large fossil fuel-burning power plants and other major GHG-discharging facilities exist in a particular area, that normally means a significant proportion of local employment and consumer sales will be derived from the economic effects of large-scale GHG polluters and their employees.[146] EPA would rather find ways to cushion the blow than to be perceived as killing the local economy. If Congress is forced to make the hard choices, as it ultimately had to do in the context of acid rain regulation, EPA officials will not be attacked (to the same extent) as callous job killers.

142 *See* Alice Kaswan, *Climate Change, The Clean Air Act, and Industrial Pollution*, 30 UCLA J. ENVTL. L. & POL'Y 51, 62 (2012) ("A narrow focus [on GHG reductions] could also miss significant opportunities, like improved air quality or new job opportunities, which could influence assessments of the appropriate policy.").

143 *See* ELIZABETH A. STANTON & FRANK ACKERMAN, EMISSION REDUCTION, INTERSTATE EQUITY, AND THE PRICE OF CARBON 2–3 (2010), *available at* http://www.e3network.org/papers/Emissions_States_Carbon_081710.pdf (discussing a model of the effects of carbon prices on households by income level that predicting job gains that would offset job losses at coal-fired power plants).

144 *See Michael Mann Says It's Cheaper to Combat Climate Change Than Pay for Global Warming*, CBC NEWS, Apr. 23, 2014, http://www.cbc.ca/news/business/michael-mann-says-it-s-cheaper-to-combat-climate-change-than-pay-for-global-warming-1.2619642 (last visited Feb. 14, 2015) (reporting on American climatologist Michael Mann's argument that "it is cheaper to wean ourselves from fossil fuels than to pay for the damage caused by global warming").

145 *See, e.g.*, Percival, *supra* note 3, at 153 ("Congress has failed to update major regulatory statutes for decades because of legislative gridlock produced by ideological polarization of its members."); Jason Bordoff & Michael Levi, *Bittersweet Achievement On Climate*, N.Y. TIMES, June 26, 2013, at A25 (reporting on President Obama's plan to use executive authority to regulate carbon emissions from existing power plants in the face of "Congress's refusal to pass serious laws to curb greenhouse-gas emissions").

146 *See* H. Latin, *Climate Change Mitigation*, *supra* note 27, at 59 ("In states with major fossil fuel production, distribution, and combustion industries, with many thousands of related jobs, large revenues from fossil fuel resources exploitation, and long-established energy industry and political links, it is difficult to imagine that these states would undertake aggressive GHG mitigation programs jeopardizing state revenues and employment.").

Many of the ideological criticisms articulated by prominent conservative politicians are focused on the allegedly severe economic harm that would result from stronger climate change mitigation programs. For example, House Speaker John Boehner described proposed climate-based cap-and-trade systems as "job killing regulation" and a "full-blown fleecing of the middle class."[147] Governor Chris Christie withdrew New Jersey from the Regional Greenhouse Gas Initiative, a partnership of eastern states operating a cap-and-trade program to reduce GHG emissions from their power plants, on the grounds that "[the regional program] does nothing more than tax electricity, tax our citizens, tax our businesses, with no discernible or measurable impact upon our environment."[148] And Senator Marco Rubio claimed he "do[es] not believe that the laws that [the Obama Administration] propose[s] we pass will do anything about [climate change], except it will destroy our economy."[149]

Notwithstanding the highly dubious nature of these assertions, the EPA has bent over backwards to try to refute them. The Agency has published or cited numerous scientific and economic studies concluding that the aggregate costs of effective climate change mitigation would be far less than the expected costs of increasing climate change damages.[150] The EPA's leaders have organized many meetings and workshops to discuss the impacts of the EPA emissions-reduction programs with business representatives and state or local officials.[151] The EPA staff has sponsored a number of public hearings supporting each specific climate change regulation by providing information about the benefits and feasibility of the

147 Bordoff & Levi, *supra* note 145, at A25 (internal quotation marks omitted).

148 Mireya Navarro, *Christie Pulls New Jersey from 10-State Climate Initiative*, N.Y. TIMES, May 26, 2011, http://www.nytimes.com/2011/05/27/nyregion/christie-pulls-nj-from-greenhouse-gas-coalition.html?_r=0 (last visited Feb. 14, 2015) (internal quotation marks omitted).

149 Emmarie Huetteman, *Rubio on a Presidential Bid, and Climate Change*, N.Y. TIMES, May 11, 2014, http://www.nytimes.com/2014/05/12/us/politics/rubio-says-he-is-ready-to-be-president.html (last visited Feb. 14, 2015) (internal quotation marks omitted).

150 *See, e.g.*, Jean Chemnick, *OMB Chief Says Inaction Would Cost 'Billions and Billions'*, E&E NEWS, Sept. 19, 2014, http://www.eenews.net/greenwire/stories/1060006171/ (last visited Feb. 14, 2015) (noting that White House Office of Management and Budget Director Shaun Donovan's comments that mitigation costs will "come back to the taxpayer many times over in avoided disaster response costs"); Coral Davenport, *White House Pushes Financial Case for Carbon Rule*, N.Y. TIMES, July 29, 2014, http://www.nytimes.com/2014/07/30/us/politics/white-house-report-presses-economic-case-for-carbon-rule.html (last visited Feb. 14, 2015) (citing the findings of a White House Council of Economic Advisors analysis that determined inadequate climate change mitigation could cost the U.S. economy $150 billion per year).

151 *See, e.g.*, Erika Bolstad, *Climate Regs Won't Crimp Energy Boom, McCarthy Tells Worried North Dakotans*, E&E NEWS, Mar. 3, 2014, http://www.eenews.net/greenwire/stories/1059995426/ (last visited Feb. 14, 2015) (describing McCarthy's visit to North Dakota regarding the current administration's perspectives on coal); Rod Kuckro, *Unadvertised Visit from EPA's McCarthy Encourages CEOs*, E&E NEWS, June 11, 2014, http://www.eenews.net/stories/1060001102 (last visited Feb. 14, 2015) (discussing EPA Administrator Gina McCarthy's meeting "with the executive committee of the trade association representing investor-owned utilities behind closed doors").

Agency's programs and to solicit relevant comments from the participants.[152] Indeed, after her appointment as Administrator, McCarthy assembled a new staff characterized by their "political chops," featuring "a seasoned team of political operatives, Capitol Hill veterans and policy experts to lead the effort from within her office."[153]

Unfortunately, these EPA public relations efforts to persuade people that climate change mitigation efforts are both desirable and affordable have not been able to overcome the intense hostility of many conservative politicians, businesses, employees in fossil fuel industries, and communities dependent on fossil fuel production for a major part of their revenues and living standards. I believe EPA has recognized that the relentless opposition to their programs from affected fossil fuel businesses and manufacturing firms has been more successful than the Agency's appeals for broader public support.

Regrettably, but not surprisingly, this recognition has led EPA to try to minimize the economic and social dislocation impacts of its programs by weakening the GHG emissions-reduction goals that were initially regarded as central to climate change policies. In other words, EPA has sacrificed its commitment to strong mitigation actions in order to reduce the Agency's apparent blame for the economic and social dislocation likely to result in various regions dependent on fossil fuel energy production.

With regard to the EPA standards for new fossil fuel-burning power plants, the Agency's documentation states that "the proposed EGU New Source GHG Standards will result in negligible CO_2 emission changes, energy impacts, benefits or costs for new units constructed by 2020. Likewise, the Agency does not anticipate any notable impacts on the price of electricity or energy supplies."[154] In another passage, EPA noted that "the proposed EGU New Source GHG Standards are not expected to change GHG emissions for newly constructed EGUs, and are anticipated to yield no monetized benefits and impose negligible costs, economic impacts, or energy impacts on the electricity sector or society."[155] EPA acknowledged that the proposed NSPS "will result in negligible CO_2 emission changes, quantified benefits, and costs by 2022."[156]

These EPA statements were quoted in Part I as partial proof of the inadequacy of the Agency's efforts to curtail urgent climate change hazards.[157] Yet, it should be easier for readers to understand these passages now in light of the EPA's desire to avoid imposing economic dislocation

152 *See, e.g.*, Jean Chemnick, *Climate: EPA Extends Public Hearings on Power Plant Rule*, E&E NEWS, July 2, 2014, http://www.eenews.net/greenwire/stories/1060002286/ (last visited Feb. 14, 2015) (documenting EPA's scheduled public hearings to allow additional comment on a new proposal for existing power plants).

153 Robin Bravender, *EPA: Political Chops the Hallmark of McCarthy's Team*, E&E NEWS, Jan. 15, 2014, http://www.eenews.net/greenwire/stories/1059992954/feed (last visited Feb. 14, 2015).

154 EPA, 2013 RIA, *supra* note 21, at 5-54.

155 *Id.* at 5-1.

156 EPA, 2013 NSPS, *supra* note 19, at 1433.

157 *See supra* Part I.

costs in states dependent on fossil fuels. EPA also wants to minimize the constant criticisms asserting that current mitigation programs—as feeble as they now are—will significantly damage the U.S. economy and create competitive disadvantages with many nations that refuse to implement any substantial mitigation initiatives. EPA's choices to protect itself from criticism and to reduce serious dislocation arising from their proposed mitigation programs have induced the Agency to weaken their GHG emissions-reduction efforts to the point where they will hardly have any beneficial impacts at all.

With regard to the regulation of existing fossil fuel-fired power plants, the proposed rule calls for a 30% reduction in GHG pollution from fossil fuel-fired power plants by 2030.[158] According to EPA, these energy facilities emit about 32% of the annual GHGs discharged by U.S. sources into the atmosphere,[159] which makes these power plants the largest dischargers of GHGs in America.[160] This EPA emissions-reduction target for existing power plants may seem more ambitious than it is in reality. The proposed 30% GHG reduction by 2030 will apply only to the 32% share of GHG discharges from existing EGUs. If we multiply the 30% emissions-reduction target by the 32% of GHGs discharged from the fossil fuel power plants, the aggregate result is that EPA's proposed standard will only cut annual GHG emissions by a little less than 10% (30% X 32% = 9.6 %). Under EPA's proposed rule, the remaining 90% of GHG emissions will be allowed to reach the atmosphere, where they will combine with the high concentration of GHGs already in the air. This limited, if not miniscule, 2030 emissions-reduction target is far from an impressive regulatory achievement, and the huge volume of unregulated GHG emissions in the years before 2030 will be even worse.

In light of EPA's negligible GHG emissions-reduction plan for existing power plants, it appears that the Agency is not attempting to impose significantly more stringent pollution-control regulations to reduce climate change endangerment at least partly because EPA does not want to be blamed for the resulting economic and social dislocation losses in politically influential fossil fuel areas or in any uncooperative areas.

