October 15, 2014

Air and Radiation Docket and Information Center
U.S. Environmental Protection Agency
Mail Code: 28221T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Attention: Docket ID No. EPA-HQ-OAR-2013-0603

Re: Carbon Pollution Standards for Modified and Reconstructed Stationary Sources: Electric Utility Generating Units: Proposed Rule (79 FR 34960; June 18, 2014)

To Whom It May Concern:

The Pennsylvania Department of Environmental Protection (DEP) appreciates the opportunity to submit comments on the U.S. Environmental Protection Agency’s (EPA) proposed rule concerning the “Carbon Pollution Standards for Modified and Reconstructed Stationary Sources: Electric Utility Generating Units” (79 FR 34960; June 18, 2014). It is important to note that the comments submitted by DEP on this proposal represent DEP’s official position on this proposal. Any comments submitted on behalf of an organization of which DEP might be a member represent the comments of that organization and not those of DEP.

General comments

In light of the recent vacature of the Tailoring Rule, the proposed rule should be withdrawn and re-proposed after a significance threshold for greenhouse gases (GHG) or another method of determining the applicability of the term “major modification” for GHG is proposed and finalized. It is recommended that the EPA consider the positions presented in Pennsylvania’s Recommended Framework for the Section 111(d) Emissions Guidelines Addressing Carbon Dioxide Standards for Existing Fossil Fuel-Fired Power Plants. The absurd result of new source review (NSR) preventing heat-rate improvements that will reduce carbon dioxide (CO2) intensity of electric generating units (EGUs) can be addressed by changing the NSR applicability test from a mass-based to a rate-based test.

Because it is EPA’s stated goal to reduce CO2 emissions by 30 percent from 2005 emissions levels for existing fossil fuel-fired EGUs, it is important that EPA propose a rule that can actually reduce emissions from existing sources. This proposed rulemaking is close to a viable regulation that could achieve this goal, and EPA should consider Pennsylvania’s white paper and these comments before promulgating the final rule. There are several points in this proposal on which DEP agrees with the EPA, and it is our opinion that these points of agreement can be used to craft a more achievable and consistent treatment for existing fossil fuel-fired EGUs under the modified and reconstructed New Source Performance Standards (NSPS) and Section 111(d) of the Clean Air Act (CAA).
The DEP commends the EPA for its realization that existing sources that undergo modification or reconstruction should have a limit determined by technical and economic feasibility from an engineering analysis. This allows the maximum emission reductions to be obtained without exerting undue pressure on the marketplace. It gives all fuels and technologies the opportunity to compete and ensures that the energy industry is able to pursue economic opportunities and preserve fuel diversity. This, in turn, will ensure that all people will be provided with an affordable and reliable electric system and create a scenario where the environment, consumers, and industry all benefit. The only additional action that EPA would need to undertake is to remove the obstacle of NSR, which has been cited by both the EPA and the National Energy Technology Laboratories as an impediment to improving the efficiency of fossil fuel-fired EGUs.

**Best system of emissions reduction**

DEP agrees with the EPA on ruling out carbon capture and storage (CCS) from the determination of the best system of emission reduction (BSER) for modified and reconstructed sources. In our comments to the proposed NSPS for fossil fuel-fired EGUs, DEP discussed several aspects of the technical and economic feasibility of CCS. Specifically, DEP pointed out that it appeared EPA assumed a 100 percent retention rate for sequestered CO₂, when data from the Permian basin injection for enhanced oil recovery shows that only approximately 60 percent of the CO₂ is permanently sequestered. DEP expressed concern over this oversight when EPA proposed a 40 percent partial CCS requirement. DEP went further and presented examples of a coal-fired base plant that is uncontrolled for CO₂ and an identical plant with a 40 percent partial CCS system for CO₂ control. Our calculations show the emissions of the controlled plant to be 0.2 million tons less than the uncontrolled plant. DEP continues to maintain that CCS is neither economically viable due to the significant energy penalty, nor that it is environmentally beneficial. This is because the energy required by CCS requires that approximately 390,000 more tons of coal is burned. This increase in fuel consumption, coupled with the additional life-cycle costs associated with the mining and transport of the fuel, further degrades the economic feasibility of CCS. The increased emissions of acid gases, toxic metals, sulfur oxides, nitrogen dioxide, volatile organic compounds and other hazardous air pollutants from burning the additional fuel most likely negate the environmental benefit of the minor reduction in CO₂. Therefore, DEP continues to maintain that CCS is not currently demonstrated as economically feasible for the determination of BSER for both new and modified and reconstructed sources.

