*NORTH CAROLINA V. ENVIRONMENTAL PROTECTION AGENCY**

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Particulate matter and ozone in the atmosphere severely affect human health and the environment. Particulate matter impairs human health by causing heart attacks, chronic bronchitis, asthma, and other diseases.[1] Ground-level ozone creates smog, causes lung damage, and aggravates health problems for those with asthma and other respiratory problems.[2] Particulate matter and ozone also affect agricultural production, cause acidification in lakes, streams, and forests, lead to eutrophication in water bodies, and decrease visibility.[3] Faced with these negative effects, Congress enacted the Clean Air Act ("CAA")[4] to reduce the ambient levels of particulate matter, ground-level ozone and other pollutants, and in turn to mitigate these harmful effects on human wellbeing and the environment. Despite the Act's success with respect to other pollutants, particulate matter and ozone are particularly challenging to control under the federal law — which is in large part state-administered — because these pollutants can be generated by interstate sources of sulfur dioxide ("SO_2") and nitrogen oxides ("NO_x").

To combat the difficult problem of interstate sources, the U.S. Environmental Protection Agency ("EPA") sought to decrease emissions of particulate matter and ozone precursors by promulgating the Clean Air Interstate Rule ("CAIR").[5] CAIR limited the emission of SO_2 and NO_x in many Eastern states and proposed an optional cap-and-trade program to assist pollution sources with compliance.[6] CAIR was widely accepted by both environmentalists and industry as an efficient means of controlling interstate sulfur dioxide and nitrogen oxides.[7]

Several States and electric utilities, however, petitioned for judicial review of the new regulation, challenging its statutory authority.[8] The petitioners claimed EPA acted beyond the statutory authority found in the Clean Air Act, particularly section 110(a)(2)(D)(i).[9] The United States Court of Appeals for the District of Columbia Circuit ruled on several of the objec-

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* 531 F.3d 896 (D.C. Cir. 2008) (per curiam), *modified and reh'g denied*, No. 05-1244, — F.3d — (D.C. Cir. Dec. 23, 2008) (per curiam).

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[1] Clean Air Interstate Rule, 70 Fed. Reg. 25,162, 25,168 (May 12, 2005); U.S. EPA, Particulate Matter: Health and Environment, http://www.epa.gov/oar/particlepollution/health.html (last visited Nov. 17, 2008).

[2] Clean Air Interstate Rule, 70 Fed. Reg. at 25,169; U.S. EPA, Ground-level Ozone: Health and Environment, http://www.epa.gov/air/ozonepollution/health.html (last visited Nov. 17, 2008).

[3] U.S. EPA, *supra* note 1; U.S. EPA, *supra* note 2.

[4] *See* 42 U.S.C. § 7401(a) (2000).

[5] Clean Air Interstate Rule, 70 Fed. Reg. at 25,168.

[6] *Id.* at 25,165.

[7] Del Quentin Wilber & Marc Kaufman, *Judges Toss EPA Rule To Reduce Smog, Soot*, WASH. POST, July 12, 2008 at A1.

[8] North Carolina v. EPA, 531 F.3d 896, 905 (D.C. Cir. 2008).

[9] *Id.* at 906, 916, 923.

tions earlier this year in *North Carolina v. EPA*. The court ruled that EPA exceeded the authority granted by the Clean Air Act.[10] The decision not only eliminates the CAIR program as formulated, but also bears heavily on future attempts to efficiently deal with pollution and battle global climate change. *North Carolina v. EPA* will hinder EPA's attempts to improve air quality, though it may open opportunities for both environmentalists and industry advocates.

BACKGROUND

I. THE REGULATORY FRAMEWORK

The Clean Air Act is the comprehensive federal statute designed to address air quality problems across the nation.[11] EPA determines what constitutes acceptable air quality for six listed "criteria" pollutants and sets the National Ambient Air Quality Standards ("NAAQS").[12] Regions within states are designated as either "attainment" or "non-attainment" areas, based on whether air pollution levels have met the prescribed standards.[13] The CAA mandates that all areas reach attainment, but gives states the authority to determine the best approach for reaching EPA's NAAQS in non-attainment areas.[14] In turn, each State submits to EPA for approval a State Implementation Plan ("SIP") detailing how it will meet the standards.[15] However, some sources of pollution affecting a state's attainment are outside its borders and are thus beyond its control.[16] To address this problem, section 110(a)(2)(D)(i) of the Clean Air Act requires SIPs to contain provisions prohibiting "emissions activity within the State from emitting any air pollutant in amounts which will . . . contribute significantly to nonattainment in, or interfere with maintenance by, any other State . . . ."[17] EPA uses this

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[10] *Id.* at 921. While the court initially vacated CAIR and remanded it to EPA, *id.* at 929-30, the same panel revised its decision in December 2008 to remand to EPA *without* vacating CAIR. North Carolina v. EPA, No. 05-1244, — F.3d —, slip op. at 3 (D.C. Cir. Dec. 23, 2008) (per curiam). The court did so because permitting CAIR to remain in effect while EPA works to replace it will "at least temporarily preserve the environmental values covered by CAIR." *Id.*

[11] Timothy A. Vanderver, Jr., *Overview*, *in* CLEAN AIR LAW AND REGULATION 1, 2 (Timothy A. Vanderver, Jr. ed., 1992).