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158 EPA, 2014 Rule, *supra* note 13, at 34,832 ("Nationwide, by 2030, this rule would achieve CO_2 emission reductions from the power sector of approximately 30 percent from CO_2 emission levels in 2005."); U.S. Envtl. Prot. Agency, *Overview of the Clean Power Plan: Cutting Carbon Pollution from Power Plants*, http://www2.epa.gov/sites/production/files/2014-05/documents/20140602fs-overview.pdf (last visited Feb. 14, 2015) ("Nationwide, the Clean Power Plan will help cut carbon pollution from the power sector by 30 percent from 2005 levels.").

159 U.S. Envtl. Prot. Agency, *Climate Change: Sources of Greenhouse Gas Emissions*, http://www.epa.gov/climatechange/ghgemissions/sources.html (last visited Feb. 14, 2015) [hereinafter EPA, *Climate Change*].

160 U.S. ENVTL. PROT. AGENCY, EPA 430-R-14-003, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2012, at 3-1 (2014), *available at* http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2014-Main-Text.pdf; EPA, *Climate Change*, *supra* note 159.

C. Agencies Avoid Resolving Disputed Issues Unless They Can Render Scientifically Credible Judgments

There is little scientific dispute about the anthropogenic cause of most climate change risks, but countless uncertainties remain about the magnitude and timing of the forces driving particular climate change problems and about potentially effective mitigation program benefits and costs.[161] EPA officials are surely aware that ignoring important uncertainties can lead to mistakes that will damage the reputations of individual staff members and of the Agency as a whole. They also know that there are headhunters from the right and the left constantly looking for the possibility of scientific errors or climate policy mistakes that might justify more congenial treatments from the perspective of the critics.

EPA officials and scientists must understand that many crucial technical problems cannot be resolved upon command; both scientific knowledge and scientifically reliable data may not exist or may be impossible to produce under a tight timetable. It is hardly surprising that regulatory officials would often rather study a disputed issue indefinitely instead of being forced to provide an unreliable, ambiguous, scientifically indefensible solution.

For example, there can be no scientific question that natural gas is a fossil fuel and its combustion will lead to significant GHG pollution.[162] However, EPA contends that exploiting natural gas will be less harmful than the current national dependence on coal-burning power plants.[163] Studies have found that natural gas combustion will create only about 50% of the GHG emissions derived from coal for any given volume of kilowatts of energy.[164] Even if this calculation is valid, EPA is comparing one fossil fuel versus another fossil fuel without discussing whether both fossil fuels might be bad for the climate. The primary issue should not be which fossil fuel energy source is worse, but rather whether any of them can produce a sufficient amount of energy at an acceptably low volume of GHG emissions.

161 *See, e.g.*, Richard Pancost & Stephan Lewandowsky, *Climate Uncertainty No Excuse for Inaction*, SCI. AM., Oct. 17, 2014, http://www.scientificamerican.com/article/climate-uncertainty-no-excuse-for-inaction (last visited Feb. 14, 2015) (stating that climate change uncertainty "is an impetus to mitigative action"); World Meteorological Org., *Climate Scientists Address Urgent Priorities for Research*, http://www.wmo.int/pages/mediacentre/news/Climatescientistsaddress urgentprioritiesforresearch.html (last visited Feb. 14, 2015) (reporting that climate scientists will meet to discuss emerging climate system results).

162 *See* U.S. Envtl. Prot. Agency, *Climate Change: Overview of Greenhouse Gases*, http://www.epa.gov/climatechange/ghgemissions/gases.html (last visited Feb. 14, 2015).

163 *See* Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units, 77 Fed. Reg. 22,392, 22,392 (proposed Apr. 13, 2012) (to be codified at 40 C.F.R. pt. 60).

164 MEG CRAWFORD & JANET PEACE, CTR. FOR CLIMATE AND ENERGY SOLUTIONS, LEVERAGING NATURAL GAS TO REDUCE GREENHOUSE GAS EMISSIONS 2 (2013), *available at* http://www.c2es.org/publications/leveraging-natural-gas-reduce-greenhouse-gas-emissions.

We know that coal is a dangerous, highly polluting source of energy, but we do not know whether natural gas would prove to be sufficiently cleaner.[165]

The core issue is not which fossil fuel is less harmful, but whether any fossil fuel can be widely exploited without further degrading the climate. EPA has made comparisons between the CO_2 released by coal combustion and the CO_2 from natural gas consumption,[166] but I have not seen any EPA conclusion that natural gas combustion will prevent or minimize increasing the GHG concentrations in the air. EPA framed its 2013 proposed NSPS for new power plants based on the comparison of coal and natural gas[167] without acknowledging that the combustion of both fossil fuels could, and I believe would, continue to increase the cumulative volume of GHGs in the atmosphere.

In other words, it appears that EPA chose to incorporate a natural gas pollution-control standard into the NSPS for new fossil fuel power plants before it could answer the crucial question of whether widespread reliance on energy from natural gas would be *clean enough* to prevent continuing climate change expansion.[168] As one climate-oriented organization observed: "[T]he United States cannot achieve the level of greenhouse gas emissions necessary to avoid the serious impacts of climate change by relying on natural gas alone. Also required is the development of significant quantities of zero-emission sources of energy."[169]

The rapid shift in our economy from coal to natural gas combustion for energy production has not been the result of any regulatory choice, but rather it is a market-based consequence of the recent abundance and relatively low price of natural gas.[170] Thus, EPA cannot be blamed for the substitution of natural gas for coal, and the familiar critics' condemnation of the Agency's "war on coal" is largely unwarranted.[171] Coal is losing this war because natural gas has become more readily available and considerably less expensive.[172] Nevertheless, EPA has not shown that natural gas combustion will be *clean enough* to make any significant progress in overcoming climate change.

If a full life cycle analysis of natural gas is conducted, EPA might be unable to show that natural gas is actually a significantly cleaner fossil fuel

165 *See* Jeff Tollefson, *Methane Leaks Erode Green Credentials of Natural Gas*, 493 NATURE 12 (2013); Gayathri Vaidyanathan & ClimateWire, *Natural Gas Offers Little Benefit in Fight Against Global Warming*, SCI. AM., Oct. 16, 2014, http://www.scientificamerican.com/article/natural-gas-offers-little-benefit-in-fight-against-global-warming (last visited Feb. 14, 2015).

166 *See* H. Latin, *Climate Change Mitigation*, *supra* note 27, at 33.

167 *See id.*

168 *See id.* at 33–34.

169 CRAWFORD & PEACE, *supra* note 164, at 3.

170 *See id.* at 1–17; Ken Silverstein, *Coal to Gas Moves Are Generating Economic Waves*, FORBES, Mar. 13, 2013, http://www.forbes.com/sites/kensilverstein/2013/03/13/coal-to-gas-moves-are-generating-economic-waves (last visited Feb. 14, 2015).

171 *See, e.g.*, Political Rifts, *supra* note 88 (explaining the political realities of carbon regulation).

172 Bruce M. Pendery, *Generating Electricity with Natural Gas: It's Plentiful and Cheap, but Regulation Is Needed to Prevent Environmental Degradation*, 32 UTAH ENVTL. L. REV. 253, 255–56 (2012).

than coal for energy production purposes.[173] The Agency has not demonstrated that the aggregate climate change ramifications of natural gas during the drilling, shipping, distribution, and storage processes would be acceptable in terms of pollution control costs and endangerment damages.[174] The point I am making here is that there are numerous unknown circumstances and factors involved in the transition from coal to natural gas as the basis for the new power plant NSPS, and EPA has not explored some of the difficult questions about the GHGs arising from the full natural gas life cycle process because those questions would be difficult to answer reliably.

Perhaps the most serious danger of relying on natural gas as the dominant energy source for the future is the high volume of methane that will be produced and discharged during the natural gas energy production process.[175] Indeed, natural gas is primarily methane.[176] Yet, methane is more than twenty times more powerful than CO_2 in terms of heat retention in the atmosphere.[177] Methane is not nearly as persistent as CO_2, but if it becomes America's dominant energy fuel, it will certainly result in the continuing discharge of vast amounts of heat-trapping GHGs into the atmosphere.[178]

Another serious but unresolved problem is that much of our current natural gas supplies are extracted using hydraulic fracturing (fracking) technologies that may entail substantial methane leakage while the natural gas is being pumped and processed.[179] Indeed, "the oil and gas industry estimates that 90 percent of the more than 450,000 operating gas wells in the United States rely on hydraulic fracturing."[180] Fracking has proven to be a

173 *See, e.g.*, Vaidyanathan & ClimateWire, *supra* note 165 (reporting that natural gas will not be a bridge fuel to clean energy without a comprehensive climate change policy); Tollefson, *supra* note 165 (saying that escaping methane may negate the carbon benefits of natural gas). *But see* Andrew C. Revkin, *A Deeper Look at a Study Finding High Leak Rates from Gas Drilling*, N.Y. TIMES, Apr. 23, 2014, http://dotearth.blogs.nytimes.com/2014/04/23/a-deeper-look-at-a-study-finding-high-leak-rates-from-gas-drilling/?_r=0 (last visited Feb. 14, 2015) (explaining that carbon emissions, not methane, will determine our climate future).

174 *See, e.g.*, U.S. Envtl. Prot. Agency, *EPA's Study of Hydraulic Fracturing for Oil and Gas and Its Potential Impact on Drinking Water Resources*, http://www2.epa.gov/hfstudy (last visited Feb. 14, 2015) (describing EPA undertaking a study to determine effects of complete hydraulic fracturing lifecycle on water resources).

175 *See* U.S. Envtl. Prot. Agency, *Overview of Greenhouse Gases: Methane Emissions*, http://www.epa.gov/climatechange/ghgemissions/gases/ch4.html (last visited Feb. 14, 2015) (acknowledging that methane emissions from the natural gas and petroleum industries, emitted to the atmosphere during the natural gas extraction, transportation, and production processes, represents the largest source of methane emissions in the United States).

176 *Id.*

177 *Id.*

178 *Id.*

179 *See* James Bradbury & Michael Obeiter, *A Close Look at Fugitive Methane Emissions from Natural Gas*, WORLD RESOURCES INST., Apr. 2, 2014, http://www.wri.org/blog/2013/04/close-look-fugitive-methane-emissions-natural-gas (last visited Feb. 14, 2015); Coral Davenport, *Study Finds Methane Leaks Negate Benefits of Natural Gas as a Fuel for Vehicles*, N.Y. TIMES, Feb. 13, 2014, http://www.nytimes.com/2014/02/14/us/study-finds-methane-leaks-negate-climate-benefits-of-natural-gas.html (last visited Feb. 14, 2015).

