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# Fixing CAIR: EPA Embarks on a New Rulemaking for Interstate Pollution

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The Environmental Protection Agency (EPA) adopted the Clean Air Interstate Rule, or CAIR, in 2005 as an innovative rule under the Clean Air Act (CAA or the Act) with a market-based approach to reducing emissions of air pollutants. Much like the Acid Rain Program established by Congress in 1990 under Title IV of the CAA—and like current climate change legislative proposals—CAIR uses a cap-and-trade program to achieve emission reductions more cost effectively than traditional command-and-control programs that impose inflexible, source-by-source emission limitations. The objective of such programs is to encourage additional pollutant reductions at sources that can cut their emissions (e.g., under CAIR, emissions of sulfur dioxide (SO<sub>2</sub>) and nitrogen oxide (NO<sub>x</sub>)) at lower cost than other sources. These programs allow such sources to sell their “excess” reductions, in the form of credits or “allowances,” to other sources for which emission reductions would be costlier. Total emissions are “capped” by limits on the allowances EPA makes available.

The future of CAIR’s cap-and-trade system—and perhaps, by extension, prospects for other potential cap-and-trade approaches under the Act—have been put in doubt by a decision of the U.S. Court of Appeals for the District of Columbia Circuit. *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir.), *modified on petitions for rehearing*, 550 F.3d 1176 (D.C. Cir. 2008). The court held CAIR unlawful on several grounds, finding fault with its interstate cap-and-trade provisions (among other features), and remanded the rule to EPA for notice-and-comment rulemaking to correct the flaws identified by the court. Although the D.C. Circuit did not hold cap and trade unlawful under the CAA, EPA has substantial work to do on remand to meet the court’s objections. The results of EPA’s remand efforts on the trading issue, as well as other issues addressed by the court, will be watched carefully for signs as to how possible CAA market-based programs for greenhouse gases or other pollutants may be structured in the future. This article examines the D.C. Circuit’s decision vacating CAIR and its subsequent decision allowing CAIR to remain in place during remand rulemaking. The article also describes implications of the court’s opinion for development of a replacement rule.

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CAIR grew out of an attempt by EPA to replicate important elements of an unsuccessful legislative proposal, the Clear Skies Act, advanced in the early years of the second Bush administration. In 2005, EPA promulgated CAIR under the CAA following notice-and-comment rulemaking. 70 Fed. Reg. 25,162 (May 12, 2005). CAIR was modeled in part on a cap-and-trade program adopted under the Clinton administration: the NO<sub>x</sub> SIP Call rule, 63 Fed. Reg. 57,356 (Oct. 27, 1998). Like the NO<sub>x</sub> SIP Call rule, CAIR principally targets electric utility power-plant emissions, but unlike the NO<sub>x</sub> SIP Call rule, CAIR addresses both NO<sub>x</sub> and SO<sub>2</sub> emissions from those plants. Both rules used interstate cap and trade as the main engine to achieve cost-effective reductions in power-plant emissions that EPA concluded were contributing to cross-border “nonattainment” of national ambient air quality standards—the standards the NO<sub>x</sub> SIP Call uses for ozone and the standards CAIR uses for both ozone and particulate matter. EPA focused on NO<sub>x</sub> due to its role in the formation of ozone and fine particulate matter (PM<sub>2.5</sub>) in the atmosphere and addressed SO<sub>2</sub> because it also can act as a precursor to PM<sub>2.5</sub>.

While both the NO<sub>x</sub> SIP Call and CAIR cover a large number of states in the eastern half of the country, CAIR has the wider geographic scope, covering twenty-eight states and the District of Columbia, compared to the twenty-two (plus D.C.) that were subject to the NO<sub>x</sub> SIP Call. In adopting both rules, EPA invoked authority under section 110(a)(2)(D)(i) (I) of the CAA, 42 U.S.C. § 7410(a)(2)(D)(i)(I), which is the principal statutory provision addressing interstate air pollution. That provision, in relevant part, requires each state’s plan for attaining national air quality standards (i.e., state implementation plans (SIPs)) to “contain adequate provisions (i) prohibiting . . . 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 . . . national . . . ambient air quality standard.”

