AMERICAN CLEAN SKIES FOUNDATION

750 1st St, NE
Suite 1100
Washington, DC 20002
202.682.6294 *Main*
202.682.3050 *Fax*
www.cleanskies.org

October 1, 2010

U.S. Environmental Protection Agency
Mailcode 2822T
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Sent by email to: a-and-r-docket@epa.gov
smith.tim@epa.gov

RE: Federal Implementation Plans To Reduce Interstate Transport of Fine Particulate Matter and Ozone (Docket ID No. EPA–HQ–OAR–2009–0491)

The American Clean Skies Foundation (ACSF) is a non-profit organization founded to advance America's energy independence and promote measures to achieve a cleaner environment through the expanded use of natural gas and renewable energy. ACSF appreciates the opportunity to comment on EPA's proposed rule "Federal Implementation Plans To Reduce Interstate Transport of Fine Particulate Matter and Ozone" (also known as the "Clean Air Transport Rule" or "CATR").[1]

A. Summary of Comments

CATR will regulate power plants in 31 states and the District of Columbia to reduce emissions of nitrogen oxides (NOx) and sulfur dioxide (SO2) that drift across state borders and contribute significantly to the non-compliance of downwind states with national ambient air quality standards (NAAQS).[2] ACSF supports reducing NOx and SO2 emissions from power plants—emissions which are disproportionately attributable to coal-fired plants. These pollutants cause significant public health and environmental

[1] EPA's proposed rule is available at 75 FR 45210 (August 2, 2010)(hereafter referred to as the "Proposed Rule").
[2] 75 FR 45212.

problems.[3] EPA estimates that if CATR is not implemented, power plants will emit more than 70% of the SO2 and about 20% of the NOx within the states targeted by CATR.[4]

In contrast to coal-fired power plants, natural gas plants emit substantially lower NOx and very little SO2. Accordingly, switching from coal to natural gas and renewable energy generation can achieve substantial reductions in particulate matter emissions and ozone pollution. Moreover, numerous modern, low-emitting, high-efficiency natural gas combined cycle plants are available today, with significant unused capacity, to replace existing coal-fired generation.[5]

In addition to supporting the overall goals of CATR, ACSF also supports the timing of CATR's emission caps, under which initial SO2 and NOx limits take effect in 2012, and SO2 caps are tightened in 2014 in certain states that have larger downwind impacts. These timelines allow the prompt achievement of this rule's important public health benefits.

Despite supporting much of the Proposed Rule, ACSF has significant concerns regarding CATR's proposed method for allocating emission allowances that cap power plant emissions. In particular, the Proposed Rule's emission-based allocation method irrationally subsidizes high-emitting coal-fired generation, to the disadvantage of clean-burning gas generation and in contravention of air quality and public health goals. Furthermore, failing to adequately address upwind pollution from coal-fired power plants violates the statutory language of the Clean Air Act.

The Proposed Rule notes that for "almost 40 years, Congress has focused major efforts on curbing ground-level ozone."[6] Unfortunately, CATR does not do enough to reduce the emissions from coal-fired power plants that cause violations of ozone (i.e., smog) and particulate matter air quality standards. In fact, with its current allocation method, CATR rewards high emitters that have failed to install pollution control equipment. These issues are further discussed below.

---

[3] Particulate matter and ozone pollution caused by SO2 and NOx emissions is associated with a number of serious health effects, including premature mortality, asthma attacks, and respiratory, cardiovascular and lung disease. 75 FR 45219-45220. *See* also the March 22, 2010 comments of ACSF on EPA's proposed rule on ozone emissions, 75 Fed. Reg. 2938 (January 19, 2010) (Docket ID No. EPA–HQ–OAR–2005–0172).

[4] 75 FR 45299.

[5] *See e.g.*, Congressional Research Service, *Displacing Coal with Generation from Existing Natural Gas-Fired Power Plants* (2010), available at http://assets.opencrs.com/rpts/R41027_20100119.pdf. See also, Massachusetts Institute of Technology, *The Future of Natural Gas* (2010) at pages 46-50.

[6] 75 FR 45221.

ACSF urges EPA to promptly promulgate a final rule in conformity with the points made below, so that particulate matter emissions and ozone pollution are further reduced, thereby better addressing the human health and environmental concerns that underlie the Proposed Rule.

B. Suggested Revisions To the Proposed Rule

1. EPA should avoid making allocations based on historic power plant emissions that subsidize high-emitting power plants.