180 Tom Zeller, Jr., *E.P.A. Considers Risks of Gas Extraction*, N.Y. TIMES, July 23, 2010, http://zwww.nytimes.com/2010/07/24/business/energy-environment/24gas.html?pagewanted=all (last visited Feb. 14, 2015).

highly controversial gas-recovery technology, with a number of undesirable features including drinking water contamination, land subsidence, fugitive methane leakage, and some danger of spontaneous fires.[181] Several critics have also accused the fracking process of sometimes helping to cause nearby earthquakes.[182] For our purposes, the point is that EPA has not determined the full spectrum of climate change damages from fracking for oil and natural gas,[183] and EPA also has not identified the aggregate volume of GHGs stemming from the fracking process.[184]

Yet another potential problem with reliance on natural gas arises from the fiscal uncertainty about whether the gas will retain its current low price, or whether domestic prices will go up significantly because of recently allowed natural gas exports to other nations.[185] Many businesses are already following EPA's preference for natural gas-fired energy instead of coal combustion, and this trend is likely to continue during the next few decades.[186] Nevertheless, energy businesses and utilities will be in difficult straits if the market prices of natural gas suddenly increase appreciably.

Let me reemphasize that EPA has had no difficulty establishing that natural gas is cleaner than coal at the time of combustion, but it is doubtful that the Agency has made a comprehensive assessment of all the ways in

181 *See* Michael Esposito, *Water Issues Set the Pace for Fracking Regulations and Global Shale Gas Extraction*, 22 TUL. J. INT'L & COMP. L. 167, 169 (2013) (stating that concerns over contamination of drinking water and heavy demand for water during the fracking process are driving public concerns and affecting regulatory decision making); Erik Stokstad, *Will Fracking Put Too Much Fizz in Your Water?*, 344 SCI. 1468, 1468 (2014), *available at* http://www.sciencemag.org/content/344/6191/1468.full?sid=e1c4c1ff-da9b-474b-8a17-4e5008c509cb (describing an explosion created by leaked methane ignited by an electric pump); Tollefson, *supra* note 165 (discussing a report finding 9% methane leakage whereas a methane leakage rate of 3.2% or higher negates the climate benefits of natural gas compared to coal).

182 *See* William L. Ellsworth, *Injection-Induced Earthquakes*, 341 SCI. 1225942-1, 1225942-3 (2013), *available at* http://www.sciencemag.org/content/341/6142/1225942; Katie M. Keranen et al., *Potentially Induced Earthquakes in Oklahoma, USA: Links Between Wastewater Injection and the 2011 M_w 5.7 Earthquake Sequence*, 41 Geology 699, 700 (2013).

183 *See* Bill McKibben, *Bad News for Obama: Fracking May be Worse Than Burning Coal*, MOTHER JONES, Sept. 8, 2014, http://www.motherjones.com/environment/2014/09/methane-fracking-obama-climate-change-bill-mckibben (last visited Feb. 14, 2015) (discussing EPA's bullish approach to natural gas and methane emissions); *see also* Vaidyanathan & ClimateWire, *supra* note 165 (discussing growing body of research that shows natural gas produced by fracking does not lower GHG emissions).

184 Ramón A. Alvarez et al., *Greater Focus Needed on Methane Leakage from Natural Gas Infrastructure*, 109 PNAS 6435, 6438 (2012), *available at* http://www.pnas.org/cgi/doi/10.1073/pnas.1202407109.

185 *See* Saqib Rahim, *Natural Gas: Low Stockpiles Stir Jitters over Future Price Shocks*, E&E NEWS, July 9, 2014, http://www.eenews.net/stories/1060002541 (last visited Feb. 14, 2015) (showing low price of natural gas due to supply glut); Trefis Team, *Key Trends Impacting Natural Gas Prices in the U.S.*, FORBES, Jan. 2, 2014, http://www.forbes.com/sites/greatspeculations/2014/01/02/key-trends-impacting-natural-gas-prices-in-the-u-s/ (last visited Feb. 14, 2015) (stating that export demand is expected to play a key role in lifting natural gas prices in the United States).

186 *See* Team, *supra* note 185 (discussing growing use of natural gas in industrial and transportation sector); *see also* U.S. Energy Info. Admin., *Today in Energy: Industrial Sector Natural Gas Use Rising*, http://www.eia.gov/todayinenergy/detail.cfm?id=11771 (last visited Feb. 14, 2015).

which reliance on natural gas may produce unacceptably large amounts of GHGs and correspondingly high climate change risks.[187] Indeed, I question whether the Agency has calculated and publicized the cumulative amount of GHGs from combining the effects of methane from natural gas production and CO_2 from natural gas combustion. We need to know these crucial cumulative factors before sponsoring a major national transition to natural gas, which has already begun. But we do not know what we need to know because EPA's scientists and officials would rather ignore difficult questions about natural gas and methane hazards than offer unproven speculations about these vital issues.

D. Agencies Will Not Meet Statutory Deadlines If Budget Appropriations, Personnel, Information, or Other Resources Are Inadequate

It should be obvious that administrative agencies cannot function as mandated by their organic statutes or presidential orders if they lack the budgetary resources and qualified staff to fulfill their objectives in a successful manner. As one illustration, the Federal Water Pollution Control Act of 1972 (CWA)[188] provided that EPA must impose by 1977 the "best practicable technology-based standards" for restricting annual discharges of several water pollutants from more than 550 categories or classes of pollution sources.[189] Yet Congress gave EPA only 270 days to complete this mammoth regulatory task.[190] It is difficult to comprehend how any legislator or high-level EPA official could have imagined that the Agency's staff would be able to meet such a daunting set of regulatory responsibilities in such a short period of time.

EPA inevitably failed to comply with this unrealistic, underfunded legislative mandate regardless of the designated statutorily imposed deadlines.[191] Instead, EPA needed nearly two decades to implement a majority of the specified water pollution-control requirements,[192] and there

187 *See* U.S. Envtl. Prot. Agency, *Natural Gas*, http://www.epa.gov/cleanenergy/energy-and-you/affect/natural-gas.html (last visited Feb. 14, 2015) (stating that natural gas emits less CO_2, NO_x, and SO_x than coal, but omitting a comparison for methane despite indicating that "methane, a primary component of natural gas and a greenhouse gas, can also be emitted into the air").

188 33 U.S.C. §§ 1251–1397 (2012).

189 Federal Water Pollution Control Act, 33 U.S.C. § 1314(b)(1) (2012); *see* H. Latin, *Administrative Incentives*, *supra* note 29, at 1667 (finding that technological and economic variations necessitated development of about 560 separate sets of categorical standards).

190 33 U.S.C. § 1314(c).

191 *See, e.g.*, Miss. Comm'n on Natural Res. v. Costle, 625 F.2d 1269, 1278 n.3 (5th Cir. 1980) (recognizing, along with other courts, that the CWA "imposed unrealistic statutory requirements and timetables on the EPA").

192 *See, e.g.*, U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-14-80, CLEAN WATER ACT: CHANGES NEEDED IF KEY EPA PROGRAM IS TO HELP FULFILL THE NATION'S WATER QUALITY GOALS 12 (2013) (stating that EPA developed few regulatory limits during the first two decades after the creation of the Total Maximum Daily Load (TMDL) program).

are still many remaining water pollution sources contaminating many supposedly regulated bodies of water.[193]

Reinforcing the familiar adage that "those who fail to learn from history are compelled to repeat it," in 1977 Congress adopted the Clean Water Act Amendments to set new mandatory compliance dates, mainly 1983, applicable to the federal water pollution control process that had fallen years behind the initial schedule.[194] Not surprisingly, EPA continued to ignore the congressionally mandated timeline on the grounds that the Agency lacked sufficient personnel, funding, and other resources to have any chance of meeting the thousands of unrealistic statutory provisions and deadlines imposed in the 1977 CWA amendments.[195] Despite this brief example of unfeasible, untimely regulatory mandates, and other similar practical constraints on administrative behavior, it is questionable whether either Congress or the Obama Administration has clearly recognized that administrative agencies cannot be required to achieve virtually impossible tasks with wholly inadequate resources.

If anything, conditions supporting EPA officials and staff have grown even worse in recent years as partisan politicians have attempted to control or undermine environmental regulatory efforts by restricting the funding and personnel available to the Agency.[196] EPA has had its fiscal support and

193 *E.g.*, Charles Duhigg, *Clean Water Laws Are Neglected, at a Cost in Suffering*, N.Y. TIMES, Sept. 12, 2009, http://www.nytimes.com/2009/09/13/us/13water.html?pagewanted=all&_r=0 (last visited Feb. 14, 2015) (quoting statements by EPA officials indicating that "much of the country's water quality problems are caused by discharges from nonpoint sources of pollution, such as agricultural runoff, which cannot be corrected solely through enforcement").

194 *See, e.g.*, Clean Water Act of 1977, Pub. L. No. 95-217, § 56(c), 91 Stat. 1566, 1592–93 (amending section 309(a) of the Federal Water Pollution Control Act, including a requirement for EPA to order compliance of violators by "the earliest date practicable, but not later than July 1, 1983"); *see also id.* § 42 (amending section 301 of the Federal Water Pollution Control Act to require compliance with effluent limitations on toxic pollutants by July 1, 1984).

195 *See* Hugh J. Wessinger, U.S. Gov't Accounting Office, Statement before the Subcomm. on Investigations and Oversight of the H. Comm. on Public Works and Transp., Nat'l Pollutant Discharge Elimination System Permit Compliance by Major Industrial Dischargers in La. 1–2, 6–8 (Sept. 19, 1984) (reporting on noncompliance along the lower Mississippi River and noting statements by EPA regional officials that "staff shortage[s] which [do] not allow the region to take enforcement action against as many dischargers as it would like"); Hugh J. Wessinger, U.S. Gov't Accounting Office, Statement before the Subcomm. on Investigations and Oversight of the H. Comm. on Public Works and Transp., EPA and State Progress in Administering the Nat'l Pollutant Discharge Elimination System Permit Program 3–6, 10 (Mar. 7, 1984) (reporting on compliance problems with the NPDES program and testifying that problems would "likely continue" due to "underlying causes involv[ing] limited resources at both federal and state levels"). *See generally* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO/RCED-84-53, WASTEWATER DISCHARGERS ARE NOT COMPLYING WITH EPA POLLUTION CONTROL PERMITS (1983) (reporting on widespread noncompliance with wastewater permits and noting EPA statements that limited enforcement efforts were, in part, caused by resource shortages).

