ADVANCED ENERGY ECONOMY
the business voice of advanced energy

Comment on U.S. Environmental Protection Agency Carbon Rules

To: Kathryn Cowdery, Office of General Counsel, Florida Public Service Commission
From: Matthew Stanberry, Vice President of Market Development, Advanced Energy Economy
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Introduction

Advanced Energy Economy (AEE) appreciates this opportunity to comment and to respond to the Florida Public Service Commission's specific questions on EPA's draft rule for reducing carbon pollution from electric power plants under Section 111(d) of the Clean Air Act, otherwise known as the "Clean Power Plan." AEE is a national association of businesses making the energy we use secure, clean, and affordable. AEE also leads a State Coalition consisting of 15 partner organizations active in 23 states across the country and representing more than 1,000 companies and organizations.

AEE strongly supports EPA's draft rule for reducing carbon emissions from electric power plants, as it represents a vital step toward modernizing the U.S. electric power system for greater efficiency, reliability, and value for consumers and the economy. The draft rule is consistent with three principles adopted by AEE to guide development of smart, cost-effective plans for reducing emissions from the power sector: recognize the value of advanced energy technologies for achieving emissions reduction; provide business certainty to encourage investment; and encourage technology-neutral solutions to allow for competition in the marketplace. Most importantly, by including established and market tested "beyond the fence line" advanced energy technologies and services as components of its "best system of emissions reduction" ("BSER"), EPA has made its state-by-state targets, including Florida's, easy to achieve.

AEE believes that EPA's Clean Power Plan provides a historic opportunity to modernize Florida's electric power system for the 21st century. In 2013 alone, Florida experienced 72 power outages, 25 percent of which were caused by weather events, for an average duration of 2 ½ hours.[1] Florida Power and Light plans on spending over half a billion dollars for storm hardening and resiliency over the next few years.[2] By investing in advanced energy technologies to meet Clean Power Plan compliance, Florida can work towards a more reliable and resilient electric system.

Many of the technologies that are already changing the U.S. electric power system also help to reduce carbon emissions. A recent AEE report, Advanced Energy Technologies for Greenhouse Gas Reduction[3], details 40 separate technologies that provide these improvements. These technologies

[1] http://img.en25.com/Web/EatonElectrical/2013%20US%20Blackout%20Tracker%20Annual%20Report.pdf
[2] http://www.fpl.com/news/2013/050213.shtml
[3] http://info.aee.net/epa-advanced-energy-tech-report

include energy efficiency, demand response, natural gas electricity generation, solar, wind, hydropower, nuclear, smart grid, and energy storage---all of which are currently in use across the country. AEE applauds EPA for referencing, by name, many of these advanced energy technologies in its proposal. With all these options for compliance, the Florida target as issued in EPA's draft rule is easily achievable with technologies that have been adequately demonstrated and are in widespread use at reasonable cost today. There is no reason to lower targets on the basis of economic impact or undue burden on consumers or business. Indeed, there is good reason to consider strengthening some components of the draft rule that fail to capture all of the economic and system benefits advanced energy technologies can provide, which will be discussed later in this document.

AEE sees some ways to improve this proposal. EPA's methodologies to calculate the best system of emission reduction understate the potential contribution of renewable energy and energy efficiency to emissions reduction and to providing economic value to states and consumers. At the same time, the structure of the proposal fails to anticipate the continuous improvement of these technologies that will enable higher levels of emission reduction over time, and discourages states from taking early action with advanced energy technologies. The final rule should build on the solid foundation of the proposal by strengthening the advanced energy technology targets, allowing review of those targets over time to reflect technological progress, and rewarding early use of these technologies. We recommend the Florida Public Service Commission consider these concerns when constructing its own comments to EPA on the Clean Power Plan.

Below, AEE has provided responses to the questions posed by the Florida Public Service Commission on the Clean Power Plan.

1. Please provide comments you have on legal aspects of the Clean Power Plan or proposed standards of performance for Modified and Reconstructed Sources that you believe are important for the Commission to review.

