

ISSUE BRIEF

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RESOURCES
FOR THE FUTURE



February 2011
Issue Brief 11-02

Resources for the Future

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Introduction

Under the Clean Air Act (CAA), the U.S Environmental Protection Agency (EPA) uses various tools to regulate a variety of pollutants from a number of sources. Though the Supreme Court clarified that greenhouse gases (GHGs) were pollutants within the definition of the statute in *Massachusetts v. EPA* (2007), it did not specify which regulatory tools the agency must use for which sources of GHGs. States and environmental groups made an early move to resolve this uncertainty by suing the agency in 2008, seeking to compel it to issue performance standards for GHG emissions from key classes of emitters: certain fossil fuel electric generating units (EGUs) and refineries.

Since that suit was filed, the EPA under President Obama has clarified much of its plans for regulating GHGs under the CAA, including fuel economy standards for new vehicles and permitting requirements for construction of new large emitters (and modifications to existing emitters). But it has remained unclear what the agency would do, if anything, to regulate the large installed base of GHG-emitting facilities in the United States.

Recently, both the states' lawsuit and this open question were resolved. EPA announced in December 2010 that it had settled the suit by agreeing to implement performance standards for the sources in question (most EGUs and refineries).² These regulations will be finalized by 2012,

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² See *Boiler GHG Settlement*, Dec. 21, 2010, available at <http://www.epa.gov/airquality/pdfs/boilerghgsettlement.pdf>; see also *Refinery GHG Settlement*, Dec. 21, 2010, available at <http://www.epa.gov/airquality/pdfs/refineryghgsettlement.pdf>.



and will apply to both new facilities and a large portion of existing emitters. In this issue brief, I will try to explain what, exactly, the settlement agreement is and what it means for EPA's regulatory plans, and also speculate some about broader policy and political implications. The settlement agreement is not very long (indeed, this brief is longer), and it might seem like in-depth analysis is unnecessary. But there is hidden complexity. The actual agreement does not always match even the agency's own claims about it in press releases. Moreover, the performance standards that emerge as a result of the agreement are a key part, perhaps the most important part, of EPA regulation of GHGs.

Background

THE BUSH EPA AND PERFORMANCE STANDARDS LAWSUITS

Massachusetts v. EPA established in 2007 that GHGs were pollutants that could be regulated under the CAA. But in the roughly 18 months between *Mass. v. EPA* and the end of the Bush administration, EPA made no significant moves to regulate GHGs. The agency did not move to regulate emissions from cars and trucks (mobile sources), the specific aim of the plaintiffs, nor did it do so for stationary sources under any program.

Shortly after the *Mass. v. EPA* decision, a group of primarily Northeastern states, municipalities, and some environmental groups sued EPA.³ These plaintiffs had already petitioned the agency to review elements of a 2006 rule setting new performance standards for EGUs, and sought in the suit to force the agency to include standards specifically aimed at GHGs. Similar plaintiffs also filed a different suit challenging a 2008 agency rule setting performance standards for refineries, again seeking inclusion of GHGs in those standards. They argued that the *Massachusetts* finding compelled EPA to issue performance standards for GHGs.

GHG REGULATION UNDER THE OBAMA EPA

Whether this argument was legally correct when the suits were filed is uncertain, largely because it is unclear how the agency would write GHG regulations in the absence of any findings on their harms. But EPA under President Obama strengthened the states' case when, in late 2009, the agency issued an "endangerment finding" for GHGs. *Mass. v. EPA* compelled the agency to either issue such a finding or explain why it would not do so, though again the Bush EPA had made only preliminary moves toward a finding. This science-based finding formally established that GHGs, in the agency's judgment, cause harms to the public. The finding (and an associated "cause-or-contribute" finding for mobile sources) both allowed EPA to regulate GHG emissions and, at least for mobile sources, required it to do so.

³ *State of New York et al. v. EPA*, No. 06-1322 (D.C. Circuit).



