pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

November 26, 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-2013-0602

Re: Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units: Proposed Rule (79 FR 34830; 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 Protections Agency's (EPA) proposed rule concerning the "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units" (79 FR 34830; June 18, 2014). DEP recognizes EPA's authority under the Clean Air Act (CAA) to regulate greenhouse gas emissions, including carbon dioxide (CO_2), and supports federal efforts to reduce carbon pollution. DEP believes that there is a credible argument that EPA may not regulate CO_2 emissions from fossil fuel-fired EGUs under CAA Section 111(d) because these EGUs are regulated under Section 112, the Mercury Air Toxics (MATS) regulation. Nonetheless, if EPA does have the authority to regulate CO_2 emissions from fossil fuel-fired EGUs under Section 111(d), it must be done in a lawful fashion, and we offer that as proposed the Clean Power Plan will preempt states' authority to establish performance measures for emissions reductions in state plans and inappropriately directs national energy policy.

As more fully explained herein, DEP questions the propriety of this Clean Power Plan proposal, which establishes emission guidelines under Section 111(d) that cannot be achieved by the source category, i.e. existing fossil fuel-fired EGUs. Further and aptness notwithstanding, the CO_2 emission targets that have been proposed for Pennsylvania can only be achieved by establishing a state energy plan that regulates the electric energy market, including both generation and end usage, which are both beyond the authority of EPA.

The comments submitted herein 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 necessarily those of DEP. Thank you for the opportunity to comment on the proposed rule.

Sincerely,

Dana K. Aunkst
Acting Secretary

Enclosure

Comments Concerning the "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units" (79 FR 34830; June 18, 2014)
Pennsylvania Department of Environmental Protection (DEP)

1. *DEP questions EPA's authority to regulate CO_2 emissions from fossil-fuel fired EGUs under CAA Section 111(d).*

Existing fossil fuel plants are currently regulated under Section 112 of the CAA. In February 2012, EPA promulgated a standard for mercury and certain other air toxins from fossil fuel power plants under the National Emission Standards for Hazardous Air Pollutants program authorized under Section 112 of the CAA. Section 111(d) allows EPA to mandate standards for emissions that are not "from a source category which is regulated under [Section 112]." DEP questions whether EPA has the authority to promulgate the proposed Clean Power Plan because the source category of fossil fuel power plants is now regulated under Section 112. The 1990 amendments to the Clean Air Act are instructive. The House and the Senate passed versions that were slightly different in one respect. Both versions appear in the Statutes at Large. Under the House version of Section 111(d), if a source category is regulated under Section 112, other pollutants emitted by that source category cannot be regulated under Section 111(d). Under the Senate version, only the pollutants that are regulated under Section 112 cannot be regulated under Section 111(d).

EPA claims the two versions conflict, creating an "ambiguity." However, there is no inconsistency between the two versions. EPA can easily give effect to both prohibitions. The House and Senate versions together mean that, under Section 111(d), EPA may regulate *neither air pollutants nor source categories* already regulated under Section 112. Additionally, EPA's claim of an ambiguity is baseless and predicated on a clerical error that cannot alter the plain terms of Section 111(d) in the U.S. Code, which contains only the House version. The two versions of Section 111(d) retained in the Statutes at Large were simply a substantive amendment (the House version) and a clerical amendment (the Senate version). An erroneous clerical entry that conflicts with a substantive provision of that statute cannot create an ambiguity. In either case there is no ambiguity and EPA's proposed regulatory action under Section 111(d) for affected EGUs is inconsistent with the CAA.

The Section 111(b) rule for new sources, which is a prerequisite to the Section 111(d) rules, may be invalid. The Section 111(d) authority under the CAA only applies to existing sources where there are standards of performance for new sources of the same type–the Section 111(b) rules. The proposed Section 111(b) rule raises serious legal and technical questions about whether carbon capture and sequestration, on which the proposed rule relies, is adequately demonstrated, whether it has a reasonable cost, and whether the fact that the Department of Energy has funded much research on this technology runs afoul of certain provisions of the Energy Policy Act of 2005. If the Section 111(b) rule fails, the necessary predicate for Section 111(d) rule for existing sources fails with it. Therefore, EPA must wait until the federal courts have assured the agency that its Section 111(b) approach for new EGUs is legally sound before it can finalize its Section 111(d) proposal.