AEE supports EPA's interpretation of its legal authority to administer the Clean Power Plan under Section 111(d) of the Clean Air Act. In the landmark 2007 case *Massachusetts vs. EPA,* the Supreme Court ruled that carbon dioxide is an air pollutant subject to regulation under the Clean Air Act, and EPA is therefore required to administer guidelines for emission reduction.[4] Since that ruling, the Supreme Court has upheld EPA's authority to regulate carbon emissions on two separate occasions, including *American Electric Power Company vs. Connecticut*[5] and in *Utility Air Regulatory Group vs. EPA*[6], which upheld EPA's authority to regulate emissions from stationary sources.[7]

EPA is required under Section 111(d) to establish a carbon pollution emission guideline for the states that sets minimum requirements for emission reduction and timing for compliance. The

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[4] http://www.supremecourt.gov/opinions/06pdf/05-1120.pdf
[5] http://www.supremecourt.gov/opinions/10pdf/10-174.pdf
[6] http://www.supremecourt.gov/opinions/13pdf/12-1146_4g18.pdf
[7] http://www.nytimes.com/2014/04/30/us/politics/supreme-court-backs-epa-coal-pollution-rules.html, http://www.nytimes.com/2014/06/24/us/justices-with-limits-let-epa-curb-power-plant-gases.html

guideline is based on the emissions reductions EPA deems achievable through the BSER that is adequately demonstrated.[8] In establishing the BSER in the Clean Power Plan, EPA used a system-based approach that incorporates "beyond the fence line" technologies and services such as wind power, solar power, energy efficiency, demand response, etc. These technologies provide cost-effective emission reductions, substantial value to states and the power system, are well established in the marketplace, and have been incorporated for many years into state, regional, and utility policies and programs.

The electric power system is not simply a series of generating units, but rather an interconnected system of generation, use, and management, with emissions dependent on the performance of the entire system. As a result, efforts to regulate the emissions from the power system are more effective, including on the basis of cost, if they address the system comprehensively rather than simply dealing with individual units.

Fortunately, the language of Section 111(d) of the Clean Air Act provides EPA the authority to select a system-based approach in establishing the BSER. In fact, Section 111(d) requires EPA, in determining the BSER, to consider cost, energy, environmental and health considerations, all factors that suggest a system-based approach. Environmental and public health impacts decline as emissions drop. Also, analysis indicates that including reduction options beyond the fence lines of the electric generating units (EGUs) results in the lowest cost of implementation for any particular level of emission reduction.[9] At the same time, these technologies and services provide benefits to the larger energy system beyond emission reduction. With power purchase agreement prices averaging 4 cents/kWh in 2012, wind power is competitive with or less expensive than traditional generation options.[10] Solar power helps the grid meet peak demand because its output is greatest during the hottest hours of sunny days.[11] Energy efficiency measures reduce energy consumption, resulting in lower energy bills for consumers as well as lower emissions.[12][13] Demand response helps grid operators prevent blackouts and reduces the need for underutilized generation only used during short periods of high demand.[14]

Beyond the fence line options will help Florida balance cost, energy, environmental and public health considerations. They are also well established in the U.S. and global marketplaces, as illustrated by AEE's recent Advanced Energy Now 2014 Market Report.[15] The assessment, which was produced by Navigant Research, found that the 2013 market for advanced energy technologies was $1.1 trillion globally and $169 billion in the United States. The industry

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[8] 42 U.S.C. § 7411(a)(1)
[9] http://nicholasinstitute.duke.edu/sites/default/files/publications/ni_r_13-01.pdf
[10] http://emp.lbl.gov/sites/all/files/lbnl-6356e.pdf
[11] http://www.seia.org/research-resources/solar-industry-data
[12] http://www.ase.org/resources/top-5-reasons-be-energy-efficient
[13] Foster, H.J., Patrick Wallace, and Nicolas Dahlberg. 2013. 2012 State of the Efficiency Program Industry: Budgets, Expenditures, and Impacts. Consortium for Energy Efficiency.
[14] http://www.pjm.com/markets-and-operations/demand-response.aspx
[15] http://info.aee.net/advanced-energy-now-2014-market-report

generates as much revenue on an annual basis as the U.S. airline industry, so these technologies are well established in the marketplace, and therefore more than adequately demonstrated.[16][17]