196 *See, e.g.*, David Rogers, *EPA Funding Cuts Outlined by GOP*, POLITICO, July 6, 2011, http://www.politico.com/news/stories/0711/58409.html (last visited Feb. 14, 2015) (describing spending cuts outlined by House Republicans, including an 18% cut to EPA funding); *see also* Jean Chemnick & Daniel Lippman, *EPA: McCarthy Visits Capitol Hill to Defend Agency's Budget Request*, E&E NEWS, Mar. 24, 2014, http://www.eenews.net/stories/1059996573 (last visited Feb. 14, 2015) (reporting critical comments of Republican Senators David Vitter and John Barrasso).

personnel cut sharply during the past decade, including under both the Obama and Bush Administrations and the Republican-dominated House of Representatives.[197] One newspaper story reported in July of 2013 that "a House Appropriations subcommittee formally drafted legislation that would cut the Environmental Protection Agency's budget by 34 percent and eliminate [President Obama's] newly announced greenhouse gas regulations."[198] While this draconian attack on EPA did not succeed, there have been significant budget reductions in the past few years.[199]

Any congressional members who believe EPA can continue to meet its many difficult regulatory responsibilities with fewer staff and fewer financial resources nearly every year are not being realistic, and in numerous cases the budget cuts are specifically meant by Congress to impede or forestall effective EPA regulatory actions.[200] After citing the large EPA budget cuts proposed by the House of Representatives in 2013, one commentator noted that "political messaging is the main point of House spending bills that stand little to no chance of getting through the Senate and becoming law."[201]

Aside from politically motivated budget cuts, EPA has also been subjected to the so-called budget sequestration treatment imposed by bipartisan but foolish legislation.[202] Budget sequestration has come to mean

197 *See* U.S. Envtl. Prot. Agency, *EPA's Budget and Spending*, http://www2.epa.gov/planandbudget/budget (last visited Feb. 14, 2015). In 2004, EPA's enacted budget was $8.4 billion, with a workforce of 17,611. *Id.* At the end of President Bush's term in 2009, the enacted budget was $7.5 billion, with a workforce of 17,049. *Id.* Though these numbers increased to $10.3 billion and 17,278 in 2010, they were cut down to $7.9 billion and 15,913 in 2013. *Id.*

198 Jonathan Weisman, *House G.O.P. Sets New Offensive on Obama Goals*, N.Y. TIMES, July 23, 2013, http://www.nytimes.com/2013/07/24/us/politics/house-gop-sets-new-offensive-on-obama-goals.html (last visited Feb. 14, 2015).

199 *See* U.S. Envtl. Prot. Agency, *supra* note 197 (cataloging EPA's budget and workforce amounts from fiscal year 1970 to 2013); Ronald White, *EPA Sustains Major Cuts to Developing and Enforcing Safeguards in FY 14 Appropriations*, BLOG: THE FINE PRINT (Feb. 3, 2014), http://www.foreffectivegov.org/blog/epa-sustains-major-cuts-developing-and-enforcing-safeguards-fy-14-appropriations (comparing EPA's $8.2 billion budget for fiscal year 2014 to the requested fiscal year 2013 budget and the enacted budgets for fiscal year 2012 and 2013); *see also* Patrick Ambrosio, *President Proposes Cut to EPA Funding for Fiscal Year 2015*, BLOOMBERG BNA, Mar. 6, 2014, http://www.bloomberg.com/news/2014-03-06/president-proposes-cut-to-epa-funding-for-fiscal-year-2015.html (last visited Feb. 14, 2015) ("President Obama's fiscal 2015 budget request includes $7.89 billion in funding for the Environmental Protection Agency, a cut of approximately $310 million, or 3.8 percent, compared to the agency's current funding level of $8.2 billion."); Jessica K. Ferrell, *EPA, Interior, Commerce Programs Among Those Cut in Budget Compromise*, MARTEN LAW, Apr., 14, 2011, http://www.martenlaw.com/newsletter/20110414-programs-cut-budget-compromise (last visited Feb. 14, 2015) (climate change programs were among the EPA programs hit hardest by the budget cuts).

200 Darren Goode, *House Panel Approves Bill with Deep Cuts for EPA*, POLITICO, July 24, 2013, http://www.politico.com/story/2013/07/epa-budget-cuts-94632.html (last visited Feb. 14, 2015).

201 *Id.*

202 *See* Lisa Desjardins, *Winners and Losers in Congress' $1 Trillion Spending Deal*, CNN, Jan. 14, 2014, http://www.cnn.com/2014/01/14/politics/budget-winners-losers/ (last visited Feb. 14, 2015) (explaining that EPA is one of the agencies affected by the sequester); Jonathan Weisman, *Answers to Questions on Capital's Top Topic*, N.Y. TIMES, Feb. 21, 2013, http://www.nytimes.com/2013/02/22/us/politics/questions-and-answers-about-the-sequester.html?_r=0

that all federal agency budgets (with a few explicit exceptions) would be cut by a designated percentage rate regardless of the benefits the public derives from some administrative programs.[203] This joint budget-cutting policy puts a higher priority on deficit restrictions than on agency performance and any resulting public benefits. One assessment of the budget sequestration found that EPA was among the "losers" relative to other agencies, and "Republicans boasted that with this bill, they have cut the EPA's funding by 20% since 2010."[204]

In March 2014, the EPA Administrator, Gina McCarthy, stated that the Agency would have to take a "strategic approach" in allocating limited funding to "priority activities in light of reduced budget resources."[205] Administrator McCarthy further indicated that the EPA budget had "zero real growth" in the past three years and is unlikely to do better "anytime soon."[206]

Perhaps this fourth law of administrative behavior will help explain why EPA refused to apply mandatory GHG emissions regulations to the overwhelming majority of CO_2 dischargers. Rather than try to supervise the conduct of millions of small- and medium-sized GHG dischargers, EPA created a "tailoring rule" that allowed the Agency to limit the number of to-be-regulated GHG pollution sources to a very small core of the largest polluters.[207] Although it would have been impossible for EPA to control the GHG emissions of literally millions of small polluters under the CAA's general 100-ton-per-year air pollution limit, the Agency has gone to the opposite extreme and has not attempted to regulate any major stationary sources except new and existing fossil fuel burning power plants.[208]

It appears likely that in the past several years EPA could have attempted to impose pollution-control standards on petroleum refineries, steel smelters, and cement manufacturers, all major GHG sources. However, once the tailoring rule was approved, EPA had the discretion to do as little regulatory innovation as politically defensible in order to allocate only a limited percentage of their staff and budget resources to the difficult realm of climate change mitigation.[209]

(last visited Feb. 14, 2015) (explaining budget sequestration put in place by bipartisan legislation).

203 *See* KAREN SPAR, CONG. RESEARCH SERV., R42050, BUDGET "SEQUESTRATION" AND SELECTED EXEMPTIONS AND SPECIAL RULES i, 1, 18 (2013), *available at* http://fas.org/sgp/crs/misc/R42050.pdf; *see also, e.g.*, Dylan Matthews, *The Sequester: Absolutely Everything You Could Possibly Need to Know, in One FAQ*, WASH. POST WONKBLOG (Feb. 20, 2013), http://www.washingtonpost.com/blogs/wonkblog/wp/2013/02/20/the-sequester-absolutely-everything-you-could-possibly-need-to-know-in-one-faq/ (explaining different ways the budget sequester will affect the public).

204 Desjardins, *supra* note 202 (internal quotation marks omitted).

205 Ambrosio, *supra* note 199 (internal quotation marks omitted).

206 *Id.*

207 *See* H. Latin, *Climate Change Mitigation*, *supra* note 27, at 30, 50 (internal quotation marks omitted).

208 *Id.* at 30–31.

209 *Id.*

The result, in my opinion, is that EPA's mitigation efforts have been too slow and too anemic to produce any significant climate change progress. As noted in Part II of this Article, EPA's weak regulations for fossil fuel-fired power plants, both new and existing facilities, will allow much more GHGs to reach the atmosphere than would be cut by 2030 under the Agency's inadequate GHG emissions-reduction plan.

E. Regulators Are Influenced by Disciplinary Norms That May Conflict with Statutory Mandates

In my previous article on the Eight Laws of Administrative Behavior, I used an acid rain regulatory program to illustrate this fifth law.[210] In 1980, Congress allocated 50 million dollars to fund the National Acid Precipitation Assessment Program (NAPAP), which was meant to develop efficient and fair social policies to address acid rain problems.[211] However, the scientists in NAPAP devoted most of their efforts, time, and fiscal support to conducting pure science, trying to improve the state of scientific knowledge on acid rain issues rather than trying to develop a sensible national policy on how to resolve acid rain conflicts.[212]

The head of the NAPAP oversight committee concluded: "'Instead of asking, What do we really need to know to make the wisdom-type calls Congress will be called on to answer over the next 10 years?, NAPAP managers asked, What are the intriguing and seminal scientific questions we can answer in 10 years?'"[213] This is an example of attempting unsuccessfully to turn scientists into social-policy experts in an important regulatory context despite the scientists' professional training and career experience in the pursuit of greater scientific knowledge. This acid rain program analysis ended with an uncomfortable prediction as several NAPAP experts cautioned that this "scenario is already repeating itself in the new federal climate change program, . . . [which] 'is driven too much by raw science.'"[214]

More than twenty-five years later, I see no reason to question the accuracy of this prediction. EPA scientists have produced many research reports explaining various dimensions of climate change issues.[215] They have also authored studies of the diverse dangers from climate change and the

210 H. Latin, *Administrative Incentives*, *supra* note 29, at 1671–72.

211 Acid Precipitation Act of 1980, Pub. L. No. 96-294, §§ 701–703, § 706, 94 Stat. 770–74.

212 *See* Leslie Roberts, *Learning from an Acid Rain Program*, 251 SCI. 1302, 1304–05 (1991).

213 *Id.* at 1303 (quoting Prof. Milton Russell).

214 *Id.* at 1305 (quoting Dr. James Mahoney).

215 *See generally* U.S. ENVTL. PROT. AGENCY, CLIMATE CHANGE INDICATORS IN THE UNITED STATES, 2014 (3d ed. 2014), *available at* http://www.epa.gov/climatechange/pdfs/climateindicators-full-2014.pdf; U.S. ENVTL. PROT. AGENCY, INVENTORY OF US. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2012 (2014), *available at* http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2014-Main-Text.pdf; U.S. ENVTL. PROT. AGENCY, EPA/600/R-11/036F, IMPLICATIONS OF CLIMATE CHANGE FOR BIOASSESSMNET PROGRAMS AND APPROACHES TO ACCOUNT FOR EFFECTS (2012), *available at* http://cfpub.epa.gov/ncea/global/recordisplay.cfm?deid=239585#Download.

potential benefits of effective mitigation efforts.[216] And yet EPA still does not have anything resembling a clear and realistic set of climate change policies that could really lead to significant public benefits. I believe the summary of EPA policy mistakes in Part II of this Article and the more detailed criticisms in my other recent publications[217] confirm the prediction that most of EPA's efforts have been directed at the science and economics of climate change, not at the complex solutions necessary to overcome urgent climate change hazards.

Virtually all EPA scientists must be familiar with the increasing GHG atmospheric concentration problem and the CO_2 persistence problem, and consequently they may not believe that EPA's GHG minimal emissions-reduction efforts will somehow achieve significant climate improvements. I do not see how they could conclude otherwise. But taking strong climate-policy positions condemning EPA's feeble GHG regulations would require the scientists to risk their careers and research resources, which is not how most scientists are likely to behave inside or outside administrative agencies. There have been some courageous scientists who have risked their careers, credibility, or both, by stepping outside the normal restraints of the scientific method to engage in public policy disputes. Yet, not many scientists have spoken out aggressively, and not often.

