(If) Things Fall Apart: Searching for Optimal Regulatory Solutions to Combating Climate Change Under Title I of the Existing CAA if Congressional Action Fails

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Editors' Summary:

If legislative prospects for a national climate change bill fail, EPA retains a number of options under the existing CAA to create a cap-and-trade program that could, in many ways, mimic a congressionally created regime. Under Title I in particular, EPA could turn to the NAAQS program (§§107-110) or the new source performance standards (NSPS) and existing source regulation (§111(b) and (d)). Various legal constraints, however, may be imposed upon these different statutory hooks. Examining the interplay between these regulations suggests that EPA may need to move in an incremental fashion, given the uncertain statutory authority and legislative process.

How could the Clean Air Act (CAA)[1] best be used to address global climate change? Unlike the U.S. Congress, which can choose whether or not to act, the U.S. Environmental Protection Agency (EPA) enjoys no such discretion in the wake of *Massachusetts v. EPA*[2] and the recently finalized §202(a) Endangerment Finding[3] virtually mandated by that decision. At best, EPA may have some choices regarding how and when to regulate.

Despite the 2008 election of President Barack Obama and the rather swift passage of Waxman-Markey by the U.S. House of Representatives,[4] this once-pressing issue appeared to have been marginalized to, at best, a bargaining strategy to prod the U.S. Senate to pass a bill before the Copenhagen negotiations began in December. But then the Senate process stalled, and no bill had received any serious consideration on the Senate floor by the time the delegates met in Copenhagen. With legislative prospects dwindling as the 2010 mid-term elections swiftly approach,[5] it therefore becomes

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1. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
2. 549 U.S. 497, 37 ELR 20075 (2007).
3. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496 (Dec. 15, 2009).
4. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong., *available at* http://www.opencongress.org/bill/111-h2454/show [hereinafter Waxman-Markey].
5. There are three climate bills under consideration in the U.S. Senate: Waxman-Markey, the American Power Act (Kerry-Lieberman), and the CLEAR Act (Cantwell-Collins). *See* Clean Energy and American Power Act, S. 1733, 111th Cong., *available at* http://www.opencongress.org/bill/111-s1733/show [hereinafter American Power Act]; Carbon Limits and Energy for America's Renewal (CLEAR) Act, S. 2877, 111th Cong., *available at* http://www.opencongress.org/bill/111-s2877/show/. While passage of any of these bills is difficult to predict, many see significant hurdles to passage, particularly in the near term. *See, e.g.*, Ben German, *1,000-Page Climate Bill Is Unveiled*, The Hill, May 12, 2010, *available at* http://thehill.com/homenews/senate/97653-1000-page-climate-bill-is-unveiled ("[T]he glaring absence of a GOP senator underscored the [American Power Act's] gloomy future in the 111th Congress."); Ezra Klein, *Is Reid's Energy Bill Worse Than No Bill at All?*, Wash. Post, June 7, 2010, *available at* http://voices.washingtonpost.com/ezra-klein/2010/06/is_reids_energy_bill_worse_tha.html (noting that taking cap and trade out of the energy bill will likely doom prospects of passing cap and trade); *Experts Weigh Chances of Kerry-Lieberman Energy Bill*, Wash. Post, May 16, 2010, *available at* http://www.washingtonpost.com/wp-dyn/content/article/2010/05/14/AR2010051404235_pf.html.

necessary to seriously reexamine the best options for regulating greenhouse gases (GHGs) under the existing CAA.

EPA, in the meantime, has cautiously moved forward with regulation of GHGs.[6] The purpose of this Article, therefore, will be to analyze EPA's best options for regulating GHGs under Title I of the existing CAA. Given the prevailing consensus that some sort of market-based mechanism should regulate GHGs,[7] this Article will focus primarily on how to utilize the CAA to reproduce a cap-and-trade program similar to that envisioned in Waxman-Markey. Part I will summarize some basic design considerations of cap-and-trade programs under the CAA. Parts II and III each present a distinct regulatory option for a cap-and-trade program under Title I of the CAA.[8] Part II discusses factors involved in a trading program based on the national ambient air quality standards (NAAQS) program. Part III focuses on the potential for §111—new source and/or existing source regulation—to provide the basis for a cap-and-trade program. Part IV concludes by examining the interplay between the regulations and laying out a path for incremental regulation by EPA based in these statutory authorities.

Throughout this discussion, three overall points are important to keep in mind. First, it is uncertain whether virtually every program discussed is legal under the existing CAA. As then-EPA General Counsel Jonathan Cannon concluded in 1998: "[n]one of these provisions easily lends itself to market-based national or regional emissions cap-and-trade programs."[9] The Bush Administration's failed attempts to craft such a program highlight this difficulty,[10] although they do not completely foreclose a potential program. Second, due to the almost-certain triggering of the prevention of significant deterioration (PSD) program and its requirement that certain sources implement best available control technology (BACT), it is very unlikely that any cap-and-trade program envisioned in this Article could exist without some type of technological standards. Third, throughout the regulatory process, Congress, subject to the power of presidential veto, has the potential to either strip EPA of its authority

6. EPA has limited GHGs of cars and light trucks using §202 of the CAA. Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, Final Rule, 75 Fed. Reg. 25324 (May 7, 2010). EPA has also finalized a "tailoring rule" creating a lower limit threshold for future GHG regulation and a reporting rule for GHG emissions. Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, Final Rule, 75 Fed. Reg. 31514 (June 3, 2010). The tailoring rule and the reporting rule foreshadow future regulation of individual source GHG emissions under §111. *See generally* Robert B. McKinstry et al., Memorandum, *EPA Takes Action to Regulate Greenhouse Gas Emissions, With Much More to Come*, *available at* http://www.ballardspahr.com/~/media/Files/Alerts/2010-06-09_ClientMemoGHGDevelopments.ashx (discussing how EPA's recent moves in GHG regulation "are likely just the first wave of future actions to address climate change").

7. *See, e.g.*, Posting of Robert Stavins to An Economic View of the Environment, *Cap-and-Trade Versus the Alternatives for U.S. Climate Policy* (Oct. 5, 2009), http://belfercenter.ksg.harvard.edu/analysis/stavins/?paged=2 (explaining the advantages of market-based regulation of GHGs).

8. Another potential statutory option under Title I, not discussed in depth in this Article, would be to base a trading program on §115. Section 115 allows EPA to require revisions to a state plan when air pollutants emitted in the United States "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare in a foreign country." 42 U.S.C. §7415(a) (2007), ELR Stat. CAA §115(a), *infra* notes 118-22 and accompanying text.

   There are at least two other potential options for establishing a cap-and-trade program that do not base their authority under Title I. First, the Institute for Policy Integrity (IPI) has petitioned EPA to establish a trading program for vehicle fuels under §211(c). *See* Petition from Inst. for Policy Integrity, NYU Sch. of Law, to Lisa P. Jackson, Adm'r, EPA, Petition for Rulemaking Under Sections 211 and 231 of the CAA to Institute a Cap-and-Trade System for Greenhouse Gas Emissions From Vehicle Fuels (July 29, 2009) [hereinafter IPI Petition], *available at* http://www.policyintegrity.org/documents/72909IPIPetitiontoEPA.pdf. This proposed program would target "upstream, domestic importers, refiners, and producers of fuel" and would create tradable emissions permits equal to "a certain amount of potential GHG emissions" from the fuel. *Id.* at 13. According to the IPI, §211(c) may provide sufficient authority for this type of program because the statute allows EPA to "control or prohibit" any fuel that "causes, or contributes, to air pollution . . . that may reasonably be anticipated to endanger the public health or welfare," a grant of authority that may be broad enough to establish the type of cap-and-trade program. *Id.* at 21. Although the IPI makes a persuasive case, there are two points that should be considered regarding this section. First, §211(c) states that the "Administrator *may*, from time to time . . . by regulation, control or prohibit . . . ," which appears to give EPA discretion regarding whether or not to regulate under this section. The IPI addresses this issue by arguing that EPA would still be required to "articulate a coherent reason for choosing not to regulate a source that contributes so significantly to the endangerment of public welfare," *id.*, but this may not be sufficient to get around the apparently discretionary language of the statute. Second, §211(c), with its focus solely on fuels, could not lead to the type of broad-ranging program potentially available under NAAQS or §111(d) and envisioned in most legislative attempts. However, §211(c) could be used to provide a strong complementary program that could work alongside the more general regime created under NAAQS or §111(d). This point will be further discussed in Part IV., *infra*.

   Second, EPA may be able to establish a broad trading program based on Title VI's control over stratospheric pollution. *See* 42 U.S.C. §7671n ("If . . . any substance, practice, process, or activity may reasonably be anticipated to affect the stratosphere . . . , and such effect may reasonably be anticipated to endanger public health or welfare, the Administrator shall promptly promulgate regulations . . . ."). Both EPA and the IPI agree that §615 could provide "sufficient authority to create a legal and effective cap-and-trade system, broad in its scope and consistent with international negotiations." Inimai M. Chettiar & Jason A. Schwartz, Inst. for Policy Integrity, The Road Ahead: EPA's Options and Obligations for Regulating Greenhouse Gases 72 (2009) [hereinafter The Road Ahead]; *see also* Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44519 (July 30, 2008); Climate Policy Center of Clean Air—Cool Planet, Comment to EPA, Comments of the Climate Policy Center of Clean Air—Cool Planet (Nov. 26, 2008), *available at* http://www.cleanair-coolplanet.org/cpc/documents/2008-12-01_Comments_on_EPA_CAA_ANPR.pdf.

   The IPI also discusses a potential program based on §617, which gives the president the ability to "undertake to enter into international agreements . . . to develop standards and regulations to protect the stratosphere consistent with regulations applicable within the United States." 42 U.S.C. §7671p(a); *see also* The Road Ahead, *supra*, at 73. GHGs reside primarily in the *troposphere*, The Road Ahead, *supra*, at 56, and any effect GHGs have on the stratosphere must be sufficient to endanger public health and welfare. Of course, the ongoing scientific research regarding the relationship between GHGs, climate change, and the stratosphere may, in the future, lead to these necessary conclusions, but this link has not yet been established.

9. *See* Memorandum from Jonathan Z. Cannon, Gen. Counsel, U.S. EPA, to Carol M. Browner, Adm'r, U.S. EPA, EPA's Authority to Regulate Pollutants Emitted by Electric Power Generation Sources (Apr. 10, 1998), *available at* http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=7b2dffa6-a3ed-4e15-bcae-7a738541f9e9.

10. *See infra* notes 75-84 and accompanying text.

to regulate GHGs or severely limit and even eliminate the funds EPA will be able to spend on GHG regulation.[11]

I. Basic Design Considerations of Cap-and-Trade Programs Under the CAA

Before moving into detail on two major statutory options[12] for a cap-and-trade program under Title I of the CAA, this part will examine basic design considerations of cap-and-trade programs under the CAA. EPA faces several major choices for any cap-and-trade system: making the program voluntary or mandatory; choosing who is covered and who can participate; deciding whether to give away or auction allocations; considering potential price containment measures; and determining whether or not a cap-and-trade program should be accompanied by more traditional control measures.[13]

The cap-and-trade programs at the heart of current climate change legislation are highly complex systems that regulate a large number of diverse sources and are accompanied by complex allocation systems, banking and borrowing, widespread trading including participation by non-emitters, offsets, a strategic reserve, and provisions designed to protect domestic industry against uncapped international competition.[14] In contrast, the model trading provisions of the Clean Air Interstate Rule (CAIR), the Clean Air Mercury Rule (CAMR), and the nitrogen oxide (NO_x) SIP Call focused on emissions from electricity-generating units (EGUs) and, with regard to price containment, only allowed for banking programs. Thus, it may be difficult to exactly replicate the type of program envisioned in legislation with any degree of legal certainty, but this section will, at least, bring to light the major choices facing EPA.

A. *Voluntary Coordination or Mandatory Federal Trading?*

In crafting a potential cap-and-trade program, one essential choice is whether EPA will create a mandatory national plan or instead rely on an optional state trading program, as was done in CAIR, the NO_x SIP Call, and, under §111, CAMR. Using NAAQS regulation, for example, EPA may choose to mandate a federal implementation plan (FIP) or instead rely more heavily on state implementation plans (SIPs). There are distinct advantages and disadvantages to both approaches.

The typical approach of the CAA is to have EPA set the standard and criteria and then let the states decide how to move to (or maintain) attainment. A mandatory program would not be without some drawbacks. Take the FIP/SIP distinction under NAAQS, for example. First, there will be significant legal hurdles in establishing an FIP. EPA cannot reject an SIP solely because the state has not chosen to participate in EPA's preferred plan,[15] nor may EPA create standards designed so that only participation in the EPA plan will be adequate.[16] Thus, as a general matter, EPA has "no authority to question the wisdom of a State's choices" in meeting NAAQS.[17] This approach is consistent with the CAA's general framework of "cooperative federalism." Of course, it is possible (and maybe even likely) that every state plan could fail to either maintain or, especially, achieve attainment, in which case, EPA would be justified in imposing an FIP, but would still be required to go through this administrative process. Another drawback to an FIP is that funds raised by EPA through an auction must go to the general U.S. Treasury,[18] meaning that they cannot be used to finance new technologies, promote green jobs, or be returned to the population as a dividend. A mandatory FIP may also have significant political blowback since it would be an attempt to federalize what has long been a state-based program.

EPA could replicate its strategy in CAIR and other trading programs and set out one voluntary national cap-and-

11. Sen. Lisa Murkowski (R-Alaska) has already attempted both of these efforts, first by proposing that EPA not be appropriated any money for regulation of GHGs from stationary sources, and second by introducing a disapproval resolution that would have overturned the §202(a) endangerment finding. *See* Erika Bolstad, *Alaska Sen. Murkowski Gives Limiting EPA Greenhouse Gas Rules Another Try*, McClatchy Newspapers, Dec. 15, 2009, http://www.mcclatchydc.com/environment/story/80637.html. These efforts have, thus far, been unsuccessful. *See* Evan Lehmann & Dina Fine Maron, *Effort to Block EPA Fails, Revealing Murky Path for Carbon Bill*, N.Y. Times, June 11, 2010, *available at* http://www.nytimes.com/cwire/2010/06/11/11climatewire-effort-to-block-epa-fails-revealing-murky-pa-31482.html (noting that the Murkowski resolution failed on a procedural vote in the Senate).

12. For other statutory options not discussed in depth in this Article, see *supra* note 8.

13. Another potential choice, as discussed by EPA in its Advanced Notice of Public Rulemaking (ANPR) for Regulating Greenhouse Gas Emissions Under the CAA, is for EPA to mimic a carbon tax through an "emissions fee." 73 Fed. Reg. 44354. EPA points out that §110(a)(2) allows states to meet their NAAQS requirements through "economic incentives such as *fees*, marketable permits, and auctioning allowances." 42 U.S.C. §7410(a)(2) (emphasis added). EPA also suggest that §111 may provide a basis because "costs may be considered when establishing NSPS regulations, and a fee may balance the consideration of assuring emissions are reduced but not at an unacceptably high cost." 73 Fed. Reg. at 44411.

    EPA, however, lacks authority to impose taxes. *See* The Road Ahead, *supra* note 8, at 65 (explaining that the U.S. Constitution gives Congress the exclusive power to levy taxes). One commentator, for example, casually dismisses EPA's potential authority to create a carbon tax by stating, in a footnote: "Our comments do not address other market-based approaches, like a carbon tax, because tax measures are outside of EPA's authority as an Executive Branch regulatory agency." Edison Elec. Inst., Comment to EPA, Comments of Edison Electric Institute on the Environmental Protection Agency's Advanced Notice of Proposed Rulemaking on Regulating Greenhouse Gas Emissions Under the CAA 3 n.5 (Nov. 26, 2008), *available at* http://www.eei.org/whatwedo/PublicPolicyAdvocacy/TFB Documents/081126SheaEpaGhgEmissions.pdf. Moreover, "fees" is left out of the definition of FIPs while included in the available measures for SIPs, due possibly to congressional fears that EPA would actually try to create a national tax under its FIP powers. EPA, however, may have some basis for establishing an emissions fee if, instead of creating an FIP-based emissions fee program, the Agency tries to encourage states to adopt emissions fees in their own SIPs.

14. *See* Jan Mazurek et al., Nicholas Inst. for Envtl. Policy Solutions, Conquering Cost: Optimal Policy Approaches to the Cost of Climate Change: Workshop Briefing Memo (July 30, 2009), *available at* http://nicholas.duke.edu/institute/ni.costs.memo.07.09.pdf (discussing cost containment measures in Waxman-Markey).

15. The Road Ahead, *supra* note 8, at 80 (citing EPA v. Brown, 431 U.S. 99, 103, 7 ELR 20375 (1977) (per curiam); Union Elec. Co. v. EPA, 427 U.S. 246, 6 ELR 20570 (1976); Fla. Power & Light Co. v. Costle, 650 F.2d 579, 11 ELR 20836 (5th Cir. 1981)).