EPA designed CAIR to eliminate “significant contributions” attributable to state-wide emissions by sources in the covered states to nonattainment of the ozone and PM<sub>2.5</sub> standards in other states (most of which were also subject to CAIR’s requirements due to *their* contributions to other states’ air quality problems). EPA followed a two-step approach in determining which states would have to reduce emissions under CAIR and by how much. First, EPA used computer modeling to evaluate whether total man-made emissions of the relevant

pollutants from each state contribute more than a defined threshold amount to formation of PM<sub>2.5</sub> or ozone in one or more downwind states' nonattainment areas. For PM<sub>2.5</sub>, EPA used a "bright-line" threshold contribution level as a definitive test; for ozone, EPA applied a somewhat more nuanced threshold analysis. The states identified under this first step were those on which EPA imposed emission-reduction obligations in CAIR.

The second part of EPA's significant contribution analysis involved a determination for those states identified in the first step of the level of emission reductions that would be required. EPA applied its "highly cost-effective" test, under which it calculates the degree to which sources (power plants, in this case) could reduce emissions within a given compliance time frame in a highly cost-effective way. This approach, which EPA in CAIR applied by considering emission-control costs on a region-wide rather than state-by-state basis, gauges cost-effectiveness on a "dollars-per-ton-reduced" basis, comparing costs of control in the proposed program to costs for other, existing emission-reduction programs under the Act. EPA had used this highly cost-effective test in the NO<sub>x</sub> SIP Call as well, and the D.C. Circuit affirmed it in a 2000 decision in litigation challenging that program. *Michigan v. EPA*, 213 F.3d 663 (D.C. Cir. 2000). EPA translates its judgment on highly cost-effective reductions into state-wide emission "budgets" that states may not exceed, except to the extent the states' sources buy and use emissions allowances from other states' sources in the interstate trading program described below.

An essential element of the highly cost-effective test is the determination of the appropriate compliance period for sources to achieve required reductions. This element is essential because the question whether a given amount of emissions can be eliminated cost effectively cannot be answered without reference to the period of time that is given to implement the necessary controls; what can be implemented cost effectively within five years, for example, might be unreasonably expensive if only three years were allowed for the same reductions. Based on EPA's judgments regarding the compliance time needed for highly cost-effective measures, CAIR is to be implemented in two phases, with NO<sub>x</sub> reductions beginning January 1, 2009, SO<sub>2</sub> reductions beginning January 1, 2010 (Phase I), and additional reductions, sufficient to eliminate fully each state's "significant contribution," to begin in 2015 (Phase II).

An important part of CAIR—though one in which states are not compelled to participate—is its interstate emission-allowance trading program for NO<sub>x</sub> and SO<sub>2</sub> emissions. CAIR effectively revised the preexisting SO<sub>2</sub> cap-and-trade program for power plants established under the Title IV Acid Rain Program; replaced the NO<sub>x</sub> SIP Call with a seasonal NO<sub>x</sub> cap-and-trade program covering emissions in the May through September "ozone season" (when ozone most readily forms in warm temperatures); and created a new NO<sub>x</sub> cap-and-trade program for year-round NO<sub>x</sub> emissions.

CAIR derived the state-wide NO<sub>x</sub> emission budgets from an EPA-determined region-wide cap on emissions. EPA divided that cap among the states, each of which could in turn

allocate emission allowances to individual power plants in the state. One allowance authorizes emission of one ton of NO<sub>x</sub> in the "vintage year" assigned to that allowance (or in any subsequent year).

EPA calculated the region-wide NO<sub>x</sub> cap by multiplying (1) total region-wide "heat input" for power plants in the CAIR states in a "baseline" period by (2) a uniform emission rate that EPA determined reflects use of "highly cost-effective" emission controls. The emission rate factor was reduced for Phase II, as EPA projected greater reductions to be highly cost-effective by 2015. EPA then divided the region-wide Phase I and Phase II caps among the states according to each state's heat input, after adjusting by fuel type, so that, all other factors being equal, states with predominantly oil- or gas-fired plants were allocated fewer allowances than states with more coal-fired electricity generation (because oil and gas combustion produces fewer NO<sub>x</sub> emissions than coal-burning).

