The Clean Air Act: A Suitable Tool for Addressing the Challenges of Climate Change

by Robert B. McKinstry Jr.

Robert B. McKinstry Jr. is a partner in the Philadelphia office of Ballard Spahr, LLP, where he heads the firm's Climate Change and Sustainability Initiative. He was counsel of record for the group of amici climate scientists supporting the petitioners in *Massachusetts v. EPA*.

The political opponents of regulation addressing climate change claim that the Clean Air Act (CAA)[1] is a "fossil" neither intended nor suitable for addressing the challenges of climate change.[2] Legal and historical analysis suggests otherwise. Both the text of the Act, as interpreted by the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency (EPA)*,[3] and the legislative history indicate a congressional intent to regulate emissions of pollutants that pose a risk of causing changes in worldwide climate. Far from being a fossil, the statutory "bones" provide a broad array of regulatory and other tools that can be flexibly applied. These include not only technology-based emissions standards and enforcement tools, but programs for comprehensive planning by states to use the full range of incentives and disincentives available under their police and spending powers. These tools also include tradable permits, emissions fees and auctions, other incentive-based emissions reductions approaches, and air quality-based limits.

Without a doubt, some provisions of the Act are not well suited for the unique problems posed by climate change. However, for the most part, the statute is sufficiently general and flexible to allow rulemaking and interpretation to tailor these provisions to the problem at hand.[4] The Supreme Court has specifically provided EPA with considerable flexibility in implementing the statute, finding that EPA "no doubt has significant latitude as to the manner, timing, content, and coordination of its regulations with those of other agencies."[5]

In keeping with the incremental approach to regulation contemplated by the Supreme Court, EPA has announced settlements with states and environmental groups, many of which were petitioners in *Massachusetts*, in which EPA has agreed to establish greenhouse gas (GHG) emissions standards for both new and existing major fossil fuel-fired electric generating units (EGUs) and petroleum refineries pursuant to §111 of the CAA.[6] This approach will expand upon EPA's sectoral approach to regulation of GHG emissions that began with the promulgation of emissions standards for light cars and trucks under §202 of the CAA,[7] and is continuing with the development of GHG emissions standards for heavy vehicles and a second round of standards for light vehicles. The automobile industry has embraced EPA's approach to regulating mobile source GHG emissions. The mobile source rules were developed through a negotiated rulemaking, and the automobile industry has intervened on EPA's behalf to defend the light vehicle standards against challenges by states, industry

1. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
2. This statement appeared in letters written by the heads of various agencies, which appeared at the beginning of the *Advance Notice of Proposed Rulemaking, Regulating Greenhouse Gas Emissions Under the Clean Air Act*, 73 Fed. Reg. 44354, 44362 (July 30, 2008) (ANPR), and were directly contradicted by the extensive discussion, prepared by EPA staff, that followed describing the ways in which the CAA could be used and the challenges and questions presented. The letters appeared to be internal comments on the initial staff draft that were included verbatim in the ANPR.
3. 549 U.S. 497, 37 ELR 20075 (2007).
4. Legal scholars have suggested that gridlock in the U.S. Congress and the need to address increasingly complex problems has led to the situation where statutory law must be increasingly developed through quasi-legislative rulemaking proceedings and judicial interpretation. *See* William N. Eskridge Jr. & John Ferejohn, *Super-Statutes*, 50 Duke L.J. 1215 (2001).
5. *Massachusetts*, 549 U.S. at 533.
6. On December 30, 2010, EPA published notice of a proposed settlement in *State of New York v. U.S. EPA*, No. 06-1148 and consolidated cases (D.C. Cir. Apr. 27, 2006), pursuant to which EPA would agree to propose GHG emissions standards for new and existing EGUs under §111 of the CAA by July 26, 2011. 75 Fed. Reg. 82392 (Dec. 30, 2010). This settlement would resolve litigation challenging EPA's failure to include GHG emissions standards in the utility new source performance standards (NSPS) promulgated in 2006, and remanded by the Court to EPA for reconsideration in light of *Massachusetts*. EPA simultaneously published notice of a proposed settlement in *American Petroleum Institute v. EPA*, No. 08-1277 (D.C. Cir. 2010), pursuant to which EPA would agree to propose GHG emissions standards for new and existing petroleum refineries under §111 by December 10, 2011. 75 Fed. Reg. 82390 (Dec. 30, 2010). This agreement would settle litigation challenging EPA's failure to include GHG standards in the Standards of Performance for Petroleum Refineries, 73 Fed. Reg. 35838 (June 24, 2008).
7. Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, 75 Fed. Reg. 25324 (May 7, 2010).

groups or companies, and groups ideologically opposed to all regulation of GHGs.[8]

The settlement agreements are arguably a logical first step in regulating emissions from stationary sources. Neither the electricity generation nor petroleum refining sector is likely to implicate concerns about American competitiveness, since neither can readily be displaced by imports. The utility sector, upon which this Article will focus, represents the largest single contributor to GHG emissions in the United States, producing 40% of the carbon dioxide (CO_2) emissions and 39.3% of total net GHG emissions in the United States.[9] There are significant opportunities for cost-effective emissions reductions in the utility sector that can both stimulate the economy and generate new jobs. The CAA can, therefore, provide appropriate legal tools to "do well by doing good." These tools are examined below.

I. EPA Is Legally Required to Establish GHG Emissions Standards for the Utility Sector Under §111 of the CAA

The regulation required by the settlements appears to be not only supported but required by law. The utility settlement arose out of litigation challenging EPA's failure to include a GHG emissions standard in the new source performance standards (NSPS) for the utility industry promulgated on February 27, 2006.[10] The state of science relating to climate change, as found by EPA in its Endangerment Finding and Reconsideration, and the legal import of the Supreme Court's decision in *Massachusetts*, support the U.S. decision to enter into the settlement, in that the most probable outcome of the litigation would have been a court order requiring EPA to develop the GHG emissions standards required under the settlement.