16. *Id.* (citing Virginia v. EPA, 108 F.3d 1397, 27 ELR 20718 (D.C. Cir. 1997); *Fla. Power*, 650 F.2d at 587-89).

17. *Id.* (citing Train v. NRDC, 421 U.S. 60 (1975); *Virginia*, 108 F.3d 1397).

18. *See Train,* 421 U.S. at 68.

trade program and then entice states to join this program.[19] If successful, this would lead to the creation of a national trading program much like a mandatory program but would do so in a more light-handed manner that would avoid the legal and administrative problems associated with establishing a mandatory program. Of course, such a program would still be voluntary, leaving the ultimate decision up to the individual states.

B. Who Should Be Covered and Who Should Participate?

EPA may have considerable discretion in deciding what type of sources to cover in a trading program, since the CAA often focuses on air quality and not just emissions from specific sources. There are several possible options. Past CAA-created trading programs have tended to focus participation on specific types of emitters, especially coal and natural gas-fired EGUs.[20] In contrast, coverage could be based solely on entities that emit a threshold level of the pollutant, likely to be 25,000 tons of carbon dioxide-equivalent (CO_2e) in the case of GHGs.[21] Current legislative approaches, such as Waxman-Markey, are something of a hybrid, since certain sources are automatically covered, while others are only covered if they emit more than 25,000 tons of CO_2e per year.[22] Focusing only on certain sectors may be easier to administer and, if tailored correctly, could lead to significant emissions reductions; conversely, a broader focus would, of course, likely lead to greater reductions and a more liquid allowance market.

A related question to that of coverage is who should be allowed to participate in the market. Currently, under both the Acid Rain Program and CAIR, EPA allows anyone to purchase allowances, including regulated parties, investment funds, and environmental groups.[23] Since this may lead to a more liquid and efficient market, it may be best to take this approach in a GHG trading program as well.

C. Free Allocations or Auctions?

EPA may have several potential approaches in determining how to allocate allowances to specific emitters. EPA could follow the approach in CAIR and allow the states to determine the allocation method.[24] Thus, states could decide whether to give them away for free, auction them, or some combination of the two. On the other hand, EPA may instead establish a federal allocation program, as it does under the Acid Rain Program,[25] that either freely allocates all allowances, auctions them, or some combination. If an auction is established by the federal government, however, all proceeds would likely be required to go to the general federal treasury[26] and could not be used for any sort of consumer dividend or investment in offsets or new technology.

D. Are There Available Price Containment Measures?

Legislative approaches to price control often include measures such as banking, borrowing, offsets, and a strategic reserve. EPA-based regulation will not necessarily be able to take advantage of all these innovative measures. The only types of price containment measures deployed in CAIR and the NO_x SIP Call, for example, were limited banking measures.[27] Different regulatory schemes under the CAA will likely lend themselves to different approaches at price containment.[28]

E. Should Cap-and-Trade Be Accompanied by Traditional Control Measures?

One final factor to consider is whether EPA should include supplementary traditional regulations along with the cap-and-trade program. For example, both SIPs and FIPs generally contain a mix of regulatory measures aimed at controlling air quality, a fact that has led critics of using NAAQS to address GHGs to say that NAAQS creates an inconsistent "patchwork of regulations."[29] What this argument ignores, however, is the fact that legislative solutions also include

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19. *See, e.g.*, Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule); Revisions to Acid Rain Program; Revisions to the NO_x SIP Call, 70 Fed. Reg. 25162, 25275 (May 12, 2005) (to be codified at 40 C.F.R. pts. 51, 72, 73, 74, 77, 78 & 96) ("States may choose to participate in the EPA-administered cap-and-trade programs, which are a fully approvable control strategy for achieving all of the emissions reductions required under today's rulemaking in a highly cost-effective manner.").
20. *See id.* at 25276 (explaining that states only need to apply the CAIR trading program for certain large EGUs).
21. This is the general threshold in EPA's recently released mandatory reporting rule. *See* Mandatory Reporting of Greenhouse Gases, 74 Fed. Reg. 56260 (Oct. 30, 2009) (to be codified in various parts of 40 C.F.R.).
22. *See, e.g.*, *Analysis of the Waxman-Markey Energy and Climate Change Discussion Draft*, Client Alert (White & Case LLP, New York, N.Y.), Apr. 2009, *available at* http://www.whitecase.com/files/Publication/f7a8d97a-d7ee-4ec6-87e6-aa172d576db1/Presentation/PublicationAttachment/094db9af-d602-4b26-8ed7-4e9aa099dee4/alert_Waxman_Markey_v2.pdf (outlining which types of sources will be covered).
23. U.S. EPA, Clean Air Markets: Buying Allowances, http://www.epa.gov/airmarkt/trading/buying.html (last visited June. 14, 2009) ("Under both the Acid Rain Program and the Clean Air Interstate Rule (CAIR), anyone can purchase allowances, including both regulated companies and members of the general public.").
24. *See* 70 Fed. Reg. at 25279 (explaining that, for NO_x trading: "EPA believes that the decision regarding utilizing auctions should ultimately be made by the States."). EPA, however, based the sulfur oxide (SO_x) allocations on the existing acid rain program, which had statutory mandates for allocations. *Id.*
25. *See* U.S. EPA, Clean Air Markets: Annual Auction, http://www.epa.gov/airmarkets/trading/auction.html (last visited Mar. 23, 2010) (providing information on auctions in the Acid Rain Program).
26. The Road Ahead, *supra* note 8, at 68.
27. *See* 70 Fed. Reg. at 25282-83 (detailing CAIR's banking program); Supplemental Proposal for the Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule), 69 Fed. Reg. 32684, 32718 (June 10, 2004) (to be codified at various parts of 40 C.F.R.) (detailing NO_x SIP Call's "flow control" process that "establishes a 2-to-1 discount ratio on the use of banked allowances above a certain level"). Flow control was both considered and rejected by EPA in creating CAIR. 70 Fed. Reg. at 25282-83 (explaining that flow control was unnecessarily complicated).
28. For a discussion of potential cost containment measures under NAAQS, see *infra* notes 144-48 and accompanying text.
29. Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44483 (July 30, 2008); *see also* Patricia Ross McCubbin, *EPA's Endangerment Finding for Greenhouse Gases and the Potential Duty to Adopt National Ambient Quality Standards to Address Global Climate Change*, 33 S. Ill. U. L.J. 437, 453 n.100 (2009) (listing industry representatives that criticize possible NAAQS regulation).

measures designed to curb climate change beyond the cap-and-trade program, including energy efficiency standards and automobile regulations.[30] Thus, a regulatory approach to carbon trading that truly mimicked proposed legislation would include some additional types of regulations for uncapped sources.

Robert McKinstry and his colleagues argue that accompanying cap-and-trade with traditional control measures is the correct approach because reductions from the cap-and-trade program for stationary sources alone may lead to inefficiencies in meeting emissions targets.[31] Although many of these issues will vary among the states,[32] it is likely that these traditional measures will concern "land use, building codes and standards, utility regulation, water supply, transportation planning, municipal waste, agriculture and forestry."[33]

There are some drawbacks to attaching traditional regulations to a trading program. First, if these regulations are set by the states, regulated parties may still end up with the "patchwork" that would be avoided in a pure trading program (albeit a "patchwork" where much of the regulatory burden is caused by a national program). Second, there may be a loss of some efficiency as traditional, technology-based systems are intermingled with a market-based system. Also, by regulating a wide variety of nonstationary sources outside the trading program, a large supply of otherwise potential offsets may be lost since these sources would face mandatory regulation.

On the other hand, this approach has some advantages since it may lead to considerable emissions reductions from otherwise uncapped sources. Also, traditional regulations will inevitably be part of a NAAQS-based program, for example, because of new source review, so these state-level regulations will not be the only types of regulations that could possibly distort the trading program. Moreover, this approach would allow states to retain considerably more control over their own emissions, and, thus, better adhere to the CAA's overall "cooperative federalism" better than even a voluntary national program.

30. Kerry-Boxer, as of now, would even allow EPA to retain its discretion in prescribing technology-based NSPS for certain new and modified sources. *See* Theresa Pugh, Am. Pub. Power Assoc., *Boxer-Kerry Bill: Clean Air and Other EPA Regulatory Concerns*, Pub. Power Daily, Oct. 5, 2009, http://appanet.org/files/PDFs/BoxerKerryandCAA10509.pdf (requires log-in) (outlining types of potential regulation allowed under bill).
31. 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. 767, 814 (2009) ("Relying on state plans to specify a mix of measures will promote the most economically efficient approach to achieving necessary GHG emissions reductions. . . ."). McKinstry et al. are quite emphatic about the necessity of including traditional regulations. For example, under their ideal regime: "The EPA would only approve a [state plan] if the combination of the cap-and-trade program and other measures specified by [the plan] were calculated to achieve the cumulative reductions required for that state." *Id.* at 811.
32. *Id.* at 788 (emphasizing the differences among states regarding "climate, resources, transportation, legal structures for local governments, finance, and utility regulation").
33. *Id.* at 771. A similar emphasis is repeated in other places within the article. *See, e.g.*, *id.* at 779 ("Areas such as land use regulation; building codes; transportation infrastructure and management; utility regulation; and the regulation of agriculture, forestry, and non-hazardous waste handling and reduction are all traditionally within state or local authority."); *id.* at 841-44 (listing mitigation options for Florida that largely correspond with earlier recommendations).

II. Option #1: Trading Under NAAQS

Seemingly no part of the CAA has attracted more controversy regarding its applicability to GHG regulation than the NAAQS program created in §§107 through 110. NAAQS have routinely been dismissed by a wide variety of business associations, environmental groups, and EPA itself as being an extremely poor fit for regulation of GHGs.[34] In contrast, a relative minority of groups and individuals has argued that NAAQS represents the best option for regulating GHGs due to its focus on controlling GHG concentration (which is, after all, the point of any regulatory program) and the wide reach of the program's planning process. Most recently, the Center for Biological Diversity (CBD) and 350.org petitioned EPA to list GHGs as criteria pollutants (CBD Petition).[35]

Although EPA and others have been largely dismissive of the CBD Petition,[36] the Agency may not have a choice regarding whether GHGs must be regulated as criteria pollutants. The statute's plain language may offer EPA some discretion,[37] but *NRDC v. Train*, the leading judicial decision regarding this issue, held that EPA must list a pollutant if it endangers public health and welfare and is emitted from a wide variety of sources.[38] Although it is unclear at this point whether *Train* is still good law,[39] it is at least possible that EPA could be forced to regulate GHGs as criteria pollutants. Thus, it is important to consider EPA's best options under this program.

NAAQS may offer a strong possibility to create a cap-and-trade program under existing law. There are some clear and inherent difficulties, however, in applying NAAQS to GHGs and creating any cap-and-trade program under these provisions. This part, therefore, will first discuss the issues surrounding the setting of the air quality standards, and then discuss possible regulatory regimes if NAAQS can be successfully set.

34. *See* McCubbin, *supra* note 29, at 459 (arguing that, in the ANPR, EPA displayed a reluctance toward using NAAQS). The Obama Administration has not backed away from these statements and may be viewed as being more supportive of §111 regulation. *Id.* Aside from EPA, the breakdown of those who support giving EPA discretion and those who oppose is somewhat odd: on the one hand, many major environmental groups are in favor of agency discretion, likely because of its potential difficulties, while industry groups believe regulation should be mandatory, largely to show how terrible such regulation would be. *See* The Road Ahead, *supra* note 8, at 144 n.282 (listing congressional testimony from leaders of environmental and industry groups expressing similar views on NAAQS). Such positions make sense if one believes that the NAAQS program is completely unworkable for GHGs, but seem less so if the programs described in this Article are actual possibilities.
35. *See* Ctr. for Biological Diversity & 350.org, Petition to Establish National Pollution Limits for Greenhouse Gases Pursuant to the CAA (2009), *available at* http://www.biologicaldiversity.org/programs/climate_law_institute/global_warming_litigation/clean_air_act/pdfs/Petition_GHG_pollution_cap_12-2-2009.pdf.
36. *See* Robin Bravender, *EPA Chief Signals Opposition to CAA Curbs on GHGs*, Greenwire, Dec. 8, 2009, http://eenews.net/Greenwire/2009/12/08/archive/4?terms=naaqs+petition (subscription required) (quoting Administrator Lisa Jackson saying: "I have never believed and this agency has never believed that setting a national ambient air quality standard for greenhouse gases was advisable.").
37. *See* 42 U.S.C. §7408(a)(1)(C) (2007) (requiring the Administrator to publish a list including each air pollutant "for which he plans to issue air quality criteria under this section").
38. *See* NRDC. v. Train, 545 F.2d 320, 327, 7 ELR 20004 (2d Cir. 1976); *see also infra* notes 59-64 and accompanying text.
39. *See infra* notes 65-67 and accompanying text.

A. General Background on §§107 Through 110

The NAAQS program is driven by §108(a), which requires EPA to develop a list of air pollutants that will be used to develop national primary and secondary ambient air quality standards. To reach NAAQS, EPA must first make an "endangerment finding" for an air pollutant, finding that the air pollutant's:

> (A) emissions . . . , in his judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare;
>
> (B) . . . presence . . . in the ambient air results from numerous or diverse mobile or stationary sources; and
>
> (C) . . . air quality criteria had not been issued before December 31, 1970, but for which he plans to issue air quality criteria under this section.[40]

Once an endangerment finding has been made, "[t]he Administrator shall issue air quality criteria for [that] air pollutant."[41]

The national primary and secondary ambient air quality standards are set through §109. Section 109 briefly describes the requirements for NAAQS:

> (b) Protection of public health and welfare
>
> (1) National primary ambient air quality standards, prescribed under subsection (a) of this section shall be ambient air quality standards the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health. . . .
>
> (2) Any national secondary ambient air quality standard prescribed under subsection (a) of this section shall specify a level of air quality the attainment and maintenance of which in the judgment of the Administrator, based on such criteria, is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air. . . .[42]

To date, primary NAAQS have been established for particulate matter with a diameter of 10 microns or less (PM_{10}), $PM_{2.5}$, sulfur dioxide (SO_2), carbon monoxide (CO), NO_x, ozone, and lead.[43]

Section 107 requires each state to "assur[e] air quality within the entire geographic area comprising such State by submitting an implementation plan for such State which will specify the manner in which national primary and secondary air quality standards will be achieved and maintained within each air quality control region in such State." The SIPs referenced in §107 are detailed in §110.

An SIP must "provide for implementation, maintenance, and enforcement of [each NAAQS] in each air quality control region (or portion thereof) within such State."[44] An implementation plan "shall . . . include enforceable emission 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."[45] SIPs must also not "contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard."[46]

EPA may be required to establish an FIP if EPA either finds the proposed SIP deficient or disapproves of the SIP. The precise language invoking EPA's FIP requirement is laid out in §110(c)(1):

> The Administrator shall promulgate a Federal implementation plan at any time within 2 years after the Administrator—
>
> (A) finds that a State has failed to make a required submission or finds that the plan or plan revision submitted by the State does not satisfy the minimum criteria established under subsection (k)(1)(A) of this section, or
>
> (B) disapproves a State implementation plan submission in whole or in part, unless the State corrects the deficiency, and the Administrator approves the plan or plan revision, before the Administrator promulgates such Federal implementation plan.[47]

Disapproval under §110(c)(1)(B) appears conditioned on §110(k)(3), which states that, in reference to full approval, partial approval, and disapproval, "the Administrator shall approve such submittal [of an SIP] as a whole if it meets all of the applicable requirements of this chapter."[48] Conditional approval of an SIP is a possibility.[49]

B. Statutory Authority for Cap-and-Trade Under NAAQS

EPA faces several legal hurdles in establishing a cap-and-trade program under NAAQS. First, although *Train*[50] suggests EPA may be mandated to list a pollutant once an endangerment finding has been made, that decision may be of questionable authority after *Chevron, U.S.A., Inc. v. NRDC*.[51] Second, the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit has already struck cap-and-trade programs in CAIR and the NO_x SIP Call.[52] Nevertheless, the current legal ambiguity means that NAAQS-based trading remains at least a possible regulatory avenue for EPA.

40. 42 U.S.C. §7408(a)(1).
41. §7408(a)(2).
42. §7409(b).
43. *See generally* Robert V. Percival et al., Environmental Regulation: Law, Science, and Policy 503 fig.5.6 (4th ed. 2003) (describing the primary NAAQS).
44. 42 U.S.C. §7410(a)(1).
45. §7410(a)(2)(A).
46. §7410(a)(2)(D)(i)(I).
47. §7410(c)(1).
48. §7410(k)(3).
49. *See* §7410(k)(4) (allowing conditional approval for minor SIP deficiencies corrected within one year).
50. 545 F.2d 320, 7 ELR 20004 (2d Cir. 1976).
51. 467 U.S. 837, 14 ELR 20507 (1984).
52. *See infra* note 78 and accompanying text.

