LOCATION, LOCATION, LOCATION: DID *NORTH CAROLINA* GO FAR ENOUGH?

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INTRODUCTION

In the recent decision *North Carolina v. EPA,* the D.C. Circuit Court of Appeals vacated the Environmental Protection Agency's (EPA) comprehensive Clean Air Interstate Rule (CAIR).[1] CAIR was the EPA's most aggressive and wide-sweeping market-based regulation since the promulgation of the (Nitrogen Oxide State Implementation Plan) NO_x SIP

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1. North Carolina v. EPA, 531 F.3d 896, 929 (D.C. Cir. 2008). On December 23, 2008 the court issued an order remanding the rule. The fact that the Court remanded CAIR is not material to the issues raised in this article. By remanding CAIR many states and sources may improperly rely on the regional cap-and-trade provisions in developing state implementation plan (SIP) attainment plans and in permitting large emission sources.

in the late 1990s.[2] In *North Carolina*, the court found that the regional (multi-state) emission reduction approach authorized under CAIR was incompatible with the Clean Air Act's (CAA) State Implementation Plan (SIP) statutory structure upon which CAIR was predicated.[3] The EPA based its authority to implement CAIR on CAA § 110(a)(2), commonly referred to as the "good neighbor" provision.[4] The "good neighbor" provision requires each state to prohibit sources within the state from contributing to, or interfering, with the maintenance of another state's ability to achieve compliance with the health-based National Ambient Air Quality Standards (NAAQS).[5] The court summarily rejected the EPA's argument that CAIR's regional reductions satisfied the state-specific requirements of CAA § 110(a)(2).[6]

Beyond the court's finding that CAIR did not satisfy CAA § 110(a)(2), the decision in *North Carolina* (1) fundamentally changes the SIP development and approval process for market-based cap-and-trade programs, and (2) could require the re-evaluation of any recent New Source Review (NSR) permits issued for new coal-fired utilities in states that may have relied on cap-and-trade emission reductions.

First, although market based cap-and-trade programs provide flexibility to the regulated community, the court found that it is difficult—and perhaps impossible—to implement such regional reductions within the current structure of CAA § 110's SIP provisions.[7] The court found that under CAIR's market-based system there was no surety that emission reductions would actually occur from within the specific states that needed to make reductions to satisfy their "good neighbor" obligations.[8] Perhaps more importantly, the court's recognition of the statutory need for certainty of environmental benefit under the SIP process brings under serious scrutiny a state's reliance on regional market driven cap-and-trade programs as part of a required CAA § 110 SIP attainment plan.[9] Without the enforceability of

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2. *See* Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 63 Fed. Reg. 57,356 (Oct. 27, 1998) (to be codified at 40 C.F.R. pts. 51, 72, 75, 96) (describing the promulgation of the NO_x SIP); *see also* Michigan v. EPA, 213 F.3d 663, 669 (D.C. Cir. 2000) (discussing EPA's final rule mandating that states revise their SIPs to mitigate the interstate transport of ozone).

3. *North Carolina,* 531 F.3d at 929–30.

4. Clean Air Act (CAA) § 110(a)(2), 42 U.S.C. § 7410(a)(2) (2000).

5. *Id.*

6. *North Carolina,* 531 F.3d at 929–30.

7. *See id.* at 929 ("EPA's approach—regionwide caps with no state-specific quantitative contribution determinations or emissions requirements—is fundamentally flawed.").

8. *Id.* at 929–30.

9. *Id.*

the assumptions used in that SIP demonstration and the concomitant surety of environmental protection, reliance on market-based regulations as part of the SIP process amounts to little more than playing the market with human health and welfare in the balance.

A final question closely related to the issue of environmental surety discussed above is how the decision in *North Carolina* may impact the permitting of coal-fired utility projects that have been proposed over the last five years. Some of the proposed and final permits issued under the NSR program authorizing the construction and operation of many of these coal-fired projects relied in whole or in part on predictions of emission reductions achieved under the CAIR program. As a result of the failure to make the assumptions used in the SIP enforceable, it is possible that the assumptions used to permit coal-fired projects were unlawful.

This paper takes a critical look at the D.C. Circuit's decision in *North Carolina*, assessing its immediate impact, its impact on the overall SIP process, and its impact on coal-fired project permitting under the NSR program.

I. STATE IMPLEMENTATION PLANS

A stated goal of the CAA is to "protect . . . the quality of the Nation's air resources" as defined through, among other metrics, the NAAQS.[10] The CAA requires the EPA to promulgate NAAQS for criteria air pollutants.[11] While the EPA defines the ultimate goal through the establishment of the NAAQS, each state has the primary role in developing and implementing a strategy to achieve the goal.[12] This relationship between the federal government and the states has been described as "an experiment in cooperative federalism."[13]

The strategy that states develop to satisfy their obligation as the primary implementing agency—typically a mixture of emission standards and regulations—is collectively referred to as the SIP.[14] The purpose of the SIP is to "provide for implementation, maintenance, and enforcement of

10. CAA § 101(b)(1), 42 U.S.C. § 7401(b)(1) (2000).

11. CAA § 109, 42 U.S.C. § 7409 (2000).

12. *See* CAA § 101(a)(3), 42 U.S.C. § 7401(a)(3) (2000) ("Air pollution prevention (that is, the reduction or elimination, through any measures, of the amount of pollutants produced or created at the source) and air pollution control at its source is the primary responsibility of States and local governments").

13. Connecticut v. EPA, 696 F.2d 147, 151 (2d Cir. 1982).

14. CAA § 110(a)(1), 42 U.S.C. § 7410(a)(1) (2000).

[NAAQS] in each air quality region."[15] The CAA specifically sets out the minimum elements of an acceptable SIP.[16] One of these minimum requirements is that SIPs "include *enforceable* emission limitations and other control measures, means, or techniques . . . as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements" of the Act.[17]

To understand the necessity of the enforceability of emission limits in a SIP, a brief discussion of a SIP demonstration is helpful.

To develop the SIP, a state, with the technical aid of the EPA, defines monitoring plans to assess the ambient air quality, identifies sources of air pollution, develops rules limiting those sources, and implements an enforcement program to ensure compliance with those emission limitations.[18] Because monitoring of ambient air is expensive and only provides information for a specific locale, the EPA has developed various air quality computer models to aid in the assessment and to allow a more tailored approach towards achieving and maintaining compliance with the NAAQS.[19]

Over time, the use of computer model simulations has become an integral part of the SIP process. The EPA now requires that "[t]he adequacy of a control strategy [in protecting the NAAQS] *shall* be demonstrated by means of applicable air quality models."[20] As input to these models, the state must develop an extensive emission inventory that identifies the location and magnitude of all significant sources of pollution throughout the state. Combined with meteorological data and local topography, the computer models can provide a far more complete estimate of the ambient levels of pollutants than any monitoring network could provide.[21] The modeling demonstration used in developing a SIP includes

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15. *Id.*

16. *See* CAA § 110(a)(2), 42 U.S.C § 7410(a)(2) (2000) (describing the requirements for SIPs). SIPs are submitted to EPA for approval, and may be revised at EPA's insistence if found to be inadequate to ensure maintenance of the NAAQS or public health. States that fail to comply with these requirements are subject to various sanctions and the imposition of a Federal Implementation Plan (FIP). CAA § 179, 42 U.S.C. § 7509 (2000); *see also* Appalachian Power Co. v. EPA, 249 F.3d 1032, 1037 (D.C. Cir. 2001) (providing an explanation about states' emissions limitations obligations under the CAA).