The operative statutory language triggering regulation under the section of the CAA construed by the Supreme Court in *Massachusetts* is identical to the language in §111 that triggers regulation under that section. In *Massachusetts*, the Supreme Court reversed EPA's denial of a petition to regulate GHGs under §202 of the CAA, and remanded the issue to the Agency. The Court held that CO_2 and other GHGs are "pollutants" that could be regulated under the CAA and that EPA's discretion as to whether emissions of those pollutants should be regulated under §202 of the Act was narrowly constrained to the precise statutory standard triggering regulation under that section. The Court held that EPA would be required to regulate emissions of GHGs from the motor vehicles regulated under §202 if it were to find, based on its best scientific judgment, that those emissions "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare."[11] The Court's reasoning is instructive:

> While the statute does condition the exercise of EPA's authority on its formation of a "judgment," 42 U.S.C. §7521(a)(1), that judgment must relate to whether an air pollutant "cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to endanger public health or welfare," *ibid*. Put another way, the use of the word "judgment" is not a roving license to ignore the statutory text. It is but a direction to exercise discretion within defined statutory limits.
>
> If EPA makes a finding of endangerment, the CAA requires the agency to regulate emissions of the deleterious pollutant from new motor vehicles. *Ibid*. (stating that "[EPA] shall by regulation prescribe . . . standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles"). EPA no doubt has significant latitude as to the manner, timing, content, and coordination of its regulations with those of other agencies. But once EPA has responded to a petition for rulemaking, its reasons for action or inaction must conform to the authorizing statute. Under the clear terms of the CAA, EPA can avoid taking further action only if it determines that greenhouse gases do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do. *Ibid*. To the extent that this constrains agency discretion to pursue other priorities of the Administrator or the President, this is the congressional design.[12]

The Court remanded the matter to EPA to determine whether or not it could make such an endangerment finding. EPA subsequently made that Endangerment Finding,[13] denied a petition to reconsider that finding nine months later,[14] and has promulgated regulations governing emissions of motor vehicles under §202, which are now in effect.[15]

8. Coalition for Responsible Regulation, Inc. v. U.S. EPA, No. 10-1092 (D.C. Cir. Dec. 23, 2009).
9. U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008* (Apr. 2010) at 5-6.
10. State of New York v. U.S. Envtl. Prot. Agency, No. 06-1322 (D.C. Cir.), appealing Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978; Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units; and Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, 71 Fed. Reg. 9866 (Feb. 27, 2006).
11. Massachusetts v. EPA, 549 U.S. 497, 532, 37 ELR 20075 (2007).
12. *Id.* at 532-33.
13. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act; Final Rule, 74 Fed. Reg. 66496 (Dec. 15, 2009) (Endangerment Finding).
14. Denial of the Petitions to Reconsider the Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 75 Fed. Reg. 49556 (Aug. 13, 2010) (Endangerment Reconsideration).
15. Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, 75 Fed. Reg. 25324 (May 7, 2010) (Mobile Source Rule). These and EPA's other actions relating to GHG regulation are under appeal. *See* Coalition for Responsible Regulation, Inc. v. EPA, No. 09-1322 (D.C. Cir. Dec. 23, 2009) (challenging EPA's Endangerment Finding, 74 Fed. Reg. 66496 (Dec. 15, 2009)); Coalition for Responsible Regulation, Inc. v. EPA, No. 10-1073 (D.C. Cir. Apr. 2, 2010) (challenging EPA's Trigger Rule, also known as the Timing Decision or the Johnson Memorandum Rule, 75 Fed. Reg. 17004 (Apr. 2, 2010)); Coalition for Responsible Regulation, Inc. v. EPA, No. 10-1092 (D.C. Cir. May 7, 2010) (challenging EPA's Mobile Source Rule, also known as the Vehicle Rule, 75 Fed. Reg. 25324 (May 7, 2010)); Southeastern Legal Found. v. EPA, No. 10-1131 (D.C. Cir. June 3, 2010) (challenging EPA's Tailoring Rule, 75 Fed. Reg. 31514 (June 3, 2010)); Coalition for Responsible Regu-

Using wording identical to the language in §202 construed by the Supreme Court, §111 requires EPA to develop a list of "categories of stationary sources" of air pollution and to develop emissions standards for those source categories, mandating that the Administrator:

> shall include a category of sources in such list if in his judgment it *causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health and welfare*.[16]

In the Endangerment Finding and again in the Endangerment Reconsideration, EPA found that GHGs are "air pollution that can reasonably be anticipated to endanger public health and welfare" (the endangerment portion of the finding)[17] and that emissions of GHGs from automobiles cause and contribute to that pollution (the "cause and contribute" portion of the finding).[18] Having made that finding for motor vehicles under §202, it would likely be deemed arbitrary and capricious not to make the same finding for fossil fuel-fired power plants. According to EPA's latest official *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, fossil fuel production from the electricity generation sector exceeds the CO_2 emissions from fossil fuel combustion in *all* transportation sources by a factor of 1.32.[19]

The only applicable case law, the U.S Court of Appeals for the Second Circuit's decision in *Natural Resources Defense Council (NRDC), Inc. v. Train*,[20] suggests that the endangerment finding leading to the Mobile Source Rule will require regulation under §111, as well as other sections of the CAA. *NRDC* involved emissions of lead, representing the only other instance where EPA has decided to regulate emissions of an entirely new pollutant under §202 of the CAA. In that case, EPA had determined that, although the scientific evidence was not entirely clear, emissions of lead from burning leaded gasoline could potentially endanger health and welfare. EPA, therefore, decided to regulate lead under §202 of the CAA and promulgated the lead phasedown regulations, phasing lead out of gasoline. The Second Circuit, affirming a district court opinion, held that making the endangerment finding for lead under §202 of the CAA triggered a mandatory duty to list lead under §108 of the CAA that could be enforced against EPA under the CAA citizen suit provision.[21]

Although *NRDC* involved §108, rather than §111,[22] its reasoning can be applied to regulation of GHG emissions under §111. Both sections use the mandatory "shall" and identical endangerment language triggering regulation. Although EPA has not specifically made the "cause or contribute" part of the endangerment finding, its official report finds that GHG emissions from fossil fuel-fired power plants are *greater* than those from motor vehicles, for which EPA has made the "cause or contribute" finding. The reasoning of *NRDC* would, therefore, suggest that EPA has a mandatory duty to regulate power plant emissions.[23]

---

lation, Inc. v. EPA, No. 10-1234 (D.C. Cir. Aug. 13, 2010) (challenging Endangerment Reconsideration, 75 Fed. Reg. 49556 (Aug. 13, 2010)) (collectively, the GHG Litigation).