States and utilities have many years of experience implementing a variety of policies and programs that result in emission reduction using these types of technologies and services. These policies include market-based emission reduction programs, renewable portfolio standards (RPS), energy efficiency resource standards (EERS), and a variety of other programs implemented by states, utilities, and regional organizations.

A system-based approach also allows for ready incorporation of emerging and future technologies that reduce emissions into 111(d) compliance plans over time. As the electricity system evolves to include newer technologies such as electric vehicles, a system-based approach will enable the recognition of their emission reduction benefits. EPA and the states should be prepared to adapt to changes in the electric power system and avoid discouraging future enhancements to the system.

Given that these policies and programs are well established, the technologies they incentivize have large markets, and implementation of those technologies results in lower compliance costs and other benefits to the power system, AEE sees little reason for EPA not to use a system-based approach to the BSER.

2. Please provide comments you have on technical aspects of the Clean Power Plan or proposed standards of performance for Modified and Reconstructed Sources that you believe are important for the Commission to review.

Regarding the technical aspects of the Clean Power Plan, AEE believes that EPA's methodologies understate the potential contribution of advanced technologies to emission reduction and to economic value for Florida. AEE's analysis of Building Blocks Three and Four indicate that Florida can achieve greater emission reductions from advanced technologies than EPA anticipates in the Clean Power Plan. Fortunately, the proposed rule provides sufficient flexibility for Florida to go beyond its emission reduction targets in these Building Blocks to offset its overall state emission target. By incorporating advanced energy technologies into its overall strategy, Florida can make meeting its final emission target easier while capturing the benefits to its electric grid beyond emission reduction.

EPA specifically recognized several advanced technologies that would be acceptable for compliance with Florida's emission target. AEE has called on EPA to go farther and give explicit, non-exclusive recognition to the 40 advanced energy technologies described in the Advanced Energy Technologies for Greenhouse Gas Reduction report.[18] EPA should also allow Florida to begin early adoption of these technologies by giving credit to emission reduction measures put in

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[16] http://www.reuters.com/article/2012/01/31/idUS208882+31-Jan-2012+BW20120131
[17] http://www.businesswire.com/news/home/20120419005903/en/Research-Markets-2012-Report-170-Billion-Plastic#.Uv_1YEJdV2V
[18] http://info.aee.net/epa-advanced-energy-tech-report

place before the 2020 target year. Similarly, EPA should list additional Enforcement, Measurement, & Verification (EM&V) options which it deems approvable, rather than waiting until after states submit their plan to signal which options it will accept. This would allow Florida to fully realize the benefits of these technologies, get a head start on compliance with its emission targets, and capture the economic potential of advanced energy investments.

In order to magnify the economic opportunities in the rule, AEE believes that Florida should consider a regional pathway towards compliance.

Flexibility

AEE's analysis of the proposed rule indicates that the system-based approach to calculating the BSER provides states with flexibility to utilize the wide range of resources and technologies at their disposal.

Many of these technologies not only reduce carbon emissions but also improve the reliability and resiliency of the power grid. Advanced energy technologies make the electric power system more resilient and reliable, more efficient and responsive, and less vulnerable to fuel price hikes. Our aging grid is becoming more susceptible to outages – especially due to increased frequency of severe weather events – at the same time as we are becoming more dependent on electricity in a 21st Century digital economy. The U.S. Department of Energy identified 679 widespread power outages due to severe weather between 2003 and 2012 – at cost of $18 billion to $33 billion in inflation-adjusted annual losses.[19] Eaton's Blackout Tracker Annual Report for 2013 identified 3,236 power outages last year alone.[20] This says nothing of the risks to life and property of such outages, especially extended outages.