DEP agrees with EPA’s assessment that natural gas conversion, natural gas co-firing, natural gas reburning, combined heat and power, and plant hybridization are not BSER for modified and reconstructed sources. While these techniques are inside-the-fence measures that can be taken by affected sources, they may not be technically or economically feasible in all cases. Owners and operators of affected EGUs should be allowed to use any of the above technologies to meet the required emissions limit. DEP also agrees with EPA’s assessment that re-dispatch to lower emitting sources, renewable generation, and demand side energy efficiency are not BSER for modified and reconstructed sources, as these are all outside-the-fence measures and beyond the scope of traditional regulation.

We urge EPA to limit their definition of BSER to actions that can be taken at the affected existing fossil fuel-fired EGUs, without redefining the source. The statutory scheme is quite straightforward. Under Section 111(b) of the CAA, EPA is required to establish “standards of
performance” for any new source within a listed category; then, under Section 111(d), each state is required to submit a plan that establishes “standards of performance” for “any existing source” in the same category. In either case, it is quite clear from the statute that this standard applies to an individual source – to any new source in the country or to “any existing source” in the state. EPA agrees with this reading when it comes to new sources.

However, for existing sources, EPA now claims that a “standard of performance” can actually be much broader. Rather than requiring states to submit plans that establish standards for individual power plants, EPA is proposing to require states to submit plans to regulate the whole “electricity system” in the state – and anything connected to that system by either producing or using electricity. That approach is wholly inconsistent with the statutory scheme established under the CAA. Furthermore, that interpretation is inconsistent with how the U.S. Supreme Court recently viewed best available control technology in the UARG v. EPA case, which overturned EPA’s Tailoring Rule. The only plausible reading of the statute is that a standard of performance must be based on “the best system of emission reduction” that can achieve a “continuous emission reduction” at “a source” being regulated, whether it is a new source or an existing source.

DEP’s interpretation is consistent with the CAA, the U.S. Supreme Court’s opinion of how the CAA works, and with EPA guidance. Our comments on the Clean Power Plan proposal will cover in detail the inappropriateness of including outside-the-fence measures as a part of BSER for existing fossil fuel-fired EGUs. However, DEP does believe that owners and operators of affected sources should be allowed to coordinate with owners and operators of alternative generation and energy efficiency projects at their discretion to comply with the required emissions limit.

**Viable emission standards**

As stated in our comments (dated May 6, 2014) on the proposed NSPS for new affected sources, DEP believes that the limits proposed by EPA are not viable and should be revised. EPA should set a performance standard of 1,000 lbs CO₂/MWh (gross) or 1,050 lbs CO₂/MWh (net) on a 12-month rolling average basis for natural gas combined cycle and 1,800 lbs CO₂/MWh (gross) or 1,925 lbs CO₂/MWh (net) on a 12-month rolling average basis for coal-fired units. It is for this reason that DEP disagrees with the proposed standard of 1,900 lb CO₂/MWh (net) for modified and reconstructed coal-fired units that fire more than 2,000 MMBtu/h of fuel. The proposed standard for modified and reconstructed EGUs is more stringent than the standard that DEP recommends for new sources.