A particularly admirable example is Dr. James Hansen, the NASA climatologist who refused to remain silent when allegedly confronted by an influential government official that did not want Hansen to criticize the reluctance of the Bush Administration and EPA to confront growing climate change dangers.[218] Yet, this is a rare example of a prominent scientist deliberately stepping outside the traditional limits of his profession. Most scientists want to behave as scientists, they are trained to behave as scientists, and they will rarely agree to make judgments or policy statements based on risky speculation resulting from incomplete scientific knowledge.

The social and governmental difficulty here is that our current knowledge of all facets of climate change processes and consequences unquestionably is incomplete now and probably will remain incomplete for a very long time. Thus, an expectation that most climate-oriented scientists in regulatory contexts will abandon their scientific reliability norms and will

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216 *See generally, e.g.*, U.S. ENVTL. PROT. AGENCY, EPA/600/R-07/094F, ASSESSMENT OF THE IMPACTS OF GLOBAL CHANGE ON REGIONAL U.S. AIR QUALITY: A SYNTHESIS OF CLIMATE CHANGE IMPACTS ON GROUND-LEVEL OZONE (2009), *available at* http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=491176; U.S. ENVTL. PROT. AGENCY, EPA/600/R-06/114, MARKAL SCENARIO ANALYSES OF TECHNOLOGY OPTIONS FOR THE ELECTRIC SECTOR: THE IMPACT ON AIR QUALITY (2006), *available at* http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=159226.

217 *See* HOWARD A. LATIN, CLIMATE CHANGE POLICY FAILURES: WHY CONVENTIONAL MITIGATION APPROACHES CANNOT SUCCEED (2012); Howard Latin, *Framing the Climate Change Debate*, *in* CLIMATE CHANGE: A READER 741–93 (William H. Rodgers et al. eds., 2011); Howard A. Latin, *Climate Change Mitigation and Decarbonization*, 25 VILL. ENVTL. L.J. 1–82 (2014); Howard Latin, *Climate Change and Multi-Decade Mitigation Disasters*, AMER. BAR ASSOC., SEC. OF ENV'T, ENERGY, AND RES., COMMITTEE NEWSL. 3 (Feb. 2015).

218 *See* Juliet Eilperin, *Putting Some Heat on Bush, Scientist Inspires Anger, Awe for Challenges on Global Warming*, WASH. POST, Jan. 19, 2005, http://www.washingtonpost.com/wp-dyn/articles/A19162-2005Jan18.html (last visited Feb. 14, 2015).

offer social-policy recommendations based on incomplete knowledge is not a realistic one.

Another heroic scientist, in my estimation, is Dr. Michael E. Mann.[219] About fifteen years ago, he developed a graphical representation of global temperature growth in the past 1,000 years that resembled an inverted hockey stick.[220] The hockey stick image showed that "only human influences could explain the unusual recent warming."[221] The scientific research supporting this graphic image, not the image itself, is what made Dr. Mann's work widely accepted and admired in the scientific community that has been addressing climate change issues. However, because of the clarity of the image and the importance of the related scientific findings, a number of climate change-deniers, conservative publications, and fossil fuel industry lobbyists attacked Dr. Mann and tried to discredit his scientific findings in an unusually hostile manner of victimizing a widely respected research scientist.[222]

Rather than retreating from the false accusations and insults he was subjected to, in 2012 Dr. Mann published a book about his research and subsequent unpleasant experiences: *The Hockey Stick and the Climate Wars: Dispatches from the Front Lines*.[223] Then he sued a few of the hostile attackers for defamation, citing their deliberately misleading statements about his research and his personal attributes.[224] Unfortunately, the defamation case has not yet come to trial after more than two years due to procedural complications.[225] In my opinion as a torts professor, Dr. Mann is likely to win his case eventually, but it is not clear whether the lawsuit will be a useful but expensive and frustrating enterprise, or whether it will turn out to be a Pyrrhic victory.

In any event, Dr. Mann's experiences are unlikely to persuade many other scientists to leave their scientific methodology barriers to become climate change activists. Indeed, it is likely that a major purpose of the attacks by right-wing critics was to deter other prominent scientists from entering the public arena. We cannot blame scientists who want to engage in science, not in controversial political and economic disputes. It is

219 *See* MICHAEL E. MANN, THE HOCKEY STICK AND THE CLIMATE WARS: DISPATCHES FROM THE FRONT LINES xi (2012) (a book published in response to a widespread attempt to discredit Dr. Mann using cherry-picked phrases that were hacked from his personal email account).

220 *Id.* at xiii, 56 fig.4.2.

221 *Id.* at 58.

222 *Id.* at 208–25 (describing climate change deniers' manipulative use of hacked emails taken from Dr. Mann's account to discredit him and his research).

223 *Id.* at xvi.

224 Aaron Huertas, *Michael Mann Responds to Misleading Filings in Climate Change Lawsuit*, THE EQUATION BLOG (Sept. 3, 2014), http://blog.ucsusa.org/michael-mann-responds-to-misleading-filings-in-climate-change-lawsuit-641.

225 Complaint at 1, Mann v. Nat'l Review, Inc., No. 0008263-12 (D.C. Super. Ct. filed Oct. 22, 2013); *see* Climate Sci. Watch, *Michael Mann DC Appeals Court Brief Lays out Defamation Case and Seeks to Move Toward Trial*, http://www.climatesciencewatch.org/2014/09/03/michael-mann-dc-appeals-court-brief-sept3-2014/ (last visited Feb. 14, 2015) (discussing the lawsuit's extensive procedural delays resulting from the defendants' motion to dismiss and their subsequent appeal of the denial of that motion).

nonetheless important for regulatory agencies and legislatures to emphasize that scientists funded to work on the pressing worldwide dangers of climate change cannot avoid the social ramifications of their research and cannot wait indefinitely for uncertainties to be resolved. We need to recognize that most scientists do not *want* to function outside the conventional boundaries of science, and yet we definitely need to apply their knowledge to vital climate change issues.

F. Agency Staff Are Partly Conditioned by Continuing Criticism or Other Forms of Negative Feedback

No one likes to be the target of constant denunciations, including virtually all regulators and agency officials. It is nevertheless in the nature of the regulatory process that the administrative staff will be routinely criticized by many affected parties and proponents of different policies than the regulatory agency has chosen to adopt. If it is true that climate change mitigation choices receive a nearly unlimited stream of condemnations from a wide range of parties with conflicting goals, and if it is true that regulators do not enjoy being the victims of interminable criticisms any more than most people do, then it is likely that the most numerous, vigorous, hostile, and widely publicized critics will often induce regulators to modify their policies and priorities in a typically fruitless attempt to minimize the degree of disapproval.

The common human behavioral response to criticism could be described as a form of negative tropism in which the regulators try to move away from the most intense, vehement, negative sources of criticism by attempting to placate these critics to some extent by giving the loudest of them more of what they want. I considered using the adage that "the squeaky wheel gets the grease" as a ninth law of administrative behavior, but I decided that this rather obvious precept is already implicitly covered in the other eight laws.

For example, on February 28, 2014, EPA Administrator McCarthy visited North Dakota, a state enjoying an energy boom from fracking and wind power, but one in which "[a]bout 75 percent of the electricity generated in the state derives from eight coal-fired power plants." When she was asked whether EPA was conducting a "war on coal," McCarthy said, "[n]o." She also stated that "[t]he Obama Administration wants its [carbon emission] rule to avoid significant price increases for energy, and its aim is to include all fuels in the mix, including coal." Then McCarthy added, "[t]he last thing we want is to have this rule impact the ability of the economy to grow in any state—never mind nationally."[226]

After receiving a number of criticisms aimed at protecting high-paying jobs in rural communities, avoiding consumer energy price increases, reducing investment uncertainties, allowing continued ethanol production,

226 Bolstad, *supra* note 151.

and allaying concern "about the stability of the coal industry here,"[227] EPA has stated that it wants individual states to decide how to reduce their CO_2 discharges in ways that do not damage state and local economies.[228] McCarthy also acknowledged that "[n]o matter what, she'll be sued over the new carbon regulations. And probably by environmentalists and power plant owners alike."[229]

Four weeks later, Administrator McCarthy reportedly assured the American Council on Renewable Energy that "the Obama administration's climate rules would help grow the clean energy industry."[230] She stated that EPA regulations were designed for "normal human beings who want to have jobs, who want clean air and want to have the lights come on when they switch on the lights."[231] However, she acknowledged that "'conventional fuels are going to be an important part' of the country's energy mix going forward."[232]

On Monday June 9, 2014, McCarthy met with energy industry executives before the Edison Electric Institute's annual meeting.[233] The executives commended EPA's recent willingness to work with energy firms and listen to input on proposed rules.[234] This recent collaborative approach prompted one of the executives to "congratulate the EPA for working with the industry and listening to the concerns that we had."[235] At a news conference shortly thereafter, Ted Craver, chairman, president and CEO of Edison International, said "it was the first opportunity for EEI leaders 'to talk about the [power plant] rule, ask questions and exchange ideas' with McCarthy."[236]

On July 23, 2014, Administrator McCarthy was scheduled to offer her first testimony to the Senate Environment and Public Works Committee on the EPA proposed rule for existing fossil fuel power plants.[237] I do not know the details of her testimony or its reception in Congress but it could not have been a pleasant experience. Before the inquisition, Senator John Barrasso remarked: "In this economy, the last thing you should be doing is putting

227 *Id.*

228 *See* U.S. Envtl. Prot. Agency, *Fact Sheet: Clean Power Plan: The Role of States*, http://www2.epa.gov/sites/production/files/2014-05/documents/20140602fs-states-role.pdf (last visited Feb. 14, 2015).

229 Bolstad, *supra* note 151.

230 Daniel Lippman, *McCarthy Vows to Be 'A Friend' to Clean Energy Industry*, E&E NEWS, Mar. 28, 2014, http://www.eenews.net/greenwire/2014/03/28/stories/1059996937 (last visited Feb. 14, 2015).

231 *Id.* (internal quotation marks omitted).

232 *Id.* (internal quotation marks omitted).

233 Rod Kuckro, *Unadvertised Visit from EPA's McCarthy Encourages CEOs*, E&E NEWS, June 11, 2014, http://www.eenews.net/stories/1060001102 (last visited Feb. 14, 2015).

234 *Id.*

235 *Id.* (internal quotation marks omitted).

236 *Id.* (internal quotation marks omitted).