Advanced energy technologies make the grid more intelligent and flexible. Energy storage and flexible generation using advanced gas turbines can help integrate rising levels of variable renewable generation; distribution automation and advanced metering infrastructure can give utilities greater visibility into and control over their distribution networks – allowing them to better respond to changing conditions, reroute power around faults, and more rapidly identify outages and restore power. Eventually, utilities and third parties are expected to be able to integrate distributed generation into grid planning and operations, turning them into valuable assets for the grid, not just their owners.

In the wake of Hurricane Sandy, customer-owned microgrids in New York and New Jersey kept the lights on for days at university and hospital campuses and housing complexes. In the future, more microgrids, including utility-owned systems, could become an integral part of grid operations.

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[19] http://energy.gov/sites/prod/files/2013/08/f2/Grid%20Resiliency%20Report_FINAL.pdf

[20] http://powerquality.eaton.com/blackouttracker/default.asp?id=&key=&Quest_user_id=&leadg_Q_QRequired=&site=&menu=&cx=3&x=10&y=9

In addition, empowering customers with energy use information will give them more service options and more control over energy use and costs, and also make their load more responsive. Demand response (DR) is already becoming an important tool for increasing grid reliability and avoiding the need for expensive investments to meet peak demand. During the January "polar vortex," the Electric Reliability Council of Texas (ERCOT) reported that demand response programs provided 496 MW of capacity to the grid within 46 minutes of a demand response dispatch call – output equivalent to an average-sized coal-fired power plant.[21]

Building Block Three

AEE believes that EPA's calculation of Building Block Three of the BSER significantly underestimates the amount of renewable energy that Florida can deploy before its first interim goal in 2020. At the same time, the structure of the proposal fails to anticipate the continuous improvement of these technologies that will enable higher levels of emission reduction over time.

EPA's calculation of Block Three of the BSER is based on regional averages of Renewable Portfolio Standards (RPS). Because an RPS is a policy target established by state legislatures or regulatory agencies, it does not necessarily reflect the state's true renewable generation capacity. In Minnesota, for example, the 2030 renewables target is set at 15 percent even though the state already obtained 18 percent of its electricity from non-hydro renewables in 2012. In addition, the average RPS for the southeast region, of which Florida is included, does not represent Florida's unique renewable resource capacity. As will be detailed in the next section, Florida's capacity for renewable generation is considerably higher than assumed by EPA. Florida could thus easily exceed its renewable energy targets.

By setting targets based on averages of existing state RPS, the Clean Power Plan fails to take into account the rapid market growth, falling costs and technological improvements in the renewable energy industry. The fact that interim targets do not start until 2020, while the baseline is set for 2012, also makes Florida's renewable energy target inherently conservative. According to the U.S. Department of Energy, the economics of wind and solar are improving rapidly and are competitive with traditional generation in many parts of the country. In 2012, cumulative installed wind capacity grew by 28 percent and cumulative installed solar PV capacity grew by nearly 83 percent.[22] There has already been growth in renewable energy generation in Florida between 2012 and 2014 and there will certainly be even more growth between now and 2020.

Given the remarkable growth already seen in the renewable energy market, AEE believes that Florida's renewable energy target will become even easier to achieve with each subsequent interim emission target.

Building Block Four

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[21] http://www.fiercesmartgrid.com/story/demand-response-success-story/2014-04-09
[22] U.S. Department of Energy. 2012 Renewable Energy Data Book. DOE/GO-102013-4291.October 2013, p. 3.

On energy efficiency, AEE can validate the 1.5% per year savings rate for electric utility-administered programs. Based on industry experience, AEE sees this rate of energy conservation as reasonable and sustainable. But more can be expected of energy efficiency in Florida than is currently captured in EPA's calculations.