Under Section 111(d), EPA's obligation is to promulgate emission guidelines for establishing "standards of performance for any existing source," and the "standard of performance" must be applicable only to "the existing source." An "'existing source' means any stationary source other than a new source." Therefore, any proposed standard of performance necessarily identifies the "stationary source" to which it applies. The "standard of performance" that EPA proposes (e.g., 1,052 lbs CO2/MWh for Pennsylvania) is applicable to the State, and is based on what EPA has determined is achievable by application of their proposed best system of emissions reductions (BSER or the four building blocks) to the generation mix of that State. Accordingly, under the Clean Power Plan the State must be the "stationary source." However, this is legally incorrect and contrary to the statutory language of the CAA given that "States" are wholly distinguished from "stationary sources" in Section 111 with the former as the regulator and the latter as the regulated entity.

Under Section 111(d) of the CAA, the EPA must prescribe procedures for states to consider in developing a plan that is submitted to the EPA for approval. However, EPA has instead specified state-specific CO_2 emission rates in the proposed Clean Power Plan that must be met by the states in the proposed rule, overstepping its authority granted under the CAA. By specifying an emission rate for each state, the EPA is in effect usurping the states' authority to submit a Section 111(d) plan establishing standards of performance for existing EGUs. In addition, EPA may have overstepped its authority in determining BSER on a state-specific basis as opposed to determining BSER nationally for existing EGUs operating in this source category. EPA also broke with the provisions of the CAA, by basing BSER on reductions that can only occur beyond the fence-line of a facility. In doing so, EPA has intruded on the states' right and CAA obligation to consider the remaining useful life of a source or to set less stringent limitations based on the age, location, basic process design, and technical or economic feasibility relevant to the source.

In addition, EPA should establish independent categories based on fuel and configuration when determining BSER. Improvements that can reduce emissions for coal-fired EGUs may not be applicable to natural gas combined cycle (NGCCs), and BSER should reflect that. The proposed Clean Power Plan neglects these facts contrary to the intent and prior implementation of Section 111(d) of the CAA during the past 37 years.

Further, the proposed Clean Power Plan is not consistent with the historic implementation of Section 111(d) of the CAA. DEP questions EPA's determination of BSER because it includes measures that are not achievable by the affected EGUs. In attempting to establish an emission rate for the entire energy sector, EPA has proposed a performance standard which cannot be met solely by an affected EGU. Following the issuance of performance standards for new sources under 111(b) of the CAA, the EPA must develop emission guidelines that are consistent with the 111(d) framework for existing sources taking into consideration DEP recommendations, as appropriate.

2. *Proposed state specific emission reduction targets for affected EGUs and the use of "outside-the-fence" measures to establish and achieve the targets are a major concern.*

EPA determined each individual state's emission reduction target using 2012 data for several "building blocks," including: 6 percent heat rate improvements at existing coal plants; re-dispatching existing NGCC plants to 70 percent capacity; increasing the use of renewable energy (RE); ensuring the continued operation of "at-risk" nuclear plants; and enhancing demand-side energy efficiency programs (EE). EPA's proposed plan emphasizes that states will have flexibility in the means chosen to meet the carbon dioxide target goals, through these and other measures. However, with the exception of the heat rate improvements, the other measures only serve to shift generation away from existing coal-fired EGUs. Our concerns relate to establishing CO_2 reduction targets under Section 111(d) that will force Pennsylvania to develop a comprehensive state plan to regulate the electric energy market rather than develop a state plan to regulate Section 111(d) affected fossil fuel-fired EGUs. This is an unprecedented method of establishing control requirements for existing sources that would be affected as a new source category because of New Source Performance Standards promulgated under Section 111(b) of the CAA.

3. *The proposed Clean Power Plan ignores state authority afforded by Congress under Section 111(d) of the CAA.*

Clearly, EPA must recognize the role of states in establishing and implementing "standards of performance" in state plans for existing sources taking into consideration, among other factors, the remaining useful life of the existing source. By doing so, EPA would ensure the preservation of the states' discretion in the development and implementation of truly flexible emission control programs that are consistent with the Congressional intent of Section 111(d) of the CAA.