As noted above, the Proposed Rule would regulate NOx and SO2 emissions from power plants that drift across state borders and contribute to downwind states failing to attain compliance with national air quality standards. However, CATR's proposed emission reductions are just a first step, as EPA anticipates additional reductions will be needed through updates to the transport rule.[7] Thus, adopting a rational and appropriate allocation method now is crucial because it is likely to affect future transport rulemakings as well.

EPA proposes a two-step approach to measuring each regulated state's "significant contribution" to downwind pollution, which informs the emissions caps.[8] First, for each pollutant, EPA uses air quality monitoring to quantify a state's contributions to downwind non-attainment. Second, for states that significantly contribute to downwind pollution problems, EPA determines each state's "significant contribution" based on an "appropriate maximum cost" by which power plants could reduce such pollution through control measures.[9] It then applies those control measures to a power plant's actual or projected operations to arrive at emission caps (which are set as state "budgets" and allocated back to individual power plants).[10]

---

[7] *See e.g.* http://www.epa.gov/airtransport/pdfs/FactsheetTR7-6-10.pdf ("Additional emission reductions will be needed for the nation to attain the existing ozone standard and any upcoming 2010 ozone standards").

[8] 75 FR 45233.

[9] ACSF's concerns with CATR's allocation method are relevant both to EPA's preferred regulatory option as proposed in CATR, which involves "limited interstate trading," as well as similar allocation problems with EPA's "intrastate trading only" option, since they use comparable allocation methods.

[10] By way of additional detail on CATR's allocation method, for SO2,EPA based the 2014 state budgets on projected generation (per the Integrated Planning Model or "IPM") times reductions that could be achieved at $2,000 per ton. 75 FR 45290. There is then an "off-ramp" for certain states ("Group 2") whose downwind pollution contributions can be sufficiently reduced by lesser control measures. For these Group 2 states, EPA set the 2012 SO2 state budgets based on 2009 actual unit performance, unless a source was modeled to install a scrubber by 2012 in which case the 2009 baseline is reduced to account for the new scrubber. 75 FR 45282, 45290. The SO2 caps are not further reduced from these 2012 levels for these

ACSF submits that the purpose of the Proposed Rule is unnecessarily jeopardized by basing allocations on historic emissions.

a. Basing allocations on historic emissions penalizes utilities--and ratepayers--who have incurred costs to switch to cleaner forms of generation, including renewables and natural gas.

An emissions based allocation method provides a subsidy to those utilities with higher-emitting units, to the detriment of those utilities with lower-emitting units. CATR's emission-based allocation penalizes utilities (and states in which those utilities are located) that have installed control equipment, or converted to cleaner-burning generation sources, prior to the baseline years used by EPA for setting allocations. Simply put, utilities that have switched to natural gas (or installed scrubbers and SCRs or "greened" their portfolios with wind and solar generation) should not be required to subsidize the installation of new emission controls on coal plants by utilities (and states) that have delayed such measures. In addition to the patent unfairness and ratepayer impacts, historic emissions allocations may encourage power plants (and states) to avoid installing needed controls (or taking other measures) for as long as possible so as to maximize their baseline allocations.

EPA's previous allocation method in CAIR favored coal over gas and was rejected by the D.C. Circuit. CAIR was rejected by the D.C. Circuit, among other reasons, because of a flawed system that disproportionately taxed gas-fired generators. For instance, because Louisiana's power plants used more gas than coal, its NOx budget was reduced to 29,000 tons, from the 42,000 tons that it would have otherwise received. The court found "the net result will be that states with mainly oil- and gas-fired EGUs will subsidize reductions in states with mainly coal-fired EGUs."[11] The court rejected this subsidy. In its CAIR decision, the court found that "those states with the greatest emissions are those with mainly coal-fired EGUs, which are precisely the states that get extra credits."[12] The court determined that EPA had favored high-emitting coal based on a misguided sense of "equity among upwind states," which was "improper," and that the

---

Group 2 states. EPA says that CATR's NOx limits, though generally based on emission reductions at $500 are ton, are set similarly to the 2012 SO2 limits: basically requiring the running of control technology that already exists, or is scheduled to be installed by 2012 (SCR for NOx). 75 FR 45290-91.

[11] *North Carolina v. EPA*, 531 F.3d 896, 920-921 (D.C. Circuit 2008).