EPA moves to regulate GHGs did not end there. Over the course of 2010, the agency issued a series of rulemakings under the CAA creating actual regulatory programs. As required by the endangerment and cause-or-contribute findings, the agency issued regulations for mobile sources, in the form of emissions standards for new cars (beginning in 2012). Turning its focus to stationary sources, the agency then issued rules incorporating GHGs into the New Source Review (NSR) permitting process for new and modified stationary sources (though it limited these requirements to large GHG sources, at least initially). From 2011 on, new and modified power plants, refineries, factories, and other large GHG emitters will be required to show they use the “best available control technology” for GHG emissions.⁴

This series of moves has inspired significant opposition among some in industry and their allies in Congress. Legislation has been introduced in both the House and Senate that would delay or cancel the regulations, but has not yet reached the President’s desk.

The agency’s 2010 moves also did not resolve the 2008 suits seeking GHG performance standards. Most significantly, none of them imposed any requirements on existing GHG sources.

PERFORMANCE STANDARDS UNDER THE CLEAN AIR ACT

Before discussing the settlement agreement in detail, it’s worth briefly explaining the CAA performance standards programs that the plaintiffs sought to bring to bear on GHGs. Under §111 of the statute, EPA must set and regularly update performance standards for emitting facilities (stationary sources). Under §111(b), these standards apply to new sources—new facilities cannot be built (or existing facilities modified) unless they meet the standards. As a result, the program is often referred to as New Source Performance Standards, or NSPS. But under §111(d) of the statute, EPA also sets guidelines for states’ regulation of existing sources—that is, those that are not new or being modified. As a result, referring to all §111 regulations as NSPS is a misnomer—the section really includes two types of standards: formal federal NSPS and the existing-source guidelines for states, which I call existing source performance standards or ESPS. Both types of standard are technology based—the agency identifies the “best system of emissions reduction” and uses it to set the standard or guideline. Emitters need not use the technology identified by EPA, but they do have to achieve similar emissions performance—the regulations are performance standards, not command-and-control technology mandates.

NSPS and ESPS are set by EPA independently for each source category, or class of emitters, that it defines. The agency must issue NSPS for all pollutants it regulates, but ESPS are only used for pollutants not regulated under other programs. This makes sense—national ambient air quality standards (NAAQS) and air toxics regulation under §112, the other main CAA programs for

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⁴ Subject to the restrictions in EPA’s tailoring rule, which initially restrict NSR permitting to large emitters.



regulating stationary sources, set extensive rules for emissions from stationary sources. For pollutants regulated under these programs, there is little need for ESPS.

THE SETTLEMENT AGREEMENT

Despite their broad scope, the agency's 2010 GHG rulemakings did not impose regulations on existing, unmodified sources of GHGs—the power plants and industrial facilities that account for the majority of U.S. emissions. They also did not address NSPS for GHGs from any type of source, though NSR permitting will constrain emissions from many new sources.

Because of these omissions, the states' suits seeking EGU and refinery GHG performance standards continued. Despite substantial regulatory moves toward the plaintiff states' general aim—GHG emissions limits—the agency had done nothing to address their specific complaint: NSPS and ESPS for GHGs. Meanwhile, existing stationary sources had emerged as a yawning gap in the agency's GHG regulation. As my colleagues and I at RFF suggested in mid-2010, ESPS seemed like the most likely and most practical regulatory pathway for these sources.⁵

Both the states' suits and most of the uncertainty regarding the agency's choice of regulatory programs for existing sources were resolved by a settlement agreement between the agency and the states reached in December 2010 (and released on Christmas Eve). Like any settlement agreement, this one resolves the dispute between the parties and will be enforced by the court—the agency is therefore bound to do what it promises or risk contempt of court (or a renewal of the suit). It does not, however, alter the agency's powers or responsibilities under the CAA, since it is only an agreement between these parties.

In the settlement, EPA agreed to issue NSPS and ESPS for many EGUs and refineries. This is hard to describe as anything other than a victory for the states and environmental plaintiffs. The specifics of the performance standards won't be known for some time, and the plaintiffs might find them in some way inadequate when they are. But for now they got exactly what they asked for—though if EPA's reason for fighting the suit was not to avoid GHG NSPS/ESPS regulation, but rather to control its timing, it might be that the agency achieved its goals as well.

But what, specifically, did EPA agree to do? And moreover, what does it mean for the agency's regulatory program for GHGs—or U.S. climate policy in general?