SO<sub>2</sub> was treated a bit differently, given the existence of the Title IV SO<sub>2</sub> emission allowance program. EPA set the region-wide CAIR SO<sub>2</sub> cap by summing the number of allowances allocated to power plants in the CAIR states under Title IV and then reducing that number by 50 percent for CAIR Phase I and by 65 percent for CAIR Phase II. CAIR states that choose to participate in the CAIR SO<sub>2</sub> trading program must have their power plants surrender, for CAIR compliance purposes, Title IV allowances at a ratio of two allowances for one ton of emissions (in Phase I) and a ratio of 2.86 allowances for one ton of emissions (in Phase II). EPA deemed these "surrender ratios" necessary to avoid having CAIR's more demanding SO<sub>2</sub> reduction requirements render Title IV allowances largely worthless in the market. With so few SO<sub>2</sub> emissions allowed by CAIR, the market demand for and value of Title IV allowances could sharply decline—an effect that EPA feared would undermine market confidence in emission trading generally. Although each CAIR state maintains discretion to meet its CAIR emission budgets through any means it chooses, if a state elects to participate in the EPA-administered interstate trading programs, it must meet EPA's trading program rules.

### *The Court's Decision*

After EPA published CAIR in 2005, several parties, including the State of North Carolina and several electric utilities, filed petitions in the D.C. Circuit challenging various aspects of CAIR. On July 11, 2008, the court issued a decision vacating CAIR in its entirety and remanding it to EPA. *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008). Without holding unlawful all aspects of CAIR, it found "more than several fatal flaws," *id.* at 901, leading the court to reject any effort to sever lawful from unlawful provisions. The court held that CAIR is "fundamentally flawed"; "EPA must redo its analysis from the ground up," as "[n]o amount of tinkering with the rule or revising of [EPA's] explanations will transform CAIR, as written, into an acceptable rule." *Id.* at 929–30.

First, in response to an argument by North Carolina, the court found the CAIR interstate trading program unlawful,

based mainly on the region-wide approach EPA took in establishing the program. The court said that EPA's region-wide cap approach has "nothing to do with *each state's* 'significant contribution'" and that "EPA is not exercising its section 110(a)(2)(D)(i)(I) duty unless it is promulgating a rule that achieves something measurable toward the goal of prohibiting sources '*within the State*' from contributing to nonattainment or interfering with maintenance 'in any other State.'" *Id.* at 907 (emphases added). In defending its interstate trading program, EPA had relied on that program's similarity to the NO<sub>x</sub> SIP Call trading program and the court's *Michigan* decision largely affirming it. Yet the *North Carolina* court said that in *Michigan*, it had not "passed on the lawfulness of the NO<sub>x</sub> SIP Call's trading program" and that to comport with *Michigan's* standard, CAIR "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." 531 F.3d at 908 (citing *Michigan*, 213 F.3d at 679) (emphasis added).

Second, addressing another North Carolina argument, the D.C. Circuit held that EPA's decisions in CAIR improperly failed to give any independent meaning to the "interfere with maintenance" prong of section 110(a)(2)(D)(i)(I) of the Act. The court explained that, according to EPA's analysis, "a state can never 'interfere with maintenance' unless EPA determines that at one point it 'contribute[d] significantly to nonattainment.'" *Id.* at 910.

The court also agreed with North Carolina's argument that the 2015 compliance deadline for Phase II—the date by which states must eliminate their EPA-determined significant contributions—violated the statute's requirement that SIPs must satisfy the interstate pollution provisions in a way that is "consistent with the provisions of [Title I]" of the Act. CAA § 110(a)(2)(D). Rejecting EPA's interpretation of that language as referring only to procedural provisions, the court noted that North Carolina and other states were required to attain air quality standards by 2010, five years before CAIR's Phase II deadline. The court held that under CAIR's compliance schedule, downwind states would have to attain the standards without the benefit of CAIR's full complement of emission reductions.

