February 26, 2018

EPA Docket Center  
U.S. Environmental Protection Agency  
Mail Code 28221T  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460  

Re: State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Docket ID EPA-HQ-OAR-2017-0545

The National Association of Manufacturers (NAM), the largest manufacturing association in the United States representing manufacturers in every industrial sector and in all 50 states, submits the following comments in response to the advance notice of proposed rulemaking (ANPRM) by the Environmental Protection Agency (EPA) requesting input on “State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units,” Docket ID No. EPA-HQ-OAR-2017-0545.

The NAM supports the advancement of policies to address GHG emissions that accomplish needed reductions while preserving manufacturing competitiveness. We do not believe these goals are mutually exclusive and look forward to working with EPA to accomplish them.

Ten years have elapsed since the EPA last conducted a broad request for information on how to regulate greenhouse gas emissions under the CAA. In that time, a great deal has changed for manufacturers. The energy landscape is dramatically different, with low-cost availability of virtually every energy source powering major new manufacturing investments in the United States. The business case for addressing climate change has also grown: virtually every major manufacturer now has in place a meaningful policy to reduce greenhouse gas (GHG) emissions, with many extending those policies to their supply chains. Customers in the U.S. and in export markets are demanding that manufacturers minimize GHG emissions in the products they buy, which in turn drives a focus on reducing emissions on manufacturing shopfloors. Manufacturers have pioneered new strategies and technologies to reduce GHG emissions, and are using them to set aggressive emissions reduction targets—and in many cases, beat them early.

In large part due to this progress, the United States has made greater GHG reductions over the past decade than any other nation on earth.¹ Manufacturers have reduced our GHG emissions by 10 percent over the past decade while increasing our value to the economy by 19 percent. In fact, the industrial sector actually produces less GHG emissions today than it did in

Many of those reductions have come from improved energy efficiency and changes to the mix of fuels manufacturers use.

This ANPRM largely seeks information on how to build a GHG regulatory framework for existing electric generating units (EGUs). The NAM's comments set forth our best ideas on how to properly (and legally) structure such a regulation. However, as users of one-third of the energy consumed in the U.S., manufacturers represent a massive share of the electricity demand served by the EGUs to whom this regulation applies. We also serve as a testing ground for many of the new technologies that EGUs, manufacturers and commercial and residential consumers will ultimately embrace to become more efficient, reduce GHG emissions and continue the downward emissions path needed to address global climate change. For these reasons, our comments also include input from manufacturers who have taken strong steps to reduce their emissions, which we hope will be valuable to the EPA as it structures current and future regulations.

These comments are organized in the order suggested by the EPA in the ANPRM, and will address each of the five areas for which information was solicited.

I. **Comments on the Roles and Responsibilities of the States and the EPA in regulating existing EGUs for GHGs.**

The NAM believes there are valuable federal and state roles in the regulation of GHG emissions under the CAA. The following comments set forth our recommendations for how to integrate these roles into a 111(d) standard for EGUs.

A. **States Must Have the Opportunity to Exercise the Same Authority Under Section 111(d) That EPA Exercises Under Section 111(b).**

As noted by EPA in the ANPRM, EPA takes the initial lead in developing standards of performance for new sources that can be applied on a nationwide level; States, who have a closer working relationship with and understanding of existing sources within their borders, take the lead under Section 111(d) to establish standards of performance for existing sources that are informed by EPA’s prior best system of emission reduction (BSER) analysis for new sources under Section 111(b). The CAA gives States the authority to impose standards of performance under section 111(d) and to adjust those standards to reflect their economic impact. The plain meaning of Section 111, as well as the principles of cooperative federalism on which the CAA is based, see *Sierra Club v. Korleski*, 681 F.3d 342, 343 (6th Cir. 2012) (CAA intended to be “a model of cooperative federalism”), dictate that States be given the same authority to establish standards of performance under Section 111(d) as EPA exercises under Section 111(b).

Specifically, when establishing standards of performance for existing sources under Section 111(d), States must be permitted to conduct a BSER analysis, select the best system of emission reduction for a source category or subcategory, and then translate that into a source-specific emission standard. The EPA establishes procedures while the States establish standards of performance; the division of authority is clear. In the event that a State “fails to submit a satisfactory plan,” 42 U.S.C. § 7411(d)(2), EPA may then establish a standard of

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3 An expanded version of our comments, particularly the legal analysis, can be found in the rulemaking docket for the original Clean Power Plan and its implementation.
performance for existing sources for that State. While deferring to the States' reasoned judgment with respect to standards of performance, EPA nonetheless retains an oversight role in ensuring that the standards of performance included in State implementation plans are satisfactory and in serving as a backstop if satisfactory State implementation plans are not developed.