⁵ Richardson, Nathan, Dallas Burtraw, and Art Fraas, Greenhouse Gas Regulation under the Clean Air Act: Structure, Effects, and Implications of a Knowable Pathway, RFF Discussion Paper 10-23, April 2010 (forthcoming *Environmental Law News and Analysis*, 2011).



What's in the Settlement Agreement?

In a press release issued with the settlement agreement, EPA claims that the agreement shows that it is “moving forward on GHG standards for fossil fuel power plants and petroleum refineries—two of the largest industrial sources, representing nearly 40 percent of the GHG pollution in the United States.”⁶ This is a broadly accurate summary of the agreement’s effect, but it glosses over a great deal of detail, some of which could become very important. The agreement is in reality somewhat narrower than the press release indicates. It commits EPA to a certain timetable for regulation using certain tools that apply only to certain emissions sources.

TIMING: WHEN WILL REGULATIONS APPLY?

Generally, the agency has promised in the agreement to propose EGU performance standards by July 2011, and then finalize them following notice-and-comment in May 2012. Refinery standards would come somewhat later, with proposal in December 2011 and finalization in November 2012. The delay for refineries is apparently due to a need to collect more data before issuing standards, though congestion in the agency’s regulatory calendar may also play a role.

Barring unanticipated delays, the result of these commitments is that performance standards for both covered EGUs and refineries will be finalized by the end of 2012. The agreement does not, however, specify the compliance period for the performance standards. It is possible that EPA could issue a final rule on the agreed schedule, but that emitters would not actually have to comply until some date in the future. This is particularly likely with ESPS, since it is states that must implement the standards. This additional regulatory layer and diverging priorities among states will likely lead to further delays.

TOOLS: WHAT KIND OF REGULATIONS?

The agency has committed in the settlement to set both §111(b) standards for new sources—NSPS—and §111(d) guidelines for existing sources—ESPS. Both sets of standards will be proposed and finalized at the same time, though issuing ESPS is made conditional on NSPS having been finalized (a requirement that originates in the CAA itself). In other words, if something delays finalization of NSPS, such as industry litigation, then ESPS may not be issued until the delay is resolved. The reverse does not appear to be the case—if ESPS are delayed, NSPS will still move ahead.

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⁶ EPA, *EPA to Set Modest Pace for Greenhouse Gas Standards / Agency stresses flexibility and public input in developing cost-effective and protective GHG standards for largest emitters*, press release, Dec 23, 2010, available at <http://yosemite.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/d2f038e9daed78de8525780200568bec!OpenDocument>



As discussed above, NSPS are federal standards that apply to all new and modified stationary sources. ESPS are federal guidelines, but are enforced by states. The states have some latitude, but their implementation plans must be approved by EPA, so the guidelines are ultimately effective—they are not mere suggestions. EPA can also directly enforce the states’ implementation of the guidelines, and if the agency rejects state plans or states fail to plan at all, the agency can regulate directly. As I will discuss in more detail below, the types of state regulation that EPA will accept as fulfilling ESPS requirements is an important open question for this program.

SCOPE: WHAT SOURCES WILL BE COVERED?

The settlement agreement commits the agency to performance standards for a large number of emissions sources that account for a significant portion of U.S. emissions—but it also leaves out a wide variety of GHG sources. This leaves regulation of these excluded sources uncertain—if the agency does regulate their emissions, it is not clear when or how it will do so.

EGUs: New Sources

The scope of sources covered is defined in bureaucratic terms, so some degree of decoding is necessary. For EGUs, the settlement agreement states that the agency will issue “standards of performance for GHGs for new and modified EGUs that are subject to 40 C.F.R. part 60, subpart Da.” The Code of Federal Regulations reference is to the list of source categories defined by the agency. As discussed above, NSPS and ESPS apply to specific source categories, in large part due to their roots as technology-based standards. EPA is free to set these source categories however it chooses, and the agency has codified a list of 90 such categories and subcategories at 40 C.F.R. part 60.

The category Da referenced by the settlement agreement includes “Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978.” In plain English, the category includes coal, oil, and natural gas power plants with boilers and steam generators. It does not include other kinds of power plants, most obviously non-fossil plants like wind, biomass, and nuclear but also turbine generators fueled by natural gas or other fossil fuels. Presumably and based on past EPA regulation, combined-cycle plants—those that use both turbines and steam generators—would be included.