[12] As of November 2008, the criteria pollutants are particulate matter, sulfur dioxide, carbon monoxide, ozone, nitrogen dioxide, and lead. *Id.*

[13] 42 U.S.C. § 7407(d) (2000); *see also* Elliott P. Laws, *The Regulation of Stationary Sources*, *in* CLEAN AIR LAW AND REGULATION, *supra* note 11, at 149, 160.

[14] 42 U.S.C. § 7410(a); Laws, *supra* note 13, at 160.

[15] 42 U.S.C. § 7410(a); *see also* Laws, *supra* note 13, at 158.

[16] For instance, sulfur dioxide and nitrogen oxides can travel "over hundreds of miles." U.S. EPA, What is Acid Rain?, http://www.epa.gov/acidrain/what/index.html (last visited Nov. 17, 2008).

[17] 42 U.S.C. § 7410(a)(2)(D)(i)(I).

provision to regulate interstate pollution sources that negatively affect national air quality.

Ozone and particulate matter measuring under 2.5 microns in diameter ("$PM_{2.5}$") both fall under section 110(a)(2)(D)(i), since both can be produced by pollution sources in one state, but degrade air quality in another state.[18] Pollutants generate interstate particulate matter in a variety of ways. The most relevant methods to this discussion are the atmospheric chemical reactions of SO_2 and NO_x.[19] For instance, interstate ground-level ozone is formed by the reaction of NO_x with volatile organic compounds.[20] Particulate matter, ozone, and their precursors can travel and affect the air quality of downwind states hundreds of miles from where they are generated.[21]

In 2005, EPA drafted a regulatory package under section 110(a)(2)(D)(i) aimed at reducing interstate ozone and $PM_{2.5}$ and the accompanying health effects.[22] The resulting CAIR requires emissions reductions of NO_x and SO_2, precursors to ozone and $PM_{2.5}$, that contribute significantly to non-attainment in other states.[23] EPA decided that out-of-state pollution sources would be deemed to contribute significantly to an area's non-attainment if both air quality and cost factors were met.[24] The air quality factor required out-of-state sources to contribute at least 0.2 $\mu g/m^3$ of $PM_{2.5}$ or two parts per billion of ozone to be considered significant.[25] For ozone, the average contribution must also be at least one percent of the pollution, and must meet other factors listed in the regulation.[26]

The cost factor mandates that only pollution reducible by highly effective controls is significant.[27] EPA examines feasibility when determining cost effectiveness, looking at "the applicability, performance, and reliability of different types of pollution control technologies for different types of sources; . . . and other implementation costs of a regulatory program for any particular group of sources."[28] Based on those factors, EPA determined NO_x and SO_2 emissions from electric generating units ("EGUs") were cost effective, or could be reduced by highly cost effective controls.[29] Only emissions equivalent to cost effective reductions from EGUs in the twenty-five states

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[18] Clean Air Interstate Rule, 70 Fed. Reg. 25,162, 25,165, 25,168 (May 12, 2005).
[19] *Id.* at 25,179.
[20] *Id.* at 25,185.
[21] *Id.* at 25,167.
[22] *Id.* at 25,162.
[23] *Id.*
[24] *Id.* at 25,174.
[25] *Id.*
[26] *Id.* at 25,175. Twenty-three states and the District of Columbia met the air quality factor for $PM_{2.5}$. Twenty-five states and the District of Columbia contributed to the downwind non-attainment of ozone. *Id.*
[27] *Id.* The use of cost factors in determining significant contribution had been approved in an earlier case, *Michigan v. EPA.* 213 F.3d 663, 679–80 (D.C. Cir. 2000); *see also* Clean Air Interstate Rule, 70 Fed. Reg. at 25,174.
[28] Clean Air Interstate Rule, 70 Fed. Reg. at 25,175.
[29] *Id.*

meeting the air quality factor for ozone and the twenty-three states and Washington, D.C., meeting the air quality factor for $PM_{2.5}$ are considered as contributing *significantly* to downwind non-attainment.[30]

EPA first ascertained which NO_x and SO_2 emissions significantly contributed to the non-attainment of NAAQS in downwind states and totaled the regional amount of significant emissions that CAIR would eliminate.[31] The Agency next apportioned the regional emissions reductions for NO_x to individual states in proportion to the heat input of the state's EGUs.[32] SO_2 reductions were apportioned in proportion to the States' permits in the CAA Title IV acid rain program. The Agency chose this distribution for SO_2 reductions to coordinate the CAIR SO_2 reductions with the SO_2 cap-and-trade program created in Title IV.[33]

