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# We Can Fight Climate Change with the Army We Have

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# WE CAN FIGHT CLIMATE CHANGE WITH THE ARMY WE HAVE

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Contrary to the conclusions of most environmental law scholars and government officials, the regulation of carbon dioxide and other greenhouse gases (GHGs) by the U.S. Environmental Protection Agency (EPA) and States through a National Secondary Ambient Air Quality Standard (Secondary NAAQS) under the Clean Air Act (CAA) is feasible. GHG reductions from this regulation over the long-term, if coupled with in-kind reductions from other nations, could protect public welfare from man-made climate change. Establishing a long-range Secondary NAAQS for GHGs would be no easy task and would take careful legal navigation by the EPA Administrator, leadership and commitment by the President, and nothing short of a revolution in the rules on how EPA and state environmental agencies enforce the Clean Air Act. Nevertheless, it could be done. This article shows how.

TABLE OF CONTENTS



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## I. INTRODUCTION

Ever since Congress passed the first version of the modern CAA in 1970,[1] the National Ambient Air Quality Standard provisions (NAAQS program)[2] have served as the Act's "central construct"[3] and EPA's "most comprehensive authority" to control air pollution in the United States.[4] Scholars have dubbed the core provisions of the NAAQS program as the very "heart" of the CAA,[5]

1. *See* Clean Air Act Amendments of 1970, Pub. L. No. 91-604, 84 Stat. 1676 (1970) (codified as amended at 42 U.S.C. §§ 7401-7616 (2012)).

2. 42 U.S.C. §§ 7407-7410, 7470-7479, 7501-7515.

3. Linda Tsang & Alexandra Wyatt, *Key Historical Court Decisions Shaping EPA's Program Under the Clean Air Act*, Congressional Research Service, 7-5700, R43699, p. 1 (Feb. 16, 2017), http://crsreports.congress.gov/product/pdf/R/R43699.

4. Robert Nordhaus, *New Wine Into Old Bottles: The Feasibility of Greenhouse Gas Regulation Under the Clean Air Act,* 15 N.Y.U. ENVTL. L. J. 53, 59 (2007).

5. *See, e.g.*, Patricia Ross McCubbin, *EPA's Endangerment Finding for Greenhouse Gases and the Potential Duty to Adopt National Ambient Air Quality Standards to Address Global Climate Change*, 33 S.ILL.U. L.J. 437, 444 (2009); Christopher Giovinazzo,

which is itself a vanguard environmental statute that Congress passed during the inception of the "environmental decade" of the 1970s.[6] Congress then enhanced and expanded the NAAQS program, as with the statute as a whole, with the CAA Amendments of 1977 and 1990.[7]

While enforcement of Title II and Title IV has played a key part in generally eliminating the threats of lead and dense smog in urban areas and solving the problem of acid rain in the northeast, respectively, the NAAQS program has enabled EPA and the States to generally clean the nation's air across the board.[8] Granted, many regions have failed to attain or maintain the NAAQS for ozone, but EPA and the States have lowered dangerous concentrations of every pollutant designated by Congress or listed by the EPA Administrator for NAAQS regulation.[9]

Regarding the latter pathway to regulation, the NAAQS regulation of a pollutant is triggered by the EPA Administrator simply listing the gas as a "criteria pollutant" under the section 108.[10] Greenhouse gases like carbon dioxide (CO2) and methane (CH4 or natural gas) seem to clearly meet the prerequisites for just such a listing,[11] but EPA has never attempted to list GHGs as a collective criteria air pollutant.[12] According to a vast majority of scholars, the NAAQS program—the Act's most comprehensive and in many ways most powerful regulatory regime—could never work for GHGs and is therefore not an option for fighting climate change.[13]

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*Defending Overstatement: The Symbolic Clean Air Act and Carbon Dioxide*, 30 HARV. ENVTL. L. REV. 99, 163 (2006).

6. Lettie M. Wenner, THE ENVIRONMENTAL DECADE IN COURT (1982); CLEAN AIR ACT HANDBOOK xxi (Julie R. Domike & Alec C. Zacaroli eds., 3d 2011) [hereinafter CAA HANDBOOK].

7. *See* CAA Amendments of 1977, Pub. L. No. 95 95, 91 Stat. 712 (1977); CAA Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399 (1990); CAA HANDBOOK, *supra* note 6, at xxi, 3.

8. *See* CAA HANDBOOK, *supra* note 6, at 4, 25-38; *see also* Craig N. Oren, *Is the Clean Air Act at a Crossroads?*, 40 ENVTL. L. 1231, 1235-43 (2010).

9. *See* CAA HANDBOOK, *supra* note 6, at 25-38; Nadja Popovich, *America's Skies Have Gotten Clearer, But Millions Still Breathe Unhealthy Air*, N.Y. TIMES (Jun. 19, 2019), http://www.nytimes.com/interactive/2019/06/19/climate/us-air-pollution-trump.html.

10. *See* 42 U.S.C. § 7408(a).

11. *See infra* notes 44 and 46-47 and accompanying text.

12. *See* Robin Bravender, *EPA Chief Signals Opposition to Clean Air Act Curbs on GHGs*, GREEN WIRE (Dec. 8, 2009), http://www.eenews.net/greenwire/stories/85407 (quoting Adm'r Lisa Jackson) ("I have never believed and this agency has never believed that setting a [NAAQS] for greenhouse gases was advisable").

13. *See infra* notes 14-18 and accompanying text.

"Fundamentally ill-suited to the task," wrote the late Robert R. Nordhaus,[14] referring to the NAAQS program's potential to control outside concentrations of CO2, the most common and important of all GHGs.[15] And controlling outside concentrations of a pollutant is precisely what Congress designed the NAAQS program to do.[16] Other respected scholars across the policy spectrum have echoed the same "ill-suited" refrain.[17] As Professor Craig N. Oren writes in a fairly recent paper, "EPA has not set NAAQS for greenhouse gases because these gases are *unsuitable* for NAAQS."[18]

Congress did, however, grant EPA a broad and powerful authority to regulate air pollution to protect public health and welfare when it passed and twice amended the CAA,[19] and it specifically extended the "public welfare" provision to include "effects on . . . weather . . . and climate" in the last amendment in 1990.[20] While the exact boundary on EPA's ultimate authority to regulate GHGs is still an open question,[21] EPA and the States have claimed and have been exercising the authority to regulate GHGs to protect public health and welfare from the dangers of climate change under various parts of the CAA for approximately a decade.[22]

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14. Nordhaus, *supra* note 4, at 61; *cf.* CAA HANDBOOK, *supra* note 6, at xxi ("the Act has evolved into a tool (the only tool) for achieving that which Congress has not been able to accomplish for decades—the regulation of greenhouse gas emissions that cause climate change").

15. *See* IPCC, 2014: CLIMATE CHANGE 2014: SYNTHESIS REPORT, CONTRIBUTION OF WORKING GROUPS I, II, AND III TO THE FIFTH ASSESSMENT REPORT OF THE IPCC 1-10 (Core Writing Team, R.K. Pachauri and L.A. Meyer, eds., 2014) [hereinafter IPCC, 2014: SYNTHESIS REPORT AR5], htts://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf.

16. *See generally* 42 U.S.C. §§ 7407-7410 (2012).

17. *See, e.g.*, Nathan Richardson, *Greenhouse Gas Regulation Under the Clean Air Act: Does Chevron Set the EPA Free?*, 29 STAN. ENVTL. L.J. 283, 284 (2010); Jonathan Miller, *Double Absurdity: Regulating Greenhouse Gas Under the Clean Air Act*, 47 HOUS. L. REV. 1389, 1404-05 (2011).

18. Craig N. Oren, *UARG – Not a Chef D'Oeuvre of Opinion Writing*, 39 HARV. ENVTL. L. REV. 51, 52 (2015) (emphasis added).

19. *See* CAA HANDBOOK, *supra* note 6, at 3 ("Congress has managed to overhaul the CAA twice since 1970, more than doubling the size of the Act in the 1977 Amendments and doubling it again in the 1990 Amendments"); *id.* at xxi ("The 1977 and 1990 amendments to the Act expanded the statute's breadth and scope into the very fabric of our daily lives"); *see also, e.g.*, *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 468 (2001) (holding that CAA bars consideration of economic costs in setting NAAQ Standards).

20. 42 U.S.C. § 7602(h) (2012).

21. *See* Michael Barbaro, *A Conversation with Scott Pruitt,* N.Y. TIMES (Feb. 2, 2018), http://www.nytimes.com/2018/02/02/podcasts/the-daily/scott-pruitt-epa.html (former EPA Adm'r Scott Pruitt stating that "the jury is still out" at 13:52).

22. *See, e.g.*, Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards Final Rule, 75 Fed. Reg. 25,324 (May 7, 2010) [hereinafter Tailpipe Rule]; Reconsideration of Interpretation of Regula-

In the landmark 2007 decision of *Massachusetts v. EPA*, the Supreme Court held that CO2 and other GHGs such as methane (CH4 or natural gas) are air pollutants under the CAA's capacious definition of the term.[23] The Court further held that, because GHGs are air pollutants, EPA had a non-discretionary duty to determine whether the gases pose a danger to public health and welfare for purposes of regulation under the Title II,[24] which regulates mobile sources,[25] or in lieu thereof demonstrate why such a determination could not be made.[26] The Court also held that if EPA makes a finding that the GHGs endanger public health or welfare, the CAA requires EPA to regulate such emissions from mobile sources like new motor vehicles.[27] Court watchers and CAA scholars instantly interpreted the decision as opening the door for future GHG regulation under the CAA that would go far beyond that of cars and trucks.[28] As interconnected as it is ambitious, the CAA has many near-mirrored provisions on endangerment. Finding that a pollutant endangers public health or welfare under one part of the CAA usually triggers or at least sets the conditions for triggering a cascading effect of regulation under other parts of the Act.[29]

In late 2009, before the end of the first year of the administration of President Barack Obama, EPA made its determination on GHGs in response to *Massachusetts v. EPA*, finding that GHGs in the atmosphere endanger not only public welfare but also public health and that emissions from motor vehicles cause or contribute to this pollution.[30] Approximately six months later, following some high-level negotiations with automakers by President Obama, EPA promulgated GHG emission standards for upcoming model years

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tions That Determine Pollutants Covered by Clean Air Act Permitting Programs, 75 Fed. Reg. 17,004 (Apr. 2, 2010) [hereinafter Triggering Rule].

23. Massachusetts v. EPA, 549 U.S. 497, 529, 532 (2007).

24. *Id.* at 532-34.

25. 42 U.S.C. Ch. 85, Subch. II, §§ 7521-7590.

26. *Massachusetts*, 549 U.S. at 534 ("if the scientific uncertainty is so profound that it precludes EPA from making a reasoned judgment, it must say so").

27. *Id.* at 533.

28. *See* Linda Greenhouse, *Justices Say E.P.A. Has Power to Act on Harmful Gases,* N.Y. TIMES (Apr. 3, 2007), http://www.nytimes.com/2007/04/03/washington/03scotus.html; *see also, e.g.*, Duane Desidero, *Climate Change Litigation Overview*, SN005, ALI-ABA 687, 692-3 (Aug. 2007).

29. *See, e.g.,* Richardson, *supra* note 17, at 288.

30. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496-537 (Dec. 15, 2009) [hereinafter Endangerment Finding].

of cars and trucks set to take effect in 2012.[31] And with that, the regulation of carbon dioxide and other GHGs as pollutants under the CAA officially began.[32]

Shortly thereafter, in the spring of 2010, EPA promulgated its "Triggering Rule," ruling that once the new mobile source GHG rule took effect in early 2011, the regulation of stationary sources under the PSD and Title V programs of Title I would be triggered.[33] Title I is the behemoth part of the Act that regulates stationary sources[34] and includes most substantive parts of the NAAQS program,[35] but the EPA Administrators under President Obama—first Lisa Jackson and then Gina McCarthy—never attempted to list GHGs as a collective criteria air pollutant,[36] which would have required EPA to establish a NAAQS for the gases.

The conventional wisdom was, like it is now, that the NAAQS program is "fundamentally ill-suited" for GHGs.[37] Yet throughout the first term of the Obama administration, following the Endangerment Finding, more than a few respected scholars were concluding that the CAA might actually *compel* the Administrator to list GHGs as a collective criteria air pollutant and subsequently establish a NAAQS for the gases under *Chevron* step-one.[38] Many of those same scholars, however, were simultaneously warning that the resulting regulation would be so unworkable as to jeopardize Presi-

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31. *See* John Broder, *Obama to Toughen Rules on Emissions and Mileage*, N.Y. TIMES (May 18, 2009), http://www.nytimes.com/2009/05/19/business/19emissions.html.

32. Tailpipe Rule, *supra* note 22, at 25,324.

33. Triggering Rule, *supra* note 22, at 17,004; *see also infra* note 54 and accompanying text on PSD and Title V.

34. 42 U.S.C. Ch. 85, Subch. I, §§ 7401-515.

35. *See id.* §§ 7407-7410 (core NAAQS provisions). Title I also encompasses the major-source preconstruction permit programs known as "New Source Review." *See infra* Part II.

36. *See* Robin Bravender, *EPA chief signals opposition to Clean Air Act curbs on GHGs*, GREEN WIRE (Dec. 8, 2009), http://www.eenews.net/greenwire/stories/85407 (quoting Adm'r Lisa Jackson) ("I have never believed and this agency has never believed that setting a [NAAQS] for greenhouse gases was advisable").

37. *Compare, e.g.*, Nordhaus, *supra* note 4, at 61, *with* Zachary Hennessee, *Resurrecting A Doctrine on Its Deathbed: Revisiting Federal Common Law Greenhouse Gas Litigation After Utility Air Regulatory Group v. EPA*, 67 DUKE L. J. 1073, 1100 (2018).

38. *See, e.g*, McCubbin, *supra* note 5, at 452 (citing Janine Maney, *Carbon Dioxide Emissions, Climate Change, and the Clean Air Act: An Analysis of Whether Carbon Dioxide Should Be Listed As a Criteria Pollutant*, 13 N.Y.U. ENVTL L. J. 298, 324-5 (2005); Holly Doremus & W. Michael Hanemann, *Of Babies and Bathwater: Why the Clean Air Act's Cooperative Federalism Framework Is Useful for Addressing Global Warming*, 50 ARIZ. L. REV. 799, 830 & n. 167 (2008); Eric Schwartz, *Carbon Dioxide and the Clean Air Act*, 4 CARDOZO PUB. L. POL'Y & ETHICS, 779, 813 (2006)); Richardson, *supra* note 17, 284 (2010); *see also infra* Part X.A on the "*Chevron* two-step" analysis.

dent Obama's entire climate agenda.[39] Accordingly, the Obama EPA, otherwise proactive on GHG regulation, always did its best to steer clear of the NAAQS provisions.[40]

In the approximate decade since the start of GHG regulation under the CAA, there has been no action by EPA or litigation regarding a GHG NAAQS.[41] If one starts exploring this issue by reading environmental law articles from the mid-to-late 2000s[42] or the Advance Notice of Proposed Rulemaking (ANPR) promulgated by EPA late in the administration of President George W. Bush (Bush 43), one might find this lack of litigation curious.[43]

Now that EPA has made an endangerment finding and begun regulating GHGs under the Act, scholars seem to all conclude that the most common GHGs—carbon dioxide and methane—clearly meet the two prerequisites for a criteria air pollutant listing at the discretion of the EPA Administrator under section 108(a)(1).[44] As mentioned, this listing is the single administrative action that triggers the *entire* NAAQS regulatory process for a pollutant.[45] Regard-

39. *See, e.g.*, Richardson, *supra* note 17, at 284; McCubbin, *supra* note 5 at 453; *see also* Inimai M. Chettiar & Jason A. Schwartz, *The Road Ahead: EPA's Options and Obligations for Regulating Greenhouse Gases*, N.Y.U. INST. FOR POL'Y INTEGRITY, Rep. No. 3, 144-45 n. 282 (2009). "Most industry analysts argue EPA has no discretion on listing [GHGs as a criteria air pollutant], presumably because they want to demonstrate the horrible consequences of using the Clean Air Act to regulate greenhouse gases . . . Independent academic analysts are split." *Id.*

40. *See* CAA HANDBOOK, *supra* note 6, at 521.

41. *See infra* Part VII.A.

42. *See, e.g.*, McCubbin, *supra* note 5, at 439; Richardson, *supra* note 17, at 286.

43. *See* Regulating Greenhouse Gas Emissions Under the Clean Air Act, 73 Fed. Reg. 44,354, 44,498 (July 30, 2008) [hereinafter referred to as the "Advance Notice of Proposed Rulemaking" or "ANPR"]. The ANPR comprises an in-depth analysis on the feasibility of GHG regulation under the CAA made by EPA staff and is interspersed with calls for comments. Much of the analysis by EPA staff is devoted to the NAAQS program, and their conclusions alarmed the Bush 43 cabinet, to include the EPA Administrator himself. *See id.* at 44,355 (preface from EPA Adm'r Johnson); *id.* at 44,355-60 (letter from the Secs. of Agriculture, Commerce, Transportation, & Energy to Adm'r Susan Dudley); *id.* at 44,376 (letter and analysis of ANPR draft by the Dept. of Commerce).

44. *See, e.g.,* Chettiar & Schwartz, *supra* note 39, at 35 ("[of] course, EPA can voluntarily undertake an endangerment finding for any greenhouse gas under Section 108"); *see also, e.g,* Howard Crystal & Kassie Siegel et al., *Returning to Clean Air Act Fundamentals: A Renewed Call to Regulate Greenhouse Gases Under the National Ambient Air Quality Standards (NAAQS) Program*, 31 THE GEORGETOWN ENVTL. L. REV. 233, 240 (2019) (concluding that GHGs "indisputably" fit the two prerequisites, considering that they derive from numerous and diverse sources and that "EPA has already made—and successfully defended—an 'endangerment finding'" under Title II).

45. *See* 42 U.S.C. § 7408(a)(1) (2012) (titled "air quality criteria and control techniques" and covering the listing); *id.* § 7408(a)(2) (requiring issuance of "criteria" that reflect latest scientific knowledge on the pollutant's "identifiable effects on public health or welfare" within twelve months of listing); *id.* § 7408(b) (requir-

ing the first requirement, no other pollutant regulated under the CAA derives from more "numerous or diverse"[46] sources than CO2. As for methane, the number and diversity of sources are significantly less than those of CO2 but still immense.[47] Regarding the second prerequisite, EPA already determined in its 2009 Endangerment Finding that GHG emissions from cars and trucks pose a danger to public welfare and health by causing global warming.[48] A similar endangerment finding within a criteria air pollutant listing for GHGs under section 108(a)(1)(A),[49] which would be subsequently supported by the issuance of "criteria" documents within 12 months,[50] would require no leap in logic or new science to reference. The issue of a GHG NAAQS, however, has never been about whether the gases meet the prerequisites for a criteria air pollutant listing at the discretion of the EPA Administrator. Rather, the issue has always been about what would happen *after* such a listing is made

In short, scholars cannot figure out how a GHG could work or, put more precisely, work in a way that protects public welfare or health from climate change[51] without devastating the U.S. economy.[52] Additionally, leading up to the 2014 Supreme Court deci-

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ing issuance of information on "control techniques" that reduce emissions simultaneously with issuance of criteria); *id.* § 7409(a)(2) (requiring Administrator to publish—with issuance of criteria—a proposed NAAQS within twelve months of listing).

46. *Id.* § 7408(a)(1)(B).

47. *See, e.g.*, EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017, EPA 430-R-19-001, ES-28 fig ES-17 (2019) http://www.epa.gov/sites/production/files/2019-04/documents/us-ghg-inventory-2019-main-text.pdf (last visited July 15, 2019).

48. *See* Endangerment Finding *supra* note 30.

49. 42 U.S.C. § 7408(a)(1)(A).

50. *See supra* note 45.

51. *See, e.g.*, Nordhaus, *supra* note 4, at 63 ("[C]riteria air pollutant regulation under CAA is incapable of controlling CO2 concentrations and does not provide a workable framework on which to erect a domestic climate policy").

52. *See, e.g.*, Peter Glaser, *Avoiding a Regulatory Nightmare*, 26 THE ENVTL FORUM, Issue 2, 52-53 (March/April 2009). "Any regulation of GHGs under the CAA will likely trigger rigid, hugely expensive command-and-control regulation of small emission sources of all types throughout the nation . . . while yielding no meaningful environmental benefit . . . . Even worse, regulation of GHGs could trigger a requirement for the establishment of [NAAQSs] under the CAA . . . . [W]e face the truly frightening prospect that the entire country will be declared to be a carbon dioxide nonattainment area . . . . It is difficult to comprehend how there could be meaningful economic growth in such a regulatory environment." *Id.*; *cf.* Marlo Lewis, *CO2 Regulation under the Clean Air Act: Economic Train Wreck, Constitutional Crisis, Legislative Thuggery, Master Resource*, A FREE-MARKET ENERGY BLOG (Mar. 19, 2009), http://www.masterresource.org/business-strategy-and-messaging/co2-regulation-under-the-clean-air-act-economic-train-wreck-constitutional-crisis-legislative-thuggery/. "[M]ajor sources would have to "offset" any emissions increase

sion in *Utility Air Regulatory Group v. EPA*[53] (*UARG*), attorneys for the Obama EPA argued that the Agency could not possibly regulate sources of GHGs according to the text of the Act's Prevention of Significant Deterioration (PSD) and Title V programs[54]—which EPA would be obligated to do under a GHG NAAQS regime—without causing "absurd results."[55]

### A. The Two Major Issues with the Potential Regulation of Greenhouse Gases Through a National Ambient Air Quality Standard

Overall, scholars have identified two major issues with the potential NAAQS regulation of GHGs. The first issue, called the design problem, arises when one applies the NAAQS scheme to a gas like CO2.[56] The crux of the matter is that along with being a naturally ubiquitous trace gas, a fundamental component of the earth's carbon cycle, and the primary byproduct of burning fossil fuels, CO2 is an extraordinarily long-lived gas.[57] Once emitted, a molecule of CO2 usually disperses into the atmosphere and often stays in the atmosphere for a long time, resulting in annual CO2 concentrations in the outside air that are generally uniform throughout the world.[58] As the human population grows and the global economy expands, ambient CO2 concentrations will continue their inexorable march upward in the coming decades.[59] Consequently, a

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from a new or modified source by reducing emissions from an existing source somewhere else. Roughly speaking, nothing could be built or expanded anywhere in the United States unless something else shuts down—a de-facto moratorium on growth." *Id.*

53. Utility Air Regulatory Group v. EPA, 573 U.S. 302 (2014).

54. 42 U.S.C §§ 7470-7492 (PSD Program); *id.* §§ 7661-7661(f) (Title V program); *see infra* Part II.

55. *See* Brief for the Federal Respondents at 22, UARG, Nos. 12-1146, 12-1248, 12-1254, 12-1268, 12-1269, 12-1272, 2014 WL 251995 *22 (2014).

56. *See generally* Arnold Reitze, AIR POLLUTION CONTROL LAW: COMPLIANCE AND ENFORCEMENT 417 (2001).

57. *See, e.g.*, David Archer, *Fate of Fossil Fuel CO2 in Geologic Time*, 110 J. GEOPHYS. RES., C09S05, 1, 5 (2005).

58. *Id.*; *see also generally* The NOAA Annual Greenhouse Gas Index, Nat. Oceanic & Atmos. Adm., http://www.esrl.noaa.gov/gmd/aggi/aggi.html (last visited July 21, 2019).

59. *See* IPCC, 2014: CLIMATE CHANGE 2014: MITIGATION OF CLIMATE CHANGE, CONTRIBUTION OF WORKING GROUP III TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 11 fig. SPM.4 (Ottmar Edenhofer, Ramon Pichs-Madruga, Youba Sokona et al., eds., 2014) [hereinafter IPCC, 2014: CLIMATE CHANGE MITIGATION AR5], http://www.ipcc.ch/report/ar5/wg3/ (figure SPM.4 is in the summary for policymakers at the beginning); *see also* IPCC, 2014: SYNTHESIS REPORT AR5, *supra* note 15, at 8-9 SPM 2.1; Malte Meinshausen et al., *The RCP Greenhouse Gas Concentrations and their Extension from 1765 to*

state or single nation is unable to reduce the average annual ambient CO2 concentration within its borders in a few years or many years merely by its own effort.[60] Reducing concentrations of a pollutant in the ambient air is what Congress precisely intended when designing the NAAQS program, so many scholars conclude that this design issue, with its need of international collaboration, would be a fatal flaw to any proposed GHG NAAQS.[61]

The second problem, called the thresholds problem, concerns the Act's tons-per-year ("tpy") emission thresholds[62] for the permitting regulation of stationary sources under the CAA. If a stationary source potentially emits "any air pollutant" in excess of these annual thresholds under the Act, it triggers preconstruction-permit regulation for that source under either Part C of the Act ("the PSD program")[63] or Part D (Nonattainment New Source Review ("NNSR")[64]—both are collectively referred to as "New Source Review" ("NSR")—as well as operating-permit regulation under Title V.[65] The thresholds for PSD are 250 tons-per-year or, for certain enumerated categories of sources, 100 tpy.[66] For Title V, the threshold is always 100 tpy.[67] The NSR and Title V programs comprise fundamental parts of the NAAQS regulation of criteria air pollutants, though EPA has long used PSD and Title V to regulate noncriteria air pollutants as well.[68]

Prior to the Supreme Court's 2014 decision in *UARG*,[69] authored by the late Justice Antonin Scalia, EPA had long interpreted the term "any air pollutant" to mean any *regulated* air pollutant.[70]

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*2300*, 109 CLIMATE CHANGE 213, 213-241 (2011), http://link.springer.com/content/pdf/10.1007%2Fs10584-011-0156-z.pdf (last visited July 6, 2019) (covering concentrations beyond 2100).

60. *See* Reitze, *supra* note 56, at 417.

61. *See supra* notes 14, 17, and 18 and accompanying text.

62. *See* 42 U.S.C. §§ 7479(1), 7661(2)(B), 7602(j) (2012).