B. EPA Must Give States Appropriate Flexibility to Adjust Emission Reduction Targets as Required by Section 111(d).

One of the central features of Section 111(d) is the flexibility it affords States to provide reasonable standards of performance for specific facilities or groups of facilities based on their own unique attributes. While it may be practicable under some circumstances to establish uniform standards on new sources based on the fact that the control technology needed to achieve those standards can be incorporated into the facilities at the initial design phase, the same cannot be said for existing sources. Existing sources that were not constructed with new pollution control technologies in mind are typically far less homogenous and are constrained by past decisions regarding site layout. As a result, certain pollution control technologies may not be technically feasible, and others may prove less effective than they would under optimal design conditions. Finally, in some cases, the cost of certain emission control technologies may be unreasonable due to the source’s limited remaining useful life.

Congress, in enacting Section 111(d), recognized these challenges and gave States additional flexibility to establish standards of performance for existing sources. Specifically, Congress authorized States “to take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies.” 42 U.S.C. § 7411(d)(1)(B). While Congress did not specify the “other factors” that States could consider, EPA has previously determined that these factors include, but are not limited to, costs associated with plant age, location, or basic process design or the physical inability of installing certain control technology. 40 C.F.R. § 60.24(f). Further, States can evaluate the viability of control technologies on a case-by-case basis for individual facilities or classes of facilities. Id. This inherent flexibility in the Section 111(d) program allows States to strike an appropriate balance between emission reductions and the economic interests of regulated facilities, their investors, and their customers by adjusting—as appropriate—generally applicable standards of performance to account for source-specific circumstances.

1. States retain the authority to adjust Standards of Performance to account for Remaining Useful Life and other source-specific factors.

When, for source-specific reasons, an existing facility cannot meet the emissions limit associated with a more broadly applicable system of emission reduction, Section 111(d) contemplates that States provide relief to that source by applying a less stringent emissions limitation. The consideration of remaining useful life and other relevant factors is a one-way ratchet that provides relief to sources that cannot achieve the emission reductions embodied by a generally applicable best system of emission reduction. Further, States must retain the authority to evaluate the interaction between emission reduction targets. Just because individual emission reduction measures may be applied in the abstract, there is no guarantee that they can be met in the aggregate, particularly with any significant margin for error.

As the NAM and others stated in our comments on the original Clean Power Plan rulemaking, EPA cannot preemptively declare that it will reject as unsatisfactory the plan of any State that seeks to exercise its statutory authority to account for remaining useful life and
other factors that may require a deviation from EPA’s emissions guidelines. EPA cannot usurp the States’ statutory authority to evaluate, on a case-by-case basis, source-specific factors including a facility’s remaining useful life and, when necessary, deviate from EPA’s emissions guidelines. The flexibility to consider remaining useful life was unequivocally reserved to the States by Congress when it enacted Section 111(d), and this flexibility is reinforced by EPA’s own implementing regulations. There is no statutory provision or canon of statutory construction that would allow EPA to eliminate the statutory flexibility that Congress intended for the States to exercise.

2. The EPA must appropriately account for, at a minimum, the more than 100,000 MW of facilities that have been retired since 2010 or may be scheduled to retire.

A combination of market factors and recent regulations has led a number of electric utilities to schedule retirement of existing units. The American Coalition for Clean Coal Electricity estimates that 610 coal-fired units in 43 states, totaling 111,000 megawatts (MW), have retired or announced plans to retire since 2010. This raises a serious equitable concern as these facilities—which provide a necessary service to their communities—operate under State and federal permits and have a reasonable expectation that those who regulate them will allow them to operate long enough to recover the costs of their initial investment and, more importantly, the additional environmental compliance costs that those regulators have imposed on them.

For facilities that may be scheduled to retire, it may not be economical to impose significant heat rate improvements. Under the flexible approach intended by Congress, States could limit—or forego entirely—emission reductions for such facilities on grounds that they will soon be retired and will then cease to emit entirely. In contrast, the premature retirement of coal-fired EGUs could cause significant hardship.

C. To the Extent EPA’s Existing Section 111(d) Regulations are Inconsistent with the Clean Air Act, They Should Be Revised.

In 1975, the EPA previously adopted implementing regulations for Section 111(d). EPA explained its preferred regulatory approach in the preamble to the 1974 proposal for those implementing regulations:

Accordingly, EPA will publish guideline documents (discussed below) describing available systems of emission control that have been demonstrated, select a system which is judged to be the best when costs are taken into account, and specify an emission limitation in § 60.29 that reflects the application of such a system. State plans that include an emission standard equal to or more stringent than the specified limitation will be approvable.

39 Fed. Reg. at 36,102. Pursuant to the 1975 implementing regulations, EPA claimed that it was fully authorized to conduct a BSER analysis and establish emissions “guidelines” that are legally binding on the States. This appears to be an unlawful interpretation of the plain

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meaning of the Clean Air Act. It also usurps the States’ authority to conduct BSER analyses and establish standards of performance for existing sources.