4. *The claim that CO_2 emissions will be reduced by 30 percent from 2005 emissions levels is misleading as 2012 is being used as the baseline year for calculations.*

EPA has stated that the emissions reductions that will be achieved under the Clean Power Plan will reduce CO_2 emissions by 30 percent from 2005 emissions levels for existing fossil fuel-fired EGUs. However, this stated goal is misleading, because the EPA proposed state-specific targets using 2012 as the baseline year; 2005 data was not considered when establishing the proposed emission targets. By using a 2012 baseline, EPA ignores the CO_2 reductions achieved by Pennsylvania and other states prior to 2012. Consequently, states that have already achieved significant CO_2 reductions would need to require further CO_2 emissions reductions that may not be achievable in practice. In fact, CO_2 emissions in Pennsylvania were reduced by approximately 15 percent between 2005 and 2012. The final goal set by the EPA for Pennsylvania requires the Commonwealth to reduce CO_2 emissions from 2012 by approximately 31 percent by 2030, which represents a 41 percent reduction from 2005 levels. While the proposal allows EGU retirements to be credited towards meeting a state target, establishment of a more stringent target that incorporates those reductions makes the early retirements of fossil fuel-fired EGUs not creditable from a practical standpoint. The only credits for retirements afforded in the proposed plan are those that occur after 2012. DEP recommends that EPA consider a five-year averaging approach for establishing baseline for emission targets.

Thirty-two days prior to the December 1 deadline for comments on the proposed Clean Power Plan rule, EPA published a Notice of Data Availability (NODA) soliciting comments on several substantial new issues which could potentially affect the scope and stringency of the proposed

rule.[1] EPA states in the NODA "Potential changes to the rule based on any one of these issues could increase or decrease the stringency of the goals or shift stringency levels between and among states." DEP believes that the CO_2 emission rate target proposed for Pennsylvania is already too stringent. Therefore, any proposed methodology changes in the NODA that result in more stringent goals should not be considered.

5. The levels of CO_2 emission reductions and timeframes for achieving them are not attainable.

DEP is concerned that the proposed Clean Power Plan requires a level of CO_2 emission reduction that is unachievable by existing EGUs and also by the short time frames for achieving the reductions due to the proposed deadlines. Contrary to the statutory framework under Section 111(d) of the CAA, "outside-the-fence" emission reductions from non-affected sources and measures including redispatching NGCC, RE, and EE would be necessary to meet the targets proposed for Pennsylvania. Because of the potential effects on fuel diversity, energy prices, and other consumer effects, DEP believes that such policy decisions are better left to the United States Congress or other elected officials. Clearly, this is a concern of the Pennsylvania House of Representatives and Senate, both of which passed legislation that was signed into law by the Governor of Pennsylvania. This legislation mandates that DEP submit the proposed Section 111(d) State Plan to the General Assembly for their review and approval.[2] As proposed, the Clean Power Plan could leave residential, commercial, and industrial U.S. consumers exposed to less reliable, more expensive, and more volatile electric markets in the future.

6. Inclusion of non-affected sources is an overly broad interpretation of the BSER.

Regulating beyond the fence-line

The proposed Clean Power Plan is unprecedented in that it broadly determines the BSER by including non-affected sources. These non-affected sources are referred to as "affected entities" in the proposal and are used to establish state goals that are unachievable in Pennsylvania by existing EGUs. These EGUs are "existing sources" under Section 111(a) of the CAA, the term "existing source" means "any stationary source other than a new source." Consequently, only the EGUs are affected by Section 111(d), and they are the only sources that should be used to establish the CO_2 reduction obligations under Section 111(d). DEP recommends that the final rule incorporate BSER measures that are only applicable to affected EGU sources. This approach ensures consistency with CAA, which requires regulation of the same source category under subsections (b) and (d) of Section 111 of the CAA.

