



**State of Florida**  
**Public Service Commission**  
**INTERNAL AFFAIRS AGENDA**  
Thursday, September 4, 2014  
Immediately Following Commission Conference  
Room 105 – Gunter Building

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1. Briefing on the U.S. Environmental Protection Agency's Proposals to Limit Carbon Emissions from Existing Electric Utility Generating Units. (Attachment 1).
2. Executive Director's Report. (No Attachment).
3. Other Matters.

BB/sjc

OUTSIDE PERSONS WISHING TO ADDRESS THE COMMISSION ON  
ANY OF THE AGENDAED ITEMS SHOULD CONTACT THE  
OFFICE OF THE EXECUTIVE DIRECTOR AT (850) 413-6463.



State of Florida



# Public Service Commission

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**DATE:** August 26, 2014

**TO:** Braulio L. Baez, Executive Director

**FROM:** Ana Ortega, Public Utility Analyst II, Division of Economics *AO*  
Jim Breman, Senior Analyst, Office of Industry Development and Market Analysis *JB*  
Judy G. Harlow, Economic Supervisor, Division of Economics *JGH J.W.B.*  
Jim Dean, Director, Division of Economics  
Mark A. Futrell, Director, Office of Industry Development and Market Analysis *MAF*  
Kathryn Cowdery, Senior Attorney, Office of the General Counsel *KC*

**RE:** Briefing on the U.S. Environmental Protection Agency's Proposals to Limit Carbon Emissions from Existing Electric Utility Generating Units.

**Critical Information:** Please place on the September 4, 2014 Internal Affairs.  
Commissioner Briefing Only.

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On June 18, 2014, the U.S. Environmental Protection Agency (EPA) published two proposed rules to reduce carbon emissions from existing electric generating units in the *Federal Register*: (1) Carbon Pollution Emission Guidelines for Existing Electric Utility Generating Units (Clean Power Plan) and (2) Carbon Pollution Emission Standards for Modified and Reconstructed Stationary Sources: Electric Utility Generating Units (Modified/Reconstructed rule). The EPA will take comments on both proposed rules until October 16, 2014.

The attachments to this memorandum provide background information for briefing purposes on the proposed rules. Attachment A provides background on the Clean Air Act and a summary of the proposed Modified/Reconstructed rule. Attachment B provides a summary of the Clean Power Plan. Attachment C includes a summary of utility responses to a staff data request. Finally, Attachment D includes general topics that are under further review for purposes of developing draft rule comments for future consideration.

Subsequent to the publication of the proposed rules, Commission staff has maintained an ongoing dialogue with affected state agencies including the Florida Department of Environmental Protection and the Office of Energy, and stakeholders. Comments and information on the proposed rules were solicited from interested persons and a detailed data request was submitted to Florida's electric generating utilities. Commission staff continues to review and assess the proposed rules, comments, and related information.

Attachments

cc: Lisa Harvey  
Apyrl Lynn  
S. Curtis Kiser

## **Background - The Clean Air Act and Regulation of Carbon Emissions**

In the absence of a preexisting national ambient air quality standard for carbon dioxide (CO<sub>2</sub>) pollution, EPA is relying on section 111 of the Clean Air Act (CAA)<sup>1</sup> to regulate CO<sub>2</sub> emissions from the electric generation industry. The proposed rules for CO<sub>2</sub> emissions from modified and reconstructed electric generating units (EGU) are being issued pursuant to section 111(b) of the CAA, which directs EPA to establish the applicable *emission standards*. The performance standards established under section 111(b) of the CAA are to be implemented on a unit-specific basis.

In contrast, EPA's proposal to regulate CO<sub>2</sub> emissions from existing electric utility generating units (the Clean Power Plan) is developed under section 111(d) of the CAA. Under this section, EPA is required to issue *guidelines* for emission reductions or best system of emission reduction (BSER). EPA's guidelines indicate the degree of emission reduction it believes is technically feasible and cost-effectively achievable through application of the BSER. EPA's guidelines must also permit a state to consider the remaining useful life of the existing source in applying a standard of performance under its plan. EPA's guidelines and application of its BSER result in state specific required emission limitations or targets. States may rely on EPA's guidelines to establish the applicable performance standard and develop implementation plans to meet or exceed the required target.

These EPA actions are in addition to a separate rulemaking that establishes CO<sub>2</sub> emission limits from new fossil fuel-fired EGUs, or New Source Performance Standards, pursuant to section 111(b). EPA intends to complete both section 111(b) rulemakings prior to finalizing the proposed regulations associated with the Clean Power Plan.