The NAM recommends that the EPA update the 1975 implementing regulations under Section 111(d) to fix any unlawful interpretations of its statutory authority. When it issued the implementing regulations, EPA justified giving itself broad authority to establish binding emissions limitations under Section 111(d) on the grounds that it must have a substantive standard against which to judge the sufficiency of State implementation plans. But that interpretation of the 1975 regulations negates Congress’ express language providing that States should “establish[] standards of performance for any existing source for any air pollutant.” 42 U.S.C. §7411(d). Further, any ambiguity in Section 111(d) must be resolved in favor of an interpretation that protects the States’ preeminent role in regulating electricity markets. The provision of Section 111(d) that authorizes EPA review of State plans can be easily harmonized with the States’ preeminent role in setting standards of performance.

Courts have successfully conducted substantive reviews of EPA’s standards of performance for new sources under Section 111(b) by applying these criteria, and there is no reason to suggest that EPA could not apply similar criteria to determine whether the standards of performance established by the States under Section 111(d) are satisfactory. For example, under this approach, EPA could still evaluate whether a State failed to include in its evaluation a particular system of emission reduction that might be applicable to a given source category. EPA could also consider whether States appropriately weighed the costs of particular systems of emission reduction when selecting a standard for each existing facility. However, like a court’s review of standards of performance established by EPA under Section 111(b), EPA’s review of standards of performance established by the States under Section 111(d) would have to be deferential. See Nat’l Asphalt Pavement Ass’n v. Train, 539 F.2d 775, 786 (D.C. Cir. 1976) (“The standard of review of actions of the Administrator in setting standards of performance is an appropriately deferential one ….”). In sum, EPA cannot ignore the plain text of Section 111(d) by establishing binding emissions guidelines, and the implementing regulations should be amended consistent with the clear statutory language.

EPA must also recognize that the 1975 implementing regulations correctly grant States a significant degree of flexibility. See 40 C.F.R. § 60.24(f). As explained above, the States’ ability to deviate from these standards of performance is a statutory creation—not a regulatory one—and EPA cannot rely on the regulations it has previously adopted to take away what Congress has given. Further, EPA’s 1975 implementing regulations state that EPA may preclude a State from adopting “less stringent emissions standards” only where EPA makes a specific “case-by-case” assessment for “particular designated facilities” that such variance is unwarranted.

D. The Tenth Amendment Protects State Legislative and Regulatory Functions

The Tenth Amendment to the U.S. Constitution reserves to the States and the people all “powers not delegated to the United States by the Constitution.” U.S. CONST. amend. X. Applying these principles, the courts have repeatedly rejected federal attempts to “compel the States to enact or administer a federal regulatory program.” New York v. United States, 505 U.S. 144, 188 (1992); see also Printz v. United States, 521 U.S. 898 (1997), Brown v. EPA, 521 F.2d 827 (9th Cir. 1975), Maryland v. EPA, 530 F.2d 215 (4th Cir. 1975), District of Columbia v. Train, 521 F.2d 971 (D.C. Cir. 1975).
These cases illustrate the principle that commandeering State executive and regulatory authority is no less a Tenth Amendment violation than commandeering a State legislature. The anti-commandeering rule applies regardless of whether EPA would have the authority to administer its desired program directly. *New York*, 505 U.S. at 166. EPA has no authority, under Section 111(d) or any other statutory provision, to change the dispatch order of power plants, to mandate that power plants be utilized a certain percentage of time, to delay the retirement of nuclear plants, to require that a certain percentage of each State’s power be generated through solar and wind power, or to require that citizens reduce their demand for electricity. EPA cannot accomplish the same result by commandeering the States’ police powers and forcing the States to take steps that EPA could not take itself.

E. EPA must make a separate significant contribution endangerment determination based on GHG emissions from each source category it seeks to regulate for those emissions.

Section 111 requires the EPA to make a determination that pollutants from the source category that it seeks to regulate “cause[] or contribute[] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare,” 42 U.S.C. § 7411(b)(1)(A). The plain language of Section 111 requires EPA to make a significant contribution endangerment determination that is specific to the source category and pollutant that it seeks to regulate. To regulate GHG emissions from EGUs, then, EPA must first make a specific determination that (1) GHG emissions (2) from coal- and natural gas-fired EGUs (3) “cause[] or contribute[] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare,” 42 U.S.C. § 7411(b)(1)(A). The Agency must repeat this same test for any other source category it seeks to regulate for GHG emissions.