EPA has stated that there is flexibility in the proposed Clean Power Plan in that it allows states to develop their own compliance strategy. According to EPA, compliance demonstrations may, but are not required to, utilize any combination of four "building blocks" that EPA has determined to be BSER. However, DEP is concerned that the purported flexibility is significantly compromised due to the stringency of the levels proposed for each of the four building blocks and the questionable authority for certain blocks. EPA's proposed CO_2 emission rate goals for

[1] 79 FR 64543 (October 30, 2014).

[2] Act 175 of 2014, *PA Greenhouse Gas Regulation Implementation Act*; http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=PDF&sessYr=2013&sessInd=0&billBody=H&billTyp=B&billNbr=2354&pn=3898.

Pennsylvania are too stringent and would require all four of the building blocks to be implemented at the proposed levels in an effort to meet the goals. Contrary to the intent of Section 111(d) of the CAA, 86.6 percent of the required CO_2 reductions in Pennsylvania would have to be achieved through the regulation of non-affected sources.

As stated, EPA's proposal concludes that the BSER for affected electric generation units is based on a combination of the four building blocks outlined in the proposed rule. However, in *ASARCO Inc. v EPA,* 578 F.2d 319 (1978), the D.C. Circuit Court of Appeals struck down a New Sources Performance Standard (NSPS) rule in which EPA claimed flexibility to define a stationary source as "either an individual facility or combination of facilities" comprising an "entire plant." Agreeing with Sierra Club, the court ruled that a source is a "single building, structure, facility, or installation," and EPA "has no authority to rewrite the statute in this fashion." Consequently, if EPA may not even define the 'stationary source' for Section 111 purposes as an entire plant, it is difficult to see how the proposed Clean Power Plan which reaches beyond the fence line with its four building blocks is consistent with Section 111(d).

Inconsistent BSER interpretations

DEP questions EPA's interpretation of BSER for existing sources because the interpretation is inconsistent with the interpretation for new sources. EPA interpreted "system" for existing sources to be the entire electric generation system, whereas "system" was interpreted in the NSPS as control measures applicable only to new, modified, and reconstructed units. The interpretation of the term "system" for existing sources is unreasonable because it results in an emission rate limitation for existing sources that is more stringent than those proposed for new EGUs, which is contrary to the CAA. This results in the proposal imposing obligations on existing EGUs for beyond the fence-line measures, including renewable energy and energy efficiency measures. Because the intent of the CAA was not to reduce ***output*** of sources but rather reduce ***emissions*** from existing sources, reduced electric generation should not be treated as an emissions control technology (*emphasis added*). Therefore, DEP believes that "system" must be interpreted consistently for new and existing sources to ensure conformance with the CAA.

BSER methodology

The methodology by which EPA has determined BSER is flawed as it results in different targets (CO_2 budgets) for each state, and therefore for EGUs in each state. The historical implementation of Section 111(d) demonstrates that Congress intended EPA to set BSER on a national basis. EPA's proposed interpretation of BSER utilizing a methodology that results in such disparate standards for similar EGUs demonstrates that this approach is flawed and contrary to the plain reading of the CAA.

Historically, EPA has promulgated Section 111(d) emission guidelines that mandated the BSER for each affected source. However, EPA's proposed BSER determination for existing coal-fired EGUs is designed to force electric generation away from coal-fired units by increasing electricity generation from alternative sources and eliminating some level of market demand for electricity.

EPA's proposed "portfolio approach" in the determination of BSER for existing sources is inconsistent with the approach in the recently proposed rules promulgated under Section 111(b) for new EGU sources and for modified and reconstructed sources. DEP urges EPA to exclude all outside the fence measures such as redispatch to NGCC, RE, and EE in the determination of BSER for existing sources. This approach is consistent with how the U.S. Supreme Court recently viewed best available control technology (BACT) in the *UARG v. EPA* case,[3] which overturned portions of EPA's Tailoring Rule. The court found that "EPA guidance acknowledged that BACT may not be used to require reductions in a facility's demand for energy from the electric grid." Building block 4 is the basis for a significant portion of the emissions reductions targets in the proposed emissions guidelines. Therefore, DEP recommends that the BSER determination for existing sources not include reductions from facility demand for energy from the electric grid.