The American Council for an Energy-Efficient Economy (ACEEE) conducted a study estimating emission reductions and economic benefits resulting from common energy efficiency policies in all 50 states.[23] Using the 2012 baseline of the BSER, it found that Florida could reduce its carbon emission by 25 percent by 2030 with a net positive impact on the economy in terms of job growth, economic output and energy savings for customers. In Massachusetts, the Green Communities Act, an energy efficiency program, was found by the Analysis Group to have generated $1.2 billion in net economic benefits to the state, and more than 16,000 jobs. The program generated $155 million in tax revenues.[24]

Energy efficiency will not only reduce carbon emissions but produce millions of dollars of savings for customers and additional economic benefits for the state. The Southeast Energy Efficiency Alliance released a study, prepared by the Cadmus Group, which calculated the economic impact of a Department of Energy sponsored building energy efficiency program in Florida. It found that, for every million dollars invested in the program, 18 jobs were created and $4.1 million was added to economic output.[25]

AEE believes that EPA's calculation of energy efficiency in Florida is conservative. The targets set by the Clean Power Plan are based exclusively on utility-sponsored programs created by state energy efficiency standards. They do not account for the considerable private-sector energy efficiency investments made outside of utility programs. Also, similar to its treatment of renewable energy, the draft rule uses 2012 energy efficiency market figures for 2017 targets, ignoring technological progress, and the investments that states are making year after year. As will be discussed in the next section of these comments, Florida already has seen significant energy efficiency investments in the state.[26] AEE believes that Florida's capacity for energy efficiency is actually greater than assumed by EPA.

Explicit Recognition of Advanced Technologies

The 40 technologies detailed in the Advanced Energy Technologies for Greenhouse Gas Reduction report provide a range of solutions for Florida to consider in meeting its emission reduction targets. These technologies include energy efficiency, demand response, natural gas generation, solar, wind, hydropower, nuclear, smart grid, and energy storage. While not a comprehensive or exclusive list, the report demonstrates the breadth of compliance options that Florida has its

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[23] http://www.aceee.org/press/2014/04/new-study-outlines-plan
[24] http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Analysis_Group_GCA_Study.pdf
[25] http://www.seealliance.org/wp-content/uploads/SEEA-EPS-EE-Report.pdf
[26] Florida utilities have spent over $5.4 billion over the life of their energy efficiency program. http://www.psc.state.fl.us/utilities/electricgas/energylaw/FEECA.pdf

disposal. Advanced energy technologies offer Florida a path towards emission reduction that is easily achievable and cost-effective.

That makes the Clean Power Plan an opportunity for Florida to deploy these technologies even more widely in electricity generation, management, and usage while simultaneously improving the electric power system.

The Clean Power Plan already recognizes several of the advanced technologies explicitly as acceptable compliance options. In order for Florida to fully realize the benefits of advanced technologies, EPA should explicitly recognize the other technologies listed in the Advanced Technologies for Greenhouse Gas Reduction report. EPA should continue with its flexible, technology neutral approach to carbon emission reduction by making this recognition nonexclusive. Nonetheless, recognition of these technologies will ensure that Florida can continue to deploy these technologies and begin to comply with its emission targets early.

Early Adoption of Renewable Energy and Energy Efficiency

AEE has concerns about accounting for actions implemented after 2012. Because the first interim target isn't until 2020, AEE believes the proposed rule, as currently constructed, dis-incentivizes natural gas, energy efficiency, and renewable project work undertaken between 2014 and 2020.

The Clean Power Plan currently only provides credit to emission reductions that occur during the interim compliance period (2020-2029) and beyond. This approach risks significantly distorting the advanced energy marketplace. It could encourage developers that otherwise would implement advanced energy measures prior to 2020 to wait—or be forced to wait by customers or financing constraints—until such time as they are eligible for credit under a state compliance plan.

This means that measures taken by Florida before 2020 to reduce greenhouse gases would not necessarily be credited. However, EPA has explicitly requested comment on an alternate proposal in which a state would instead be permitted to provide credit to emission reductions that occur prior to 2020 from measures that are put in place after the date the Clean Power Plan was published in the Federal Register (June 18, 2014). In order to avoid market distortions and to encourage displacement of carbon intensive generation earlier, AEE recommends encouraging EPA to adopt the alternate proposal.

