

Late in 2015, the Environmental Protection Agency issued [New Source Performance Standards to control greenhouse gas emissions from new and modified fossil-fuel-fired power plants](#) under the Clean Air Act. This regulation is a companion to the more-often-discussed [Clean Power Plan rule](#), which addresses greenhouse gas emissions from existing sources in the power generation sector.

Last week, my colleague Sarah Duffy and I filed an [amicus curiae brief](#) in the litigation over whether EPA's standards were lawful. This post discusses the standards at issue, the litigation, and our brief's contribution to the case.

In 2015, EPA set these GHG emissions standards for new coal-fired and natural gas-fired power plants at levels achievable through application of the "best system of emission reduction" that EPA determined has been "adequately demonstrated." Here, EPA required new natural gas power plants to employ state-of-the-art technology, and required coal-fired power plants to achieve emissions reductions equivalent to what can be achieved if a state-of-the-art coal-fired power plant incorporates technology to ensure that 40% of the emissions are captured and never released into the atmosphere, based on the use of carbon capture and storage (CCS) technology. The New Source Performance Standards for coal-fired power plants - the focus of our legal brief - are important because they (1) ensure that new power plants can be built only with strict emission controls, (2) send a signal to other countries that the US is serious about GHG reductions, and (3) support development and diffusion of important technology including carbon capture and storage, both domestically and internationally.

For those interested in more context and details, My former colleague Megan Herzog wrote several blog posts last year that [explained](#) what the New Source Performance Standards are, and [what's at issue](#) in the litigation. Her posts are worth reading, for a deeper dive.

The following discussion from Megan's first post on the subject provides useful detail on the standards themselves (feel free to skip over it if my brief explanation above is enough for you):

Clean Air Act § 111 requires EPA to establish greenhouse gas emission standards for fossil-fuel-fired power plants. These performance standards must "reflect[] the degree of emission limitation achievable through the application of the **best system of emission reduction** which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the [EPA] Administrator determines has been adequately demonstrated" (§111(a)(1)). This standard is otherwise known as "**BSER.**"

Sources do not necessarily need to adopt the BSER, but they must meet the associated performance standard. Performance standards allow sources flexibility to pursue cost-effective compliance options, and encourage investment in technological research and development.

Section 111 holds new sources to more stringent pollution-control standards than existing sources, reflecting Congress' recognition that new construction is the ideal time to implement pollution-control systems. Installing pollution-control devices in new construction is generally less costly than retrofitting existing plants, and costs can be amortized over the life of the plant. Additionally, because the new plant will be in operation for a long time, the Clean Air Act recognizes the importance of controlling emissions from the outset.

EPA released its NSPS rule for greenhouse gas emissions from new and modified power plants at the same time as the Clean Power Plan, which regulates greenhouse gas emissions from existing power plants. The new source rule contains the following standards for new power plants:

- For new steam generating units (e.g., **coal or pet coke power plants**), EPA determined the BSER to be an **efficient new supercritical pulverized coal (SCPC) utility boiler with partial carbon capture and sequestration (CCS) technology**, resulting in a performance standard of **1400 lbs CO<sub>2</sub>/MWh**.
- For new baseload stationary combustion turbines (e.g., **natural-gas power plants**), EPA determined the BSER to be an **efficient natural gas combined-cycle (NGCC) plant**, resulting in a performance standard of **1000-1030 lbs CO<sub>2</sub>/MWh**.

### **The Controversy over CCS**

The most controversial aspect of the NSPS is EPA's inclusion of carbon capture and sequestration (CCS) in its BSER determination for new coal plants. CCS technologies absorb CO<sub>2</sub> from all or a portion of the fuel or exhaust gas of a power plant. The CO<sub>2</sub> is then compressed and transported via pipeline to deep underground rock formations for permanent storage.

Litigation over CCS will focus on EPA's interpretation of the statutory text. To qualify as the BSER, a system of emission reduction must be the "**best**" of all "**adequately demonstrated**" systems. Opponents argue that CCS cannot be part

of the BSER for new coal plants because it is too novel, complicated, and expensive to implement, and there are few examples of utility-scale plants employing the technology. Prior to the release of the final rule, there was broad speculation that EPA would remove CCS from the final NSPS and name ultra-supercritical technology the BSER for coal-fired power plants. Given that very few new coal-fired power plants are planned even in the absence of the rule, many guessed that EPA would settle for a more conservative NSPS in order to better protect the Clean Power Plan.

Instead, EPA's final NSPS rule vigorously defends the inclusion of CCS in the BSER determination, analogizes the standard to historical NSPSs that imposed significant costs on coal-fired power plants, and emphasizes the considerable discretion that §111 offers EPA. EPA has also suggested that standards for modified sources, which are included in the NSPS, would be sufficient to serve as a basis for the Clean Power Plan even if a court were to strike down standards for new sources.

President Obama, it seems, considers CCS for all future coal-fired power plants to be an important piece of his climate legacy. While the Clean Power Plan will play a critical role in reducing U.S. emissions over the next several decades, standards that apply to new power plants could arguably be more influential in the long run. And even if few new coal plants are built in the United States, expressing confidence in CCS may be essential to persuade high-emitting developing countries to adopt the technology. In particular, it would be difficult for the United States to continue its campaign to persuade China to cut emissions aggressively without putting our money where our mouth is on CCS here at home. The United States and China have executed [several recent agreements related to CCS](#) and announced [collaborative CCS projects](#). If the NSPS indirectly helps to control emissions from China's coal-fired power plants, or contributes to technological developments that have global applicability, it could indeed have massive climate impacts, regardless of the future of coal in the United States.