## **Summary of the Proposed Modified/Reconstructed Rule**

EPA is using section 111(b) of the CAA to set a performance standard that specifically applies to all modified or reconstructed EGUs. The CAA defines a modified source as an existing power plant that has undergone any physical or operational change that increased the maximum achievable hourly rate of air pollutant emissions from the plant. A reconstructed source is defined as an existing power plant that replaces components to such an extent that the capital cost of the new components exceeds 50 percent of the capital cost of an entirely new comparable facility.

## **Standards for Modified/Reconstructed Natural Gas EGUs**

As with the proposed rules affecting new units, EPA determined that natural gas combined cycle technology is the BSER for both modified and reconstructed natural gas-fired sources. EPA is also proposing different emission rate performance standards based on the capacity of the EGU (consistent with the rules affecting new units). For smaller natural gas-fired power plants (less than approximately 100 megawatts), the proposed rule sets a performance rate of 1,100 pounds of CO<sub>2</sub> per megawatt-hour (lbs. CO<sub>2</sub>/MWh). For larger natural gas-fired power plants (greater than approximately 100 megawatts), the proposed rule sets a performance rate of

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<sup>1</sup> 42 U.S.C. § 7411

1,000 lbs. CO<sub>2</sub>/MWh.<sup>2</sup> The proposed standards for modified/reconstructed natural gas-fired sources are set at the same proposed levels for new natural gas-fired sources.

***Standards for Modified/Reconstructed Coal Boilers and Integrated Gasification Combined Cycle EGUs***

For reconstructed coal-fired boiler and integrated gasification combined cycle (IGCC) EGUs, EPA determined the BSER to be supercritical pulverized coal or supercritical circulating fluidized bed boiler technology for larger sources and subcritical for small sources. EPA is proposing for reconstructed coal-fired boiler and IGCC EGUs an emissions standard of 1,900 lbs. CO<sub>2</sub>/MWh for large EGUs and 2,100 lbs. CO<sub>2</sub>/MWh for smaller EGUs.<sup>3</sup> This contrasts to a proposed emission standard of 1,050 or 1,100 lbs. CO<sub>2</sub>/MWh for new coal-fired EGUs, which can only be met with carbon capture and sequestration.

EPA states that unlike reconstructed sources, modified sources do not have the same ability to rebuild their boilers, and therefore, a different BSER should be applied to modified sources. For modified coal-fired power plants, EPA determined the BSER to be based on the affected sources' "best potential performance" incorporating best operating practices and equipment upgrades, including timely replacement of worn components, equipment overhauls and the replacement of existing equipment with new equipment.

EPA is proposing that all modified utility boilers and IGCC EGUs will be required to meet a plant-specific emissions limit based on the plant's historic annual CO<sub>2</sub> emissions rate (from 2002 to the date of modification) plus an additional two percent emissions rate reduction. If a plant is modified after becoming subject to a state's compliance plan for 111(d), the implementing authority (Florida Department of Environmental Protection) would determine the plant-specific emissions limit after an energy efficiency improvement audit occurred.

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<sup>2</sup> EPA is soliciting comment on a range of 950-1,000 lbs. CO<sub>2</sub>/MWh for large natural gas-fired EGUs and 1,000-1,200 lbs. CO<sub>2</sub>/MWh for smaller natural gas-fired EGUs.

<sup>3</sup> EPA is soliciting comment on a range of 1,700-2,100 lbs. CO<sub>2</sub>/MWh-net for large EGUs and 1,900-2,300 lbs. CO<sub>2</sub>/MWh-net for smaller EGUs.

## **Summary of the Clean Power Plan**

### ***Best System of Emissions Reductions***

Under section 111(d) of the CAA, EPA is required to develop emissions guidelines that reflect the EPA's determination of BSER and issue guidelines on how states comply with the targets. EPA notes that because the electric generation industry is interconnected, EPA's BSER includes actions that can be taken at the affected source and outside measures from other affected entities or sources. For existing sources, EPA defines "affected electric generating unit" or "affected EGU" as a steam generating unit, an integrated gasification combined cycle (IGCC) facility, or applicable stationary combustion turbine greater than 25 MWs.