[12] *North Carolina v. EPA*, 531 F.3d 920.

resulting emission budgets were arbitrary and capricious.[13] Unfortunately, as further explained below, the Proposed Rule allocation method continues to subsidize high-emitting coal plants to the detriment of cleaner-burning gas generation and is similarly arbitrary and capricious.

b. EPA should consider other allocation methods besides CATR's proposed emission-based approach.

EPA should consider an output-based methodology or a BTU-based methodology that does not penalize natural gas and other less polluting sources of electricity. A number of states have adopted output-based allocation methods, which allocate emission allowances based on megawatts produced by power plants. This could allow states with large amounts of generation to retain significant generation, while rewarding the most efficient units. As an alternative, EPA could continue with the BTU-based allocation method it originally proposed in CAIR, without the natural gas-harming "fuel factors" adjustment that the D.C. Circuit rejected.[14] This could allow states and utilities that combust significant quantity of BTUs to continue to do so, without penalizing a unit that has installed "back end" emission controls. Natural gas combined cycle power plants can provide low emitting, high efficiency generation, to help meet the Clean Air Act's important air quality goals.

c. By subsidizing coal with over-allocations, EPA is failing to achieve cost-effective emission reductions that can be achieved through the increased use of natural gas.

The choice of emission allocations has real-world impacts: by subsidizing coal-fired generators with overgenerous allocations, EPA is failing to achieve cost-effective emission reductions. That would burden consumers and delay needed pollution resolutions. Numerous facts make this point clear, including the following:

Overgenerous allocations to coal-fired power plants in upwind states are subsidies that keep marginally economic, high-emitting plants operating, **inhibiting emission reductions from cleaner sources of generation**. In particular, the oldest and least efficient coal-burning plants may be kept operational by this subsidy. Furthermore, this subsidy may allow old coal units to escape emission controls that would be otherwise

---

[13] *North Carolina v. EPA*, 531 F.3d 921.

[14] EPA specifically requested comment on a heat-input (i.e., BTU) based approach as part of the Proposed Rule. 75 FR 45311.

required. This subsidy for coal plants should be eliminated through a better allocation method.[15]

High-emitting upwind generation makes it more difficult to develop clean downwind generation. As an example of increased costs for downwind generators, the developer of a natural gas power plant may be required to acquire expensive NOx "offsets," a requirement under the Clean Air Act in states that fail to attain compliance with air quality standards, which the developer wouldn't otherwise be required to obtain but for the pollution from upwind states causing the downwind state to violate the air quality standard.

CAIR's emission-based allocation has real-world impacts, and results in increased pollution from coal-fired power plants. For instance, the EPA's Regulatory Impact Analysis for CATR shows that under CATR coal generation actually increase from 2008 levels, and natural gas generation decreases.[16] The Regulatory Impact Analysis notes that both "the base case and all three remedies show shifts away from oil and natural gas generation and toward increased coal generation between 2012 and 2014."[17] This is a perverse result from an air quality standpoint that shows the weakness of CAIR as proposed: high-emitting coal generation increases, while clean-burning natural gas generation faces disincentives and decreases.

---

[15] Consider the case of two utility companies that each has four units of the same vintage and megawatt capacity: one modern, 500-megawatt natural gas combined cycle unit; two large 500-megawatt coal units built in the 1970s; and one smaller coal unit built in the 1950s. Generator 1 ("Cleaner Generator") recently installed scrubbers on its two large coal units and increased its customer rates to pay for installation. Generator 2 ("Dirtier Generator") has not installed scrubbers on any of its units. Under CATR, Dirtier Generator would receive more allowances for failing to reduce emissions, and could use these allowances to offset the cost of installing scrubbers. Cleaner Generator may have to buy allowances from Dirtier Generator to cover its shortfall in allowances, so that Cleaner Generator directly subsidizes Dirtier Generator. A similar situation would occur if Cleaner Generator recently retired a coal unit and replaced it with a low-emitting NGCC unit—Cleaner Generator would receive no emission allowances to offset the cost of this conversion, while Dirtier Generator would receive extra allowances based on its high-emitting coal generation. Finally, Cleaner Generator, short allowances, may be forced to shut down its small coal unit while Dirtier Generator, with surplus allowances, could keep its dirtiest unit running without emission controls. Worse still, Cleaner Generator may then need to buy power from Dirtier Generator, increasing the demand for the uncontrolled, oldest, least-efficient, highest-emitting plant in Dirtier Generator's fleet.