63. *Id.* §§ 7470-7492 (PSD applies to regions in attainment of NAAQS or deemed "unclassifiable").

64. *Id.* §§ 7501-7515 (NNSR applies to regions in nonattainment of NAAQS).

65. *Id.* §§ 7661-7661(f).

66. *Id.* § 7479(1).

67. *Id.* §§ 7661(2)(B), 7602(j); *see also* UARG v. EPA, 573 U.S. 302, 310 (2014).

68. *See UARG*, 573 U.S. at 316 ("Since 1978, EPA's regulations have interpreted 'air pollutant' in the PSD permitting trigger as limited to regulated air pollutants, 43 Fed. Reg. 26403 (1978), codified, as amended, 40 C.F.R. § 52.21(b)(1)(-(2), (50) (2012).").

69. *Id.* at 302.

70. *See UARG*, *supra* note 67, at 316, *citing* Requirements for Preparation, Adoption, and Submittal of Implementation Plans: Prevention of Significant Air Quality Deterioration, 43 Fed. Reg. 26, 380, 26, 382 (June 19, 1978).

Once the Obama EPA began regulating GHGs under Title II, EPA officials and many scholars therefore presumed that the term "any air pollutant" *must* include GHGs, and that EPA was therefore obligated to enforce PSD and Title V on stationary sources of GHGs.[71] EPA officials believed this outcome was mandated by the Act's clear language under *Chevron* step-one.[72] EPA officials also concluded, however, that it could not possibly regulate GHGs under PSD and Title V in accordance with the Act's thresholds at that time without causing "absurd results."[73] And if the 250 and 100 tpy thresholds were to suddenly apply to stationary sources of GHGs *without significant changes in the rules*, it would indeed cause a huge problem.

The inconvenient truth is that our current economy is still very much reliant on the burning of fossil fuels for cheap and abundant energy. While many of the other air pollutants regulated by the CAA comprise impurities from the burning of fossil fuels or result from inefficient combustion, CO2 primarily comprises "the emission stream itself."[74] Thus, by way of physics and economic reality, a myriad of sources large and small emit CO2 in amounts that are "orders of magnitude"[75] greater than those of other pollutants. In the U.S., hundreds of thousands of currently unregulated stationary sources—large office buildings, small manufacturers, apartment complexes, individual oil rigs, hospitals, schools, big churches, and even some mansions—potentially emit *and often do emit* over 250 tons of CO2 or CO2eq[76] on an annual basis.[77] Knowing this, for years many scholars and officials anticipated, not without some fear, that once GHGs became regulated as air pollutants, there would be

71. *See* McCubbin, *supra* note 5, at 451-53; Richardson, *supra* note 17, at 284; *see also* Brief for the Federal Respondents, *supra* note 55, at 22; Chettiar & Schwartz, *supra* note 39, at 144-45 n. 282.

72. *See* Brief for the Federal Respondents, *supra* note 55, at 22; *see also infra* Part X.A on the "*Chevron* two-step" established in *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 843–44 (1984).

73. Brief for the Federal Respondents, *supra* note 55, at 22.

74. Miller, *supra* note 17, at 1403; *see also* Reitze *supra* note 56, at 411 ("even ideal combustion . . . produces only CO2 and water vapor").

75. ANPR, 73 Fed. Reg. 44,354, 44,498 (July 30, 2008).

76. *See* IPCC, 2014: GLOBAL WARMING OF 1.5°C, An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-industrial Levels and Related Greenhouse Gas Emission Pathways, Annex I, 542 (glossary) (Masson-Delmotte & Zhai et al., eds., 2018) [hereinafter IPCC, 2014: GLOBAL WARMING OF 1.5°C], http://www.ipcc.ch/sr15/ (defining CO2eq). Scientists often measure GHGs in CO2eq or "carbon dioxide equivalent" form by taking the global annual ambient means of CH4 and other GHGs and their respective "radiative (heat) forcing" effects and atmospheric life spans and combining them with those of global CO2 to arrive at a uniform measurement. *Id.*

77. ANPR, 73 Fed. Reg. at 44,498-44,499, *cited by* UARG v. EPA, 573 U.S. 302, 310 (2014).

a massive expansion in the number of sources in need of a PSD and Title V permit for their CO2 and CH4 emissions, whether or not GHGs were ever listed as a collective criteria air pollutant.[78]

Once EPA began regulating GHGs under the CAA, the Agency therefore found itself stuck between the proverbial rock and a hard place with regard to PSD and Title V. To get out of this bind, yet still achieve President Obama's goal of establishing PSD and Title V regulation for the "largest sources of GHG emissions,"[79] EPA promulgated the "Tailoring Rule."[80] Through this rule, EPA first established PSD and Title V regulation for GHG sources *already* regulated by those programs,[81] on account of their non-GHG emissions—dubbed "anyway sources" because they were being regulated by PSD and Title V anyway.[82] To contain the fallout, EPA then tried to replace the troublesome 250 and 100 tpy thresholds in the Act's text with drastically higher numbers for GHGs.[83] EPA argued that it would have to regulate stationary sources of GHGs at these "tailored" levels at least initially, though perhaps indefinitely, to avoid "absurd results."[84]

This attempted edit of the Clean Air Act garnered a "splenetic" rebuke by Justice Scalia in *UARG*.[85] Writing for a majority of the Court, Justice Scalia vacated the "tailoring" part of the Tailoring Rule, but not before giving EPA a memorable lesson on the separation of powers:

> Were we to recognize the authority claimed by EPA in the Tailoring Rule, we would deal a severe blow to the Constitution's separation of powers. Under our system of government, Congress makes laws and the President, acting at

78. *See, e.g.*, ANPR Preface from EPA Adm'r Johnson, *supra* note 43, at 44,355; John-Mark Stensvaag, *Preventing Significant Deterioration Under the Clean Air Act: New Facility Permit Triggers*, 38 ENVTL. L. REP. NEWS & ANALYSIS 10003, 10010 (2008); Richard J. Lazarus, *The Opinion Assignment Power, Justice Scalia's Un-Becoming, and UARG's Unanticipated Cloud over the Clean Air Act*, 39 HARV. ENVTL. L. REV. 37, 44 (2015).

79. CAA HANDBOOK, *supra* note 6, at 521.

80. Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 74 Fed. Reg. 59,292 (Oct. 27, 2009), *finalized* Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 75 Fed. Reg. 31,514 (June 3, 2010) [finalized version hereinafter referred to as "Tailoring Rule"].

81. *Id.* at 31,541 (describing "anyway source" regulation as "Step One").

82. *Id.*

83. *Id.* at 31,567 (attempting to "tailor" thresholds from 100/250 tpy to 75,000/100,000 tpy CO2eq under "Step 2").

84. *See id.*; *see also* Brief for the Federal Respondents, *supra* note 55, at 22.

85. William W. Buzbee, *Anti-Regulatory Skewing and Political Choice in* UARG, 39 HARV. EVNTL. L. REV. 63, 67 (2015).

> times through agencies like EPA, "faithfully execute[s]" them. U. S. Const., Art. II, §3; *see Medellin v. Texas*, 552 U. S. 491, 526–527 (2008). The power of executing the laws necessarily includes both authority and responsibility to resolve some questions left open by Congress that arise during the law's administration. But it does not include a power to revise clear statutory terms [. . .][86]

> And, as Justice Scalia noted earlier in the opinion:

> It is hard to imagine a statutory term less ambiguous than the precise numerical thresholds at which the Act requires PSD and Title V permitting. When EPA replaced those numbers with others of its own choosing, it went well beyond the bounds of its statutory authority.[87]

But instead of forcing EPA to enforce PSD and Title V on GHG sources in accordance with the thresholds written by Congress, the Court found that EPA was not compelled down this path, because a narrower construction of the term "any air pollutant" was available.[88] Nor could EPA treat GHGs as "any air pollutant" by its own discretion, the Court seemingly held, if the resulting regulation would render the PSD and Title V programs "unadministrable and 'unrecognizable to the Congress that designed' them."[89]

The Court did not adopt a particular construction of the term "any air pollutant" but did offer two possibilities in a footnote, while stipulating that "[w]e do not foreclose EPA or the courts from considering [these] constructions in the future."[90] The Court first offered that the term "any air pollutant" could possibly mean any "NAAQS pollutant[ ]" (in other words, any criteria air pollutant) and, for support, cited the D.C. Circuit dissent of then-Judge Brett Kavanaugh.[91] Or perhaps the term could be limited to those pollutants with "localized effects," the Court offered, referencing an argument appearing in some of the states' pleadings and in a few

86. UARG v. EPA, 573 U.S. 302, 327 (2014).

87. *Id.* at 326 (internal quotations and citations omitted).

88. *Id.* at 320 n. 6.

89. *Id.* at 312, *quoting* Tailoring Rule, *supra* note 80, at 31,562; *see also* Buzbee, *supra* note 85, at 76.

90. *UARG*, 573 U.S. at 320 n. 6.

91. *Id.*, *citing* Coal. for Responsible Regulation, Inc. v. EPA, No. 09-1322, 2012 WL 6621785, at *13, *14-18 (D.C. Cir. Dec. 20, 2012) (Kavanaugh, J., dissenting from denials of rehearing en banc).

amicus briefs by industry groups.[92] As Professor Craig Oren notes, the "localized effects" construction is weak, lacks textual support, and was not persuasive to the Court in *Massachusetts v. EPA*.[93] Furthermore, as Part II of this paper will explain, contextual arguments in its favor could be soundly rebutted with a well-designed Secondary GHG NAAQS scheme.[94] However, the construction of then-Judge Kavanaugh (now-Justice Kavanaugh) that "any air pollutant" could be limited to the "NAAQS pollutants" is viable and could possibly be relied upon.[95] That is, there is seemingly no narrower of a construction of the term "any air pollutant" that excludes criteria air pollutants.

Curiously, in Part II-B-2 of the *UARG* opinion, with a different majority of Justices joining Justice Scalia, the Court nevertheless allowed EPA to proceed with its GHG regulation of "anyway sources" under PSD and Title V,[96] which enabled EPA to achieve roughly the same regulatory scope that President Obama was hoping for. That is, the largest sources of GHGs, which were being regulated by PSD and Title V because of their non-GHG emissions *anyway*, became subject to PSD's "Best Available Control Technology" (BACT) requirement and Title V with regard to their GHG emissions.[97] Professor Richard Lazarus notes that this "compromise position" was very "un-Scalia-like."[98]

As an avowed "textualist," Justice Scalia always shunned the use of legislative history in statutory interpretation because it enables justices and jurists to "choos[e] which legislative history materials to use . . . like arriving at a party and picking out one's friends in the

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92. *UARG*, 573 U.S. at 320 n. 6, *seemingly citing* Coal. for Resp. Regulation, 684 F.3d 102, 136-38 (D.C. Cir. 2012) (*citing* Coal. for Responsible Reg. Timing & Tailoring Br. 35-36, 38 (brief by industry group)).

93. *See* Oren, *supra* note 8, at 55 ("[It] . . . is too much the argument rejected in *Massachusetts*"), *citing Massachusetts*, 549 U.S. 497, 528-29 and 529 n. 26 (2007).

94. For a more detailed analysis, see *infra* notes 174-231 and accompanying text.

95. *See* Coal. for Resp. Regulation (Kanvaugh, J., dissenting), *supra* note 91 at *14-18.

96. *UARG*, 573 U.S. at 331-34. In Part II-B-2, Justice Scalia lost Justices Thomas and Alito but gained the support of Justices Ginsburg, Breyer, Sotomayor, and Kagan. Chief Justice Roberts and Justice Kennedy joined the opinion in full. Justices Thomas and Alito joined in Parts I, II-A, and II-B-2, and Justices Ginsburg, Breyer, Sotomayor, and Kagan joined in Part II-B-2. Justice Breyer filed an opinion concurring in part and dissenting in part. Justice Alito filed an opinion concurring in part and dissenting in part, with Justice Thomas joining him. *Id.*

97. *See id.* at 315; *see also* Tailoring Rule, *supra* note 80, at 31, 568 ("we estimate that 'anyway' sources account for approximately sixty-five percent of total national stationary source GHG emissions").

98. Lazarus, *supra* note 78, at 44.

crowd"[99] to achieve their own preferred policy outcomes. Professor William Buzbee, a critic of the *UARG* opinion, charges that Justice Scalia effectively did the same thing with the CAA's text and the administrative record by picking out a few statutory provisions, making assumptions on their "implementation burdens" based on current rules,[100] citing a few estimations from the Bush 43 EPA and even an old memorandum from the Clinton EPA,[101] and ignoring much of the rest of the Act's text to arrive at his own preferred policy outcome.[102] Nevertheless, the Court allowed EPA to proceed with its regulation of "anyway sources" of GHGs, which led many environmentalists to declare victory,[103] though many scholars advocating for action on climate change under the CAA bemoan the decision for all of its anti-regulatory dicta, of which there is a plenty.[104]

In summary, while some scholars read *UARG* as prohibiting EPA from pursuing *any* regulatory path that treats GHGs as "any air pollutant" and applies the NSR and Title V thresholds to GHG sources,[105] I read the decision as only prohibiting EPA from regulating GHG sources in accordance with the Act's thresholds solely on the basis of GHGs becoming regulated pollutants.[106] The *UARG*

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99. Buzbee, *supra* note 85, at 67 (citing Antonin Scalia, A MATTER OF INTERPRETATION: FEDERAL COURTS AND THE LAW 36 (1997) (*crediting* Judge Harold Leventhal for the metaphor)).

100. *Id.* at 76 ("the actual textual basis for the majority's rejection of EPA power is merely an inference drawn from implementation burdens"), *citing UARG*, 573 U.S. at 317-18.

101. *Id.* at 317.

102. Buzbee, *supra* note 85, at 74; *see also* Oren, *supra* note 8, at 1245.

103. *See, e.g.*, Adam Liptak, *Justices Uphold Emission Limits on Big Industry*, N.Y. TIMES (Jun. 23, 2014), http://www.nytimes.com/2014/06/24/us/justices-with-limits-let-epa-curb-power-plant-gases.html.

104. *See* Buzbee, *supra* note 85, at 64 ("unnecessary comments about the CAA and EPA power all cut in the direction of less regulation of GHGs"); Oren, *supra* note 19, at 51 ("The decision . . . includes dicta that disregard the words of the statute").

105. *See* Buzbee, *supra* note 85, at 72 ("[the *UARG*] majority . . . finds implicit in substantial implementation burdens that the PSD program could not possibly encompass regulation of sources due only to their GHG emissions"); *see also, e.g.*, Hennessee, *supra* note 37, at 1100. "It is unlikely that Sections 108 and 109 could be interpreted to address [GHGs], as doing so would yield the same untenably high administrative costs and regulatory burdens that the Court recoiled from in *UARG*. For one, designating [GHGs] as criteria pollutants would cause PSD and Title V requirements to apply to the same small sources that *UARG* already found could not be regulated under those programs . . . [Such regulation] could result in crushing costs on states and industry to come into compliance with whatever standard is chosen by the EPA." *Id.*

106. *See* UARG v. EPA, 573 U.S. 302, 332 (2014) (stating that the holding is "narrow" and limited to a "distinct context").

holding, I argue, does not preclude a GHG NAAQS, because by possibly relying on then-Judge Kavanaugh's construction that the term "any air pollutant" does not include GHGs because GHGs are not criteria air pollutants,[107] the Court implicitly leaves open whether EPA could regulate GHGs through a NAAQS. Should the EPA Administrator list GHGs as a collective criteria air pollutant and begin establishing a NAAQS for the gases, the issue regarding the PSD and Title V thresholds and GHGs would once again come before the Court—just in a different way.

Such GHG NAAQS regulation, however, would not stand a chance of being upheld if it would render PSD and Title V "unadministrable and 'unrecognizable to the Congress that designed' them"[108] or prevent U.S. economic growth.[109] But this paper's proposed scheme avoids these outcomes. This paper will cover the decision in *UARG* in depth in Parts V, X.B, and XI, but summarily, the Court found a way for EPA to avoid creating a mountain of a regulatory task that, according to the Agency, it could not possibly surmount.[110] The Court accomplished this by narrowly construing the term "any air pollutant" to exclude GHGs. However, because there is no textual support for a construction that excludes NAAQS-regulated pollutants,[111] the Court would likely be unable to afford EPA a similar escape route if the EPA Administrator were to list GHGs as a collective criteria air pollutant, as NSR and Title V comprise fundamental parts of the NAAQS regulatory scheme.[112] In sum, the Court's holding in *UARG* does not seem to foreclose the possibility of a future NAAQS for GHGs if a GHG NAAQS regime could work as Congress designed and enable U.S. economic growth.[113] Though if one conflates all the Court's dicta with its holding in *UARG*, one cannot help but to conclude that the NAAQS program is simply not an option for regulating GHGs and fighting climate change.[114]

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107. *See id.* at 320 n. 6.

108. *Id.* at 312.

109. *See* 42 U.S.C. § 7470(3) (2012) (declaring that one of the purposes of PSD program is "to insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources"); *see also* Hennessee, *supra* note 37, at 1100; Glaser, *supra* note 52, at 52-53; Marlo *supra* note 52.

110. *UARG*, 573 U.S. at 320.

111. *See id.* at 320 n. 6.

112. *See* CAA HANDBOOK, *supra* note 6, at 137.

113. *UARG*, 573 U.S. at 320.

114. *See supra* notes 110 and 111; Envtl. Prot. Agency, *Fact Sheet: New Source Review (NSR)*, https://www.epa.gov/sites/production/files/2015-12/documents/nsrbasicsfactsheet103106.pdf.

In essence, EPA and States have never had to enforce the PSD preconstruction-permit provisions and Title V operating-permit provisions on relatively small sources, because the vast majority of sources emitting non-GHG pollutants in excess of the PSD and Title V thresholds have always been large industrial facilities.[115] Such large facilities, according to some gratuitous dictum courtesy of Justice Scalia, are "capable of shouldering [the] heavy substantive and procedural burdens" imposed by these programs.[116]

Enforcement of PSD and Title V by EPA and state environmental agencies does indeed impose "heavy substantive and procedural burdens" on regulated entities *as the rules are currently written and applied*. But President Obama's Solicitor General Don Verrilli only briefly "conjecture[d]" that EPA could maybe alleviate these burdens through rulemaking, which Justice Scalia found insufficient and unconvincing.[117]

In fact, the extremely long delays and frightening levels of regulatory backlog that EPA estimated would result from GHG regulation at the thresholds were all based on *current* rules, practices, and regulatory procedures at EPA and state environmental agencies.[118] EPA thus gave little effort in offering ways to mitigate these delays and backlog. Instead, the Agency provided the rather inflated estimates as a means to justify its "tailoring" of the CAA.[119] Presented with such frightening estimations, Justice Scalia concluded that if EPA were to suddenly enforce PSD on tens of thousands of relatively small sources and require a Title V permit from a few million more, the regulatory backlog would "caus[e] construction projects to grind to a halt nationwide."[120]

Writing for the Court, Justice Scalia rightfully castigated EPA for indirectly claiming an immense regulatory authority on one hand and arbitrarily "tailoring" that authority through a statutory re-write on the other.[121] But after EPA presented him with a parade of horribles regarding GHG regulation at the thresholds, the late Justice could not refrain from dispensing plenty of dicta on what *he* thought about such hypothetical regulation, espoused after a "brief review" of some of the Act's text by an avowed textualist no

115. *See* Miller, *supra* note 17, at 1403.
116. *UARG*, 573 U.S. at 322.
117. *See id.* at 324 n. 7.
118. *See* Tailoring Rule, *supra* note 80, at 31, 537-541, 540.
119. *See id.* at 31, 557.
120. *UARG*, 573 U.S. at 322.
121. *See* Tailoring Rule, *supra* note 80, at 31, 567.

less.[122] Ignoring statutory text on the purposes and ambition of the CAA and provisions that seemingly deny EPA discretion regarding the protection of public health and/or welfare, Justice Scalia took the "absurd results" that EPA warned of at face value and surmised that there is:

> [N]o doubt that the [Act's permitting programs] are designed to apply to, and cannot rationally be extended beyond, a relative handful of large sources capable of shouldering heavy substantive and procedural burdens.[123]

This is dictum and not precedent, but it is clear dictum no less, and herein lies the crux of the thresholds problem. Scholars have yet to articulate a way to solve, much less mitigate, the thresholds problem clarified by *UARG*. Perhaps this is because they find the design problem so intractable.

Both the design and thresholds problems underscore the sheer challenge of mitigating man-made global warming and ocean acidification (collectively referred as "climate change" herein) by reducing CO2 and other GHG emissions across the nation and across the world this century. In the present U.S. economy and throughout a majority of the rest of the world, humans move goods and people around in cars and trucks that burn gasoline or diesel fuel in internal-combustion-engines; we fly across the world in jets that burn highly refined petroleum; we warm our homes and buildings with heaters and often cook our food in stoves that burn methane; we transport cargo across the ocean in ships that burn diesel fuel; and we make steel and cement through processes that burn heavy hydrocarbons such as coke and coal at high temperatures in large vats.[124] Most consequential of all, we keep our lights on, run our air conditioning and electronics, and manufacture things with grid power that mostly derives from power plants burning coal or natural gas for energy.[125]

Nevertheless, I argue that the design problem can be solved and the thresholds could be, if not entirely solved, at least mitigated and effectively managed. In other words, this nation, under cur-

122. *See UARG*, 573 U.S. at 322.

123. *Id.*

124. *See* Dept. of Energy, Energy Info. Admin., International Energy Outlook 2016, DOE/EIA-0484, 141 fig. 9-2 (2016), http://www.eia.gov/outlooks/ieo/pdf/0484(2016).pdf; Dept. of Energy, Energy Info. Admin., Monthly Energy Review June 2019, DOE/EIA-0484, 204 fig. 12.2 (2019), http://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf (showing U.S. emissions).

125. *See id.* at 123 fig. 7.2.

rent law, could be put on a bold climate mitigation policy. But be forewarned: this is a path "not for the weak or faint-hearted."[126]

### B. Solving the Design Problem with a Long-range Secondary NAAQS for GHGs and Managing the Thresholds Problem with New Rules

In short, the design problem can be solved, because EPA can establish a long-range Secondary NAAQS for GHGs. Essentially, States can *indeed* develop and implement plans that, "but for emissions emanating from outside of the United States"[127] would achieve an ambitious Secondary NAAQS[128] for GHGs as long as the attainment date for the standard is set in the far distant future.[129] As for solving or at least effectively mitigating the thresholds problem, EPA and state agencies can make changes to the rules governing the enforcement of the Act's permitting provisions. With dramatic changes, they could *drastically* alleviate the regulatory burden placed on newly regulated sources and regulators alike.[130] Managing and mitigating the thresholds problem in this fashion would attack the assumption made by Justice Scalia that the regulatory burden of PSD and Title V cannot be alleviated but not the principle, espoused in dictum, that the burden is *currently* too heavy to enable PSD and Title V regulation of GHG sources at the 100 and 250 tpy thresholds.[131]

With regard to solving the design problem, what the vast majority of scholars do not seem to realize is that the NAAQS scheme can start working as designed for GHGs if one simply uses a Secondary NAAQS and applies it to a timeline relevant to climate, climate *change*, and the inevitable rise and hopeful fall of CO2 in the atmosphere over the next few centuries:[132]

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126. U.S. Army, RANGER HANDBOOK, SH 21-76 (2006).

127. 42 U.S.C. § 7509a(a) (2012).

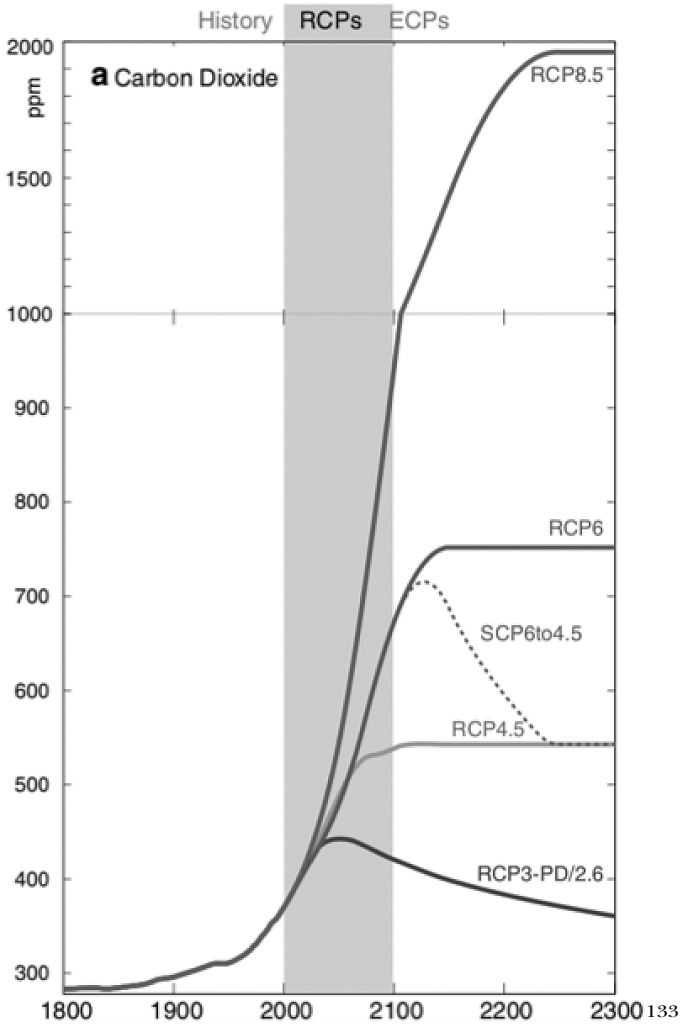
128. *Id.* § 7409(b)(2).

129. *See id.* § 7502(a)(2)(B) (requiring Secondary NAAQS to be attained "as expeditiously as possible"); *see also id.* § 7407(d)(1)(A)(iii) (permitting attainment status of "unclassifiable" for "any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant"); *see also infra* Parts IV and IX.A.

130. *See infra* Parts V and XIII.

131. *See* UARG v. EPA, 573 U.S. 302, 322 (2014).