EPA's BSER proposes a compliance timeline which requires each state to meet an interim target, on average, over a 10-year period from 2020-2029, and meet the proposed final target beginning in 2030, and each year thereafter. States must maintain the final goal on a three-year rolling average beginning with 2030-2032. EPA's target calculations rely on "a combination of emission rate improvements and limitations on overall emissions at affected EGUs" referred to as the four building blocks.<sup>4</sup> The four building blocks consist of:

- (1) 6 percent heat rate improvements at coal plants,
- (2) increasing the dispatch of natural gas-fired fleet up to a 70 percent capacity factor,
- (3) adding low- or zero-carbon emission generation, and
- (4) reducing generation through demand-side energy efficiency.

EPA also presents an alternative timeline that assumes a less aggressive growth trend in net retail energy sales and has a final compliance date of 2025 with an abbreviated interim period of 2020-2024. EPA's alternative implements similar, but generally less aggressive building blocks by assuming:

- (1) 4 percent heat rate improvements at coal plants,
- (2) increasing the dispatch of natural gas-fired fleet up to a 65 percent capacity factor,
- (3) the same amount of renewable energy generation over the 2022-2025 period, and
- (4) a smaller reduction in electricity sales resulting from demand-side energy efficiency.<sup>5</sup>

For summary purposes, targets calculated using the alternative timeline and associated alternative BSER assumptions are referred to as alternative targets. Additional discussion of EPA's four building blocks is presented in a subsequent section of this summary.

### ***Proposed State Targets and Alternative Targets in the Clean Power Plan***

Once the BSER was determined, EPA applied each of the four building blocks to each state's 2012 electricity generation mix to arrive at each state's targets and alternative targets. In calculating the targets, EPA reviewed total annual CO<sub>2</sub> emissions, capacity information, net

<sup>4</sup> See *Federal Register*, Vol. 79, No. 117, pg. 34851.

<sup>5</sup> The alternative energy efficiency targets for Florida include a 1.75 percent cumulative megawatt-hour savings, as a percentage of retail sales, in 2020, escalating to a 4.65 percent cumulative megawatt-hour savings in 2025.

generation, and demand-side energy efficiency data reported to the Energy Information Administration (EIA) by all affected EGUs.

EPA is proposing CO<sub>2</sub> rate-based targets, in the form of pounds per megawatt-hour (lbs./MWh), for each state to reach for interim and final performance periods. States also have the option to adopt a statewide total emissions, or mass-based, tons of CO<sub>2</sub> emissions target. However, the EPA's guidelines do not demonstrate the calculation of a mass-based approach.

EPA calculated each state's emission rate by dividing the state's total CO<sub>2</sub> emissions from affected fossil fuel sources (natural gas, coal, oil/gas steam, and "other") by the state's total fossil fuel generation plus renewable generation and avoided megawatt-hours from energy efficiency. The computation of each state's interim and final target and alternative target can be expressed with the following formula.

$$\frac{\text{lbs. CO}_2}{\text{MWhs (retail)}} = \frac{\text{CO}_2 \text{ emitted by affected EGUs}}{\text{MWhs from Affected EGUs} + \text{Nuclear} + \text{Renewable} + \text{Energy Efficiency}}$$

Under EPA's assumptions, Florida's interim target is 794 lbs. CO<sub>2</sub>/MWh (averaged over 2020-2029), with a final emissions target of 740 lbs. CO<sub>2</sub>/MWh in 2030. Using the alternative assumptions that reflect less net retail energy sales, the alternative Florida interim target is 907 lbs. CO<sub>2</sub>/MWh with a final alternative Florida target of 884 lbs. CO<sub>2</sub>/MWh in 2025.

### ***State Plans***

A major aspect of EPA's Clean Power Plan involves state application of the proposed guidelines in establishing the appropriate emissions performance standard and the development of a state compliance plan. The Florida Department of Environmental Protection (FDEP) is the Florida agency that is responsible for submitting the state's compliance plan. As outlined in section 111(d) of the CAA, each state is required to submit a plan to EPA that establishes standards of performance and provides for the implementation and enforcement of such standards. If a state fails to submit a satisfactory plan, the EPA is required to prescribe a plan for the state. States also have the option to submit a negative declaration and allow EPA to determine their compliance plan. Additionally, section 111(d)(2) of the CAA provides EPA with the authority to enforce provisions of state plans if the state fails to enforce its own plan.