Further, addressing certain utilities' arguments, the court found that EPA had established state emission budgets improperly. EPA argued the budgets were based on the same "highly cost-effective" test that it used in the NO<sub>x</sub> SIP Call and the court upheld in *Michigan*. The court expressly left undisturbed its *Michigan* affirmance of this test, observing that *Michigan* had "[a]nswer[ed]...in the affirmative" the "well-defined question" of whether "EPA, in selecting the 'significant' level of 'contribution' under section 110(a)(2)(D)(i)(I), [could] choose a level corresponding to a certain [emission] reduction cost." *Id.* at 917. In CAIR, however, EPA had, according to the court, failed to draw the "significant contribution" line at all and instead simply deemed controls necessary to meet the region-wide caps as "highly cost-effective."

With respect to SO<sub>2</sub>, the D.C. Circuit found fault with

EPA's decision to base the emission budgets on the number of allowances the states' power plants received under Title IV based on data from the 1980s, an approach the court found unsupported for purposes of CAIR. It rejected EPA's assertion that Title IV allowance allocations were a "logical starting point," *id.* at 917 (quoting 70 Fed. Reg. at 25,229), concluding that neither EPA's goals of equitable treatment nor its interest in preserving the integrity of the Title IV allowance market (by avoiding alternative approaches that might make those allowances virtually worthless) met the statute's terms or objectives. Likewise, the court noted EPA's failure to explain adequately its reasons for selecting the specific reduction levels of 50 percent for Phase I and 65 percent for Phase II.

Moreover, the court held that in setting the SO<sub>2</sub> budgets, EPA unlawfully interfered with Title IV by reducing the supply of Title IV allowances and requiring states not participating in CAIR trading to mandate surrender of "excess" allowances. Although it may make sense as a policy matter to harmonize CAIR with Title IV, the court said, EPA lacked statutory authority to limit or terminate Title IV allowances to accomplish that goal.

As with the SO<sub>2</sub> budgets, the court found that EPA's decisions regarding state NO<sub>x</sub> budgets conflicted with section 110(a)(2)(D)(i)(I). For example, the court held that EPA failed to explain why it chose to use the NO<sub>x</sub> SIP Call's emission rate as a starting point and that it lacked statutory grounding for calculating CAIR budgets on a region-wide basis. The court also found unlawful EPA's modification of NO<sub>x</sub> budgets with fuel adjustment factors, as that approach, in the court's view, shifted emission-reduction burdens among states to further the Agency's notions of fairness. That, the court concluded, effectively required states whose power plants burn mostly oil and natural gas to subsidize emission reductions in other states.

Following the July 2008 decision, EPA and other parties filed petitions for rehearing with the court. EPA, supported by some of the other parties and most of the CAIR states, urged the court not to vacate the rule but to leave it in place pending remand rulemaking in order to avoid losing progress on emission reductions in the interim. After further briefing on this and other issues, the court, on December 23, 2008, issued another opinion leaving its substantive decision in place but granting EPA's request to remand the case without vacatur of CAIR. *North Carolina v. EPA*, 550 F.3d 1176 (D.C. Cir. 2008). Thus, CAIR currently remains in place pending promulgation by EPA of a new rule to replace CAIR and satisfy the court's remand.

In its briefs supporting its rehearing petition, EPA told the court it planned to complete remand rulemaking in about two years. EPA has said it expects to issue a proposed "CAIR replacement rule" in early 2010 and a final rule about a year after that.

### **Issues Facing EPA on Remand**

EPA's remand rulemaking presents the Agency with daunting legal and technical challenges. The D.C. Circuit's opinion leaves EPA with a long list of difficult issues to resolve. Observers have likened the court's decision to a minefield through

which EPA will have to tread carefully to avoid renewed litigation challenges and perhaps another adverse judicial ruling.

Although parts of the decision are unclear, the court sent a strong signal that EPA will need to change several key areas of the program. As discussed below, for example, the new program must “connect states’ emissions reductions to . . . their own significant contributions” and not “tamper[] unlawfully with the Title IV trading program.” 531 F.3d at 930. Thus, the court indicated that EPA will have to find an alternative to its original region-wide approach while devising an SO<sub>2</sub> program that avoids use of Title IV allowances.