17. CAA § 110(a)(2)(A), 42 U.S.C. § 7410(a)(2)(A) (2000) (emphasis added).

18. *See* CAA § 110(a)(2)(K)(i), 42 U.S.C. § 7410(a)(2)(K)(i) (2000) (establishing as a minimum SIP requirement "the performance of such air quality modeling as the Administrator may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which the Administrator has established a national ambient air quality standard.").

19. *Id.*

20. Air Programs, 40 C.F.R. § 51.112 (2008) (emphasis added).

21. Of course, the monitoring network is still critical in verifying the model results.

the inventory of emissions, a prediction of the likely weather patterns, a numerical description of the way the emissions are transported across the state, and the effects of secondary chemical reactions, rain, and other means of losses. All of these models, including the emissions inventory, meteorological, and chemical reaction models, have been shown to be reasonably accurate when averaged over time.[22] As these methods have become more sophisticated, the domain covered by the model has expanded. Emissions from neighboring states are now included when states develop their modeling inventory.[23]

The foundation of this modeling demonstration is the emission inventory. The inventories used in SIP demonstrations are intended not only to reflect the current emissions, but also to predict emissions increases (or decreases) over the time period covered by the SIP demonstration.

Emissions from utility plants, also known as electric generating units (EGUs), represent the largest anthropogenic individual point sources in the inventory;[24] and therefore, the assumptions used to predict their emissions are critical to the ability of the regulatory agencies to accurately assess future air quality. Given the importance of EGUs in the SIP modeling process, the EPA uses a specific model, known as the Integrated Planning Model (IPM), to predict both the emission rate as well as where emission reductions required by a cap-and-trade program would occur from these sources:

> EPA uses [the] Integrated Planning Model (IPM) to analyze the projected impact of environmental policies on the electric power sector in the 48 contiguous states and the District of Columbia. Developed by ICF Consulting, Inc. and used to support public and private sector clients, IPM is a multi-regional, dynamic, deterministic linear programming model of the U.S. electric power sector. It provides forecasts of least-cost capacity expansion,

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22. *See* NOEL DE NEVERS, AIR POLLUTION CONTROL ENGINEERING 119 (2d ed. 2000) (discussing an introduction to air dispersion modeling); *see also* Air Programs, 40 C.F.R. § 51 app. W (2008) (mandating guidelines on air quality models).

23. *See, e.g.*, S.C. DEP'T OF HEALTH AND ENVTL. CONTROL, SOUTH CAROLINA 8-HOUR OZONE ATTAINMENT DEMONSTRATION 17 (2007), *available at* http://www.scdhec.gov/environment/baq/docs/regs/other/Attainment_SIP_Narrative.pdf (showing that South Carolina used emissions from the entire United States for its ozone non-attainment demonstration).

24. *See* ENVTL. PROT. AGENCY, DOCKET NO. OAR-2003-0053, CORRECTED RESPONSE TO SIGNIFICANT PUBLIC COMMENT ON THE PROPOSED CLEAN AIR INTERSTATE RULE 252 (2005), *available at* http://www.epa.gov/interstateairquality/pdfs/cair-rtc.pdf ("EGUs on a regionwide basis are the largest source of SO2 emissions and the largest source of stationary source NO_x emissions.").

> electricity dispatch, and emission control strategies for meeting energy demand and environmental, transmission, dispatch, and reliability constraints. IPM can be used to evaluate the cost and emissions impacts of proposed policies to limit emissions of sulfur dioxide (SO_2), nitrogen oxides (NO_x), carbon dioxide (CO_2), and mercury (Hg) from the electric power sector. The IPM was a key analytical tool in developing the Clean Air Interstate Regulation (CAIR) and the Clean Air Mercury Rule (CAMR).[25]

To summarize, the IPM identifies, in a cap-and-trade market, where the most cost-effective controls would be installed for all of the EGUs in the trading region. However robust the IPM is, the model predictions do not depend on environmental necessity but rather on economic factors.[26]

Returning to the air quality model, emissions from both EGUs and all other sources, both within the state and beyond its borders, are used to predict future ambient levels of the regulated pollutant.[27] Given this baseline representation of ambient air quality, states can use the model to predict how air quality might improve as new emission limitations are promulgated and implemented. A proposed SIP submitted to the EPA represents the additional rules promulgated by the state, the amended emission inventory reflecting those additional reductions, and the model output showing that the ambient air will be in compliance with the NAAQS.[28] The model, then, acts to validate regulatory reductions promulgated by the state, and when it is approved by the EPA as part of the SIP, it will achieve compliance with the NAAQS.[29]

The EPA has stated that a fundamental principle for SIP control strategies is:

> that the [control] measures be enforceable. Measures are enforceable when they are duly adopted, and specify clear, unambiguous, and measurable requirements. A legal means for ensuring that sources are in compliance with the

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25. U.S. EPA, INTEGRATED PLANNING MODEL (2008), http://www.epa.gov/airmarkt/progsregs/epa-ipm/index.html (last visited Mar. 21, 2009).

26. *See* Appalachian Power Co. v. EPA, 249 F.3d 1032, 1053 (D.C. Cir. 2001) ("[T]hat the EPA's projections [using the IPM] depend, in large part, on economic projections, rather than environmental factors, makes little difference.").

27. INTEGRATED PLANNING MODEL, *supra* note 25.

28. CAA § 110(a)(2), 42 U.S.C. § 7410(a)(2) (2000).

29. *Id.*

> control measure must also exist in order for a measure to be enforceable. This principle is well grounded in the Act. New § 110(a)(2) of the Act requires that SIP's include "enforceable emission limitations and other control measures" and "a program to provide for the enforcement of the measures" in the plan. Court decisions made clear that regulations must be enforceable in practice. A regulatory limit is not enforceable if, for example, it is impractical to determine compliance with the published limit.[30]

In short, a SIP demonstration is only as effective as it is enforceable. For example, if a state develops a plan demonstrating to the EPA that a specific area of the state will attain the NAAQS for ozone, the plan must assume that specific sources in that area will emit NO_x at specific emission rates. Similarly, the plan assumes that emissions of NO_x from neighboring states are what the states say they will be. Unless and until those emission rates are made enforceable, the plan has little value beyond an academic exercise. More importantly, if the assumed emission rates are not enforceable, then as a matter of law, the EPA cannot approve that SIP.[31] The EPA can require a state to revise its SIP to correct the deficiency.[32] If the state does not correct the deficiency, the CAA contains provisions allowing the imposition of sanctions by the federal government against the state.[33] Ultimately, if the state does not correct the deficiency, the federal government is authorized to implement a Federal Implementation Plan (FIP), essentially taking over the state's role in pollution control.[34]

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30. State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990, 57 Fed. Reg. 13,498, 13,568 (Apr. 16, 1992) (to be codified at 40 C.F.R. pt. 52).