[16] EPA, *Regulatory Impact Analysis for the Proposed Federal Transport Rule*, p. Table 7-12. p. 255 (June 2010).

[17] *Id.*, p. 254.

2. The costs and benefits of fuel-switching should be fully assessed to see whether it is a cost-effective mechanism for reducing emissions in high-emitting states.

EPA should consider the role of fuel-switching as a control technology, whether it is cost effective, and whether state budgets should be accordingly adjusted. The extent to which EPA has sufficiently assessed fuel switching from coal to gas is not clear from the record. For instance, EPA makes a vague reference to looking at control technology cost curves to see how reductions at various cost levels reflect changes in the generation mix, e.g., "dispatch changes, fuel use changes, or installation or operation of controls."[18]

EPA should explicitly address the costs of fuel switching from coal to gas, which is a vital control technology. In particular, EPA should consider whether there are cost-effective emission reductions from fuel switching that are above the Proposed Rule cost cutoffs: e.g., $500 per ton for NOx. By comparison, EPA previously considered $2,000/ton to be cost-effective for NOx controls under the NOx SIP call.[19] EPA should carefully assess the benefits and costs of fuel-switching from coal to gas, particularly for states that have significant downwind impacts. Tightened budgets in high-emitting states may incentivize cost-effective fuel switching by either increasing the dispatch of existing natural gas units, or removing a subsidy for existing coal units and allowing otherwise economical gas plants to be built. And by tailoring and tightening emission budgets in coal-heavy, high-polluting upwind states, EPA will better meet Congress' statutory directive to address upwind pollution. Such tiering of states by needed emission reductions is already done under CATR for SO2 (with "Group 1" and "Group 2" states), and EPA should fully take advantage of cost-effective fuel switching to reduce emissions from high emitting upwind states.[20]

The generating sector has the ability to accommodate additional fuel switching without compromising reliability. Under the current CATR proposal, EPA has projected that by 2014 approximately 1.2 GW of current coal-fired generation will be uneconomic to maintain. This is only 0.1% ($1/10^{th}$ of 1%) of the nation's generation capacity and about the size of a single, large coal-fired power plant.[21] Greater reductions in coal-fired

---

[18] 75 FR 45275.
[19] 75 FR 45231.
[20] *See e.g.*, 75 FR 45216 regarding the use of tiers based on the stringency of required SO2 reductions. A separate technical support document considered an analogous "binning of states based on air quality impact" but does not elaborate on this approach. *See e.g.*, 75 FR 45299.
[21] Regulatory Impact Analysis, p. 14.

generation can be accommodated by the grid to meet the goals of the CAA and the Proposed Rule. Indeed, recent analysis by M.J. Bradley & Associates demonstrates that at least 10 to 20 GW of gas-fired generation could be substituted without threatening electric reliability and would "help millions of Americans breathe easier, live healthier."[22]

3. The new unit set-aside should not disadvantage to-be-constructed natural gas units.

EPA proposes new unit set asides equal to 3% of each state's budget. The size of each new unit set aside is based on "a comparison of projected emissions from new units to projected emissions from existing units for all covered states."[23] If requests by new-units exceed supply in a given year, new units would only receive their "proportionate share of the new unit set-aside."[24] Therefore, if new natural gas capacity is developed with allowance needs that exceed the set-aside, these new units may be "short" allowances while incumbent, higher-emitting coal plants receive overgenerous allocations due to the emission-based allocation method discussed above. Moreover, a single new coal plant may consume an inordinate share of allowances from a new-source set-aside, compared to lower-emitting natural gas units. EPA should assess whether the design of the new unit set aside is sufficient for projected new types of generation, in particular projected substantial amounts of low-emitting gas-fired generation. EPA could also consider the auctioning of some portion of allowances, which could allow new generators (or natural gas units that increase their generation above baseline capacity factors) to compete with incumbent coal generation on a level playing field.

EPA should also consider provisions, either at the federal or state level, that would allow a portion of allowances that are no longer needed by non-operating units to specifically incentivize cost-effective fuel-switching to lower emitting forms of generation. These types of "bridge fuel credit" programs have been proposed for inclusion in federal cap-and-trade legislation for greenhouse gases.