Enforcement, Measurement & Verification

The Clean Power Plan requires that state plans generate reliable, verifiable, and enforceable greenhouse gas reductions. AEE believes that energy efficiency efforts can provide those reduction inexpensively, but these programs may vary substantially by state to reflect local conditions. EPA should allow for multiple approaches to guaranteeing these reductions from future energy efficiencies are quantifiable and reliable for compliance purposes, while avoiding imposing onerous additional energy program requirements on the states to the maximum extent possible.

EPA should not wait until after states submit plans to signal which options will ultimately be approvable.

EPA should avoid trying to reinvent the wheel and instead recognize the well-established EM&V protocols that have been used for many years by utilities and states for energy efficiency programs and the private sector for privately contracted energy efficiency projects.

EPA has listed a number of EM&V plan approval options. But Florida may have its own plan for EM&V of local energy efficiency programs. EPA should develop a non-exclusive list of approvable protocols and more general approval criteria. The following is a non-exclusive list of EM&V methodologies and resources that EPA should consider recognizing and recommending:

- Model Energy Efficiency Program Impact Evaluation Guide issued by the State Energy Efficiency (SEE) Action Network
- International Performance Measurement and Verification Protocol issued by the Efficiency Valuation Organization
- ASHRAE Guideline 14-2002 Measurement of Energy and Demand Savings
- Superior Energy Performance Measurement and Verification Protocol for Industry
- DOE Uniform Methods Project protocols
- Selected Technical Reference Manuals (TRMs) developed and/or adopted by States, utilities and regional bodies (such as the Regional Technical Forum (RTF) in the Northwest and Northeast Energy Efficiency Partnerships (NEEP) EM&V Forum

Regional Compliance Option

EPA's proposed rule recognizes that neither greenhouse gas emissions nor energy markets respect political boundaries. Regional approaches to compliance provide the easiest mechanism for handling the interstate effects of state plans and recent analyses, including one from MISO and one from the Brattle Group, show that regional approaches are the most cost effective mechanisms for compliance.[27] EPA has not defined a specific approach to creating a regional plan, but the Agency has encouraged states to work with each other to work together to develop approaches that work.

AEE believes that a regional approach would help Florida overcome technical challenges such as cross-state power flow and crediting and, more importantly, would lower implementation costs. At the same time, it would facilitate the work of the region's business community responsible for carrying out emission reductions by reducing the number of markets and variability between them.

[27] http://www.brattle.com/system/publications/pdfs/000/004/980/original/A_Market-based_Regional_Approach_to_Implementing_EPA%E2%80%99s_GHG_Emissions_Regulation.pdf?1391603372

Market-based emission reduction programs are well established, with the Regional Greenhouse Gas Initiative serving as a prime example. The nine participating states have reduced carbon pollution in the region by over 40 percent from 2005 to 2012.[28] At the same time, over the program's first three years, the program generated a $1.6 billion net benefit for the nine states along with a net increase of 16,000 jobs.[29]

3. Please provide input on the assumptions EPA employed in setting the Florida-specific interim and final emission targets in the Clean Power Plan.

The Clean Power Plan specifically recognizes several advanced energy technologies as cost-effective ways to reduce carbon emissions. AEE believes that these technologies can actually contribute more than EPA anticipates in the proposed rule. With the help of advanced energy technologies, Florida's interim and final emission targets are easily achievable.

AEE would like to highlight several assumptions EPA employed in setting Florida's interim and final emission targets that AEE believes make the targets inherently conservative.