Although EPA found that out-of-state sources would cause non-attainment in 2010 (the States' deadline under the CAA for reaching attainment), EPA determined that it would not be feasible to reduce the out-of-state emissions by that time.[34] Instead, CAIR required the reduction to be implemented in two phases. States would implement the first phase of reductions by 2009 for NO_x or 2010 for SO_2.[35] A second set of reductions would bring the level of out-of-state contributions to air quality non-attainment to an acceptable level by 2015.[36]

Each State could choose to meet reduction requirements by mandating the highly cost effective controls for its EGUs as determined by EPA.[37] Alternatively, each State has the option of submitting a SIP with its own plan for meeting the required reductions.[38] States opting to comply with CAIR by regulating the EGUs could join an optional cap-and-trade program for NO_x and SO_2.[39]

The cap-and-trade system proposed by CAIR mimics previous cap-and-trade programs.[40] EPA creates sets of allowances for each pollutant, so that

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[30] *Id.* at 25,174–75.

[31] *Id.* at 25,195–96.

[32] *Id.* at 25,231. EPA identified the amount of pollution coming from out-of-state sources generally, not the pollution from each state. EPA calculated the *regional* reductions needed for attainment, but these reductions still needed to be apportioned to the individual states. *Id.*

[33] *Id.* at 25,229. Title IV of the CAA was created as part of the 1990 Clean Air Act Amendments to reduce acid rain. Title IV creates a national cap-and-trade program that reduces SO_2 emissions, the precursor to acid rain. SO_2 emissions are capped nationally and pollution sources can trade or sell permits to emit SO_2 emissions. Vanderver, *supra* note 11, at 17. Reducing the level of SO_2 emissions from Eastern states through CAIR without reducing Title IV permits will mean Eastern sources will have extra permits to sell.

[34] Clean Air Interstate Rule, 70 Fed. Reg. at 25,167.

[35] *Id.* at 25,167, 25,176.

[36] *Id.*

[37] *Id.* at 25,165.

[38] *Id.* at 25,167.

[39] *Id.*

[40] The leading example is the CAA Title IV acid rain program. Henry A. Waxman, *The Clean Air Act of 1990: An Overview of Its History and Policy*, *in* CLEAN AIR LAW AND REGULATION, *supra* note 11, at 20, 37. CAIR only created a new cap-and-trade program for NO_x

the total number of allowances permits only an acceptable amount of emissions. States initially distribute the allowances, and pollution sources can then buy additional allowances if needed or sell excess allowances.[41] In the end, EPA expected that CAIR would result in the efficient reductions of $PM_{2.5}$ and ozone precursors.[42]

II. The Challenge

North Carolina and a variety of electric utility companies challenged the CAIR program in the D.C. Circuit after it was published in the Federal Register. The court determined that EPA acted outside its statutory authority based on the standard of review in section 307(d)(9) of the Clean Air Act.[43] The court agreed with three of North Carolina's claims.[44] The court held that EPA's cap-and-trade program was unauthorized by the CAA, that EPA ignored the "interferes with maintenance" language of section 110(a)(2)(D)(i)(I), and that CAIR's 2015 compliance deadline was unauthorized.[45] The court divided the electric utilities' claims into four categories: the SO_2 and NO_x budgets; altering the allocation of Title IV allowances; the exclusion of some border states; and the Phase I compliance deadline.[46] The court accepted portions of the electric utilities' arguments except for the Phase I compliance deadline claim.[47]

A. North Carolina's claims[48]

The D.C. Circuit first decided that the CAIR trading program went beyond the mandate of the Clean Air Act because the regional program did not address sources from one specific state contributing to nonattainment in another specific state.[49] EPA designed CAIR to eliminate pollution from out-of-state sources as a group. Pollution would be reduced regionally, but any state could buy enough credits to escape the requirement to reduce its impact on other states.[50] The court stated that EPA is only authorized under section 110(a)(2)(D)(i)(I) to work toward the "goal of prohibiting sources 'within

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emissions. SO_2 reductions will be achieved through the already established SO_2 trading system developed for the acid rain program. Clean Air Interstate Rule, 70 Fed. Reg. at 25,274.

[41] Clean Air Interstate Rule, 70 Fed. Reg. at 25,274.

[42] *Id.* at 25,162.

[43] North Carolina v. EPA, 531 F.3d 896, 905 (D.C. Cir. 2008).

[44] The court did not accept North Carolina's other arguments — the NO_x Compliance Supplement Pool, the misinterpretation of the word "will" in section 110(a)(2)(D)(i)(I), and the use of a 0.2 $\mu g/m^3$ air quality threshold. *Id.* at 906.

[45] *Id.*

[46] *Id.* at 916–30.