Definition of BSER

EPA solicited comments on different combinations of building blocks and different levels of stringency for each block. Of the four proposed building blocks, DEP believes that only Building Block 1, which relates to heat rate improvements of existing coal-fired EGUs, should be included in the BSER determination. This is the only component of BSER which directly reduces emissions from existing Section 111(b)-affected sources without attempting to redefine the source.

7. *Heat Rate Improvement is the only building block appropriate to be included in BSER determination. However, the specific goal is unattainable.*

DEP agrees with EPA's consideration of heat rate improvements in the determination of BSER. In fact, only Building Block 1 is appropriate to be included in the determination of BSER for existing fossil fuel-fired EGUs. In Pennsylvania, heat rate improvements only account for 13.4 percent of the total CO_2 reductions required by the final goal in the proposed rule. The proposed levels of heat rate improvement of either six percent in the primary proposal or four percent in the alternate proposal across the entire fleet of coal-fired EGUs are not feasible. DEP determined during its stakeholder engagement process that less than two percent heat rate improvements may be achievable by coal-fired EGUs in Pennsylvania. The North American Electric Reliability Corporation (NERC) also states in its Initial Reliability Review[4] that EPA's analysis is flawed and that the heat rate improvements of 6 percent may be difficult to achieve.

Various opportunities to improve the efficiency of coal-fired power plants are identified by the National Energy Technology Laboratory (NETL). However, in the same report NETL identifies New Source Review (NSR) as an impediment to these improvements.[5] A heat rate improvement project requires an evaluation of NSR applicability, which includes the establishment of baseline

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[3] *UARG v. EPA et al.*, 134 S. Ct. 2427 (2014). .

[4] *Potential Reliability Impacts of EPA's Proposed Clean Power Plan;* North American Electric Reliability Corporation; November 2014.

[5] *Options for Improving the Efficiency of Existing Coal-Fired Power Plants*; National Energy Technology Laboratories; April 1, 2014; DOE/NETL 2013-1611; http://netl.doe.gov/File%20Library/Research/Energy%20Analysis/Publications/Efficiency-Upgrade-Final-Report.pdf.

emissions. This baseline is used to determine if projected future actual emissions would result in emission increases that would require the installation of additional pollution control devices. The additional costs of these controls and the imposition of new, more stringent emission limits not only discourages the owners and operators of coal-fired EGUs from implementing such improvements, it also effectively limits the ability of the most efficient, lower-emitting units from increasing their economic opportunity in competitive markets. DEP estimates that the remaining coal-fired EGUs would be forced to operate at capacity factors less than 20 percent to achieve the proposed CO_2 reduction goal for Pennsylvania. It is unlikely that the owners or operators of an EGU limited to such a low opportunity to operate could recoup the cost for required heat rate improvements in addition to the other normal operational costs. NSR in this situation creates another issue for these EGUs. In the event one of these EGUs retires, because of the establishment of the emissions baseline in the NSR applicability analysis, the remaining EGUs would be unable to increase their capacity factor to assume the generating opportunity that would be provided by that retirement. If the increased opportunity were due to an increase in demand, an increase in capacity factor would be possible. However, Building Block 4 (Energy Efficiency Improvements) is designed to ultimately reduce the overall demand for electricity. Consequently, the proposed Clean Power Plan would cause the expeditious retirement of existing coal-fired EGUs through the imposition of the existing NSR program.

Owners and operators of many EGUs have already made heat rate improvements prior to the 2012 baseline year that EPA used in establishing the targets in its proposed rule. Because of these pre-2012 heat rate improvements, the proposed 6 percent level is not feasible. Therefore, DEP recommends using a site-specific analysis to determine the level of heat rate improvement for each facility. This approach is consistent with the proposed rule for "Carbon Pollution Standards for Modified and Reconstructed Stationary Sources: Electric Utility Generating Units" (79 FR 34960; June 18, 2014).