1. Is EPA Required to List GHGs as a Pollutant?

First, it is unclear whether EPA is required to list GHGs as a criteria pollutant and thus trigger the requirements of the NAAQS program. This uncertainty is particularly important because EPA appears reluctant to use the NAAQS program for GHG regulation and may even attempt to use the "absurd results" doctrine to avoid NAAQS-based regulation.[53]

The listing controversy concerns §108(a), which lays out the three requirements for an endangerment finding. First, emissions of the pollutant must "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare."[54] Second, the pollutant must come from "numerous or diverse mobile or stationary sources."[55] Third, the pollutant must be one "for which air quality criteria had not been issued before December 31, 1970, but for which [the Administrator] plans to issue air quality criteria under this section."[56]

There is near universal agreement that GHGs meet the first two criteria.[57] There is significant debate, however, regarding whether the third criteria gives EPA discretion under *Chevron* in deciding to list a pollutant, given the ambiguous phrase, "for which he plans to issue."[58] On the one hand, the only case to address this section of the CAA, *NRDC v. Train*, held that EPA was required to list a pollutant if the pollutant met the first two criteria.[59] In *Train*, EPA had attempted to avoid listing lead as a criteria pollutant because the Agency thought that mobile source regulation was preferable to air quality standards; thus, EPA was not required to issue standards because the Agency had no plans to do so.[60] This argument was rejected by the U.S. Court of Appeals for the Second Circuit, which held that Congress intended listing to be mandatory once an endangerment finding under (A) and (B) has been met.[61] According to the court, §110(a)(1)(C) was actually directed at the initial list of pollutants Congress required EPA to regulate as part of the 1970 Amendments,[62] and therefore was not a "separate and third criterion."[63] Therefore, due to *Train*, it is possible that EPA will be required to list GHGs now that the §202 endangerment finding is finalized.[64]

On the other hand, a literal interpretation of the phrase "for which he plans to issue" appears to give EPA discretion in deciding when to list a pollutant.[65] In the advance notice of proposed rulemaking (ANPR), EPA speculated that this language might make *Train* no longer good law since it was decided before *Chevron* and, therefore, did not apply the now-correct approach to reviewing agency interpretations.[66] Several environmental groups have echoed this argument.[67] Thus, since the literal language is, as the *Train* court itself put it, "somewhat ambiguous,"[68] EPA would, effectively, have discretion to decide whether to list a pollutant. This argument may be particularly relevant considering the importance the D.C. Circuit has placed on the literal language of the statute in its recent CAA decisions.[69]

The argument that EPA has discretion on the decision whether to list a pollutant has been criticized. On a narrow front, *Train* could be considered a decision about statutory interpretation, not agency discretion, meaning that *Chevron* has no effect on *Train*'s current validity.[70] More broadly, Prof. Patricia McCubbin has argued that the doctrine of "scrivener's error"[71] should apply because Congress actually intended §108(a) to create a two-tiered listing regime: first, a pollutant could be listed if it was dangerous and widespread; and second, a pollutant could be listed, even if the other two criteria were not met, if EPA chose to list the pollutant.[72] Moreover, it is possible that a court reviewing this issue post-*Chevron* will analyze the issue the same way as the *Train* court and focus on canons of statutory construction, statutory structure, and legislative history to reach the same conclusion.[73]

At this point, it is difficult to say what side is correct. *Train* is no doubt contrary to any claims of discretion, but the

53. *See* Massachusetts v. EPA, 415 F.3d 50, 70, 35 ELR 20148 (D.C. Cir. 2005) (Tatel, J., dissenting) (explaining that the absurd results canon may justify an avoidance of the NAAQS program if it truly proves to be "unworkable"). This, of course, is the approach being taken by EPA regarding the PSD program. Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 74 Fed. Reg. 55292, 55303 (Oct. 27, 2009) (to be codified at 40 C.F.R. pts. 51, 52, 70 & 71). Whether EPA is willing to rest even more of its GHG policy on this doctrine is questionable.
54. 42 U.S.C. §7408(a)(1)(A).
55. §7408(a)(1)(B).
56. §7408(a)(1)(C).
57. *See* McCubbin, *supra* note 29, at 449 (explaining that "[g]reenhouse gases plainly meet two of those three factors" and discussing impact of the proposed §202 endangerment finding); The Road Ahead, *supra* note 8, at 35 (discussing why first two requirements are easily met).
58. 42 U.S.C. §7408(a)(1)(C). *Compare* McCubbin, *supra* note 29, at 468 (concluding that EPA has no discretion), *with* The Road Ahead, *supra* note 8, at 39 (explaining that "given significant amendments to the CAA and the rise of *Chevron* deference, *Train* may be distinguishable, and EPA may be able to assert discretion," although cautioning against this approach).
59. *See* NRDC. v. Train, 545 F.2d 320, 327, 7 ELR 20004 (2d Cir. 1976).
60. *Id.* at 324.
61. *Id.* at 327.
62. *Id.* at 325.
63. *Id.*
64. *See, e.g.*, McCubbin, *supra* note 29, at 452 n.99 (citing several authors making this claim). This argument, of course, marginalizes the subparagraph (B) requirement that the pollutant be emitted from "numerous or diverse mobile or stationary sources," 42 U.S.C. §7408(a)(1)(B), although it would be quite difficult for EPA to argue that GHGs do not meet this standard.
65. *See* McCubbin, *supra* note 29, at 449 (conceding that "[o]n its face, [these] provision[s] appear[ ] to give the agency discretion to decide whether to initiate the national standards regulatory process"); *see also* The Road Ahead, *supra* note 8, at 36.
66. Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44477 n.229 (July 30, 2008).
67. *See supra* note 35.
68. *Train*, 545 F.2d at 326.
69. *See, e.g.*, North Carolina v. EPA, 531 F.3d 896, 907-10, 38 ELR 20172 (D.C. Cir. 2008) (per curiam) (focusing on the literal language of the statute).
70. *See Train*, 545 F.2d at 324 ("The issue is one of statutory construction."); *see also* McKinstry et al., *supra* note 31, at 793 n.107 (arguing that nothing in *Chevron* "would appear to overturn the simple issue of *statutory* interpretation resolved in *NRDC v. Train*" (emphasis added)).
71. *See* Appalachian Power Co. v. EPA, 249 F.3d 1032, 1041, 31 ELR 20635 (D.C. Cir. 2001) ("Reading a statute contrary to its seemingly clear meaning is permissible '[i]f the literal application of a statute will produce a result demonstrably at odds with the intentions of its drafters.'" (quoting Mova Pharm. Corp. v. Shalala, 140 F.3d 1060, 1068 (D.C. Cir. 1998))).
72. *See* McCubbin, *supra* note 29, at 453-58 (detailing argument and proposing correct way section should have been written). EPA, thus, only has discretion to list more pollutants than would be required by the other two factors, not fewer.
73. *See* Nathan Richardson, Res. for the Future, Greenhouse Gas Regulation Under the CAA: Does *Chevron v. NRDC* Set the EPA Free? (2009), *available at* http://www.rff.org/RFF/Documents/RFF-DP-09-50.pdf.

Train decision predates *Chevron* and, regardless, would only be binding on courts in the Second Circuit.[74] Also, a court sympathetic to literal readings and skeptical of extrastatutory arguments may reject claims that the statutory text is somehow an inaccurate expression of legislative will.[75] Also, it appears that EPA may resist listing GHGs as a criteria pollutant,[76] meaning that a judicial decision may be required to force EPA to take this action.[77]

2. Is Cap and Trade Legal Under NAAQS?

Whether any cap-and-trade program is legal under the NAAQS program is unclear. The D.C. Circuit struck down the cap-and-trade programs of both CAIR and the NO_x SIP Call, although in neither decision did the court actually hold that cap-and-trade was per se illegal.[78] Instead, the decisions focused on particular statutory commands that defeated the cap-and-trade programs created by those particular rules.

EPA based CAIR on the "good neighbor" provision of §110(a)(2)(D), which requires that state plans "prohibit[ ] sources 'within the state' from 'contribut[ing] significantly to nonattainment in . . . any other State.'"[79] In *North Carolina v. EPA*, the D.C. Circuit invalidated this program,[80] in part because, by allowing for trading across states, CAIR did not "actually require elimination of emissions from sources that contribute significantly and interfere with maintenance in downwind nonattainment areas."[81]

The SIPs associated with Phase 2 of the NO_x SIP Call suffered a similar defeat in *NRDC v. EPA*.[82] In this case, the D.C. Circuit struck down the Phase 2 cap-and-trade program because it violated the §172(c)(1) requirement that "nonattainment areas achieve 'such reductions in emissions from existing sources in the area' as can be achieved by the adoption of [reasonably available control technologies]."[83] According to the court, the trading program failed to meet this requirement because it did not guarantee "at least [reasonably available control technology (RACT)] *RACT-level* reductions in emissions sources within the nonattainment area."[84]

These decisions do not necessarily mean, however, that any NAAQS-based cap-and-trade programs are illegal. To be sure, various commentators have suggested that the *North Carolina* decision prohibits trading.[85] The analysis offered by these negative commentators, however, tends to be cursory, often consisting of only one sentence in a broader discussion. Moreover, other commentators have argued that trading is still possible due to the differences between GHGs and NO_x and sulfur oxide (SO_x) and the differences between the problems of global climate change and interstate transport of the CAIR pollutants.[86]

74. This point does not seem to draw that much attention, although it may have the potential to be quite important, since the D.C. Circuit could simply decide *Train* was wrong on the statutory construction issue and decide the other way. This possibility may be even more likely due to the large passage of time that has occurred since *Train* and the general shift to a more text-based judicial approach.
75. *See, e.g.*, *North Carolina*, 531 F.3d at 903 ("All the policy reasons in the world cannot justify reading a substantive provision out of a statute.").
76. *See supra* note 34 and accompanying text.
77. Requiring a judicial decision would likely make the NAAQS process take an even longer period of time. For example, the first petitions for GHG regulation under §202 were filed in 1999, and an Endangerment Finding was not proposed (let alone finalized) until almost 10 years later. Massachusetts v. EPA, 549 U.S. 497, 510, 37 ELR 20075 (2007) (explaining that petitions were first filed on October 20, 1999); Press Release, EPA, EPA Finds Greenhouse Gases Pose Threat to Public Health, Welfare / Proposed Finding Comes in Response to 2007 Supreme Court Ruling (Apr. 17, 2009), *available at* http://yosemite.epa.gov/opa/admpress.nsf/0/0EF7DF675805295D8525759B00566924. Since the NAAQS process is viewed as normally taking 10 years, the addition of complications related to forcing agency action (both in listing GHS and carrying forward the regulatory process) will likely lead to an even more elongated time line.
78. *See* NRDC v. EPA, 571 F.3d 1245, 1256, 39 ELR 20150 (D.C. Cir. 2009) (per curiam) ("EPA has not shown that NO_x SIP Call compliance will result in at least RACT-level reductions in emissions from sources within each nonattainment area . . . ."); *North Carolina*, 531 F.3d at 906-08, 929 ("EPA's approach [under CAIR]—regionwide caps with no state-specific quantitative contribution determinations or emissions requirements—is fundamentally flawed.").
79. *North Carolina*, 531 F.3d at 907 (quoting 42 U.S.C. §7410(a)(2)(D)(i)(I)) (emphasis omitted).
80. *Id.* at 907. The D.C. Circuit found numerous problems with CAIR, leading to its conclusion that the "serious deficiencies" of the rule required that it be completely vacated. *Id.* at 901, 929. The vacatur was subsequently reversed and the court simply remanded the rule back to the EPA. North Carolina v. EPA, 550 F.3d 1176, 39 ELR 20306 (D.C. Cir. 2008) (per curiam). Most recently, EPA proposed a replacement rule for CAIR called the Air Pollution Transport Rule, which would possibly allow for intrastate and limited interstate trading in a way that, according to EPA, would assure that each state meet its own emission reduction requirements. *See* EPA, Proposed Rule: Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone, July 6, 2010, *available at* http://www.epa.gov/airtransport/pdfs/TransportRule.pdf; *see also* EPA, Air Transport: Regulatory Actions, http://www.epa.gov/airtransport/actions.html#jul10 (providing links to proposed rule, summaries, and additional analysis).
81. *North Carolina*, 531 F.3d at 908.
82. *NRDC*, 571 F.3d at 1250.
83. *Id.* at 1255.
84. *Id.*
85. *See, e.g.*, Elizabeth Kruse, North Carolina v. Environmental Protection Agency, 33 Harv. Envtl. L. Rev. 283, 295 (2009) (arguing that *North Carolina* "means that EPA will have trouble putting in place a cap-and-trade program to control climate under the CAA"); Arnold W. Reitze Jr., *Federal Control of Carbon Dioxide Emissions: What Are the Options?* 36 B.C. Envtl. Aff. L. Rev. 1, 25 (2009) (explaining that cap-and-trade programs are a "suspect class" after *North Carolina*); David B. Weinberg & Tracy Heinzman, *Timing Is Everything: If EPA Had Waited a Day or Two, Its Controversial ANPR Might Have Been Received Differently—and More Constructively*, Chemicals, Safety & Env't Update (Wiley Rein LLP, Wash., D.C.), Summer 2008, http://www.wileyrein.com/publications.cfm?sp=articles&id=4980 (arguing that this decision "underlines why new legislation probably will be required before meaningful action can be taken on the climate change issue"); Posting of Bill Chameides to The Green Grok, *The U.S. Climate Policy Race: Legislate or Regulate* (Mar. 25, 2009), http://www.nicholas.duke.edu/thegreengrok/tortoiseandhare/?searchterm=None (explaining that, after *North Carolina*, "[c]ap-and-trade . . . will almost certainly be off the table"); Posting of Seth Jaffe to Law and the Environment, *D.C. Circuit Remands Phase 2 Ozone Rule: Another Defeat for Cap and Trade Programs* (July 13, 2009), http://www.lawandenvironment.com/tags/north-carolina-v-epa/ ("*North Carolina v. EPA* and *NRDC v. EPA* circumscribe EPA's discretion in implementing a cap-and-trade program for greenhouse gases under existing law.").
86. *See* The Road Ahead, *supra* note 8, at 561 ("Given current ambient concentrations of greenhouse gases and the multiple sources of emissions, EPA could easily declare that no single source can contribute 'significantly' or interfere with another state's air quality."); McCubbin, *supra* note 29, at 460 n.139 (explaining that although "the *North Carolina* decision might at first appear to be the death knell for any cap-and-trade program," the decision actually "leaves open the possibility but imposes certain, ambiguous restrictions"); Daniel P. Schramm, *A Federal Midwife: Assisting the States in the Birth of a National Greenhouse Gas Cap-and-Trade Program*, 22 Tul. Envtl. L.J. 61, 98 (2008) ("[T]he major failure of CAIR to achieve compliance with the CAA in specific downwind attainment areas is not as relevant in the climate context, in which the entire planet is a 'nonattainment area,' and global, rather than state-specific, emissions reductions are the ultimate goal."). This was also the general

One key statutory phrase for the court in *North Carolina* is in §110(a), which "prohibits sources '*within* the State' from 'contribut[ing] significantly to nonattainment *in . . . any other State* . . . .'"[87] The D.C. Circuit found this requirement troublesome because "sources in Alabama could purchase enough NO_x and SO_2 allowances to cover all their current emissions, resulting in no change in Alabama's contribution to Davidson County, North Carolina's nonattainment."[88] In the case of GHGs, however, EPA could legitimately argue that no state contributes *significantly* to another state's nonattainment because GHGs are generally well-mixed global pollutants.[89]

Additionally, *NRDC* did not expressly rule that a trading program was incompatible with §172, but rather that the particular program designed by EPA in that instance did not ensure the necessary reductions. In fact, the most likely interpretation of the opinion is that the real problem for the court in this case was that the NO_x SIP Call did not guarantee "at least RACT-level reductions in emissions from sources within each nonattainment area" and the rule was held to be "inconsistent with the 'in the area' requirement and thus violates the plain text of §172(c)(1)."[90] Under this interpretation, then, it may be possible for a rule to survive if EPA can guarantee such intrastate reductions.[91] Alternatively, one could focus on the "existing sources" language of §172(c)(1) and argue that the decision in fact requires that each individual source guarantee at least RACT-level reductions. Although the court declined to rule on whether RACT did in fact require this type of reductions and did base it's opinion on the "in the area" language in the statute,[92] this interpretation remains a possibility and should be considered.

Therefore, despite some possible limitations, *North Carolina* and *NRDC* do not necessarily sound the "death knell"[93] for cap-and-trade under NAAQS. In fact, since the proposed replacement rule for CAIR, the recently announced Air Pollution Transport Rule, would allow for intrastate and limited interstate trading, it seems clear that EPA, at least, still believes that the existing CAA grants the Agency the authority to implement a cap-and-trade program, albeit one with some significant limitations.[94]

C. Factors to Consider in Designing a NAAQS Trading Program

Any NAAQS-based trading program will face several common problems. In general, these problems are concerned first with how to set the appropriate air quality standard and, second, how to turn that standard into a trading program. Timing is another important consideration: establishing any NAAQS program will likely take at least 10 years.[95]

1. Setting the Appropriate Standard: What Concentration?

If EPA either chooses or is forced to regulate GHGs as criteria pollutants, EPA must then determine where to set the air quality standard.[96] EPA has typically interpreted "air quality standards" to mean a maximum air concentration for the pollutant.[97] The NAAQS must be set at levels sufficient to

view expressed at the Nicholas Institute's March 2009 Conference. Video of the presentations is available at http://www.nicholas.duke.edu/institute/clean.air.2009.html.