Sarah and I have the privilege of representing four academic experts from top American universities: [Nicholas Ashford](#) of MIT, [Ed Rubin](#) and [Granger Morgan](#) of Carnegie Mellon, and [Margaret Taylor](#) of Lawrence Berkeley National Laboratory and Stanford University. Our clients' research focuses on the ways in which regulation affects the innovation and diffusion of new technology, and the ways that innovation and diffusion of new pollution control technology affect the cost of implementing the technology. Their research

demonstrates that regulation that requires plants to meet stringent emission control standards drives much of the technological innovation and use of cutting-edge technology in the pollution control sector. It also demonstrates that as a technology matures and becomes available for implementation, the cost of implementing the technology decreases, and the cost continues to decrease with further commercial application over time. These insights inform our clients' view that using CCS as the system from which to derive new performance standards for coal-fired power plants was appropriate. Here is the Summary of Argument from our [brief](#):

Amici conclude that EPA's analysis [supporting is not only reasonable, but is conservative since it does not fully take into account the expected decline in future cost to implement the technology. In addition to reducing pollution directly, stimulating increased adoption of CCS will lead to a decline in capital and operational costs associated with the technology, similar to declines amici have documented in the cost of other pollution control technologies fostered by previous EPA regulations.

The development and implementation of technology is an iterative process that has multiple stages and depends on various conditions. Amici curiae have studied that process in the pollution control context. They and others in their field have observed that pollution regulation stimulates innovation and deployment of technology to meet that standard, which leads to design and operating improvements, which in turn reduce costs further. Regulators and policy experts often rely on the cost reduction trajectories, or "learning curves," documented from comparable technologies when assessing the possible future cost trajectory of a technology. Here, EPA found that both capital costs and the levelized costs of electricity were not exorbitant, based on a sound analysis of the costs for the next commercial application of CCS technology. Based on our analysis of the history of pollution control technology diffusion and related regulation and cost dynamics, we believe costs are likely to decline substantially further over time.

Congress intended that Section 111 standards reduce emissions to the maximum practicable degree and reflect the latest available pollution control methods. This Court has upheld such standards before. Technology need not have actually been adopted by sources prior to a standard's enactment so long as it will be available to new sources. Here, EPA's standard, based on adoption of partial CCS, is consistent with that statutory purpose and legal precedent. CCS has been adopted by existing sources, and it is also available to new sources.

Persuasive expert amicus briefs were also filed [by the NYU Institute for Policy Integrity](#), defending EPA's cost-benefit analysis in support of the standards, and [by Michael Burger and Jessica Wentz](#) of Columbia Law School, on behalf of a group of scientists who are experts in the technology of carbon capture and storage, supporting EPA's determination that the standard is achievable and that the technology is adequately demonstrated.

Unfortunately, the outcome of the 2016 U.S. presidential election cast uncertainty into all the EPA's efforts to regulate GHG emissions, including this one. It is possible that the new administration will attempt to undo this rule, the Clean Power Plan rule, and other efforts to limit GHG emissions, as it will likely reject a role as an international leader on greenhouse gas mitigation efforts more broadly. The President-elect has said in public statements that he wishes to undo many federal efforts to address climate change, without specifically mentioning these standards. Indeed, the petitioners in the case - power companies and states that are challenging these standards - have already argued that the briefing schedule in the case should be extended. They argue that

the new administration is likely to consider adopting policy changes that could significantly alter the scope of this litigation and potentially even affect whether further proceedings are warranted. A short delay in litigation, from January 19, 2017, to February 24, 2017, would allow time for the new administration to assess its position on this litigation and to file any motions to reflect a change of position—for example, to request that the Court hold the case in abeyance while it undertakes a new rulemaking to withdraw or revise the present Rule. If the new administration does decide to change its position in this litigation, there would be no need for briefing to continue at this time.

In response, EPA and the state and environmental and public health intervenors who are defending the rule have vigorously opposed the request. They note, first, that if the Court grants the extension, it will have little time to review the papers before oral argument (which is set for April 17, 2017). Second, the prospect of action to revisit the standards, or the government's litigating position in this case, within a month of the inauguration, is highly speculative. As EPA points out, "[a]ny action to reconsider or revise the Rule—if initiated—would then take a significant period of time, requiring development of a proposal, solicitation of public comment, and preparation and promulgation of a final rule." Finally, they argue persuasively that there is no precedent for delaying the proceedings in any comparable situation. The intervenors also add that "Respondent-Intervenors—many of whom sued EPA a decade ago to force EPA to adopt the challenged Rule—will continue

defending the Rule" even if the federal government changes its litigation position. These arguments should persuade the Court to keep the current litigation calendar.

Environmental Defense Fund has helpfully assembled [a case resources website](#) that includes links to all the briefs in this case (and in the Clean Power Plan case), along with other related resources. EDF updates this website frequently.

As noted above, oral argument is scheduled for April 17 2017, in the D.C. Circuit Court of Appeals. It will be interesting to watch how events unfold before then, including the pending decision from that court on the Clean Power Plan rule, for which Megan [chronicled the oral arguments](#) comprehensively back in September. (Readers may also recall that several of my colleagues [filed an amicus curiae brief](#) in that litigation that was influential in the oral argument.)