Furthermore, engineering studies have shown that EGUs are more efficient when operated close to design loads. The thermal efficiency of an EGU decreases sharply when operated at loads below 60 percent. This reduction in efficiency increases the emissions rate per unit of electricity for oxides of nitrogen (NO_x), sulfur oxides (SO_x), volatile organic compounds (VOCs), hazardous air pollutants (HAPs), and CO_2. By applying Building Blocks 2, 3, and 4, coal-fired units would be forced to be dispatched at lower loads. EPA is in effect reducing the thermal efficiency of those coal-fired units. This is counter to the intent to reduce emissions. In fact, by running an existing coal-fired plant at less than a 60 percent load, the heat rate of the plant increases exponentially. Both the NERC Initial Reliability Review and a 2014 Electric Power Research Institute (EPRI) study confirmed a substantial loss in heat rate with the decreased loads.[6] Additionally, when coal-fired generators cycle on and off or ramp down to minimum generation, the thermal cycling of the components can lead to fatigue, creep, and fatigue-creep interaction, resulting in increased maintenance and repair.[7]

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[6] EPRI Report 3002003457 (April 2014), *Range and Applicability of Heat Rate Improvements* at 6-1.

[7] D. Lew & N. Kumar, et. al., National Renewable Energy Laboratory, *Impacts of Wind and Solar on Fossil-Fueled Generators*, at http://www.nrel.gov/docs/fy12osti/53504.pdf.

8. Redispatching of Natural Gas Combined-cycle plants is not consistent with BSER and may actually increase CO_2 emissions.

As proposed, Building Block 2 would shift electricity generation from higher carbon units such as coal-fired power plants to lower carbon NGCC units to reduce the CO_2 emission rate. EPA's proposed Clean Power Plan goal for Pennsylvania assumes that Building Block 2 will achieve a 12.1-percent emissions rate reduction.

Building Block 2 should not be included in the determination of BSER because redispatching from one stationary source category to another category is not consistent with BSER as prescribed in the CAA. Furthermore, redispatching would directly increase the CO_2 emissions from NGCC units by requiring them to operate at a 70 percent capacity factor. EPA would effectively increase the CO_2 emissions from these sources by an average of 15 percent or more in some cases. Apparently, EPA believes that this increase in operation would displace the operation of more CO_2-intensive sources. However, the increase in operation of NGCC units could curtail the operation of non-emitting EGUs, such as nuclear and renewable sources. Because DEP and the Pennsylvania Public Utility Commission (PA PUC) lack the authority to dispatch EGUs, there is no practical way for Pennsylvania to implement Building Block 2. In Pennsylvania, the dispatch of generating units is under the direct control of PJM Interconnection, LLC (PJM), which does not have the authority to act as an environmental regulator and must dispatch units based on its tariff.

While there are indirect methods that could be applied to influence the redispatch of NGCC units, such as a carbon tax or a system of allowances, these methods are not prescribed under Section 111(d) of the CAA. If the final rule requires the owners and operators of CO_2 emitting sources to pay for those emissions, it will increase the cost of generation. It should be noted that by increasing the cost of generation, the cost of wholesale and resale electricity would also increase, resulting in higher prices for industrial, commercial, and residential customers. In light of the recent Supreme Court decision in the *URAG v EPA* case, we question EPA's authority for the proposed Clean Power Plan, which would "bring about an enormous and transformative expansion in EPA's regulatory authority without clear congressional authorization."[8]

9. Renewable Energy and Nuclear Power should not be included in the determination of BSER.

EPA assumes in Building Block 3 that states can lower carbon emissions by deploying renewable energy sources and zero-emitting sources such as nuclear power plants. DEP does not believe that Building Block 3 – non-emitting sources – should be included in the determination of BSER because these "affected entities" would not be "affected electric generating unit(s)" as defined in the proposed rule. Existing non-emitting sources, such as nuclear, hydroelectric (hydro) and other RE generation sources have little effect on the emissions of existing affected EGUs. New nuclear, hydro, and RE generation may reduce the dispatch of existing affected sources. However, as stated previously, operating coal-fired EGUs at reduced load reduces their thermal efficiency and consequently increases CO_2 emissions. In their Initial Reliability Review,

[8] *UARG v. EPA et al.*, 134 S. Ct. at 2444..