31. *See* CAA § 179, 42 U.S.C. § 7509 (2000).

32. *See* CAA § 110(k)(5), 42 U.S.C. § 7410(k)(5) (2000) ("Whenever the Administrator finds that the [SIP] . . . is substantially inadequate . . . [to] comply with any requirements of this chapter, the Administrator shall require the State to revise the plan as necessary to correct such inadequacies."). *See also* Michigan v. EPA, 213 F.3d 663, 669 (D.C. Cir. 2000) ("Even after a SIP is approved, EPA may at a later time call for SIP revisions if the Administrator finds a SIP inadequate to attain or maintain the NAAQS.").

33. *See* CAA § 179, 42 U.S.C. § 7509 (2000) (ranging from highway sanctions to additional offsets requirements under nonattainment permit review and the imposition of a FIP).

34. *See* CAA § 110(c)(1), 42 U.S.C. § 7410(c)(1) (2000).

II. MARKET DRIVEN CAP-AND-TRADE APPROACHES

Most of the emission limitations that were promulgated by states as part of their SIPs and approved by the EPA define the maximum mass rates of pollutants that a source is allowed to emit.[35] With the 1990 Amendments to the CAA, however, came a significantly different approach to emission limitations. The Acid Rain Program defined a market-based approach for reducing emissions of SO_2 and NO_x from the utility sector as a whole.[36]

Under the Acid Rain Program, emissions of sulfur dioxide are capped nationwide.[37] Each power plant is given permission to emit an allowance of sulfur dioxide each year.[38] Because the allowances can be traded among different power plants, an individual plant has the option of either emitting more or less sulfur dioxide than their allowance.[39] If they emit less, they can sell their remaining allowances into the market.[40] If they emit more, they must purchase additional allowances from the market.[41]

The benefit of a cap-and-trade program is that the industry can decide the most efficient means of meeting their allowances.[42] For example, larger plants may be able to control sulfur dioxide more cost effectively than smaller plants. The result is that the larger plant over-controls its sulfur dioxide emissions while the smaller plant remains uncontrolled. The transfer of allowances from the larger to the smaller plant provides a compliance mechanism for both plants.[43]

As a threshold matter, it is important to note that the flagship market-based Acid Rain Program, designed to reduce sulfur dioxide and nitrogen

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35. The form and averaging time of these limitations may vary. Production-based emission limitations regulate the mass of pollutant produced per widget produced, while other SIP rules are simply given in a mass rate (e.g., lbs/hr).

36. *See* CAA §§ 401, 407, 42 U.S.C. §§ 7651(a), (f) (2000) (comparing the market-based SO_2 trading program with the system averaging NO_x provisions that take advantage of some market-based economic efficiencies).

37. *See* CAA §§ 403–405, 42 U.S.C. § 7651(b)–(d) (2000) (providing for the Phase I and Phase II allowances for existing and new subject sources).

38. *Id.*

39. *Id.*

40. *Id.*

41. *Id.*

42. This decision is precisely what the IPM is designed to predict for all utility plants affected by a specific cap-and-trade program.

43. *See* ENVTL. PROT. AGENCY, EPA-452/R-01-001, IMPROVING AIR QUALITY WITH ECONOMIC INCENTIVE PROGRAMS 87 (2001), *available at* http://www.epa.gov/ttn/oarpg/t1/memoranda/eipfin.pdf (recognizing that a cap-and-trade program may result in increased emissions or adverse effects within low income and/or minority communities); *see also* Gregory Gotwald, *Cap-and-Trade System, With or Without New Source Review? An Analysis of the Proper Statutory Framework for Future Electric Utility Air Pollution Regulation,* 28 VT. L. REV. 423, 442 (2004) (explaining how business can buy and sell emissions allowances).

oxides nationwide, was not part of CAA § 110 SIP program.[44] Rather, Congress enacted the Acid Rain Program to curb the effects of acid rain, and not to demonstrate compliance with the NAAQS.[45] The Acid Rain Program provisions are contained in an entirely separate title of the CAA from the SIP provisions.[46]

The EPA has promulgated other cap-and-trade programs since the 1990 Amendments. Among these are the NO_x SIP Call and CAIR.[47] While both rules were designed to further reduce nitrogen and sulfur oxides emitted from coal-fired power plants, these programs were designed specifically to address NAAQS concerns.[48] Thus, both programs were designed to satisfy the requirements of the "good neighbor" provision of CAA § 110.[49]

III. CAIR

As noted above, the CAA defines a set of minimum elements that each SIP must contain.[50] One of those elements addresses each state's obligation with respect to its neighbor states (i.e., interstate pollution).[51] Specifically, the "good neighbor" provision provides that each SIP must:

> (D) contain adequate provisions
>
> (i) prohibiting, consistent with the provisions of this [title], any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will
>
> (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any

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44. The program only allows trading of SO_2.

45. *See* CAA § 401, 42 U.S.C. § 7651 (2000) (describing the SIP provisions).

46. S. REP. NO. 101-228, at 341 (1990), *reprinted in* 5 ENVTL. & NATURAL RES. POL'Y DIV., CONG. RESEARCH SERVICE, A LEGISLATIVE HISTORY OF THE CLEAN AIR ACT AMENDMENTS OF 1990, at 8681 (1998).

47. NO_x SIP Call, 63 Fed. Reg. at 57, 375; CAA § 407, 42 U.S.C. § 7651f (2000); CAA § 401, 42 U.S.C. § 7651 (2000).

48. *See generally* 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. 25,162, 25,170 (May 12, 2005) (to be codified at 40 C.F.R. pts. 51, 72, 75, 96) (describing the applicability of the CAA's good neighbor provision to NO_X and SO_2 emissions).

49. *Id.*

50. CAA § 110(a)(2), 42 U.S.C. § 7410(a)(2) (2000).

51. *Id.*

> such national primary or secondary ambient air quality standard 52

In 2005, the EPA found that twenty-eight states in the eastern United States were allowing—consistent with their existing SIPs—emissions of SO_2 and NO_x that did not satisfy this "good neighbor" provision.[53] The EPA found that sources in these states contributed "significantly" to downwind ozone and PM2.5 nonattainment.[54] In order to correct this deficiency, the EPA promulgated CAIR, requiring these states to reduce emissions of SO_2 and NO_x to comply with § 110(a)(2)(D)(i) in regards to downwind PM2.5 and ozone pollution.[55]

In demonstrating that upwind sources were "contribut[ing] significantly to nonattainment in" a downwind state, the EPA purportedly followed the methodology of the most recent prior cap-and-trade rulemaking under CAA § 110(a)(2)(D)(i), i.e., the NO_x SIP Call.[56] First, the EPA formed a multi-state emissions inventory by projecting emission levels of all sources of SO_2, and NO_x for the year 2010.[57] Next, using air quality models, the EPA projected ozone and PM2.5 levels for the same year.[58] By re-running the models using different levels of controls, the EPA then determined which sources—grouped by state—made threshold contributions to PM2.5 or

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52. *Id.*

53. *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. 25,162, 25,170 (May 12, 2005) (to be codified at 40 C.F.R. pts 51, 72, 73, 74, 77, 78, 96) (discussing the applicability of the CAA's "good neighbor" provisions regarding SO_2 and NO_x emissions).