237 Jean Chemnick, *McCarthy Set to Make First Hill Appearance on Power Plant Rule—But Will She Change Any Minds?*, E&E NEWS, July 21, 2014, http://www.eenews.net/special_reports/epa_vs_climate_change/stories/1060003170 (last visited Feb. 14, 2015).

regulations in that force people to lose their jobs and force others to pay much higher costs for energy."[238]

Senator James Inhofe announced that he had "prepared a litany of questions for McCarthy about the draft rule" including "How many people are going to be put out of business? How many jobs are going to be lost? What's the cost going to be? And how do you maintain the energy necessary to run the country if you continue to put coal out of business?"[239] And other Republicans complained, "the rule would be economically disastrous, especially for states that are heavily reliant on coal-fired power."[240]

Naturally there were Democratic Senators, such as Barbara Boxer of California, who praised the EPA regulations and contended that the new rules would create many more new business enterprises and jobs than they would eliminate.[241] Nevertheless, Ms. McCarthy almost certainly did not enjoy responding to questions advanced by hostile Republican Senators. It is likely that in the Agency's defense, Ms. McCarthy claimed the same degree of minimal economic damage from its mitigation programs that EPA asserted in its justification of the NSPS for new fossil fuel-burning power plants: "EPA anticipates that the proposed EGU New Source GHG Standards will result in negligible CO_2 emission changes, energy impacts, benefits or costs for new units constructed by 2020. Likewise, the Agency does not anticipate any notable impacts on the price of electricity or energy supplies."[242] Is the asserted claim that EPA's proposed rules on fossil fuel power plants will cost very little and will achieve very little a desirable consequence of flexible regulations? Or is it a disaster in the making, as I believe?

In less than three months the EPA Administrator had to participate in intense meetings with fearful beneficiaries of fossil fuel exploitation, with proponents of questionably effective renewable energy enterprises, with skeptical energy industry executives, and with indisputably hostile politicians who very rarely will even listen to opposing perspectives.[243] I am sure Ms. McCarthy has had to participate in many more interrogations or efforts to win greater public support than the few meetings cited here.[244] The

238 *Id.* (internal quotation marks omitted).

239 *Id.* (internal quotation marks omitted).

240 *Id.*; *see also* Weisman, *supra* note 198 (recognizing that the backlash included "a House Appropriations subcommittee formally drafted legislation that would cut the Environmental Protection Agency's budget by 34 percent and eliminate [President Obama's] newly announced greenhouse gas regulations").

241 Chemnick, *supra* note 237.

242 EPA, 2013 RIA, *supra* note 21, at 5-54.

243 *See, e.g.*, Chemnick, *supra* note 237; Kuckro, *supra* note 233; Lippman, *supra* note 230.

244 *See, e.g.*, Jean Chemnick, *State Foes of Climate Proposal Are 'Rolling Up Their Sleeves'—McCarthy*, E&E NEWS, Sept. 26, 2014, http://www.eenews.net/greenwire/stories/1060006521/ (last visited Feb. 14, 2015); *see also* Jean Chemnick, *House Panels to Cross-Examine McCarthy on Agency Policies*, E&E NEWS, Mar. 31, 2014, http://www.eenews.net/eedaily/stories/1059996977/ (last visited Feb. 14, 2015) ("The Energy and Power, and Environment and Economy subcommittees are expected to use the hearing on EPA's fiscal 2015 budget to grill McCarthy on the agency's plans to regulate carbon dioxide emissions . . . ."); Coral Davenport, *As Listener and Saleswoman, E.P.A. Chief Takes to the Road for Climate*

difficult gauntlet she must run is bound to have a serious effect on the commitment and competence of regulatory officials constantly under fire.

I have not seen a psychological assessment of Ms. McCarthy, who has at times been described as a "tough-minded official," but I believe on the basis of the evidence presented here that Administrator McCarthy is understandably, to the greatest possible degree, trying to tell everyone what she thinks they want to hear. EPA now claims that its rules will not hurt people in fossil fuel states very much, that it will help the supporters of renewable energy but will have to continue supporting coal, that it will cooperate with energy businesses in the hope that they will reduce their GHG emissions, and that the Agency will try to placate or cooperate with hostile politicians looking to strengthen their positions with the electorate by indiscriminately attacking big government.[245] And most importantly, EPA is contending that its new rules on fossil fuel power plant pollution will contribute to reducing climate change dangers,[246] which is definitely untrue.[247]

I sympathize with Ms. McCarthy and her leading regulatory officials, who occupy an extremely difficult position. Nevertheless, my greater concern is that EPA—in its attempts to avoid antagonizing anyone and any interest group too much—has not even been trying seriously to confront and overcome growing climate change risks. The dozen notable regulatory mistakes identified in Part II, which is only a summary of the more numerous criticisms in my other publications cited here, are in my opinion sharp but fair assessments of a regulatory agency that is doing a very poor job of accomplishing one of its foremost missions.

Rules, N.Y. TIMES, Mar. 21, 2014, http://www.nytimes.com/2014/03/22/us/as-listener-and-sales woman-epa-chief-takes-to-the-road-for-climate-rules.html (last visited Feb. 14, 2015) (noting that McCarthy and EPA officials held "listening sessions in 11 cities aimed at gathering information to help shape the regulations").

245 *See, e.g.*, Chemnick, *supra* note 237 (discussing recent congressional opposition to EPA efforts to regulate climate change, including some "coal-state Democrats"); Davenport, *supra* note 244 (characterizing a recent "listening-session" tour by Administer McCarthy as "one part reassurance, one part data gathering, and one part building a community," and recounting community response that the Administrator doesn't want to "kill coal"); Kuckro, *supra* note 233 (compiling generally positive feedback from energy industry executives on the Administrator's willingness to listen to their concerns); Lippman, *supra* note 230 (reporting that the Administrator promised to help grow the clean energy industry).

246 U.S. Envtl. Prot. Agency, *EPA Fact Sheet: Clean Power Plan: Overview of the Clean Power Plan*, http://www2.epa.gov/sites/production/files/2014-05/documents/20140602fs-over view.pdf (last visited Feb. 14, 2015).

247 *See* Bobby Magill, Climate Central, *EPA Aims to Slash Power Plant CO2 by 30 Percent*, http://www.climatecentral.org/news/epa-co2-rules–power-plant-17506 (last visited Feb. 14, 2015) (quoting Steve Cohen, a former EPA official, as stating that it is his "own feeling" that "the policy of trying to reduce the use of fossil fuels by regulating greenhouse gases is not going to work because we're just talking about the U.S., but not China and India").

G. Agency Behavior Is Often Conditioned by the Manipulative Tactics of Regulated Parties

Aside from the requirement for EPA officials to withstand many congressional and Administration criticisms, the Agency is constantly caught between the accusations of regulated industries and the frequent complaints of environmental and public health groups. In the climate change context, EPA will have to confront many of the world's wealthiest companies, which have trillions of dollars of fossil-fuel assets and annual profits at stake,[248] and which can afford huge expenditures for Washington lobbyists, lawyers, and political contributions.[249]

I find it hard to understand how climate change opponents can totally ignore the trillions of dollars of damages that people in the United States and around the world have suffered during the past century from massive externalities imposed by the coal industry and other fossil fuel producers.[250] It is also difficult to imagine why the wealthy fossil fuel industries are still receiving larger subsidies than clean energy technologies and renewable energy businesses.[251] EPA and the Department of Energy have been offering grants or other forms of promotion for GHG-free innovations, but their ability to achieve an even playing ground is quite limited.[252]

Given the imbalance of wealth and influence between the GHG-discharging fossil fuel industries and the proponents of decreasing climate change dangers, and the ability of the fossil fuel industries to hire a legion of lobbyists and lawyers to represent their interests,[253] it is inevitable that EPA will frequently try to avoid conflicts by bending in the direction of the more powerful critics. For example, the U.S. Chamber of Commerce "estimated that EPA's rule [on existing fossil fuel power plants] could cost $51 billion

248 *See, e.g.*, Kate Rosow Chrisman, *Not on My Balance Sheet: Climate Change, Fossil Fuels and Stranded Assets*, BREAKING ENERGY, July 31, 2014, http://breakingenergy.com/2014/07/31/not-on-my-balance-sheet-climate-change-fossil-fuels-and-stranded-assets/ (last visited Feb. 14, 2015).

249 *See* Daniel Bush, *Koch Brothers Launch Energy-Focused Super PAC*, E&E NEWS, June 17, 2014, http://www.eenews.net.lawpx.lclark.edu/eenewspm/stories/1060001456/print (last visited Feb. 14, 2015) ("A new political group backed by billionaire Republican donors Charles and David Koch plans to spend millions of dollars on energy-related issues in the midterm elections.").

250 *See supra* note 45 and accompanying text.

251 *See, e.g.*, H. Latin, *Climate Change Mitigation*, *supra* note 27, at 75–76 (noting major global subsidies for fossil-fuel industry); Jean-Marc Burniaux et al., *The Economics of Climate Change Mitigation: How to Build the Necessary Global Action in a Cost-Effective Manner* 10 (Org. for Econ. Co-operation & Dev., Working Paper No, 42, 2009), *available at* http://www.oecd-ilibrary.org/docserver/download/5ksgv3h59r8t.pdf?expires=1423946848&id=id&accname=guest&checksum=04A1A5432F7D3ECAC1458A2F3A1D6653.

252 *See, e.g.*, KEN ALSTON & KATY SARTORIUS, U.S. DEP'T OF ENERGY, GUIDE TO FEDERAL FINANCING FOR ENERGY EFFICIENCY AND CLEAN ENERGY DEPLOYMENT 1–2, 4, 8 (2013), *available at* http://energy.gov/sites/prod/files/2014/09/f18/Federal%20Financing%20Guide%2009%2018%2014.pdf.

253 *See, e.g.*, Daniel Bush, *Lobbying Effort Underway to Shape New Power Plant Rule*, E&E NEWS, June 3, 2014, http://www.eenews.net/eenewspm/2014/06/03/stories/1060000645 (last visited Feb. 14, 2015).

and 224,000 jobs," which I believe is preposterous, and the National Association of Manufacturers warned that the rule could "singlehandedly eliminate" America's competitive advantage in the world economy, which is also absurd.[254] Unfortunately, my informed opinion is no match for their dollars. The consequences of the unequal playing ground based on wealth and political influence are very likely to yield unsatisfactory results from the perspective of climate change regulation.

In order to implement an effective mitigation program that has a realistic chance of reducing the atmospheric GHG concentration over a reasonable time period, such as two or three decades, EPA will have to challenge some of the most affluent and politically influential companies in the world. Under these conditions, extended regulatory delay is the equivalent of surrender. EPA will also have to confront continuous criticisms from environmentalists,[255] including me, who believe the Agency has not gone nearly far enough to create effective mitigation programs that eventually could stabilize and then reduce climate change risks.

EPA's proposed rule for existing fossil fuel power plants would only cut 30% of the 32% of national GHG pollution from these facilities.[256] This 9.6% reduction of annual CO_2 emissions in 2030, if full regulatory compliance is achieved, would still allow a vastly greater amount of GHG pollution to reach the atmosphere and combine with the already-too-high GHG concentration. In its attempt to avoid extreme measures that would antagonize powerful economic and political forces, EPA is literally exposing the people of our nation and world to recurring climate change disasters for many centuries to come.[257] This regulatory inaction is not a compromise; it is a catastrophe.