EPA's proposed rule assumes it will finalize the proposed guidelines by June 2015, and states will file compliance plans by June 2016. States may request an extension of time if they need more than one year to complete all of the actions needed for their final state plans, including technical work, state legislative and rulemaking, or coordination with third parties, and coordination among states involved in multi-state plans. States requesting an extension must submit an abbreviated plan in 2016, which must include justification of why additional time is needed to submit a complete plan. One year extensions of time until June 2017 will be granted, except that states which decide to develop multi-state plans will be allowed a two-year extension to June 30, 2018, and will be required to submit a progress report by June 30, 2017. Once a state or multi-state plan is submitted to the EPA, the EPA will have twelve months to review and publish either approval or disapproval of the plan. Regardless of the timeframe of the state plan

approval process, states will still be required to start complying with their interim targets in 2020.

### *Plan Requirements for EPA Approval*

EPA is required to allow states to take into consideration, among other factors, the remaining useful life of the existing source. EPA outlines four criteria that it will use in evaluating the sufficiency of state plans.

Under the general criteria, final plans must include:

- (1) enforceable measures that result in reduced CO<sub>2</sub> emissions at affected EGUs,
- (2) measures projected to achieve or exceed EPA's proposed interim and final targets,
- (3) quantifiable and verifiable CO<sub>2</sub> emissions performance from affected EGUs, and
- (4) the state's intended reporting process and corrective measures if necessary.

### *Plan Approaches*

In the guidelines, EPA illustrates two approaches that a state may choose in designing their plan for compliance, including direct emission limits applied to affected EGUs or a state-driven or utility-driven portfolio approach. When designing the state plan, EPA outlines four possible plan pathways: rate-based (lbs./MWh) CO<sub>2</sub> emission limits applied to affected EGUs, mass-based (statewide cap or CO<sub>2</sub> tonnage cap) CO<sub>2</sub> emission limits applied to affected EGUs, state-driven portfolio approach, and utility-driven portfolio approach. EPA contends that states can use the EPA building blocks to meet emission targets and/or include additional measures that were not a part of the target-setting calculations. Some of the additional measures that EPA lists as possible programs or items that can be included in a state compliance plan are building new natural gas combined cycle units, efficiency improvements in the transmission and distribution system, fuel switching at affected EGUs, and retrofitting affected EGUs with carbon capture and sequestration technology. EPA notes that all measures that are relied on to achieve the emissions performance standard in the state implementation plan are rendered federally enforceable.

### **Description of Clean Power Plan Building Blocks**

#### ***Building Block 1: Heat rate improvement of coal facilities***

The first building block of the proposed BSER consists of heat rate improvement activities at coal-fired facilities that lower CO<sub>2</sub> emissions. EPA states that the agency reviewed over 11 years of historical heat rate data and utilized a 2009 study conducted by an engineering firm, which found on average that after employing best practices and equipment updates a facility's heat rate could be improved by 4 to 12 percent.<sup>6</sup> As a result, EPA contends it is technically feasible and at a reasonable cost to include a six percent heat rate improvement at existing coal-fired facilities in the BSER. Additionally, EPA states that because of the close relationship between fuel consumption and CO<sub>2</sub> emissions, a six percent heat rate improvement would have a corresponding six percent reduction in CO<sub>2</sub> emissions. EPA is limiting the heat rate improvement to only coal-fired facilities because coal-fired facilities are dispatched at higher

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<sup>6</sup> See *Federal Register*, Vol. 79, No. 117, pg. 34859.



rates and can achieve a larger amount of CO<sub>2</sub> emission reductions from heat rate improvements than natural gas-fired facilities.

With respect to the alternative timeline, EPA is also proposing a lower heat rate improvement of four percent. EPA states this level of improvement would be consistent with implementing best practices to reduce heat rate variability without making further equipment upgrades, or consistent with both best practices and equipment upgrades. EPA believes the four percent estimate is a reasonable minimum estimate of the average technical potential for heat rate improvement.

EPA estimates that the average emission rate of Florida's coal-fired fleet was 2,251 lbs. CO<sub>2</sub>/MWh in 2012. When this building block is applied to Florida, EPA estimates that the CO<sub>2</sub> emissions rate from its coal-fired fleet should decrease to 2,116 lbs. CO<sub>2</sub>/MWh.

### ***Building Block 2: Redispatch of Florida's NGCC fleet***

EPA states that building block two of the proposed BSER is focused on displacing generation from higher CO<sub>2</sub> emitting facilities with additional generation from the natural gas combined cycle (NGCC) fleet. EPA assumes that NGCC facilities could achieve a sustained utilization rate or capacity factor of 70 percent and that generation from higher emitting facilities (coal-fired and oil/gas-fired) could be replaced by increasing generation from the existing NGCC fleet.