54. *See id.* at 25, 162 (noting that NO_x contributes to the formation of ozone and both SO_2 and NO_x are believed to contribute to the formation of PM2.5, and that part of the strategy to reduce ambient levels of ozone and PM2.5 includes controlling these "precursors"); *see generally* JOHN H. SEINFELD, ATMOSPHERIC CHEMISTRY AND PHYSICS OF AIR POLLUTION 23–27 (1986) (discussing size and source of atmospheric particulate matter).

55. *See* 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. 25,162, 25,170 (May 12, 2005) (to be codified at 40 C.F.R. pts. 51, 72, 75, 96) (describing the applicability of the CAA's "good neighbor" provision to NO_X and SO_2 emissions).

56. *See* Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 63 Fed. Reg. 57,356, 57,456–57,477 (Oct. 27, 1998) (discussing the rulemaking procedures for the NO_x SIP Call); *see also* Michigan v. EPA, 213 F.3d 663, 669 (D.C. Cir. 2000) (noting the "statutory hook" of the 1998 EPA Final Rule "was a 1990 amendment to the Clean Air Act which requires that SIPs contain 'adequate provisions' prohibiting any source . . . which will . . . contribute significantly to nonattainment in . . . any other State.").

57. *See* 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. 25,179, 25,195 (May 12, 2005) (to be codified at 40 C.F.R. pts. 51, 72, 75, 96) (outlining how EPA determined significant downwind impacts SO_2 and NO_x).

58. *Id.*

ozone levels in projected downwind nonattainment areas.[59] For any state whose sources were predicted to contribute above these thresholds, the EPA calculated the amount of emissions that could be reduced if those sources installed "highly cost-effective controls."[60] The portion of a state's emissions that remained after the elimination of the unlawful contribution was the budget, or cap, for that state.[61] In other words, the cap was defined by the emissions that could be expected after the imposition of highly cost-effective controls.

To implement CAIR, the EPA included a market-based program whereby sources subject to the emissions reduction requirement were allowed to participate in regional SO_2 and NO_x allowance-trading programs to meet their SO_2 and NO_x budgets.[62] Each state's SO_2 and NO_x budget defines the difference between lawful emissions and emissions within the state that "contribute significantly" to nonattainment in another state.[63] Through the trading program, the sum of emissions from sources in a particular state could exceed the state's cap if the sources acquired sufficient allowances from other states that had adopted the CAIR cap-and-trade program. For example, under CAIR, South Carolina's annual SO_2 budget was 40,089 tons.[64] The EPA's own analysis projected that sources in South Carolina will emit over 100,000 tons of SO_2 in 2015 and over 85,000 tons in 2020—five years after CAIR's nominal compliance deadline in 2015.[65]

Under CAIR, any emissions—regardless of their actual environmental impact—were considered lawful with respect to the "good neighbor" provision, provided the sources in each state held sufficient allowances.[66] It is this total disconnect between the alleged harm (i.e., interstate air pollution) and the EPA's purported solution to the "good neighbor"

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59. *Id.*

60. *Michigan*, 213 F.3d at 669.

61. U.S. EPA, CLEAN AIR INTERSTATE RULE (2005), http://www.epa.gov/cair/index.html (describing CAIR program).

62. *Id.*

63. Again, this threshold is not environmentally defined. It is the level defined purely by economic considerations.

64. 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. 25, 230, tbl. V–1 (May 12, 2005) (to be codified at 40. C.F.R. pts. 51, 72–74, 77, 78, 96).

65. *See* ENVTL. PROT. AGENCY, IPM ANALYSIS FOR THE CLEAN AIR INTERSTATE RULE (CAIR) (2008), http://www.epa.gov/airmarkets/progsregs/epa-ipm/cair/index.html (providing data for air quality modeling and CAIR analysis) (scroll down to "Final CAIR;" select "IPM Run Name" for "IPM Parsed File EPA Final CAIR parsed for year 2015 (Final CAIR modeling)" & "IPM Parsed File EPA Final CAIR parsed for year 2020 (Final CAIR modeling).").

66. CLEAN AIR INTERSTATE RULE, *supra* note 61.

provision that raised the court's concern in the *North Carolina* case. The cap-and-trade strategy allowed states to continue to significantly contribute to the non-attainment in another state.

It was this specific trading aspect that the petitioners in *North Carolina* challenged as violating CAA § 110. Specifically, petitioners argued that § 110(a)(2)(D)(i) plainly provides that "[e]ach implementation plan submitted by a State" must "prohibit[] . . . any source or other type of emissions activity within the State from . . . contribut[ing] significantly to nonattainment in . . . any other State . . . ."[67] CAIR defines a state's "significant contribution" as the mass of emissions exceeding the state's budget.[68] Its trading scheme, however, permits the state to avoid "prohibiting" that amount "within the State" by purchasing other states' sources' credits.[69] Petitioners argued that the trading provision was unlawful because it did not ensure the environmental outcome intended by the "good neighbor" provision.[70] The court agreed with the petitioners and in doing so reasoned that:

> [b]ecause CAIR is designed as a complete remedy to section 110(a)(2)(D)(i)(I) problems, as EPA claims, CAIR must do more than achieve something measurable; it must actually require elimination of emissions from sources that contribute significantly [to] and interfere with maintenance in downwind nonattainment areas. To do so, it must measure each state's "significant contribution" to downwind nonattainment even if that measurement does not directly correlate with each state's individualized air quality impact on downwind nonattainment relative to other upwind states. Otherwise, the rule is not effectuating the statutory mandate of prohibiting emissions moving from one state to another, leaving EPA with no statutory authority for its action.[71]

The court's finding is one of the most important decisions interpreting CAA § 110 since its inception. The court recognized what might have been obvious to the casual observer, but it is obfuscated by the technical

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67. CAA § 110(a)(2)(D)(i), 42 U.S.C. § 7410(a)(2)(D)(i) (2000).

68. U.S. Environmental Protection Agency, Clean Air Interstate Rule: Basic Information, http://www.epa.gov/cair/basic.html (last visited Mar. 21, 2009); CAA § 110(a)(2)(D)(i), 42 U.S.C. § 7410(a)(2)(D)(i) (2000).

69. *Id.*

70. North Carolina v. EPA, 531 F.3d 896, 908 (D.C. Cir. 2008) (citations omitted).

71. *Id.*

complexity of interstate air pollution as well as the legal complexity of the CAA itself.[72] In short, the court found that while regional reductions are laudable, and might even provide general reductions in ambient concentrations of pollutants, § 110 of the CAA requires more. The court found that the CAA guarantees each state a specific and measurable environmental outcome—not just some regional reduction. The court's return to federalism under § 110 signals a sharp limitation on the EPA to impose regional emission programs absent clear congressional delegation.