The endangerment determination in Section 111(b)(1)(A) is fundamentally different than that in Section 202(a) and other Clean Air Act provisions, in part because it: (1) is source category based; and (2) requires a finding of significance. Under Section 111(b)(1)(A) EPA is only permitted to regulate “a category of sources ... if in his judgment it causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.” (emphasis added). The significance test in Section 111 is a higher standard than the “cause or contribute” finding required by Section 202. Section 111(b)(1)(A) is more demanding than other provisions of the Clean Air Act and requires EPA to make an endangerment determination that is not only specific to each source category and pollutant that EPA seeks to regulate, but also based on a higher “significance” threshold.

The EPA did not satisfy the requirements of Section 111(b)(1)(A) in the original Clean Power Plan. We urge the EPA to establish that, for any and all future 111(b) or (d) standards of performance that pertain to GHGs, the Agency must first make a separate significant contribution endangerment finding based on GHG emissions for the category. Such a finding must be a necessary precursor to GHG regulation of a source category.

F. State Implementation Plan Design Elements.

While the States and EPA are prohibited from imposing binding GHG emission reduction obligations on any entities other than affected EGUs, States should have flexibility to incorporate voluntary opportunities to reduce net GHG emissions that are broader than those used in the BSER analysis. To establish a feasible and cost-effective State implementation plan, States must give affected EGUs the flexibility to incorporate low-cost emission reductions
that can be accomplished by electricity consumers or other third parties who are taking action to reduce net GHG emissions.

EPA and the States must always make clear—both in these regulations and in State plans—that third-party participation in such emission reduction programs is on a voluntary basis. By making participation voluntary, EPA and the States can ensure that no third-party entity inadvertently becomes subject to regulatory obligations without its consent. Thus, any legally binding monitoring and verification obligations that are necessary for third-party participation in the State implementation process will only be incurred by those entities that evaluate the participation costs, determine that the overall impact of participation is beneficial, and voluntarily assent to those legal obligations.

In contrast to the BSER analysis conducted by EPA and the States, which must focus exclusively on affected EGUs, existing fossil fuel-fired EGUs should be given broad flexibility to look beyond the fence line to identify opportunities to reduce GHG emissions through voluntary agreements with other entities. Providing affected EGUs with such flexibility, where available and appropriate, in achieving GHG emission reductions is economically efficient and will allow existing facilities to reduce emissions through lower-cost emission reduction opportunities that can be adopted voluntarily by third parties. While the form would likely vary between State plans, a central feature must be the ability for entities other than affected EGUs to voluntarily participate in the program alongside affected EGUs, either by joining a centralized exchange program or through direct agreements with individual EGUs.5 In either context, the third parties would be able to choose to obtain compensation for taking voluntary, cost-effective measures to reduce GHG emissions. The end result, which is cost-effective emission reductions, is consistent with the general theme of the Clean Air Act because it sets emission standards that are achievable inside the fence line of the facility without dictating how a specific facility must achieve them. It is also consistent with Section 111(d) specifically because it takes into account the cost of achieving emission reductions.

EPA and the States should incorporate as broad a position as possible with respect to such voluntary compliance mechanisms to identify low-cost opportunities to reduce GHG emissions. Electricity transmission and distribution efficiency improvements, the use of biomass-derived fuels, and new NGCC units should be available as voluntary compliance options. To the extent that new, cost-effective technological advances occur, new emission control technologies could also be included for compliance purposes. Thus, deviations from least-cost dispatching, new renewable and nuclear generating capacity, industrial CHP units and demand-side energy efficiency improvements would all be eligible for voluntary participation in a State implementation plan. For example, performance based contracts (“PCs”) for energy savings would offer a proven mechanism for reducing electricity consumption and lowering GHG emissions. Under a PC arrangement, energy service companies (“ESCOs”) install new energy efficiency equipment at customer facilities which are paid off over time with the resulting savings from the customers’ utility bills. EPA should expressly authorize States to include PCs as a compliance option and provide clear guidance on how States could incorporate PCs into their implementation plans.

EPA should also look beyond the sources identified thus far and explicitly endorse carbon offsets as a viable, low-cost method of reducing net GHG emissions for voluntary

5 Companies with diverse electricity generating portfolios may also be able to reach such agreements internally, for example, by constructing new renewable energy units in lieu of completing retrofits at existing coal-fired EGUs.
participants. Where GHGs are captured for use in Enhanced Oil Recovery (EOR) operations, and the operator would like to generate a credit to participate in a trading program or other compliance program, EPA should recognize 40 CFR Part 98 Subpart UU Injection of Carbon Dioxide as the appropriate level of monitoring, reporting and verification because the inherent physical properties of the geologic formation ensures that the GHGs are secure.