87. North Carolina v. EPA, 531 F.3d 896, 907, 38 ELR 20172 (D.C. Cir. 2008) (per curiam) (quoting §110(a)(2)(D)(i)(I)).
88. *Id.*
89. *See supra* note 86. *But see* Jonathan Hiskes, *If It Does Matter Where CO_2 Is Released, Cities Are in Trouble*, Grist, Mar. 17, 2010, *available at* http://www.grist.org/article/2010-03-17-if-it-does-matter-where-co2-is-released-cities-are-in-trouble/ (discussing a new study by Mark Jacobson that finds harmful localized "domes" of CO_2 over cities).
90. NRDC v. EPA, 571 F.3d 1245, 1256, 39 ELR 20150 (D.C. Cir. 2009). The court then explicitly analogized this case with the situation in *North Carolina*. *Id.* at 1256-57 (explaining: "Similar reasoning applies to the NO_x SIP Call [because] [ ] EPA has not provided assurance that the NO_x SIP Call will achieve the Act's goal of 'reductions from existing sources in the area,' because it has not evaluated the effect of the program on each nonattainment area.").
91. *See* Patricia McCubbin, *Cap and Trade Programs Under the Clean Air Act: Lessons From the Clean Air Interstate Rule and the NO_x SIP Call*, 18 Penn. St. Envtl. L. Rev. *32, n.108 (Fall 2009), *available at* http://works.bepress.com/cgi/viewcontent.cgi?article=1007&context=patricia_mccubbin (explaining that *NRDC* may provide support for the above proposition).
92. *NRDC*, 571 F.3d at 1256-57.
93. McCubbin, *supra* note 29, at 460 n.139.
94. *See* U.S.EPA, Proposed Rule: Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone, July 6, 2010, *available at* http://www.epa.gov/airtransport/pdfs/TransportRule.pdf.
95. *See*, *e.g.*, *id.* at 445. EPA has hinted that the process may take even longer due to the complexity of the climate change problem in general and, more specifically, the application of NAAQS to GHGs. Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44483 (July 30, 2008). The importance of this concern about time may, however, be overstated, since there is some debate as to whether NSPS regulation would actually take significantly less time. *Compare* McCubbin, *supra* note 29, at 466-67 (explaining that EPA estimated it could have a functioning §111 program up and running within two years), *with* E-mail from Prof. Michael Wara , Stanford Law School, to Prof. Jonathan Wiener, Duke University School of Law, Oct. 1, 2009 [on file with authors] (explaining that some industry leaders believe that NSPS regulation would take at least eight years).
96. There has also been some debate regarding whether EPA should set a primary standard (for public health), a secondary standard (for public welfare), or both. Some have advocated that EPA should only set a secondary standard because, if set so that the country is in nonattainment, states would have more forgiving deadlines in achieving attainment. *See, e.g.*, McKinstry et al., *supra* note 31, at 798-99. On the other hand, requiring EPA to set a primary standard may be supported by the plain meaning of the term "primary" and EPA's past practice of setting both standards at the same concentration. *See* U.S. EPA, Air and Radiation: National Ambient Air Quality Standards (NAAQS), http://www.epa.gov/air/criteria.html (last visited June 3, 2010) (displaying chart showing NAAQS for all criteria pollutants).

    The relevance of this debate is somewhat unclear. First, §179B allows EPA to approve state plans that do not promise attainment if the "but for" cause of the deficiency is international emissions, 42 U.S.C. §7509a(a), which could arguably be the case for GHGs, thus minimizing any advantage for setting a secondary standard. More importantly, EPA's finalization of the §202(a) endangerment finding, which found that GHGs endangered both public health and welfare, would mean that, in order to avoid setting both standards, EPA would have to make the quite illogical argument that GHGs from cars endanger health, but emissions from other sources somehow do not. *See generally* Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the CAA, 74 Fed. Reg. 66496 (Dec. 15, 2009) (to be codified at 40 C.F.R. ch. I).
97. *See, e.g.*, The Road Ahead, *supra* note 8, at 79 ("Historically, such standards have focused on restricting the ambient concentrations of criteria pollutants."). There has been some discussion regarding whether EPA could initially set the standard as an emissions limit or reduction goal. *See* McKinstry et al., *supra* note 31, at 803 (explaining that "new regulations tailoring the requirements of the CAA" to focus the standard and criteria on emissions reduction are needed, but not explaining whether there is actual textual support for this action, and further, discussing the appropriate concentration level). This argument, however, goes against the statutory text and past agency practice, making it very

protect public health and welfare. The level "shall accurately reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected."[98] EPA is prohibited from considering cost when setting the appropriate level.[99] Moreover, it is widely viewed that scientific uncertainty regarding at what exact level the NAAQS should be set is insufficient to allow EPA to avoid setting some sort of level.[100]

There appear to be two most likely candidates for the appropriate level.[101] First, a concentration of 350 parts per million (ppm) has been advocated by Dr. James Hansen, a noted climate scientist,[102] and has begun to draw increasing popular support.[103] Second, a concentration level of 450 ppm has received considerable support from several climate scientists and members of the general climate community.[104] If the scientific evidence increasingly mounts for a concentration of 350 ppm, EPA may have no choice but to set it at this level. Conversely, if the scientific community is at least equally supportive of the 450 ppm concentration, EPA may have discretion to choose which concentration it wishes to set.

2. The Effects of Setting the Standard at Attainment or Nonattainment

GHGs maintain a relatively uniform global concentration, which is currently around 385 ppm.[105] Thus, if EPA sets the standard above this level, e.g., at 450 ppm, the entire country will be in attainment; if the Agency must set the standard below current concentration, e.g., at 350 ppm, the entire country will be in nonattainment. The consequences of this decision may be drastic.

If the standard is set so that the country is in attainment, GHG regulation will be subject to the PSD program. Under this program, state plans must "contain emission limitations and such other measures as may be necessary . . . to prevent significant deterioration of air quality."[106] There are also permitting requirements for major new and modified sources,[107] a process the Agency has already begun with the release of the proposed tailoring rule.[108]

EPA may be forced, however, to set the standard below current concentrations.[109] If so, the entire country will be in nonattainment and the harsher requirements of Part D will apply. These requirements include both stricter measures for SIPs and nonattainment new source review (NNSR) for new and modified sources.[110] Of particular importance is the requirement that all state plans for nonattainment areas "provide for the implementation of all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology)."[111] In *NRDC*, the D.C. Circuit recently struck down the trading program of the NO_x SIP Call Phase 2 because it failed to ensure that sources "in the area" would actually achieve emissions reductions at least equal to that of "reasonably available control technology."[112]

Nonattainment would have one advantage: §179B allows for EPA to approve an SIP that does not meet NAAQS within the required time frame if the SIP would meet NAAQS "but for" the impact of foreign emissions.[113] EPA approval, however, does not relieve the state from NNSR or the other necessary nonattainment SIP provisions.[114] Moreover, since the United States is one of the world's largest emitters, it is

likely that EPA will be required to set a standard based on air concentration. *See* The Road Ahead, *supra* note 8, at 82 ("EPA cannot simply transform its national ambient air quality standards into a cap-and-trade program.").

98. 42 U.S.C. §7408(a)(2).
99. *See* Whitman v. Am. Trucking Assoc., 531 U.S. 457, 472, 31 ELR 20512 (2001).
100. *See, e.g.*, NRDC v. Train, 545 F.2d 320, 324 n.5, 7 ELR 20004 (2d Cir. 1976) (explaining that it is "irrelevant that the current state of scientific knowledge may make it difficult to set" a NAAQS because, according to the legislative history, "the Secretary will be expected to establish national goals on the basis of the best information available to him" (citing S. Rep. No. 91-1196 (1970)). Similarly, both the U.S. Supreme Court and, now, EPA argue that scientific uncertainty is insufficient to prevent mobile source regulation under §202. *See* Massachusetts v. EPA, 549 U.S. 497, 534, 37 ELR 20075 (2007):

> Nor can EPA avoid its statutory obligation by noting the uncertainty surrounding various features of climate change and concluding that it would therefore be better not to regulate at this time. If the scientific uncertainty is so profound that it precludes EPA from making a reasoned judgment as to whether greenhouse gases contribute to global warming, EPA must say so. That EPA would prefer not to regulate greenhouse gases because of some residual uncertainty . . . is irrelevant.

(citation omitted); 74 Fed. Reg. 66496.
101. A concentration level between 250 and 280 ppm is sometimes discussed, which represents the preindustrial level and would require an immense level of global emissions cuts. *See, e.g.*, The Road Ahead, *supra* note 8, at 82 n.597. It is unlikely EPA will be required to set the level so low, however, because, as Justice Stephen Breyer has explained, "regulation [need not] lead to deindustrialization. Preindustrial society was not a very healthy society; hence a standard demanding the return of the Stone Age would not prove 'requisite to protect the public health.'" *Am. Trucking*, 53 U.S. at 496 (Breyer, J., concurring).
102. *See* James Hansen et al., *Target Atmospheric CO_2: Where Should Humanity Aim?*, 2 Open Atmos. Sci. J. 217, 217 (2008), *available at* http://www.columbia.edu/~jeh1/2008/TargetCO2_20080407.pdf ("If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, paleoclimate evidence and ongoing climate change suggest that CO_2 will need to be reduced from its current 385 ppm to at most 350 ppm.").
103. *See* Andrew Revkin, *Campaign Against Emissions Picks Number*, N.Y. Times, Oct. 25, 2009, at A8, *available at* http://www.nytimes.com/2009/10/25/science/earth/25threefifty.html?ref=earth (discussing global demonstrations in favor of 350 ppm goal).
104. *See* McCubbin, *supra* note 29, at 462 (citing Fred Pearce, *Saving the World, Plan B*, New Scientist, Dec. 13, 2003, at 6).
105. *See* Hansen et al., *supra* note 102, at 217.
106. 42 U.S.C. §7471.
107. *See* §7475 (detailing various permitting requirements).
108. This rule would, in the first phase, raise the emissions threshold for permitting from the statutory mandate of 100 or 250 tons to 25,000 tons. Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 74 Fed. Reg. 55292, 55326-27 (Oct. 27, 2009). EPA justified this rule under the doctrines of "absurd results" and "administrative necessity." *Id.* at 55303.
109. *See* Hansen et al., *supra* note 102, at 217 (advocating for concentration level of 350 ppm).
110. *See* 42 U.S.C. §§7502, 7503.
111. §7502(c)(1).
112. NRDC v. EPA, 571 F.3d 1245, 1256, 39 ELR 20150 (D.C. Cir. 2009).
113. 42 U.S.C. §7509a(a)(2).
114. Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44481 (July 30, 2008) (explaining that even if the requirements of §179B were met, "the area would continue to be designated as nonattainment and subject to certain applicable nonattainment area requirements.").

unclear whether EPA will be able to prove that international emissions truly are the "but for" cause for nonattainment.[115]

3. Turning an Ambient Air Quality Standard Into a State-by-State Emissions Budget

Traditionally, EPA has set "air quality standards" by mandating a specific ambient concentration and then leaving it to the states to figure out how to achieve this standard. This approach does not make sense for GHGs, however, because states simply do not have sufficient control over GHG concentration to realistically achieve this goal. It is largely this complication that has caused some commentators, including EPA, to argue that NAAQS is simply unworkable for regulating GHGs.[116] Alternatively, if the air quality standard could be turned into an emissions reduction target—first for the nation, and then for individual states—NAAQS could be an ideal method for regulating GHGs because of the wide range of regulatory tools available under this program.

Unfortunately, a consensus has not emerged regarding how to solve this central problem. For example, in the ANPR, EPA merely stated that "viable legal approaches could be identified . . . such as defining a U.S. share of emissions."[117] There have, though, been some attempts. For example, the Institute for Policy Integrity (IPI), while acknowledging the difficulty in going from air quality standard to emissions budgets, has pointed to §115 as a potential way to set emissions budgets.[118] Section 115 deals with the problem of "pollutants in the United States . . . endanger[ing] public health or welfare in a foreign country."[119] If the conditions of this section were met with regard to GHGs, EPA would then have the authority to require SIPs to adequately deal with this problem. EPA could use this focus on "pollutants emitted in the United States" to create a national emissions budget, which could be divided into budgets for individual states.[120] EPA would then have the authority to determine whether a state plan met its emissions budget by participation in a national cap-and-trade program.[121] A major drawback with this plan is that, in order for §115 to be triggered, at least one other country must give "the United States essentially the same rights with respect to the prevention or control of air pollution occurring in that country as is given that country by this section,"[122] and it is far from clear at this point whether this reciprocity requirement has been met.

Section 179B may offer another possibility for creating an emissions budget if the standard is set at nonattainment.[123]

115. The potential use of §179B in regulating GHGs is discussed in greater detail and in a broader context in Part II.C.3., *infra*.

116. *See* McCubbin, *supra* note 29, at 445 (explaining that "the Agency—under both President Bush and President Obama—believes broadly applicable national standards, implemented by the states, are fundamentally inappropriate for greenhouse gases."); *see also* Robert R. Nordhaus, *New Wine Into Old Bottles: The Feasibility of Greenhouse Gas Regulation Under the CAA*, 15 N.Y.U. Envtl. L.J. 53, 61 (2007) ("It is difficult to see how the SIP mechanism could be used to control global CO_2 concentrations. It appears to be fundamentally ill-suited to the task.").

117. 73 Fed. Reg. at 44485. This very statement is circular, however, since "defining a share of U.S. emissions" would be the goal of any "legal approach" to get around the air quality standard prescribed by the statute. Another problem with EPA's statement is that it comes very close to the type of policy-based legal reasoning rejected in *North Carolina* and criticized recently by Judge David S. Tatel because it is an example where agencies "choose their policy first and then later seek to defend its legality." Robin Bravender, *Judge Warns Agency on Rulemaking—Heed Your Lawyers*, E&E News PM, Oct. 6, 2009.

118. *See* The Road Ahead, *supra* note 8, at 80-81. Section 115 has attracted some additional attention as a potential basis for regulating GHGs that would be independent of the NAAQS program. For example, Roger Martella and Matthew Paulson have argued that §115 could used as the primary basis for GHG regulation for many of the same reasons (and subject to many of the same assumptions regarding notice and reciprocity) as the IPI discussion, but also go even further and argue that regulation under §115 would not trigger new source review. Roger Martella & Matthew Paulson, *Regulation of Greenhouse Gases Under Section 115 of the CAA*, BNA Daily Env't Rep., Mar. 9, 2009, at 1, 9-10. Similarly, Hannah Chang has argued that EPA could use §115 to require states to revise their SIPs to take into account the effect of GHGs on international air pollution without setting a NAAQS. *See* Hannah Chang, *Cap-and-Trade Under the CAA? Rethinking Section 115* (Columbia Law Sch. Ctr. for Climate Change Law, Working Paper, 2010), *available at* http://www.law.columbia.edu/null/download?&exclusive=filemgr.download&file_id=154865). Martella and Paulson's hope, however, that §115 would avoid triggering new source review now appears to be moot, given the almost certain triggering of those requirements once the motor vehicle rule goes into effect.

One objection to using §115 as the foundation for a cap-and-trade program is that §115 appears aimed at the singular case where a specific state's emissions are causing harm for a downwind country. The D.C. Circuit has previously upheld EPA's discretion to view the §115 process as a unitary one, in which the EPA could act only if it could "make a judgment regarding the state by state, or even the aggregate reductions necessary to eliminate observed [pollution] effects." Her Majesty the Queen in Right of Ontario v. EPA, 912 F.2d 1525, 1530, 20 ELR 21354 (D.C. Cir. 1990) (quoting from a letter from an EPA Acting Assistant Administrator). In other words, "EPA must be able to trace the pollutants back to the source state." Steven M. Siros, *Transboundary Pollution in the Great Lakes: Do Individual States Have Any Role to Play in Its Prevention?*, 20 S. Ill. U. L.J. 287, 308 (1996). The globally diffusive nature of GHGs makes it difficult, if not impossible, to link specific transboundary GHG emissions with specific climate change effects in foreign states.

There are additional objections for potential use of §115. For example, any invocation of §115 authority first requires reciprocity from the foreign state. *See infra* note 116 and accompanying text. Additionally, recourse to this section as an attempt to avoid any potential problems associated with applying the NAAQS program to GHGs does not in any way address whether or not a NAAQS must be set. Thus, if *Train* truly does control this issue, the supposed advantages of §115 become increasingly illusory. This is in contrast to a program that deals with the global aspect of climate change under §179B, which may provide some flexibility within a NAAQS-based program. *See infra* notes 122-25 and accompanying text.

Finally, although there may be some textual merit for the arguments for using §115, it is difficult to envision EPA attempting to effectively regulate the entire economy under a statutory authority the Agency has never before used as a basis for independent regulations, unlike regulation under NAAQS or §111.