[47] *Id.*

[48] North Carolina challenged CAIR on several statutory grounds, arguing that EPA had acted with disregard for the directives of the CAA's text. Final Brief of Petitioner the State of North Carolina at 8–10, *North Carolina v. EPA*, 531 F.3d 896 (No. 05-1244).

[49] *North Carolina v. EPA*, 531 F.3d at 907.

[50] *Id.*

the State' from contributing to nonattainment or interview with maintenance 'in any other State.'"[51] The cap-and-trade program is outside this mandate because "CAIR only assures that the entire region's significant contribution will be eliminated" when "according to Congress, individual state contributions to downwind nonattainment areas do matter."[52]

The court next held that EPA ignored the "interferes with maintenance" language of section 110(a)(2)(D)(i)(I).[53] North Carolina argued that CAIR should not just assist areas projected to be in non-attainment in 2010, but also reduce out-of-state pollution in areas that would barely reach attainment by that time.[54] EPA countered that the "interferes with maintenance" language would be relevant if an area reached attainment but fell back into non-attainment.[55] The court agreed and decided that giving effect to the plain meaning of "interferes with maintenance" requires EPA to consider maintenance when initially identifying sources impacting air quality in other states.[56]

Finally, the court held that the 2015 compliance deadline was incompatible with Title I of the Clean Air Act.[57] Section 110(a)(2)(D)(i) requires CAIR to be "consistent with the provisions of [Title I],"[58] but Title I compels North Carolina to create a SIP for reaching attainment by June 2010, or sooner if EPA promulgates a new deadline.[59] Because of feasibility concerns, EPA does not require significant out-of-state pollution sources to be fully eradicated until 2015.[60] The court therefore held that CAIR is inconsistent with Title I because it requires states to reach attainment by 2010 without a reduction in pollution from upwind states.[61]

B. Electric utilities' claims

The court also addressed a number of objections regarding the allocation of reductions and the temporal aspects of the new regulation raised by

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[51] *Id.*

[52] *Id.*

[53] Section 110(a)(2)(D)(i)(I) reads, "Each [SIP] shall . . . contain adequate provisions — (i) prohibiting, consistent with the provisions of this subchapter, 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 . . . ." 42 U.S.C. § 740(a)(2)(D)(i)(I) (2000).

[54] Final Brief of Petitioner the State of North Carolina, *supra* note 48, at 12–14.

[55] Brief for Respondent United States Environmental Protection Agency at 136, *North Carolina v. EPA*, 531 F.3d 896 (No. 05-1244).

[56] *North Carolina v. EPA*, 531 F.3d at 910.

[57] *Id.* at 912. Section 110(a)(2)(D)(i) states that regulations governing out-of-state sources contributing to a state's non-attainment must be "consistent with the provisions of [Title I]." 42 U.S.C. § 7410(a)(2)(D)(i)(I).

[58] 42 U.S.C. § 7410(a)(2)(D)(i)(I).

[59] Final Brief of Petitioner the State of North Carolina, *supra* note 48, at 23.

[60] Clean Air Interstate Rule, 70 Fed. Reg. 25,162, 25,176 (May 12, 2005).

[61] *North Carolina v. EPA*, 531 F.3d at 912.

the electric utility petitioners.[62] The D.C. Circuit decided that EPA's method for allocating States' SO_2 and NO_x emission limits was unacceptably outside the Agency's statutory authority in section 110(a)(2)(D)(i)(I).[63] EPA determined the SO_2 cap based on the level of emissions reductions achievable by implementing "highly cost-effective controls."[64] The court held that EPA's use of cost factors was not sufficiently related to section 110(a)(2)(D)(i)(I) to withstand judicial review.[65] The reductions allocation must "achieve something measurable toward the goal of prohibiting sources 'within the State' from contributing significantly to downwind nonattainment."[66] Furthermore, EPA allocated SO_2 budgets by proportionally reducing Title IV acid rain program SO_2 allocations.[67] EPA believed this was necessary to preserve the viability of the Title IV program, but the court decried this decision's lack of basis in statutory authority.[68] The acid rain program, though aimed at reducing SO_2, the court explained, is not designed to eliminate an upwind state's contribution to a downwind state's nonattainment for $PM_{2.5}$.[69]

EPA set NO_x budgets under CAIR by using "fuel factors," multiplying NO_x rates by the heat input of EGUs in the region.[70] As with SO_2 budgets, the NO_x budgets had no foundation in the statutory mandate in section 110(a)(2)(D)(i)(I). Although the court acknowledged that EPA tried to set up "a reasonable balance of regional and local control to provide a cost-effective and equitable governmental approach to attainment," it held that EPA's promulgated reductions should have been based on a state's significant contribution to the non-attainment of another state.[71] This suggests that EPA must allocate NO_x emissions budgets in a fashion correlating to the amount of actual pollution contributed to another state in order to pass judicial review.