To the extent feasible, States should have the flexibility to incorporate existing GHG reduction programs into their State implementation plans, provided, again, that no additional obligations are imposed on entities other than affected EGUs. EPA should not limit States’ ability to rely on emission reductions attributable to existing programs, including renewable energy requirements, programs and measures. Ignoring existing programs would be arbitrarily and capriciously excludes valuable emission reduction measures undertaken by first movers.

Existing renewable energy programs should be applied toward achieving State emission reduction targets, as should other existing State programs to reduce GHG emissions that are equally capable of reducing net GHG emissions from the electricity sector. Flexibility must be afforded to States under Section 111(d), and EPA would undermine that flexibility by excluding other innovative State programs that may reduce a State’s overall GHG emissions. If EPA were to set an arbitrary cutoff point, the Agency would be effectively punishing those States who were early adopters of programs and other measures to reduce GHG emissions. Instead, EPA should commend those States for their early action to reduce GHG emissions by allowing them to incorporate those programs into State plans.

II. Comments on the Application, in the Specific Context of Limiting GHG Emissions from Existing EGUs, of Reading CAA Section 111(a)(1) as Limited to Emissions Measures that can be Applied to or at a Stationary Source, at the Source-Specific level.

The plain language of Section 111(d) directs the States to “establish standards of performance for any existing source … to which a standard of performance under this section would apply if such existing source were a new source.” 42 U.S.C. § 7411(d)(1) (emphasis added). Section 111 further defines a stationary source as “any building, structure, facility, or installation which emits or may emit an air pollutant.” Id. § 111(a). Standards of performance under Section 111(d) are not established in the aggregate for an entire sector of the United States’ economy; rather, standards of performance must be established specifically “for any existing source.”

The clear implication of this directive is that the standards of performance must be established on an individual basis for each class or category of existing sources and, therefore, must be limited to the types of actions that can be implemented directly by an existing source within that class or category. Likewise, the best system of emission reduction adequately demonstrated, which the standard of performance must reflect, must also be applied in a source-based manner.

Only a source-based BSER analysis focused on pollution control technology would be consistent with the approach described by EPA in the 1975 rule’s preamble. Further, in Section 111(d) rulemakings for individual source categories, EPA has consistently applied a source-based BSER analysis that focused on specific pollution control technologies, sometimes supplemented by work practices that an existing source could implement on site to reduce its emissions of target pollutants. In fact, EPA has applied a technology-based, source-specific BSER analysis in every prior Section 111(d) rulemaking.
• *Sulfuric Acid Plants.* Emission guidelines were established based on the emission reductions achievable by installing fiber mist eliminators from existing sulfuric acid production units. 41 Fed. Reg. 48,706.

• *Phosphate Fertilizer Plants.* Emission guidelines were established based on retrofitting existing sources with spray-crossflow packed bed (“SCPB”) scrubbers as the best system of emission reduction for fluoride emissions from existing phosphate fertilizer plants. 42 Fed. Reg. 12,022.

• *Kraft Pulp Mills.* When EPA established a series of emission guidelines for total reduced sulfur from a variety of sources at Kraft pulp mills, each emission guideline was based on pollution control technology that could be implemented directly by the existing sources. In contrast, EPA did not establish emission guidelines for two other sources—brown stock washer systems and black liquor oxidation systems—after concluding that there were no pollution control techniques that were both cost effective and “demonstrated on an existing [source].” 44 Fed. Reg. 29,828.

• *Primary Aluminum Plants.* EPA established emission guidelines for fluoride emissions from existing primary aluminum plants based on “effective collection of emissions, followed by efficient fluoride removal by dry scrubbers or wet scrubbers.” 45 Fed. Reg. 26,294.

• *Municipal Solid Waste Landfills.* EPA established emission guidelines for methane and non-methane organic compounds based on the emission reductions achievable by installing a flare to combust emitted gases. 61 Fed. Reg. 9,905.

Thus, in every past instance where EPA has established emissions guidelines under Section 111(d), the BSER standard has meant systems for emission reduction that can be implemented onsite by each existing source subject to the regulation. EPA’s past practice—some of which predates EPA’s implementing regulations for Section 111(d)—further confirms that the BSER analysis and emissions guidelines established under Section 111(d) must be source-based and rely solely on actions that can be undertaken on site by the affected facility.

### III. Comments on how to best define the BSER and develop GHG emissions guidelines for existing EGUs

#### A. BSER Must Be Something That Can Be Applied to the Regulated “Existing Source” Category

Under the plain meaning of the statute, the system of emission reduction must be something that can be applied to the “existing source.” *See* 42 U.S.C. § 7411(d)(1)(A). Under Section 111, the definition of an existing source is limited to a “building, structure, facility or installation which emits or may emit any air pollutant.” *Id.* § 7411(a)(3), (6). The operative term in the definition of standard of performance in Section 111(a)(1) is not “system,” but “system of emission reduction.” Thus, Section 111 requires EPA or the States to identify a set of things working together as parts of a mechanism or interconnecting network to reduce emissions.

