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U.S. Environmental Protection Agency  
1200 Pennsylvania Ave. NW  
Washington, DC 20460

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**Attn: Docket ID No. EPA-HQ-OAR-2013-0495**

**Re: Review of Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units**

The American Coal Council (ACC) submits these comments in response to the Environmental Protection Agency's (EPA) Federal Register Notice of December 20, 2018 of its proposed rule, Review of Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units. The ACC is a nonprofit trade association in its 37<sup>th</sup> year representing the collective business interests of the American coal industry. Our members include coal suppliers, transportation companies, terminals, utilities and independent power providers, industrial consumers, and support services suppliers. Since our member companies touch every aspect of turning one of America's most abundant energy resources into reliable and affordable electricity for the United States economy, our Association has first-hand knowledge of the direct and indirect impacts of coal-related regulations and a unique, "boots on the ground" perspective. Coal is also integral to the steel-making process and the industrial production of cement, chemicals, and paper. Our diverse membership base encompasses the entire coal supply chain, and it is from this broad perspective that we assess the impacts of regulations impacting coal supply and use. While ACC provides these comments from that broad perspective, individual member companies of ACC may submit separate comments on their own behalf that offer additional or other views.

EPA is proposing to amend the 2015 new source performance standards (NSPS) for greenhouse gases from stationary sources. ACC is encouraged that EPA is taking a more pragmatic and well-reasoned approach with this proposal than in 2015 when EPA established a Best System of Emission Reduction requiring partial carbon capture and

storage (CCS). Ultimately, the partial CCS requirement of the 2015 rulemaking has acted as a ban on the development of new coal plants.

## **BACKGROUND AND STATUS OF NEW COAL UNITS**

New coal electric generating units (EGU) with higher efficiency and lower emissions were continuing to be announced and built before 2013 and the rollout of President Obama's Climate Action Plan. Coal's abundant supply, low and stable fuel cost, and reliable baseload power source attributes supported the continued development of the coal power plant fleet. The Climate Action Plan and EPA's subsequent promulgation of new greenhouse gas (GHG)/CO<sub>2</sub> regulations for both existing and new EGUs had a chilling effect on coal. EPA established a standard for new coal EGUs that required partial carbon capture and storage. This CCS requirement was viewed by industry as unachievable, not adequately demonstrated, and not cost effective.

Moreover, EPA established a standard for new natural gas units that was achievable with existing technology and did not require CCS. With natural gas supply already growing more plentiful due to fracking technology, EPA's GHG/CO<sub>2</sub> regulations paved the way for new natural gas plant development. The door for coal plant development slammed shut.

Emissions reductions from the existing U.S. coal generating fleet have continued. Emissions per kWh of sulfur dioxide, nitrogen oxides and particulate matter from coal power plants have been reduced by 93% over the period 1970-2017.<sup>1</sup> Approximately \$122 billion was invested in emission controls through 2017.<sup>2</sup> But coal unit retirements continue at an alarming rate. Retirements or announced retirements number 654 units and about 121,000 megawatts (MW) in 43 states.<sup>3</sup> About two-thirds of these retirements, or 464 units and more than 78,000 MW in 37 states, have been attributed to EPA policies and regulations.<sup>4</sup> Of this more than 78,000 MW attributed to EPA, about 60,000 MW had already retired as of the end of 2018.<sup>5</sup>

While our nation's coal fleet is cleaner than ever before, U.S. policy and regulatory barriers have prevented additional achievements. The cycle of replacing retiring coal plants with new ones was halted, and along with it the opportunity to widely deploy advanced coal power plant technology to improve efficiency and emissions while stabilizing and sustaining our nation's coal power plant fleet.

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<sup>1</sup> American Coalition for Clean Coal Electricity, "Coal Facts", August 31, 2018, available at <http://www.americaspower.org/wp-content/uploads/2018/03/Coal-Facts-August-31-2018.pdf>

<sup>2</sup> *Ibid.*

<sup>3</sup> American Coalition for Clean Coal Electricity, "Retirement of Coal-Fired Generating Units", February 7, 2019, available at <http://www.americaspower.org/wp-content/uploads/2019/03/Coal-Unit-Retirements-February-2019-1.pdf>

<sup>4</sup> *Ibid.*

<sup>5</sup> *Ibid.*

The policies of other countries have supported the aggressive buildout of coal plants, including but not limited to those using higher efficiency, lower emissions supercritical technology. These supercritical applications now represent a 43% share of global coal capacity, in comparison to a level of only 28% in the U.S.<sup>6</sup> This comparison clearly illustrates the opportunity for further emissions reduction in the U.S. It also supports EPA's choice of the best system of emission reduction in its proposal.

## **BEST SYSTEM OF EMISSION REDUCTION**

The best system of emission reduction (BSER) must be adequately demonstrated, commercially available, and cost effective.