NERC raises concerns that, as the penetration of variable generation sources such as RE increases, maintaining system reliability becomes increasingly challenging.[9]

It is important to mention that neither DEP nor the PA PUC have the authority to mandate the construction of nuclear, hydro, or other RE generators. However, the PA PUC is implementing Pennsylvania's Alternative Energy Portfolio Standard Act of 2004[10] (AEPS), which requires electric distribution companies and electric generation suppliers to provide 18 percent of their electricity in Pennsylvania using alternative energy resources by 2020. Pennsylvania's AEPS Program is designed to incentivize the construction and utilization of RE generation. However, the AEPS does not require that the generating sources be located in Pennsylvania.

DEP believes that the approach used by EPA to calculate the contribution of renewables to the state goal is flawed. Existing Renewable Portfolio Standards (RPS) that were mandated through legislative action that are not capacity-based were used to calculate regional "averages" for RE generation. These averages were used to determine the generation level and required growth factor to attain that level. The growth factor was then applied to each state in order to calculate the target RE generation as a percent of total generation. The percent of total generation was then capped to not exceed the regional average. It is more appropriate to use a weighted average, so as not to create unattainable goals based on the RPS averages, where many of the states with high RPS contribute much lower amounts of energy to the grid, such as Maryland or Washington D.C. DEP also believes that the quantification of RE generation needs to include cost factors, availability during critical periods of energy demand, land use and environmental impacts, and effects on reliability of the electric grid due to meteorological variability.

In using the proposed approach, EPA ignores the fact that applying this regional growth factor to states that are exporters of electricity makes it unlikely that they will be able to achieve the RE target calculated in Building Block 3. Pennsylvania is a net exporter of electricity, supplying approximately 30 percent of the state's total generation to PJM for sale in other states. The proposal requires Pennsylvania to increase its current renewable generation from two percent of total net generation to 16 percent. This represents an increase of approximately 35,000,000 MWh from RE, which is approximately equal to the total net generation of Maryland in 2012. This result is due to the arbitrary regional growth factor set by the RPS of other states in our region, none of which exceed three percent of their total net generation in renewable energy. This unrealistic increase in renewable generation represents 48.4 percent of the proposed target for Pennsylvania.

DEP also questions the methodology used by the EPA in calculating the contribution of nuclear plants to the state goal in Building Block 3. EPA determined that 5.8 percent of the existing nuclear fleet is at-risk, and in calculating the state goal assumed that the existing nuclear

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[9] *Potential Reliability Impacts of EPA's Proposed Clean Power Plan;* North American Electric Reliability Corporation; November 2014.

[10] 73 Pa. C.S. § 1648.1 *et seq.* and 66 Pa. C. S. § 2814.

generation in each state would be reduced by that amount. That "at-risk" generation was used in the calculation of the goal, but is then awarded to the state without conditions in calculating compliance with the goal. At-risk nuclear plants are in danger of a total shut-down, not a curtailment in their generation. Therefore, existing nuclear plants should not contribute to the state goal calculation, and only existing nuclear plants that are truly at-risk should be counted for compliance purposes, provided the approach is lawful under Section 111(d) of the CAA. In Pennsylvania, the nuclear portion of Building Block 3 accounts for 7.8 percent of the state goal.

In addition, DEP disagrees with the EPA's reasoning for not including existing hydroelectric generation in the demonstration of compliance with the proposed targets. All but two states have hydroelectric generation and should be able to include this non-emitting generation in compliance demonstrations. However, under the proposed Clean Power Plan, only new hydroelectric generation can be included in compliance demonstrations. DEP recommends that hydroelectric generation and all other non-emitting sources should be treated in the same manner: exclude them from the goal calculation, but allow them in the demonstration of compliance at the discretion of the affected source. These recommendations assume that EPA's Building Block 3 is statutorily authorized under Section 111(d) of the CAA.

10. DEP Recommends that energy efficiency measures should be used for compliance demonstration purposes only, and not used to determine the emission targets.