16. CAA §7411(b)(1)(A) (emphasis added).
17. *See* 74 Fed. Reg. 66496, 66497 (Dec. 15, 2009) ("the Administrator finds that greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare. . . . The Administrator has determined that the body of scientific evidence compellingly supports this finding"); 75 Fed. Reg. 49566 (2010):
    > The Environmental Protection Agency (EPA) is denying the petitions to reconsider the Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act . . . EPA's analysis of the petitions reveals that the petitioners have provided inadequate and generally unscientific arguments and evidence that the underlying science supporting the Findings is flawed, misinterpreted or inappropriately applied by EPA. . . . The science supporting the Administrator's finding that elevated concentrations of greenhouse gases in the atmosphere may reasonably be anticipated to endanger the public health and welfare of current and future U.S. generations is robust, voluminous, and compelling, and has been strongly affirmed by the recent science assessment of the U.S. National Academy of Sciences.
18. *See* 74 Fed. Reg. 66496, 66499 (Dec. 15, 2009):
    > The Administrator also finds that emissions of well-mixed greenhouse gases from the transportation sources covered under CAA section 202(a) contribute to the total greenhouse gas air pollution, and thus to the climate change problem, which is reasonably anticipated to endanger public health and welfare. . . . In order to determine if emissions of the well-mixed greenhouse gases from CAA section 202(a) source categories contribute to the air pollution that endangers public health and welfare, the Administrator compared the emissions from these CAA section 202(a) source categories to total global and total U.S. greenhouse gas emissions, finding that these source categories are responsible for about 4 percent of total global well-mixed greenhouse gas emissions and just over 23 percent of total U.S. well-mixed greenhouse gas emissions.
19. According to EPA's 2010 Inventory of GHG emissions in the United States, in 2008, fossil fuel combustion for generation of electricity produced 2,363.5 million metric tons of CO_2, or 40% of the total CO_2 emissions, 39.3% of total net U.S. emissions, or 34% of all U.S. GHG emissions, compared to 1,785.3 million metric tons of CO_2 from all transportation sources (30% of total CO_2 emissions or 26% of all U.S. GHG emissions). U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008* (Apr. 2010), at 5-6.
20. 545 F.2d 320, 7 ELR 20004 (2d Cir. 1976).
21. 42 U.S.C. §7604(a)(2) (authorizing a citizen suit against EPA for "failure of the Administrator to perform any act or duty under this chapter which is not discretionary with the Administrator"). *NRDC,* 545 F.2d at 424-25 ("Section 108(a)(1) contains mandatory language. It provides that 'the Administrator *shall* . . . publish . . . a list . . . .' (Emphasis added.)").
22. The nature of the endangerment finding was somewhat different in 1976, in that §§202 and 108 both required that "emissions" actually "endanger" health or welfare. However, the difference militates more strongly in favor of regulation. After the court of appeals upheld the lead phasedown regulations against a challenge based on the premise that the "will endanger" language required a showing of actual harm rather than potential harm, *Ethyl Corp. v. EPA*, 541 F.2d 1, 6 ELR 20267 (D.C. Cir. 1976), Congress amended the CAA in 1977 to include the current and identical precautionary "reasonably be anticipated to endanger" language in §§202, 108, 111, 112, 211, and 231. *See* Pub. L. No. 95-95 §401, 91 Stat. 685, 791 (1977)). Noting that the same basic formula—"may reasonably be anticipated to endanger"—was deliberately written into §§108, 111, 112, 202, 211, and 231, H.R. Rep. No. 95-294, at 50 (1977), the House Report notes the congressional intent to "support the views expressed" in *Ethyl Corp*. H.R. Rep. No. 95-294, at 49. The amendment was intended "to emphasize the predominant value of protection of public health," and "the Administrator's duty to assess risks rather than wait for proof of actual harm." *Id*. at 49, 51. The statutory changes reflected congressional "awareness of the uncertainties and limitations in the data which will be available to the Administrator in the foreseeable future to enable him to execute his rulemaking duties under this act." *Id.* at 50.
23. As discussed below, *NRDC* also suggests that a court could conclude that EPA has a mandatory duty to list GHGs under §108 as criteria pollutants, triggering the requirement to establish national ambient air quality standards (NAAQS) under §109 and to develop state implementation plans (SIPs) addressing emissions from all significant sources under §110.

II. Regulation Under §111 Represents a "No Regrets" Approach to Regulation for the Utility Sector

EPA's decision to develop both NSPS and standards for existing utility sources under §111 of the CAA represents a "no regrets" path to regulation of the utility and petroleum sectors. Regulation of GHG emissions from new or modified fossil fuel-fired EGUs and petroleum refineries under §111(b) of the CAA is legally required under all circumstances. EPA has already issued guidance for determining best available control technology (BACT) for new and modified sources in which it has identified energy efficiency measures and measures for preventing GHG process losses that can be implemented cost effectively. States are already implementing this guidance through individual BACT determinations.[24] These and other decisions can inform EPA's development of standards for new sources.

EPA will begin by regulating existing EGUs and petroleum refineries under §111(d), a section of the CAA that has been used only infrequently. Ultimately, the courts may decide that the more appropriate route to regulation of existing GHG stationary sources will be under §110 of the Act, after listing GHGs under §108 and establishment of national ambient air quality standards (NAAQS) under §109. If NAAQS have been established for a pollutant, regulation of existing sources must occur directly via §110, rather than §111(d). However, as explained below, regardless of whether NAAQS are established or regulation proceeds under §111(d), regulation of existing sources will be effected through state implementation plans (SIPs). For that reason, to start regulation by establishing a meaningful set of requirements for both new and existing sources in the utility and petroleum refining sectors, which are particularly capital-intensive and where capital is particularly long-lived, represents a sensible first step in a phased, coordinated approach.

The same reasoning that led the court in *NRDC* to compel listing lead under §108 of the CAA, after lead emissions had been regulated under §202, would seem to compel the listing of GHGs as criteria pollutants. Section 108(a)(1) requires the Administrator to publish a list of "criteria air pollutants"

> which includes each air pollutant—
>
> (A) emissions of which, in his judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare;
>
> (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 plans to issue air quality criteria under this section.[25]

EPA has already concluded that the first criterion has been satisfied, and it would be hard to argue, in light of EPA's decisions to regulate light cars and trucks, heavy vehicles, EGUs, and petroleum refineries, that the second criterion has been satisfied. No air quality criteria were issued for GHGs before December 31, 1970. EPA has suggested that the statutory phrase, "for which he plans to issue air quality criteria under this section," may make listing discretionary with EPA, but the court in *NRDC* specifically held that that language did not make listing discretionary.[26] Although EPA has suggested that the Supreme Court's later decision in *Chevron v. Natural Resources Defense Council*,[27] may undermine that decision, the Supreme Court's decision in *Massachusetts*, holding that the "in his judgment" language in §202 did not render a mandatory duty discretionary, suggests otherwise. There is also an argument that, in making the Endangerment Finding, the Endangerment Reconsideration, the various GHG Inventories and Assessment, and the emissions guidelines and regulations that EPA has already issued and has agreed to issue, EPA has effectively already issued or manifested an intent to issue air quality criteria within the meaning of §108(a).