A “system of emission reduction” must be read in a context that focuses on emission reductions that can take place at a specific existing facility. For example, a system of emission
reduction might incorporate multiple emission control technologies or direct sources to adopt best practices along with emissions controls. EPA took this approach when it established emissions guidelines for lime kilns located at Kraft Paper Mills. The EPA established an emission guideline based upon the fact that facilities could “maintain[] the proper oxygen level and cold-end temperature, and use[] water that does not contain dissolved sulfides in the particulate control scrubber,” along with additional filtration and clarifier capacity and additional fan capacity. Individually, these emission control technologies and best practices could not achieve the emission guidelines established by EPA, but together, they formed a system of emission reduction that could be employed at each existing source to meet the emissions target.

In the same manner, the heat rate improvements—including best practices and equipment upgrades—arguably form a system of emission reduction that together reduce GHG emissions from existing EGUs. Thus, when considered within the broader context of Section 111, the system of emission reductions refers to the range of options that can be implemented by an existing source to reduce its emissions—not anything that reduces the emissions of affected sources regardless of the entity that undertakes the emission reduction.

Forcing the retirement of individual units cannot constitute BSER for existing EGUs. Applying BSER in a manner that mandates the retirement of existing facilities is fundamentally incompatible with the structure and intent of Section 111(d). Simply put, closing a facility cannot be considered a “best system of emission reduction...adequately demonstrated” for that facility. Section 111(d)’s requirement that States establish standards of performance for existing sources by applying the BSER analysis only makes sense if the existing source continues operating after it is regulated and is capable of achieving the standard of performance. This principle is further supported by its requirement that States (and EPA) take into account other factors, including the remaining useful life of existing sources, when setting standards of performance. 42 U.S.C. § 7411(d)(1), (2).

B. Heat Rate Improvements for Existing EGUs

EPA’s regulations should promote efficiency and reliability improvements through equipment upgrades. Emission reductions that can be accomplished onsite by EGUs through heat rate improvements reduce the amount of fuel needed to produce a given unit of energy. Generally, application of a performance standard to individual coal-fired EGUs would require a “detailed site-specific analysis” that considers, among other factors, “plant design, previous equipment upgrades, and existing operation and maintenance practices.” This is particularly important because many plants have already adopted available upgrades. Recently constructed facilities likely included heat rate improvements in the initial design phase. Older facilities have generally also made equipment upgrades and adopted maintenance best practices in order to remain competitive. Any assessment of heat rate improvements must also consider potential costs and efficiency losses that could result from add-on emission control technologies, also known as the “parasitic load.”

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6 See EPA, Kraft Pulping: Control of TRS Emissions from Existing Mills, EPA-450/2-78-003b (March 1979).
7 Sargent & Lundy LLC, Comments on the Carbon Pollution Emissions Guidelines for Existing Stationary Sources: Electric Utility Generating Units (EGUs); Proposed Rule at 3-4 (Nov. 24, 2014) (“Sargent & Lundy Comments”).
Accordingly, the EPA should seek comment on regulatory approaches using the availability of efficiency upgrades, both as a key element in establishing state guidelines and as a compliance measure. Such improvements can be a cost-effective, achievable, practical way of reducing emissions in a manner consistent with the inherent and projected technological design and capabilities of the equipment. This will maximize the efficiency of the installed base, reduce operating and consumer costs, and minimize disruptions to electricity generation. In doing so, EPA will be promoting societal benefits of meeting the nation’s power needs at lower cost and lower emissions per unit of power generated.

This can be accomplished with minimal disruption as part of an electric generating unit’s schedule for maintenance and repair. Instead of incentivizing companies to install only like-kind replacement parts of the same vintage design (and with the same vulnerabilities) as old parts, utilities could be incentivized to identify and install equipment upgrades that improve efficiency and overall reliability (or at least not by penalized for doing so). Using a case-by-case decision process as part of a replacement rule’s guidelines would allow the best equipment upgrades available to address needed repairs, considering the expected life of the unit and its dispatch needs and economics.

Further, BSER analysis must consider the impact on performance of units that are operated at less than full capacity. Any replacement rule must account for the real world operating conditions faced by EGU, including the fact that startup and shutdown, part-load operation, and frequent ramping of these units will increase GHG emissions over base load operating conditions. The CAA Section 111(d) BSER analysis requires EPA to establish achievable standards based on all variations of operating conditions, not just idealized, cherry-picked data or circumstances. Any standard that fails to account for these issues is not achievable within the meaning of the statutory BSER definition and certainly has not been “adequately demonstrated” as demanded by Section 111.