As proposed, Building Block 4 would reduce CO_2 emissions from each state by increasing demand-side energy efficiency to 1.5percent annually by using energy efficiency improvements. DEP does not believe that Building Block 4, or demand-side energy efficiency projects, should be included in the determination of BSER because these "affected entities" are not affected EGUs as stated in the proposed rule. As stated previously, "affected entities," including demand side energy efficiency projects should only be allowed in the compliance demonstrations at the discretion of owners and operators of affected EGUs. In addition, the evaluation, measurement, and verification of energy efficiency projects must be subject to high quality quantification and the same enforceability standards as required for affected EGUs under Building Block 1. Without requisite criteria for accurate quantification and enforceability of energy efficiency projects, the integrity of the proposed Section 111(d) program is further compromised.

The PA PUC is already implementing ACT 129 of 2008[11] to promote energy efficiency measures by requiring the largest distribution companies to develop energy efficiency and conservation plans to reduce electricity consumption in this commonwealth. Under the proposed BSER, EPA estimated that each state's annual incremental savings rate increases from its 2012 annual savings rate to a rate of 1.5 percent over a period of years starting in 2017. Under that scenario, Pennsylvania is required to meet a goal of 11.7 percent of annual sales by 2029. Act 129 allows the reductions attributable to Phases I and II (all prior to the 2012 baseline date) to demonstrate compliance. However, the EPA proposal only allows EE reductions from 2017.

[11] 66 Pa. C. S. § 2806.1.

DEP questions whether the EPA's assumption of the incremental savings rate of 1.5 percent per year is sustainable on an ongoing basis as shown in the recently published study, "*U.S. Energy Efficiency Potential Through 2035*" by EPRI.[12] The study indicates an achievable range of annual incremental electricity savings from EE measures to be in the range of 0.5 to 0.7 percent, less than half of EPA's estimated savings. Pennsylvania's Act 129 required a Phase II incremental reduction of 0.72 percent, and early indications from PA PUC's investigation into a Phase III scenario suggests a 0.75 percent annual incremental reduction which is in line with the EPRI study.

Therefore, DEP recommends that the final rule include EE reductions achieved since 2012 to be used for compliance demonstration purposes. DEP also recommends that energy efficiency measures should be used for compliance demonstration purposes only, and not used to determine the emission targets. DEP believes that EPA's proposed targets for both Building Block 3 and Building Block 4 are not attainable due to legislative constraints and structural and economic conditions limiting the expansion of these programs. Nonetheless, the recommendations assume that Building Blocks 3 and 4 would survive anticipated legal challenges.

11. Of the Non-BSER measures proposed, heat rate improvements at oil and gas-fired EGUs should be included in BSER determinations.

EPA solicits comments on four non-BSER measures that could reduce CO_2 emissions. These measures include fuel switching at individual units, carbon capture and storage (CCS), new NGCC capacity, and heat rate improvements at oil- and gas-fired steam EGUs, NGCCs, and simple-cycle combustion turbines.

DEP recommends that EPA should include heat rate improvements for oil- and gas-fired EGUs in its determination of BSER for these units. DEP also recommends that the determination of BSER in the final rule should not include mandatory conversion to or co-firing of natural gas, because it may not be technically or economically feasible for all affected EGUs. However, emission reductions from voluntary fuel switching or co-firing should be allowed for the compliance demonstration.

DEP agrees with the EPA decision to rule out carbon capture and storage (CCS) from the determination of the BSER for existing sources. In DEP's comments on the proposed NSPS,[13] DEP discussed in detail why CCS is not economically feasible. Therefore, DEP continues to maintain that CCS is not currently demonstrated for the determination of BSER for both new and existing EGUs. DEP believes that new NGCC units should not be included in the determination of BSER. However, a new NGCC unit should be eligible as an "affected entity" at an affected source's discretion for compliance demonstration, provided that approach is permissible under the CAA.

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[12] EPRI Report 1025477, "*U.S. Energy Efficiency Potential Through 2035*" at vi.

[13] EPA-HQ-OAR-2013-0495-8957.

12. DEP believes that a gross output-based standard is more appropriate than the net output-based standard

The EPA solicited comment on whether the goals and reporting should be conducted on a net or gross basis. While a net generation basis promotes energy efficiency, DEP believes that the owner or operator of an affected source should not be penalized for station service loads due to the operation of air pollution control devices such as flue gas desulfurization units, selective catalytic reduction devices, and control technology to reduce particulate matter emissions. Therefore, 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 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.