119. 42 U.S.C. §7415.

120. *See* The Road Ahead, *supra* note 8, at 81.

121. *Id.*

122. 42 U.S.C. §7415(c).

123. The potential for using this section has seemed to attract the most attention from, perhaps surprisingly, the Chamber of Commerce and the Center for Biological Diversity (CBD), albeit it for considerably different reasons. For example, in a letter to EPA on Nov. 26, 2008, the Chamber, which had been denied a petition for a rulemaking on this section in 2007, argued that EPA should reconsider its case-by-case approach to §179B implementation. Additionally the Chamber stated that the Agency's view that §179B only alleviates "certain fee requirements, reclassification requirements, and attainment and maintenance demonstration requirements" so "frustrates the intent of Section 179B" that the "statute itself is virtually useless. Letter from William L. Kovacs, Vice President for Environment, Technology & Regulatory Affairs, Chamber of Commerce, to Air and Radiation Docket and Information Center, Environmental Protection Agency (Nov. 26, 2008), *available at* http://www.capitalmarketscommission.org/NR/rdonlyres/elgj2yz75dofbuqai42iqqlnvke2z2d-vm4kt2i4zwgi7ncds5xp46wvs7tqv77ap767wahtq2aqegr7be5uhdl6nszc/112808reCOMMENTSU.S.ChamberANPRCommentsonInternationalEmissions.pdf.

The CBD, in its joint position with 350.org advocating GHG regulation under NAAQS, takes a more sanguine view of the current interpretation of the statute, stating: "Section 179B of the Clean Air Act specifically contemplates

In order for a plan to qualify under this section, it must meet the requirements of a nonattainment plan, except that it does not need to "demonstrate attainment and maintenance of the relevant [NAAQS] by the attainment date specified" if it would do so "but for emissions emanating from outside of the United States."[124] Section 179B thus divides emissions into two worlds: international emissions ("emanating from outside of the United States"); and domestic emissions. If international emissions are the cause of nonattainment, an otherwise valid SIP could be approved. Thus, for GHGs, if a state can show that emissions emanating from every country other than the United States are the "but for" cause[125] of nonattainment, EPA must approve the SIP.[126]

This raises two questions. First, are international emissions truly the "but for" cause of nonattainment? The United States is one of the world's largest emitters, both in terms of total and per capita emissions.[127] But, even at this high emissions level, the United States is still only responsible for around 20% of total emissions,[128] meaning that fully 80% of total emissions are those "from outside of the United States." Under this view, it is possible that science could support a claim that international emissions are truly the "but for" cause of nonattainment, because, if only emissions from the United States impacted the NAAQS, the concentration would likely be much lower, well below the level required for attainment.[129]

Second, can a state craft a plan that would achieve attainment "but for" these international emissions? Given the globally diffuse nature of GHGs, such a plan may be hard to conceptualize, but not impossible. After all, the essential point of climate legislation is to bring down U.S. emissions so that, if other countries are also able to control their emissions, we will be able to avoid the worst effects of climate change. A similar view could be brought to bear in designing a plan that would square with §179B. Thus, if EPA is able to determine the level of emission reductions from the United States necessary to reach the desired concentration (assuming there was sufficient multinational action), it could set a national emissions reduction target. Then, emission allowances could be budgeted to the states based, for example, on historic emissions, and EPA could propose a voluntary trading program. States that opt in to this program could therefore qualify under §179B because they are ensuring that domestic emissions are reduced, so that only international emissions can be said to be the "but for" cause of higher concentrations.

Additionally, it has been argued that setting the standard above current concentration may alleviate this difficulty because states would only be required to maintain attainment, which may be possible for at least 20 years.[130] Even attainment plans, however, must meet the basic requirements of §110(a)(1), requiring that plans "provide[ ] for implementation, maintenance, and enforcement" of air quality standards, and §161's requirement that plans "prevent significant deterioration of air quality."[131] It is unclear whether a state plan, even under attainment, could actually meet these requirements.

If, though, this maneuver can be done, the program must next set a national emissions cap and turn that cap into state-by-state budgets. In setting the national budget, EPA could look to the Intergovernmental Panel on Climate Change (IPCC) recommendations, which call for a global reduction of 25% to 40% of 1990 levels by 2020.[132] EPA could also follow legislative proposals and require emissions reductions, based on 2005 levels, of around 20% by 2020 and 80% by 2050.[133] Next, this cap must be divided into state budgets. This may prove to be quite difficult. Legally, CAIR ran into problems here when it tried to give extra emissions allowances to states that were heavily dependent on coal.[134] The court struck this down because EPA could not use equity as a basis for determining allocations.[135] The allocations system here, therefore, will have to avoid this problem. There will also be political difficulties regarding how to divide the emissions budgets, because there will likely be winners and losers among the states if the emissions reductions are based on 1990, 2005, or current emission levels.

The *North Carolina* and *NRDC* decisions[136] provide at least two key lessons. First, EPA will have great difficulty if it wishes to base a cap-and-trade program on the "good neighbor" concept while not meeting the same fate as CAIR. This may be disheartening, because EPA, in the ANPR, specifically pointed to §110(a)(2)(D) as a potential basis for establishing such a program.[137] The only way that EPA could

and provides an answer to the problem of international emissions." Ctr. for Biological Diversity & 350.org, *supra* note 35, at 30 (citing Clean Air Act §179, 42 U.S.C. §7509a (2008)); Christopher T. Giovinazzo, *Defending Overstatement: The Symbolic Clean Air Act*, 30 Harv. Envtl. L. Rev. 99, 154-55 (2006)).

124. §7509a(a).

125. The statutory language "but for" typically suggests a causal relationship. *See, e.g.*, Holmes v. Sec. Investor Prot. Corp., 503 U.S. 258, 265-66 (1992) (explaining that "a plaintiff is injured 'by reason of' a RICO violation" upon a showing that "the defendant's violation was a 'but for' cause of the plaintiffs injury").

126. For example, in what appears to be the most high-profile use of this section, EPA approved Texas' revised SIP for ozone in the El Paso nonattainment area after the state had adequately demonstrated that emissions from Juarez, Mexico, were the "but for" cause for El Paso's nonattainment. *See* 69 Fed. Reg. 32450, 32451 (June 10, 2004).

127. *Who's at the Climate Talks, and What Do They Seek?*, N.Y. Times, Dec. 5, 2009, http://www.nytimes.com/interactive/2009/12/05/world/climate-graphic-players.html?ref=energy-environment (displaying information on global GHG emissions, including U.S. share).

128. *Id.*

129. This is basically like pretending that the United States was the only emitter in the world.

130. *See* McCubbin, *supra* note 29, at 462 (citing David Adam, *World CO_2 Levels at Record High, Scientists Warn*, The Guardian, May 12, 2008, *available at* http://www.buzzle.com/articles/195012.html).

131. 42 U.S.C. §§7410(a)(1), 7471.

132. McCubbin, *supra* note 29, at 461 n.144.

133. *See* Posting of Bill Chameides to The Green Grok, *What's Different? Waxman-Markey Vs. Kerry-Boxer Climate Bills* (Oct. 2, 2009), http://www.nicholas.duke.edu/thegreengrok/waxmanmarkey-vs-kerryboxer (comparing Kerry-Boxer and Waxman-Markey).

134. North Carolina v. EPA, 531 F.3d 896, 916-21, 38 ELR 20172 (D.C. Cir. 2008) (per curiam).

135. *Id.*

136. *See supra* Part II.B.2.

137. *See* Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44482 (July 30, 2008); *see also* Jonathan S. Martel, *Climate Change Law and Litigation in the Aftermath of* Massachusetts v. EPA, 378 BNA Env't Rep. 2424 (Nov. 9, 2007) (explaining that "some have creatively argued" that

possibly create such a program would be to require that total emissions from every state stay within a certain budget. This would allow unlimited trading within the state and some trading across state lines, but states would have to be very careful to not break their emissions budget and may lead to both economic inefficiencies and increased administrative burdens. The relevance of this provision, though, may be quite limited, because, due to the global nature of GHG concentration, it may be impossible to truly say that one state's emissions "contribute significantly" to another specific state's nonattainment. A far better option at this point would be to focus on the general SIP requirements of §110(a)(2)(A), which explicitly give states the option to use "economic incentives such as fees, marketable permits, and auctions of emissions rights."[138] Similar language exists in the definition of FIPs in §302(y).[139]

Second, to avoid the problems encountered by the NO_x SIP Call in *NRDC*, EPA should attempt to set the standard so that all states are in attainment. A standard of 450 ppm may be supportable by the science, and it is estimated that GHG concentration will not exceed 450 ppm for another 20 years.[140] If EPA is forced to set the standard below current concentration, the Agency may still have the option of designing a program that requires that every state guarantee, at a minimum, RACT-level reductions for sources within that area. Alternatively, under a more restrictive interpretation of the statute, EPA may be required to design a program that guarantees that each source within an area achieve at least RACT-level reductions, which would be a far more difficult task.[141]

Despite these distinctions, it is important to keep in mind that the D.C. Circuit's decisions are not ringing endorsements of NAAQS-based cap and trade. Instead, the fate of both CAIR and the NO_x SIP Call should be viewed as a warning to any attempt to stretch the CAA too far to meet policy goals.

D. Incorporating Aspects of a Congressional Cap-and-Trade Program Using NAAQS

A congressionally created national cap-and-trade program provides a good baseline of comparison to a market-based GHG regulatory program under NAAQS. Waxman-Markey contains elaborate price control measures, including banking and borrowing, the use of offsets, and a strategic reserve.[142] Three general principles regarding the NAAQS-program may be useful in guiding what type of containment measures may be available. First, cost cannot be considered in determining the appropriate standard. Second, states are given considerable flexibility in determining how to meet this standard, so cost-effectiveness may be considered in designing an SIP (or FIP). Finally, NAAQS is based on attaining and maintaining a particular air quality and not about getting a specific level of reductions from specific types of sources.

Keeping in mind these principles and the earlier rules, banking is clearly a possibility, since it was part of CAIR[143] and was one of the few aspects of the rule not explicitly struck down by the D.C. Circuit. Offsets also appear likely because NAAQS are about maintaining overall air quality, not mandating emissions reductions from specific sources.[144] Thus, since one ton of offsets should decrease emissions just as much as one ton of carbon reductions, there does not appear to be any reason to prohibit their use. Next, the implementation of a strategic reserve or safety valve may run into problems.[145] SIPs and FIPs are permitted to consider costs in choosing how to meet national standards.[146] Therefore, the fact that these mechanisms are solely concerned with lowering the costs of the system[147] does not mean that they will be invalid. If these mechanisms are viewed as interfering with achieving or maintaining attainment, however, they may in fact be invalid. This may be particularly the case for a safety valve,

interstate transport problems could allow for the implementation of an FIP-created trading program). Somewhat ironically, the ANPR came out the same day as the *North Carolina* decision. Posting of James Holtkamp to Climate Change Law Blog, *EPA Climate Change ANPR Released* (July 15, 2008), http://www.hhclimatechange.com/climate_change/2008/07/epa-climate-cha.html (noting timing).

138. 42 U.S.C §7410(a)(2)(A). The ANPR also pointed out this section as a potential basis for trading. *See* 73 Fed. Reg. at 44482 ("This requirement could be implemented through a nationwide cap-and-trade program designed at the federal level and adopted by individual states in their SIPs . . . ."); *see also* The Road Ahead, *supra* note 8, at 80 (explaining that this section may give EPA authority for a cap-and-trade program, although any such plan will be "at most optional"); McKinstry et al., *supra* note 31, at 809; Peter H. Wyckoff & Michael R. Barr, *District of Columbia Circuit Strikes Down U.S. EPA's CAIR Cap-and-Trade Program*, Client Alert (Pillsbury Winthrop Shaw Pittman LLP, New York, N.Y.), July 17, 2008, at 3, *available at* http://www.pillsburylaw.com/siteFiles/Publications/B1B9A2C26F90A652199FCE2E1F423A57.pdf) (explaining that use of §110(a)(2)(A) might have saved CAIR).

139. 42 U.S.C. §7602(y).

140. *See* McCubbin, *supra* note 29, at 462.

141. It is, though, possible to imagine how such a system could foreseeably exist. For example, assume RACT equals a 5% reduction in GHG emissions for a given source, but to be in attainment requires each source to make a 10% total reduction in GHG emissions. Assume Company Y could achieve a 7% reduction. If Company X could achieve a 13% reduction, it could sell the extra 3% (13% - 10%) to Company Y. But Company Y would only be in compliance if, in addition to purchasing 3% from Company X, Company Y also installed technology sufficient to meet the RACT 5% limit. Although the efficiencies of this type of regime would be seriously in question, if this path is necessary, it may allow for a regime that is at least more efficient than a program without any trading at all.

142. *See generally* Mazurek et al., *supra* note 14 (discussing cost containment provisions).

143. Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule); Revisions to Acid Rain Program; Revisions to the NO_x SIP Call, 70 Fed. Reg. 25162, 25282-83 (May 12, 2005).

144. CAIR does not include an offsets program, but it does allow for certain types of boilers to "opt in" to the trading program, so long as they meet certain regulatory requirements. *Id.* at 25286-88. Although clearly different than offsets, there is, at least, some conceptual similarity between certain types of sources willingly joining the trading program and allowing regulated sources to use reductions from sectors that voluntarily reduce emissions.

145. EPA appears to be especially interested in the potential use of a safety valve. *See* Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44411 (July 30, 2008) ("Also, there may be advantages of including an emission fee feature into a cap-and-trade program (i.e. as a price ceiling). The use of a price ceiling that is not expected to be triggered except in the case of unexpectedly high (or low) control costs may be viewed differently under the auspices of the CAA than a stand-alone emissions fee.").

146. *See* Whitman v. Am. Trucking Assoc., 531 U.S. 457, 469, 31 ELR 20512 (2001) (explaining the importance of considering costs and efficiency in implementation of air quality standards).

147. This is in contrast to offsets, which, though primarily a cost-containment mechanism, also lead to emissions reductions in uncapped sectors.

because it is possible that no reductions could take place if the trading price remains at the safety valve price.[148]

Given the goal of mimicking, as best as possible, a hypothetical congressional cap-and-trade program, three best-alternatives are available: (A) mandatory federal trading; (B) voluntary federal trading; or either (A) or (B) along with additional traditional control measures.[149] Each of these alternatives shares two central traits. First, each alternative requires that the air quality standard be set at attainment because of the comparatively light PSD burden and the higher legal risk involved in nonattainment trading. Second, each alternative assumes that the air quality standard can be successfully turned into a state-by-state emissions cap.[150] The differences between the alternatives turn on whether the federal trading program should be mandatory or voluntary and whether or not it should be accompanied by traditional regulations. Finally, two less desirable alternatives are briefly considered: trading under nonattainment; and no trading mechanism.

1. Alternative A: Mandatory Federal Trading With States in Attainment

This first alternative is to create a mandatory national trading program under EPA's power regarding FIPs. This will create one uniform trading scheme that all states will be required to join, leading to the most efficient, cost-effective outcome that would best recreate a congressional solution. Getting to the mandatory FIP will be difficult, since EPA would be required to reject every state's SIP, leading to massive litigation with uncertain outcomes. Also, a drawback of setting the standard at attainment may be that EPA will have a harder time rejecting SIPs because plans are only required to "contain emission limitations and such other measures as may be necessary . . . to prevent significant deterioration of air quality."[151] Nevertheless, this option remains a strong, yet highly risky, way to implement a national trading program under the CAA.

EPA does have the authority to create an FIP if a state fails to propose its own plan on time; if that plan does not meet the minimum requirements of §110(k)(1)(A)[152]; or if EPA "disapproves a State implementation plan submission in whole or in part."[153] The definition of "federal implementation plan" expressly includes "enforceable emission limitations or other control measures, means or techniques (including *economic incentives*, such as marketable permits or auctions of emissions allowances)," and the FIP must "provide[ ] for attainment of the relevant national ambient air quality standard."[154] Thus, it appears at first glance that EPA could create a mandatory nationwide trading program by establishing an FIP.

2. Alternative B: Voluntary Trading With States in Attainment

EPA could attempt to create a voluntary cap-and-trade program, in which a state's decision to join a federal trading program would be viewed as meeting the air quality standard. This voluntary program could, similar to CAIR,[155] establish an optional national program and provide various incentives to get the states to join this program, including streamlined approvals or, simply, make the national program an FIP for states that do not timely submit their own SIPs. Of course, the great drawback to this approach is that the trading program will be voluntary and states will have the ultimate decision on whether the plan will be effective. The rule could be created to entice states into joining the national plan as much as possible, but some states may still rebel and attempt to meet the plan through an individual SIP. EPA could then reject that SIP and create a mandatory FIP targeted at those states, but this raises the legal problems discussed above. Also, such an approach may be viewed as inequitable since the options given to the states, essentially, are voluntarily choosing to join EPA's program or being forced to join EPA's program.