The Center for Biological Diversity and 350.org have filed a rulemaking petition with EPA seeking to have EPA list GHGs as criteria pollutants and to establish NAAQS equal to 350 parts per million by volume (ppmv) for CO_2.[28]

---

24. For example, the South Dakota Department of Environment and Natural Resources (DENR) has already made GHG BACT determinations for a proposed greenfield-integrated gasification combined-cycle (IGCC) EGU and petroleum refining facility in a recent prevention of significant deterioration (PSD) determination and draft PSD Permit. South Dakota DENR, Statement of Basis, Construction Deadline Extension Request for the Prevention of Significant Deterioration, Permit #28.0701-PSD, Hyperion Energy Center Near Elk Point, Union County, South Dakota (2011), at 32. For the IGCC EGU, the applicant had proposed that IGCC with good combustion practices constituted BACT, and the DENR determined that the addition of limited terrestrial sequestration was also feasible. The agency evaluated all GHG emissions sources and concluded:
    > Generally and historically, the case-by-case BACT limits have been established on an emission unit basis and not as a system or facility wide basis. However, greenhouse gases are not typical air pollutant being reviewed. As discussed in more detail in the process heater review, DENR is proposing a system wide greenhouse gas limit of 23.9 tons carbon dioxide equivalent per thousand barrels crude charged. The averaging time shall be based on a 365-day rolling average with compliance based on carbon dioxide continuous emission monitoring systems.

    Id. at 54. The decision cited another combined-cycle generation facility GHG BACT in California.

25. CAA §108(a)(1).
26. Regulating Greenhouse Gas Emissions Under the Clean Air Act, Advance Notice of Proposed Rulemaking, 73 Fed. Reg. 44354, 44477 (July 30, 2008). EPA further stated:
    > With respect to the third criterion, while there is a decision of U.S. Court of Appeals for the Second Circuit to the contrary, *NRDC v. Train*, 545 F.2d 320 (2nd Cir. 1978), EPA notes that that decision was rendered prior to the Supreme Court's decision in *Chevron v. Natural Resources Defense Council*, 467 U.S. 837 (1984). Thus, a proper and reasonable question to ask is whether this criterion affords EPA discretion to decide whether it is appropriate to apply the NAAQS structure to a global air pollution problem like GHGs.

    73 Fed. Reg. at 44477, n.229.
27. 467 U.S. 837, 14 ELR 20507 (1984).
28. Center for Biological Diversity & 350.org, Petitioners, *Petition to Establish National Pollution Limits for Greenhouse Gases Pursuant to the Clean Air Act* (Dec. 2, 2009), *available at* http://www.biologicaldiversity.org/programs/

Although EPA has stated that it has no intention of acting on the petition in the near future and there is no statutory deadline for acting, eventually, the petitioners may file a citizen suit against the Administrator pursuant to §304 of the CAA to compel the performance of a mandatory duty. *NRDC* began as a citizen suit.[29] With the lack of a statutory deadline, EPA may be able to argue that a citizen suit is not ripe, as long as it is addressing emissions in a measured, reasonable manner. It can further argue that, in light of the fact that it will be taking action to regulate the most significant sources first, its delay is not unreasonable in light of the Supreme Court's language giving EPA discretion on the timing of its regulations.[30] Taking action to address GHG emissions from some of the most significant categories of major stationary sources may also have the practical effect of deterring a citizen suit.[31]

After EPA lists a pollutant as a criteria pollutant under §108, a number of time deadlines are triggered. Air quality criteria must be issued within 12 months of listing, and EPA is simultaneously required to establish NAAQS under §109. Within three years of promulgation of NAAQS, states will be required to develop SIPs providing for the "implementation, maintenance, and enforcement" of the NAAQS and to submit them to EPA for approval pursuant to §110(a). In addition, working from state submissions, EPA must designate all air quality control regions as nonattainment, attainment, or unclassifiable with two years of the promulgation of NAAQS. SIPs must provide for attainment of any primary NAAQS no later than five years from the date an area is designated nonattainment and "as expeditiously as possible" for any area designated nonattainment for secondary standards.[32]

As long as EPA has not listed GHGs under §108, thereby triggering the requirement to establish NAAQS for GHGs, it will be required to establish a similar regulatory regime under §111(d) for existing utility sources, but without the many deadlines triggered by listing under §108. Section 111(b) requires that EPA establish NSPS for each category of stationary sources on the §111 list. Section 111(d) requires that every state create a regulatory regime, including SIPs, for existing sources of air pollutants not listed under §108 or regulated under §112, as follows:

> (d)(1) The Administrator shall prescribe regulations which shall establish a procedure similar to that provided by section 110 under which each State shall submit to the Administrator a plan which (A) establishes standards of performance for any existing source for any air pollutant (i) for which air quality criteria have not been issued or which is not included on a list published under section 108(a) or 112(b)(1)(A) but (ii) to which a standard of performance under this section would apply if such existing source were a new source, and (B) provides for the implementation and enforcement of such standards of performance. Regulations of the Administrator under this paragraph shall permit the State in applying a standard of performance to any particular source under a plan submitted under this paragraph to take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies.
>
> (2) The Administrator shall have the same authority—
>
> (A) to prescribe a plan for a State in cases where the State fails to submit a satisfactory plan as he would have under section 110(c) in the case of failure to submit an implementation plan, and
>
> (B) to enforce the provisions of such plan in cases where the State fails to enforce them as he would have under sections 113 and 114 with respect to an implementation plan. In promulgating a standard of performance under a plan prescribed under this paragraph, the Administrator shall take into consideration, among other factors, remaining useful lives of the sources in the category of sources to which such standard applies.[33]

The text and the legislative history of §111(d) suggest that the U.S. Congress intended that it be used as a gap filler to regulate pollutants threatening health or welfare that cannot be regulated under other sections. While this intent would appear to militate for regulation under §108 as the ultimate path to regulation, it might also suggest that §111(d) can be used to establish an interim program allowing an incremental approach whereby sectors with significant GHG emissions and significant opportunities

climate_law_institute/global_warming_litigation/clean_air_act/pdfs/Petition_GHG_pollution_cap_12-2-2009.pdf.