The electric utilities also challenged the SO_2 program by arguing that it did not comply with Title IV of the CAA.[72] The new SO_2 budgets for CAIR-regulated States would be lower than the States' proportional SO_2 allowance

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[62] *See* Joint Reply Brief of Entergy Corporation and FPL Group, Inc. as to Fuel Adjustment Issues, *North Carolina v. EPA*, 531 F.3d 896 (No. 05-1244); Final Joint Brief of Northern Indiana Public Service Company and Florida Association of Electric Utilities on NO_x-Related Claims, *North Carolina v. EPA*, 531 F.3d 896 (No. 05-1244); Final Joint Brief of Florida Association of Electric Utilities, FPL Group, Inc., Minnesota Power, Southwestern Public Services Co. d/b/a Xcel Energy, Occidental Permian Ltd., and the City of Amarillo, Texas, as to Border State Issues, *North Carolina v. EPA*, 531 F.3d 896 (No. 05-1244) [hereinafter Final Joint Brief of Florida Association of Electric Utilities et al. as to Border State Issues].

[63] *North Carolina v. EPA*, 531 F.3d at 916.

[64] *Id.*

[65] *Id.* The court distinguished *Michigan v. EPA*, 213 F.3d 663 (D.C. Cir. 2000), a decision allowing emissions limits to be based in part on cost. *Id.* at 908.

[66] *Id.* at 917-18. For instance, the budgets could be set to lower a state's pollutant contribution below 0.2 μ/m^3.

[67] *Id.* at 917.

[68] *Id.*

[69] *Id.* at 918.

[70] Clean Air Interstate Rule, 70 Fed. Reg. 25,162, 25,176 (May 12, 2005).

[71] *North Carolina v. EPA*, 531 F.3d at 919.

[72] *Id.* at 921.

under the Title IV acid rain program. As a result, EPA was concerned about an excess of Title IV acid program permits after Eastern states' SO_2 emissions are decreased in compliance with CAIR. EPA attempted to synchronize the two programs and resolve this issue by providing for the retirement or termination of allowances.[73] Energy utility petitioners argued, and the court agreed, that EPA does not have the authority under either Title IV or section 110(a)(2)(D)(i)(I) to terminate SO_2 allowances or remove them from circulation.[74] Similarly, the court held that EPA cannot require States to retire Title IV permits in their SIPs.[75] States are only required to ensure that their SIPs reduce the pollution significantly contributing to a downwind State's non-attainment.[76] EPA cannot make States responsible for harmonizing CAIR's requirements with Title IV of the CAA.[77]

ANALYSIS

The D.C. Circuit's decision not only has the immediate effect of preventing CAIR from becoming law; but the decision's breadth will also make it extremely difficult for EPA to reformulate CAIR and regulate interstate pollution using an allowance trading regime. The court, in striking down EPA's attempt to reconcile multiple aspects of the CAA, also reinforces the independence of each of the CAA's programs. Finally, the D.C. Circuit's decision will curtail future Agency attempts to creatively execute the CAA in addressing modern problems such as climate change.

I. SALVAGING CAIR

To continue the CAIR program, EPA must change many of its fundamental aspects within the limits prescribed by the D.C. Circuit.[78] First, EPA must determine required emissions reductions based on each state's contributions to a downwind state's non-attainment. In fact, several of the court's objections are addressable simply by determining and assigning emissions budgets based on a state's actual contribution to a downwind state's non-

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[73] *Id.*

[74] *Id.*

[75] *Id.* at 921–22.

[76] *Id.* at 922.

[77] The court also endorsed one border state challenge, the challenge to Minnesota's inclusion, and rejected challenges to the inclusion of Texas and Florida. *Id.* at 923. Minnesota Power asserted several errors in EPA's calculation of Minnesota's pollutant contribution to downwind states. Final Joint Brief of Florida Association of Electric Utilities et al. as to Border State Issues, *supra* note 62, at 20–25. EPA did not address these errors, so Minnesota cannot be included under CAIR without further justification. *Id.* at 926–27.

[78] Some of the court's other specific objections to CAIR are more straightforward, even if the correction might require more time and effort from EPA. For instance, to respond to North Carolina's charge that EPA failed to give effect to "interferes with maintenance," EPA could analyze areas barely in compliance with the CAA and require reductions from states contributing SO_2 and NO_X to these places. EPA also can reevaluate Minnesota's contributions to downwind states.

attainment. In that case, the SO_2 reductions would no longer correlate to a state's Title IV acid rain permits, states would not be assigned NO_x reductions based on the heat input of EGUs, and all of CAIR would fall more neatly within the provisions of the CAA. The reductions themselves would then be clearly within the statutory mandate of section 110(a)(2)(D)(i)(I).