132. *See* IPCC, 2014: CLIMATE CHANGE MITIGATION AR5, *supra* note 59, at 11 fig. SPM.4; Meinshausen et al., *supra* note 59, at 213-41 (analyzing projected GHG concentrations beyond year 2100).



[133]

This timeline is *extremely* long-term, which is perhaps one reason why others have not proposed it. The general concept of a long-range Secondary GHG NAAQS, however, is not novel. In fact, the potential feasibility of the concept was recognized by EPA staff

133. *Id.*; *supra* note 59, at 232 fig. 5; *see* IPCC, 2014: SYNTHESIS REPORT AR5, *supra* note 15, at 8-9 SPM 2.1 (explaining "Representative Concentration Pathways (RCPs)" and that RCP 2.6 comprises the "stringent mitigation scenario [which] aims to keep global warming likely below 2°C above pre-industrial temperatures," and that "scenarios without additional efforts to constrain emissions [. . .] lead to pathways ranging between RCP6.0 and RCP8.5.").

in the ANPR,[134] which the Bush 43 EPA promulgated as an initial response to *Massachusetts v. EPA*.

In the ANPR, EPA attorneys analyzed how the regulation of GHGs could potentially work under the various CAA programs and called for comments. In the ANPR's preface, EPA Administrator Stephen L. Johnson reiterated the losing argument in *Massachusetts v. EPA* that the CAA was never designed to regulate GHGs, and he warned of an "unprecedented expansion of EPA authority that would have a profound effect on virtually every sector of the economy and touch every household in the land."[135] The ANPR itself, however, was written by EPA staff and seemed to "suggest[ ] that the Clean Air Act can be both workable and effective for addressing global climate change."[136] In the ANPR's evaluation of a scenario wherein EPA establishes a Secondary GHG NAAQS and every region in the country is in attainment or is unclassifiable, EPA attorneys actually wrote that the NAAQS program "potentially could provide authority for a nationwide cap-and-trade program implemented at the state level."[137] This proclamation shocked the Bush 43 cabinet.[138] Referencing letters from the Secretaries of Energy,

134. *Compare* ANPR, 73 Fed. Reg. 44, 354, 44, 481 (July 30, 2008) (treatment of Primary NAAQS) ("[i]t would appear to be an inescapable conclusion that the maximum 10 year horizon for attaining the primary NAAQS is ill-suited to pollutants such as greenhouse gases with long atmospheric residence times"), *with id.* at 44, 478, 44, 481-82 (treatment of Secondary NAAQS). "[The] direct effects of GHG emissions appear to be principally or exclusively welfare related . . . This raises the question whether it is more appropriate to address [the] health effects as part of our consideration of the welfare effects of GHGs when setting a secondary NAAQS rather than a primary NAAQS . . . Under a secondary [NAAQS] standard, state plans must achieve attainment as expeditiously as practicable, but there is no statutory maximum date . . . EPA requests comment on the concept of implementing a GHG secondary NAAQS standard in a way roughly analogous to an approach used in the long-term regional visibility program [which] requires states to develop reasonable progress goals every 10 years [and] ultimately achiev[e] the 2064 natural condition goal . . . The regional haze program's model . . . could offer a possible framework for achieving a GHG secondary NAAQS." *Id.*

135. *Id.* at 33, 354-55 (preface letter from EPA Adm'r).

136. *Id.* at 44, 355-60 (letter from Secretaries of Agriculture, Commerce, Transportation, and Energy to Adm'r Susan E. Dudley, Office of Info. and Reg. Affairs, Office of Mgmt and Budget, dated July 9, 2008, responding to draft of ANPR). The response letters are published in the ANPR after Administrator Johnson's preface.

137. *Id.* at 44, 482.

138. *See, e.g.*, *id.* at 35, 555-60 (letter from Adm'r Dudley to EPA Adm'r Johnson regarding ANPR draft) ("[The draft] suggests that a regulatory program based on [a NAAQS] might permit the adoption of a nationwide cap-and-trade program"); *id.* at 44, 366 (letter from Dept. of Energy responding to draft) ("The draft has the overall effect of suggesting that under the CAA, as it exists today, it would be possible to develop a regulatory scheme of trading programs and other mechanisms to regulate GHG emissions and thus effectively address global climate

Commerce, Transportation, and Agriculture and other cabinet members that agreed that the "Clean Air Act is a deeply flawed and unsuitable vehicle for reducing greenhouse gas emissions," Administrator Susan Dudley of the Office of Management and Budget responded that "[the ANPR] draft . . . relies on untested legal theories to suggest . . . that a regulatory program based on [a NAAQS] might permit the adoption of a nationwide cap-and-trade program."[139] As noted by some alarmed officials at the Department of Energy, "the ANPR seems to make a case for the CAA being a proper vehicle to meaningfully combat global climate change."[140]

Returning to the design issue, the CAA can meaningfully combat climate change, because the design problem can be solved in three steps. First, EPA can establish an ambitious Secondary NAAQS for GHGs with an attainment date in the far distant future.[141] Second, EPA can utilize the "but for emissions emanating from outside of the United States" provision of section 179B to enable the States to maintain control over their emissions-reduction plans and not have to do more than their bit part to solve this global problem.[142] Third, EPA can deem that all regions have an attainment status of "unclassifiable" over the long-term,[143] which should avoid the dreaded, perpetual nationwide-nonattainment for all practical purposes.

As for the thresholds problem, it could be managed because EPA and state agencies can promulgate new rules governing the enforcement of the Act's permitting provisions in three simple ways. First, EPA and state agencies could reduce the number of regulated entities by redefining the term "potential" in "potential to

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change."); *see also id.* at 44, 376 (letter from Dept. of Commerce responding to draft) ("The CAA is designed to regulate major sources of traditional pollutants, but applying those the standards to GHGs could result in Clean Air Act regulation of small businesses, schools, hospitals, and churches.").

139. *Id.* at 44, 355-60.

140. *Id.* at 44, 371 ("The Department of Commerce's fundamental concern with . . . using the CAA to regulate GHGs is that it would impose significant costs on U.S. workers, consumers, and producers and harm U.S. competitiveness without necessarily producing meaningful reductions in global GHG emissions."); *id.* at 44, 375 (response by Dept. of Commerce). "Using the CAA to address climate change would . . . put U.S. firms at a competitive disadvantage by raising their input costs compared to foreign competitors, likely resulting in emissions leakage outside of the [U.S.] and energy-intensive firms relocating to less regulated countries. [This] would not be beneficial to the environment or the U.S. economy." *Id.*

141. *See* 42 U.S.C. § 7502(a)(2) (2012).

142. *See id.* § 7509a(a).

143. *See id.* § 7407(d)(1)(A)(iii); *infra* Part II.

emit,"[144] to more closely match a source's actual emissions,[145] and push the boundaries on the definition of a "significant increase in emissions"[146] with regard to what constitutes a "modification"[147] requiring a PSD permit. Next, EPA and state agencies could drastically alleviate the regulatory burden on the newly regulated, smaller sources by enabling an applicant to quickly obtain a PSD permit by signing a PSD application with a checked box acknowledging that the 'the applicant's facility is implementing the best available control technology (BACT) that its owners and operators can afford to reduce emissions.' The application could also require sources to fill in a short paragraph explaining their BACT.[148] Regulators would still make "case-by-case" determinations on BACT; they would just give applicants the benefit of the doubt.[149] Finally, EPA and state agencies could still comply with the CAA provisions requiring a public hearing for each permit application. The hearings for non-anyway sources would just need to be very short and sweet.[150]

For perspective, in *UARG*, Justice Scalia went on *ad nauseam* about the heavy procedural burdens imposed by PSD and Title V,[151] but the federal government does maintain post offices

144. 42 U.S.C. §§ 7479(1) (defining major emitting facility), 7602(j) (defining major stationary source as any source that "directly emits, or has the potential to emit [100 tpy] or more of any air pollutant").

145. *Contra* 40 C.F.R. § 51.66(4) ("Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design"). This figure often far exceeds a source's actual annual emissions.

146. 40 C.F.R. § 51.66(4) ("Major modification means any physical change in or change in the method of operation of a major stationary source that would result in: a significant emissions increase . . . of a regulated NSR pollutant . . . and a significant net emissions increase of that pollutant from the major stationary source").

147. 42 U.S.C. §§ 7479(2)(C), 7411(a)(4). "The term 'modification' means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted." *Id.*

148. *See id.* § 7475(a)(4); *see also id.* § 7479(3), *codified almost verbatim in* 40 C.F.R. § 51.166(b)(12).

149. *See* 42 U.S.C. § 7479(3). One could argue that by "taking into account . . . economic impacts and other costs," a "permitting authority" could simply ask applicants of "non-anyway sources" whether they will be using the BACT that they can afford to reduce emissions, get an affirmative yes, have individual applicants enumerate what the source's BACT is (to meet the "case-by-case" requirement), and grant the PSD permit.

150. *See id.* §§ 7475(a)(2), 7661a(b)(6); see also *infra* notes 162-63 and 195-204 and accompanying text and Part XIII.B for possible *pro forma* solutions to other requirements.

151. *Cf.* Maryland v. Craig, 497 U.S. 836, 850 (1990); *id.* at 860-64 (Scalia, J., dissenting).

throughout the nation and there's no confrontation clause like that in the Constitution for criminal proceedings or any statutory provision that would prohibit the use of remote technology for public hearings and the rapid issuance of permits.[152] Perhaps a PSD permit applicant for a non-anyway source in remote northern Idaho could appear at her local post office at an appointed time, enter a separate but public room, be greeted on live-screens by an administrative law judge and government attorney, fill out a single-page application, hand it to the one clerk in the room, and be issued a permit in five minutes. Additionally, a legal interpretation of standing akin to that in *Massachusetts v. EPA* should prevent obstructionists from blocking or delaying the issuance of her permit.[153] Only a state could arguably achieve standing to litigate the matter in such a scenario.

If met with sufficient international support, such a GHG NAAQS scheme could protect public welfare from climate change without causing significant economic disruption. Putting aside the international dynamics for now, there would nonetheless be substantial challenges on the domestic front. Congress and the President would have to hold steady and not change the law, and the States would have to achieve decadal emission-reduction milestones that amount to an approximate nineteen percent reduction in emissions per decade on average.[154] This reduction would be a huge undertaking, requiring coordination with and support from practically every other department and agency in the land as the nation fundamentally changes its energy infrastructure over the coming decades,[155] not to mention daring innovation if we are to ever get to "net-zero" GHG emissions around 2072.[156]

Americans have, however, proven innovative when survival, high stakes, or money is on the line,[157] and the CAA that Congress

152. *Id.*

153. *See* Massachusetts, 549 U.S. at 518 ("We stress here . . . It is of considerable relevance that the party seeking review here is a sovereign State and not, as it was in *Lujan*, a private individual") (citing Lujan v. Defenders of Wildlife, 504 U.S. 555, 560-61, 572 n. 7 (1992)); *cf. id.* at 535-36 (Roberts, J., dissenting).

154. *See infra* Parts VI and IX.A, *infra* note 356 and accompanying text.

155. *See infra* Part IX.

156. *See infra* note 356 (noting that approximate nineteen percent reduction per decade, based on 2014 emissions levels, is an approximate straight-line reduction to "net zero" in 2072); *infra* note 371 and accompanying text (explaining "net zero").

157. *See, e.g.*, Benjamin Franklin; Alexander Bell; Nikola Tesla; Early 19th Century Railroad Companies; the Remington Colt 45; the Polio vaccine; open-heart surgery; machine-guns, tanks, and industrial level artillery in Word War I; Marie Curie; Standard Oil; Ford Motor Company; the mobilization and fighting in

passed in 1970, enhanced in 1977, and to a fair extent globalized in 1990 has long been known for its "technology-forcing" ability.[158] The argument of 'but the technology does not yet exist!' has been a losing one in CAA cases before the Court,[159] and so would it be, I argue, if the GHG NAAQS regulation proposed by this paper were pursued by EPA and presented to the Court after a challenge.

If such a regulatory regime were implemented, the difficult decisions on how and where to reduce emissions would primarily be made at the state and regional level through State Implementation Plans (SIPs) or Federal Implementation Plans (FIPs) in their stead. States have been described as 'laboratories of democracy,'[160] and under this regime, they would be laboratories of emissions reduction as well, with each state figuring out how to reduce emissions on its own, whether through renewable energy, nuclear power, carbon capture sequestration (CCS),[161] a carbon price, genetically modified trees, or whatever works.

Although this essentially "cap-and-trade" regulation may shock analysts at fossil-fuel-industry-funded think-tanks, Congress clearly endorsed the use of market mechanisms in the NAAQS program. Moreover, EPA and states have developed and been using cap-and-trade programs in the NAAQS regulation of criteria air pollutants for over two decades.[162]

Another thing that scholars do not seem to realize is the fact that CO2 has no localized effects, an oft-heard criticism in the dissents of Justices Alito, Thomas, and Scalia,[163] provides an advantage

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World War II; the Manhattan Project; jet travel and airline safety; NASA and the Space Race; IBM and Texas Instruments; the Food Revolution; AIDS prevention; the Internet and Google; Steve Jobs and Apple; GPS and Satellites; Mark Zuckerburg and Facebook; cancer research; the Horizontal Drilling and Hydraulic Fracturing Revolution; and Elon Musk and his vertically-landing rockets.

158. *See, e.g.*, Giovinazzo, *supra* note 5, at 107 ("Congress designed the CAA to be 'technology forcing'—to force the development of as-yet unforeseen solutions to air pollution"); *see also Forcing Technology: The Clean Air Act Experience*, 88 Yale L.J. 1713 (1979).

159. *See, e.g.*, Union Elec. Co. v. EPA, 427 U.S. 246, 256-57 (1976); *cf.* Whitman v. Am. Trucking Ass'ns, 531 U.S. 457, 471 (2001) (barring consideration of cost in NAAQS setting process).

160. New State Ice Co. v. Liebmann, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting).

161. *See, e.g.*, IPCC, 2014: CLIMATE CHANGE MITIGATION, *supra* note 59, at 119 (noting that "CCS [. . .] would allow for the utilization of coal while cutting emissions").

162. *See generally* ANPR, *supra* note 43, at 44,411.

163. *See* UARG v. EPA, 573 U.S. 302, 350 (2014) (Alito, J., dissenting in part and concurring in part) (Thomas, J., joining) ("BACT analysis, like the rest of the Clean Air Act, was developed for use in regulating the emission of *conventional* pollutants and is simply not suited for use with respect to greenhouse gases" (em-

over "conventional pollutants" with regard to market mechanisms and other key parts of NAAQS regulation. In many respects, the NAAQS regulation of CO2 would be much easier, because the litany of CAA provisions and volumes of regulations over a pollutant's local effects and the endless litigation over emissions wafting across state and regional boundaries and causing nonattainment downwind could all be effectively bypassed. Local variances in ambient CO2 concentrations due to winds, seasons, and geography and anomalous fluctuations would be immaterial under this scheme. The only concentration that *would* matter is the globally ambient annual concentration, which can be obtained in remote places like the NOAA site on Mount Manua Loa in Hawaii.[164] Thus, the trading of CO2 emissions, however executed by the States, should be almost totally unencumbered by the complex and time-consuming issues over local and regional effects that accompany the regulation of "conventional" pollutants.

Under the scheme proposed by this paper, for instance, if a state were to fall short of the requisite nineteen percent reduction one decade, it would not matter so long as another state or group of other states reduce more than nineteen percent to recover the loss. The only material figure would be the U.S. emissions reduction percentage in the aggregate. And if a given state is unable to account for its emissions, through trading, EPA would ultimately impose its own FIP on the state to see that the requirement is met. The EPA Administrator, by his or her own authority, could also block federal highway funding for the state to gain compliance.[165]

On the international front, it would be a long and hard struggle to get other nations on board. Doing so would require the creative application of hard economic power.[166] The United States would need many powerful allies on this front; in addition to, I argue, a commitment to the principles of free enterprise, minimal government intrusion, and fair competition, as well as a "trust but

phasis added)); *cf.* Massachusetts v. EPA, 549 U.S. 497, 535 (2007) (Scalia, J., dissenting) (arguing that problems associated with CO2 concentrations "bear little resemblance to what would naturally be termed 'air pollution'").

164. *See One Year of CO2 Daily and Weekly Means at Mauna Loa*, NAT. OCEANIC & ATMOS. ADMIN., http://www.esrl.noaa.gov/gmd/ccgg/trends/weekly.html (last visited July 14, 2019).

165. *See* 42 U.S.C. § 7509(b)(1) (2012).

166. *See* ANPR, *supra* note 43 and accompanying text, at 44, 371 (response from Dept. of Commerce). The United States would have to work to prevent "emissions leakage" and U.S. energy-intensive firms from being placed at a competitive disadvantage. A full analysis of this issue is beyond the scope of this paper, but it is relevant that this regulation would become increasingly costly and arguably futile if other nations were to *not* reduce emissions in kind.

verify system"[167] with satellites like those comprising NASA's Orbiting Carbon Observatory to monitor emissions.[168]

Will it likely be done? No. But could it *feasibly* be accomplished in accordance with the existing law of the Clean Air Act? Yes.

In Part II of this paper, I provide a primer on the NAAQS program. In Parts IV-VI, I cover how the design problem can be solved and how the thresholds problem could be managed in depth. In Part VII, I delve into the history of GHG regulation under the CAA generally and the GHG NAAQS issue specifically. In Part IX, I propose a regulatory scheme based on a long-range Secondary NAAQS of 350 CO2/CO2eq ppm by the year 2351 and explain how this is both ambitious and arguably realistic. In Part X, I cover the "*Chevron* two-step." Finally, in Part XIV, I offer an alternative strategy of using a GHG NAAQS as leverage to coerce Congress to pass a bold, steadily-increasing price on carbon emissions that is practically revenue-neutral, with proceeds going to American households to offset any increased energy costs. I then conclude with a quote by our President in Part XV.

## II. THE NAAQS PROGRAM

Congress created the NAAQS program of the CAA to eliminate dangerous concentrations of criteria air pollutants in the nation's outside air. According to section 108(a)(1), criteria air pollutants are those pollutants whose presence in the ambient air derives from numerous or diverse sources and whose emissions cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare.[169] As Section 108(a)(1) reads:

> For the purpose of establishing national primary and secondary ambient air quality standards, the Administrator shall within 30 days after December 31, 1970, publish, and shall from time to time thereafter revise, a list which includes each air pollutant—
>
> > (A) emissions of which, in his [or her] judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare;

167. President Ronald Reagan, Remarks at the Signing of the INF Treaty with Soviet Premier Gorbachev, WHITE HOUSE (Dec. 8, 1987).

168. *See* Patrick Lynch, *Eye-Popping View of CO2, Critical Step for Carbon-Cycle Science,* NASA's GODDARD SPACE FLIGHT CENTER (Dec. 13, 2016), http://www.nasa.gov/feature/goddard/2016/eye-popping-view-of-co2-critical-step-for-carbon-cycle-science.

169. 42 U.S.C. § 7408(a)(1).

> (B) the presence of which in the ambient air results from numerous or diverse mobile or stationary sources; and
> (C) for which air quality criteria had not been issued before December 31, 1970 but for which he [or she] plans to issue air quality criteria under this section.[170]

As mentioned, some scholars have concluded that the EPA Administrator is now obligated to list GHGs like CO2 and CH4 as a collective criteria air pollutant or as individual criteria air pollutants under section 108(a)(1), given that the presence of GHGs emissions in the outside air derives from numerous and diverse sources and EPA has already found that the gases pose a danger to public welfare and health under Title II.[171] Most scholars, however, seem to now conclude that, in light of *UARG*, the Supreme Court could easily find ambiguity in section 108(a)(1)(C) or some other key part to hold that EPA is not compelled to make such a listing—and all the more so if such a listing would cause economic calamity.[172]

Regardless, the EPA Administrator has the authority to list a pollutant as a criteria air pollutant under section 108. Once this listing is made, EPA must thereafter issue the "criteria" documents and publish a proposed NAAQS for the pollutant within twelve months.[173] Essentially, the NAAQS is a maximum permissible air concentration for a pollutant in the outside air requisite to protect public health and/or welfare.[174] Also, Supreme Court case law prohibits EPA from considering economic costs when setting a NAAQS,[175] which is arguably the most powerful aspect of the NAAQS program and the entire statute.

Once a pollutant's NAAQS is set, the States are then called upon to develop and implement plans (SIPs) that will achieve air concentrations of the pollutant within their borders that do not exceed the NAAQS by a key future date.[176] Achieving this goal is called "attaining" a NAAQS.[177] In the event that the aforemen-

170. *Id.*

171. *See* McCubbin, *supra* note 5, at 452; Richardson, *supra* note 17, at 284; *cf. Clean Air Act Mechanisms for Regulating Greenhouse Gas Emissions*, 20 AIR POLLUTION CONSULTANT 1.3, 1.5 (2010) ("While EPA has no current plans to issue a NAAQS for greenhouse gases, it may be required to do so through litigation").

172. *See, e.g.*, Hennessee, *supra* note 37, at 1100.

173. 42 U.S.C. § 7408(a); *see generally supra* note 45.

174. *Id.* § 7409(b).

175. Whitman v. Am. Trucking Ass'ns, 531 U.S. 457, 471 (2001).

176. 42 U.S.C. § 7410. States must submit plans within 3 years after the promulgation of a NAAQS. *Id.* § 7410(a)(1).

177. *Id.* § 7410.

tioned section 179B is relied upon, States can develop and implement SIPs that *would* attain the NAAQS by that particular standard's deadline *but for* international emissions of the pollutant.[178] Should a state fail to present and implement a SIP that will attain the NAAQS by deadline or, at the very least, would attain the NAAQS by deadline but for international emissions, EPA will ultimately impose a FIP on the state to ensure compliance with the requirement.[179] Practitioners often colorfully describe the latter as "getting FIPPED."[180]

There are, importantly, two types of NAAQS, and each comes with a different attainment deadline. The first, a Primary NAAQS, is the standard designed to protect public health.[181] A Primary NAAQS must be attained in five to twelve years. This attainment timeline is prescribed by the Act.[182] However, for the second type of NAAQS, a Secondary NAAQS, which is designed to protect public welfare,[183] there is no rigid attainment-timeline. The Act simply requires that a Secondary NAAQS be attained "as expeditiously as possible."[184] As will be explained in Part VI, bringing the global ambient CO2 concentration back down to the level that it was at just a few decades ago "as expeditiously as possible" will take a very long time. But therein lies the rub for making a GHG NAAQS work.[185]

The ultimate goal of the NAAQS program is attainment, and to achieve this goal, Congress explicitly endorsed the use of market mechanisms in section 110.[186] Under the authority of this section,

178. *Id.* § 7509a(a).

179. *Id.* § 7410(c). *See* CAA HANDBOOK, *supra* note 6, at 53 ("EPA is required to promulgate a FIP within two years after finding that the state has failed to make its required SIP submission or that the state's submission does not meet the CAA's minimum completeness criteria for SIPs").

180. Laura Leslie, *Senate seeks to stall new EPA rules*, WRAL (July 22, 2015), https://www.wral.com/senate-seeks-to-stall-new-epa-rules/14789125/.

181. 42 U.S.C. § 7409(b)(1) (describing "National Primary Ambient Air Quality Standard").

182. *See id.* § 7502(a)(2)(A) (requiring attainment in five years but enabling Administrator to extend period to 10 years); *see also id.* § 7502(a)(2)(C) (enabling Administrator to extend additional two years).

183. *Id.* § 7409(b)(2) (describing "National Secondary Ambient Air Quality Standard").

184. *Id.* § 7502(a)(2)(B).

185. *See infra* Parts VI and IX.

186. *See* 42 U.S.C. § 7410(a)(2). "Each such plan shall—(A) include enforceable emission limitations . . . including economic incentives such as fees, marketable permits, and auctions of emissions rights . . . and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this chapter." *Id.*

many states and cities have established what are essentially "cap-and-trade" programs for the emissions of nitrogen oxides and volatile organic compounds, which are precursors to ground-level ozone.[187] Such emissions-trading schemes have helped regions attain and maintain the ozone NAAQS and other NAAQSs for years.[188]

Overall, if the first pillar of the NAAQS program is the actual NAAQS and the second is the implementation plans that States devise to attain the NAAQS by deadline, or that at least *would* attain the NAAQS by deadline but for international emissions, the third pillar of the NAAQS regime comprises the permitting regulation for major stationary sources.[189] This third pillar, which offers less discretion, comprises the preconstruction-permit programs known as "New Source Review" ("NSR"),[190] which enumerate specific control-technology standards that individual facilities must meet, as well as the Title V operating-permit program.[191] As discussed, the thresholds problem arises from this third pillar.

In a nutshell, NSR and Title V regulate "major emitting facilities" and "major stationary sources," respectively. As mentioned, for regions in "attainment" or with an "unclassifiable" status, NSR comprises "the PSD program."[192] In the context of PSD, the Act

187. *See, e.g.*, Hannah Oakes, *Regional Cap-and-Trade Program to Bring "Fracking" States into 2015 Ozone Attainment*, 29 COLO. NAT. RESOURCES, ENERGY & ENVTL L. REV. 415, 438 (2018).

188. *See, e.g.,* Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone ($NO_x$ SIP Call), 63 Fed. Reg. 57, 356 (Oct. 27, 1998) (codified at 40 C.F.R. pts. 51, 72, 75, 96); Jessica Wilkins, *The Validity of the Clean Power Plan's Emissions Trading Provisions*, 91 N.Y.U. L. REV. 1386, 1405 (2016) ("One important and novel aspect of the [aforementioned NOx] SIP Call was the $NO_x$ Budget Trading Program (NBTP), which allowed sources to purchase and sell "emissions 'allowances' under an overarching regional limit"); *see also* Michigan v. EPA, 213 F.3d 663, 672 (D.C. Cir. 2000), *cert. denied*, 532 U.S. 904 (2001) (rejecting challenges to NBTP). Market-mechanisms and cap-and-trade are discussed further in Part XIII.