In addition, the proposed NSPS regulation for new sources, and consequently the modified and reconstructed NSPS and proposed Clean Power Plan, specifies that fossil fuel-fired units are affected facilities, and the definition of fossil fuel includes petroleum and natural gas. The proposed rule did not include specific standards for petroleum and natural gas-fired units. Therefore, separate emission limits should be established for each type of EGU dependent upon the technology used, type of fuel fired, and the unit’s role in providing electricity to the grid (i.e., the unit is base-load, load-following, or peaking).

While it is unprecedented, DEP agrees with the proposed approach of establishing a unit-specific performance standard based on the best historic performance of the modified or reconstructed unit. However, DEP disagrees with the proposal arbitrarily establishing any increment of additional stringency without conducting an analysis. The engineering analysis should use the emission rate, averaging the best three consecutive years, as the floor for the numerical emission
standard. This analysis should be performed by the owner or operator of the affected unit and approved by the state or local air pollution control agency following a process approved by the EPA. DEP believes that this approach is also appropriate for existing units under Section 111(d) that do not meet the definition of modified or reconstructed under this proposed rule.

Calculation methodologies for performance standards and compliance demonstration should be developed to cover dual fuel capability and co-firing fossil or non-fossil fuel in affected EGUs. In addition, DEP recommends a deletion of the applicability requirements for turbines to burn at least 90 percent natural gas to be an affected source since most turbines are capable of firing multiple fuels without major modifications and can simply ensure that eleven percent of heat input comes from another fuel to completely avoid the applicability.

Applicability requirements for co-firing with non-fossil fuel in fossil fuel-fired EGUs should be consistent with the Mercury and Air Toxics Standards rule for fossil fuel-fired EGUs, where the heat input threshold is no more than ten percent fossil fuel over a three-year rolling average, or no more than 15 percent fossil fuel on an annual basis.

**Use of gross output versus net output-based standards**

DEP believes that a gross output-based standard is more appropriate than the net output-based standard because well-controlled fossil fuel-fired EGUs consume more energy to operate air pollution control devices (i.e., scrubbers, selective catalytic reduction devices, and particulate controls) than uncontrolled units. The gross output-based standards are appropriate for both new and existing fossil fuel-fired EGUs. The definition of gross output should allow for 100 percent of the useful thermal energy being produced and used to be included, as opposed to 75 percent of useful thermal energy being produced as proposed. DEP recommends that regardless of whether the final rule uses a gross output or net output-based standard, 100 percent of the useful thermal energy should be credited.

**Double jeopardy**

Changes to existing affected sources that are subject to Section 111(d) will most likely trigger applicability to the modified and reconstructed source rule under the NSPS. In doing so, the unit should be removed from the Section 111(d) plan and only have the emission limits defined in the NSPS. An affected source should not be subject to both rules for new and existing sources. In the case that a Section 111(d)-affected source does not trigger the applicability thresholds for modification or reconstruction, the affected source would remain in the Section 111(d) plan.

DEP does not recommend establishing an upper threshold of between 75 percent and 100 percent of the cost of an entirely new facility to classify a reconstructed source as a new source. A reconstructed source is different than a new source in several respects. First, unless the equipment in question is completely replaced, there may be technical limitations that prevent the unit from achieving the emissions levels of a new unit. Second, the plant layout may not be as easily optimized in a reconstruction as compared to a new source construction. For these reasons, establishing an upper threshold of between 75 percent and 100 percent of the cost of an entirely new facility to classify a reconstructed source as new is inappropriate.
The applicability requirements for facilities based on electric sales alone

DEP concurs with the recognition by EPA that basing applicability on electric sales as proposed in the NSPS is problematic. By oversizing the plant, the sources that sell less than one-third of their potential electric output or less than 219,000 MWh net electric output would have been exempted from the applicability of the NSPS requirements.

However, DEP does not agree with EPA’s proposal to include co-located sources that are used to offset station loads for fossil fuel-fired EGUs. While the size criteria of 25 MW (219,000 MWh) may exclude many of these units, subjecting co-located units to the proposed NSPS by counting electricity supplied to another EGU as net sales for applicability purposes has far-reaching effects. As this proposal for modified and reconstructed sources would amend the proposed new source NSPS, this change would have more significant impacts on the construction of new sources than on existing sources.