---

[22] M.J. Bradley & Associates, *Ensuring a Clean, Modern Electric Generating Fleet while Maintaining Electric System Reliability* (August, 2010), p. 4 available at http://www.mjbradley.com/documents/MJBAandAnalysisGroupReliabilityReportAugust2010.pdf.
[23] 75 FR 54310.
[24] 75 FR 54322.

4. EPA's proposal relies on outdated modeling, and the final rule should be based on up-to-date information that includes a larger natural gas resource base.

Key assumptions in the proposed rule were based on EIA's Annual Energy Outlook (AEO) 2008. AEO 2008 contains significantly outdated information. Indeed, EPA itself recognizes the need to consider the AEO 2010 analysis.[25]

In the midst of this CATR comment period, EPA released new modeling with updated natural gas supply assumptions that reflect dramatic increases in domestically-available natural gas.[26] This new modeling shows that significantly reduced natural gas prices increase natural gas generation and reduce coal generation. EPA has not revised the emission budgets based on these modeling runs, despite the impact that lower gas prices may have on increased fuel-switching in states that have substantial coal-fired generation, particularly those states with old, low-efficiency coal plants that lack modern pollution controls and are the most likely candidates for retirement. With lower natural gas prices and a substantial natural gas resources base, more utilities are expected to switch from coal-fired generation to natural gas. This should lower CATR caps that are set by projecting emission levels and cost-effective emission reductions. Furthermore, EPA should avoid making its allocations permanent (as it has proposed), but rather update them as necessary to reflect changes in generation sources.[27]

5. EPA makes misstatements regarding natural gas generation that should be corrected.

EPA makes various misstatements regarding natural gas generation that should be corrected.

EPA overlooks the ability of clean-burning natural gas to provide baseload generation. EPA says that coal power plants "typically supply 'base-load' electricity, the portion of electricity loads which are continually present, and typically operate throughout the day," and that gas-fired generation "is more often used to meet the

---

[25] Regulatory Impact Analysis, p. 229.
[26] *See e.g.*, EPA's notice of data availability at 75 FR 53613 (September 1, 2010), and "Documentation for EPA Base Case v.4.10 Using the Integrated Planning Model" (August 2010) available at http://www.epa.gov/airmarkets/progsregs/epa-ipm/docs/v410/Chapter1.pdf.
[27] *See e.g.*, 75 FR 45310, regarding EPA's intent not to update allocations. One option would be for EPA to update allocations each time a revised NAAQS requires a new CATR proposal to reduce interstate pollution in order to achieve the revised air quality standards.

variable portion of the electricity load and typically supplies 'peak' power."[28] This fails to recognize the role that modern, base-load, high efficiency combined cycle power plants now play in the nation's generation portfolio.[29]

EPA also erroneously "projects that most future growth in electric demand will be met with a combination of new natural gas- and coal-fired capacity."[30] This projection conflicts with more current information that shows natural gas and renewables dominating new capacity additions. For instance, the Energy Information Agency AEO 2010 projects that most new capacity additions will use natural gas or renewable energy.[31]

C. Conclusion

CATR presents an opportunity to bring about substantial environmental and public health benefits by reducing power plant emissions, and ACSF supports EPA's efforts to achieve these reductions. Moreover, EPA's own regulatory impacts analysis notes that CATR's benefits substantially outweigh its costs, by at least 55-1.[32] This high cost-benefit ratio suggests that additional power plant emission reductions can be achieved in a cost-effective way. Thus, rather than subsidizes upwind, high-emitting generators to the detriment of cleaner generators in downwind states, per EPA's current emission-based allocation proposal, ACSF strongly urges EPA to adopt an emission allocation method that is output based or BTU based. The EPA should also utilize modeling based on current assumptions about the supply of natural gas and make other adjustments to the Proposed Rule that are identified in these comments.

Sincerely,

Gregory C. Staple
Chief Executive Officer
American Clean Skies Foundation

---

[28] Regulatory Impact Analysis, p. 215.
[29] *See e.g.*, the Congressional Research Service report referenced above. *See also Ensuring A Clean, Modern Electric Generating Fleet, supra,* at Table 4 documenting over 220 GW of installed CCGT facilities based on 2008 EIA data.
[30] Regulatory Impact Analysis, p. 257.
[31] *See* http://www.eia.doe.gov/oiaf/aeo/electricity.html, projecting in the AEO 2010 reference case that capacity additions from 2009-2035 will be mostly natural gas (46%) and renewables (37%), while coal has a much smaller share (12%).
[32] Regulatory Impact Analysis, p. 1.