3. Alternative C: Federal Cap and Trade With Additional Traditional Control Measures

The final best-alternative is to take either of the above approaches, i.e., a mandatory or voluntary national trading program, and combine it with state-level traditional regulations.[156] This has the advantage of covering GHGs in the most comprehensive way possible under the CAA, since it will regulate a wider variety of GHG-emitting activities. It may also be a more accurate "second-best" national program, since Waxman-Markey and Kerry-Boxer[157] include a variety of GHG regulations beyond a mere trading program for major emitters. Of course, it will introduce additional regulations that may increase costs and detract from the efficiency of the trading program. These problems will only be exacerbated if states create a very wide variety of regulations and set different standards for the same or similar emitters. One way

148. The *North Carolina* court did this exact sort of worst-case scenario analysis when the court used a hypothetical situation where "sources in Alabama could purchase enough . . . allowances to cover all of their current emissions, resulting in no change in Alabama's contribution to Davidson County, North Carolina's nonattainment" to invalidate CAIR. North Carolina v. EPA, 531 F.3d 896, 907, 38 ELR 20172 (D.C. Cir. 2008) (per curiam).

149. Prof. Jonathan Wiener has previously suggested the use of an FIP similar to that employed in CAIR as a possible means of regulating GHGs under the NAAQS program. *See* Jonathan B. Wiener, *Radiative Forcing: Climate Policy to Break the Logjam in Environmental Law*, 17 N.Y.U. Envtl. L.J. 210, 250 (2008).

150. In the ANPR, EPA suggested similar preconditions, since its only discussion of a possible NAAQS-based cap-and-trade program was under the conditions that the standard be set at attainment. *See* 73 Fed. Reg. at 44482.

151. *See infra* Part II.D.4.(a) for a discussion of the impacts of setting the standard at nonattainment.

152. This section requires state plans to meet the completeness criteria issued by EPA, which is "limited to the information necessary to enable the Administrator to determine whether the plan submission complies with the provisions of this chapter." 42 U.S.C. §7410(k)(1)(A).

153. §7410(c)(1).

154. §7602(y) (emphasis added).

155. CAIR, though, only dealt with roughly one-half of the states. *See* EPA, Clean Air Interstate Rule: Where You Live, http://www.epa.gov/cair/where.html (last visited June 5, 2010) (providing map of states under CAIR regulation).

156. *See generally* McKinstry et al., *supra* note 31.

157. *See supra* notes 5 and 30.

to minimize these negatives is to have EPA include either an optional or advisory federal traditional regulation program that establishes uniform rules for certain types on nonmarket regulations, such as, perhaps, energy efficiency for buildings.

4. Alternative D: Trading Under Nonattainment

EPA may be required, based on the available science, to set a standard below current concentration levels, such as at a level of 350 ppm. This approach, though, is the least desirable option for trading due to the increased legal uncertainty caused by *NRDC*[158] and the harsher regulations accompanying NNSR. Trading may be possible in nonattainment if, depending on how one reads the statute and *NRDC*, the program guarantees a minimum of RACT-level emissions in each state or, more restrictively, each source within that state. A program with either of these restrictions would likely create a greater administrative burden and lead to a less efficient market than the type of trading possibly available under attainment, although a regime that only required state-level reductions would likely be far superior to the alternative. Nevertheless, it may be the best option available if EPA is required, based on the scientific evidence, to set the air quality standard below current concentrations.

5. Alternative E: Controlling GHGs Through Traditional NAAQS Regulations

The worst-case scenario under NAAQS[159] would be if EPA is required to list GHGs as a criteria pollutant but is prohibited from regulating them through a cap-and-trade mechanism. This is a very real possibility since there are arguments that both of these are the correct interpretations of the statute.[160] EPA could choose to set an air quality standard that states could meet through a variety of means in their individual SIPs. This approach, however, may lead to the parade-of-horribles patchwork feared by industry and would not be as focused as the §111 regulations favored by many environmental groups.[161] Alternatively, EPA could adjust the voluntary FIP approach discussed above to only include traditional regulations, such as efficiency requirements, technology standards, building codes, mobile source regulations, and methane capturing. This approach may encroach upon areas traditionally left to state control and minimize the differences among the states, but would allow EPA to set some de facto national standards.

158. 571 F.3d 1245, 39 ELR 20150 (D.C. Cir. 2009).
159. This worst-case scenario is based, of course, on the assumption that an economywide cap-and-trade program is the best-case scenario.
160. Reaching the conclusion that EPA must list GHGs but is prohibited from establishing a cap-and-trade mechanism, however, would require a somewhat odd judicial approach, since the textual literalism that struck down the other trading programs is the primary argument for supporting an EPA claim of discretion under §108(a)(1).
161. *See supra* note 34.

III. Option #2: Trading Under §111(d) Emission Guidelines

If EPA is not required to set a NAAQS, a second option for establishing a cap-and-trade program is to base the program on §111(d), which gives EPA the authority to regulate certain types of existing stationary sources. In fact, trading under §111 received the most attention from EPA in the ANPR and is believed by some to be the most likely approach for the Agency to take in the near future.[162] Recent moves by the EPA, establishing a Tailoring Rule and a Reporting Rule, support the theory that EPA will move forward with regulation under §111.[163]

A. General Background on §111

Section 111 comprises two distinct regulatory regimes. The first, and most common, is the NSPS of §111(b), which allow EPA to create "standards of performance" for certain categories of new and modified stationary sources that, "in his judgment . . . cause[ ], or contribute[ ] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare."[164] EPA has considerable discretion in determining the source categories and can distinguish within sources regarding the necessary standard.[165] EPA is required to update these source categories every eight years and also has the discretion to reorganize or issue new categories.[166] To this end, EPA has indentified a wide variety of source categories that are currently regulated for a number of different pollutants.[167]

Second, EPA may regulate existing sources under §111(d) if two conditions are met: the source must be of a type that would be subject to NSPS if it were a new modified source[168]; and the source must also emit a pollutant that is not regulated under §110's NAAQS program or §112's Hazardous Air Pollutant (HAP) program.[169] The regulatory process of §111(d) essentially mimics that of §110. Like NAAQS, states have primary authority in developing the standards, but EPA generally issues emissions guidelines that states could choose to follow, and EPA must approve each state plan[170] EPA's authority to issue a federal standard is the same as the Agency's authority to issue an FIP,[171] and is therefore subject to the same advantages and limitations.[172]

162. *See* McCubbin, *supra* note 29, at 466.
163. *See supra* note 6.
164. 42 U.S.C. §7411(b)(1)(A).
165. §7411(b)(1)(A), (b)(2).
166. §7411(b)(1)(B).
167. The Road Ahead, *supra* note 8, at 50.
168. 42 U.S.C. §7411(d)(1)(A)(ii).
169. §7411(d)(1)(A)(i).
170. §7411(d)(1) (giving EPA authority to establish a "procedure similar to that provided by section [110]").
171. §7411(d)(2).
172. Especially relevant is the discussion regarding when EPA may issue a mandatory FIP. *See supra* Part II.D.1.

B. Statutory Authority for Cap-and-Trade Under §111(d)

The legal authority for cap-and-trade under §111 is unclear. EPA based CAMR on §111(d), but that rule was struck down on grounds related to the delisting of sources from §112.[173] CAMR remains especially important, however, when considering a GHG trading program because EPA's arguments in the ANPR for establishing a cap-and-trade program strongly echo the Agency's arguments for its authority under CAMR.[174] In general, the first issue is whether the term "standard of performance" may be interpreted to allow for a cap-and-trade program for existing sources or, instead, if it requires emissions reductions from individual sources.[175] The second issue is whether other statutory provisions and court interpretations of the CAA preclude GHG regulation under §111.

First, there is a debate regarding which definition of "standard of performance" controls, as the term has both a general definition found in §302(l)[176] applicable to the entire Act and a specific definition in §111(a)(1)[177] that only applies to §111. In its defense of CAMR, EPA argued that §302(l) was inapplicable based on the "well settled canon of construction"[178] that "[s]pecific terms prevail over the general in the same or another statute which might otherwise be controlling."[179] The Environmental Petitioners in *New Jersey v. EPA*[180] argued that §302(l) must also be considered since specific language only controls over more general language "when there is a conflict between the two,"[181] and no conflict exists between the definitions found in the two sections.[182] Accordingly, EPA would be required to give effect to both definitions.[183] The IPI reaches a similar conclusion to that of the Environmental Petitioners, explaining that, "[c]ourts would likely consider the Section 111(a)(1) definition to be a clarification of the Section 302 definition; the two definitions must be harmonized and applied together."[184]

If §302(l) is found to be irrelevant, EPA argues that it has discretion under §111(a)(1) to establish a cap-and-trade program for existing sources because the program "satisf[ies] the three substantive components of the section 111(a)(1) definition of "'standard of performance.'"[185] First, a cap-and-trade program fits within the U.S. Supreme Court's definition of "standard" because it is "a 'model' or 'criterion' for emissions 'established by authority.'"[186] The emissions budgets that will necessarily be part of any trading program still fit within this definition "since each State must remain within its state budget regardless of how it allocates allowances to specific sources, and each source still must possess allowances sufficient to cover its emissions."[187] Second, EPA argued that a cap-and-trade program would "reflect[ ] the degree of emission limitation available" because any program will likely be based upon an assessment by EPA regarding the "overall level of emission reduction achievable"[188] by the sources to be regulated. Third, a cap-and-trade program could be considered the "best system of emission reduction available" due to the ambiguity of the term "system"[189] and it may be "best" if it could achieve the most reductions at the lowest cost. The "best system" is just EPA's determination of which *plan* for emissions reduction is the approach most likely to succeed in achieving the most emissions reduction; plans of emission reduction can encompass a wide variety of regulatory tools, including cap and trade, technical mandates, and voluntary measures.[190]

If the meaning of "standard of performance" must also take into account §302(l), EPA may have a more difficult time establishing a cap-and-trade program. EPA believes that §302(l) allows trading for two reasons: first, it is an "emission reduction" because the overall cap will be set below current levels; second, it is "continuous" because sources must always have sufficient allowances to cover their emissions.[191]

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173. New Jersey v. EPA, 517 F.3d 574, 583-84, 38 ELR 20046 (D.C. Cir. 2008).
174. *Compare* Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44490 (July 30, 2008) (listing the "three substantive components" of §111(a)(1)'s definition of standard of performance), *with* Final Brief of Respondent United States Environmental Protection Agency 120-33, New Jersey v. EPA, 517 F.3d 574 (D.C. Cir. 2008) (No. 05-1097) [hereinafter U.S. EPA Brief], *available at* http://turtletalk.files.wordpress.com/2007/11/epa-brief.pdf (providing detailed argument in favor of trading under §111(d) based on same three components). *See also* Posting of Dave Roberts to Grist, *An Interview With Jason Burnett, Who Worked on EPA Greenhouse Gas Regulations* (Sept. 15, 2009), http://www.grist.org/article/2009-09-15-an-interview-with-jason-burnett-who-worked-on-epa-greenhouse-gas/ ("You dust off the legal argument EPA made for using 111d for a cap-and-trade system, and you search and replace *mercury* with CO_2.").
175. *See* Brigham Daniels et al., *Regulating Climate: What Role for the Clean Air Act?*, 39 ELR 10837, 10840 n.27 (Sept. 2009).
176. 42 U.S.C. §7602(l).
177. §7411(a)(1).
178. U.S. EPA Brief, *supra* note 174, at 129.
179. *Id.* (quoting Fourco Glass Co. v. Transmirra Prods. Corp., 353 U.S. 222, 228 (1957)). EPA did not once mention §302(l)'s definition of "standard of performance" in the ANPR.
180. 517 F.3d 574, 38 ELR 20046 (D.C. Cir. 2008).
181. Final Reply Brief of Environmental Petitioners 16, New Jersey v. EPA, 517 F.3d 574 (D.C. Cir. 2008) (No. 05-1097), *available at* http://turtletalk.files.wordpress.com/2007/11/environmental-reply-brief.pdf (citing Nat'l Cable & Telecomms. Ass'n, Inc. v. Gulf Power Co., 534 U.S. 327, 335 (2002)).
182. *Id.*
183. *Id.*
184. The Road Ahead, *supra* note 8, at 86 (citing Ala. Power Co. v. Costle, 636 F.2d 323, 10 ELR 20001 (D.C. Cir. 1979)).
185. EPA does not go into the details of this argument in the ANPR and instead offers a rather circular paragraph explaining why a cap-and-trade program would meet these three requirements. *See, e.g.*, Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44490 (July 30, 2008) (arguing that a cap-and-trade program is a "standard for emissions of air pollutants" because it is a "system created by EPA for control of emissions"). Since EPA used the same breakdown of the statute in its defense of CAMR, these arguments will be used in the following discussion. *See* U.S. EPA Brief, *supra* note 174, at 122.
186. U.S. EPA Brief, *supra* note 174, at 123 (quoting Engine Mfrs. Ass'n v. S. Coast Air Quality Mgmt. Dist., 541 U.S. 246, 252-53, 34 ELR 20028 (2004)).
187. *Id.* at 124.
188. *Id.*
189. *Id.* The IPI discusses this issue in somewhat more detail and points to §111(a)(7)'s definition of a "technological system of continuous emission reduction," which clearly requires pollution reduction from particular sources. The Road Ahead, *supra* note 8, at 88. The IPI then discusses some congressional history regarding precombustion fuel treatment processes and concluded that Congress allowed for a "process whereby third parties were responsible for reducing emissions." *Id.* Section 111(a)(1), however, does not contain the word "technological" anywhere, making the very applicability of §111(a)(7) questionable. In fact, it seems possible to infer that the absence of the word "technological" before "system" in §111(a)(1) signals that Congress did not intend for the system to necessarily be technological.
190. *See* U.S. EPA Brief, *supra* note 174, at 125.
191. *Id.* at 130.

The IPI also argues that this definition allows for trading.[192] Under this interpretation, individual sources are not required to reduce emissions under §302(l) since Congress, in 1977, had to specifically mandate percent reductions from certain types of coal plants whose emissions would not be reduced through the prescribed "standard."[193] Moreover, the IPI suggests that Congress' intent in requiring "continuous" reductions was to "prevent the use of intermittent controls or dispersion techniques (such as stack height) to comply with standards of performance."[194]

Certain other statutory language and existing case law also pose obstacles to the use of §111 to regulate GHGs in a trading scheme. The Environmental Petitioners opposing CAMR summarized their argument by explaining that "the statute mandates that each state plan apply the best system of emission reduction 'to any existing source'—on a source-specific basis—and that each source subject to this standard demonstrate 'continuous emission reduction[s].'"[195] The Petitioners argued that a cap-and-trade program could not be considered a "continuous emission reduction" because merely requiring allowances does not actually require any "emission reduction" since "allowances," under their interpretation, "is actually a term of art for the right not to reduce emissions."[196] The groups further argued that §111(a)(1) and (d) require reductions from "any existing source," which would not be met under a cap-and-trade program since certain sources would be able to increase emissions if they purchase enough allowances.[197]

In addition, the Environmental Petitioners analogized to *ASARCO, Inc. v. EPA*,[198] pointing out that if the court rejected in *ASARCO* the "limited emission trading scheme" within the same plant site under §111, then the much broader CAMR trading scheme is certainly in violation of §111.[199] The Government Petitioners also find it unlikely that Congress would "hide elephants in mouseholes" by allowing for cap-and-trade based on a single definition under §111 while it devoted all of Title IV to the SO_2 trading program.[200] Another argument against §111(d) trading is that §111(h) provides the sole "contingency plan in the event performance-based measures are 'not feasible' to implement by allowing EPA to prescribe 'a design, equipment, work practice, or operational standard, or combination thereof, which reflects the best technological system of continuous emission reduction.'"[201] Some argue that the only alternative to setting a usual technology-based standard (for example, scrubbers) is to use this section.[202] Some legislative history suggests that Congress' central preference for §111, however, was for EPA to prescribe "numerical performance standards," not merely end-of-pipe technological standards.[203] A cap-and-trade program would likely meet this requirement because the "standard" would be that sources hold allowances for all of their emissions. Thus, §111(h) would only operate as an option for EPA when numerical limits cannot be set, which is not the case in a cap-and-trade program.

C. Factors to Consider With a §111 Cap-and-Trade Program

In determining what types of sources to include in a cap-and-trade program, EPA has three primary options. First, EPA could regulate GHGs based on existing source categories, focusing primarily on those sources most likely to lead to significant emissions reductions. Second, EPA could reorganize existing categories or create new categories that are more in line with the nature of GHGs and cover a wider variety of sources within a single category. Third, EPA could attempt to create a program that allows for cross-source trading that would, effectively, mimic a single national trading program.