To arrive at the 70 percent capacity factor, EPA reviewed the potential availability of NGCC operations and compared it to the most recent utilization rates reported in the U.S. using EPA's Emissions & Generation Resource Integrated Database. EPA determined that the NGCC fleet is capable of meeting a potential capacity factor of 87 percent, while the existing fleet in 2012 was only achieving between 44-46 percent. EPA further believes that of the existing NGCC fleet, those plants that began operation from 2000-2009 averaged net generation that was greater than or equal to a nameplate capacity factor of 70 percent. EPA asserts that more than 10 percent of the NGCC facilities were operating in 2012 at a nameplate capacity factor greater than 70 percent. EPA concluded that NGCC generation could replace other existing fossil-fueled generation by dispatching the NGCC fleet up to a 70 percent capacity factor.

With respect to the alternative timeline, EPA is also proposing a less stringent target of a 65 percent capacity factor. EPA states that in 2012, approximately 16 percent of the existing NGCC fleet had capacity factors equal to or higher than this level and NGCC utilization nationwide was already over 60 percent during some peak hours. EPA therefore views the 65 percent level as a reasonable lower-bound estimate of an achievable average NGCC fleet capacity factor.

EPA estimates that Florida's NGCC fleet capacity factor in 2012 averaged 51 percent and the state had 1,157 MW of NGCC under construction.

### ***Building Block 3: Increase in renewable energy facilities***

EPA is proposing, in building block three of the proposed BSER, that some generation from affected EGUs will be replaced by new low- or zero-carbon emitting renewable energy and nuclear generation. EPA asserts that the six percent of “at risk” nuclear generation included for each state is an effort to encourage states to keep existing nuclear resources in the generation mix. EPA determined that current renewable portfolio standards offer a “best practice” scenario that should be included in the BSER because of their wide spread adoption and their achieved levels of generation from low carbon emitting sources. To determine the level of renewable energy in each state’s target emissions rate, EPA first divided the country into six regions and averaged the 2020 renewable portfolio standard requirements for that region. Finally, EPA applied an annual growth factor for a given region to individual states, which was capped at a maximum level equivalent to the region’s renewable target.

#### **Proposed Quantification of Renewable Energy Generation – Florida and the Southeast Region**

EPA grouped Florida with Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee to form the Southeast region. Of that group, North Carolina is the only state that has a renewable portfolio standard requirement, which is ten percent by 2020. EPA’s regional annual renewable energy growth factor was derived from the 2013 Annual Energy Outlook published by the Energy Information Administration (EIA), which is 13 percent for the Southeast region. EPA believes this annual growth factor would allow the region, as a whole, to reach the regional renewable energy target in 2029, assuming that renewable generation would increase beginning in 2017 from 2012 levels. EPA calculated Florida’s renewable energy generation accounted for two percent or 4,524 GWh of Florida’s total generation in 2012. Florida’s interim renewable energy generation target is six percent in 2020, ramping up to ten percent of total generation in 2030.

#### **Alternative Approach to Quantification of Renewable Energy Generation**

EPA also described an alternate approach to calculating the amount of renewable generation that could be included in each state’s interim and final targets in the BSER. EPA stated that each state’s estimations of possible renewable energy generation were developed using a two-part methodology that estimates the technical and market potential of renewable energy generation. EPA utilized a 2012 National Renewable Energy Laboratory (NREL) study that examined each state’s technical potential for renewable energy by technology type and compared it to the 2012 renewable energy generation reported by EIA to arrive at a rate of development for each state. Averaging the top third of the state’s renewable development rates, EPA estimated a benchmark for the rate of renewable energy development and applied this rate to each state’s technical potential as outlined by the NREL study. In recognition of the limitations of technical potential studies, EPA then utilized its Integrated Planning Model (IPM) to run scenarios to arrive at a cost it attributes to new renewable facilities. EPA asserts that under the alternative approach, EPA would set each state’s renewable generation target as the lesser of either the technical potential or the constrained market potential derived using the IPM at a cost of up to \$30/MWh.<sup>7</sup> The estimated cost represents the avoided cost of other actions that

<sup>7</sup> See EPA TSD Alternative RE Approach.

could be taken instead to reduce CO<sub>2</sub> emissions. Using the alternative approach, Florida would be required to achieve one percent (as a percentage of 2012 generation) of its generation from renewable sources for both the interim and final performance periods.