This step would dramatically change CAIR. First, determining reductions based on actual emissions from individual states means EPA would need to abandon the cost factor in determining significant emissions.[79] Reductions would be based solely on the air quality factor and not on current technological feasibility.[80] The required emissions reductions would likely be greater and harder for states and sources to reach. On the other hand, this will also bring CAIR more in line with the original understanding of the CAA, which is at its heart intended to be a technology-forcing statute.[81] Each state would thus be obligated to reduce only its own emissions affecting a downwind state, not a portion correlated to acid rain program allocations or the heat input of EGUs.

While it seems fair that a state should only be responsible for its own emissions, there would be other, less positive effects from such a shift. Under CAIR, EPA distributed NO_x reductions in proportion to EGU heat input because it found such an allocation to be the most equitable approach, recognizing the "different starting emissions profiles" of states.[82] This advantage will be lost when distribution is no longer correlated with fuel factors. Similarly, abandoning distribution of SO_2 reductions through the acid rain program will mean CAIR SO_2 reductions will directly affect the acid rain SO_2 cap-and-trade program.[83] The reductions will create excess acid rain SO_2 permits, allowing Western states to increase their SO_2 emissions.[84]

Even after addressing the cost factor, cap-and-trade itself still poses substantial hurdles to resurrecting CAIR. The D.C. Circuit ruled trading inconsistent with the Act because it does not guarantee that emissions will be reduced in any individual state. Trading allows a state to buy its way out of reducing its impact on neighboring states.[85] Also, under a trading regime, EPA does not have the flexibility to require one state to cease its interstate polluting before a downwind state's early attainment deadlines.[86] EPA would

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[79] The cost factor was among the portions of the rule invalidated by the D.C. Circuit. *North Carolina v. EPA*, 531 F.3d at 916.

[80] This assumes EPA wants to maintain an approach as similar to its current approach as possible.

[81] *See* Vanderver, *supra* note 11, at 6–7.

[82] Clean Air Interstate Rule, 70 Fed. Reg. 25,162, 25,231 (May 12, 2005).

[83] *Id.* at 25,229, 25,291.

[84] *Id.* at 25,291.

[85] *North Carolina v. EPA*, 531 F.3d at 907.

[86] Places with earlier deadlines could buy allowances from states with later deadlines, ultimately resulting in no impact on the downwind state's attainment.

therefore have to set a deadline before the earliest attainment deadline, which EPA has already determined to be unfeasible.[87]

One way EPA might try to preserve cap-and-trade as a mechanism is to construct multiple pools of permits, one pool for each non-attaining state or non-attainment area. All of the states or pollution sources contributing to non-attainment in a particular area could trade for allowances. This solves the primary problem of areas that never gain relief from out-of-state pollution sources when the polluters buy allowances instead of controlling emissions. It also permits EPA to synchronize emissions limits and deadlines with what is required to meet the statutory deadline for attainment in a particular area.

Such mini-trading regimes, however, have several disadvantages. Multiple pools increase administrative costs for EPA by requiring EPA to keep track of which emissions reductions each State uses for each trading pool and requiring the Agency to set emissions caps and initial allocations for each pool. Multiple trading pools drastically reduce the efficiency of the cap-and-trade program, undermining a primary benefit of a cap-and-trade system.[88]

Multiple trading pools also do not address the problem of an upwind state buying its way out of reducing emissions. EPA could alleviate this concern by arguing that the initial permit allocation does hold a state polluting a downwind state accountable for reductions. EPA works to reduce the state's interstate pollution by putting an extra price on those emissions. It is unclear whether the D.C. Circuit would view this structure as sufficiently different from the current cap-and trade scheme. However, if the new cap-and-trade program is aimed at reducing each state's contribution to non-attainment and will actually reduce non-attainment in the target area, then the program will have a better chance of falling within EPA's authority.

Finally, any regulation of SO_2 — regardless of the whether a cap-and-trade system is used — will cause problems for the Title IV acid rain trading program. Any forced reduction in SO_2 emissions will create an excess of acid rain permits, artificially lowering their price for states not covered under the new CAIR. As the court has made clear, however, this effect will not be sufficient to justify altering the acid rain program. The D.C. Circuit rejected a slew of arguments supporting EPA's authority to harmonize new SO_2 regulations with the acid rain program.[89] Any attempt to reduce SO_2 emissions outside of the Title IV framework will therefore have to leave the acid rain program untouched.

A new CAIR cap-and-trade program might tackle the SO_2 conundrum by simply leaving the Title IV trading program as is. The CAIR SO_2 trading

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[87] Clean Air Interstate Rule, 70 Fed. Reg. at 25,176.

[88] Byron Swift, *U.S. Emissions Trading: Myths, Realities, and Opportunities*, 20 NAT. RESOURCES & ENV'T 3 (2005).

[89] *North Carolina v. EPA*, 531 F.3d at 922.

program would be separate from the Title IV acid rain program. CAIR states will be emitting less SO_2 than before, making acid rain permits cheaper for Western (non-CAIR) states. Western states will still emit more SO_2 than before CAIR was enacted, but the amount of SO_2 nationally will remain consistent. Separating the programs reallocates SO_2 emissions to Western states, but allows regulation of ozone and $PM_{2.5}$ precursors without illegally altering the Title IV permits. Two separate programs might be the only possible approach if EPA cannot find any other statutory authority permitting changes to the Title IV program.