189. *See, e.g.*, Oakes, *supra* note 187 at 420. Scholars often describe the overall arrangement as "cooperative federalism." *Id.*

190. 42 U.S.C. §§ 7470-7492 (Part C of Title I, titled "Prevention of Significant Deterioration," applying to regions in attainment or with unclassifiable status); *id.* §§ 7501-7515 (Part D of Title I, titled "Plan Requirements for Nonattainment Areas," applying to regions in nonattainment).

191. *Id.* §§ 7661-7661(f).

192. *See id.*, Ch. 85, Subch. I, Pt. C., §§ 7470-7492 (titled "Prevention of Significant Deterioration of Air Quality" and encompassing CAA sections 160-169B); *id.*, Ch. 85, Subch. I, Pt. C., Subpt. I, §§ 7470-7479 (encompassing CAA sections 160-169 and all of Part C with the exception of the "Visibility Protection" provisions) [subpart I of Part C is hereinafter referred to as "PSD" or "PSD program" considering that the visibility provisions of Part C are seemingly inapplicable to GHGs].

defines a "major emitting facility" as any stationary source whose annual emissions of "any air pollutant" potentially exceed 250 tpy or, for certain enumerated categories, 100 tpy.[193] Regarding Title V, the Act defines a "major stationary source" almost identically, except that the threshold is always 100 tpy.[194]

In such attainment or unclassifiable regions, if a group of owners or operators want to build or modify[195] a major emitting facility, they must first obtain a PSD permit prior to construction.[196] To obtain a PSD permit, they must show, to the satisfaction of some state-environmental-agency or EPA bureaucrat, that they will use the "Best Available Control Technology" (BACT) to reduce emissions.[197] They must also demonstrate, under section 110, a "system of continuous emissions reduction"[198] and, under section 165, that their emissions will not violate any "maximum allowable increase or . . . concentration . . . in any area" or any emissions standard or standard of performance under the CAA, to include not causing nonattainment downwind.[199] Complying with section 165 is often a headache for owners and operators of major sources emitting conventional pollutants, but compliance with this provision could be easily demonstrated and such downwind matters quickly dispensed with in the context of CO2.[200]

Regulators must determine BACT on a "case-by-case" basis according to the Act[201] and hold a public hearing on each application.[202] As mentioned, to legally operate a major stationary source, owners and operators must also obtain a Title V operating permit.[203] A Title V permit comes with no substantive requirement on its own; rather, the permit requires an accounting of compliance with all regulations stemming from the Act applicable to that source, which usually means more paperwork. Title V does, how-

193. *Id.* § 7479(1) (defining "major emitting facility" within PSD and stating both thresholds and the enumerated categories for the 100 tpy threshold).

194. *Id.* §§ 7661(2)(B), *citing id.* § 7602(j) (stating the Act-wide definition for the terms "major emitting facility" or "major stationary source" and that the 100 tpy threshold applies "[e]xcept as otherwise expressly provided").

195. *See supra* notes 146 and 147.

196. 42 U.S.C. §§ 7475(a)(1), 7479(2)(C).

197. *Id.* § 7475(a)(4).

198. *Id.* § 7410(j).

199. *Id.* § 7475(a)(3).

200. *See generally id.* § 7410; *supra* notes 151-53 and accompanying text; *infra* notes 207-208 and accompanying text; *infra* Part XIII.B.4.

201. 42 U.S.C. § 7479(3) (defining BACT).

202. *Id.* § 7475(a)(2), (c).

203. *Id.* § 7661a(a).

ever, come with procedural requirements.[204] Like with PSD, public hearing must be held on each application, and an interested party can appeal the decision at the administrative level and ultimately in state or federal court if they have standing.[205] As stated earlier in Part I.B, the public hearings over PSD and Title V permits could be quick affairs for non-anyway sources of GHGs. Furthermore, the massive mess of litigation over local effects and interstate-transport of emissions could be avoided in the case of GHGs. That is, that CO2 emissions have no direct, localized effects should enable parties to effectively bypass the complex demonstrations required by section 165[206] and enable the courts to deny standing to petty obstructionists and any party but a state.[207]

Ultimately, should a region fail to attain a NAAQS and run out of time on the deadline, that region will fall into nonattainment.[208] The Nonattainment New Source Review (NNSR) provisions comprising Part D of Title I of the Act govern New Source Review for major emitting facilities in nonattainment regions.[209] NNSR subjects owners and operators of major emitting facilities to onerous regulations. Among other things, NNSR requires offsets,[210] authorizes and encourages fees,[211] and requires, instead of BACT, the rather extreme "Lowest Achievable Emissions Rate" (LAER)[212] for the permitted construction of a new major emitting facility or modification of an existing one.[213] Nonattainment can be viewed as a punitive measure, because it can seriously impair the industrial

204. *See generally* UARG v. EPA, 573 U.S. 302, 323 (2014) (explaining required procedures under Title V).

205. *See generally* CAA HANDBOOK, *supra* note 6, at 177-180 (explaining public hearing requirement and appeals procedure).

206. *See infra* Part XIII.

207. *See supra* note 153 and accompanying text.

208. 42 U.S.C. §§ 7407(d), 7501(2).

209. *See generally id.* §§ 7501-7515 (stating plan requirements for nonattainment areas).

210. *Id.* § 7503(c). This requirement stands to have the most devastating economic impact under a nonattainment GHG NAAQS scenario. *See* Lewis *supra* note 52 (concluding that offsets in a nonattainment GHG NAAQS scenario would lead to a "de-facto moratorium on [economic] growth").

211. 42 U.S.C. § 7502(c)(6).

212. *Id.* § 7501(3).

213. For other requirements, see *id.* §§ 7502 ("Nonattainment plan provisions in general"), 7509 ("Sanctions and consequences of failure to attain"); *see also, e.g.*, *id.* §§ 7507 ("New motor vehicle emission standards in nonattainment areas"), 7506a ("Interstate transport commissions").

growth of a region, but its ultimate purpose is to get a region back into attainment.[214]

Overall, EPA and the States have powerful incentives to see their regions attain and maintain the NAAQSs. For example, attaining and maintaining the ozone NAAQS, which was recently lowered and thereby made harder to achieve, has been an ongoing struggle for hundreds of regions and most large cities.[215] In fact, one of the reasons Congress added the PSD program in the 1977 Amendments, arguably its *sole* reason,[216] was to "prevent[ ]" nonattainment.[217] Numerous regions, most major cities, and every major metropolis in the U.S. are at various levels of nonattainment, from moderate to severe, for at least one criteria air pollutant.[218] State, county, and city governments are familiar with the NAAQS regulations and acutely aware of the economic costs of nonattainment.

Finally, the CAA requires that a NAAQS be reviewed every five years,[219] and because the economic impact of nonattainment can cost a region billions of dollars, there are extensive lobbying efforts by states, cities, and industry groups to prevent EPA from lowering a NAAQS upon each review, especially for the ozone standard.[220] In fact, some legislators have at times introduced legislation that would prevent EPA from setting tougher standards.

Again, should a state become recalcitrant, EPA has the option of cutting off federal highway funding for the state under the Act.[221] No EPA Administrator has ever done this, but Congress did give EPA this tool to gain compliance.

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214. Demonstrating LAER and finding offsets for a source, so that there is no net addition in emissions of a criteria air pollutant within a region, are often the toughest challenge for owners and operators. *See id.* § 7503(c) (explaining offset requirement).

215. *See generally* CAA HANDBOOK, *supra* note 6, at 5-8 (outlining history of Act); *see also* CURRENT NONATTAINMENT COUNTIES FOR ALL CRITERIA AIR POLLUTANTS, EPA GREENBOOK, http://www3.epa.gov/airquality/greenbook/ancl.html (last visited Jul. 11, 2019) [hereinafter NONATTAINMENT COUNTIES] (listing nonattainment counties).

216. *Cf.* Coal. for Responsible Regulation, Inc. v. EPA, No. 09-1322, 2012 WL 6621785, at *15 (D.C. Cir. 2012) (Kavanaugh, J., dissenting).

217. 42 U.S.C., Ch. 85, Subch. I, Pt. C, Subpt. I.

218. NONATTAINMENT COUNTIES *supra* note 216.

219. 42 U.S.C. § 7409(d)(2)(B).

220. *See* James E. McCarthy & Kate Shouse, *Implementing EPA's 2015 Ozone Air Quality Standards*, Congressional Research Service, 7-5700, R43092, p. 4 (Aug. 16, 2018), http://crsreports.congress.gov/product/pdf/R/R43092 (discussing drastic impact of EPA tightening standard). In 2015, EPA's lowering the O3 NAAQS from .75 parts-per-billion (ppb) to .70 ppb caused fifty-two regions spanning 200 counties or partial counties and two tribal areas to fall into nonattainment. *Id.*

221. 42 U.S.C. § 7509(b)(1).

Suffice to say, the NAAQS program of the CAA is powerful statutory law and more than a little complex, and environmental regulation by EPA and the States under its provisions has spawned an immense amount of litigation over the years. But scholars and historians cannot deny that this "central construct" of the CAA has stood the test of time, and although many cities struggle to attain the standards for ozone and particulate matter,[222] the NAAQS program has generally proven effective in mostly eliminating dangerous concentrations of the criteria pollutants across the nation.[223]

A good number of scholars, EPA officials, and Justices Alito and Thomas believe, however, that this effectiveness is limited to those pollutants that are "conventional" by nature or have "localized effects."[224] The terms "conventional pollutants," "conventional gases," "traditional gases," "traditional pollutants," "localized" or "local effects" appear nowhere in the Act, but they seem to be used to describe regional pollutants with short atmospheric lives that pose *direct* threats to health or welfare. CO2 and CH4 do not share these characteristics; but that should not mean that CO2 and other GHGs like methane get a free pass, especially not when there is a way for the NAAQS program to work as designed for GHGs and, possibly, protect public welfare from the dangers of climate change without impairing economic growth.

## III. RISING CONCENTRATIONS OF CO2 AND CO2EQ ARE UNDOUBTEDLY A THREAT TO PUBLIC WELFARE UNDER THE CAA, BUT WHAT ABOUT PUBLIC HEALTH?

The Secondary GHG NAAQS regulation proposed in this article would start with the EPA Administrator listing GHGs as a collective criteria air pollutant and, within that listing, identifying the rising GHG concentrations causing climate change as a threat to public welfare.[225] Such an endangerment finding, with regard to

222. *See* NONATTAINMENT COUNTIES *supra* note 216.

223. *See* CAA HANDBOOK, *supra* note 6, at 2-9 (describing NAAQS program development); *see also, e.g.*, Popovich *supra* note 9 (explaining improvements in air quality).

224. *See* Nordhaus, *supra* note 4, at 61 ("Criteria pollutant regulation, as it was originally conceived in 1970, was designed to deal with localized concentrations of pollutants with short-residence times in the atmosphere"); Jonathan Adler, *Massachusetts v. EPA Heats Up Climate Policy No Less Than Administrative Law: A Comment on Professors Watts and Wildermuth*, 102 NW. U.L. REV. COLLOQUY 32, 39-40 (2007) ("the SIP process was designed for controlling localized, ambient pollution problems, not protecting the global atmosphere"), *citing* Jonathan Wiener, *Think Globally, Act Globally: The Limits of Local Climate Policies*, 155 U. PA. L. REV. 1961 (2007); *see also supra* note 163.

225. 42 U.S.C. § 7408(a)(1)(A).

welfare, would be reiterative of the EPA's 2009 Endangerment Finding.[226] Given the current and anticipated impacts of human-made climate change[227] and Congress' addition of "effects . . . on climate" in the NAAQS provision on welfare in 1990, such a finding should not be surprising.[228]

The GHG NAAQS regulation proposed by this article, however, would also require that the EPA Administrator refrain from identifying climate change as a threat to public health within the criteria-air-pollutant listing, because such a finding would require the establishment of a Primary NAAQS for GHGs.[229] As this paper will cover in Part VII.E, a Primary NAAQS for GHGs simply cannot work as designed and would devastate the U.S. economy. One should not have to "destroy the town to save it," as the saying goes, from global warming.[230] Bottom-line, for any GHG NAAQS regulatory regime to stand a chance of being upheld by the Supreme Court, it cannot include a Primary NAAQS.[231]

Arguing that climate change is a threat to public welfare but not public health, at least as those terms are defined in the NAAQS provisions, might not come naturally to environmentalists. Perhaps this is another reason why a long-range, Secondary NAAQS-only pathway has not been considered more. Nevertheless, a version of the argument can be made without denying the ill-effects on public health, as that term is normally defined, from global warming in excess of 1.5° Celsius.[232]

To begin, extreme weather events often kill people, and the global warming brought on by the rising level of global CO2/

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226. *See* Endangerment Finding, *supra* note 30, at 66,496.

227. *See* IPCC, 2018: GLOBAL WARMING OF 1.5°C, *supra* note 76, at 1-20; IPCC, 2014: SYNTHESIS REPORT AR5, *supra* note 15, at 12 fig. SPM.7, 14 fig. SPM.8; *see also* Steffan, Rockström, Richardson et al., *Trajectories of the Earth System in the Anthropocene*, 115 PROCEEDINGS OF NAT. ACADEMY OF SCIENCES (PNAS) 8252, 8252-59 (2018), http://www.pnas.org/content/pnas/115/33/8252.full.pdf (exploring risk of creating an irrevocable "Hot House Earth").

228. 42 U.S.C. § 7602(h).

229. *See id.* § 7408(a).

230. Peter Arnett, *Major Describes Moves,* N.Y. TIMES, Feb. 8, 1968, p. 14 (stating "It became necessary to destroy the town to save it"). The United States Major who said this "was talking about the decision by allied commanders to bomb and shell the town regardless of civilian casualties to rout the Vietcong."

231. *See* 42 U.S.C. § 7401(b)(1) (stating that one of the purposes of Title I is to promote not only the nation's "public health and welfare" but also "the productive capacity of its population"); Ala. Power Co. v. Costle, 636 F. 2d 323, 360-61, 360 n.89 (D.C. Cir. 1979) (recognizing a limitation on EPA's authority to enforce CAA in ways that lead to "futile results"); *see also* Reitze, *supra* note 56, at 417; ANPR, *supra* note 134, at 44,481; Glaser, *supra* note 52, at 52-53.

232. *See* IPCC, 2018: GLOBAL WARMING OF 1.5°C, *supra* note 76, at 1-20.

CO2eq is, indeed, causing more extreme weather events.[233] There will also be a lot more extreme weather events causing death and mayhem if the world heats up by 3-5° Celsius by 2100, as projected under a business-as-usual scenario, and heats up more and more thereafter.[234] For perspective, 6°C is the approximate difference between an ice age and interglacial warm period.[235] Nevertheless, Congress saw fit to include "effects on . . . weather . . . and climate" in the provision on public welfare in the CAA and *not* in the provision for public health.[236]

To avoid the pitfall posed by a Primary NAAQS, the no-localized-effects nature of CO2 should once again help. That is, CO2 emissions pose no direct, "localized," or regional threat to public health; rather, the threat stems only from the global aggregate of CO2 and CH4 over the long-term.[237] Breathing in outside air with triple or even quadruple the average preindustrial level of global CO2 has no physiological effect on the human body.[238] Thus, the EPA Administrator should be able to avoid concluding that CO2 in the ambient air is a threat to public health in a section 108 listing.[239]

As for public welfare, the rise of global CO2/CO2eq, with its "effects on . . . climate," is most definitely a threat, especially if one gives any consideration whatsoever to future generations.[240] Doing nothing about CO2 emissions will destine future generations to a

233. *See* Thomas Karl & Richard Katz, *A New Face for Climate Dice*, 109 PNAS 14720 (Sept. 11, 2012) (contrasting likeliness of extreme weather today than earlier decades); James Hansen, Makiko Sato, & Reto Ruedy, *Perception of Climate Change*, 109 PNAS E2415 (2012); *see also* Andrew Revkin, *How Humans are Loading the Climate Dice*, N.Y. TIMES: DOT EARTH (Apr. 8, 2012, 3:31 PM), http://dotearth.blogs.nytimes.com/2012/04/08/a-fresh-look-at-how-humans-are-loading-climate-dice/ (discussing James Hansen's updated analysis of greenhouse gases impact on extreme weather).

234. *See* R.E. Kopp, K. Hayhoe, D.R. Easterling et al., *Potential Surprises - Compound Extremes in* FOURTH NATIONAL CLIMATE ASSESSMENT, VOL I., U.S. GLOBAL CHANGE RESEARCH PROGRAM, 411-429 (D.J. Wuebbles et al., eds.2017), http://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf; *see also* Hans Joachim Schellnhuber et al., *Turn Down the Heat, Why a 4 Degrees C Warmer World Must Be Avoided, A Report for the World Bank by the Potsdam Inst. for Climate Impact Research and Climate Analytics*, POTSDAM INST. xiv (Nov. 2012), http://documents.worldbank.org/curated/en/865571468149107611/pdf/NonAsciiFileName0.pdf.

235. *Id.* at 30 fig. 27.

236. 42 U.S.C. § 7602(h).

237. *See, e.g.*, ANPR, *supra* note 43, at 44,427 ("Current and projected levels of ambient concentrations of the six GHGs are not expected to cause any direct adverse health effects, such as respiratory or toxic effects").

238. *Id.*

239. *Id.* at 44,478.

240. *See* FOURTH NATIONAL CLIMATE ASSESSMENT, *supra* note 235, at 411-29.

"denuded world;"[241] one that stands to be, in many ways, ruined ecologically, impaired economically, and possibly irrevocably politically de-stabilized.[242] Again, doing nothing long enough should single-handedly usher in earth's sixth mass-extinction event, and that diversity of life lost would not come back for eons, if at all.[243] And to think, it will only have taken a few hundred years of modern industrial civilization for human beings to accomplish.

## IV. SOLVING THE DESIGN PROBLEM WITH A WELFARE-BASED, LONG-RANGE SECONDARY GHG NAAQS WITH A 350 PPM TARGET ON A TIMESCALE APPLICABLE TO THE INEVITABLE RISE AND HOPEFUL FALL OF GLOBAL CO2

The long-range Secondary NAAQS scheme this paper proposes would avoid the perpetual, nationwide status of nonattainment that has plagued every single proposal for a Primary GHG NAAQS.[244] The attainment date would be far off under this Secondary GHG NAAQS scheme, but such a framework would nevertheless demand unprecedented ambition and quick action, with the U.S. and its climate allies substantially reducing emissions starting immediately and getting other nations to do the same,[245] lest "emissions leakage" take effect and start killing U.S. jobs.[246] Environmentalists unfamiliar with the physics and timelines of climate change science might criticize this scheme's far-off attainment date, but it is the long-range aspect of this scheme that affords not only ambition, but

241. David Roberts, *If You Aren't Worried About Climate Change, You Aren't Paying Attention*, GRIST (Jan. 10, 2013), http://grist.org/climate-energy/climate-alarmism-the-idea-is-surreal/.

242. *See* ANPR, *supra* note 43, at 44,427 (projecting extreme consequences of climate change).

243. *See* Mark C. Urban, *Accelerating Extinction Risk from Climate Change*, 348 SCIENCE 571 (May 1, 2015); Illya M. D. Maclean & Robert J. Wilson, *Recent Ecological Responses to Climate Change Support Predictions of High Extinction Risk*, 108 PNAS 12,337 (July 26, 2011); Chris D. Thomas et al., *Extinction Risk from Climate Change*, 427 NATURE 145–148 (Jan. 8, 2004).

244. *Cf.* Crystal & Siegel et al., *supra* note 44, at 240; Rich Raiders, *How EPA Could Implement a Greenhouse Gas NAAQS*, 22 FORDHAM ENVTL. L. REV. 233, 276 (2011); Ari R. Lieberman, *Turning Lemons Into Lemonade: Utilizing the NAAQS Provisions of the Clean Air Act to Comprehensively Address Climate Change*, 21 BUFF. ENVTL. L. J. 1, 7-8 (2014); Kassie Siegel, Kevin Bundy, & Vera Pardee, *Strong Law, Timid Implementation. How the EPA Can Apply the Full Force of the Clean Air Act to Address the Climate Crisis*, 30 UCLA J. ENVTL. L. & POL'Y 185, 217 (2012).

245. *See* IPCC, 2014: SYNTHESIS REPORT AR5, *supra* note 15, at 8-9 (SPM 2.1) (identifying RCP2.6 as most stringent mitigation scenario); Meinshausen et al., *supra* note 59, at 215 n.1 (2011) (explaining both RCP 3-PD and RCP 2.6 "can be used interchangeably").

246. ANPR (response by Dept. of Commerce), *supra* note 140 and accompanying text, at 44,375.

also flexibility, practicability, and perhaps just enough time for market mechanisms[247] to take effect[248] and for the rest of the world to make in-kind reductions to avert dangerous climate change.[249]

As for the role of individual States, to do their part to achieve the long-range Secondary GHG NAAQS target proposed by this article, States would need to reduce their emissions by approximately nineteen percent per decade on average, based on 2014 levels, and achieve "net zero" emissions around 2072.[250] Alas, this would be very difficult. "Net zero"[251] is almost inconceivable at this point in time. However, a fifty-seven percent reduction over thirty years without significant economic cost is definitely in the realm of possible.[252] That being said, the regulation of GHGs through a Secon-

247. *See supra* note 186 and accompanying text.

248. *See generally* David Hone, *What Can Really Be Done by 2050?*, CLIMATE CHANGE NAT. FORUM (Feb. 15, 2015), http://climatechangenationalforum.org/by2050/ ("The development and deployment of radical new technologies takes decades . . . [T]he IT industry. . . needed nearly [fifty] years to invent (ARPANET in 1969) and extensively deploy the internet.").

249. *See* United Nations Framework Convention on Climate Change, Copenhagen Accord, U.N. Doc FCCC/CP/2009/11/Add.1, Art. 1, p. 5 (Dec. 18, 2009), http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf (stating that the "ultimate objective" of the international community is to keep global increase in temperature to below 2°C to "prevent dangerous anthropogenic interference with the climate system"); *see also infra* Part IX.A.2.

250. *See infra* Part IX.B (explaining how achieving RCP 3PD requires U.S. and rest of world to achieve "net zero" emissions by 2072).

251. *See* IPCC, 2018: GLOBAL WARMING OF 1.5°C, *supra* note 74, at Annex I, 555 (defining "[n]et zero emissions"). Achieving net zero emissions is also a stated goal of the Paris Agreement of 2016, albeit one that only a handful of countries, cities, and states are currently attempting to achieve by 2100. *See* United Nations Framework Convention on Climate Change, Paris Agreement, U.N. Doc FCCC/CP/2015/L.9/Rev. 1, Art. 4(1), p. 22 (Dec. 12, 2015), https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf (discussing voluntary terms of Paris Agreement).

252. *See, e.g.*, Russell Gold, *Building the Wind Turbines Was Easy, The Hard Part Was Plugging Them In*, WALL STREET J. (updated Jun. 22, 2019, 12:01 AM), http://www.wsj.com/articles/building-the-wind-turbines-was-easy-the-hard-part-was-plugging-them-in-11561176010 (reporting on Michael Skelly's efforts to transform nation's grid infrastructure to enable substantially more energy from wind and solar and political obstacles that stymied his efforts).

> One 2016 study by [NOAA] concluded that by 2030, the U.S. could cut its [CO2] emissions by 80%, using only existing technologies. And the cost of power wouldn't rise. In fact, it would be cheaper. The scenario didn't rely on some hoped-for storage breakthrough, just the construction of a network of transmission lines similar to Skelly's plans . . . . A different group of researchers at the National Renewable Energy Laboratory [found that] to get the biggest reduction and lowest generating cost . . . the U.S. needed to build a new overlay of transmission lines . . . . Thirty percent was doable, they concluded. The question is 50% and beyond.

*Id.* (citing Alexander MacDonald et al., *Future Cost-Competitive Electricity Systems and their Impact on US CO2 Emissions*, 6 NATURE CLIMATE CHANGE 526 (Jan. 25, 2016), http://www.nature.com/articles/nclimate2921 (the NOAA study); Aaron Bloom

dary NAAQS would increasingly become economically disadvantageous and arguably futile if most of the rest of the world were to *not* reduce their emissions in kind. But when writing the NAAQS provisions, Congress never asked that a state solve a global pollution problem on its own. Rather, in the "but for emissions emanating from outside of the United States" provision of section 179B, Congress only requires that a state do its part, which is what this proposed scheme would accomplish if implemented.[253] As for the issue of getting other nations on board: that would be an ongoing task for the State Department and the President.[254]

## V. MANAGING THE THRESHOLDS PROBLEM WITH NEW RULES

Concocting a hypothetical GHG NAAQS permitting regime that is both manageable and capable of being upheld by the Supreme Court is a challenge considering that, among other things, any GHG NAAQS regime would seemingly require the preconstruction-permit and operating-permit regulation of stationary sources of GHGs at the 250 and 100 tpy thresholds.[255] But the challenges posed by PSD and Title V are not as insurmountable as the attorneys for EPA claimed in their arguments before the Court in *UARG*.

The regulatory fallout could be contained and managed. In fact, like solving the design problem, managing the thresholds problem requires no contortion of the Act's provisions or "tailoring" of its text. Rather, the solution simply calls for the CAA to be enforced as written. Though with regard to the newly regulated smaller sources, the permitting provisions would need to be enforced at the absolute minimum level necessary to comply with the law, so that the burden on the newly regulated smaller sources is drastically alleviated and regulators do not get bogged down.[256]

As mentioned, if the permitting provisions could be enforced without imposing heavy regulatory and procedural burdens on the relatively small sources, the resulting scheme would attack the as-

et al., *Eastern Renewable Generation Integration Study,* NAT. RENEWABLE ENERGY LABORATORY, NREL/TP-6A20-64472-ES, 148 (Aug. 2016), http://www.nrel.gov/docs/fy16osti/64472.pdf).

253. *See* 42 U.S.C. § 7509a(a) (2012).

254. *But see* 42 U.S.C. § 7415(b) (enabling foreign country to appear at public hearing associated with any revision of state plan under certain conditions).

255. *See* UARG v. EPA, 573 U.S. 320 n. 6 (2014) (citing Coal. for Responsible Regulation, Inc. v. EPA, No. 09-1322, 2012 WL 6621785 *15 (D.C. Cir. 2012) (Kavanaugh, J., dissenting)); *see also* Hennessee, *supra* note 37, at 1100; *id. supra* note 105 and accompanying text.