The court also directed EPA to reconsider the universe of states that should be regulated under CAIR by giving serious consideration, and independent content, to the Act’s “interfere with maintenance” clause. The result may be inclusion of some additional states—states that are found to interfere with maintenance of good air quality downwind even though they do not contribute significantly to nonattainment air quality in any state.

Moreover, the court’s opinion requires EPA to revisit CAIR’s compliance schedule to try to mesh it with air quality attainment deadlines in Title I of the Act. No single attainment deadline applies to all pollutants and all areas, however, and it would be virtually impossible to set compliance dates in CAIR that would coincide with every attainment deadline. And, while the court’s discussion of compliance schedules rests on its interpretation of the statutory text, the court took particular exception to the role that EPA’s determinations of compliance feasibility played in its selection of the CAIR compliance deadlines. Yet the court left undisturbed EPA’s “highly cost-effective” test, which demands consideration of *when* a given amount of emission reduction can in fact be achieved by regulated sources. Thus, issues of feasibility are intrinsic to decisions on compliance schedules. As a result, EPA on remand will need to evaluate how deep the program’s emission reductions can be if they must be accomplished by a given air quality attainment date.

Related questions are implicated by the interstate trading issue. EPA premised its cost-effectiveness determinations—and, hence, the emission budgets—on the availability of interstate trading to allow greater cost efficiencies in achieving a given amount of emission reduction. Indeed, the most confounding problems for EPA on remand are likely to arise from the D.C. Circuit’s somewhat ambiguous statements on trading. While it plainly directed EPA to reexamine CAIR’s trading provisions, the court seemed to stop short of holding interstate emission trading to be unlawful in a CAIR-type program. Even North Carolina did not claim that interstate trading is illegal under all circumstances; rather, North Carolina expressed concern that sources could avoid reducing their emissions by buying allowances from sources in other states—potentially “shifting” emission reductions from states close to, and upwind from, North Carolina, where emission reductions presumably would most help it, to other states whose emissions have little effect on North Carolina. EPA thus will need to consider that concern in addressing whether, and how, interstate trading will play a role in a CAIR replacement rule.

In its trading discussion, the court again expressed concern with EPA’s lack of focus on state-by-state contributions. Although the Agency addressed individual CAIR states’ emissions by apportioning the region-wide allowance pool among the states, the court found that “EPA’s apportionment decisions have nothing to do with each state’s ‘significant contribution’” and that EPA had never measured each state’s significant contribution. *Id.* at 907. Thus, the opinion suggests EPA now must determine the significant contribution of *each state* to nonattainment in other states but gives EPA no clear guidance on how to do that. The court’s statement that EPA must measure each state’s significant contribution, “even if that measurement does not directly correlate with each state’s individualized air quality impact on downwind nonattainment relative to other upwind states,” *id.* at 908, reinforces the conclusion that EPA may retain its “highly cost-effective” test for

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calculating “significantly contributing” emissions, i.e., the portion of emissions that must be eliminated. That determination now, however, may have to be made on a state-by-state basis, which could prove to be a major new analytical undertaking of a sort EPA has never before conducted.

Regardless of whether and how EPA maintains interstate trading, and regardless of the Agency’s analysis of what reductions are highly cost-effective, the court’s opinion is clear that EPA must revisit the state-wide NO<sub>x</sub> and SO<sub>2</sub> emission budgets. For example, EPA may not base SO<sub>2</sub> budgets on Title IV allowances or limit the availability of those allowances. Presumably EPA cannot use fuel factors, as it did in CAIR, to increase or lower states’ emission budgets to reflect fuel types.

In the final analysis, the determinations EPA makes on these and other issues in promulgating a CAIR replacement rule will be important not only for that program but also for the design and implementation of market-based environmental programs more broadly. Those determinations may set guideposts for how the Agency will approach possible future emission trading rules. One thing, at least, is certain: Those with an interest in the development of future cap-and-trade programs will be watching with great interest as EPA does the hard work of redesigning CAIR. 🌳