By mandating fundamental changes to the cap-and-trade program and the emissions reductions standards, *North Carolina v. EPA* thoroughly deconstructed CAIR. The D.C. Circuit's ruling suggests that CAIR cannot be reconstituted in anything resembling its present form and still pass judicial review. However, by dividing Eastern SO_2 and NO_x emitters into multiple permit trading pools, a cap-and-trade program might survive the court's scrutiny. The new program would have to focus on reaching and maintaining attainment in areas impacted by interstate pollution and would have to create trading pools and deadlines aimed at that result. The other infirmities of CAIR could be remedied, and permit trading, though unconventionally framed, could be used to address interstate air pollution under Title I of the CAA.

II. Isolating portions of the Clean Air Act

North Carolina v. EPA also has the effect of maintaining the independence of the various CAA programs. The CAA contains many components — regulating emissions ranging from those that cause acid rain, to those from motor vehicles, to emissions from stationary sources.[90] The regulatory scheme governing stationary sources is also sub-divided further. The Prevention of Significant Deterioration ("PSD") program governs emissions from stationary sources when an area is in attainment for that particular pollutant.[91] The Nonattainment New Source Review ("NNSR") program controls emissions of pollutants from stationary sources in areas that have not reached attainment for a pollutant.[92] Furthermore, a single chemical can be regulated as part of more than one pollutant. For instance, NO_x emissions from a stationary source might be regulated under the PSD program for ozone emissions because NO_x is a precursor to ozone. The same area might also be in nonattainment for NO_x itself, so the NNSR program for NO_x emissions also applies to the source. Under CAIR, the interstate trading program would apply to NO_x as well.

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[90] Vanderver, *supra* note 11, at 28, 119, 149, 200.

[91] 42 U.S.C. § 7410(a) (2000); *see also* Arnold W. Reitze, Jr., Stationary Source and Air Pollution Law 161 (2005).

[92] 42 U.S.C. § 7411.

The numerous regulations create a complex scenario for industry. For example, a NO_x permittee may have to apply to EPA for a permit under the NO_x NNSR program, apply to the State to emit NO_x under the ozone PSD program, *and* buy allowances under the CAIR program. An emitter that has a permit to emit NO_x might not see the purpose behind obtaining two more permits to emit the same level of NO_x. Multiple permits from multiple permitting agencies are costly and inefficient.[93] The large transaction costs associated with obtaining the necessary permits will certainly disturb the regulated community.[94]

However, this is the result suggested by the D.C. Circuit's opinion in *North Carolina v. EPA*. The court, by prohibiting EPA from reconciling SO_2 reductions under CAIR through reducing allowances under the acid rain program, maintained the separation between these parts of the CAA, even when regulating the same chemical.[95] The CAA provisions authorizing EPA to take actions "necessary to carry out its functions" and EPA's duty to "fit, if possible, all parts of a statute into a harmonious whole" apparently do not extend far enough to give EPA power to alter the Title IV permit program in reconciling it with Title I obligations.[96] The only permissible method for EPA to regulate interstate SO_2 and NO_x is through separate CAA Title I programs.

This byproduct of *North Carolina v. EPA* gives all sides a bit to celebrate, despite or even because of its inefficiency. Increasing the burdens to obtaining a permit will make it more difficult for potential polluters to get permits for additional emissions. Environmentalists will surely appreciate and take full advantage of these administrative hurdles. For its part, industry will celebrate the court's willingness to check what might be seen as excessive Agency action, requiring congressional action to significantly change existing programs. Regardless of the point of view, however, *North Carolina v. EPA* clearly constrains Agency alterations to the CAA's often piecemeal structure. Even if other parties can see a silver lining in this consequence, EPA will be left with a restricted sphere of action.

III. The Future for Environmental Cap-and-Trade Schemes

North Carolina v. EPA also exposes hesitancy on behalf of the D.C. Circuit to permit loose interpretations of the CAA and other statutes. The court interpreted the provisions of section 110(a)(2)(D)(i)(I) narrowly, fore-

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[93] *See* Frances H. Irwin, *An Integrated Framework for Preventing Pollution and Protecting the Environment*, 22 Envtl. L. 1, 17-18 (1992); James M. Buchanan & Yong J. Yoon, *Symmetric Tragedies: Commons and Anti-Commons*, 43 J.L. & Econ. 1, 11-12 (2000).

[94] *See* Christopher S. Decker, *Corporate Environmentalism and Environmental Statutory Permitting*, 46 J.L. & Econ. 103, 105 (2003); Elizabeth M. Moss, *Clean Air Act Implementation: An Industry Perspective*, 14 Pace Envtl. L. Rev. 63 (1996).