256. *See UARG*, 573 U.S. at 322 (predicting frightening regulatory backlog and economic costs if burden was not alleviated and regulators got bogged down).

sumption but not the principle espoused by the Court in dictum in *UARG*.[257] The principle that Congress designed PSD and Title V to only apply to those sources capable of shouldering the regulatory burden imposed by the programs would not be challenged.[258] This would require a small revolution in the rules on how EPA and state environmental agencies enforce the CAA's permitting provisions; but unlike with the law, agencies can change rules.[259]

Take for example a stationary source's use of the "Best Available Control Technology" to reduce emissions, which is the most substantive requirement that an owner or operator must comply with to obtain a PSD permit.[260] Again, BACT must be determined "on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs."[261] But nowhere does the Act state the application process has to be a long, drawn-out affair. If the administration of such permits could be drastically streamlined through new rules so that the regulatory burden is *dramatically* alleviated, then EPA and the States could regulate the multitude of small sources of GHGs that are swept into PSD without violating the burden-centric principle espoused in dictum by a majority of the Court in *UARG* regarding what Congress intended.

EPA and state environmental agencies could take inspiration from the Texas Department of Public Safety (Texas DPS). In 2016, the Drivers Licenses Services department of the Texas DPS administered 4.7 million examinations, issued 6.6 million drivers licenses and identification cards, and maintained records for over 32 million Texan citizens.[262] This mass-volume regulation, however, did not prevent Texans from getting their licenses relatively quickly or take up a large portion of the budget.[263] EPA and state environmental agencies, alternatively, could take a cue from a large city's

257. *Id.*

258. *Id.* (indicating Congress' reasoning behind Tile V and PSD).

259. *See* U.S. CONST. art. II, §3; *see also UARG*, 573 U.S. at 327.

260. 42 U.S.C. § 7475(a)(4) (stating BACT requirements).

261. *Id.* § 7479(3).

262. *See, e.g.*, Legislative Appropriations Request for Fiscal Years 2018 and 2019, Dept. of Public Safety 152 (Sept. 9, 2016), *available at* http://www.dps.texas.gov/LBB/lar2018-19.pdf.

263. *Compare id.* at 12 (noting 121,521,549 dollars in annual expenses for 2016), *with* Aman Batheja & Becca Aaronson, *A Closer Look at the Final 2016-17 State Budget*, THE TEXAS TRIBUNE (Jun. 2, 2015) http://www.texastribune.org/2015/06/02/look-final-2016-17-budget/ (reporting that Texas government was budgeted to spend 209.8 billion dollars over 2016 and 2017). If one were to split that two-year budget in equal parts, then the cost of the Driving Licensing Services of the Texas DPS comprised approximately 0.12 percent of the 2016 portion of the Texas budget. *Id.*

food inspection department that inspects over ten thousand food establishments in a given year but somehow finds a way to protect citizens from food poisoning and abide by city ordinances and the law without undermining free enterprise.[264] Granted, a few *million* currently unregulated sources of GHGs stand to be swept into the Title V operating-permit program, but unlike PSD, Title V comes with no substantive requirement on its own.[265] In fact, nothing in the Act should prevent an owner or operator of some insignificant stationary source of GHGs from obtaining an annual Title V permit online or at a public hearing in ten minutes.

In sum, Congress established some minimum standards in the CAA for permit applicants to meet and some procedures that regulators must adhere to, but Congress never specified just how burdensome or time-consuming these permitting regulations must be on businesses. The regulatory and procedural burdens *currently* imposed on entities regulated by PSD and Title V are "heavy."[266] This heaviness, however, is a consequence not of the law but of the rules that EPA and States have created to enforce and abide by that law.[267] Again, an agency can change its rules. Moreover, an agency *should* change its rules if they pose an obstacle to enforcing the law to protect public health or welfare.[268]

Bottom-line, the thresholds problem concerns the rules—not the law itself. Tackling this problem calls for some substantial changes to the rules and a different administrative philosophy among regulators, but what it does not require is some exotic interpretation of the Constitution's separation of powers[269] or edit of

264. *See, e.g.*, City of Chicago, Food Inspection, Forecasting (2014-2017), http://chicago.github.io/food-inspections-evaluation/ (detailing breadth of health inspections done by City of Chicago Dept. of Public Health) (last visited July 14, 2019).

265. *See* UARG v. EPA, 573 U.S. 302, 322 (2014) ("The number of sources required to have permits would jump from fewer than 15,000 to about 6.1 million"), *citing* Tailoring Rule, *supra* note 80, at 31,562-31,563.

266. *UARG*, 573 U.S. at 322 (discussing Title V and PSD's burdens).

267. *See* Buzbee, *supra* note 85, at 76.

268. *See UARG*, 573 U.S. at 322 (citing U.S. CONST. art. II, § 3).

269. *See, e.g.*, Juliana v. United States, No. 18-36082, *oral argument held* (9th Cir. June 4, 2019); Benjamin Hulac & Ellen Gilmer, *Kids' Case Tests 'Hail Mary' Climate Argument*, CLIMATEWIRE ("[Plaintiffs] demand a court order saying the government has undermined their rights to a safe climate, as well as a court-mandated national plan to phase out fossil fuels across the United States"); Brief by Appellants at 9-10, *Juliana v. United States*, No. 18-3608 ("[A] single district judge may not . . . seize control of national energy production, energy consumption, and transportation in the ways that would be required to implement Plaintiffs' demanded remedies"); *see also id.* at 54, *citing* Am. Elec. Power Co. v. Connecticut, 564 U.S. 410, 424, (June 20, 2011) ("We hold that the [CAA] and the EPA actions it authorizes displace any federal common-law right to seek abatement of [CO2] emissions from fossil-fuel

the Act's text.[270] Finally, that the thresholds issue poses more of an administrative challenge than a statutory obstacle should not be a surprise. After all, when writing the "central construct"[271] of the Act that protects public health and/or welfare from pollution deriving from "numerous or diverse sources,"[272] Congress never added a provision that said 'if the sources are seemingly *too* numerous or diverse, if international emissions contribute to the problem, or if current rules would make enforcement difficult, then disregard these mandates.'

## VI. USING A 350 PPM TARGET AND ATTAINMENT DATE BASED ON REPRESENTATIVE CONCENTRATION PATHWAY 3PD, WHICH HAS A JUST BARELY, MORE-LIKELY-THAN-NOT-CHANCE OF KEEPING GLOBAL WARMING UNDER TWO DEGREES CELSIUS BY 2100

Ultimately, the protection of public welfare from the threat of human-made global warming and ocean acidification requires the reduction of CO2 concentrations in the outside air.[273] As mentioned, however, reducing global CO2 is not something that a state or the U.S. can achieve alone.[274] According to the scientists of the Intergovernmental Panel on Climate Change (IPCC) and Potsdam Institute, stabilizing the trajectory of global CO2 and ultimately bringing the concentration back down to ~350 ppm, which is where it was in late 1980s, is a task for the entire world to accomplish over the next few centuries. This estimate is based on the IPCC's Representative Concentration Pathway 2.6 (RCP 2.6), which is the most ambitious climate change mitigation scenario developed by scientists in the IPCC's 2014 Report and is "interchangeable" with RCP 3PD.[275]

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fired powerplants . . . . [The] Act 'speaks directly' to emissions of carbon dioxide from the defendants' plants.").

270. *See* Tailoring Rule, *supra* note 80, at 31,567.

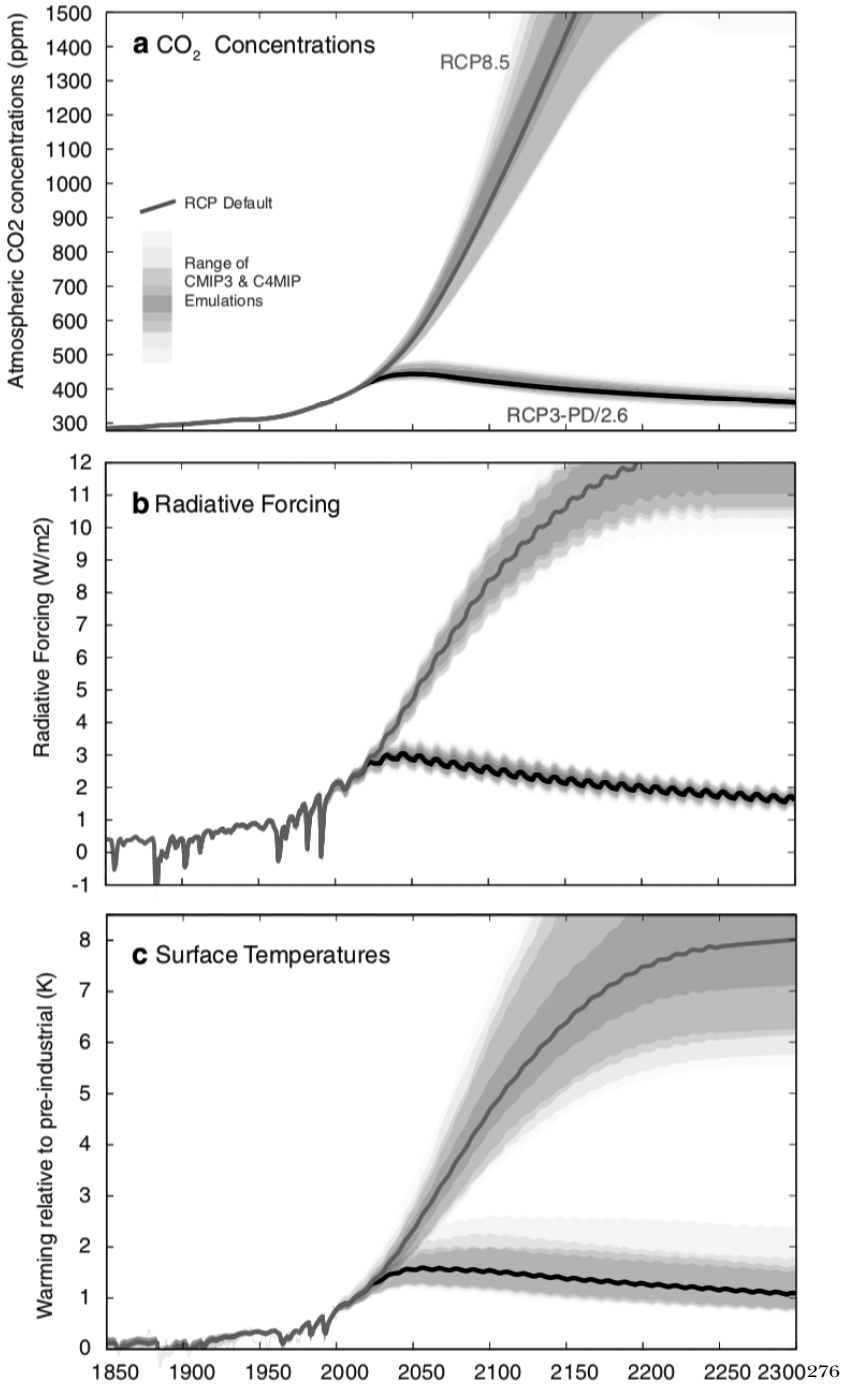
271. Tsang & Wyatt, *supra* note 3, at 1.

272. 42 U.S.C. § 7408(a)(1)(B) (2012).

273. *See* Meinshausen et al., *supra* note 57, at 233 fig. 6; IPCC, 2014: SYNTHESIS REPORT AR5, *supra* note 15, at fig. SPM.7, 14 fig. SPM.8.

274. *See* ANPR, *supra* note 43, at 44,362.

275. *See* Meinshausen et al., *supra* note 59, at 215 n. 1.




276. *See id.* at 233 fig. 6.

In short, no state, much less all the nations of the world working together, could ever reduce the annual ambient concentration of CO2 in the five to twelve year timeline for a Primary NAAQS.[277] Nor could a state, or the United States for that matter, have any worthwhile influence on the trajectory of global CO2 under any *traditional* timeline for a Secondary NAAQS.[278] Recognizing this, most scholars have given up on using the NAAQS program to fight climate change, because any GHG NAAQS that is around the arguably safe level of 350 ppm CO2/CO2eq with an attainment deadline ten years or even a hundred years into the future would inevitably be missed, resulting in "the entire country . . . [having a] nonattainment status with no realistic expectation that any measure taken as part of a SIP would lead to attainment of the standard."[279]

This article demonstrates, however, that a Secondary GHG NAAQS with an attainment date in the *far* distant future addresses these issues, and it specifically proposes a Secondary GHG NAAQS of 350 CO2/CO2eq by 2351 based on RCP 3PD[280] or an updated-RCP 3PD. But first, a little history on the GHG NAAQS issue is worth telling.

## VII. THE HISTORY OF THE GHG NAAQS ISSUE & GHG REGULATION UNDER THE CAA

### A. Early GHG NAAQS Litigation Between Three States and EPA in 2003

Such concerns over a GHG NAAQS as those mentioned above, if thought of at all, did not stop the Attorneys General for Massachusetts, Connecticut, and Maine from once suing EPA in 2003, demanding, albeit briefly, that EPA establish a NAAQS for GHGs.[281] This one and only lawsuit over a GHG NAAQS was short-lived. The Attorneys General agreed to a dismissal of the lawsuit early on in federal district court, thankfully without prejudice.[282] The three States then joined, along with a collection of other States

277. *Id.*

278. *Id.*

279. Reitze, *supra* note 56, at 417.

280. *See* Meinshausen et al., *supra* note 59, at 215 n. 1.

281. Complaint at 4, Massachusetts v. Whitman, No. 3:03CV00984 (D. Conn. filed June 4, 2003). Maine and Connecticut joined Massachusetts shortly after the complaint was filed. *Id.*

282. Plaintiff's Notice of Dismissal Without Prejudice, Massachusetts v. Horinko, 3:03CV984 (D. Conn. voluntarily dismissed Sept. 3, 2003).

and local governments, an appeal of EPA's denial[283] of a petition[284] by the International Center for Technology Assessment and eighteen other non-governmental entities. The petition had called for EPA to regulate GHG emissions in new motor vehicles under section 202(a) of the Act.[285]

Perhaps the Attorneys General for Massachusetts, Connecticut, and Maine analyzed how a GHG NAAQS could play out and became alarmed; or perhaps they realized that given the interconnected nature of the CAA, whereby regulation under one part triggers or at least sets the conditions for triggering a cascading effect regulation in other parts, all they needed to accomplish was a foray. Whatever their reason, they dropped the NAAQS lawsuit early on and moved forward with the Title II lawsuit; and it was a good move, because that Title II lawsuit was ultimately resolved by the Supreme Court in *Massachusetts v. EPA*.[286]

### B. *Massachusetts v. EPA*

Decided in 2007, late in President Bush 43's administration, *Massachusetts v. EPA* opened the door for EPA and the States to regulate CO2 and other GHGs to protect public health and public welfare from the dangers of human-made climate change.[287] The decision sent proverbial shockwaves through the halls of Congress and walls of boardrooms. To environmentalists, the original petitioners and champions of the Act's potential to protect the public from climate change, the decision was a resounding success and cause of new hope.

In the opinion, written by the recently passed Justice John Paul Stevens, the Court held, five to four, that carbon dioxide, methane, and the less common GHGs of nitrous oxide and hydrofluorocarbons are pollutants under the Act's capacious definition of the

283. Control of Emissions from New Highway Vehicles and Engines, 68 Fed. Reg. 52,922, 52,927 (Sept. 8, 2003) (including notice of denial of petition for rulemaking), *relying upon* Memorandum from Robert Fabricant, EPA Gen. Counsel, to Maryann Horinko, Acting EPA Adm'r (Aug. 28, 2003) (rebutting argument from Cannon memo, *infra* note 462, at 1).

284. International Center for Technology Assessment, Petition for Rulemaking and Collateral Relief Seeking the Regulation of Greenhouse Gas Emissions from New Motor Vehicles Under § 202 of the Clean Air Act, at 13-24 (Oct. 20, 1999), http://www.ciel.org/Publications/greenhouse_petition_EPA.pdf (last visited July 14, 2019) (petitioning EPA Adm'r).

285. Amended Petition for Review at 1, Massachusetts v. EPA, No. 03-1361 (D.C. Cir. Oct. 30, 2003).

286. 549 U.S. 497 (2007).

287. *Id.* at 532-534; *see also, e.g.,* Greenhouse *supra* note 28.

term.[288] The Court also held that the EPA Administrator therefore had a non-discretionary duty to determine whether the gases endanger public health and welfare for purposes of Title II or, at the very least, give some valid reason why such a determination could not be made.[289]

Legal scholars and EPA officials, well aware of the CAA's interconnected nature and familiar enough with the science of climate change, instantly recognized that it would be just a matter of time, perhaps the next administration, before GHG regulation came into effect under Title II and then under other parts of the Act.[290]

### C. The GHG NAAQS Issue in the Aftermath of *Massachusetts v. EPA*

*Massachusetts v EPA* caused hand wringing among EPA officials appointed by President Bush 43. EPA Administer Stephen Johnson saw the decision as a harbinger of a potentially massive expansion of EPA authority and regulation over vast swathes of the U.S. economy, given the ubiquity of GHG emissions, the NSR and Title V thresholds, and the potential for a GHG NAAQS.[291] Yet, to his credit and that of his successor, acting-Administer Marianne Horinko, EPA staff were allowed to thoroughly analyze, seemingly unimpeded, how GHG regulation under the CAA could possibly work. In 2014, before President Barack Obama took office, EPA published their findings and called for comments through its promulgation of the ANPR.[292] In response, EPA received over 295,000 comments.[293]

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288. *Id.* at 529, 532-34 (describing Court's holding).

289. *Id.* Justice Stevens was joined by Justices Kennedy, Ginsberg, Souter, and Breyer. *Id.* Chief Justice Roberts and Justice Scalia filed dissenting opinions. *Id.*

290. *See, e.g.*, Duane Desidero, *Climate Change Litigation Overview*, SN005 ALI-ABA 687, 692-93 (Aug. 2007). "If . . . EPA [finds that] . . . GHGs do in fact endanger the public by at least contributing to climate change, then . . . a snowballing effect may occur . . . . However, the intensity of the climate change regulatory debate will greatly amplify if EPA designates, or becomes forced to designate through litigation, CO2 and other GHGs as criteria pollutants." *Id.*

291. *See* ANPR, 73 Fed. Reg. 44,354, 44,355 (July 30, 2008) (Preface by Adm'r Johnson).

292. *See id.* at 44,397-44,520 (portions by EPA staff).

293. *See Advance Notice of Proposed Rulemaking for Greenhouse Gases under the Clean Air Act*, Regulations.gov, EPA-HQ-OAR-2008-0318, http://www.regulations.gov/docket?D=EPA-HQ-OAR-2008-0318 (last visited Jul. 16, 2019).

*1. The Surprisingly Positive Treatment of a Secondary NAAQS Pathway in the Bush 43 EPA's Advance Notice of Proposed Rulemaking*

Though the ANPR's analysis was prefaced with some grumblings over the *Massachusetts v. EPA* decision by EPA Administrator Johnson,[294] the authors of the ANPR nevertheless conducted a comprehensive and rather objective analysis.[295] Their conclusions, to the alarm of multiple cabinet secretaries, suggested that the CAA could possibly be "both workable and effective for addressing global climate change by regulating GHG emissions from stationary and mobile sources of virtually every kind."[296]

In fact, the ANPR is the first and only time that EPA has officially commented through the notice-and-comment rulemaking process on the "Opportunities and Challenges Afforded by NAAQS Pathway" for GHGs.[297] It is also the first time that a government official or scholar for that matter has explicitly pointed out that the attainment-timeline of a Secondary NAAQS, which can be long-term, might work for GHGs.[298] As for the five to twelve year timeline of a Primary NAAQS, however, the authors concluded that it was "inescapably" ill-suited for GHGs: "despite active control efforts to meet a NAAQS, the entire United States would remain in nonattainment for an unknown number of years."[299]

Surprisingly, EPA officials under President Bush 43, a Republican, gave serious and public consideration to regulation of GHGs through a Secondary NAAQS in the ANPR and seemingly treated it as a feasible regulatory pathway for a comprehensive climate policy. Again, the potential for a huge expansion in federal environmental regulatory authority and U.S. climate regulation was not lost on Administrator Johnson and President Bush's other cabinet members.[300] Interestingly, like with the early GHG NAAQS lawsuit in 2003, this early positive treatment of a Secondary GHG NAAQS pathway by EPA seems all but forgotten by scholars as of late.

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294. *See* ANPR, 73 Fed. Reg. at 44,355.

295. *Id.* at 44,476-44,486 (analyzing four GHG NAAQS scenarios, including "Secondary Standard with a Country in Attainment"). "Regulating GHGs through a NAAQS offers certain opportunities; however, there are also significant technological, legal and program design challenges . . . ." *Id.* at 44,485.

296. *See id.* at 44,355-60 (letter from Secs. of Agriculture, Commerce, Transportation, & Energy to Adm'r Susan E. Dudley).

297. *Id.* at 44,485.

298. *See id.* at 44,478, 44,481-82.

299. ANPR, 73 Fed. Reg. at 44,481.

300. *See id.* at 44,355-75.

*2. An Apex of Debate on the GHG NAAQS Question as President Obama Takes Office*

During the tumultuous aftermath of *Massachusetts v. EPA*, but before GHG regulation under the CAA officially began in the Obama Administration, debate over a GHG NAAQS reached an apex.[301] One is hard pressed, for instance, to find a law review article on the anticipated regulation of GHGs under the CAA from this period that does not first give serious consideration to the NAAQS program.

Around this time, more than a few respected CAA scholars argued that, design problems notwithstanding, the EPA Administrator might eventually be forced to list GHGs as a criteria air pollutant under *Chevron* step-one.[302] This potentiality was based on the threat posed by climate change and the arguably mandatory language of section 108[303] and was noted in the ANPR.[304] The case most cited by proponents of the mandatory duty argument is the long-standing 1976 decision of *Natural Resources Defense Council v. Train*[305] by the Second Circuit Court of Appeals. Leading up to the *Train* decision, EPA had already made an endangerment finding for lead under section 212 and had started to promulgate regulations under Title II to eliminate lead as a fuel additive. EPA conceded that lead met the prerequisites in section 108(a)(1)(A)-(B), but EPA was hoping to avoid setting a NAAQS for lead and argued that the Administrator had the discretion *not* to "plan to issue[ ] criteria" under section 108(a)(1)(C). The Second Circuit rejected this argument outright:

> Section 108(a)(1) contains mandatory language. It provides that 'the Administrator *shall . . . publish . . . a list . . . .' (Emphasis added.) If the EPA interpretation were accepted and listing were mandatory only for substances 'for which (the Administrator) plans to issue air quality criteria . . . ', then the mandatory language of [§] 108(a)(1)(A) would become mere surplusage. The determination to list a pollutant . . . , and the rigid deadlines of

301. *See* Chettiar & Schwartz, *supra* note 39, at 144-45 n. 282.

302. For a further discussion of the "*Chevron* two-step," see *infra* Part X.

303. *See* Richardson, *supra* note 17, at 289.

304. *See* ANPR, 73 Fed. Reg. at 44,476.

305. *See* Nat. Resources Def. Council, Inc. v. Train, 545 F.2d 320, 325-26 (2d Cir. 1976).

> [§] 108(a)(2), [§] 109, and [§] 110 for attaining air quality standards could be bypassed by him at will.[306]

The *Train* decision forced EPA to establish a lead NAAQS shortly thereafter. Just as litigation led the Second Circuit to force EPA to list lead as a criteria air pollutant and thereafter set a lead NAAQS, so too, scholars have argued, could litigation possibly force the hand of the D.C. Circuit and the Supreme Court to mandate that EPA list GHGs as a collective criteria air pollutant and thereafter establish a GHG NAAQS.[307] Granted, *Train* now would not even count as precedent in the D.C. Circuit;[308] the decision pre-dated the statutory interpretation analysis adopted by the Supreme Court in *Chevron, U.S.A., Inc. v. Natural Res. Def. Council*;[309] and the number of scholars making this mandatory duty argument has no doubt dwindled in light of *UARG*.[310] Back in the waning days of the Bush 43 administration and early days of the Obama administration, however, there was a zenith of debate over whether the EPA Administrator *must* list or *could* list GHGs as a collective criteria air pollutant and thereafter establish a NAAQS for the gases.[311]

Then, as President Obama took office and began establishing his administration, debate over a GHG NAAQS began to recede into the background. Debate and discussion over the matter then all but disappeared as the Obama EPA began pursuing a GHG regulatory policy that relied on other parts of the Act.

### D. The Obama EPA's Initiation of GHG Regulation Under the CAA

Taking office with a self-proclaimed mandate from the people to fight climate change, President Obama wasted little time before directing his first EPA Administrator, Lisa P. Jackson, to move forward with GHG regulation under the Act. The Obama EPA started with the 2009 Endangerment Finding,[312] then initiated GHG regu-

306. *Id.* at 324–25. "The structure of the Clean Air Act as amended in 1970, its legislative history, and the judicial gloss placed upon the Act leave no room for an interpretation which makes the issuance of air quality standards for lead under section 108 discretionary." *Id.* at 328.

307. *See* Richardson, *supra* note 17, at 285-87; *see also* McCubbin, *supra* note 5, at 452.

308. 42 U.S.C. § 7607(b)(1) (requiring all CAA regulatory challenges be heard by D.C. Circuit Court of Appeals).

309. Chevron, 467 U.S. 837, 843-44 (1984); *see also infra* Part X.

310. *See* Buzbee, *supra* note 85, at 72; Hennessee, *supra* note 37, at 1100.

311. *See* McCubbin, *supra* note 5, at 452; *see also* Richardson, *supra* note 17, at 284; Chettiar & Schwartz, *supra* note 39, at 306.

312. *See* Endangerment Finding, *supra* note 30, at 66,496.

lation under Title II and began promulgating GHG regulation under certain parts of Title I, but it always steered clear of the NAAQS provisions.