Turbine generators are a significant electricity source—they make up about 19 percent of fossil fuel electricity generation and 14 percent of overall electric generation (in 2010).⁷ Of course nothing in the settlement agreement prevents EPA from issuing performance standards for

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⁷ EIA, *Electricity Generating Capacity, AEO2011 Reference Case*, available at <http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2011&subject=0-AEO2011&table=9-AEO2011®ion=0-0&cases=ref2011-d120810c>.



turbines, but neither does the agreement require such standards. The agency’s claim to be “moving forward on GHG standards for fossil fuel power plants”⁸ is therefore either an overstatement or a revelation of future EPA plans to the extent it implies that all such plants will be regulated.

The omission of turbine generators from the settlement agreement is largely due to procedural issues. The 2006 rule that the plaintiffs originally petitioned EPA to revisit only included EGU standards for Category Da. In other words, turbines were not part of the lawsuit. But that does not prevent the agency from stating its plans for turbine standards, whether in the agreement or elsewhere.⁹

EGUs: Existing Sources

In addition to the NSPS discussed above for fossil steam EGUs, EPA committed in the settlement agreement to issuing ESPS for the same category. This superficially appears problematic, since the definition of Category Da includes only plants built after 1978. A substantial portion of U.S. fossil-fired power plants were built before this date—excluding them from ESPS would limit the standards’ emissions impact and would make little sense on policy grounds.

This reading of the scope of ESPS isn’t right, though. §111(d) of the CAA clarifies that ESPS apply to sources “to which a standard of performance under this section would apply if such existing source were a new source.”¹⁰ This is confirmed by EPA in the settlement agreement itself—the promised ESPS rule “includes emissions guidelines for GHGs from existing EGUs that would have been subject to [Category Da] if they were new sources”.¹¹ This redefinition of categories for ESPS purposes renders any date restriction in the category definition irrelevant. As a result, the scope of ESPS is identical to that for NSPS: all fossil-fuel fired steam EGUs.

Refineries

The scope of performance standards for refineries under the agreement is less complex. All refineries covered under categories J, Ja, Db, Dc, GGG, and QQQ are included, both in NSPS and ESPS. This list of categories includes every category that expressly mentions refineries, and there are no obvious exclusions.

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⁸ EPA, *EPA to Set Modest Pace* (cited in note 6).

⁹ Excluding turbines is also unsurprising for a different reason: turbines are among the cleanest EGUs in GHG terms. But their emissions are not zero. Excluding clean turbines could even have the perverse effect of making them less attractive—if EPA makes performance standards tradable, a policy option discussed below, then firms building or operating plants with lower emissions rates could sell credits to those running facilities that emit more. This makes low-emissions plants even more attractive—but only if they are included in the regulatory program. If turbines are excluded, then the cleanest fossil option does not benefit from these incentives. Even if EPA plans to eventually issue standards for turbines, the process could take years, during which firms might have an incentive to switch to higher-emitting types of plants.

¹⁰ CAA §111(d)(1).

¹¹ *Boiler GHG Settlement* at 3 (cited in note 2).



SUMMARY

In short, the settlement agreement commits EPA to issuing final NSPS and ESPS for most fossil EGUs and all petroleum refineries by the end of 2012. ESPS depend on NSPS—any delays to NSPS will affect both types of regulation. For EGUs, all fossil-fired plants are included with the notable exception of turbines. EGU standards will be finalized by mid-2012, and refinery standards by the end of that year.

Implications and Open Questions

The settlement agreement reveals a major piece of EPA's regulatory strategy for GHGs under the CAA, comparable in magnitude to the 2010 announcements of new fuel economy standards for vehicles and permitting requirements for new construction. These three regulatory programs will cover almost all GHG sources that can be regulated under the Clean Air Act, and a substantial majority of U.S. emissions. Nevertheless, substantial open questions remain about the performance standards that EPA will issue under the agreement and the agency's general regulatory strategy for GHGs. The broader political and policy implications of the settlement agreement and ensuing regulation also remain unclear.