#### *Nuclear Generation for Interim and Final Targets*

The second technology that was included in building block three is nuclear generation. EPA states that nuclear generation has the benefits of low variable costs and no carbon emissions, but because of the high capital costs, adding nuclear capacity is currently constrained. According to the 2013 Annual Energy Outlook, EIA estimated the retirement of 5.7 gigawatts (GW) of nuclear capacity nationwide. Therefore, in an effort to encourage the preservation of nuclear capacity, EPA included in the proposed BSER approximately six percent of each state's historical nuclear capacity into the state interim and final targets. For the purpose of calculating state interim and final targets, nuclear generation was estimated as the amount of under-construction and preserved nuclear capacity for each state at a capacity factor of 90 percent. For Florida, EPA identified 3,514 MW of nuclear generation in 2012, with capacity that produced 1,623 GWh at risk for retirement.

#### ***Building Block 4: Increase in energy efficiency programs and performance***

The fourth building block of the proposed BSER, aims to reduce CO<sub>2</sub> emissions from affected EGUs by the use of demand-side energy efficiency from electricity end-users to offset generation requirements. In developing the energy efficiency portion of the BSER determination, EPA developed a "best practice" scenario for reducing energy sales, established a proxy of achievable megawatt-hour savings, and incorporated the corresponding megawatt-hours into the dominator of each state's interim and final target computation. Since there are no emissions associated with these megawatt-hours, adding the avoided megawatt-hours in the dominator has the effect of lowering each state's targets. EPA's best practice scenario was determined by using information reported to the EIA and an analysis of current energy efficiency policies from the American Council for an Energy-Efficient Economy (ACEEE).<sup>8</sup> EPA contends this best practice scenario reflects a level of performance that has been demonstrated, considers each state's current level of performance, and allows states adequate time to increase energy efficiency programs.

Energy efficiency performance is represented as cumulative megawatt-hour savings, as a percentage of retail sales, by year for each state for both the proposed interim and final targets and the alternative interim and final targets. EPA employed a six-step methodology that included, for each state: (1) forecasting a business as usual case for electric sales, (2) determination of the incremental energy efficiency savings as a percentage of sales, (3) determination of the annual expiring savings, and (4) determining the net cumulative energy efficiency savings as a percentage of sales. EPA assumed that each state's historic energy efficiency savings would increase beginning in 2017 to achieve an annual 1.5 percent megawatt-hour savings by 2029. EPA estimated that Florida's incremental megawatt-hour savings as a percent of retail sales was 0.25 percent in 2012.

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<sup>8</sup> The ACEEE report estimates that by 2020, 12 states will have or will be required by state policy to achieve a level of incremental savings of 1.5 percent annually.

With respect to the EPA's alternative timeline, the proposal includes a less aggressive demand-side energy efficiency requirement that uses a 1.0 percent (rather than 1.5 percent) annual incremental megawatt-hour savings as representative of the best-practices level of performance. In this alternative, EPA also decreases the rate at which incremental megawatt-hour savings are increased from their historical levels to 0.15 percent per year (rather than 0.2 percent). EPA contends the 1.0 percent level of performance has been achieved or that established state requirements will cause this level to be achieved by 20 states.

EPA also adjusted its estimate of each state's achievable megawatt-hour savings for those states that are net importers of electricity in an effort to avoid double counting of energy efficiency performance. Additionally, EPA included a gross up factor of 7.5 percent to account for line losses.

### **Summary of Utility Responses to Staff Data Request**

On July 11, 2014, staff issued a detailed data request to the electric generating utilities. Seven utilities and one association have responded as of August 22, 2014. An overview of those responses appears below.

#### **General Comments**

- One company believes EPA will be given great deference in establishing its proposed rule and is generally supportive of most aspects of the rule.
- Seven respondents believe EPA may have exceeded its authority under the Clean Air Act.
- Multiple companies expressed concerns about grid stability and reliability resulting from certain aspects of the proposal.
- All but one respondent believe that the CO<sub>2</sub> emission target established for Florida is not achievable within the timeframe required.
- Multiple companies believe that individual compliance tools (EPA proposed Building Blocks) are not technically or practically feasible.
- Multiple companies expressed concern about potential stranded investment resulting from specific aspects of the proposal.
- All but one utility expressed concern about the ultimate cost of compliance with the proposed rule.
- Several utilities noted that the proposed rule will result in substituting environmental dispatch protocols for traditional economic dispatch.
- One company noted that multiple state agencies will have a role in fostering compliance with the ultimate state implementation program and questioned whether existing statutory authority was sufficient.
- Several respondents noted that the retirement of coal or the lower capacity factors envisioned under the proposed plan would eliminate the value of coal plants to provide ancillary services.