RPS vs. Technical Capacity for Renewable Energy

As noted in the previous section, Building Block Three uses a regional RPS average, rather than technical capacity to set the renewable energy target for Florida. According to EPA data, Florida's renewable generation in 2012 was 4,523 GWh, or 2 percent of total generation. The Clean Power Plan sets a renewable generation target for Florida of 5,131 GWh beginning in 2017 and ramping up to 22,110 GWh, or 10 percent, in 2029.[30] However, Florida's technical capacity for renewable generation is several orders of magnitude higher than its final target in 2029. According to the National Renewable Energy Laboratory, Florida could achieve this renewable energy target three times over with rooftop photovoltaics alone.[31] Florida's total technical capacity for renewable generation including rooftop photovoltaics, utility-scale solar, on- and off-shore wind, biopower, and other renewable resources is over 5,500,000 GWh.[32]

1.5% Energy Efficiency Improvement Rate May be Low

Based on the experience of its member companies, AEE believes that the 1.5% energy efficiency improvement rate is reasonable and sustainable. Some states will already be above that threshold before the first interim energy efficiency goal. For example, the Green Communities Act in Massachusetts created energy efficiency programs that are on track to achieve 6% energy

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[28] Regional Greenhouse Gas Initiative, Report on Emission Reduction Efforts of the States Participating in the Regional Greenhouse Gas Initiative and Recommendations for Guidelines under Section 111(d) of the Clean Air Act 1 (2013)
[29] The Analysis Group, The Economic Impacts of the Regional Greenhouse Gas Initiative 33 (2011), http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Economic_Impact_RGGI_Report.pdf.
[30] http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-ghg-abatement -measures.pdf (p. 4 - 6).
[31] National Renewable Energy Laboratory estimates that the total technical potential for rooftop photovoltaics in Florida is 63,987 GWh. http://www.nrel.gov/docs/fy12osti/51946.pdf
[32] Ibid

efficiency in the first six years of its implementation.[33] EPA is proposing a 0.2% ramp rate while several analyses demonstrate that even a 0.25% ramp rate is also achievable.[34]

However, EPA only uses utility programs to determine the amount of achievable energy efficiency. This ignores other sources of energy efficiency, including from the government and private sector, which are already a large contributor to overall energy efficiency in the economy. Florida should consider encouraging EPA to factor in non-utility programs into its calculations.

Florida already has codes in place to promote energy efficiency in public and private buildings. EPA recognizes this method of emission reduction, calling it "leading by example." Several counties and municipalities in Florida have existing energy standards for public buildings including Broward County[35], the City of Jacksonville[36], and Miami-Dade County[37]. According to AEE's Technologies for Greenhouse Gas Reduction Report, state-based building codes and state-based appliance standards can result in substantial carbon emission reductions at relatively low cost.[38] Florida has a history of setting state-based standards that become nationally recognized. In the 1970s, Florida, along with California and New York, pioneered what became national refrigerator appliance standards.[39]

These standards are in addition to the utility-based energy efficiency program established the Florida Energy Efficiency and Conservation Act (FEECA). These goals have resulted in substantial emission reductions in Florida already. In Docket No. 130199, four of Florida's investor owned utilities are proposing substantial reductions in these voluntary energy efficiency goals.[40] In that docket, utilities are arguing that Florida's energy efficiency program is no longer cost-effective because a threshold of energy efficiency has already been achieved in the market. However, according to EIA data, 37 percent of Florida's natural gas use and 27 percent of its electricity use are dedicated to residential heating, and the cost of residential natural gas exceeds the national average.[41] This suggests that there is room for improvement in Florida's energy efficiency market.

4. Should the effects of actions implemented after 2005, which resulted in lower CO2 footprint, be included in EPA's Clean Power Plan, and if so, explain how and why?

While the overall goal of the Clean Power Plan is to reduce nationwide emission 30 percent by 2030 from 2005 levels, the proposed rule uses 2012 emissions from the eGrid database as a

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[33] http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Analysis_Group_GCA_Study.pdf
[34] http://www.aceee.org/sites/default/files/publications/researchreports/e1401.pdf
[35] http://www.broward.org/GoGreen/GreenGovernment/Pages/LEEDSBuildings.aspx
[36] http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=FL23R
[37] http://www.miamidade.gov/green/
[38] http://info.aee.net/epa-advanced-energy-tech-report
[39] http://www.aceee.org/sites/default/files/publications/researchreports/e1401.pdf
[40] http://www.psc.state.fl.us/dockets/cms/docketdetails2.aspx?docket=130199
[41] http://energycodesocean.org/state-country/florida

baseline for calculating individual state emission reduction targets.[42] Thus measures taken to reduce emission in Florida between 2005 and 2012 are already taken into account.