In response to this new regulation, a large number of states led by Republican governors, as well as the Chambers of Commerce, various industry groups, and free-enterprise think tanks filed lawsuits challenging the GHG regulation.[313] Other states led by Democratic governors and various environmental groups joined in the defense of EPA in these lawsuits,[314] and many environmental and a good number of business groups rallied to defend EPA in the courts of public opinion. But no state or environmental group ever brought a lawsuit against EPA calling for a GHG NAAQS like Massachusetts, Connecticut, and Maine had done briefly in 2003. Most environmentally progressive leaders and environmentalist groups seemed to have had their hands full defending the President's climate policy from incessant attack and were not interested in trying to force EPA down a completely different and possibly perilous regulatory path. There was one exception though early on. In 2009, two environmentalist groups had the gall, or courage depending on one's perspective, to petition EPA to establish a GHG NAAQS.[315]

### E. A Preposterous Petition for a Primary NAAQS for GHGs—Ignored for a Reason

The one and only petition calling for the establishment of a GHG NAAQS was filed in late 2009 by attorneys for 350.org and the Center for Biological Diversity.[316]

The petition, which has yet to be answered, calls for the establishment of a Primary GHG NAAQS of 350 CO2 ppm.[317] While its authors cite the scientific literature on atmospheric CO2 and projected climate impacts by the IPCC, they fail to confront the fact that their proposed regulation would cause nationwide nonattain-

313. *See* Leslie Kaufman, *A Surge in Lawsuits Challenging EPA on Climate*, N.Y. TIMES: GREEN (Nov. 3, 2010, 2:10 PM), http://green.blogs.nytimes.com/2010/11/03/a-surge-in-lawsuits-challenges-e-p-a-on-climate/.

314. *See* John Schwartz, *Courts as Battlefields in Climate Fights*, N.Y. TIMES (Jan. 26, 2010), http://www.nytimes.com/2010/01/27/business/energy-environment/27lawsuits.html.

315. *See* Ctr. Biological Diversity & 350.org, Petition to Establish National Pollution Limits for Greenhouse Gases Pursuant to the Clean Air Act (Dec. 2, 2009), http://www.biologicaldiversity.org/programs/climate_law_institute/global_warming_litigation/clean_air_act/pdfs/Petition_GHG_pollution_cap_12-2-2009.pdf (last visited Jul. 21, 2019).

316. *Id.* at 23-24 ("Petitioners request both a primary and secondary national pollution limit (NAAQS) of no more than 350 ppm CO2").

317. *Id.* at 2.

ment, with onerous LAER[318] and offset requirements for owners and operators of new or modified major sources[319] and impossible tasks for SIP planners[320] lasting well over a hundred years. Global CO2, which is set to be approximately 409 ppm in 2019 according to Mauna Loa,[321] will continue to rise over the next two decades even if the entire global community were to immediately implement the boldest climate change mitigation policies conceived by scientists and experts.[322] Destroying every fossil fuel-fired power plant, every cement, concrete, and steel plant, and every internal-combustion-engine on earth would not be enough to attain a Primary NAAQS of 350 ppm by its statutory deadline. Suffice to say, if such a proposed Primary GHG NAAQS were to somehow survive the scrutiny of the Supreme Court and be implemented, it would wreck the U.S. economy. But such regulation would never pass muster with the Court, because whatever Congress intended when it passed and twice amended the Clean Air Act, it did not include the nation committing economic seppuku in a futile attempt to achieve impossible climate goals.[323]

Such criticism was seldom heard, however, as EPA ignored the petition and so did most everyone else. The petition never garnered anything close to the level of controversy and press being generated by, for instance, the recent "Green New Deal" resolution proposed by Senator Ed Markey and Representative Alexandria Ocasio-Cortez.[324] Other environmentalist groups, not wanting to rock the boat, never joined the petitioners or championed any simi-

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318. *See* 42 U.S.C. § 7501(3) (stating that LAER reflects "the most stringent limitation which is achieved in practice by such class or category of source, whichever is more stringent").

319. *See id.* § 7503(c)(2012). This provision requires "offsets" for the permitting construction or modification of a major emitting facility in a nonattainment region. It requires owners and operators to offset their planned source's emissions by showing an emissions reduction is being made elsewhere in the region. *Id.*

320. *See* Nordhaus, *supra* note 4, at 62-63, *quoting* Reitze, *supra* note 56, at 417.

321. *See Up-to-date Weekly Average CO2 at Mauna Loa*, NAT. OCEANIC & ATMOS. ADM., http://www.esrl.noaa.gov/gmd/ccgg/trends/weekly.html (last visited Jul. 27, 2019); *NOAA Annual Greenhouse Gas Index*, *supra* note 56.

322. *See* Piers Forster et al., 2.SM Mitigation pathways compatible with 1.5°C in the context of sustainable development, Supplementary Material, Ch. 2, 2A-28 Tbl. 2.SM.12, *available at* http://www.ipcc.ch/site/assets/uploads/2018/11/sr15_chapter2_supplementary_materials.pdf (finding that scenarios with fifty-five percent chance of keeping global warming below 1.5°C approximately have a peak concentration of 423 CO2 ppm in year 2041), *supplementing* IPCC, 2018: GLOBAL WARMING OF 1.5°C, supra 76, at 99 (paragraph 2.1.3).

323. *See* Seppuku, ENCYCLOPEDIA BRITANNICA, http://www.britannica.com/topic/seppuku (last visited Jul. 21, 2019).

324. *See* H.R.J. Res. 79, 116th Cong. (2019); *see also generally* Lisa Friedman, *What Is the Green New Deal? A Climate Proposal, Explained*, N.Y. TIMES (Feb. 21, 2019),

lar policy. In fact, one is hard-pressed to find a comment by a mainstay environmental organization on the petition. It is almost as if they preferred that the petition be ignored and forgotten.

One of the authors of the petition, Kassie Siegel, and three other attorneys at the Center for Biological Diversity have recently published an update of the petition's argument.[325] The update, however, does not grasp that even with an "averaging time" for a Primary GHG NAAQS around or below current levels "span[ning] decades," a novel and somewhat confusing concept, the standard would still be missed, leading once again to nationwide nonattainment.[326] As for the petitioners themselves, 350.org and the Center for Biological Diversity have not followed up with any litigation, which suggests that they were never really serious about the petition or have since lost faith in the arguments of their attorneys. Whatever the case, the petition still sits unanswered at EPA.

### F. The Successes and Failures of the Obama EPA in the Fight Against Climate Change

Overall, what the Obama administration achieved in the fight against climate change was significant but limited. In terms of precedent, the Obama EPA did establish, indirectly, the foundation for all GHG regulation under the CAA with its 2009 Endangerment Finding; and the central conclusion of this finding—that GHG emissions causing climate change pose a danger—could never be easily challenged given the mountain of scientific evidence that EPA brought to bear to support the finding.[327] After President Obama took an active role in negotiations with automakers, the Obama EPA then established GHG regulation of cars and trucks under Title II and the long-standing federal statute governing "Corporate Average Fuel Economy" (CAFE) standards."[328] Later in President Obama's second term, EPA established new source performance standards (NSPS) under section 111(b) for newly constructed, fossil-fuel fired power plants.[329] The Obama EPA also

http://www.nytimes.com/2019/02/21/climate/green-new-deal-questions-answers.html.

325. Crystal & Siegel et al., *supra* note 44, at 233.

326. *Id.* at 265-66.

327. *See* Endangerment Finding, *supra* note 30, at 66,537.

328. *See* Tailpipe Rule, *supra* note 22, at 25,324; *see also* Energy Policy and Conservation Act of 1975, Pub. L. No. 94-163, § 2(1)-(5), 89 Stat. 874 (current version at 42 U.S.C. § 6201 (2012)).

329. Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units; Final Rule, 80 Fed. Reg. 64,510 (Oct. 23, 2015).

managed to establish PSD and Title V permitting regulations for stationary sources of GHGs *already* regulated by those programs without things getting out of control, though this was in no thanks to EPA's own legal arguments.[330] Some of the Obama officials' arguments in pursuit of GHG regulation under the CAA were quite bad, with the "tailoring" part of the Tailoring Rule being a repugnant example.[331] Though all in all, the Obama EPA can claim the 2009 Endangerment Finding and GHG regulation under Title II and NSPS as victories on the domestic front, as well as achieving more-or-less what the President intended with the PSD and Title V regulation of large sources of GHGs. But the Obama EPA blundered with regard to the Administration's most ambitious climate regulation, the Clean Power Plan (CPP),[332] which the Supreme Court stayed in its entirety just two months after the historic Paris Climate Agreement.[333]

Promulgated with much fan-fare and billed as the grand culmination of President Obama's Climate Action Plan, the Clean Power Plan is based on the seldom-used section 111(d), which grants EPA the authority to establish existing source performance standards for certain categories of large industrial sources.[334] Through the CPP, the Obama EPA tried to use this authority to not only establish heat-improvement rates in coal- and natural gas-fired power plants (building block 1) but also mandate increased levels of renewable energy generation for individual states (building block 3).[335] Regarding building block 3, the Obama EPA made an expansive claim of authority based on a creative interpretation of section 111(d)'s "best system of emissions reduction" that seems to go far beyond the authority granted by that section's text.[336] Attorneys and commentators for the mainstay environmentalist groups nevertheless praised the CPP after its promulgation, though the basis for this praise was likely more for what the CPP intended to accomplish

330. *See* Buzbee, *supra* note 85, at 67.

331. *See* Tailoring Rule, *supra* note 80, at 31,567.

332. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, Final Rule, 80 Fed. Reg. 64,661, 64,663 (October 23, 2015) (known as "Clean Power Plan" or "CPP").

333. *See* West Virginia v. EPA, 136 S. Ct. 1000 (Feb. 9, 2016) (mem.) (staying CPP in entirety until full review by Court). Justices Breyer, Ginsburg, Sotomayor, and Kagan dissented. *Id.*

334. *See* 42 U.S.C. § 7411(d).

335. *See generally* James E. McCarthy, Jonathan L. Ramseur et. al., *EPA's Clean Power Plan for Existing Power Plants: Frequently Asked Questions*, Congressional Research Service, at 16-17 (December 19, 2017), http://crsreports.congress.gov/product/pdf/R/R44341.

336. *See* CPP, *supra* note 333, at 64,626.

than for its solid legal foundation. At any rate, the CPP proponents' hopes were somewhat dashed when the Supreme Court issued its stay and then all but crushed by the election of President Donald J. Trump.

Just recently, the Trump EPA finalized a rule that attempts to replace the stayed-CPP with the "Affordable Clean Energy" rule.[337] This rule confines the "best system of emission reduction" to a power plant's heat-rate efficiency rate (basically building block 1 only) and provides States with a list of emissions control technology in this regard, leaving it to individual states to come up with a "standard appropriately tailored to each existing source."[338] As reported by the New York Times, "[t]he move largely gives states the authority to decide how far to scale back emissions, or not to do it all, and significantly reduces the federal government's role in setting standards."[339] Now that the Trump EPA has promulgated a replacement rule, "industry groups and red states have asked a federal appellate court to dismiss litigation over the CPP."[340]

The Supreme Court rarely issues stays of finalized rules, and only does so when there is, among other things, "a fair prospect that a majority of the Court will vote to reverse a judgment below."[341] Thus, in the unlikely event that the CPP, now stayed and abandoned, ever goes before the Court for a full review, I will wager that only a shell of its former self will survive intact.

Domestically, the stay of the CPP appears to be a crushing defeat for President Obama's legacy on climate change. Though ironically, on the international front, before the stay, the CPP served as key leverage in President Obama and Secretary of State John Kerry's negotiations with other world leaders leading up to the successful Paris Climate Agreement in late 2015.[342] That is, the CPP leant credibility to the United States' commitment and resolve on cutting GHG emissions and assisted the President in getting rela-

337. Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations, 84 Fed. Reg. 32,520 (July 8, 2019).

338. *Id.* at 32,550.

339. Lisa Friedman, *E.P.A. Finalizes Its Plan to Replace Obama-Era Climate Rules*, N.Y. TIMES (June 19, 2019), http://www.nytimes.com/2019/06/19/climate/epa-coal-emissions.html.

340. Pamela King, *Opponents Ask to Drop D.C. Circuit Challenge*, E&E NEWS (July 16, 2019), http://www.eenews.net/greenwire/stories/1060747661/.

341. Hollingsworth v. Perry, 558 U.S. 183, 190 (2010).

342. William Brangham, *Will a Surprising Supreme Court Move Shake the Paris Climate Accord?*, PBS NEWSHOUR (Feb. 10, 2016, 8:22 PM) http://www.pbs.org/newshour/bb/will-a-surprising-supreme-court-move-shake-the-paris-climate-accord/ (statement of Coral Davenport of New York Times).

tively comparable emissions-reduction pledges from the heads-of-state of other countries, such as China's Xi Jinping, which was crucial to the success in Paris.[343] The Paris Agreement is, of course, not a treaty, is entirely aspirational, calls for modest reductions as a whole, and has no enforcement mechanism other than perhaps social stigma among world leaders;[344] but it is nonetheless an unprecedented achievement, major milestone, and an important statement of worldwide solidarity to fight climate change.[345]

## G. Lessons and Takeaways from Paris and the Now-Stayed and Likely-Doomed Clean Power Plan

Of course, President Trump has derided the Paris Agreement and often goes about loudly declaring his intention to formally renege on the promise his predecessor made regarding emissions reductions—to "cancel" the Agreement in his words.[346] Though despite the sudden exit of U.S. leadership and commitment, much of the rest of the world seems to be attempting to carry out the modest reductions that their heads of state or representatives thereof promised in Paris in late 2015.[347] President Obama's use of the CPP can be partially attributed to that success, along with such things as European commitment, a not insignificant pledge by Xi Jinping for China, the vocal advocacy of nations whose very existence is threated by climate change, and French diplomacy in Paris.[348]

The Paris Climate Agreement and the pre-stay CPP can be criticized, however, for not being ambitious enough. Even if both were fully implemented, the emission reductions garnered would—on the international and domestic fronts, respectively—fall far short of

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343. *Id.*

344. *See, e.g.*, Simon Denyer & Brady Dennis, *As G-20 Reaffirms Fight Against Climate Change, Trump Stands Apart,* WASH. POST (June 29, 2019), http://www.washingtonpost.com/climate-environment/as-g-20-reaffirms-fight-against-climate-change-trump-again-stands-apart/2019/06/29/d3d96f22-9a68-11e9-830a-21b9b36b64ad_story.html.

345. *Id.*

346. *See, e.g.*, Louis Jacobson, *Trump-O-Meter: Cancel the Paris Climate Agreement*, POLITIFACT (Jan. 16, 2017), https://www.politifact.com/truth-o-meter/promises/trumpometer/promise/1379/cancel-paris-climate-agreement/ (providing President Trump's statements regarding Paris Agreement). "We're going to cancel the Paris Climate Agreement and stop all payments of U.S. tax dollars to U.N. global warming programs." *Id.*

347. Coral Davenport, *A Climate Deal, 6 Fateful Years in the Making*, N.Y. TIMES (Dec. 13, 2015), http://www.nytimes.com/2015/12/14/world/europe/a-climate-deal-6-fateful-years-in-the-making.html.

348. *Id.*

what is necessary to avert what reasonable people would call catastrophic climate change.[349] At any rate, unlike the Paris Climate Agreement, the CPP is likely doomed.

Looking back, one could view the CPP as an illustration of both the success and failure of the Obama Administration in the fight against climate change; an example of how ambition in a U.S. domestic climate policy can influence worldwide events; and, with regard to its now all-but-certain demise, a cautionary tale of why EPA should be wary of grabbing more authority than the Act's text seems to grant. This last lesson—that EPA should only claim authority clearly granted by the Act's text and nothing more—is perhaps most instructive moving forward.

## VIII. WAS PRESIDENT OBAMA TRYING TO FIGHT CLIMATE CHANGE WITH THE ARMY HE *WISHED* HE HAD?

In 2004, early on in the Iraq War, a young soldier preparing to deploy once asked Secretary of Defense Donald Rumsfeld in a question-and-answer session why he and his fellow soldiers had to dig through local landfills to equip their vehicles with make-shift armor to protect themselves against the increasingly deadly roadside bombs being laid by the enemy in Iraq. Rumsfeld's answer to the young cavalryman drew some ire, but it is instructive here: "You go to war with the army you have, not the army you might want or wish to have at a later time."[350]

Looking back, was President Obama trying to fight climate change with the army he *wished* he had? And if so, is the NAAQS program the army we have? When it comes to regulating GHGs to protect public health or welfare against climate change, the NAAQS program does seem to be the only CAA program that the Obama EPA did not try.[351] I argue that the NAAQS program is indeed "the army [we] have" and that it is far more powerful and flexible than people realize.

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349. *See* DOE's International Energy Outlook 2016, *supra* note 124, at 143 table 9-2 (noting that implementation of CPP is expected to decrease global GHG emissions by 0.2 percent over the 2012-2040 timeframe).

350. Eric Schmitt, *Iraq-Bound Troops Confront Rumsfeld Over Lack of Armor*, N.Y. TIMES, (Dec. 8, 2004), http://www.nytimes.com/2004/12/08/international/middleeast/iraqbound-troops-confront-rumsfeld-over-lack-of.html.

351. 42 U.S.C. § 7412.

## IX. SOLVING THE DESIGN PROBLEM WITH A SECONDARY NAAQS OF 350 PPM CO2/CO2EQ BY 2351 BASED ON RCP 3PD AND THE GOAL OF <2°C GLOBAL WARMING BY 2100

### A. A Secondary NAAQS of 350 ppm CO2/CO2eq by 2351 Is Ambitious

The NAAQS program can work as designed for GHGs and the protection of public welfare, because States can develop and implement SIPs that, but for international emissions, would achieve a Secondary NAAQS of 350 ppm of CO2eq by year 2351.

#### *1. On Year 2351*

Some environmentalists might initially balk and critics chuckle at an attainment date set in the same century as the science-fiction television series, *Star Trek Next Generation*,[352] but achieving this goal would require all nations of the world to immediately begin reducing emissions on par with one of the most ambitious climate change mitigation scenarios developed by climate scientists—RCP 3PD.[353] In short, this NAAQS target affords both ambition and time. Though, from an environmentalist's perspective, there is not much of a margin for safety here. On the other hand, from a capitalist and realist's standpoint, I do not see a more ambitious policy, like one giving us a more-likely-than-not chance of limiting global warming to 1.5°C by 2100, as feasible.[354]

#### *2. Marrying the 350 ppm Target with the International Goal of <2° C Global Warming by 2100*

If humanity immediately began reducing emissions in line with RCP 3PD (on track to achieve 350 ppm by 2351) upon the publishing of the IPCC AR5 back in 2014 *and* maintained reductions on par with RCP 3PD thereafter, we would barely have a more-likely-than-not chance (≈50.01 percent) of limiting man-made global

352. STAR TREK NEXT GENERATION (CBS television series 1987-1994).

353. Meinshausen et al., *supra* note 59, at 232 fig. 5. It is from the trajectory and decline of global CO2/CO2eq in RCP 3PD that I calculated 350 ppm CO2eq/CO2 by 2351. From the IPCC's 2014 Report, I conclude that if the U.S. and other countries were to ultimately bend down the trajectory of global CO2/CO2eq equivalent to that of RPC 3PD, or perhaps an updated version of RPC-3PD, we will have indeed averted dangerous climate change.

354. *Cf.* Mitigation pathways compatible with 1.5°C, *supra* note 323, at 2A-28 Tbl. 2.SM.12, *supplementing* IPCC, 2018: GLOBAL WARMING OF 1.5°C, *supra* note 76, at 112.

warming to 2°C.[355] The goal of keeping global warming below 2°C has been lauded internationally,[356] and 2°C seems as good of a threshold for dangerous climate change as any,[357] but only a few countries are doing their part to achieve it at this time.[358] That would likely change, however, if EPA were to establish a Secondary GHG NAAQS of 350 ppm by 2351 or one based on an updated RPC 3PD.

Re-calculating an exact target that would, at this time, still give us a 50.01 percent chance of preventing 2°C of global warming by 2100 is beyond my capability, but if the concentration target remains 350 ppm—a concentration that many scientists regard as "safe" over the long-term[359]—the attainment date should still sit somewhere in the early 24th Century based on the 2014 IPCC Report and analysis by the Potsdam Institute.[360]

At any rate, the number of nations committed to the path of <2°C would likely increase substantially if the U.S. were to adopt a

355. See RCP subcategory titled "Exceedance of 530 ppm CO2 eq," found in IPCC, 2014: CLIMATE CHANGE MITIGATION AR5, *supra* note 59, at 431, Table 6. (showing "39-61%" probability of exceeding 2°C). The IPCC reports provide little data beyond 2100, so for long-term CO2/CO2eq concentrations and the emissions reductions attendant to this pathway, I turned to Meinshausen et al., *supra* note 59, and the data-runs that the authors used to support their paper. *See RCP Concentration Calculations and Data, Final Version, background data, acknowledgments, and further info*, POTSDAM INST. FOR CLIMATE RESEARCH, http://www.pik-potsdam.de/~mmalte/rcps/ (last visited July 19, 2019). Based on these data-runs, RCP 3PD has humanity achieving "net zero" in year 2072 and bringing global CO2 and CO2eq back down to 350.0356 ppm and 350.9814 ppm, respectively, in year 2351. My nineteen percent reduction per decade is an approximate, straight-line reduction to net zero in 2072 from present time.

356. *See* Copenhagen Accord, *supra* note 250, at 5; Paris Agreement, *supra* note 252, at 22.

357. *See, e.g.*, John Nielsen-Gammon, Remarks at UNIV. OF HOUSTON ENERGY SYMPOSIUM SERIES: CLIMATE CHANGE, IS IT A REAL THREAT? (Feb. 11, 2014), *available at* https://youtu.be/U-CiGxAlGG4 (38:44). "[T]he last time the earth was mostly ice free was about 125,000 years ago, and we were about 1 to 2 °C warmer on average around the globe; and there were not massive extinctions and . . . massive releases of methane hydrates or other possible wild cards in the climate system. So the reason that 2°C of warming has sort of been established as a maximum target is not because we know there are going to be many bad consequences, but it is really beyond the point that we know there is *not* going to be many bad consequences. . . The unexplored territory represents a risk that is very difficult to quantify." *Id.*

358. *See generally Emissions Gap Report 2018, Executive Summary*, UN ENVIRONMENT PROGRAMME (NOV. 2018), http://wedocs.unep.org/bitstream/handle/20.500.11822/26879/EGR2018_ESEN.pdf.

359. *See, e.g.*, James Hansen et al., *Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations, and Nature*, 8 PLOS ONE 12 (Dec. 3, 2013), https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0081648. The 350 ppm concentration target has its own name recognition thanks to the advocacy of Dr. James Hansen and 350.org.

360. *See supra* note 356 and accompanying text.

long-range Secondary NAAQS of 350 CO2/CO2eq ppm with an attainment date set in the early 24th Century, because if other nations were to *not* join this effort, then all of the NAAQS regulation would increasingly become disadvantageous economically and arguably futile.[361] Suffice to say, the U.S. would have a powerful incentive to get other nations on board.

The domestic struggle to meet emission-reduction milestones each decade through SIPs and the international struggle to get other nations to reduce in-kind would be an unprecedented challenge for the nation. Effectively mitigating climate change stands to be *the* great challenge for the world this century and perhaps the Millennium. Academics and activists have compared the task to that of a medieval town constructing a grand cathedral over multiple generations.[362] That is, the project will take immense resources and effort and not be finished for hundreds of years; work on the foundation (e.g., initial reductions) might need to proceed before there's even a plan for the roof (e.g., post-net zero); however, we should proceed anyway with faith and for the glory of God.[363] Except, whereas a cathedral's construction in medieval times required the work, commitment, and faith of a town or region over many generations, the mitigation of human-made climate change requires the multi-generational commitment and participation of practically every nation on earth.[364] Is the United States, the indispensable leader of the free world, up to this challenge?

The United States is innovative and has immense wealth, power, military might, and economic influence. Also, it could likely count Europe, Pacific nations, and other countries as initial allies on this front. Perhaps, as Winston Churchill was once attributed to say, "Americans can be counted on to do the right thing, now that [we] have exhausted every other alternative."[365]

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361. *See* ANPR (response by Dept. of Commerce), *supra* note 140 and accompanying text, at 44,375.

362. Interview with Anthony Leiserowitz, Dir. of the Yale Program on Climate Change Comm. (July 24, 2019); Sam Knight, *The Uncanny Power of Greta Thunberg's Climate-Change Rhetoric*, THE NEW YORKER (Apr. 24, 2019), http://www.newyorker.com/news/daily-comment/the-uncanny-power-of-greta-thunbergs-climate-change-rhetoric.

363. *See Genesis* 2:15, King James Version (stating, "And the LORD God took the man, and put him into the garden of Eden to dress it and to keep it.").

364. *See generally supra* note 354 and accompanying text.

365. Harvard School Bulletin, *The New York Club's International Dinner*, HARV. UNIV. GRADUATE SCH. OF BUS. 91, 92 (July/Aug. 1980) (quoted by Clifton Garvin, Jr., purportedly).

But even if most other countries drag their feet for a few decades and get behind on emissions reductions, it should not prevent the U.S. and its allies from doing their part to achieve a climate mitigation scenario akin to RPC 3PD, as new technology could fill the gap in the 11th hour. "Necessity is the mother of innovation"[366] after all, and we will never protect the welfare of this generation or future generations from man-made global warming and ocean acidification if we do not try. Furthermore, the CAA does not require that a state or the United States solve a global criteria-air-pollution problem on its own. Rather, the "but for [international] emissions" provision of section 179B requires that each State do its part,[367] which is what this regulation would accomplish if implemented.

## B. A Secondary NAAQS of 350 ppm CO2/CO2eq by 2351 Is Arguably Realistic

The U.S. emissions reduction called for by a Secondary NAAQS of 350 ppm CO2/CO2eq by 2351 is arguably realistic. Achieving emissions-reduction milestones would be difficult, but the milestones for the first thirty years are definitely in the realm of possible. The policy stands in stark contrast, for instance, to the immediate decarbonization seemingly called for by the Green New Deal[368] or any previously proposed Primary GHG NAAQS for that matter, either of which would cripple the U.S. economy if implemented.[369] This brings us to the subject of "net zero emissions."