Another result of the imbalance in wealth and political power is that the regulated fossil fuel industries and their trade associations can employ lawyers, lobbyists, technical consultants, and other professionals to parse every word that EPA publishes in the Federal Register and other documents; and this knowledge can be used by political and business opponents to support strong criticisms of any EPA decisions that are deemed to impose undesirable GHG regulation.[258] Supporters of strong mitigation programs, in contrast, seldom possess the personnel and resources to keep up with the

254 Amanda Peterka, *Enviros, Industry Dig Trenches for Battle over Final Rule*, E&E NEWS, June 2, 2014, http://www.eenews.net/greenwire/2014/06/02/stories/1060000554 (last visited Feb. 14, 2015).

255 *See* Anne C. Mulkern, *Ad Campaign on 'Polluter Money' Aims for More Co-Sponsors of House Reform Bill*, E&E NEWS, Sept. 16, 2014, http://www.eenews.net/eedaily/2014/09/16/stories/1060005863 (last visited Feb. 14, 2015).

256 *See* H. Latin, *Climate Change Disasters*, *supra* note 32; *supra* text accompanying notes 150–152.

257 *See* NICHOLAS STERN, THE ECONOMICS OF CLIMATE CHANGE: THE STERN REVIEW EXECUTIVE SUMMARY 1–2 (2007), *available at* http://siteresources.worldbank.org/intindonesia/Resources/226271-1170911056314/3428109-1174614780539/SternReviewEng.pdf (emphasizing the need for strong action within the next 10 to 20 years to combat the drastic effects of climate change that will be difficult or impossible to reverse).

258 *See generally* Bush, *supra* note 253 (noting major lobbying efforts opposing new GHG regulations).

details of every EPA publication and to present counterarguments and recent data supporting stronger GHG regulations.[259]

Some wealthy fossil fuel corporations have already spent millions of dollars trying to create false scientific uncertainties in legislative and media assessments of climate change issues.[260] These companies have also spent millions of dollars on lobbying efforts to prevent Congress from enacting strong climate protection measures,[261] and they have made large campaign contributions to *friendly* politicians in order to decrease the chances of a congressional consensus on the need for strong climate change regulation.[262] Environmental groups have complained about the false advertising and frequent misrepresentations, but they have not been able to do anything to suppress it.[263]

It cannot be easy for administrative officials to counter this organized opposition from the fossil fuel industries and general business associations, but that is exactly what EPA must do if the Agency officials and staff genuinely desire to achieve their institutional goals. Unfortunately, I am concerned that the EPA staff under extremely difficult conditions has become more motivated to protect their jobs, reputations, and budgetary resources than they are to take the essential draconian actions that are prerequisites for creating successful mitigation programs. In effect, EPA's attempts to placate or moderate the political and economic opposition to its GHG emissions-reduction regulations have not come close to succeeding.

H. Administrators of Multiple-Purpose Statutes Usually "Simplify" the Decisional Process to Emphasize Only One or Two Statutory Goals

Aside from EPA, the U.S. Departments of State, Agriculture, Energy, Transportation, Defense, Commerce, the Forest Service and various Interior

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259 *See* Evan Mackinder, *Pro-Environment Groups Outmatched, Outspent in Battle Over Climate Change Legislation*, http://www.opensecrets.org/news/2010/08/pro-environment-groups-were-outmatc/ (last visited Feb. 14, 2015) (explaining that clients in the oil and gas industry outspent environmental groups nearly eight-fold lobbying against climate change action in 2009).

260 *See supra* text accompanying notes 74–82.

261 *See* Manuel Quiñones, *Mining Group Rolls Out Ads in Key States Ahead of EPA Climate Rule*, E&E NEWS, May 20, 2014, http://www.eenews.net/greenwire/2014/05/20/stories/1059999901 (last visited Feb. 14, 2015) (describing an extensive campaign to change public opinion regarding coal-fired power power plants); *See* U.S. Dept. of Agriculture, *History of the Crop Insurance Program*, http://www.rma.usda.gov/aboutrma/what/history.html (last visited Feb. 14, 2015).

262 See Jane Mayer, *Koch Pledge Tied to Congressional Climate Inaction*, THE NEW YORKER, June 30, 2013, http://www.newyorker.com/news/news-desk/koch-pledge-tied-to-congressional-climate-inaction (last visited Feb. 14, 2015) (regarding the case of Koch Industries' campaign contributions to senators).

263 *See, e.g.*, E-mail from Kristin Brown, Online Campaigner, League of Conservation Voters, to author (June 6, 2014, 09:13 EST) (on file with author) (regarding coal power plants)**;** *see also, e.g.*, E-mail from Vanessa Kritzer, Online Campaigner Manager, League of Conservation Voters, to author (June 14, 2013, 09:48 PDT) (on file with author) (regarding Koch Industries' advertisements).

Department subagencies, NOAA, NASA, and other federal institutions are all supposed to be involved in developing cooperative climate change policies and practices.[264] In the wake of the refusal of Congress to adopt an ambitious climate change bill, or any climate bill at all, President Obama stated that he would require all of the administrative agencies under his control to work together to develop a comprehensive climate change policy.[265] However, it will be difficult to require a regulatory agency or resource management agency to assign a high priority to climate change issues that do not ordinarily fall within their institutional mandates and areas of expertise.

For example, the Forest Service has always shown a strong preference for helping logging companies despite having a "multiple use" statutory mission that focuses on recreation and conservation of forest resources at least as much as on logging;[266] and the Department of Agriculture has a commitment to helping farmers increasingly threatened by GHG pollution, with much less attention devoted to the GHGs produced by agricultural operations.[267] How can the Obama Administration and EPA expect to expand the horizons of these other federal agencies in an effort to make them address climate change mitigation needs as a national and international problem subject to their joint jurisdiction?

EPA, as the agency most directly focused on air pollution concerns,[268] including climate change programs, must try to harmonize the major interests and priorities of other agencies and institutions. However, that is much easier said than done. It certainly will not be easy for EPA to persuade other federal agencies, with different traditional responsibilities and limited resources, to devote sufficient attention to climate change mitigation.

One current administrative conflict between statutory objectives and climate change mitigation policies has arisen from the tension between the desire for increased energy independence and the fear of growing climate change dangers. It would be much easier for the Department of Energy and other advocates of U.S. energy independence to pursue full independence and to increase energy-related revenues and jobs if they could rely on exploiting domestic coal, natural gas, and shale-oil deposits, which have become increasingly plentiful in America since the onset of fracking

264 *See* Exec. Order No. 13,514, 3 C.F.R. 248, 251 (2009) (setting goals for renewable energy and environmental management standards that executive departments and agencies have to meet).

265 *Id.* at 248 (requiring agencies "to establish an integrated strategy towards sustainability in the Federal Government"); *see also* Memorandum on Federal Leadership on Energy Management, 2013 DAILY COMP. PRES. DOC. 1 (Dec. 5, 2013) (setting new targets for executive departments and agencies to meet).

266 *See* H. Latin, *Administrative Incentives*, *supra* note 29, at 1678–79.

267 *See, e.g.*, U.S. Dept. of Agriculture, *USDA Reports Synthesize Literature on Climate Change Effects and Adaptation Strategies for U.S. Agriculture and Forests*, http://www.usda.gov/oce/newsroom/archives/releases/2013/OCE_AgForestry.htm (last visited Feb. 14, 2015).

268 *See, e.g.*, U.S. Envtl. Prot. Agency, *Clean Air Act Requirements and History*, http://www.epa.gov/air/caa/requirements.html (last visited Feb. 14, 2015) (discussing the CAA's requirement that EPA develop national ambient air quality standards to protect the public health and welfare).

technologies and horizontal drilling.[269] However, these harmful fossil fuels are contributing to worsening climate degradation, and environmental advocates want to reduce or eliminate reliance on fossil fuel energy sources notwithstanding the degree of energy independence they may help to ensure.[270]

For an illustration of conflicting administrative priorities, the U.S. Department of State has participated for nearly twenty-five years in international climate change negotiations,[271] and yet State Department officials have been supporting the Keystone XL pipeline,[272] which would contribute to U.S. energy independence and promote the economy of friendly Canada.[273] Now, the Republican-controlled Congress is pushing for rapid approval of the Keystone XL project.[274] In contrast, EPA has questioned the severe environmental damage associated with creating an expensive pipeline infrastructure built to carry more dirty fossil-fuel shale oil to American refineries on the Gulf coast for decades.[275] Each agency appears to be emphasizing one of their own core goals, conflicting with the other agency's core goals. In the case of the State Department, it has been advocating closer international cooperation with a friendly country—rather than addressing climate change problems that the Canadian government has largely chosen to ignore—without acknowledging this one-sided treatment.[276]

269 INT'L ENERGY AGENCY, WORLD ENERGY OUTLOOK 2012, at 74–75, 77 (2012), *available at* http://www.iea.org/publications/freepublications/publication/WEO2012_free.pdf.

270 GREEN PARTY OF THE U.S., PLATFORM 2012, at 41–42 (2012), *available at* http://www.gp.org/committees/platform/2012/Platform2012.pdf.

271 As early as 1989, the U.S. Secretary of State was calling for cooperative international action on combatting climate change. *See* Philip Shabecoff, *Joint Effort Urged to Guard Climate*, N.Y. TIMES, Jan. 31, 1989, http://www.nytimes.com/1989/01/31/science/joint-effort-urged-to-guard-climate.html (last visited Feb. 14, 2015).

272 *See* John H. Cushman, Jr., *EPA Deems US State Department Keystone Review 'Insufficient'*, GUARDIAN ENV'T NETWORK, Apr. 23, 2013, http://www.theguardian.com/environment/2013/apr/23/epa-keystone-green-groups (last visited Feb. 14, 2015).

273 Letter from Heidi Heitkamp et. al., Senate Democrats, to Barack Obama, U.S. President (Apr. 10, 2014), *available at* http://keystone-xl.com/wp-content/uploads/2014/04/Senate-Democrats-letter-to-President-Obama.pdf.

274 Coral Davenport, *Republicans Vow to Fight E.P.A. and Approve Keystone Pipeline*, N.Y. TIMES, Nov. 10, 2014, http://www.nytimes.com/2014/11/11/us/politics/republicans-vow-to-fight-epa-and-approve-keystone-pipeline.html?_r=0 (last visited Feb. 14, 2015).

275 Letter from Cynthia Giles, Assistant Adm'r for Enforcement and Compliance Assurances, U.S. Envtl. Prot. Agency, to Jose W. Fernandez, Assistant Sec'y Economic, Energy and Business Affairs, U.S. Dep't of State, & Keri-Ann Jones, Assistant Sec'y Oceans and Int'l Envtl. and Scientific Affairs, U.S. Dep't of State (Apr. 22, 2013).