[95] North Carolina v. EPA, 531 F.3d 896, 922 (D.C.C. 2008).

[96] *Id.* (internal quotations omitted).

closing a regional solution to interstate sources of $PM_{2.5}$ and ozone. Any regulatory framework must fit neatly within the language of the statute and only regulate emissions impacting a downwind state. Agencies will have difficulty independently adopting trendy regulatory schemes under older statutory authorities.

The D.C. Circuit's decision to limit agency authority will strengthen congressional control and limit agency discretion. In *North Carolina v. EPA*, the court prevented the Agency from implementing a trading scheme that was beyond the original intent of section 110(a)(2)(D)(i)(I). Section 110(a)(2)(D)(i)(I), the court made clear, was part of an environmental law that envisioned "command and control" type regulations.[97] Under such regimes, the Agency sets standards demanding a certain response from the regulated community and seeks out and penalizes all who fail to comply. CAIR, in contrast, was not a "command and control" type regulation, but a market-based system and thus not permitted under the CAA. The D.C. Circuit found it too great of a stretch to force an Agency-created market-based system into "command and control" statutory provisions.

North Carolina v. EPA implies that EPA cannot easily enact market-based regulations under "command and control" type statutes. EPA will need explicit congressional authorization before putting into practice market-based solutions falling outside of the strict language of a statute. Only market-based programs closely tailored to the statutory text will be successful, a conclusion that easily extends to other environmental laws. For instance, if EPA attempts to offer a cap-and-trade system under the Clean Water Act, regulators will have to closely fit the program to a statutory text focused on improving the quality of individual water bodies.[98]

This observation is especially salient in light of recent efforts to address climate change. The Supreme Court has ruled that carbon dioxide is a pollutant under the CAA.[99] However, the ruling of *North Carolina v. EPA* means that EPA will have trouble putting in place a cap-and-trade program to control climate change under the CAA. This is significant because the characteristics of climate change make it well suited to control through a cap-and-trade program.[100] *North Carolina v. EPA* thus presents a large hurdle for implementing innovative and modern environmental regulations.

Some environmentalists, however, will applaud *North Carolina v. EPA* for its effect of hindering the implementation of market-based policies. Some environmental activists prefer traditional regulations for the stigmatizing effect they attach to the regulated behavior. Market-based solutions,

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[97] Market-based systems were not added to the CAA until 1990, when Congress crafted the Title IV cap-and-trade program. Vanderver, *supra* note 11, at 28-29.

[98] *See* 33 U.S.C. § 1312 (2000).

[99] *Massachusetts v. EPA*, 549 U.S. 497 (2007).

[100] *See* Regulating Greenhouse Gas Emissions Under the Clean Air Act, 73 Fed. Reg. 44,410 (July 30, 2008).

they argue, might sanction and legitimize pollution duly paid for.[101] Others dislike market-based solutions for environmental justice reasons.[102] If pollution has only a monetary cost, the associated costs may be easier to ignore. *North Carolina v. EPA* might serve as precedent minimizing agency modifications of "command and control" regulatory programs.

North Carolina v. EPA is an instance of the court using its authority to stop agency actions extending beyond the agency's statutory authority. Regardless of how promising the regulation might be for the environment or the regulated community, EPA cannot impose regulatory schemes beyond what was authorized by Congress. The ruling supports the argument that drastic changes to environmental statutes must be passed by the legislature.

CONCLUSION

North Carolina v. EPA struck down EPA's attempt to regulate interstate pollution sources of $PM_{2.5}$ and ozone. The D.C. Circuit determined that EPA's regulations were beyond the statutory authority found in section 110(a)(2)(D)(i)(I) of the CAA because, among other reasons, it did not precisely address pollution from *a* state impacting the nonattainment of another State. The court's rejection of CAIR sets a precedent likely to influence other environmental law cases. *North Carolina v. EPA* renders the use of a cap-and-trade program to address interstate particulate matter and ground-level ozone nearly impossible without congressional action, unless EPA creates trading pools for each affected downwind state or attainment area. The case reinforces the isolation of each of the CAA's independent air quality programs and discourages Agency attempts to reconcile or streamline CAA requirements. Finally, *North Carolina v. EPA* hinders future attempts at inventive interpretations of environmental law statutes to justify market-based regulatory schemes — including those designed to mitigate the effects of climate change. The holding thus reduces EPA's flexibility not only in implementing the CAA but also in regulating the nation's pollution in general.

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[101] Jeffery Hirsch, *Emissions Allowance Trading Under the Clean Air Act: A Model for Future Environmental Regulations?*, 7 N.Y.U. ENVTL. L.J. 352, 373 (1999).

[102] Alice Kaswan, *Environmental Justice and Domestic Climate Change Policy*, 38 Envtl. L. Rep. (Envtl. Law Inst.) 10,287 (2008).