1. Using Existing Source Categories

EPA could simply keep in place the existing source categories and issue emissions guidelines requiring states to implement sufficient standards of performance for these facilities. As part of the emissions guidelines, EPA could include a national trading program and strongly incentivize states to participate. In the ANPR, EPA discusses this possibility somewhat in depth.[204] The Agency explained that it will likely consider a variety of factors in determining which existing source categories should be subject to GHG regulation, including the magnitude of GHG emissions, the type of GHGs emitted, the rate of emissions, the information available about those emissions, and "whether regulating GHG emissions from the source category would be beneficial."[205] EPA then discussed

192. The Road Ahead, *supra* note 8, at 87. The IPI suggests that the definition in §302(l) may be even more open-ended than that found in §111(a)(1), suggesting that "Section 111(a)(1) offers a more specific definition, with additional criteria." *Id.*

193. *Id.*

194. *Id.*

195. Final Opening Brief of Environmental Petitioners 25-26, New Jersey v. EPA, 517 F.3d 574 (D.C. Cir. 2008) (No. 05-1097) [hereinafter Environmental Petitioners Brief], *available at* http://turtletalk.files.wordpress.com/2007/11/environmental-opening-brief.pdf. This general argument is echoed by Lisa Heinzerling, when she explains that "Section 111 clearly contemplates individualized, performance-based standards for sources covered by this provision." *See* Lisa Heinzerling & Rena I. Steinzor, *A Perfect Storm: Mercury and the Bush Administration*, 34 ELR 10297, 10309 (2004), *available at* http://www.law.georgetown.edu/faculty/Heinzerling/Articles/final_perfect_storm_part1.pdf.

196. Environmental Petitioners Brief, *supra* note 195, at 26.

197. *Id.* at 27. This reasoning is very similar to that done by the D.C. Circuit. *See* North Carolina v. EPA, 531 F.3d 896, 907, 38 ELR 20172 (D.C. Cir. 2008) (per curiam) (explaining that, under a cap-and-trade program, sources in a certain area could, theoretically, never reduce their emissions). There are differences, however, in the statutory language between §302(l) and §110(a)(2)(D), since the latter section specifically focused on emissions coming from certain areas that interfere with other state's attempts to achieve attainment.

198. ASARCO, Inc. v. EPA, 578 F.2d 319, 8 ELR 20164 (D.C. Cir. 1978).

199. Environmental Petitioners Brief, *supra* note 195, at *28-29; *see also* Environmental Petitioners Brief, *supra* note 195, at *29 ("*ASARCO* was the law when Congress amended the Act in 1990, yet Congress made no allowances for trading under §111, while at the same time it expressly authorized intra-state and inter-state trading under other provisions of the Act.").

200. Final Reply Brief of Government Petitioners, at *13-14, *New Jersey*, 517 F.3d 574 (quoting Whitman v. Am. Trucking Ass'ns, 531 U.S. 457, 468, 31 ELR 20512 (2001)).

201. Heinzerling & Steinzor, *supra* note 195, at 10309.

202. *Id.*

203. The Road Ahead, *supra* note 8, at 89.

204. Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44487 (July 30, 2008).

205. *Id.* at 44487-88.

several categories that may be suitable for a cap-and-trade program, including utility and industrial boilers, refineries, and the cement industry,[206] as well as potential trading in the iron and steel industry.[207] Boilers may be a particularly appealing source, since they are responsible for roughly 50% of total domestic GHG emissions.[208]

This type of approach could create a more narrowly focused program that may be able to get significant reductions from a relatively small number of sources that have already been subject to §111 regulations. Current source categories may not adequately deal with GHG emissions, however, since these source categories generally focus on specific facilities within a plant and cover mostly downstream emitters.[209]

2. Reorganizing and Creating New Source Categories

EPA should also consider reorganizing source categories in ways that would better allow for a cap-and-trade program. The Agency has recognized several options. First, EPA could "reorganiz[e] . . . source categories for purposes of GHG regulation."[210] EPA could structure categories to minimize emissions leakage across source categories or allow for "netting between sources."[211] Alternatively, EPA could define sources based on a plant or companywide basis (instead of a traditional equipment-specific approach), which would allow sources to gain credit for reductions from parts of the plant beyond smokestacks.[212] Reorganizing categories to cover all emissions from power plants (especially coal plants) may be a very useful way to create a trading program.[213]

EPA may also create "super-categories" that would cover an ever-wider variety of emitters.[214] EPA provides several examples of these "super-categories" and explains that they could provide "additional opportunities for the development of innovative control mechanisms such as cap-and-trade programs covering multiple industry sectors."[215] First, EPA mentions "process-based" categories, such as one covering "all sources emitted through a stack as a result of combustion processes."[216] Second, EPA discusses the possibility of creating "vertically integrated" categories that would "take more of a life-cycle approach to the control of GHG emissions and reduce the possibility of leakage."[217] In particular, "super-categories" could be created to "encompass[ ] all aspects of the production, processing, and consumption of petroleum fuels"[218] or "to regulate the production and consumption of fossil fuels for heat and power, addressing all aspects of emissions-producing activity within a sector, including fuel production, consumption, and energy conservation."[219]

Whether any of these reforms will be allowed under the CAA is unclear. EPA does have considerable discretion in creating source categories and the power to differentiate standards within categories. The language of §111, however, may be problematic. Section 111(d) applies to existing sources, defined as "any stationary source other than a new source."[220] A "stationary source" is defined as "any building, structure, facility, or installation which emits or may emit any air pollutant."[221] As EPA points out, the definition of stationary source generally "requires each affected *facility* to comply with the standard."[222] Moreover, the nature of the terms "any building, structure, facility, or installation" appears to envision that §111 regulation would focus on the aspects of a firm's business that actually emit pollutants. That is, a "source" would cover the emissions coming out of a petroleum refinery's smokestack, but not emissions from cars that use that fuel. These broad categories, though, may still be legal because nothing in the statute explicitly prohibits this type of innovative interpretation, and these categories will apply only to stationary structures, albeit considerably different ones within the same category. If legal, these approaches will allow for the creation of a larger and more diverse carbon trading market within one category that may be more efficient than a program based on existing source categories.

3. Combining All Source Categories Into One Trading Market

The above considerations both deal with how to define the source categories that will be regulated through a cap-and-trade program. The next question is, as EPA puts it, "whether it [is] allowable under section 111 to develop a cap-and-trade program that covered multiple source categories or would each source category have to be covered under a source-category-specific cap-and-trade program."[223] If it were possible to include all source categories in a multisector trading program, regulation under §111 would come very close to mimicking the economywide cap-and-trade programs favored by current legislation. If the program is limited to trading within

206. *Id.* at 44515.
207. The Technical Support Documents to the ANPR also mention these existing sources for potential regulation through a cap-and-trade program. *See* Envtl. Prot. Agency, Technical Support Document for the Advanced Notice of Proposed Rulemaking for Greenhouse Gases; Stationary Sources, Section VII, at 13, 15, 17, 18, 21, 24, 25 (2008).
208. *See* Katie Siegel et al., *No Reason to Wait: Reducing Greenhouse Gas Emissions Through the CAA* 11 (Ctr. for Biological Diversity, Climate Law Inst. Working Paper No. 1, 2009), *available at* http://www.biologicaldiversity.org/programs/climate_law_institute/legislating_for_a_new_climate/pdfs/NoReasonToWait.pdf.
209. *See* The Road Ahead, *supra* note 8, at 90.
210. 73 Fed. Reg. at 44488.
211. *Id.*
212. *Id.*
213. The IPI argues that such a trading program should focus on new coal plants, in part because EPA has direct authority over new sources, whereas it must go through the states to regulate existing sources. The Road Ahead, *supra* note 8, at 111. This approach, however, would fail to curb emissions from existing sources, making it possible that emitters would choose to keep older, less efficient plants online rather than build new plants. Also, this ignores the argument that new sources would be required to adopt source-specific standards. *See infra* Part III.C.4. Regardless of these issues, focusing regulation on coal plants still provides a very useful approach.
214. 73 Fed. Reg. at 44488.
215. *Id.*
216. *Id.*
217. *Id.*
218. *Id.*
219. *Id.*
220. 42 U.S.C. §7411(a)(6).
221. §7411(a)(3).
222. 73 Fed. Reg. at 44491.
223. *Id.* at 44515.

source categories, however, EPA will be left with regulating several different carbon markets, based not on what type of pollutant is emitted, but from what source.

It is unclear whether EPA has the authority to establish such a multicategory program. The Agency, in the ANPR, makes no claim regarding this authority, and instead merely asks for comment.[224] The IPI argues: "So long as every source in a category is subject to a performance standard limiting its emissions to those covered by an allowance, it may not matter if EPA defines a national pool of allowances as opposed to a category-specific budget."[225] The IPI turns to EPA's past use of "performance standard[s that] do not necessarily guarantee any particular emissions reductions from individual sources or even from entire categories"[226] to support this argument. Furthermore, Congress has allowed power plants to be credited for emission reductions done by mining firms.[227]

Like so much of the law regarding cap-and-trade programs under the existing CAA, nothing in the Act specifically prohibits this approach. Thus, there is nothing in either definition of "standard of performance" requiring that the standard be only applied to one type of source category. Similarly, §111(d)(1) merely requires that states submit a plan that "establishes standards of performance for any existing source for any air pollutant."[228]

Based on the typical §111 approach of prescribing a technology-based standard for each category, however, Congress may have assumed that EPA would prescribe different standards for different types of sources. Also, EPA's discretion in creating categories and distinguishing types of sources within those categories may imply that Congress intended for EPA to carefully consider different regulatory options both across and within source categories. This type of approach would be a quite different process than essentially creating a one-size-fits-all standard based on holding emission allowances.

Thus, it is at best unclear if EPA has the authority to establish a multisource category-trading program. If EPA were able to assert this authority, §111 would allow for the creation of one integrated trading program that does not have to be concerned with achieving any (likely impossible) air quality standard. Conversely, if multicategory trading is not allowed, EPA will have to seriously consider how to proceed. The best option may be to only create a cap-and-trade program for one type of source category. Otherwise, EPA will be left regulating several different carbon markets, and the allowances within those programs will not be fungible across categories. This may provide an opportunity for speculators to make profits trading across markets but is unlikely to provide much benefit to either the regulated parties or the environment. The best potential options for a single-category trading program are likely EGUs or, more creatively, the "super-categories" discussed by EPA, since either of these approaches would cover a large portion of U.S. emissions.

224. *Id.*
225. The Road Ahead, *supra* note 8, at 90.
226. *Id.*
227. *Id.*
228. 42 U.S.C. §7411(d)(1).

4. Including New Sources Without Requiring Specific Control Technology

Section 111(d) is only relevant for sources "to which a standard of performance under this section would apply if such existing source were a new source."[229] Thus, in order to create a cap-and-trade program for existing sources, EPA must also prescribe NSPS for any type of source it wishes to include in that program.[230] There are two primary options regarding how to deal with new and modified sources. First, new sources could only be required to participate in the trading program, without any sort of source-specific technology requirement. Second, EPA may follow its approach in CAMR and require that new sources first comply with some sort of technology-based standard and then, once they are operational, participate in the trading program.[231]

The first option—no source-specific technology requirement—would likely provide the most efficient outcome, since it would not require the imposition of command-and-control requirements on new sources and would allow for the market to determine how to best reduce emissions. In the ANPR, EPA seems somewhat optimistic about this approach, saying that "trading among new and existing sources could be permitted" and requesting "comment on whether section 111 requires [ ] unit-specific-controls for new sources or if it would be sufficient for them to participate in a trading program . . . without this restriction."[232] EPA, though, offers no thorough analysis of this issue, aside from stating: "While not ensuring an equally stringent level of control at each new source, the [cap-and-trade] approach would be expected to achieve the same total emissions reductions at a lower overall compliance cost."[233]

There are strong arguments, however, that §111 requires technological standards for new and modified sources. First, the legislative history appears to require a technology standard for new and modified sources. Prior to the 1990 Amendments, §111 required that new sources "operate and maintain technological systems to comply with performance standards."[234] The 1990 Amendments removed this language, but the Senate noted: "Sources commencing operation after this section takes effect cannot emit more than they would have emitted without this provision."[235] Thus, new sources, if this interpretation were correct, would still be required to have some set emissions limit.

229. §7411(d)(1)(A)(ii).
230. These standards do not have to be the same, and standards for existing sources are typically given more leeway regarding emissions reductions because of the higher costs associated with retrofitting current sources. §7411(d)(1)(B) (allowing for standards for existing sources to "take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies"); *see also* The Road Ahead, *supra* note 8, at 89 (explaining that Congress "wanted to give EPA more flexibility in setting performance standards" for new sources).
231. 73 Fed. Reg. at 44490 n.247 (discussing CAMR).
232. *Id.* at 44490.
233. *Id.* This was also not addressed in the CAMR litigation, since that rule had a technology requirement for new sources.
234. The Road Ahead, *supra* note 8, at 89.
235. *Id.*

Moreover, §169(3), in defining BACT for the PSD program, states: "In no event shall application of 'best available control technology' result in emissions of any pollutants which will exceed the emissions allowed by any applicable standard established pursuant to section [111] or [112] of this [Act]."[236] Section 169(3) is troubling in several ways. First, simply by comparing §111 standards to BACT and the relatively harsh standards of §112,[237] one could imply that Congress envisioned all three of these types of regulations to be inherently similar and comparable. Also, this requirement for BACT only makes sense if there is some level of emissions reduction guaranteed under §111. Otherwise it would simply be impossible to set a BACT level that actually guaranteed that "emissions of any pollutants [ ] will [not] exceed the emissions allowed" under §111(b), since emissions levels in a cap-and-trade program could, theoretically, change drastically from year to year.

Thus, EPA may be required to continue its approach from CAMR and mandate a source-specific standard for new and modified sources and, then, require those sources to participate in the cap-and-trade program. These source-specific standards must be "adequately demonstrated," a rather low threshold that does not require the technology to actually be in use or have achieved its goals in practice.[238] This standard is generally set as a "numerical emissions limit, expressed as a performance level (i.e., a rate-based standard)."[239] EPA may have two general options in determining what type of standard to set. First, the Agency could follow the typical approach and base the standard on a certain technological system and then require sources to meet this standard either by adopting that technology or some other means.[240] For GHGs, this will likely be based on "energy efficiency or process efficiency improvements"[241] in the short term and, if the technology develops, carbon capture and storage (CCS) as a future solution.[242] EPA could also consider mandating a "design, equipment, work practice, or operational standard" under §111(h)[243] that could likewise be based on efficiency requirements.

A second, and untested, potential approach could be for EPA to allow new sources to participate in the trading program, but mandate that they not emit more than a certain level. This approach could be considered a "numerical limitation" because covered sources would not be permitted to emit more than a certain amount, regardless of how much they participate in the trading market.[244] Moreover, it would retain some of the advantages of a pure trading program because sources would be able to choose how to meet that level and would be encouraged to reduce beyond it. This approach would still have a distortive effect on the market, but may be less than that of a technological standard.[245]

D. Incorporating Aspects of a Congressional Cap-and-Trade Program Using §111

Next, it must be determined what aspects of a congressionally created cap-and-trade program can be made part of a program created under §111. By and large, the available tools are similar to those for NAAQS trading because §111(d)(1) requires that "the Administrator shall prescribe regulations which shall establish a procedure similar to that provided by section 7410"[246] and §111(d)(2) provides that the "Administrator shall have the same authority . . . to prescribe a plan for a State in cases where the State fails to submit a satisfactory plan as he would have under section 7410(c)."[247] Thus, among other things, EPA's authority to make a plan mandatory is subject to the same restrictions as under the NAAQS program. Additionally, CAMR, like CAIR and the NO_x SIP Call, allowed for banking and permitted the states to choose between auctioning and freely allocating emission allowances.[248]

Establishing a trading program under §111 is different from a trading program under NAAQS, due to the source-specific nature of NSPS[249] and the fact that EPA may consider cost in setting the standard. First, EPA may have less discretion in allowing for the use of offsets. In the ANPR, EPA explicitly mentions the possibility of using offsets in a §111 cap-and-trade program.[250] EPA has also, in the past, allowed emissions reductions from one sector to be credited to another sector, as it did when the Agency allowed power

236. 42 U.S.C. §7479(3).

237. Under §112, EPA is required to set very stringent emissions standards for hazardous air pollutants that are emitted from sources that emit as little as 10 tons per year. *See* §§7412 et seq. Note that a discussion of the applicability of §112 to GHG regulation is not included in this Article. This is because §112 provides "EPA little flexibility regarding either the source categories to be regulated or the size of sources to regulate" and is unlikely to provide a useful statutory hook for developing a trading program. *See* 73 Fed. Reg. at 44495. *But see* Daniel Brian, *Regulating Carbon Dioxide Under the CAA as a Hazardous Air Pollutant*, 33 Colum. J. Envtl. L. 369 (2008) (advocating for §112 regulation of GHGs because of section's broad reach, but not focusing on issues regarding cost-effectiveness).

238. 73 Fed. Reg. at 44487.

239. *Id.*

240. *Id.*

241. *Id.* at 44488.

242. *Id.* at 44492.

243. 42 U.S.C. §7411(h). This section is available if the "pollutant or pollutants cannot be emitted through a conveyance designed and constructed to emit or capture such pollutant . . . or [ ] the application of measurement methodology to a particular class of sources is not practicable due to technological or economic limitations." §7411(h).