This acknowledgment of the importance of location was foreshadowed by the D.C. Circuit Court in its review of the EPA's NO_x SIP Call.[73] In *Michigan*, the court squarely rejected the contention that reductions in areas that do not "contribute significantly" to nonattainment in a particular state may lawfully offset excess emissions in areas that do "contribute significantly" to the same state.[74] In the NO_x SIP Call, the EPA had capped NO_x emissions for the entire states of Georgia and Missouri (among others), while the EPA's modeling only supported the conclusion that sources within the northern two-thirds of Georgia and the eastern half of Missouri "contribute[d] significantly" to downwind nonattainment.[75] The court vacated these caps on Missouri and Georgia, in part on the ground that southern Georgia and western Missouri had "*not* been shown to have made significant contributions."[76] The court concluded that reducing emissions in these areas "accomplishes *no* purpose relevant to [section] 110(a)(2)(D)(i)(I)."[77] More importantly, including southern Georgia and western Missouri in the NO_x SIP Call would have permitted sources in northern Georgia and eastern Missouri to continue to emit at levels that "contribute significantly" to downwind nonattainment, so long as those emissions were offset by reductions in the areas of Georgia and Missouri that were not linked to any downwind nonattainment. Thus, the EPA's configuration would "actually diminish the cutbacks in areas that are

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72. *Chevron U.S.A., Inc. v. NRDC, Inc.*, 467 U.S. 837, 848 (1984) ("The Clean Air Act Amendments of 1977 are a lengthy, detailed, technical, complex, and, comprehensive response to a major social issue.").

73. Michigan v. EPA, 213 F.3d 663, 669 (D.C. Cir. 2000); *see also* Charles S. Carter & D. R. van der Vaart, *The Ozone Transport Dilemma, Is EPA's NO_x SIP Call the Solution?*, 13 NAT. RESOURCES AND ENV'T 394 (1998) (noting the original impetus for the NO_x SIP Call rule was the continued non-attainment of the Northeast states and the Chicago area states with the ozone NAAQS where most of the states implicated by these non-attainment areas were many hundreds of miles away from the states implicated in the rule).

74. *Michigan*, 213 F.3d at 669.

75. *See id.* at 682 (noting the EPA was essentially treating northern Georgia and eastern Missouri as states in themselves).

76. *Id.* at 684.

77. *Id.*

making a contribution to other states' nonattainment."[78] The court in *Michigan* found that CAA § 110 demands that location of emission reduction be taken into account in evaluating whether a State is complying with the "good neighbor" provision.[79]

The arguments before the court in *Michigan* constrained it from determining whether the NO_x SIP Call was lawful. In *North Carolina*, the court specifically noted that when deciding *Michigan* "we never passed on the lawfulness of the NO_x SIP Call's trading program. ('Of course we are able to assume the existence of the EPA's allowance trading program only because no one has challenged its adoption.')."[80] Considerations of cost and flexibility, factors that drive policy decisions toward cap-and-trade, go "too far" if they "no longer effectuat[e] [the] statutory [section 110] mandate."[81] The EPA's failure in the CAIR to give effect to geopolitical constraints of CAA § 110 went "too far" and thus it was struck down.

The court was on the right track making this argument. It made no sense for significantly contributing areas of Georgia and Missouri to continue contributing significantly to the poor air quality of other states, simply because the control of EGUs in the non-contributing parts of those states would be more cost effective. That is, the plights of downwind states would remain unchanged. But the court must have labored to avoid applying the same logic to the other states as a whole. There was no reason to believe entire states would not remain uncontrolled if more cost-effective solutions existed in neighboring states.

IV. NORTH CAROLINA'S IMPACT ON SIP DEVELOPMENT

The same geopolitical limitations found in CAA § 110 in the context of interstate pollution are no less compelling in the context of intrastate pollution. As discussed above, the D.C. Circuit Court recognized that under the CAA's "good neighbor" provision the location of the emission reduction was critical to ensuring the protection Congress envisioned. Similarly, it is clear that Congress expected that states would take into account the "good neighbor" provision when developing the intrastate provisions of their SIP plans. When states recognized the emission reductions that were being made (at the most cost effective locations), they were eager for their emissions inventory to include those reductions. The

78. *Id.* at 684–85.
79. *Id.*
80. North Carolina v. EPA, 531 F.3d 896, 908 (D.C. Cir. 2008) (internal citations omitted).
81. *Id.*

dilemma was then met; either the cap-and-trade flexibility of these rules would be lost by requiring the companies to meet their emission limits at a specified location without the option of using emission allowances, or these reductions could not be used in SIP demonstrations. Undaunted by this dilemma, the EPA sought to do both.

In 1994, the EPA published guidance[82] on the use of "Economic Incentives Program[s]" (EIP) by states in achieving the goals of the CAA. The guidance discussed both mandatory and voluntary EIPs, and was intended to open the door for more general use of market-based programs after the introduction of Title IV in 1990.[83]

The Act, as amended in 1990, broadly encourages the use of incentive-based approaches to control air pollution.[84] This encouragement is reflected not only in the Title IV Acid Rain Program, but also in the Title I "general provisions for state and federal implementation plans for achieving the NAAQS for criteria pollutants," as well as in the provisions for certain federal ozone measures.[85] In Title I, incentive-based approaches are encouraged, and, in certain cases, mandated through the use of what has been termed an "economic incentive program."[86]

Beyond the coining of yet another acronym used to describe a cap-and-trade program, this guidance was intended to provide a path states could follow to account for reductions taken by their sources in their emission inventory as a result of an EIP (such as the Acid Rain Program). Recall that the emission inventory is the input for the air quality computer models that demonstrates whether a state, or areas within a state designated as non-attainment, can achieve attainment in the future.[87] The imposition of federal cap-and-trade programs (EIPs) on sources within a state would affect the ambient levels of pollutants reduced by these programs.

This guidance was later revised to include the NO_x SIP Call and other developments.[88] These guidance documents assured states that the "EPA would take steps to expedite . . . [SIP] approval through notice-and-comment rulemaking," provided the SIP demonstrations followed the EIP

82. *See* Economic Incentive Program Rules, 59 Fed. Reg. 16,690, 16,690 (Apr. 7, 1994) (adopting rules and guidance for the creation of state "economic incentive programs (EIP's) . . . for certain ozone (O_3) and carbon monoxide (CO) nonattainment areas.").

83. *Id.*

84. CAA §§ 401, 407, 42 U.S.C. §§ 7651(a), (f) (2000).

85. CAA § 176a(a), 42 U.S.C. § 7506a(a) (2000).

86. *See generally* Economic Incentive Program Rules, 59 Fed. Reg. 16,690, 16,690 (Apr. 7, 1994) (describing the characteristics of economic incentive programs).