29. *See* Natural Resources Defense Council, Inc. v. Train, 411 F. Supp. 864, 6 ELR 20366 (S.D.N.Y. 1976), *aff'd*, 545 F.2d 320, 7 ELR 20044 (2d Cir. 1976) (permitting citizen suit to enforce mandatory duty).
30. *NRDC* found a nondiscretionary duty without addressing the issue of timing. Subsequent cases citing *NRDC* with approval have muddied the law on the issue of timing and jurisdiction. In *Environmental Defense Fund v. Thomas*, 870 F.2d 892, 19 ELR 20660 (2d Cir. 1989), the Second Circuit, citing *NRDC* with approval, held that a citizen suit could be brought to compel the Administrator to make a decision whether or not to revise NAAQS after an unreasonable delay, given the requirement to reassess NAAQS every five years. In *Natural Resources Defense Council, Inc. v. Thomas*, 885 F.2d 1067, 20 ELR 20174 (2d Cir. 1989), the Second Circuit affirmed the dismissal of a citizen suit seeking to compel the listing of certain hazardous air pollutants under §112, because EPA had not made the endangerment finding then required by that section and there was, therefore, no nondiscretionary duty. Although the Court cited *NRDC* with approval, it distinguished that case because there, as in the case of GHGs, the Administrator already had made an endangerment finding and, in the §112 case then before the court, the Administrator had deferred the finding to gather more evidence. In response to NRDC's argument that EPA had unreasonably delayed in making a hazard determination, the court held that, where there was no express statutory deadline, as in the case of making a finding, there would generally not be a nondiscretionary duty, and a claim of unreasonable delay in making the decision could only be raised in an appeal to the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit pursuant to §307 of the Act, 42. U.S.C. §7607.
31. It is possible that EPA's action promulgating regulations under §111 could be challenged on the ground that it should proceed pursuant to §108. It would seem unlikely that either opponents or proponents of regulation would want to raise such a claim. However, the same might be said of EPA's Tailoring Rule, which has been appealed by parties to whom it offers temporary regulatory relief.
32. A primary NAAQS is set at a level necessary to protect health, and a secondary set at a level necessary to protect welfare. 42 U.S.C. §7409(b).
33. 42 U.S.C. §7411(d).

for emissions reductions are regulated first. This approach would create long-term economic signals to guide investment in those sectors, without affecting the sectors where U.S. competitiveness might be implicated.

Section 111(d) was enacted as part of the CAA Amendments of 1970. No comparable provision appeared in the U.S. House of Representatives bill, although the U.S. Senate bill contained a §114 that would have required the establishment of national emission standards for "selected air pollution agents."[34] Section 114 was rewritten in conference to become §111(d). Although there are references to the legislative intent of §114 in the Senate report and debates, there does not appear to be any similar discussion of the enacted §111(d).[35]

According to EPA's interpretation of the Senate report and debates, as expressed by EPA in adopting the general §111(d) regulations in 1975, §114 was designed to address a specific problem: how to reduce emissions of pollutants that are (or may be) harmful to health but which, on the basis of information likely to be available, cannot be controlled under other sections of the CAA as criteria pollutants or as hazardous pollutants.[36] Because less information was available about the effects of these pollutants, it would have been difficult, if not impossible, to prescribe legally defensible standards based directly on protection of public health and welfare until more definitive information became available. Yet, the pollutants, by definition, were those that had or might be expected to have adverse effects on health. EPA, therefore, concluded that Congress decided that control of such pollutants on some basis was necessary and that §114 was rewritten as part of §111 largely so that the "technology-based" approach of §111, which makes allowances for the costs of controlling existing sources, would extend to action under §111(d).[37]

In light of this gap-filling nature, §111(d) directs that states implement emissions reductions through SIPs, by providing that EPA's §111(d) regulations "shall establish a procedure similar to that provided by [§110]" under which each state shall submit to the Administrator a plan and giving EPA the same authority to approve state plans and promulgate federal implementation plans (FIPs). This means that, regardless whether EPA ultimately is required to regulate GHGs from the utility and refining sectors as criteria pollutants pursuant to §108 or under §111(d), EPA has the basis to claim authority for, and could be held by a court to have a mandatory duty to make, SIP calls requiring states to regulate GHG emissions from existing EGUs and refineries pursuant to their SIPs under §110.

III. Section 111(d) Provides an Opportunity for State Involvement and Market-Based Mechanisms

Section 111(d) provides an opportunity for state planning and involvement in GHG regulation, as well as the application of market-based solutions for regulation of existing sources. Section 111(d)'s requirement that EPA "prescribe regulations which shall establish a procedure similar to that provided by section 7410 of this title" and its grant of authority to EPA to prescribe an FIP where a state fails to develop an SIP incorporating §111(d) standards, appear to incorporate, by reference, the CAA provisions generally relevant to SIPs and FIPs. Section 111(d)'s contemplation of an SIP-based program could allow the states to bring their considerable experience in developing state climate plans through multistakeholder processes for identifying cost-effective mechanisms for GHG emissions reductions to bear on the utility sector. It also could enable the incorporation of state and regional cap-and-trade programs into a federal program.

The wording of the statute suggests that Congress contemplated a significant role for the states. The statute states that EPA will:

> prescribe regulations which shall establish a procedure similar to that provided by section 7410 of this title under which each State shall submit to the Administrator a plan which (A) establishes standards of performance for any existing source . . . and (B) provides for the implementation and enforcement of such standards of performance.

Because the statute uses the singular verb, "establishes," it appears that the state plan (rather than the EPA regulations) will establish the standards of performance, as well as methods for implementation and enforcement of those standards. This analysis suggests that EPA could promulgate standards for new sources, guidelines or models for technologies and control mechanisms for existing sources and the reductions that could be achieved using these methodologies, and regulations for reviewing and approving SIPs establishing standards for existing sources.

---

34. *See* 1970 Leg. Hist. at 656-61 (language of then-section 114).
35. *See* 40 Fed. Reg. 53339, 53342 (Nov. 17, 1975) (confirming the lack of reference to §111(d) in legislative reports or debates). In the absence of such discussion, EPA, in enacting the initial 1975 regulations governing submission of SIPs pursuant to §111(d), drew inferences concerning the legislative intent of §111(d) from the general purpose of §114 of the Senate bill. 40 Fed. Reg. 53339, 53342.
36. 40 Fed. Reg. 53342.
37. There is language in the legislative history suggesting that §111(d) should not be used when NAAQS should be established. Sen. Edmund Muskie (D-Me.), the principal sponsor of the CAA of 1970, stated in debates that §111(d) was intended for "pollutants which cannot be controlled through the ambient air quality standards and which are not hazardous substances." *See* A Legislative History of the Clean Air Act Amendments of 1970, 93rd Cong., 2d Sess. 377 (1970) (statement of Senator Muskie). Congress contemplated that §114 (i.e., §111(d)) would be used to regulate those pollutants that "are not emitted in such quantities or are not of such a character as to be widely present or readily detectable on a continuous basis with available technology in the ambient air." 1970 Leg. Hist. at 418. Congress further described such agents as "generally confined, at least for detection purposes, to the area of the emission source." *Id.* Congress, however, did not necessarily intend that use of §111(d) be limited to localized hazards, and §111(d) was presented as an option for any pollutants "which cannot be considered hazardous" as defined in §112. *Id.* at 420 (Senate Report). This legislative history does not suggest that the CAA cannot be used to address GHGs. Likewise, it does not foreclose using §111(d) to establish an interim program for key source categories while EPA is working out the thornier issues presented by regulation across all source categories.

However, the state plans would ultimately develop and implement the actual standards for existing sources.