CCS, or partial CCS, does not meet these requirements. There are only two operating utility-scale CCS projects, Boundary Dam in Canada and Petra Nova in the United States (in Texas). While it is encouraging that these projects have successfully been brought on line – and Petra Nova's startup was on time and on budget – they do not provide evidence of adequate demonstration for widespread deployment. Additionally, both are tied to enhanced oil recovery (EOR) for revenue. The sale of CO<sub>2</sub> for EOR is a positive in the overall economics and was important to the development of these projects. However, many parts of our country have no access to mature oil fields, or they lack access to geologic storage, and these are limitations to further CCS development. The very high cost of CCS continues to be a major barrier to industry-wide use. The U.S. Department of Energy (DOE) recognizes this and ACC is encouraged that DOE has a focus on research and development initiatives designed to bring down the cost of CCS. We are hopeful of additional CCS development, but CCS should not have been established as the BSER by EPA in 2015 and it is appropriate for EPA to revise the BSER.

Supercritical technology does meet the BSER requirements. The map of supercritical coal-fired EGUs posted on EPA's website with information about this proposal shows 112 supercritical coal units at 63 power plants in the U.S. Prior to the confluence of conditions described above that halted new coal plant development, new supercritical EGUs continued to be added to the coal fleet, supplementing existing such units by an amount of 10,000 MW added between 2007 and 2012.<sup>7</sup> The U.S. and global deployment of supercritical technology validates the BSER tests of adequate demonstration, commercial availability, and cost-effectiveness.

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<sup>6</sup> Wood Mackenzie, "Outlook and Benefits of An Efficient U.S. Coal Fleet", January 2019, p. 5, available at <https://nma.org/wp-content/uploads/2019/01/Outlook-and-Benefits-of-An-Efficient-U.S.-Coal-Fleet.pdf>

<sup>7</sup> Wood Mackenzie, "Outlook and Benefits of An Efficient U.S. Coal Fleet", January 2019, p. 20, available at <https://nma.org/wp-content/uploads/2019/01/Outlook-and-Benefits-of-An-Efficient-U.S.-Coal-Fleet.pdf>

In addition to an emission standard for large supercritical EGUs, EPA has set forth additional standards. This includes a standard for small EGUs for which supercritical steam turbines are not available, and a standard for EGU's consuming refuse coal. EPA has asked for comment on whether there should be further categorization for the type of fuel to be used. ACC believes it is appropriate for EPA to distinguish emissions standards based on fuel type in the context of designing appropriate, achievable standards.

EPA has also requested input on operational flexibilities, including part-load limits and a low duty cycle where a new EGU might run consistently at a low operating level. ACC supports these flexibilities as reasonable in the context of designing appropriate, achievable standards. And in addition to the low duty cycle, EPA should establish a low load standard to address the operating situation for a unit which may not operate consistently enough at low loads to qualify as low duty.

In considering the BSER for this proposal, EPA assessed other systems of emission reduction including co-firing with or switching to natural gas, combined heat and power, and hybrid concentrated solar. EPA's determination is that none of these qualify as the BSER for coal EGUs, and ACC agrees.

## **EMISSIONS STANDARDS**

EPA's proposal notes that a NSPS is a never-to-exceed standard. While ACC supports the technology selection by EPA for the BSER, there are concerns that the actual emissions standards proposed by EPA of 1,900 lbs CO<sub>2</sub>/MWh for large EGUs and 2,000 lbs CO<sub>2</sub>/MWh for small EGUs do not provide adequate compliance margins over the entire life of the EGUs and over the range of operating conditions.

EPA's analysis to support the achievability of these standards normalized emissions data using statistical adjustments and then selected a single "best performing" large supercritical EGU and a single "best performing" small subcritical EGU. This method of analysis is a departure from past NSPS rulemakings where EPA has analyzed actual emissions data from a representative set of sources currently utilizing the BSER. This representative set of sources would typically encompass a range of ages, locations, capacities, and operating profiles. The diversity of such a set of sources is important in determining the standards and the capability of industry-wide compliance. EPA should review its methodology in its 2015 NSPS for CO<sub>2</sub> standards for natural gas units, which was issued along with the 2015 NSPS standards for coal. There, EPA used its traditional approach of a range of representative sources to determine the standard

While EPA's plan for annual averaging for compliance is helpful, the 1,900 lbs CO<sub>2</sub>/MWh for large EGUs and 2,000 lbs CO<sub>2</sub>/MWh for small EGUs needs review and revision to

provide standards that are assured to be achievable throughout the life of an EGU and over the full range of operating conditions.

### **EMERGING AND NEW TECHNOLOGIES**

Since CCS has been advancing but has not achieved adequate commercial scale and cost-effectiveness, EPA's new source standards should provide for opportunities to adequately demonstrate CCS as well as other emerging and new emissions reduction technologies to ensure the pathway for development remains open. While ACC supports the concept of a commercial demonstration permit for CCS and other emerging and new technologies, we do not agree that EPA should limit the number of permits to be made available. Nor should EPA limit the amount of generation capacity that would qualify. EPA should guarantee that all developers of new and emerging technologies will receive the same accommodation until a technology has been adequately demonstrated to the point that it is no longer new or emerging. This will maximize the opportunity for technology development.

### **OTHER – INDUSTRIAL EXCLUSION**

Since these standards being proposed by EPA were developed for EGUs and not for industrial sources, EPA should be clear that industrial units are not covered by them.