As stated in our comments on the new source NSPS, if potential electric sales remain a metric for determining applicability, the test should be consistent for all regulated sources. DEP believes that the electric sales applicability test should be based on a three-year rolling average for all sources and EPA should not consider separate capacity factors for net electric sales as it may make it easier for some sources to avoid applicability.

Compliance requirement

DEP concurs with the EPA’s proposal of a 12-month rolling average, which is more appropriate than a calendar year approach to demonstrate compliance which would meet the federally enforceable criteria.

Codifying regulations

Codifying the proposed regulations in their respective subparts would make referencing the appropriate NSPS easier for state and local air pollution control agencies and the owners and operators of the affected facilities. All of the applicable regulations would be in one subpart, thereby minimizing confusion. In addition, there would be no need to reproduce definitions that are already contained in the respective subparts (i.e., definition of fossil fuel). Also, if future data supports changing an emissions limitation for one type of fuel or technology, it can be addressed without opening the entire regulation to comment.

While codifying the proposed regulations in a new subpart may not cause undue burden to the owner/operator or the permitting agencies, we recommend codifying the provisions into their respective subparts.

Waste coal facilities

Notwithstanding the decision of the U.S. Court of Appeals for the D.C. Circuit in White Stallion Energy Ctr. LLC v. EPA (No. 12-1100), to uphold EPA’s decision not to establish a subcategory for waste coal facilities, DEP believes that an exemption for this type of facility, under Section 111(b), is appropriate given the extraordinary environmental benefit provided by this technology. Moreover, should an exemption not be granted to waste coal-fired facilities, the DEP recommends a separate subcategory for this technology, which is reasonable and well-supported by DEP’s comments to the proposed NSPS.
The advantage of utilizing coal refuse to create electricity is that net emissions of GHG in the long term are neutral, and in the short term no greater than the short-term emissions of a combined cycle gas plant. The use of mining waste as a fuel source has the added benefits of reclaiming land that is covered by these piles, limiting the contamination of soil with heavy metals from leaching, and reducing incidences of water contamination with acid mine drainage. Also, remediation would stop current and future CO₂ emissions resulting from the uncontrolled combustion of waste piles.

Due to the multiple environmental benefits of remediating coal refuse piles, EPA should establish an exemption for EGUs that burn over 75 percent coal refuse on an annual basis. Should an exemption not be granted to waste coal-fired facilities, DEP recommends setting limits for modified or reconstructed sources that burn bituminous gob and anthracite culm at 2,200 lb CO₂/MWh (gross) or 2,350 lb CO₂/MWh (net).

Conclusion

As previously stated, the proposed rule should be withdrawn and re-proposed after a significance threshold for GHG or another method of determining the applicability of the term major modification has been proposed and finalized. When re-proposed, DEP recommends that the Pennsylvania white paper and these comments be incorporated in order to create a viable and legally defensible rule. The most important aspect of this is changing the applicability test for NSR from a mass-based to a rate-based test in order to incentivize the heat-rate improvements that will result in lower CO₂ emissions.

Unlike the Clean Power Plan proposal, this proposal focuses on reducing emissions from sources by actions taken within the confines of the facility as opposed to regulating the entire energy sector. We urge EPA to incorporate our comments and the Pennsylvania white paper into the final rule in order to realize significant emissions reductions without damaging the economy or threatening grid reliability by limiting fuel diversity and generation technology.

Thank you for the opportunity to comment on the proposed NSPS for modified and reconstructed sources. Should you have questions or need additional information, please contact Joyce E. Epps, Director of the Bureau of Air Quality, by e-mail at jeepps@pa.gov or by telephone at 717.787.9702.

Sincerely,

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Deputy Secretary for
Waste, Air, Radiation and Remediation