Section 110(a)(2)(A) and the CAA's definition of "federal implementation plan" support the proposition that the standards of performance and implementation measures may include a wide variety of mechanisms, including various market-based measures, such as a cap-and-trade program. Specifically, §110(a)(2)(A) requires that each SIP

> shall . . . include enforceable emissions limitations and other control measures, means, or techniques (*including economic incentives such as fees, marketable permits, and auctions of emissions rights*), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this chapter[38]

Section 110(c) mandates promulgation of an FIP where the Administrator finds that a state's SIP is inadequate. The CAA defines the term "federal implementation plan" to mean:

> a plan (or portion thereof) promulgated by the Administrator to fill all or a portion of a gap or otherwise correct all or a portion of an inadequacy in a State implementation plan, and which includes enforceable emissions limitations or other control measures, means or techniques (*including economic incentives, such as marketable permits or auctions of emissions allowances*), and provides for attainment of the relevant national ambient air quality standard.[39]

Thus, the statute specifically authorizes promulgation of an FIP, including marketable permits, auctions of emissions allowances and other economic incentives.

This is reflected in EPA's regulations governing §111(d) procedures.[40] The regulations call for the issuance of EPA guidelines that set forth information on endangerment, methods of control, compliance times, the amounts of emissions reductions that can be achieved, and other information pertinent to the formulation of SIPs.[41] The methods of control must "either be based on an allowance system or prescribe[d] allowable rates of emission."[42] As suggested by these provisions and EPA's discussion of §111(d), EPA could, in these guidelines, outline the methods whereby existing units could reduce emissions and the levels of required reduction that the states must achieve implementing these measures over time. EPA could also establish the parameters of a cap-and-trade program applicable to existing sources of GHG emissions, which could be incorporated by states into their SIPs pursuant to §110(a)(2)(A), giving states the flexibility to achieve these reductions through the mix of measures they deem most appropriate. These measures could include the existing state and regional cap-and-trade programs. If a state failed to adopt an adequate SIP, EPA could impose an FIP that, by virtue of the definition of an FIP, could include either a cap-and-trade program, traditional emissions limitations, or both.

IV. The Experience of the States Suggests That Regulation of GHG Emissions Under §111(d) Can Be Achieved Cost Effectively With an Appropriate Mix of Demonstrated Technologies

The states' experience with the development of climate plans suggests that regulation of the utility industry under §111(d) can be achieved using cost-effective measures, whose implementation could result in net economic *savings*. The opportunity for state involvement through the SIP process can allow state planning to identify available and demonstrated mechanisms for reducing emissions that are tailored for the state and achieve emissions reductions cost effectively and even with net cost savings, as demonstrated by the results of state climate planning processes that have already occurred.[43] Equally significantly, by providing long-term signals to capital markets, regulation of GHG emissions could guide investment to state-of-the-art, highly efficient, low-pollution generation facilities, and transmission and distribution systems. By providing clear expectations for GHG regulation, EPA would encourage fleet modernization by encouraging the retirement of aged, inefficient generating facilities, many of which have already exceeded their initially projected useful life. The continued operation of these older, fully depreciated facilities depresses investment in modern generation facilities, as well as more efficient transmission and distribution systems, energy efficiency, and energy conservation.

A recent study of measures recommended by 16 state climate plans concludes that, if the same types of planning measures were applied nationwide, they could accomplish the following:

> Findings show potential national improvements from implementation of a top set of 23 major sector-based policies and measures drawn from state plans. If implemented nationwide at all levels of government, the measures yield:
>
> - 2.5 million net new jobs in 2020 and a $159.6 billion (in 2007 $) expansion in GDP [gross domestic product] in 2020;

38. 42 U.S.C. §7410(a)(2)(A) (emphasis added).
39. 42 U.S.C. §7602(y) (emphasis added).
40. 40 C.F.R. pt. 60, subpt. B.
41. *Id.* §60.22.
42. *Id.* §60.24.

43. These state planning mechanisms, their results, and the potential for incorporating the state processes and learning are discussed in Robert B. McKinstry Jr. et al., *The New Climate World: Achieving Economic Efficiency in a Federal System for Greenhouse Gas Control Through State Planning Combined With Federal Programs*, 34 N.C. J. Int'l L. & Com. Reg. 102 (2009); *see also* John C. Dernbach et al., *Making the States Full Partners in a National Climate Change Effort: A Necessary Element for Sustainable Economic Development*, 40 ELR 10597 (June 2010); Thomas D. Peterson et al., *Developing a Comprehensive Approach to Climate Change Policy in the United States That Fully Integrates Levels of Government and Economic Sectors*, 26 Va. Envtl. L. Rev. 219 (2008), *republished in* Envtl. L. & Pol. Rev. (2009); Robert B. McKinstry Jr. et al., *Federal Climate Change Legislation as if the States Matter*, Nat'l Res. & Env't 3 (Winter 2008); Robert B. McKinstry Jr. & Thomas D. Peterson, *The Implications of the New "Old" Federalism in Climate Change Legislation: How to Function in a Global Marketplace When States Take the Lead*, 20 Pac. McGeorge Global Bus. & Dev. J. 61 (2007).

- Over $5 billion net direct economic savings in 2020, at an average net savings of $1.57 per ton of GHG emissions avoided or removed; and
- Consumer energy price reductions of 0.56% for gasoline and oil; 0.60% for fuel oil and coal; 2.01% for electricity; and 0.87% for natural gas by 2020.

> Assuming full and appropriately scaled implementation of all 23 actions in all U.S. states, the resulting greenhouse gas (GHG) reductions . . . would reduce U.S. emissions to 27% below 1990 levels in 2020, equal to 4.46 billion metric tons of carbon dioxide equivalent (BMtCO2e).[44]

Energy efficiency and distributed alternative energy generation accounted for many of the most cost-effective reductions, and also contributed most significantly to job growth and GDP increases. The energy efficiency and conservation (EE&C) measures in the industrial, commercial, and residential sectors (Demand Side Management Programs, High Performance Buildings (Private and Public), Appliance Standards, Building Codes, and Combined Heat and Power) produced 31% of the GHG emissions reductions, and every category did so at a negative cost per ton (i.e., a cost savings). These measures were projected to offset negative GDP and employment impacts of other measures, producing over one million new jobs and $289 billion in GDP increases over 10 years, as the excerpted table below illustrates.[45]

	EE&C Measures	All Measures	Percent
Annual GHG Reduction ($MMtCO_2e$)	996.98	3,238.57	30.8
Cost or Cost Savings Per Ton GHG	−$32.02	−$1.57	304.5
Removed ($) 2020 Annual Cost or Cost Savings (million $)	−$31,920	−$5,090	627.1
2020 Net Employment Impact (thousands)	1,147.80	2,191	52.4
2020 GDP Impact (billion $)	$94.70	$128.77	73.5
Impact on GDP 2010-2020 Net Present Value (billion $)	$289.44	$355.97	81.2

While regulation may result in the retirement of antiquated coal-fired power plants, many of these have already exceeded their initially projected useful lives due, in part, to "perverse" incentives to avoid new construction and modernization created by the CAA's new source review program, and the creation of clear regulatory signals will assure that these retirements will take place in an orderly manner without economic disruption.