THE GHG REGULATORY PLAN

In 2010, failure of climate legislation in the Senate made EPA action under the CAA the only available federal option for GHG limits, at least in the short term. This made EPA action much more important at just the time agency rulemakings and announcements made it more specific. As discussed above, by the fall of 2010 the agency had issued rules for GHG regulation of vehicles and new stationary sources—but its strategy for existing sources remained unclear. The question became one of significant interest beyond the narrow academic and policy community, with a lot of speculation about which program the agency would choose. Suggestions included ambient air quality standards (NAAQS),¹² a little-used section of the CAA aimed at international pollution (§115),¹³ and ESPS.¹⁴

With the settlement agreement, EPA has effectively settled this debate. The agency will almost certainly now move to regulate GHG emissions from existing sources with a series of ESPS. Refineries and steam EGUs will likely be the first categories regulated, subject to the agreement,

¹² See Center for Biological Diversity and 350.org, *Petition to Establish National Pollution Limits for Greenhouse Gases Pursuant To The Clean Air Act*, Dec. 2, 2009, available at http://www.biologicaldiversity.org/programs/climate_law_institute/global_warming_litigation/clean_air_act/pdfs/Petition_GHG_pollution_cap_12-2-2009.pdf

¹³ See Roger Martella & Matthew Paulson, *Regulation of Greenhouse Gases Under Section 115 of the Clean Air Act*, Daily Env't Report, Mar. 9, 2009, at 1; see also Hannah Chang, *Cap and Trade Under the Clean Air Act?: Rethinking §115*, 40 Environmental Law News and Analysis 10894.

¹⁴ See generally Richardson et al., Knowable Pathway (cited in note 5).



but the agency is likely to move on to others—most notably various industrial sources like cement plants, and the aforementioned turbine EGUs.

The agency is unlikely to pursue existing-source GHG regulation under other CAA programs. Issuing a GHG NAAQS is no longer a plausible option, if it ever was. A NAAQS would supersede GHG ESPS. The agency would not spend scarce administrative resources devising an ESPS regulatory program only to junk it in favor of something else.¹⁵ §115 regulation is similarly unlikely, though it is not mutually exclusive with ESPS. The settlement agreement also reflects a consensus among the agency, many states, and key environmental groups on using the §111 performance standards pathway for GHGs.

In this sense, the significance of the settlement agreement goes beyond regulations for the specific sectors to which it applies. The agreement is a declaration of the last unknown piece of the agency’s regulatory plan for GHGs.

WHAT WILL NSPS AND ESPS LOOK LIKE?

But declaring which regulatory program will be used for GHGs does not reveal what that program will look like in practice. NSPS and ESPS have a rich history under the CAA, but have traditionally been technology-based as described above. The agency is likely to continue to develop performance standards based on relevant technology in the GHG context, with the most likely candidates being efficiency improvements, biomass co-firing, and, perhaps in the future, carbon capture and storage. What technologies the agency identifies, and how aggressively it requires them (or equivalents) to be implemented, will have a far greater impact on the costs and benefits of the regulation than the general choice of regulatory program.

Beyond these traditional choices, the agency will face calls to be more innovative than NSPS and ESPS have been in the past. In particular, incentive-based regulation in the form of tradable performance standards could reduce costs while achieving the same level of benefits and encouraging some innovation. Incorporation of incentive-based measures into performance standards regulation is also more than simply an either-or decision. Single source category tradable performance standards are the most conservative flexibility option, but the agency could go further. It could expand source categories to include a wider variety of sources, for example by creating a new fossil fuel EGU category that includes gas turbines. Alternatively, it could allow trading of performance standards across source categories, though this carries some additional legal risk. Either move would improve regulatory efficiency by broadening the markets that are created. At the extreme, EPA might even be able to create a regulatory program similar to

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¹⁵ The agency could, however, be forced to adopt a GHG NAAQS. See Nathan Richardson, *Greenhouse Gas Regulation Under the Clean Air Act: Does Chevron Set the EPA Free?*, 29 Stan Env L J 283-322 (2009).



nationwide cap and trade under §111, as it once attempted to do for mercury emissions.¹⁶ The agency has stated that it will not pursue this approach for GHGs, however.¹⁷ We have discussed these options in past RFF papers,¹⁸ and will explore them in greater detail in future work.

Even if the agency does decide to allow trading of performance standards, major open questions will still remain. How will states implement the tradable standards for existing sources? Will regulation be delayed or overturned due to legal challenge? The answers to these and other questions will not be knowable until the regulatory process is underway, but will have a large impact on the efficiency and effectiveness of the program.