"Net zero emissions" is a key, long-term climate goal under any ambitious climate policy and is a good measuring stick for judging the feasibility, ambition, and cost of various climate policies. "Net zero emissions" means the amount of CO2eq emitted must not exceed the amount of CO2eq being taken in by anthropogenic sinks, so that humanity's addition of atmospheric CO2eq is a net zero, with natural sinks such as plants and the ocean slowly working their effect to reduce global CO2 over the long-term.[370] In a post-net zero world, if humans were to continue emitting CO2 from, for in-

366. *See Plato*, III PLATO'S REPUBLIC: THE GREEK TEXT 369c (Benjamin Jowett trans. 1894) (translating Plato, with some flourish, as "the true creator is necessity, who is the mother of our invention").

367. 42 U.S.C. § 7509a(a) (2012).

368. *See* Friedman, *supra* note 325.

369. *See generally* Doug Holtz-Eakin, *How Much Will the Green New Deal Cost?*, THE ASPEN INST. (June 11, 2019), https://www.aspeninstitute.org/blog-posts/how-much-will-the-green-new-deal-cost/.

370. *See* IPCC, 2018: GLOBAL WARMING OF 1.5°C, supra note 76, at 555, Annex I (glossary).

stance, jet travel and some industrial processes, these emissions would have to be offset by planting more trees or perhaps some kind of "bioenergy with carbon dioxide capture and storage (BECCS)"[371] system that literally takes CO2 out of the air and sequesters it into the earth.

Again, achieving "net zero" emissions seems inconceivable in our current, fossil-fuel dependent global economy, but an approximate sixty percent reduction in CO2/CO2eq emissions over the next thirty years definitely seems "doable."[372]

### *1. On Cost and Renewable Energy, Nuclear Energy, Carbon Capture Sequestration, Bioenergy with Carbon Capture and Storage, or Whatever Works*

As for cost, fighting climate change, like fighting any war, will take a war chest, but a sixty percent reduction of U.S. emissions over the next thirty years need not impair the U.S. economy if pursued in a smart manner. Perhaps the rapid development of carbon capture storage (CCS)—on a scale that far surpasses all the horizontal-drilling and hydraulic-fracturing of the last oil boom—could garner a sixty percent thirty years in the U.S. and be steadily deployed worldwide.[373] The piping industry, petroleum engineers, and coal miners all stand to benefit from a CCS-centric policy. Alternatively, renewables and changes to the energy grid to fully capture and transfer renewable energy quickly may achieve a sixty percent reduction,[374] and a steady transition from gasoline-powered vehicles to mostly electric vehicles could conceivably achieve further reductions thereafter.[375] As for beyond 2050, technological developments are unpredictable. High speed trains or Elon Musk's "hyperloop" might have the potential to replace much of our jet travel.[376] There also may be hope in BECCS or large industrial devices, perhaps powered by nuclear energy, removing massive quantities of CO2 out of the air and pumping the CO2 back into the

371. *Id.*

372. *Cf.* Gold, *supra* note 253 (quoting Aaron Bloom of Dept. of Energy as stating that a thirty percent reduction by 2030 solely from a new overlay of transmission lines is "doable").

373. *See, e.g.*, IPCC, 2014: CLIMATE CHANGE MITIGATION AR5, *supra* note 59, at 119 (stating "CCS has figured prominently in many studies that look at the potential for large cuts in global emissions").

374. *See* MacDonald et al., *supra* note 253.

375. *See* IPCC, 2014: CLIMATE CHANGE MITIGATION AR5, *supra* note 59, at 74.

376. *See generally Hyperloop*, SPACEX, http://www.spacex.com/hyperloop (last visited Jul. 29, 2019).

earth from whence it came.[377] Humans have genetically modified chicken and salmon to grow larger; perhaps we could do the same with trees?[378] The point is, human beings can be quite innovative when money and high stakes are on the line—"where there's a will, there's a way"—and whatever ways that ultimately reduce global CO2/CO2eq to protect public welfare will work.[379]

*2. On Vested Interests and the Fossil Fuel Reserves*

Speaking of money, Americans owning oil-and-gas interests, those working in the fossil-fuel industry, and states with fossil-fuel extraction on public lands—not to mention many international workers and foreign nations—all stand to lose a significant portion of their wealth from a renewables-only or nuclear-only policy that the U.S. dictates from upon high.[380] The economic wealth tied up in domestic and foreign reserves would, for instance, be significantly reduced by something akin to the Green New Deal.[381] Frankly, the global adoption of any "keep it in the ground" policy would effectively destroy the value of fossil-fuel reserves.[382]

In contrast, a long-term Secondary GHG NAAQS of 350 ppm CO2/CO2eq by 2351 or some similar target, coupled with international solidarity, would generally allow coal and natural gas power plants across the world to continue operating until the end of their useful economic lives.[383] Upon their retirement, these coal and

377. *See, e.g.*, *How CO2 Could Be the Future of Fuel — Vice on HBO*, VICE NEWS (Sept. 13, 2018), *available at* http://www.youtube.com/watch?v=mb_8DJF6Hp0.

378. *See* Anajana Ahuja, *Are These the Chickens of the Future?*, FINANCIAL TIMES (Feb. 19, 2016), http://www.ft.com/content/863e034e-d5c8-11e5-829b-8564e7528e54.

379. *Where there's a will there's a way*, GRAMMARIST, http://grammarist.com/proverb/where-theres-a-will-theres-a-way/ (last visited July 31, 2019). *See* IPCC, 2014: SYNTHESIS REPORT AR5, *supra* note 15, at 4-6 (discussing role of carbon dioxide and other greenhouse gases in increasing temperature).

380. *See* Stephen Russell, *Fossil Fuels – What's at Risk?*, WORLD RESOURCES INST. (Feb. 6, 2017), http://www.wri.org/blog/2017/02/fossil-fuels-whats-risk (explaining global warming's potential role in influencing investor profits and climate-related risks).

381. *See id.* (discussing impact of policies on investor profits); Sanya Carley & David Konisky, *What Would the Green New Deal Mean for Businesses?*, HARVARD BUSINESS REVIEW (Feb. 28, 2019), https://hbr.org/2019/02/what-would-the-green-new-deal-mean-for-businesses (analyzing effect of Green New Deal on regions that rely on reserves).

382. *See* Jeff Brady, *'Keep It In The Ground' Activists Optimistic Despite Oil Boom*, NPR (Mar. 16, 2018), http://www.npr.org/2018/03/16/589908135/keep-it-in-the-ground-activists-optimistic-despite-oil-boom; Russell, *supra* note 381 (stating largest public companies with fossil fuel reserves currently have more reserves than 2°C goal permits).

383. *See* Jeffrey Logan et al., *Electricity Generation Baseline Report*, NAT. RENEWABLE ENERGY LABORATORY xiv (Jan. 2017), https://www.nrel.gov/docs/fy17osti/

natural gas power plants would then be replaced with something that is CCS, nuclear, or renewable.[384] Perhaps some plants would need to shut down prematurely, but in the U.S., it would be an economic decision primarily at the state level through SIPs.[385]

Turning to history, perhaps the long struggle to rid the United States of that most "peculiar institution," slavery, and its successor in the South, Jim Crow, offers some lessons here.[386] As morally reprehensible as slavery was, it did not end because white slave-owners in the South suddenly realized the wickedness of their ways and freed their human chattels.[387] Rather, white southerners fought long and hard to preserve the moral sin and economic benefit of enslaving others, not paying for their labor, and continually oppressing them to maintain the arrangement.[388] As historian Steven Deyle writes, "[B]y 1860, slave property had even surpassed the assessed value of real estate within the slaveholding states."[389]

As we know, slavery officially ended in the U.S. with the Thirteenth Amendment following President Abraham Lincoln's Emancipation Proclamation, but it took the nation waging the bloodiest war in its history, on itself, to get to this point.[390] The end of the institution of slavery, however, was still not enough to make African Americans truly free.[391] After a brief period of Reconstruction, systemic oppression of Black Americans in the South and in other areas returned in the form of Jim Crow, a sometimes official but mostly unofficial system of racial segregation, oppression, and ter-

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67645.pdf (stating coal units retired in 2015 had an average age of fifty-four years and existing coal units have average age of thirty-eight years).

384. *See id.* (noting rapid expansion of wind and solar power).

385. *See* Inara Scott, *Teaching An Old Dog New Tricks: Adapting Public Utility Commissions To Meet Twenty-First Century Climate Challenges*, 38 HARV. ENVTL. L. REV. 371, 401-404 (2014) (promoting use of state public utility commissions to combat climate change).

386. John C. Calhoun, *The Southern Address*, CHARLESTON COURIER (Feb. 1, 1849), http://www.civilwarcauses.org/address.htm.

387. *See* Frederick Douglass, THE LIFE AND TIMES OF FREDERICK DOUGLAS 328-32 (Macmillan Publ'g Co. 1962) (1881) (detailing resurgence of pro-slavery sentiment on eve of American Civil War).

388. *See* Steven Deyle, CARRY ME BACK: THE DOMESTIC SLAVE TRADE IN AMERICAN LIFE 60 (stating potential loss of slavery led many slaveowners to opt for secession); *see also* LIN-MANUEL MIRANDA, HAMILTON, Act II (2015) (rapping, "hey neighbor, your debts are paid, 'cause you don't pay for labor").

389. *See* Deyle, *supra* note 389, at 60.

390. U.S. CONST. amend. XIII; Proclamation No. 17, 12 Stat. 1268 (Jan. 1, 1863). *See* JAMES M. MCPHERSON, BATTLE CRY OF FREEDOM at 545, 860-62 (C. Vann Woodward ed., 1st ed. 1988) (describing results of American Civil War and freedom of slaves).

391. *See id.* at 862 (hinting that newly-freed slaves did not gain effective freedom).

ror.[392] It took the non-violent Civil Rights Movement, the leadership of Dr. Martin Luther King Jr. (MLK), and the federal Civil Rights Acts of 1957 and 1964 and Voting Rights Act of 1965 to ultimately defeat Jim Crow.[393] Yet, for all the sympathy and political will generated by the student sits-ins, freedom riders, bus boycotts, attacks of nonviolent protesters, and soaring rhetoric of MLK, Civil Rights legislation was not passed because the U.S. Senate's "Southern bloc," led by the powerful Senator Richard Brevard Russell, suddenly saw the light and dropped their opposition.[394] Rather, Congress passed legislation because then-Senator Lyndon B. Johnson (LBJ)—"a man who had never before fought in [the Civil Rights] cause"—seized the political capital of the Civil Rights Movement, flipped on "the Southern bloc," and rammed legislation through Congress as only the last "Master of the Senate" could.[395] The Voting Rights of Act 1965, passed when LBJ was President, was the crescendo of this struggle.[396]

Climate environmentalists in the U.S. do not have an LBJ on their side, but they might not need an LBJ, because they might already have the law to achieve their objectives.[397] But whoever thinks the millions of Americans owning interests in fossil fuels or working in the fossil fuel industry will stand aside and see their wealth and livelihoods threatened or eviscerated is, I argue, as naive as an abolitionist in the early 19th Century thinking that white plantation owners will someday willingly free their slaves from bondage.[398]

To avoid any misunderstandings, I am not equating emitting CO2 with owning slaves. We all emit CO2. Nor am I advocating for the ceasing of burning all fossil fuels. I believe there is great potential with CCS and BECCS. I am, however, comparing the economic value of the labor of slaves pre-Civil War, which slaveowners were

392. *See* Robert A. Caro, MASTER OF THE SENATE 685-92 (2002) (discussing discrimination Black Americans faced in south for 100 years following civil war).

393. *See id.* at xxiii-xxiv (explaining impact of Civil Rights legislation on personal and political lives of Black Americans).

394. *See id.* at 796-98 (discussing persistent southern opposition in face of 1960s civil rights legislation).

395. *See id.* at xxiv (discussing Johnson's seemingly unexpected political push to pass Civil Rights legislation).

396. *See id.* at xxiii-xxiv (extolling Civil Rights legislation that Congress passed during Johnson's presidency).

397. *See* ANPR, *supra* note 43, at 44,481-82; *id. supra* notes 134, 137, 298-99 and accompanying text.

398. *See* Deyle, *supra* note 389, at 60 (noting massive wealth tied up in slave property).

loath to give up without a fight, to the wealth tied up in the fossil fuel reserves.[399]

Regarding foreign fossil-fuel reserves, much of the future wealth of countries like Russia and Nigeria, much of the hope for a better economic future in Venezuela, Iran, and Libya, and the continued wealth and power of a country like Saudi Arabia are all tied up in their respective petroleum reserves.[400] Again, if the U.S. and most other countries were to adopt and implement policies that prohibit the burning of fossil fuels for energy—no matter if the emissions are captured and sequestered—it would devastate the value of foreign fossil fuel reserves, which currently runs in the tens of trillions of dollars.[401] Do you, dear reader, think these fossil-fuel producing countries will 'do the right thing,' as some environmentalists see it, and choose to leave wealth in the ground?[402]

Furthermore, if either the Green New Deal or a Primary GHG NAAQS of 350 ppm were actually implemented, it would effectively require the shut-down of every coal or natural gas power plant in the U.S. within a decade or so, if not immediately. This would qualify as a Constitutional taking requiring compensation.[403] Millions of Americans would also need to relinquish their beloved trucks and SUVs, which would result in more Constitutional takings. If serious-minded people think either policy is feasible, they should then consider the ramifications of global implementation.[404] Without time for CCS and BECCS to be tested, developed, and implemented worldwide, either policy would devastate the value of foreign fossil fuel reserves.[405] Proposing that nations adopt policies that eviscer-

399. *Id.* (noting immense value held in slavery contributed to southern States' choice to secede).

400. *See Crude Oil Proved Reserves - 2018*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/beta/international/ (last visited Sept. 21, 2019) (showing fossil fuel production and reserves of various countries through interactive map).

401. *See e.g.*, *id.* (estimating Venezuela's crude oil proved reserves at 302 billion barrels); *Markets - Energy*, BLOOMBERG, https://www.bloomberg.com/energy (last visited Sept. 21, 2019) (stating price of oil as $58.09 or $64.28).

402. *See* Int'l Energy Statistics, U.S. ENERGY INFORMATION ADMINISTRATION, https://www.eia.gov/beta/international/data/browser/#/?c=4100000002000060000000000000g000200000000000000000001&vs=INTL.44-1-AFRC-QBTU.A&vo=0&v=H&start=1980&end=2016 (last visited Nov. 10, 2019) (displaying massive reserves countries hold).

403. U.S. CONST. amend. V (requiring government to compensate citizens when it takes private property for public use).

404. *See* U.S. ENERGY INFORMATION ADMINISTRATION *supra* note 403 (displaying massive reserves and wealth countries possess in the form of crude oil).

405. *See id.*; David Hone, *What Can Really Be Done by 2050?*, CLIMATE CHANGE NAT. FORUM (Feb. 15, 2015), http://climatechangenationalforum.org/by2050/ (drawing comparison with internet and noting IT industry needed fifty years from time of ARPANET in 1969 to extensively deploy internet).

ate their continued or future wealth is not an advisable strategy to get those same nations to voluntarily reduce their GHG emissions.[406]

Bottom-line, the long-range Secondary GHG NAAQS regime proposed by this paper accounts for these dynamics and economic realities.[407] Existing coal and natural power plants in the U.S. *could* live out their economically useful lives and then be replaced with something that is CCS, nuclear, or renewable.[408] Americans could still drive gasoline-guzzling vehicles until electric trucks and SUVs become competitive and desirable.[409] They could even go through a couple more "gas-guzzlers" perhaps, so long as their states account for these emissions.[410] Fossil fuel reserves would retain value, for humans could continue burning all the fossil fuels they want so long as the GHG emissions are captured and sequestered.[411] Most importantly, unlike the wild-eyed proposals being proposed recently, a Secondary GHG NAAQS would afford time for new policy implementations nationally and internationally, time for technology and market mechanisms to be developed and work their effect, and time for the U.S. and rest of the world to figure out how to achieve net zero closer to the turn of the Century.[412]

As for the good climate polices out there, such as a carbon price, such proposed legislation unfortunately does not stand a chance of becoming law so long as Congress and the nation remain politically divided on climate change, and EPA abstains from using the most powerful provisions of the CAA.[413] Not unlike "the South-

406. *See* U.S. ENERGY INFORMATION ADMINISTRATION, *supra* note 403 (displaying massive reserves and wealth countries possess in form of crude oil).

407. *See supra* Part IX.B.1 (discussing feasibility of Secondary NAAQS of 350 ppm CO2/CO2eq by 2351).

408. *See* Logan et al., *supra* note 384, at xiv (stating coal units retired in 2015 had average age of fifty-four years and existing coal units have average age of thirty-eight years).

409. *See* Giovinazzo, *supra* note 5, at 107 (noting Congress intended CAA to spur technological advancement and implementation of cleaner alternatives).

410. Richard S. Townley Sr., Comment, *So Much Carbon, So Little Time: State Options For Effective Regulation of Mobile Source Emissions of Greenhouse Gases*, 39 U. MEM. L. REV. 193, 205 (describing state methods for reducing mobile source carbon emissions).

411. *See* U.S. ENERGY INFORMATION ADMINISTRATION, *supra* note 403 (estimating worldwide oil reserves at approximately one trillion barrels); *Markets - Energy*, BLOOMBERG, https://www.bloomberg.com/energy (last visited Sept. 21, 2019) (stating price of oil as $58.09 or $64.28).

412. *See* Hone, *supra* note 249 (stressing importance of time in implementing carbon emissions policies).

413. *See* Energy Innovation and Carbon Dividend Act of 2019, H.R. 763, 116th Cong. (2019) (proposing institution of rising fee on carbon content of fuels with border-adjustments, rebates for CCS, revenue going to U.S. citizens or lawful re-

ern bloc" in the 1960s on civil rights, most Republicans in Congress will not be coming around on climate change any time soon, and environmentalists do not have an LBJ.[414] But what environmentalists do have is an army in the Clean Air Act with regard to the Secondary NAAQS regime, and this army is, again, far more flexible and powerful than scholars realize for combating climate change.[415]

To conclude, if EPA pursued the Secondary GHG NAAQS proposed by this paper, it would mark a new hope for environmentalists worldwide.[416] The domestic emissions reduction necessary to achieve a Secondary NAAQS of 350 ppm CO2eq by 2351 would far surpass what the Obama Administration attempted.[417] Consequently, if such regulation is pursued, it would be immediately challenged; and to be fully implemented, it would need to be upheld by the Supreme Court.[418] This brings us back to charting a course that manages the thresholds problem, achieves the purpose of the NAAQS program, and enables the U.S. economy to continue to grow.[419] But first, a note on *Chevron* is warranted.[420]

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sidents); Energy Innovation and Carbon Dividend Act of 2018, S. 3791, 115th Cong. (2018) (proposing same as H.R. 763); Anthony Leiserowitz et al., *Politics & Global Warming*, APR. 2019 YALE PROGRAM ON CLIMATE CHANGE COMMC'N & GEORGE MASON UNIV. CTR. FOR CLIMATE CHANGE COMMC'N 4, http://climatecommunication.yale.edu/wp-content/uploads/2019/05/Politics-Global-Warming-April-2019b.pdf (describing clear political divides of electorate on global warming); *see also* Emily Atkin, *It's Official: Climate Change is Now More Divisive Than Abortion*, THINK PROGRESS (May 27, 2014), http://thinkprogress.org/its-official-climate-change-is-now-more-divisive-than-abortion-54a69e1898a8/ (declaring global warming as the most divisive national issue at that time).

414. Leiserowitz et al., *supra* note 414, at 4 (describing clear political divides of electorate on global warming).

415. *See* ANPR, *supra* note 43, at 44,481-82; *id. supra* notes 134, 137, 298-99 and accompanying text.

416. *See* Copenhagen Accord, *supra* note 250, at 5; Paris Agreement, *supra* note 252, at 22.

417. *See Overview of the Clean Power Plan: Cutting Carbon Pollution from Power Plants*, ENVTL. PROT. AGENCY (2015), http://archive.epa.gov/epa/cleanpowerplan/fact-sheet-overview-clean-power-plan.html (expecting approximately thirty-two percent reduction in carbon emissions by 2030 based on 2005 levels).

418. *See* Chevron U.S.A., Inc. v. NRDC, 467 U.S. 837, 842-44 (1984) (describing procedure by which courts review an agency's interpretation of a statute).

419. See 42 U.S.C. § 7470(3) (2012) (declaring that one of the purposes of PSD program is "to insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources").

420. *See* Chevron, 467 U.S. at 842-44 (granting agency deference when there is statutory ambiguity).

## X. ON *CHEVRON*

### A. The *Chevron* Two-Step

In reviewing an agency's interpretation of a statute, courts use the "*Chevron* two-step" analysis the Supreme Court adopted in *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*[421], a 1984 case that coincidentally concerned major source regulation under the CAA.[422] Under *Chevron* step-one, a court must first examine "whether Congress has directly spoken to the precise question at issue."[423] If so, then both the court and agency must defer to Congressional intent.[424]

If "Congress has not directly addressed the precise question at issue" because "the statute is silent or ambiguous," then the question for the court, under *Chevron* step-two, is "whether the agency's answer is based on a permissible construction of the statute."[425] If the agency's resolution of the gap or ambiguous statutory language is reasonable, the court must defer to the agency because "a court may not substitute its own construction of a statutory provision for a reasonable interpretation" by an agency charged with that statute's administration.[426] Countless papers have been devoted to this reasonableness inquiry, but what appears uncontroverted is that when an agency's expertise and a policy decision are called for, *Chevron* instructs the courts to defer to the agency unless the agency's interpretation is "arbitrary, capricious, or manifestly contrary to the statute."[427] This grant of discretion, known as "*Chevron* deference," is seemingly broad, and it has garnered its share of critics, but it does have limits.[428] As Professor Cass Sunstein has noted, "[the] inquiry requires the agency to give a detailed explanation of its decision by reference to factors that are relevant under the governing stat-

421. *Id.* at 837.
422. *Id.* at 839-41.
423. *Id.* at 842.
424. *Id.* at 842-43.
425. *Id.* at 843.
426. *Id.* at 844.
427. *Id.* at 843–44 (1984) (internal citations omitted); *see* Pension Benefit Guar. Corp. v. LTV Corp., 496 U.S. 633, 651-52 (1990) (citing Chevron, 467 U.S. at 865) (noting "agency expertise is one of the principal justifications behind *Chevron* deference"); Thomas Merrill & Kristin Hickman, Chevron*'s Domain*, 89 GEO. L. J. 833, 861 (2001) (noting that *Chevron* deference rests largely on premise that Congress prefers discretionary policy choices to be made by "politically accountable" entities, such as agencies in executive branch, rather than courts).
428. *See* Cass Sunstein, *Law and Administration After Chevron*, 90 COLUM. L. REV. 2071, 2104–05 (1990) (stating *Chevron*'s reasonableness requirement requires an agency to discuss factors relevant in its determination).

ute."[429] EPA could most definitely do that under the Secondary NAAQS scheme this paper proposes.[430]

### B. The *UARG* Court's Use of and Possible Addition to the *Chevron* Analysis

In the *UARG* opinion, Justice Scalia stated that the Court was reviewing EPA's interpretation of the CAA under the *Chevron* framework.[431] But, as Professor Craig Oren writes in a 2015 Harvard Environmental Law Review symposium[432] devoted to the implications of *UARG*, rather than discussing steps one and two as stated in *Chevron,* "Justice Scalia divide[d] the inquiry into, first, whether EPA was required to adopt its interpretations of the statute, and second, whether the statute permitted EPA to do so."[433] This framework was a slight deviation from *Chevron*'s two steps and "makes analysis difficult."[434] Nevertheless, this Article attempts an analysis, often referring to Oren and others' contributions to this 2015 symposium along the way.

Regarding step one, to the surprise of many, the *UARG* Court identified ambiguity in the term "any air pollutant," finding that the term, in that instance, could have a narrower construction that excludes GHGs.[435] Again, the Court did not adopt a particular construction but suggested the term could possibly be limited to criteria air pollutants.[436] Alternatively, the Court offered that the term could possibly be limited to those pollutants with "localized effects," which would also exclude GHGs.[437] EPA was therefore not *mandated* to treat GHGs as "any air pollutant" under *Chevron* step-one in this case.[438]

The reasoning gets murky in step two, but Justice Scalia began by claiming that "plac[ing] plainly excessive demands on limited governmental resources is alone a good reason for rejecting . . ."

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429. *Id.*

430. *See infra* Parts XII and XIII.

431. UARG v. EPA, 573 U.S. 302, 315 (2014).

432. 433 Symposium, *Climate Change Regulation Under the Clean Air Act in the Wake of Utility Air Regulatory Group v. EPA*, 39 HARV. ENVTL. L. REV. 1-63 (2015)

433. Craig N. Oren, *UARG – Not a Chef D'Oeuvre of Opinion Writing*, 39 HARV. ENVTL. L. REV. 51, 56 (2015).

434. *Id.*

435. *UARG*, 573 U.S. at 320, 320 n.6 (2014).

436. *See id.* at 320 (stating "any air pollutant" does not compel EPA to regulate GHGs like atypical pollutants).

437. *Id.* at 320 n.6.