According to a recent study by M.J. Bradley & Associates, LLC, evaluating the potential impacts of other pending EPA regulations on electric system reliability, these ancient and often inefficient plants can be retired without undue impacts on reliability.[46] According to that study, today, 59% of the coal-fired units in operation were in existence when the CAA was enacted in 1970, and of those very old units, 61.3% are still entirely uncontrolled. The study suggests that these units are also small and inefficient, producing only 33.5% of the total electricity supplied by the coal-fired fleet, and thereby producing a disproportionately high share of GHG emissions.[47] Providing clear signals that these antiquated, polluting units will need to reduce emissions, or to pay for an increasing percentage of the pollutants they emit, will likely encourage their retirement and replacement with state-of-the-art, efficient units.

As indicated by the M.J. Bradley study, a number of these old units are expected to retire as a result of the imposition of air pollution controls under the CAA other than GHG requirements. As these elderly units are retired, with GHG emissions requirements in place, industry can better predict the long-term cost of CO_2 emissions and make better-informed investment decisions regarding replacement units. Moreover, increased gas shale development is expected to stabilize gas prices and further drive retirements of these older, inefficient facilities and their replacement with modern gas-fired facilities that will produce far fewer GHG emissions.

A recent study by Charles River Associates (CRA) reached conclusions similar to those of the M.J. Bradley study.[48] CRA found that EPA's proposed Transport Rule and the upcoming utility sector national emission standards for hazardous air pollutants (NESHAP) would likely lead to the retirement of only six gigawatts (GW) of coal-fired generation capacity, which could readily be replaced with capacity from new EGUs. CRA noted:

> These projected retirements are relatively small in comparison to historical US net additions of generation capacity. For example, during the five-year period between 1999 and 2004, the net increase in US generating capacity was 177 GW, more than four times what is projected to retire in the US by 2015.[49]

CRA further found that the average age of the facilities projected to retire was 55 years, at or near the end of their useful life in any case. CRA also noted that additional capacity could readily be added, providing the following list of measures:

- **New Gas Generation Construction—**Our economic modeling shows that when new capacity is

44. Thomas Peterson & Jeffrey Wennberg, *Impacts of Comprehensive Climate and Energy Policy Options on the U.S. Economy* (Johns Hopkins Univ. July 2010) (Impacts), at 6, *available at* http://www.energypolicyreport.jhu.edu.
45. *Id.* at 12-14.
46. *See* M.J. Bradley & Associates LLC & the Analysis Group, *Ensuring a Clean, Modern Electric Generating Fleet While Maintaining Electric System Reliability* (2010).
47. *Id.* tbl. 5.
48. Dr. Ira Shavel & Barclay Gibbs, Charles River Associates, A Reliability Assessment of EPA's Proposed Transport Rule and Forthcoming Utility MACT (Dec. 16, 2010).
49. *Id.* at 5.

required, gas-fired generation is often the most economic alternative. In fact, the existence of abundant, inexpensive domestic natural gas resources not only is a driver of retirements but also will facilitate the transition to a cleaner generation fleet. History has shown that new gas units can be planned, permitted, and constructed in short periods of time. . . .

- **Load Management—**Load management tools, such as demand response and energy efficiency programs, are growing rapidly and have the capability to offset some of the projected coal retirements. Some of the NERC [North American Electric Reliability Corporation] subregions with larger capacity shortfalls also have the greatest untapped potential for substantially increasing load management resources. For example, in the VACAR [Virginia-Carolinas] region, load management accounts for 3.4% of resources at peak, while in the New England region, load management accounts for close to 10% of peak resources.
- **Coal to Gas Conversion—**Depending on the local availability of natural gas, existing coal units can be converted to natural gas for a relatively modest cost. For example, in the Southeast Electric Reliability Corporation (SERC) region, which has a de minimis projected capacity shortfall of 0.6 GW, about 11 GW of coal plants already have natural gas pipeline service and have natural gas as a secondary fuel option.[50]

In addition, in the Advanced Notice of Proposed Rulemaking (ANPR), EPA estimated that existing coal-fired facilities could be upgraded to increase the overall existing fleet efficiency by up to 5%, with some facilities reducing emissions by up to 10%.[51] All of these existing and demonstrated technologies could result in significant GHG emissions reductions, while modernizing the generation fleet. This is also true of opportunities to switch dispatch to existing gas-fired plants, increases in nuclear generating capacity through optimization of existing plants, energy efficiency at existing fossil fuel-fired plants, and full or partial conversion to biomass.[52]

V. Often Repeated Objections to Regulation of GHGs Under the CAA

Those opposing federal regulation of GHG emissions frequently raise a number of objections that do not hold up well under scrutiny. They assert that (1) regulation of GHGs under the CAA is inconsistent with congressional intent, (2) regulation of GHGs, including a cap-and-trade program, would frustrate the popular will, and (3) NAAQS can address only short-lived pollutants and local air pollution problems. Analysis of the facts and the law suggests otherwise.

A. *Myth 1: Regulation of GHGs Is Inconsistent With Congressional Intent*

The notion that GHG regulation is contrary to congressional intent is directly contradicted by the Supreme Court's determination in *Massachusetts*. The Court found that the words of the CAA were unambiguous and that because GHGs could have an impact on climate, they could constitute pollutants that must be regulated if they could endanger health or the environment.

Moreover, in the 1977 Amendments to the CAA, Congress added the term "climate" to the portion of the definition of "effects on welfare" enumerating the types of effects that would be encompassed by that term.[53] The legislative history indicates that, at the time, Congress was concerned that emissions of acid aerosols could affect the climate and cause global cooling.[54] Thus, Congress clearly contemplated that the CAA would be used to regulate pollution with a global scope that affects worldwide climate.

B. *Myth 2: Regulation of GHGs Frustrates the Popular Will*

Opponents have suggested that, because the Senate did not adopt the amendments to the CAA passed by the House addressing climate change specifically and the Republicans gained control of the House, regulating GHGs is somehow undemocratic or frustrates the popular will. This argument also fails to withstand scrutiny. By the time the Senate failed to amend the CAA, the Supreme Court had already held, in April 2007, that GHGs would need to be regulated under the CAA if EPA made an endangerment finding, EPA had made the Endangerment Finding in December 2009, and EPA had commenced rulemaking to regulate GHGs. The Senate's failure to overcome a filibuster to *amend* legislation that, at the time, required GHG regulation and authorized market-based regulation, cannot, under any logic, lead to the conclusion that obeying a law enacted by Congress and interpreted by the Supreme Court to regulate GHG emissions is somehow anti-democratic.