244. For an example of baseline requirements for participation in trading in another context, see Virginia's regulations for nutrient trading by agricultural nonpoint sources. Va. Code Ann. §62.1-44.19:15(B)(1)(b) (West 2010) (requiring "the use of best management practices [that] achieve reductions beyond those already required by or funded under federal law, or the Virginia tributaries strategies plans"); *see also* Va. Dep't of Envtl. Quality, Trading Nutrient Reductions From Nonpoint Source Best Management Practices in the Chesapeake Bay Watershed: Guidance for Agricultural Landowners and Your Potential Trading Partners (2008), *available at* http://www.deq.virginia.gov/export/sites/default/vpdes/pdf/VANPSTradingManual_2-5-08.pdf (advising farmers on how to take advantage of the Virginia nutrient trading program).

245. Of course, since the PSD program would still apply under any §111 regulatory program, some type of technological requirement for certain new and modified sources is inevitable.

246. 42 U.S.C. §7411(d)(1).

247. §7411(d)(2).

248. *See supra* notes 24-25 and 27 and accompanying text.

249. The following discussion does not include what sources will be covered under a trading program. *See supra* Part III.C.4., for an analysis of this issue.

250. Regulating Greenhouse Gas Emissions Under the CAA, 73 Fed. Reg. 44354, 44515 (July 30, 2008) ("Another issue is whether it would be legally permissible to allow offsets . . . to meet the requirements of section 111.").

plants to meet their standard by taking into account reductions done by mining operations.[251] Section 111(d), though, requires that emissions guidelines "establish[ ] standards of performance for any existing source."[252] This may imply that the "standards" require emissions reductions to come from "any existing source" within that source category.

Second, EPA may have some flexibility in creating other price containment mechanisms, such as a strategic reserve or safety valve under §111. Under §111, EPA may consider cost when setting the standard of performance,[253] which, essentially, encompasses both the goal (the emission reduction) and the means (the best system). In contrast, NAAQS prohibits EPA from considering cost in setting the goal (the air quality standard), but allows EPA and the states to consider cost in designing the means (the SIPs or FIP). Thus, the two approaches diverge considerably because, under §111, EPA can consider costs when determining the level of emissions reduction required for different source categories. It is therefore possible that EPA will have more discretion in allowing for the use of a strategic reserve or a price collar, since both mechanisms (especially a price collar) could be viewed as sacrificing environmental goals due to cost considerations.

EPA appears to be especially interested in using a safety valve.[254] The Agency discusses a potential safety valve in a rate-based emissions trading program[255] where the government will buy and sell credits at a given price. EPA believes that the government price will act as a "price ceiling"[256]; in practice, though, these government sales would probably function more as a strategic reserve because it is unlikely the government would sell an infinite amount of credits at the set price.[257] It is unclear why EPA only discusses the use of a safety valve in the context of rate-based trading, since there does not appear to be anything in the CAA that would allow for a safety valve in a rate-based program but not in a more traditional cap-and-trade program. A safety valve or strategic reserve could therefore be grafted on a traditional cap-and-trade program, better mimicking national legislation.

251. *See* The Road Ahead, *supra* note 8, at 90.
252. 42 U.S.C. §7411(d)(1)(A).
253. §7411(a)(1).
254. 73 Fed. Reg. at 44516. The ANPR actually does not mention a strategic reserve at all, but it seems likely that the Agency would be willing to consider this option if it moves forward with creating a CAA-based trading program.
255. Under rate-based trading, EPA would "establish[ ] a regulatory standard based on emissions intensity . . . ." *Id.* at 44515. If a source's emission rate is below the required intensity standard, the source will generate credits that it could sell to sources whose emissions rate remains above the required standard. *Id.* This would be a major step forward from previous credit-based programs, such as that for lead, which only allowed for banking within the facility. EPA mentions the possibility of using this program to cover refineries, but focuses more on "individual processes or equipment" rather than entire facilities. *Id.* at 44516. Although this program does not include the emissions cap proposed by the IPI, it is somewhat similar because, under both proposals, credits would be based on emissions intensity, or as the IPI puts it, "a certain amount of potential GHG emissions." The Road Ahead, *supra* note 8, at 77.
256. 73 Fed. Reg. at 44516.
257. For a related argument that EPA retains authority to buy and sell credits through an auction-format, see IPI Petition, *supra* note 5, at 23 (arguing that auctions function as a "regulation" that "serve[s] regulatory purposes directly by . . . deliberately discouraging particular conduct by making it more expensive" (quoting San Juan Cellular Tel. Co. v. Pub. Serv. Comm'n of P.R., 967 F.2d 683, 685 (1st Cir. 1992)).

IV. Interplay Between the Options: Where to Go From Here

Although establishing a cap-and-trade program under either NAAQS or §111(d) has been presented throughout this Article as an alternative approach, the likely reality is far more complex. There are already looming court-ordered deadlines requiring EPA to establish new NSPS under §111(b) for a wide variety of sources, meaning that any program created even under NAAQS would still have to take into account NSPS for a number of new and modified sources. Therefore, it is worth considering what type of interplay NAAQS and §111 may have with one another and how EPA may be able to use these interactions to craft a better program that can take effect as soon as possible.

A. Utilizing an Incremental Strategy Beginning With Regulation Under §111

One approach would be for EPA to proceed under §111 alone by establishing NSPS under §111(b) and a cap-and-trade for certain source categories under §111(d). This would have the advantage of allowing EPA to begin regulating both new and existing sources without having to go through the onerous NAAQS process. If EPA took this approach, the Agency would essentially be gambling that *Train* is no longer good law and that it has discretion in determining whether to regulate GHGs under the NAAQS process. Such discretion is, at best, an uncertain proposition.

EPA may, at some point, be required to regulate GHGs under the NAAQS program. Of course, the Agency could fight this tooth and nail and drag out the court battle all the way to the Supreme Court, which could push back setting a NAAQS for several years. This strategy, though, may only delay the inevitable. In the worst-case scenario, the Supreme Court could decide that *Train* remains good law but *Massachusetts* is not. After all, arguing against the use of NAAQS to regulate GHGs would likely mean that EPA and its possible amici (who, based on public statements made about NAAQS, could include both major environmental groups and trade associations)[258] would need to construe NAAQS—and by implication, much of the CAA—as an awful fit for GHG regulation.

While conceivably EPA could come out with a NAAQS cap-and-trade program for GHG emissions from the start, neither the Agency nor many environmental groups have shown any inclination to willingly regulate GHGs under NAAQS.[259] Although their concerns regarding the workability of NAAQS may be somewhat overblown, EPA may also be disavowing NAAQS-based regulations out of concerns of political blowback. There have already been substantial attempts in both houses of Congress made by members of both parties to eliminate EPA's authority to regulate GHGs under the existing Act, and these actions have truly only

258. *See supra* note 34.
259. *See supra* notes 34 and 36 and accompanying text.

been based on the coming triggering of the PSD rule.[260] It is therefore quite conceivable to believe that these attempts to block EPA regulation will only gain support if EPA aggressively pursues a national economywide cap-and-trade program under its existing authority. Thus, NAAQS regulation is only likely to occur if EPA is forced to act, either because the Agency truly does not believe that NAAQS could be utilized to regulate GHGs or to simply give the Agency political cover.

A better approach, therefore, may be for EPA to proceed with an incremental strategy for GHG regulation that takes into account NSPS, §111(d), and NAAQS. This could take the form of the Agency beginning by issuing NSPS under §111(b) for a number of currently existing source categories, such as industrial boilers, refineries, and Portland cement plants. Then, EPA could regulate existing sources in these categories under §111(d) by creating a cap-and-trade program.[261] At this point, it may be easier for EPA to simply use these existing source categories rather than create some of the new, broader categories discussed above, but EPA could still consider the positives and negatives of these revisions and whether the Agency could allow cross-category trading.

Once this §111(d) program is off the ground, EPA could then begin the NAAQS process. Although §111(d) regulation would be displaced as soon as EPA issues air quality criteria or lists GHGs under §108(a), EPA could argue to the reviewing court that, as with CAIR, the §111(d) program should be remanded without vacatur because vacating the §111(d) program "would at least temporarily defeat . . . the enhanced protection of the environmental values covered by [the EPA rule at issue]."[262]

B. Avoiding Duplicative Efforts by Satisfying Both §110 and §111 Requirements for Trading

While EPA is not allowed to establish a standard of performance for an existing source for a NAAQS air pollutant,[263] §111 does not provide any guidance in the event that a standard of performance is first issued for an existing source, followed by issuance of air quality criteria (NAAQS). Furthermore, §111 continues to regulate emissions of NAAQS pollutants from new (and modified) sources.[264] The major question, then, is whether EPA can effectively transition §111 regulation for existing sources to regulation of existing sources under NAAQS.

One possible conclusion is that the CAA already anticipates such a transition. When NAAQS are promulgated for GHGs, nothing changes with regard to existing sources except that authority for existing source regulation shifts from §111(d) to §7410. The key to this virtually seamless transition is the requirement under §111(d)(1) that EPA must "establish a procedure similar to that *provided by section 7410* of this title."[265] If EPA in fact established a procedure similar to that of §110 when regulating existing sources under §111(d), then when NAAQS for GHGs are promulgated, the actual procedure for §110 would take over for existing sources.

Comparing §110 with §111(d) reveals certain important similarities and differences. Both sections require a state plan that implements and enforces a standard for emissions.[266] Section 111(d) applies exclusively to existing sources[267]; §110(a)(2)(F) allows states to "require . . . (i) the installation, maintenance, and replacement of equipment . . . by owners of stationary sources."[268] One significant difference is that a standard of performance under §111(d) can take costs into account, while NAAQS cannot.[269] So, it is likely that the NAAQS standard may need to be stricter than the §111 standard of performance. The result of this disparity would be that some categories of existing sources would be required to either implement additional technology or modify/replace existing technology to meet NAAQS. Under a cap-and-trade system, however, the main result would be a stricter *cap* that could be met either with changes in technology, operations or purchase of emission credits. Implementation of a cap-and-trade system for §111, therefore, may ease the transition to NAAQS because of the flexibility that emission credit trading offers.

The final step in this process would be for EPA to transfer the §111(d) program to the newly established NAAQS-based program. Necessary adjustment would have to be made, especially if the §111(d) program would not be ambitious enough to either guarantee or maintain attainment (even with the assistance of §179B) of the NAAQS. These adjustments could take the place of either expanding the sources in the trading program (which would be much easier under NAAQS than §111(d)), providing more ambitious reductions

260. *See, e.g.*, *supra* note 11 and accompanying text.

261. For a detailed analysis of the potential impact of §111 regulation for the coal electricity-generation sector, see Nathan Richardson et al., Res. for the Future, Greenhouse Gas Regulation Under the Clean Air Act: Structure, Effects, and Implications of a Knowable Pathway (2010), *available at* http://www.rff.org/RFF/Documents/RFF-DP-10-23.pdf.

262. North Carolina v. EPA, 550 F.3d 1176, 1178, 39 ELR 20306 (D.C. Cir. 2008) (per curiam) (quoting Envtl. Def. Fund, Inc. v. Adm'r of the U.S. EPA, 898 F.2d 183, 190, 20 ELR 20577 (D.C. Cir. 1990)).

263. 42 U.S.C. §7411(d)(1)(A)(i). Technically, the state would submit a plan to EPA that establishes standards of performance for any existing source, although EPA retains the authority to prescribe a plan where the state plan is unsatisfactory. *Id*. §7411(d)(1) and (d)(2)(A).

264. *Compare id*. §7411(d)(1)(A)(i) (restricting regulation of existing sources to pollutants "for which air quality criteria have not been issued . . . under section 7408(a) of this title"), *with id.* §7411(b) (lacking any reference to §7408); *see also* 73 Fed. Reg. at 44417 ("These new source performance standards (NSPS) reduce emissions of air pollutants addressed by NAAQS, but can be issued regardless of whether there is a NAAQS for the pollutants being regulated."); *id.* at 44417 ("[S]ection 111(d) prohibits regulation of a NAAQS pollutant.").

265. 42 U.S.C. §7411(d)(1) (emphasis added); *see also id.*§7411(d)(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 7410(c)* of this title . . . ." (emphasis added)).

266. *Compare id.* §7410(a)(1) ("Each State shall . . . adopt and submit . . . a plan which provides for implementation, maintenance, and enforcement of such primary standard . . . ."), *with id.*§7411(d) ("Each State shall submit . . . a plan which (A) establishes standards of performance . . . and (B) provides for the implementation and enforcement of such standards of performance.").

267. *Id.* §7411(d).

268. *Id.* §7410(a)(2)(F).

269. *Compare id.* §7409(b) ("(1) [NAAQS] shall be ambient air quality standards . . . requisite to protect the public health"), *with id.* §7411(defining standard of performance as one that can "tak[e] into account the cost of achieving such reduction"); *see also* ANPR, 73 Fed. Reg. at 44417 ("EPA may not consider the costs of meeting the NAAQS in setting the standards.").

levels, or including increased technology-based requirements for uncapped emissions. EPA would also be required to go through either the SIP or FIP process to implement a NAAQS-based cap-and-trade program. This would not likely be too great of a burden, however, because the Agency would have already been required to go through a similar process to create a §111(d) program.

C. *Benefits of an Incremental Approach*

In its ANPR, EPA notes several important features of the §111 regulatory system that would assist it in establishing GHG regulations. Section 111 provides flexibility in defining the source categories and allows EPA to regulate categories in a step-by-step, piecemeal fashion.[270]

> In the near term, it may be possible to address GHGs under section 111 in a limited fashion by establishing control requirements for new and existing sources in some number of existing source categories, while information is developed on other source categories. Actions under other portions of the CAA may involve longer lead times to develop and implement, so that standards under section 111 for certain source categories could provide for emission reductions in the interim.[271]

EPA can take cost into account and can consider traditional air pollutants in conjunction with GHGs when establishing regulatory standards.[272] And EPA has previously interpreted NSPS to allow emissions trading.[273] Finally, "EPA has already promulgated NSPS for more than 70 source categories and subcategories and we could add GHG emission standards, as appropriate, to the standards for existing source categories."[274] Having existing permits, regulations, as well as measurement and enforcement rules in place allows for a relatively quick regulatory response to the need to limit emissions of a new pollutant of concern, like GHGs.

One significant advantage to an incremental approach is that it allows EPA to address issues with establishing a baseline on an industry-by-industry level before turning to a national, multiindustry cap-and-trade program. One contentious legislative issue for cap and trade is the allocation of emission credits: allocating credits by historical emissions levels leads to the accusation that inefficient polluters are being unjustly rewarded. An auction system can avoid much of this problem, but it is widely assumed that emissions credits will be essentially given away for political leverage.[275] Addressing older facilities and larger polluters first through the §111(d) program may allow EPA to mandate additional technological improvements to close the gap between the worst polluters and the more efficient operators. While this may somewhat decrease the economic efficiency of cap and trade within particular industrial sectors,[276] the cross-sector trading of a national NAAQS-based or legislative cap-and-trade program would still provide many economic benefits. Additionally, this incremental approach would be consistent with EPA's actions to date on GHG regulation, as it could be viewed as simply the next step in the regulatory program that began with the Agency's agreement with car manufacturers[277] that gave rise to the soon-to-be finalized motor vehicle rule under §202.[278]

V. Conclusion

If the legislative process falters, the CAA may provide a number of potential statutory bases for EPA to establish a cap-and-trade program for GHGs. These programs all have relative advantages and disadvantages regarding how they must set their goals and what sources they will be able to regulate. Additionally, the legal authority for all of these options is uncertain, as they are all quite innovative and the few comparable programs that EPA has attempted to enact have met with defeat in the D.C. Circuit. Nevertheless, these options may be available if the congressional process fails and EPA is required to combat climate change under the existing Act.

270. ANPR, 73 Fed. Reg. at 44489.
271. *Id.* at 44488.
272. *Id.* at 44489.
273. *See id.* at 44490 ("As EPA has interpreted the NSPS requirements in the past with respect to certain air pollutants, we believe that the NSPS program could use emissions trading, including cap-and-trade programs and rate-based regulations that allow emissions trading, to achieve GHG emission reductions.").
274. *Id.* at 44487.
275. *Cf.* Editorial, *Waxman-Markey*, Wash. Post, June 26, 2009, http://www.washingtonpost.com/wp-dyn/content/article/2009/06/25/AR2009062503469.html ("Waxman-Markey . . . gives away 85 percent of the pollution credits in the first years of the program . . . .").
276. Much of the economic benefit of cap-and-trade comes from leveraging the disparities between less efficient and more efficient polluting sources.
277. *See* Press Release, White House Office of the Press Sec'y, President Obama Announces National Fuel Efficiency Policy (May 19, 2009), *available at* http://www.whitehouse.gov/the_press_office/President-Obama-Announces-National-Fuel-Efficiency-Policy/ (announcing new national policy regarding fuel standards that came about because of an agreement between "Department of Transportation (DOT), the Environmental Protection Agency (EPA), the world's largest auto manufacturers, the United Auto Workers, leaders in the environmental community, the State of California, and other state governments").
278. *See* Proposed Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 74 Fed. Reg. 49454 (Sept. 28, 2009).