87. INTEGRATED PLANNING MODEL, *supra* note 25.

88. *Improving Air Quality with Economic Incentive Programs*, *supra* note 43, at 19 tbl.3.1.

guidance.[89] The NO_x SIP Call Rule also included the EPA's view of how to implement a cap-and-trade program into a SIP.[90] Indeed, the EPA's guidance on EIP specifically cites the cap-and-trade strategy referenced in the NO_x SIP Call as being consistent with the EIP guidance.[91]

All three of the programs discussed above (i.e., Title IV, NO_x SIP Call, and CAIR) seek to reduce the long-range effects of these pollutants. The detrimental effects of acid rain are caused by the cumulative effects of the emissions of nitrogen and sulfur oxides from many coal-fired power plants distributed over a wide area (i.e., the eastern United States). Similarly, the reduction of nitrogen and sulfur oxide emissions from neighboring (upwind) states on the ambient air quality of downwind states has a long-range effect. When emissions reductions are traded from one plant to another, the impact hundreds of miles away is insignificant, provided that the overall reduction is maintained (i.e., the cap is not exceeded). The EPA confused the practical considerations with legal requirements by presuming that the insensitivity of a downwind state's ambient air to upwind emissions allowances meant that site-specific emissions limitations were not needed.

While these reductions undoubtedly benefit areas far away, the largest improvements to ambient air as a result of these cap-and-trade programs are felt in the immediate vicinity of the plant making the reductions.[92] That is, for those (typically larger) plants that are over-controlled under these cap-and-trade programs, the improvement in the ambient air nearby is marked. States are currently relying on cap-and-trade programs in their SIP revisions to demonstrate that their non-attainment areas for ozone and PM2.5 will attain compliance with applicable NAAQS in the future.[93] In addition,

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89. *Id.* at 19.

90. *See* Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 63 Fed. Reg. 57,356, 57,456–57 (Oct. 27, 1998) (describing the NO_x budget trading program).

91. IMPROVING AIR QUALITY WITH ECONOMIC INCENTIVE PROGRAMS, *supra* note 43, at 88.

92. U.S. EPA OFFICE OF AIR AND RADIATION, AIR QUALITY MODELING TECHNICAL SUPPORT DOCUMENT FOR THE NO_x SIP CALL 70–71 (1998), *available at* http://www.epa.gov/scram001/reports/nox_sip.pdf (noting that while these estimates are necessarily inaccurate, upwind reductions appear to provide no more than twenty-five percent in downwind ozone exceedances depending on proximity).

93. *See, e.g.*, DIV. OF AIR QUALITY, N.C. DEPT. OF ENVTL & NAT. RESOURCES, PRE-HEARING DRAFT, THE NORTH CAROLINA FINE PARTICULATE MATTER ATTAINMENT DEMONSTRATION FOR THE HICKORY AND GREENSBORO-WINSTON SALEM-HIGH POINT FINE PARTICULATE MATTER NONATTAINMENT AREAS (CATAWBA, DAVIDSON, AND GUILFORD COUNTIES) 42 (Feb. 11, 2008), http://www.ncair.org/planning/PM25_SIP_Narrative_02152008.pdf (noting that the primary focus of this demonstration is reductions in sulfur dioxides due to its role as precursor to the formation of PM2.5).

states are also submitting SIPs for compliance with the Regional Haze Rule that relies on the same cap-and-trade programs.[94]

As a result of these cap-and-trade requirements, public utilities in states affected by the NO_x SIP Call, CAIR, and the Regional Haze Rule SIP[95] have decided which power plants in their system will be controlled and to what extent.[96] Consistent with the design of these cap-and-trade rules, it appears that the utilities were able to make these decisions in the most cost-effective means possible. States included the market-based predictions from the IPM in their emission inventory for their SIP attainment demonstrations. However, as noted earlier, the IPM predictions are based on economic, not environmental necessity. This error of relying on IPM without making the site-specific predictions enforceable may be found in many SIP demonstrations. For example, South Carolina recognized the importance of utility emissions and even discussed the uncertainty of whether reductions could be relied upon by attempting to average them over many years.[97]

> Since the NO_x emissions from EGU sources are a significant part of the emissions inventory, a typical base year emissions inventory was developed for these sources to avoid anomalies in emissions due to variability in meteorology and economic and outage factors in 2002. This approach is consistent with USEPA's modeling guidance. To develop a typical year 2002 emissions inventory for EGU sources, the average CEM heat input for 2000 through 2004 was divided by the 2002 actual heat input for each unit to generate a unit specific normalizing factor. This normalizing factor was then multiplied by the 2002 actual emissions. The heat inputs for the period 2000 through 2004 were used since the modeling current design values use monitoring data from this same five-year period.

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94. For an example, see Utah.gov, Utah Department of Environmental Quality, Regional Haze State Implementation Plan (SIP), http://www.airquality.utah.gov/Public-Interest/Current-Issues/Regionalhazesip/index.htm (last visited Mar. 21, 2009).

95. *See* NESCAUM, BART, RESOURCE GUIDE 1-1 (Aug. 23, 2006), http://www.nescaum.org/documents/bart-resource-guide (noting the Regional Haze Rule also provides a limited use of a trading program under WRAP (Western Regional Air Partnership)).

96. DIV. OF AIR QUALITY, N.C.DEP'T ENVTL. NAT. RESOURCES, MERCURY EMISSIONS AND MERCURY CONTROLS FOR COAL-FIRED ELECTRICAL UTILITY BOILER 2 (2005), http://daq.state.nc.us/news/leg/Mercury_Final_09012005.pdf.

97. The NAAQS for ozone, for example, is an eight hour standard. Periods when the controlled EGU is shut-down were contemplated to be as much as one year in duration. Local levels of ozone would be adversely impacted by such long term shut-downs.

> If a unit was shutdown for an entire year during the 2000 through 2004 period, the average of the years the unit was operational was used. If a unit was shutdown temporarily in 2002, the emissions and heat inputs for 2001 (or 2000) were used in the normalizing calculations.[98]

Despite the uncertainty and the attempt to normalize the annual emissions, South Carolina explicitly relied on emission reductions from CAIR, as well as the North Carolina Clean Smokestacks Act[99] in a recent SIP attainment submission:

> [T]o generate the future year emission inventory for the electric generating sector of the contiguous United States using the Integrated Planning Model (IPM). IPM is a dynamic linear optimization model that can be used to examine air pollution control policies for various pollutants throughout the contiguous United States for the entire electric power system. The dynamic nature of IPM enables the projection of the behavior of the power system over a specified future period. The optimization logic determines the least-cost means of meeting electric generation and capacity requirements while complying with specified constraints including air pollution regulations, transmission bottlenecks, and plant-specific operational constraints. The versatility of IPM allows users to specify which constraints to exercise and populate IPM with their own datasets. The IPM modeling runs took into consideration USEPA's