Table 1 on the following page provides the baseline 2012 CO<sub>2</sub> emission rates and total emissions using EPA's Clean Power Plan methodology provided by the eight utilities that responded to staff's data request. Statewide 2012 CO<sub>2</sub> rate and total emissions data were obtained from EPA.

**Table 1 - 2012 Florida Electric Utility CO<sub>2</sub> Emissions**

<b>Responding Utilities</b>	<b>2012 Rate (lbs. CO<sub>2</sub>/MWh)</b>	<b>2012 Total (Tons CO<sub>2</sub>)</b>	<b>% of Total 2012 Florida Utility CO<sub>2</sub> Emissions</b>
DEF	1,282	22,702,000	19.1
FPL	919	37,780,000	31.9
Gulf Power	1,641	6,140,929	5.2
TECO	1,760	15,966,000	13.5
FMPPA	954	2,722,000	2.3
JEA	1,630	8,874,000	7.5
OUC	1,540	6,416,218	5.4
Seminole	1,693	8,983,840	7.6
Statewide (EPA)	1,200	118,608,556	

### Technical Concerns

- Several utilities noted inconsistencies in EPA's assumptions regarding their respective fleets.
- All but one company expressed concern about the selection of 2012 as a single baseline year.
- Baseline year concerns noted that natural gas prices were at an all-time low in 2012 making it an atypical year to use as a baseline.
- Two companies proposed the use of a rolling average baseline of three to seven years.
- All companies expressed concern regarding the impact of the proposed rule on fuel diversity, especially the heavy reliance on natural gas as the projected primary fuel source.
- Several utilities expressed concern that the proposed compliance timeframe is too aggressive and will likely result in premature retirements of certain generating units leading to stranded investments.
- Several companies expressed concern that existing transmission capability may not be able to effectively handle the heavy redispatch of natural gas combined cycle generation contemplated by the proposal.
- Multiple utilities expressed concern that because the prior environmental compliance actions taken in response to other EPA air quality rules there are less cost-effective actions that can be taken to meet the targets by using the 2012 performance baseline.
- Several utilities noted that the treatment of interstate purchases and sales is unclear.
- Several utilities noted that interstate transmission capacity is limited and may be an obstacle to obtaining needed low- or zero-emission generation from outside the state.
- Two respondents expressed concerns over EPA's use of nameplate capacity in arriving at the goals and suggested the use of net summer capacity for establishing the targets.
- One utility explained that fuel diversity risk would be mitigated by adding new nuclear generation, completion of the proposed natural gas pipelines, and keeping oil-fired units in operation.
- Several utilities identified inconsistencies in EPA's assumptions regarding their generating facilities.

- All companies expressed concern about the achievability of various Building Block assumptions.

#### Building Block 1: Heat rate improvement of coal facilities

- Several of the utilities responded that EPA's target of a six percent heat rate improvement is not technically feasible for coal facilities.
- Two utilities specifically noted that efficiency improvements since 2005 at coal facilities make the target of an additional six percent heat rate improvement unattainable.
- Multiple utilities noted that it would be redundant to make heat rate improvements in building block one on plants that will be retired based on the increase in NGCC dispatch contemplated in building block two.
- Some of the utilities cited investments ranging from \$60 million to over \$230 million for heat rate improvements since 2005.

#### Building Block 2: Redispatch of Florida's NGCC fleet

- Seven of the respondents note that although it may be technically feasible to average a 70 percent capacity factor for NGCC, the replacement of 90 percent of Florida's coal fleet is not feasible with existing natural gas generating capacity.
- Several utilities commented that it is not operationally feasible to operate coal plants at low capacity factors anticipated by the proposal.
- Multiple utilities stated that the early retirement of coal-fired facilities would leave stranded assets.
- All of the respondents agree that the increased reliance on natural gas is a concern because of the current limited natural gas infrastructure in Florida.
- Some of the companies noted that because of the low natural gas prices in 2012, the NGCC fleet were dispatched economically in excess of 70 percent capacity factor.
- Two utilities stated that the redispatch of natural gas capacity would change the energy flow in Florida and would require significant transmission projects.
- Multiple respondents raised concern that a major shift toward building new natural gas generation may cause a shortage of necessary labor and equipment supply that may cause increased costs and delay in meeting the interim targets.
- Some of the respondents also raised concern that the increased natural gas capacity would place upward pressure on both natural gas supply and prices.