WHAT ABOUT STATE GHG REGULATIONS?

Another issue that remains unclear is how ESPS GHG regulation will interact with state-level GHG regulations. Many states, most notably northeastern states in the Regional Greenhouse Gas Initiative (RGGI) and western states in the Western Climate Initiative (WCI) either already restrict GHG emissions from in-state sources or will soon do so. Will emissions reductions by facilities to comply with these regulations be counted for purposes of compliance with ESPS? How will the two programs interact? The fact that ESPS are state-administered increases the likelihood of a smooth interaction between them, but EPA must still approve state plans to implement ESPS guidelines. To what extent does EPA intend to supplement state programs, and to what extent does it intend to supplant them?

ESPS also contemplate a formal role for state regulators. This federalist structure is likely to be relatively effective for those states that succeeded as plaintiffs—after all, they specifically sought this form of regulation.¹⁹ On the other hand, the agency's NSR program for GHGs has generated significant opposition from many states. Texas has refused to implement the program and sued the agency to block it. While the agency can impose ESPS federally if states refuse or if the agency rejects their plans, such fights could complicate and delay implementation.

POLITICS

As mentioned above, EPA moves to regulate GHGs under the CAA have attracted significant criticism from some in industry and in Congress. Both the level of criticism and the risk to the agency have increased after the 2010 election, with House Republicans planning legislation aimed

¹⁶ See EPA, *Clean Air Mercury Rule*, 70 FR 15994 (2005), available at <http://www.epa.gov/CAMR/>.

¹⁷ Gabriel Nelson, *EPA agrees to limit emissions from power plants, refineries*, Greenwire, Dec. 23, 2010, available at <http://www.eenews.net/public/Greenwire/print/2010/12/23/1> (quoting EPA air chief Gina McCarthy as stating that "The NSPS process is a tool of the Clean Air Act that we've used 75 times before. . . This is not about a cap-and-trade program, it's nothing unusual to greenhouse gases, and it's not in any way trying to get into the area where Congress will be establishing law at some point in the future—we hope."

¹⁸ See generally Richardson et al., *Knowable Pathway* (cited in note 5).

¹⁹ Some of the plaintiff states are also RGGI participants, however, which may create problems as described in the previous paragraph.



at delaying or eliminating EPA authority, defunding the agency, or delaying action indirectly via time-consuming hearings. The settlement agreement reveals plans to regulate large new sectors of the economy for GHGs, and will undoubtedly inspire further criticism. Could it inspire enough criticism to threaten the political viability of the agency's GHG regulatory program? Perhaps, though any new legislation would require approval by the Senate and the president.

The settlement agreement might be a tactical response to saber-rattling in Congress. By committing to performance standards in the settlement agreement, the agency is tying its own hands. Doing so makes the new regulation look less like a discretionary move that is possibly out of tune with congressional and public opinion, instead framing it as legal necessity. One counterargument is that agencies almost always claim controversial decisions are required by law—no settlement agreement is necessary to make this claim. Indeed, the agency generally says as much regarding its entire GHG regulatory program under the CAA, taking the position that it is compelled to act by the CAA itself and *Massachusetts v. EPA*. It is also true that no settlement agreement can bind the agency beyond the power of Congress. Assuming the votes were there, Congress could pass legislation (for example) excluding GHGs from the CAA entirely. Doing so would render the settlement agreement irrelevant—though as noted above this would require the president's consent as well.

Nevertheless, with the settlement agreement, politics has probably now surpassed the agency's own opacity as the greatest source of uncertainty for GHG regulation.

Conclusion

The settlement agreement is short, and may appear relatively unimportant. It appears to quietly resolve a run-of-the-mill administrative law dispute (with the “quiet” part due largely to its release just before Christmas). It promises nothing for at least 6 months and no effective regulation for more than a year—over which time the political landscape could shift beneath the agency. But its implications are likely very large. It will either be the foundation of a major regulatory program with the potential for greater associated reductions in GHG emissions than any other policy in U.S. history, or it (along with the agency's other moves on GHGs) will inspire a political backlash from which EPA GHG regulation may not recover. Much remains unknown, including key factors that will ultimately determine the stringency of regulation, its costs, and its benefits. But the path is now clear.