276 *See* U.S. Dep't. of State, *Remarks with Canadian Foreign Minister John Baird After Their Meeting*, http://www.state.gov/secretary/remarks/2014/10/233468.htm (last visited Feb. 14, 2015) (remarks made by Secretary of State John Kerry and Canadian Foreign Minister John Baird both showing a commitment to international cooperation over the Keystone XL project); Thomas Homer-Dixon, *The Tar Sands Disaster*, N.Y. TIMES, Mar. 31, 2013, http://www.nytimes.com/2013/04/01/opinion/the-tar-sands-disaster.html (last visited Feb. 14, 2015) (detailing the considerable resistance in the Canadian government to tackling climate change, or even recognizing it exists); U.S. Dep't of State, *New Keystone XL Pipeline Application*, http://www.keystonepipeline-xl.state.gov (last visited Feb. 14, 2015) (listing a wide variety of factors the State Department is analyzing to determine whether the Keystone XL project would

Near the end of July 2013, after the pipeline dispute had continued for more than five years, President Obama stated "the decision about whether to proceed with the pipeline would be made after a recommendation by Secretary of State John Kerry."[277] This ambiguous mandate hardly reflects the many times President Obama has emphasized the need for effective climate change mitigation programs.[278]

In February 2015, the House of Representatives passed a bill authorizing construction of the pipeline, and President Obama immediately vetoed that legislation on the grounds that it would interfere with the State Department's ongoing analysis of the pipeline's benefits and costs.[279] As a result, this conflict between congenial international relations and dangerous environmental risks is continuing with no end in sight.

Another example of conflicts between administrative missions and policies, despite the concern for climate change risks they are all supposed to share, is the issue of allowing coal, natural gas, and eventually petroleum exports.[280] After the 1973 Arab Oil Embargo, Congress adopted laws prohibiting the export of American energy fuels.[281] This treatment was based on the legislative perspective that fossil fuel industry profits were less important than assuring an adequate supply of fuels for American economic and social needs.[282] However, with the rapid growth of U.S. energy technologies and supplies, numerous fossil fuel companies are now asking for the right to export their energy fuels to other countries that need them more and are willing to pay higher prices.[283]

Allowing coal companies to export coal as a remedy for the decreasing domestic volume of coal-combustion energy[284] would be completely

"serve the national interest," including energy security, health, environmental, cultural, economic, and foreign policy concerns).

277 Michael D. Shear & Jackie Calmes, *Obama Says He'll Evaluate Pipeline Project Depending on Pollution*, N.Y. TIMES, July 27, 2013, http://www.nytimes.com/2013/07/28/us/politics/obama-says-hell-evaluate-pipeline-project-depending-on-pollution.html (last visited Feb. 14, 2015).

278 *See, e.g.*, *id.*

279 *See* Reuters, *Obama Vetoes Keystone XL Pipeline, Leaving It in Limbo*, N.Y. TIMES, Feb. 24, 2015, http://www.nytimes.com/reuters/2015/02/24/us/politics/24reuters-usa-keystone.html (last visited Mar. 5, 2015).

280 *See* Brad Plumer, *U.S. Oil Exports Have Been Banned for 40 Years. Is it Time for that to Change?*, WASH. POST, Jan. 8, 2014, http://www.washingtonpost.com/blogs/wonkblog/wp/2014/01/08/u-s-oil-exports-have-been-banned-for-40-years-is-it-time-for-that-to-change/ (last visited Feb. 14, 2015).

281 *Id.*

282 *See id.*

283 *See* Elana Schor, *Murkowski, Commerce Chief to Discuss Crude-Export Ban*, E&E NEWS, July 8, 2014, http://www.eenews.net/eenewspm/2014/07/08/stories/1060002501 (last visited Feb. 14, 2015).

284 *See* NATHAN JOO ET AL., CTR. FOR AM. PROGRESS, 5 THINGS YOU SHOULD KNOW ABOUT POWDER RIVER BASIN COAL EXPORTS 1 (2014), *available at* http://cdn.americanprogress.org/wp-content/uploads/2014/08/PowderRiver-factsheet.pdf; *see also* Yemi Assefa et al., U.S. Bureau of Labor and Statistics, *Coal: A Key Player in Expanded U.S. Energy Exports*, 2 BEYOND THE NUMBERS: GLOBAL ECONOMY, no. 3, Jan. 2013, at 1–3 (citing lack of domestic demand and increase in foreign demand as a main factor in increased coal exports).

antithetical to climate change mitigation efforts. As a result of the fungible nature of GHGs and the gradual atmospheric mixing caused by around-the-world wind currents, coal burned abroad would be just as harmful to Americans as coal burned in the United States.[285] Reducing American coal usage while promoting foreign usage of American coal exports would be utterly self-defeating from the perspective of addressing climate change.[286]

The point of these examples is that changing administrative agency functions and priorities will be difficult to achieve in the complex realm of global climate change problems. A presidential mandate may have some impact on the focus of diverse administrative agencies but this White House order cannot confer on dozens of agencies the requisite expertise and budgetary resources. The presidential order also cannot make agency personnel *want to revise* their traditional focus or retreat from their historical missions and connections with particular groups of affected people. I am not criticizing President Obama for trying to mobilize the cooperation and capacities of dozens of administrative institutions that have never before focused on climate change issues. Yet, a few inspirational speeches have not been sufficient to achieve what the President rightly claims should be done.

IV. CONCLUSION

I have resurrected these eight administrative behavioral laws from an era before anyone was concerned with climate change because these laws can still help to explain why motivated EPA officials who are sincere environmentalists may nonetheless produce ineffective regulatory measures that cannot possibly resolve the difficult climate change problems they have been charged with addressing. When the CAA was first enacted in 1970, no one was thinking about climate change hazards or about heat-trapping GHGs that may remain in the atmosphere for thousands of years. The CAA was not designed to respond to these previously unrecognized circumstances, and attempts to force climate change regulations to fit into established CAA provisions are consequently likely to fail with high costs and long delays.

Jeffrey Thaler, a like-minded professor of energy and ethics law, recently observed:

> [I]n an increasingly carbon-constrained world, our existing environmental laws and regulatory process no longer achieve their underlying goals of long-term ecosystem conservation. To the contrary, these laws and regulations are supporting a system with increasing greenhouse gas emissions that is annually costing trillions of dollars.[287]

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285 JOO, *supra* note 283, at 4.

286 *Id.* at 2; Juliano, *supra* note 118.

287 Jeffrey Thaler, *Fiddling As The World Floods and Burns: How Climate Change Urgently Requires a Paradigm Shift in The Permitting of Renewable Energy Projects*, 42 ENVTL. L. 1101, 1101 (2012).

I might add that the high cost of largely ineffective environmental regulation has not been associated with any corresponding accomplishments.

No high-ranking EPA official can ignore the constraints imposed by the current political partisanship in Congress because Congress determines the Agency's funding, and congressional committee members make a practice of grilling EPA officials about any regulatory program that may adversely affect their constituents.[288] This is why, given the present absence of congressional support for climate change mitigation, it is highly questionable whether the advocates of overcoming climate change should accept and even praise feeble GHG regulations that will waste large amounts of money, resources, and time, and yet will never achieve true mitigation progress.

The alternative would be for climate change mitigation advocates to invest their money and efforts in trying to capture a larger percentage of public support and thereby to gain greater cooperation from more political representatives.[289] In my opinion, the latter approach is better because mitigation advocates can create innovative ideas and plans for more effective regulatory programs while waiting for the next Hurricane Sandy or Katrina, as well as widespread droughts, heatwaves, and flooding, to induce greater public support in the face of this tangible evidence of climate change dangers. The expectation that public support will finally crystalize in response to worsening natural disasters and constant educational efforts is certainly speculative, but the weaknesses of the current "we have to do *something* even if it won't really help" climate policy is foolish and wasteful, and it usually cannot be undone because of the rapid growth and great persistence of climate change risks.

The attempts of EPA to base GHG pollution-control requirements on a CAA framework have not occurred because this approach is likely to achieve effective climate change mitigation. Rather, this mistaken climate policy is the result of EPA officials trying to protect their agency's influence and their personal reputations under difficult political and economic conditions. I can sympathize with EPA officials and staff for the many complex and contentious problems they would have to resolve in order to establish a meaningful GHG regulatory program. It is nonetheless essential for Americans to put a higher priority on mitigating worldwide climate change dangers than on the professional and personal incentives of an ineffective administrative agency.

Why should EPA officials risk censure, dismissal, or frequent criticism for actively trying to apply unsuitable CAA provisions as a means to justify climate change regulations that make very little sense? EPA's climate change program cannot begin to remedy the endangerment finding that is the core reason for creating climate mitigation regulations. Even if EPA's regulatory efforts may be slightly better than nothing, which is debatable because of the

288 *See supra* notes 121, 125 and accompanying text.

289 *See generally*, Robert H. Socolow, *Truths We Must Tell Ourselves to Manage Climate Change*, 65 VAND. L. REV. 1455, 1458, 1460–61 (2012) (arguing climate change mitigation advocates must change communications to gain widespread public support).

large administrative and economic investments, opportunity costs, and time wasted in comparison with the Agency's miniscule climate change achievements, the bottom line is that EPA's recent regulations will not make any major contributions to preventing further climate degradation. If EPA's climate change program will not reduce climate change risks or yield significant climate change progress, it will merely create an illusion of progress highlighted by thousands of idealized pages in the Federal Register without any commensurate real accomplishments.

In my initial discussion of the Eight Laws of Administrative Behavior, I emphasized the need for careful evaluations of the incentives and disincentives under which regulatory agencies must function. At the risk of quoting my own writing, here is a major theme from that article:

> Regulatory failure is a complex phenomenon with many causes and manifestations. In contrast to the prevailing administrative law focus on imperfect legislation and judicial review, I believe the seeds of regulatory failure are most often grounded in the intrinsic characteristics of regulatory processes. Society asks regulators to do impossible things; we ask them to do difficult things under impossible time and resource constraints; we ask them to behave decisively, selflessly, heroically in ways that are incompatible with normal modes of human behavior. We may be disappointed when regulation falls short of legislative ideals, but we should not be surprised—for regulatory agencies remain imperfect human institutions and administrators are human beings no better or worse than most.[290]

These comments about the behavioral effects of the Eight Laws are directly relevant to the controversial, bitterly contested arena of climate change regulatory policies. Unless we devote very close attention to the administrative incentives and disincentives that inspire or deter effective regulation in specific climate-degradation contexts, a barrage of Presidential or agency mandates and judicial interpretive decisions certainly will not achieve successful mitigation results.

However sympathetic one may be with regard to the difficulty of regulatory actions on climate change problems, it is incontestable that we need to design and implement far more effective mitigation strategies or else future generations of human beings will suffer the tragic consequences.

290 H. Latin, *Administrative Incentives*, *supra* note 29, at 1649–50.