98. S.C. DEP'T OF HEALTH AND ENVTL. CONTROL, *supra* note 23, at 21–22.

99. *See* North Carolina Clean Smokestacks Act, 2002 N.C. Sess. L. 4 (codified in part at N.C. GEN. STAT. § 143–215.107D (2002)) (noting that under the Clean Smokestacks Act ("CSA") North Carolina's fourteen coal-fired power plants are required to reduce their emissions of key pollutants responsible for the ozone, which is unhealthy to breathe and damages trees and crops; fine particles, which are unhealthy to breathe and cause haze that obscures scenic views and harm tourism; and acid rain, which is harmful to aquatic life, forests, and soils). *See also* N.C. DEP'T ENVTL. NAT. RESOURCES, THE NORTH CAROLINA 8-HOUR OZONE ATTAINMENT DEMONSTRATION FOR THE CUMBERLAND COUNTY EARLY ACTION COMPACT AREA, MOUNTAIN AREA EARLY ACTION COMPACT AREA, (UNCOMBE, HAYWOOD & MADISON COUNTIES) TRIAD EARLY ACTION COMPACT AREA, (ALAMANCE, CASWELL, DAVIDSON, DAVIE, FORSYTH, GUILFORD, RANDOLPH, ROCKINGHAM, STOKES, SURRY, AND YADKIN COUNTIES) AND UNIFOUR EARLY ACTION COMPACT AREA (ALEXANDER, BURKE, CALDWELL & CATAWBA COUNTIES), 67 (DEC. 17, 2004), http://daq.state.nc.us/planning/ozone/EAC_SIP_Narrative.pdf (noting the CSA requires subject power plants to reduce their nitrogen oxide (NO_x) emissions from 245,000 tons in 1998 to 56,000 tons by 2009 (seventy-eight percent), and sulfur dioxide (SO_2) emissions from 489,000 tons in 1998 to 250,000 tons by 2009 (forty-nine percent) and 130,000 tons by 2013 (seventy-four percent)).

> Clean Air Interstate Rule (CAIR) implementation and North Carolina's Clean Smokestacks Act compliance plans for Duke Power and Progress Energy.[100]

As discussed above, the IPM is being used here to predict where the control devices would be installed based on the constraints given to the IPM and imposed by the named cap-and-trade programs. However, none of the cap-and-trade programs cited above require emission reductions on a site-specific basis. In other words, utility companies, as a whole, were required to meet various caps imposed by these rules on a system-wide basis, rather than on a boiler-by-boiler basis. This is precisely what those rules require. However, there are two important consequences of a state's reliance on reductions made on a site-specific basis (without imposing the requirement of enforceability) that were not anticipated by those rules: 1) violation of CAA § 110, and 2) potential unlawful permits under NSR.

A. Violation of CAA section 110

Both CAIR and the NO_x SIP Call Rule were designed to reduce the amount of pollutants entering downwind states.[101] An upwind state's projected reductions allowed downwind states to rely on these lower emissions in their own attainment demonstrations. The EPA apparently thought that the specific origin of those pollutants did not matter; however, the court in *North Carolina* disagreed, at least to the extent that interstate trading was struck down.[102] Each state, however, that had power plants that were being controlled, was eager to include those reductions in its own inventory, and take credit for the reductions in its SIP demonstration to show attainment. Because these rules were negotiated on the premise of long-range effects only, site-specific limitations were not contemplated. Nevertheless, reliance on these unenforceable reductions in any SIP demonstration is inconsistent with the CAA.[103]

As discussed above, the local impacts of these reductions are large and critical in maintaining or achieving attainment, as predicted by the models used in SIP demonstrations.[104] To be clear, because the emission reductions are not enforceable at the site-specific source, there is nothing to prevent a power plant site from increasing its emissions, so long as the rest of the

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100. S.C. DEPT. OF HEALTH AND ENVTL. CONTROL, *supra* note 23, at 22.

101. INTEGRATED PLANNING MODEL, *supra* note 25.

102. North Carolina v. EPA, 531 F.3d 896, 907–08, 929 (D.C. Cir. 2008).

103. 42 U.S.C. § 7410(a)(2)(A) (2000).

104. *See* U.S. EPA OFFICE OF AIR AND RADIATION, *supra* note 92 (discussing the impact that reducing upwind sources can have on attainment in downwind areas).

system reduces its emissions to comply with the applicable cap. Such an increase would likely cause higher levels of ozone and PM2.5 in the vicinity of the plant. The result could lead to ambient air quality scenarios that are contrary to CAA principles.

If controls are not installed or operated in a manner that the IPM predicted, local air quality could exceed the NAAQS. For an area that was designated as non-attainment because its local monitors had measured exceedances of the NAAQS, a large utility boiler may have been predicted by IPM to have controls installed as part of a cap-and-trade program. With that assumed reduction, an air quality model for this area may incorrectly show attainment. However, the assumed reductions, as predicted by IPM, were based on economic efficiency. If a utility chooses not to control the boiler, or the controls do not reach the level of emission reduction predicted by the IPM, or if the utility installs the control device but chooses not to operate it due to economics;[105] the air quality may actually exceed the NAAQS. The source will still be in compliance with the cap-and-trade provisions, but as a result of one of these actions, the local monitors will measure emissions in excess of the NAAQS. Non-attainment designation will result, and even though the most cost-effective response would be to require controls on that utility boiler, the utility will claim no requirement exists. In response to this situation, the state can either make the site-specific IPM prediction enforceable, or require other sources in the area to add additional controls sufficient to demonstrate compliance with the NAAQS.

In addition, even if the IPM correctly predicts that a particular boiler will not be controlled, the system reductions may nonetheless show regional compliance. Therefore, a localized exceedance of the NAAQS may still violate environmental justice requirements since the IPM, in addition to its failure to account for environmental necessity, does not account for demographics.

B. Effect of Site Specific Limits on NSR Permitting

Another effect of the the EPA's failure to comply with CAA § 110 site-specific enforceability requirements is in the field of NSR permitting. There are two specific problems that may result from reliance on regional cap-and-trade reduction programs such as CAIR, without making the requirements site-specifically enforceable. The first issue arises when

105. Remember that control devices cost money to build *and* to operate. At any time under a cap-and-trade program, the utility may choose to buy emission allowances rather than build, or operate their control device.

facilities avoid NSR review based on a "netting" exercise—relying on emission reductions that may not have been creditable. The second issue is whether emission reductions resulting from a facility's compliance with a regional cap-and-trade program are available as emission offsets within the NSR permitting program.

NSR is a CAA preconstruction permitting program that applies to large or "major" sources of air pollution.[106] The requirements of the NSR program are stringent and quite complex.[107] As a result, it can take up to seven years to obtain a NSR permit.[108] Given the complexity and the timeframes associated with obtaining a NSR permit, it is rational behavior for companies, where possible, to avoid NSR review. One of the ways to avoid review as provided in the NSR regulations is "netting." NSR review is triggered only if there is a significant "net emissions increase."[109] The NSR regulations define "net emissions increase" in such a way to allow for increases and decreases in actual emissions that are contemporaneous with the change to be considered.[110] Using this provision, new EGUs located at an existing site can avoid NSR review if one of the site's existing units made reductions in actual emissions sufficient such that the overall "net" increase is less than significant. However, in order to use the emission reduction in a netting exercise, the regulations require that the emission reduction be "creditable."[111]

One of the requirements that must be satisfied in order for an emission reduction to be "creditable" is that the reduction cannot have been "relied on . . . in issuing a permit for the source under this section."[112] This reliance can be manifested in one of two ways. First, as the plain language provides, if the emission reduction was used in issuing a permit under NSR, then the emission reduction is not creditable. This is because one of the

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106. *See* 42 U.S.C. §§ 7470–7492 (2000) (noting that the NSR program is implemented through two statutory programs; the first is the Prevention of Significant Deterioration (PSD) requirements at CAA sections 160–169B (also referred to as Part C) and is applicable in attainment areas); *see also* 42 U.S.C. §§ 7501–7515 (2000) (noting that the second program is non-attainment review (NAA) authorized at CAA sections 171–93 (also referred to as Part D)).