The results of the 2010 elections also undercut this notion. The issue of regulation of GHGs through an economywide cap-and-trade system has only been put before the voters once. In the 2010 elections, California Proposition 23, which would have suspended the California Global Warming Solution Act (AB 32) and its economywide cap-and-trade program for GHGs, was defeated by a landslide, with 61.7% of the voters voting "No."[55] These

50. *Id.* at 5-6 (footnote omitted).
51. 73 Fed. Reg. 44354, 44492.
52. These mechanisms were also discussed in the ANPR. By way of further example, in proposing a cap-and-trade system to control conventional pollutants in the proposed Transport Rule, EPA found that implementation of at least some of these mechanisms in response to that cap-and-trade system would reduce GHG emissions by 15 million metric tons annually. 75 Fed. Reg. 45210, 45347 (Aug. 2, 2010).
53. 42 U.S.C. §7602(h).
54. H.R. Rep. No. 95-294, at 138.
55. California Secretary of State Debra Bowen, *Statement of Vote, November 2, 2010, General Election* (Jan. 6, 2011), at 7, *available at* http://www.sos.ca.gov/elections/sov/2010-general/complete-sov.pdf.

results, coupled with polling results showing that there is significant support among the American public for measures addressing climate change through regulation of GHG emissions,[56] also contradict the notion that undertaking this regulation is contrary to the popular will.

C. *Myth 3: NAAQS Can Address Only Local, Short-Lived Pollutants*

Opponents of the use of NAAQS as a tool of regulation under the CAA frequently assert that use of NAAQS is only appropriate where local, short-lived pollutants are involved. They further argue that the statutory mechanisms governing use of NAAQS implemented through SIPS are inappropriate for addressing the unique problems created by worldwide, long-lived pollutants such as GHGs.

There is no significant argument that GHGs present *different* problems that will require a regulatory approach *different* from that taken in the past to address other "criteria" pollutants. However, the objections to use of NAAQS to address GHGs arise from a sort of statutory myopia, which looks at only how NAAQS have been utilized in the past, and fails to look at how the statutory provisions of the CAA might be utilized differently to devise a workable program for addressing the problem of climate change. As described in other articles, EPA could establish NAAQS based on the level that will be required to prevent "dangerous anthropogenic interference with the climate system,"[57] model the emissions reductions, over the long term, that will be required for each state from "business as usual" in order to satisfy the U.S. worldwide per capita share, and require each state to develop, submit, and implement an SIP that puts the state on the long-term path to implement these reductions.[58] The objections to such an approach fall short of the mark.

1. Timing and the Problem of the Whole Nation Being a Nonattainment Area

Opponents suggest that establishing a primary NAAQS at 350 ppmv, as suggested by the rulemaking petition, would be unworkable, because that would put the entire United States in nonattainment and trigger the statutory requirement that plans achieve the impossible goal of achieving compliance with the primary NAAQS within five years.[59] However, there are several alternatives under the statute that could result in a workable solution.

First, all of the climate models for "stabilization" call for a shorter term increase in atmospheric levels with a longer term decrease, as emissions are reduced and CO_2 is returned to long-term sinks.[60] EPA could, therefore, establish a secondary standard at 350 ppmv and set the primary standard at the highest atmospheric level that would be reached in such a stabilization curve. As long as the deadlines for achieving compliance with a primary SIP are not triggered, the fact that the entire nation exceeds a secondary NAAQS would not create an untenable situation. It would trigger nationwide requirements for offsets and installation of "lowest achievable emissions rate" technology in the new source review permitting. This might assist modernization efforts by increasing the value of shutting down the oldest, inefficient GHG emissions sources.

A second alternative would be for EPA to set a secondary standard, rather than a primary standard. This would have the same effect as with the first alternative of putting the nation into nonattainment with the secondary standard, but would not trigger the time deadlines of a primary standard. However, EPA's flexibility to set a secondary standard only may be limited by the fact that it made its endangerment finding on both health and welfare-based grounds.

A third and final alternative would be to set the NAAQS at a standard of 450 or 550 ppmv, in which case EPA could call for maintenance SIPs that reduce emissions to keep atmospheric levels below that concentration. Although the principal climate scientist for the U.S. government, Dr. James Hansen, now contends that the ultimate goal should be set at 350 ppmv,[61] many others have suggested that dangerous anthropogenic interference with the climate system can be avoided at these higher atmospheric levels.

2. Worldwide Emissions

The CAA includes provisions specifically contemplating international emissions. Section 115 specifically requires that SIPs include provisions to prevent endangerment of health or welfare in a foreign nation by emissions from sources in the United States.[62] Section 179B authorizes EPA to approve SIPs that "would be adequate to attain and maintain the relevant national ambient air quality standards by the attainment date specified under the applicable provision of this chapter . . . but for emissions emanated from outside of the United States."[63] These provisions would allow EPA to establish emissions "budgets" based on the reductions that will ultimately be necessary to reach the U.S. per capita share of emissions under a long-term stabilization program—the levels that have been used by states to establish their longer goals for 2050.

VI. Conclusion

For the proponents of GHG emissions regulation under the CAA, the case is simple and straightforward. The

56. *See* PollingReport.com, *Environment* (collecting various polls), *available at* http://www.pollingreport.com/enviro.htm.
57. United Nations Framework Convention on Climate Change, art. II.
58. For a discussion of how a comprehensive regulatory program for control of GHG emissions might be structured using the authority under the CAA, see the sources cited *supra* note 43.
59. 42 U.S.C. §7502(a)(2).
60. *See* Intergovernmental Panel on Climate Change, Climate Change 2007: Synthesis Report (2007), at 65-67.
61. James Hansen, Storms of My Grandchildren (2009).
62. 42 U.S.C. §7415.
63. 42 U.S.C. §7509a(a)(2).

Supreme Court has spoken, and the law and science are clear. The CAA applies to GHG emissions. Regulating emissions in the utility sector from petroleum refineries can be seen as a "no regrets" first step in making a transition to economywide regulation of GHGs that will eventually be necessary to prevent dangerous anthropogenic climate change. Regulating the utility industry will assist the industry in its transition to a modern energy economy, while addressing the serious problems of climate change. The CAA provides a wide array of tools and opportunities for federal-state partnerships that can be tailored through rulemaking to allow this regulation to proceed smoothly and cost effectively.