### **MODIFIED AND RECONSTRUCTED UNITS**

Since modified and reconstructed sources begin as existing units, they are already subject to EPA's Section 111(d) regulations and will be regulated under the Affordable Clean Energy (ACE) rule that EPA previously proposed and is finalizing. A potential distinction between regulating a unit as an existing EGU under Section 111(d) or as a modified or reconstructed EGU under Section 111(b) is that under this EPA proposal it seems that such a unit may need to convert to a more advanced steam cycle regardless of whether it was cost-effective. This is inconsistent with the requirement for EPA to consider cost. EPA's Section 111(b) rule should not impose anything more on such units than the same cost-effective measures they would already be subject to as existing units under EPA's ACE rule.

### **ENDANGERMENT FINDING**

EPA took the position in the 2015 rule that it was not required to make an endangerment finding to regulate CO<sub>2</sub> from fossil fuel electric utility sources. Among other reasons, EPA cited its 2009 endangerment finding for motor vehicles. However, that finding was for six greenhouse gases which EPA found in the aggregate to endanger public health or welfare. EPA has never made a finding that CO<sub>2</sub> alone endangers public health or welfare, and certainly not for CO<sub>2</sub> from fossil generating units.

EPA has the right to re-visit regulations, and we support EPA doing so for the prior 2015 NSPS regulations. The partial CCS requirement as the BSEER and the emissions standards set must be remedied. The 2015 NSPS has already stopped potential deployment of additional advanced coal plant technology in the U.S.

## CONCLUSION

Our nation's plentiful coal reserves, larger than any other country in the world, must continue to be available as a fuel source for electric power generation. The Polar Vortex of 2014, the Bomb Cyclone of 2018, and the Polar Vortex of 2019 clearly demonstrate the importance of power sector fleet and fuel diversity. Such diversity is critical to the continued ability to supply reliable, resilient and affordable electricity to American homes and businesses. That diversity will lessen in the future as existing coal plants retire, unless they begin to be replaced.

A recent report by the DOE National Energy Technology Laboratory (NETL) assessed the impact of the aging coal fleet and oncoming retirements. According to the report, coal retirements of 31 GW through 2025 have already been announced, and with additional retirements the DOE Energy Information Administration (EIA) projects retirements at 41 GW by 2025.<sup>8</sup> However, NETL suggested EIA's assumed coal capacity factor at 72 percent for the remaining fleet is unrealistically high for a number of reasons including because of the age of the fleet. As NETL considered the generation and capacity impacts of the aging fleet, it calculated new generation of 24 GW at an 80 percent capacity factor or 29 GW at a 65 percent capacity factor would be needed.<sup>9</sup> NETL states that would also equate to 35 GW of retirements of existing units.<sup>10</sup> This means actual coal retirement capacity might be far higher, perhaps as much as 75 GW by 2025.<sup>11</sup>

The rate of coal retirements is cause for concern. Coal power plants have a distinct set of attributes that provide outsized benefits to the grid, especially in the times of greatest need for electricity. Coal's abundance, accessibility, and inventory stored onsite at power plants means that coal plants are available – available to act as a cost hedge on natural gas in

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<sup>8</sup> U.S. Department of Energy, National Energy Technology Laboratory, "Reliability, Resilience and the Oncoming Wave of Retiring Baseload Units Volume 1: The Critical Role of Thermal Units During Extreme Weather Events", March 13, 2018, p. 25, available at [https://www.netl.doe.gov/projects/files/ReliabilityandtheOncomingWaveofRetiringBaseloadUnitsVolumeITheCriticalRoleofThermalUnits\\_031318.pdf](https://www.netl.doe.gov/projects/files/ReliabilityandtheOncomingWaveofRetiringBaseloadUnitsVolumeITheCriticalRoleofThermalUnits_031318.pdf)

<sup>9</sup> *Id* at p. 29.

<sup>10</sup> *Ibid*.

<sup>11</sup> U.S. Department of Energy, National Energy Technology Laboratory, "Reliability, Resilience and the Oncoming Wave of Retiring Baseload Units Volume 1: The Critical Role of Thermal Units During Extreme Weather Events", March 13, 2018, p. 30, available at [https://www.netl.doe.gov/projects/files/ReliabilityandtheOncomingWaveofRetiringBaseloadUnitsVolumeITheCriticalRoleofThermalUnits\\_031318.pdf](https://www.netl.doe.gov/projects/files/ReliabilityandtheOncomingWaveofRetiringBaseloadUnitsVolumeITheCriticalRoleofThermalUnits_031318.pdf)

the fuel marketplace to soften consumer impacts of natural gas price spikes, available to act as a generation hedge against natural gas assets that depend on just-in-time fuel delivery to produce power, and available to step in for unavailable intermittent power generation sources when the sun is not shining or the wind is not blowing.

The U.S. is a world leader in emissions reduction. This trend can continue. EPA should move expediently to revise and finalize this proposed regulation, adjusting as recommended to ensure emissions standards are set at levels that can be achieved over the lifetime of new coal EGUs. EPA's actions will provide an important pathway to allowing the important contributions of coal in powering America to continue in an environmentally reasonable and responsible manner.