### C. Applicability Criteria

The EPA has specifically exempted certain EGUs from applicability, including simple cycle turbines, certain non-fossil units, and certain combined heat and power (CHP) units. The NAM believes the EPA should retain these exemptions. Industrial CHP units are typically customized to suit the needs of each host facility and are therefore unsuitable for uniform nationwide BSER analyses or standards of performance. Industrial CHP units should, however, be allowed to participate voluntarily alongside other energy sources that can reduce net GHG emissions if so desired by States in the formation of their plans.

### IV. Comments on potential interactions of a possible rule limiting GHG emissions from existing EGUs with existing statutory and regulatory programs, such as NSR applicability and permitting criteria and processes and impacts.

The NAM is pleased that the EPA has solicited comment on improving the New Source Review (NSR) program to better support GHG reduction measures at stationary sources. If left unchecked, NSR could present a huge impediment to the installation of more efficient technologies that would reduce GHG emissions and combat climate change.

The purpose of NSR is to require industrial facilities “to install modern pollution control equipment when they are built or when making a change that increases emissions
In practice, however, NSR has often stood in the way of efficiency upgrades and the installation of modern pollution control equipment.

For instance, if a manufacturer installs selective catalytic reduction technology to reduce NOx emissions, the component will trigger NSR for the entire source, requiring review of all emissions. Practically speaking, that means the manufacturer will need 12 to 18 months to obtain NSR permits, tying up investment capital and delaying the economic benefits from expansion projects. The program requires expensive air modeling that frequently delays projects and can cost $100,000 or more to complete. It can lead to citizen suits—not just during NSR but again during renewal of the facility’s Title V operating permit—and enforcement actions. And that is assuming the manufacturer actually gets the permit.

EPA rules on netting of emissions under NSR unnecessarily delay, and sometimes prevent, manufacturers from replacing older fossil fuel boilers with newer, environmentally beneficial units. In addition, the EPA has required manufacturers to go through NSR when they replace relatively minor equipment (like a water pump) with a newer model, taking the position that only replacement with the original, inefficient, outdated part qualifies as “routine maintenance” that could avoid onerous permitting regulations.

The desire to avoid NSR can therefore create several perverse incentives: (1) an incentive for manufacturers to operate their plants exactly as they were built and only to replace parts with the exact same part that existed when the plant was built; and (2) an incentive to keep a plant’s overall emissions high in order to “save” them for use in a future project. One manufacturer reports that customers have asked it to de-optimize performance in a suite of efficiency upgrades in order to avoid triggering NSR. Any rule that results in companies affirmatively taking steps not to optimize efficiency puts those companies at a competitive disadvantage.

An NAM member company manufactures gas turbine upgrade technology that could improve the vast majority of in-service gas turbines by 2.6 percent and reduce their total CO₂ emissions per MWh by 6.5 percent; however, many manufacturers are choosing not to install this equipment simply because it triggers NSR. The same can be said for steam turbine upgrades, which would ensure higher grid efficiency, lower emissions and reduced wear and tear that is occurring from a rapidly changing electric grid.

An inability to define what is “routine maintenance” has resulted in NSR Notices of Violation being issued for environmentally beneficial projects like economizer replacement, steam turbine upgrades, feed water heater replacements and similar activities. In comments to the EPA’s proposed Clean Power Plan in 2014, “save” the Utility Air Regulatory Group (UARG) cited more than 400 instances in which a regulated entity took on a project to improve the energy efficiency of a power generation unit, only to be targeted by the EPA or citizen suits alleging that it had violated NSR.⁹

Generally speaking, the NAM urges the EPA to take a hard look at NSR policies regarding aggregation, debottlenecking, routine maintenance and repair, and project netting. We support the measures the EPA has taken to date to address NSR. We also encourage the

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EPA to reexamine its 2016 rulemaking setting a Significant Emissions Rate (SER) for GHGs. The NAM supports the establishment of an SER, but suggests the EPA consider a *de minimis* GHG threshold above 75,000 tons per year (tpy). Moreover, the NAM suggests the EPA exclude carbon capture and sequestration as the basis for establishing the SER, as it is not yet commercially available (despite its continued promise).

In response to recent stakeholder outreach by the Department of Commerce and the EPA on regulatory impediments to manufacturing, commenters from aerospace, insulation, pulp and paper, hard rock mining, iron and steel, clean energy power generation, boiler manufacturing and many other sectors raised NSR as a serious regulatory impediment. The NAM urges the EPA to fix NSR either before or concurrently with a potential CPP replacement so that NSR does not stand in the way of efficiency upgrades or environmentally beneficial projects.