107. *See* New York v. EPA, 413 F.3d 3, 24 (D.C. Cir. 2005) ("[T]here is no question that the NSR program is technical and complex . . . .").

108. Alaska Dep't. of Envtl. Conservation v. EPA, 540 U.S. 461, 516–17 (2004) ("We are advised that an applicant sometimes must spend up to $500,000 on the permit process and that, for a complex project, the time for approval can take from five to seven years." (quoting brief for Nat'l Envtl. Dev. Ass'n et al. as Amici Curiae Supporting Petitioner, Alaska, Dep't. of Envtl. Conservation, 124 S.Ct. 983 (2004) (No. 02-658))).

109. 40 C.F.R. § 52.21(b)(3) (2008).

110. *Id*. § 52.21(b)(3)(ii).

111. *Id*. § 52.21(b)(3)(i)(b).

112. *Id*. § 52.21(b)(3)(iii)(a).

NSR requirements to obtain a permit is to demonstrate that the new project will not cause or contribute to a violation of the NAAQS or PSD increments.[113] The rationale behind this prohibition is that if the reduction was necessary to demonstrate that a project would not violate the health-based NAAQS, the facility should not be allowed to then use that reduction to allow a subsequent project to evade NSR review—including the requirement to demonstrate compliance with the NAAQS. The parlance used to describe this situation is that "double counting" is not allowed. The second manifestation of the prohibition is the EPA's interpretation that an emission reduction was "relied upon" if it was the result of a SIP requirement or used in a SIP attainment demonstration. The underlying rationale is precisely the same. Finally—and a point critical to regional cap-and-trade programs such as the NO_x SIP Call and CAIR—even where an emission unit makes an early reduction ahead of the SIP future compliance date,[114] that reduction is no longer creditable and cannot be used.[115]

In a similar vein, facilities that cannot evade NSR review may not avoid the pitfalls resulting from the SIP's reliance on regional cap-and-trade reduction programs. For facilities triggering NSR in nonattainment areas, the CAA requires the sources to obtain emission offsets for new emissions of the nonattainment pollutant.[116] The CAA then conditions the availability of the offsets providing that, "[e]mission reductions otherwise required by this . . . [Act] shall not be creditable as emission reductions for purposes of any such offset requirement."[117]

Over the past five years there have been well over 100 planned coal-fired power plant projects.[118] Several of these projects, including projects in Florida, North Carolina, Colorado, and North Dakota relied on emission

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113. *Id*. § 52.21(k).

114. *See* DIV. OF AIR QUALITY, N.C. DEPT. OF ENVTL & NAT. RESOURCES, PRE-HEARING DRAFT, *supra* note 93, at ii (noting that both the NO_x SIP Call and CAIR allowed for extended compliance dates sufficient to allow for installation of emission controls necessary to reduce emissions. For example, in the CAIR rule the EPA established a 2009/2010 Phase I deadline followed by a Phase 2 2015 deadline).

115. *See* Letter from Bruce P. Miller, Acting Chief, Air Programs Branch, EPA Region 4, to C. H. Fancy, P.E., Deputy Chief, Bureau of Air Quality Mgmt., Fla. Dep't of Envtl. Regulation, *available at* http://www.epa.gov/Region7/programs/artd/air/nsr/nsrmemos/buckeye.pdf (explaining the issue of creditable decreases where EPA stated, "[I]f the Florida SIP contains a TRS rule with a future compliance date, no credit can be given for emissions exceeding that rule.").

116. 42 U.S.C. § 7503(c)(1) (2000).

117. *Id*. § 7503(d)(2); *see also* 40 C.F.R. § 51, app. S (2008) (stating that only intra-pollutant emission offsets are acceptable).

118. *See generally* U.S. EPA, COAL-FIRED UTILITY PSD PROJECTS (2008), *available at* http://www.epa.gov/region07/programs/artd/air/nsr/spreadsheets/national_coal_projects.xls (charting recent proposals for coal fired plants).

reductions to net out of NSR applicability.[119] The EPA did not specifically require site-specific enforceability for states that were relying on the federally mandated cap-and-trade program as part of their SIP attainment demonstrations. In fact, the EPA stated that "[i]f your EIP was submitted to comply with the NO_x budget trading program (in response to the NO_x SIP Call), then geographic trading is not limited by this guidance."[120] From a permitting perspective, reliance on the emission reductions mandated by the regional cap-and-trade programs was proper. The failing is the acceptance of emission reductions under regional cap-and-trade programs directly into SIP plans without requiring site-specific limitations. The result is that the same reductions satisfy the requirements of the cap-and-trade program and provide creditable reductions for NSR netting that is entirely consistent with SIP approvals by the EPA. Had the EPA required site-specific limits, those reductions could not have been deemed creditable under the NSR permit actions.

If the states and the EPA respond appropriately to the court's direction in *North Carolina*, SIPs will presumably be corrected to require that the location of the emission reduction be enforceable. The result will be twofold. First, the benefit of the emission reduction will be ensured, and second, the required emission reductions will no longer be available for "netting" or "offsets" under the NSR permitting program.

CONCLUSION

Cap-and-trade programs offer an excellent means to reduce emissions while minimizing costs, by allowing the industry the opportunity to seek the lowest cost alternative. Because these programs were initiated in cases where the environmental benefits were realized by neighboring states relatively far away, the precise locations of the reductions were less important than the overall magnitude of the reductions required from plants over large regions.

The states in which the reductions actually occurred also realized environmental benefits. Actual reductions led to actual improvements in ambient air quality. To realize the benefits of cleaner air under the CAA, these states sought to include the reductions in subsequent SIP demonstrations. The smaller distances of intrastate boundaries meant that reliance on reductions from specific plants at specific locations were

119. *Id*.

120. IMPROVING AIR QUALITY WITH ECONOMIC INCENTIVE PROGRAMS, *supra* note 43, at 264.

important. Nevertheless, the states and the EPA did not require the reductions to become site-specific requirements.

The court's review of the EPA's CAIR rule, and its decision, bring into focus the incompatibility of market based cap-and-trade programs with the specificity demanded by the statutory language of the SIP provision in the CAA. In order to ensure actual environmental protection, § 110 requires site-specific enforceability. This requirement is simply incompatible with the current implementation policy of cap-and-trade regulations.

Finally, the proper implementation of cap-and-trade programs is possible without forsaking the recognized advantages entirely. In the first instance, states would be required to focus their efforts to more precisely identify only those emissions reductions, and concomitantly their locations, that are actually necessary to demonstrate attainment. To the extent that the state is able to demonstrate several control options each that demonstrate attainment, the economic benefit of the control options can then be realized. Once the decision is made by the utility company to control a specific plant, the emission reductions resulting from the controls should then become enforceable. The economic advantage of the cap-and-trade program is retained, and the state can environmentally and legally rely on the continued reductions. What is lost, of course, is the compliance flexibility afforded under the present implementation policy, as well as the possible loss of credits that would otherwise be used as surplus credits under the NSR program.