#### Building Block 3: Increase in renewable energy facilities

- One utility commented that although the target for increased renewable generation was aggressive, there are no impediments to reaching the target in the timeframe.
- Multiple respondents noted that Florida has a limited number of renewable resources to choose from when looking to comply with the renewable energy generation targets.
- Three companies stated that wind generation is not a viable resource option in Florida.
- Five of the utilities also commented that wind and solar resource requires back-up generation because of their intermittency.
- Several utilities expressed concern over grid stability issues including voltage concerns with the increase in renewable energy generation.

- Multiple utilities noted a concern over the large amount of land that would be required to build solar to comply with the renewable energy target.
- Several utilities raised concerns about the ambiguity regarding what renewable resources would be eligible, specifically biomass, to use towards compliance.
- One utility believes that EPA's assumed six percent at risk nuclear is appropriate.

#### Building Block 4: Increase in energy efficiency programs and performance

- Four of the utilities responded that EPA's assumed ten percent of avoided electricity sales from energy efficiency is not technically feasible.
- Three utilities also noted that achieving the almost ten percent target was increasingly difficult because of federal and state standards coupled with the long history of utility sponsored demand-side management programs in Florida.
- Two of the utilities expressed concern that the ability to meet this target is uncertain because compliance is dependent on customer adoption, which is outside of utility control.
- Three utilities also noted that a substantial increase in energy efficiency programs may result in increased costs to ratepayers.

#### Modified and Reconstructed Rule

- Seven of the responses indicated that there were no currently planned modification or reconstruction projects that would trigger the application of the standard.
- One respondent noted that EPA appears to be regulating sources under both sections 111(b) and 111(d), which is inconsistent with the Clean Air Act.
- One utility noted that in lieu of making modifications to its fleet, it would replace the generation with cleaner, more efficient generation.
- One utility believes that even if modified its coal plant could not meet the standard for coal-fired sources.
- Multiple respondents noted that it would not be economical to modify their fleet because of the interaction between the rule and the proposed targets in the Clean Power Plan.



## **EPA's Solicitation of Comments**

On July 10, 2014, Commission staff issued an open-ended public request for comments and information from interested persons on both the proposed Clean Power Plan and the proposed rule on Carbon Pollution Emission Standards for Modified and Reconstructed Stationary Sources. Staff additionally made inquiries for information from Florida's electric generating utilities. The primary objective for the solicitation was to gather Florida-specific information regarding aspects of both rules that may pertain to matters under the jurisdiction of the Commission.

The Commission received responses from 22 interested persons, including representatives from groups such as Earth Justice, Sierra Club, The Natural Resources Defense Council, American Coalition for Clean Coal Electricity, Southern Alliance for Clean Energy, Organizing For Action, Advanced Energy Economy, Algenol Biofuels Inc., NextGen Climate America, Florida Electric Cooperatives Association, and Florida Mayors. Comments submitted by interested persons can be viewed on the Commission's website.<sup>9</sup>

Staff is continuing to review and assess the proposed rules, comments, and related information. At this time, staff has not identified any likely comment topics in response to EPA's proposed rule for modified and reconstructed stationary sources. This is because the potential applicable scope of the proposed modified and reconstructed rule is site specific, on an as-needed basis, excludes a requirement for carbon capture and sequestration, and is otherwise similar to EPA's proposed New Source Performance Standards rule. In contrast, the proposed Clean Power Plan could affect the entire retail electric service industry. The list below presents a draft list of topics that are under further review for purposes of developing draft rule comments for future consideration on the proposed Clean Power Plan. The general topics address overlapping areas of potential interest in one or more of the four building blocks.

1. General Topics:
  - Existing programs that should qualify toward meeting state targets
  - Florida's characteristics
  - National and regional assumptions applied to Florida
  - Compliance timeline
  - Magnitude of stranded assets
2. Building Block 1: Heat rate improvement of coal facilities
  - Florida's long history of efficiency improvements at baseload facilities
  - Reasonableness/prudence of additional CO<sub>2</sub> related improvements due to Block 2
3. Building Block 2: Redispatch of Florida's NGCC fleet
  - Ongoing fuel diversity strategic concern
  - Electric transmission reliability/stability and new construction
  - Natural gas pipeline capacity

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<sup>9</sup> <http://www.floridapsc.com/utilities/electricgas/EPACarbonrules/index.aspx>

4. Building Block 3: Increase in renewable energy facilities
  - Reliability/stability requirements due to increased intermittent resources
  - Florida's current renewable energy options
5. Building Block 4: Increase in energy efficiency programs and performance
  - Florida's long history of deploying energy efficiency programs
  - Feasibility/reasonableness of EPA's assumptions