V. **Other Comments that May Assist the Agency in Considering Setting Emissions Guidelines to Limit GHG Emissions from Existing EGUs.**

Manufacturers have sharply reduced our impact on the environment through a wide range of innovations. Through these traditional and innovative measures, manufacturers have helped to usher in a new era of a cleaner and more sustainable environment. As stated in the introduction to these comments, the NAM supports EPA regulation of GHGs under the CAA. Manufacturers of light-, medium-, and heavy-duty vehicles are already regulated under Title II of the Act, and aviation manufacturers are working toward a Title II regulatory structure that harmonizes with international standards. As EPA has developed standards applicable to EGUs, manufacturers have viewed these standards not only as energy consumers but also as likely recipients of future direct GHG regulations for which the EGU standards would serve as precedent.

It is not clear when, or even if, EPA will seek to regulate other manufacturing sectors under Title I of the CAA. However, as EPA considers Section 111 regulations on EGUs for their GHG emissions, the NAM asks that the EPA carefully consider the precedential value those standards could have. To assist in this analysis, the NAM asked several of our members for input on what they have done to reduce GHG emissions to date, technologies they have used and barriers they have overcome, the proper roles of EPA and States in crafting standards, and any other non-environmental factors that should be considered.

The measures manufacturers have taken to reduce their emissions, while not exhaustive, fall into four general categories: (1) energy efficiency measures, (2) process changes and optimizations, (3) renewable electricity, and (4) fuel switching in boilers.

For many, energy efficiency and process optimizations have provided tremendous returns, both in terms of overall GHG emission reductions and payback on a dollar-for-dollar basis. They have also allowed manufacturers to grow the volume of their businesses while keeping energy consumption (and the costs associated with that consumption) relatively flat. Energy efficient technologies that have paid dividends include (but are not limited to) switching to LED lighting, high efficiency motors, installation of variable-frequency drive systems, industrial automation and energy management software solutions. Process changes and optimizations include reduced steam usage, capture and reuse of waste heat, materials management and reuse.
Manufacturers are investing in both on-site renewable energy projects, such as biomass plants, solar arrays and wind turbines, and off-site projects such as large wind in the Midwest. On-site projects are generally replicable but do require specific factors such as location, proximity to a utility that needs excess capacity, and other considerations. Off-site projects usually require power purchase agreements (PPAs) and renewable energy certificates (RECs). The REC and EEC market has justified the implementation of efficiency and renewable energy projects that may not have been implemented otherwise. Structured properly, manufacturers are finding that renewable electricity investments can provide not only GHG savings but also cost savings in the right circumstances.

Finally, natural gas industrial boilers have also been a reliable pathway to reducing GHG emissions. This has been largely enabled by increased access to and availability of affordable natural gas supplies, a trend the NAM expects to continue thanks to the nation’s vast onshore and offshore natural gas resources. To continue these GHG reduction trends we will need to expand our natural gas pipeline infrastructure and work toward greater policy and regulatory certainty.

Manufacturers have faced both internal and external barriers in their quest to reduce GHG emissions. In terms of internal barriers that have been overcome, many companies credited their internal leadership for committing to GHG reduction goals, endorsing projects, and educating other leadership and staff as to why the action is important. External barriers tend to be more varied, and include:

- The pace of technology and innovation, which tends to move considerably quicker than the pace of regulatory change;
- Permitting barriers that provide hurdles to installing highly efficient distributed energy units (for instance, co-generation power units typically trigger NSR/PSD review because the PSD program does not credit reductions at the off-site public utility);
- Electric grid evolution issues and challenges with permitting natural gas and electric infrastructure;
- Duplication of efforts among state and federal authorities, particularly in the area of data collection;
- Peaks and valleys in funding and incentives for research and development;
- Transparency and consistency across states, the lack of which creates barriers to reapplying solutions; and,
- Assistance for small- and medium-sized manufacturers who lack the ability to retain full-time sustainability experts and energy management teams.

There are valuable roles for the federal government and States to play, from improved permitting measures to recordkeeping to collaborative multi-agency approaches. Generally speaking, manufacturers tend to prefer a single national program to a patchwork of state programs. A federal framework that establishes a consistent approach to achieving reductions could drive regulatory efficiencies for manufacturers. At the same time, states should be given utmost flexibility within that federal framework to utilize the solutions that work best within their borders. Finally, any future EPA actions on GHGs that impact the manufacturing sector must provide some measure of credit for early action.
VI. Conclusion

Thank you for the opportunity to provide these comments. As the EPA considers a regulatory framework to address GHG emissions, it should continue to constructively engage the manufacturing sector to better understand what we are doing, what we have planned for the future, and what measures we have undertaken that are delivering cost-effective results. The Agency should then work with manufacturers to construct a set of flexible policies that are reasonable and technically achievable, allow credit for early action, promote an energy strategy that avoids unnecessary retirements, and are cost-effective, attainable and protect American jobs and the economy.

Sincerely,

Ross Eisenberg
Vice President
Energy and Resources Policy