438. *Id.* at 320.

the authority that EPA was claiming.[439] One can argue that EPA was *not* claiming this authority because EPA was *not* trying to regulate tens of thousands of new sources under PSD and a few million more under Title V. But the Court nevertheless found that EPA was *indirectly* claiming this authority (and arbitrarily "tailoring" it for the time being).[440] The Court then concluded that requiring PSD permits from tens of thousands of smaller sources and Title V permits from a few million more is just the kind of regulatory expansion that "we have been reluctant to read into an ambiguous statutory text."[441] Though, as Professor William Buzbee notes in his contribution to the symposium, "the majority identifies no ambiguity."[442]

As Professor Buzbee writes, "EPA's claim of power is called 'patently unreasonable' and 'outrageous' while the Court's contrary read is 'plain as day' . . . . [But] the actual textual basis for the majority's rejection of EPA power is merely an inference drawn from implementation burdens."[443] After focusing on implementation burdens, Justice Scalia then, as Professor Richard Lazarus notes, "resurrected" the central relevance of *FDA v. Brown & Williamson* decision.[444] *Brown & Williamson* was a case on the FDA's attempted regulation of tobacco products that the Court in *Massachusetts v. EPA* had previously found inapplicable to the CAA, Lazarus notes, and Justice Scalia "thrice quot[ed] from it to make the point" that, as stated in *UARG*, "[w]hen an agency claims to discover in a long-extant statute an unheralded power to regulate 'a significant portion of the American economy,' we typically greet its announcement with a measure of skepticism.'"[445] "This dictum seems inconsistent with the protective philosophy behind the Act[,]" Professor Oren writes; "[a] watchdog such as EPA should have its authority literally interpreted to ensure that public health and the environment are protected."[446]

All in all, the *UARG* Court rejected EPA's view that it *had* to regulate sources emitting GHGs under the PSD program, because a narrower construction of the term "any air pollutant" was available,

439. *Id.* at 323-24.

440. *UARG*, 573 U.S. at 323-24.

441. *Id.* at 324.

442. Buzbee, *supra* note 85, at 76.

443. *Id.* (quoting UARG, 573 U.S. at 324).

444. Lazarus, *supra* note 78, at 47, *citing* FDA v. Brown & Williamson, 529 U.S. 120, 159 (2000).

445. Lazarus, *supra* note 78, at 47; UARG, 573 U.S. at 324 (quoting Brown & Williamson, 529 U.S. at 159).

446. Oren, *supra* note 434, at 58.

and regulation of GHG sources at the thresholds would, according to Justice Scalia's surmise of EPA's inflated estimations, "caus[e] construction projects to grind to a halt nationwide."[447] Such an outcome would contravene one of the Act's stated purposes for the PSD program, which is to "insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources."[448] As for *Chevron* step-two, the Court rejected that EPA could go down this path at its own discretion so long as regulation at the thresholds would render the programs "unadministrable and 'unrecognizable to the Congress that designed' them."[449]

## XI. ARGUMENT: *UARG* Actually Preserves EPA Power

Scholars like Professor Buzbee conclude the Court in *UARG* "undercut" its previous findings of broad EPA power in *Massachusetts v. EPA* and *American Electric Power Co. v. Connecticut* with regard to GHG regulation, and they imply *UARG* would bar any proposed PSD and Title V regulation of GHG sources in accordance with the Act's thresholds.[450] This Article, in contrast, argues the *UARG* holding actually preserves EPA power with regard to a future GHG NAAQS.[451] Had the Court allowed EPA to "tailor" the CAA, the Court would have foreclosed the chance of the CAA being enforced as written and allowed EPA to thereafter pick and choose from the statute at its leisure, scratch out hard parts, and replace them with numbers or text that the EPA or some court fancies as more reasonable.[452] This would have not only dealt a "severe blow to the Constitution's separation of powers" but also severely undermined the Act's most powerful protective mandates, which brings us back to the mandatory duty argument.[453]

## XII. RESURRECTING THE MANDATORY DUTY ARGUMENT

In the event the EPA seeks to establish a Secondary GHG NAAQS and finds itself defending the regulation before the Su-

447. UARG v. EPA, 573 U.S. 302, 322 (2014).

448. 42 U.S.C. § 7470(3) (2012).

449. *UARG*, 573 U.S. at 312 (quoting Tailoring Rule, *supra* note 80, at 31,562).

450. Buzbee, *supra* note 85, at 63; *id.* at 69-70 (discussing UARG's limitation on EPA authority and declaring majority as "no GHGs-alone PSD authority majority").

451. *See infra* notes 453-454 and accompanying text.

452. *UARG*, 573 U.S. at 325-26 (forbidding agency from "tailor[ing]" unambiguous statutory language to comport with policy goals).

453. *Id.* at 327.

preme Court, EPA should resurrect the argument, seldom heard these days, that it *must* establish a NAAQS for GHGs under *Chevron* step-one, because there now exists a way for the NAAQS program to work as designed for GHGs and enable economic growth.[454] As discussed, the Court might reject this mandatory duty interpretation and overturn the Second Circuit's long-standing *Train* decision by finding ambiguity in section 108(a)(1)(C) or some other part.[455] But the more that EPA can legitimately argue that it *must* go down this path under *Chevron* step-one, the easier it will be for EPA to argue that it *can* go down this path, *sua sponte*, under *Chevron* step-two.[456] EPA should also emphasize that, when writing the central part of the CAA that addresses ambient air pollution across from numerous and diverse sources, Congress never added a provision that said disregard if the sources are seemingly *too* numerous or diverse, if international emissions contribute to the problem, or if current rules would make enforcement difficult.[457]

Of course, EPA would once again be arguing about PSD regulation of GHG sources before the Court that had just recently warned EPA that "[w]hen an agency claims to discover in a long-extant statute an unheralded power to regulate 'a significant portion of the American economy,' we typically greet its announcement with a measure of skepticism."[458] But EPA would not be "discover[ing]" this power as much as finally embracing it.[459] Nor would this power be "unheralded."[460]

Ever since the administration of President Bill Clinton, EPA has recognized the potential for an immense expansion in federal environmental regulatory authority with regard to the NAAQS pro-

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454. *See* NRDC v. Train, 545 F.2d 320, 327-38 (2d Cir. 1976) (mandating EPA to list lead as criteria pollutant).

455. *Contra id.* at 325-27 (finding section 108(a)(1)(C) language unambiguous).

456. *Cf.* Pension Benefit Guar. Corp. v. LTV Corp., 496 U.S. 633, 651-52 (1990) (finding agency's interpretation reasonable when agency considers practical implications); Sunstein, *supra* note 430, at 2104-05 (discussing precise meaning of "reasonableness" within *Chevron* analysis). "Sua Sponte," taken as "On Their Own Accord," is the motto of the U.S. Army's 75th Ranger Regiment. *See, e.g.*, *Our Mission*, SUA SPONTE FOUNDATION, https://suaspontefoundation.org/our-mission/ (last visited Sept. 29, 2019).

457. *See* 42 U.S.C. § 7479(1) (2012) (defining "major emitting facility" as a stationary source with the potential to emit 250 tons-per-year or, for certain enumerated categories, 100 tpy of "any air pollutant").

458. UARG, 573 U.S. at 324 (citation omitted) (quoting *FDA v. Brown & Williamson*, 529 U.S. 120, 159 (2000)).

459. *Id.*

460. *Id.*

visions and GHGs.[461] Justice Scalia himself wrote in *UARG* that by pursuing GHG regulation in response to *Massachusetts v. EPA*, "EPA embarked on a course of regulation resulting in 'the single largest expansion in the scope of the [Act] in its history.'"[462] If that is true, then the full implications of this expansion have not yet manifested themselves. The dust from litigation over GHG regulation by the Obama EPA has mostly settled, and the current scope of GHG regulation under the CAA still does not go beyond the types of sources that were *already* being regulated before *Massachusetts v. EPA*.[463]

The boundary of EPA's new authority under this expansion and its full regulatory implications remain unknown, because EPA's full power to regulate GHGs under the CAA, through a NAAQS, has never been tested or directly claimed.[464] As noted, Bush 43 EPA staff recognized that a long-range Secondary GHG NAAQS pathway—as a comprehensive strategy to enforce the law to protect public welfare against the dangers of climate change—might be feasible; but every EPA Administrator since the Clinton administration has chosen not to use the NAAQS Program or given any indication that he or she has seriously considered the matter.

If the EPA Administrator were to list GHGs as a criteria air pollutant and take the path advocated by this paper, however, the full implications of the "largest expansion in the scope of the [Act] in its history" would finally manifest themselves.[465] In sum, when defending a Secondary GHG NAAQS before the Court, the attorneys for EPA should argue that the Agency is not finding some "elephant[ ] in [a] mouse hole," but rather, finally acknowledging the 800-pound Gorilla in the room that it has been ignoring for over a

461. *See* U.S. EPA, EPA's Authority to Regulate Pollutants Emitted by Electric Power Generation Sources, Memorandum from Jonathan Cannon, EPA Gen. Counsel, to Carol Browner, EPA Adm'r 1 (Apr. 10, 1998) [hereinafter the "Cannon memo"] (finding that CO2 was covered by sections 108 and 109 but noting that EPA was not seeking to establish NAAQS at that time).

462. UARG, 573 U.S. at 310 (quoting CAA HANDBOOK, *supra* note 6, at xxi).

463. *See* Cass R. Sunstein, *Changing Climate Change, 2009-2016*, 42 HARV. ENVTL. L. REV. 231, 262, 270-73 (examining tailoring rule and outcomes of Obama-era greenhouse-gas regulations).

464. *Cf. id.* at 238 (acknowledging that "the Obama Administration did not even try" to regulate GHGs through a NAAQS, while noting that "no one thought that that [decision] was wrong").

465. UARG v. EPA, 573 U.S. 302, 310 (2014) (quoting CAA HANDBOOK, *supra* note 6, at xxi).

decade.[466] The attorneys should then inform the Court that EPA now intends to put the fellow to work.[467]

## XIII. A LIST OF TO DOS, FOR AFTER THE FIRST SHOT

### A. Regarding the Overall Scheme

In conclusion, to establish this overall scheme for success, EPA would specifically need to:

1. List GHGs as a collective criteria air pollutant under section 108 and find that GHG concentrations threaten public welfare.[468]
2. Issue "criteria" showing that GHGs are a threat to public welfare.[469] EPA should briefly address the current and future public health risks climate change poses but emphasize that the risks only stem from global CO2eq's indirect "effects on . . . weather . . . and climate."[470]
3. After a notice-and-comment period and an unprecedented national conversation on what citizens value regarding climate change and the world we leave future generations, establish a Secondary GHG NAAQS of 350 ppm by 2351 or one based on an updated RPC 3PD that marries the 350 ppm target with the <2°C goal.[471] Perhaps EPA could be less ambitious (see, for example, RCP 4.5[472]), but then the regulation could be open to attack for not adequately protecting public welfare and for failing to achieve the ultimate purpose of the CAA.[473] Alternatively, EPA could try

466. Whitman v. Am. Trucking Ass'ns, 531 U.S. 457, 468 (2001). *See* Cannon memo, *supra* note 462, at 1; ANPR, *supra* note 140, at 44,481-82.

467. *See infra* Part XIII.

468. *See* 42 U.S.C. § 7408(a)(1)(A)-(C) (2012) (stating EPA can or should list air pollutants that pose threat to "public health or welfare" and whose presence in the ambient air derives from numerous or diverse sources).

469. *See id.* § 7408(a)(2) (stating EPA should issue criteria "reflect[ing] the latest scientific knowledge" on the pollutants' "effects on public health or welfare" within twelve months of a listing).

470. *Id.* § 7602(h).

471. *See id.* § 7409(a)(2) (ordering EPA to create primary and secondary air quality standards for criteria air pollutants). *See also supra* note 356 and accompanying text (explaining the "39-61%" probability of RCP subcategory titled "Exceedance of 530 ppm CO2 eq" achieving <2°C goal and long-term global CO2 trajectory of RCP 3PD).

472. *See* IPCC, 2014: SYNTHESIS REPORT AR5, *supra* note 15, at 21 fig. SPM.11(a) (showing the slightly less ambitious but still bold trajectory of RCP 4.5 in "GHG emission pathways, 2000-2100: All AR5 scenarios").

473. *See* Chevron, 467 U.S. 837, 843-44 (1984) (stating agency's interpretation of statute cannot be contrary to statute); *see also* Copenhagen Accord, *supra* note 250, at 22 (stating that the "ultimate objective" of the <2°C goal is to "prevent

to be more ambitious,[474] but considering the aforementioned political, economic, and scientific realities, I believe this would be "going a bridge too far."[475]

4. Promulgate a rule stating that, for purposes of SIP approval, states need only to develop plans that would attain the Secondary GHG NAAQS by the deadline but for international emissions, meaning every state must do it part.[476] This would be a simple clarification of section 179B.[477]
5. Implement a rule or guidance document deeming that all regions have a status of unclassifiable because, first and foremost, EPA does not know what the future holds.[478]
6. Enact a rule that provides a simple and secure framework wherein states can trade emissions credits, because differences among individual states would not matter so long as the U.S. meets decadal reduction-milestones as a whole.[479]

B. Regarding the Thresholds and Permitting Regulations

As for charting a path that rebuts the assumption but not the principle, espoused in dictum, by a majority of the Court in *UARG* regarding "implementation burdens" and Congressional intent, EPA would need to promulgate new rules that:

1. Redefine the term "potential" in "potential to emit," so that it is closer to a source's actual emissions; and give own-

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dangerous anthropogenic interference with the climate system"); *see also* Ala. Power Co. v. Costle, 636 F. 2d 323, 360-61, 360 n.89 (D.C. Cir. 1979) (recognizing limitation on EPA's authority to enforce CAA in ways that lead to "futile results").

474. *See* Piers Forster et al., *supra* note 323, at 2A-28 Tbl. 2.SM.12, *supplementing* IPCC, 2018: GLOBAL WARMING OF 1.5°C, *supra* note 76, at 99 (paragraph 2.1.3).

475. Cornelius Ryna, A BRIDGE TOO FAR 67 (1974) (quoting Field Marshal Bernard Montgomery's assessment of Operation Market Garden, a daring but failed Allied airborne operation into the Nazi-occupied Netherlands to seize bridges and enable an advance into northern Germany in World War II).

476. *See* 42 U.S.C. § 7509a(a) (2012) (requiring EPA to approve implementation plan if plan shows attainment would be achieved by deadline "but for emissions emanating from outside the United States").

477. *See id.*

478. *See id.* § 7407(d)(1)(A)(iii) (instructing governors to classify area as unclassifiable if there is insufficient available information to create suitable classification).

479. *See id.* § 7410(a)(2) (allowing states to trade and sell emission rights); *supra* notes 378-380 and accompanying text (discussing possibility of CCS and BECCS maybe removing large quantities of CO2 from the atmosphere in the future). EPA could even give some flexibility to a state getting behind if that state makes up for the emissions in subsequent decades, so that the ultimate heat-forcing effect of its emissions is still on par with the RCP 3PD or an updated version. *See* Meinshausen et al., *supra* note 277, at 233 fig. 6 (showing the projected radiative forcing effects of RCP 3PD/2.6 and RCP8.5 out to 2300).

ers and operators of non-anyway sources the benefit of the doubt on estimating potential emissions.[480]

2. Emphasize the term "modification" in the context of PSD only comprises major modifications that would significantly increase a source's GHG emissions; and give owners and operators as much deference as possible.[481]
3. Enable applicants of non-anyway sources to quickly obtain a PSD permit by effectively signing an application with a checked box that says "our facility is implementing the 'Best Available Control Technology' that we can afford to reduce emissions" and perhaps filling in a short paragraph on what that BACT entails. Again, regulators would give applicants the benefit of the doubt.[482]
4. Enable regulators to quickly determine, through other prechecked boxes and pro forma means, that the "system of continuous emissions reduction" requirement has been met and that a source's GHG emissions will not cause nonattainment or some other CAA violation elsewhere.[483] The BACT process itself should enable the former, and the no-localized-effect nature of CO2 and CH4 should enable the latter.[484]
5. Enable the use of remote technology in administrative public hearings, so that applicants do not have to drive far or wait in long lines.[485] Nothing should prevent attorneys and administrative law judges from appearing on live-

480. *See* 42 U.S.C. §§ 7479(1), 7602(j) (regulating facilities with "potential" to emit 250 or 100 tpy of "any air pollutant" but lacking definition of "potential").

481. *See* 42 U.S.C. §§ 7479(2)(C), 7411(a)(4) (defining "modification" under CAA); Ala. Power Co. v. Costle, 636 F. 2d 323, 360-61 (D.C. Cir. 1979) (finding EPA has authority to issue certain categorical exemptions "where the burdens of regulation yield a gain of trivial or no value" and instructing EPA and courts to look to CAA's purpose, rather than plain meaning of its text, when literal application of text would "lead to absurd or futile results"). *Cf. NRDC v. Adm'r, EPA*, 902 F.2d 962, 978 (D.C. Cir. 1990) (denying EPA this discretion where Act prescribes precise numerical threshold).

482. *See* 42 U.S.C. § 7479(3) (requiring that "best available control technology" be determined "on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs").

483. 40 C.F.R. § 52.21(n)(1)(iii). *See id.* §§ 7475(a)(3), 7479(3) (requiring proposed permits to not violate existing air-quality standards and requiring "best available control technology" to not violate emissions standards).

484. *See supra* notes 238-240 and accompanying text (explaining the non-localized-effects nature of CO2).

485. *See* 42 U.S.C. §§ 7475(a)(2), 7661a(b)(6) (requiring public hearing and possibly enabling quick procedures to approve applications).

screens at hearings and quickly moving through applications and issuing permits.[486]

EPA would also need to promulgate rules or, in certain instances, guidance documents that drastically reduce the amount of litigation that could ensue by:

6. Adopting the position that, because common GHGs do not have "localized effects," the complicated cross-state air pollution analyses can be effectively bypassed with prechecked boxes and other pro forma means.[487]
7. Adopting the position that, in the same vein as above, no individual source could ever suffer a particularized injury from another source's CO2 or CH4 emissions that could be redressable by a court; and therefore only a state should receive Article III standing to contest the issuance of a PSD or Title V permit to a non-anyway source of CO2 and CH4.[488]

EPA would also need to promulgate guidance documents and encourage state environmental agencies to do all of the above through their own rulemaking.[489] Generally speaking, EPA should not rely on states to come up with their own rules. Rather, EPA should set up model rules that would meet the minimum requirements of the CAA and provide uniformity, especially regarding the BACT analysis for non-anyway sources, with the model rules mirroring the rules that EPA would enforce through a FIP.[490] This should further lessen the ensuing regulatory burden on businesses.[491]

No state should subject an owner or operator of a non-anyway source to a burdensome and time-consuming application process that consumes a state agency's resources, because doing so would threaten the entire scheme.[492] Nor would such burdensome regu-

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486. *See id.* at § 7661a(b)(6) (promoting use of expeditious procedures in application process).

487. *See* 42 U.S.C. § 7410 (describing general procedures in adopting and approving state implementation plans).

488. *See* Massachusetts v. EPA, 549 U.S. 497, 525 (2007) (holding Massachusetts has standing to challenge greenhouse gas regulation).

489. Connor N. Raso, Comment, *Strategic or Sincere? Analyzing Agency Use of Guidance Documents*, 119 YALE L.J. 782, 788-89 (2010) (examining usage of guidance documents in administration and comparing them to legislative rules).

490. Paul S. Weiland, *Federal and State Preemption of Environmental Law: A Critical Analysis*, 24 HARV. ENVTL. L. REV. 237, 239-44 (2000) (discussing advantages of environmental law centralization, including compliance with only one standard).

491. *See id.* at 242-43 (discussing auto manufacturers' preference to one federal legislation compliance instead of local and state compliance).

492. *See* UARG v. EPA, 573 U.S. 302, 322 (2014) (discussing implications of EPA's proposed rule).

lation be necessary to achieve climate goals for the foreseeable future, because the important reductions would mostly come from the SIPs. Again, just as the States are in many respects "laborator[ies]" of democracy, so too would they be laboratories of emissions reduction with regard to the SIPs.[493] EPA should be prepared to "FIP" many states and cut off highway funding when Congresspersons or Senators from recalcitrant states attempt to cut off EPA funding.[494]

As for international market mechanisms, EPA should be wary of rushing into any system that purports to offer carbon credits on an international basis.[495] As we move through the Century and implementation challenges increase, however, EPA should explore a trust-but-verify system of international emissions trading, perhaps aided by a fleet of satellites like NASA's Orbiting Carbon Observatory. For example, Texas could purchase fifty-year leases of hectares in Ethiopia to grow forests where there currently are none—a literal carbon offset that would enable Texans to emit more.[496]

Also, regarding the international front, if other countries were to agree to reduce emissions in kind and join the U.S. by doing their part to achieve RCP 3PD or an updated-RCP 3PD and formalize the agreement, the U.S. would be able to hold these foreign countries accountable in their courts in certain instances and vice versa under section 115.[497] The potential use of market mechanisms and section 115 warrants further study.[498]

In conclusion, a long-range Secondary GHG NAAQS would likely require a not-insignificant increase in administrative resources, the extremely efficient use of those resources, a policy of extreme deference and courtesy toward the owners and operators

493. New State Ice Co. v. Liebmann, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting). For a discussion of the role SIPs would play in limiting global warming, see *supra* notes 160-81 and accompanying text.

494. *See* 42 U.S.C. § 7509(b)(1) (allowing EPA to remove highway funding for lack of compliance).

495. *See id.* § 7410(a)(2) (permitting use of economic incentives in state implementation plans).

496. *See* Sharif Paget & Helen Regan, *Ethiopia Plants More Than 350 Million Trees in 12 Hours*, CNN (July 30, 2019), http://www.cnn.com/2019/07/29/africa/ethiopia-plants-350-million-trees-intl-hnk/index.html (discussing instance of mass tree planting in Ethiopia).

497. *See id.* 42 U.S.C. § 7415 (detailing EPA's role in combating international air pollution).

498. *See* Hannah Chang, *Cap and Trade Under the Clean Air Act? Rethinking §115*, 40 ENVTL. L. REP. NEWS & ANALYSIS 10894, 10903-04 (2010) (discussing advantages of using SIPs in enforcing CAA § 115 through use of market mechanisms).

of newly regulated sources, market mechanisms, the strict enforcement of the provisions that comprise the actual NAAQS and SIPs/FIPs, and bold but deliberate legal navigation.[499] With the leadership of a committed President and dynamic EPA Administrator, it could be done.

## XIV. ALTERNATIVE STRATEGY: WITHOUT BLUFFING, ESTABLISH A SECONDARY GHG NAAQS TO LEVERAGE THE PASSAGE OF AN AMBITIOUS CARBON PRICE

Finally, and alternatively, a long-range Secondary GHG NAAQS could be used as a stick; one that, if wielded by a determined President, could get Congress to do what it is currently unwilling to do—and what many environmentalists and economists have for years been unsuccessfully clamoring for—which is pass a bold, steadily increasing revenue-neutral price on carbon emissions.[500] In other words, by using existing law to legitimately shove grand-scale, cap-and-trade climate regulation down the throats of states and subjecting millions of business to major-source permitting regulations, a President might actually put normally recalcitrant Republicans and reluctant Democrats in Congress in the mood for passing legislation that is perhaps less painful, more cost-effective, and friendlier to free enterprise than a Secondary GHG NAAQS. Such legislation could be a steadily increasing and eventually quite high tax on GHG emissions, with practically all of the proceeds going back to American households to offset the expected increase in the price of energy and goods.[501] If carbon price advocates implemented this particular strategy, then, by going to war with the army we have, they might be able to get the army they want for this long struggle.

Such a ploy of regulatory brinksmanship, however, could only work if it is not a bluff. Whoever sits in the Oval Office would have to be willing to veto any reactionary bill that attempts to prohibit the NAAQS regulation of GHGs or replace it with something

499. *See supra* Parts III-VI, IX, and XII and notes 469-499 and accompanying text.

500. *See* Jason Bordoff & Michael Lewis, *Bittersweet Achievement on Climate*, N.Y. TIMES A25 (June 25, 2013), http://www.nytimes.com/2013/06/26/opinion/bittersweet-achievement-on-climate.html (discussing failure of Congress to enact meaningful legislation to combat climate change).

501. See *supra* note 414 and accompanying text exploring H.R. 763, 116th Cong. (2019) (titled the "Energy Innovation and Carbon Dividend Act of 2019") and S. 3791, 115th Cong. (2018) (titled the "Energy Innovation and Carbon Dividend Act of 2018").

weaker.[502] The President would also need to prevent Congress from overriding his or her veto and order EPA to press forward with the NAAQS process for GHGs until Congress finally submits and passes legislation equal to the task of mitigating climate change. The stakes would be high.[503] Congress could create a huge setback by passing new law that either prohibits a GHG NAAQS or all GHG regulation under the CAA.[504] Accordingly, this paper discourages any state or entity from petitioning EPA or attempting to force its hand through litigation on this matter during the Trump administration or when Republicans control Congress.[505] The Attorneys General of progressive states should prepare for this long legal battle, but they should plan discreetly.[506] After all, it is best to catch one's adversary in an ambush, which requires surprise and good timing.[507]

## XV. CONCLUSION

Thinking ahead to when a President committed to serious action on climate change takes office and Congress is either controlled by Democrats or at least divided, one quote from a very stable genius, our current President, does come to mind: "[w]hat the hell do you have to lose?"[508]

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502. *See* Energy Tax Prevention Act of 2011, S. 482, 112th Cong. (2011-2012) (proposing to prohibit EPA from regulating GHGs under CAA and to exempt GHGs from definition of "air pollutant" for purposes of addressing climate change); Energy Tax Prevention Act of 2011, H.R. 910, 112th Cong. (2011-2012) (proposing same prohibition on GHG regulation under CAA as well as explicit repeal of, among other regulations, EPA's 2009 Endangerment Finding on GHGs).

503. *See* Meinshausen et al., *supra* note 59, at 233 fig. 6 (extrapolating data to determine warming that occurs without action); *see also supra* note 503.

504. *See supra* note 503.

505. *See* Anthony Leiserowitz et al., *supra* note 417, at 4 (noting great divide on global warming between Republicans and Democrats).

506. *See* Massachusetts v. EPA, 549 U.S. 497, 525 (2007) (holding Massachusetts has standing to challenge lack of greenhouse gas regulations).

507. *See* RANGER HANDBOOK, *supra* note 126, at 7-10; *see also* SUN-TZU, THE ART OF WAR 208 (Ralph D. Sawyer trans., Westview Press 1994) (stating "[i]f the birds take flight, there is an ambush. If the animals are afraid, enemy forces are mounting a sudden attack.").

508. Donald J. Trump, Speech at the Waukesha County Expo Center, Waukesha, WI (Sept. 28, 2016).