5. Please discuss the achievability of meeting EPA's proposed Florida-specific interim and final emission targets in the Clean Power Plan.

The Clean Power Plan assumes states will use advanced technologies in some capacity in order to achieve their emission reduction targets. AEE believes that, using advanced energy technologies, not only are Florida's emission targets achievable but offer widespread benefits and represent a chance to modernize Florida's electric power system for the 21st century.

Many of the technologies that are already changing the U.S. electric power system also help to reduce carbon emissions. That makes the new EPA carbon standards an opportunity to deploy these technologies even more widely in electricity generation, management, and usage – all while making the electric power system more resilient and reliable, more efficient and responsive, and less vulnerable to fuel price hikes.

AEE's Advanced Energy Technologies for Greenhouse Gas Reduction Report[43] report details 40 different advanced energy technologies and services that states can consider as they develop compliance plans to reduce emissions under EPA's Section 111(d) carbon pollution standard. These solutions do not constitute a comprehensive list, but rather demonstrate the breadth of options that Florida has at its disposal today.

RPS and EERS policies have been implemented in most U.S. states and have been successful in encouraging the deployment of renewable and energy efficiency resources. Florida is one of nine states that has voluntary goals. While RPS and EERS are not the only policy tools available to the Commission, they are cost-effective, enforceable, and verifiable ways to achieve and demonstrate compliance with this part of the BSER.

Renewable portfolio standards (RPS) exist in 30 states and have been used for upwards of two decades to spur renewable energy installation while delivering emission reductions. As an example, analysis by the Minnesota Department of Commerce through 2012 shows all Minnesota utilities on track with their targets under the state's Renewable Energy Standard while most ratepayers were experiencing lower costs.[44] In Kansas, wind projects developed under the RPS have resulted in more than 12,000 jobs and $13.7 million annually in lease payments for landowners and developers.[45]

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[42] http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-goal-computation.pdf
[43] http://info.aee.net/epa-advanced-energy-tech-report
[44] Minnesota Department of Commerce, Progress on Compliance by Electric Utilities with the Minnesota Renewable Energy Objective and the Renewable Energy Standard 3, 9 (2013), http://mn.gov/commerce/energy/images/2013RESLegReport.pdf
[45] http://www.nrdc.org/energy/renewable-portfolio-standards/files/RPS-KS.pdf

Energy efficiency resource standards (EERS) or mandatory energy efficiency investment programs exist in 25 states. Efficiency Vermont, which produced 1.8 percent reduction in annual electricity consumption in 2012, is expected to yield lifetime savings for customers of $136.1 million from an investment of $57.1 million. On the other side of the country, California has reduced ratepayer bills by $78 billion over the life of its energy efficiency program, which has existed in some form since the 1970s.[46] [47] Arizona has implemented an aggressive energy efficiency program, with 1-2% reductions expected each year. Since 2005, the program has saved Arizona Public Service Co. customers over $700 million.[48]

Beyond EERS, RPS, and market-based emission reduction programs, states, utilities, and grid operators (RTOs/ISOs) have gained experience with a range of advanced energy policies that capitalize on beyond the fence line technologies. Demand response rules in the PJM wholesale market reduce PJM's need to build additional generating units and result in savings of over $275 million annually.[49] Another effective program type that results in reduced emissions provides incentives for combined heat and power (CHP), such as the one run by Maryland utility Pepco. Pepco's CHP incentive program offers generous credits for electric production or capacity.[50] [51] [52] Legislatures also play an active role in establishing advanced energy policies. For example, Colorado recently enacted the Clean Air–Clean Jobs Act, under which Xcel Energy, Colorado's largest utility, anticipates it will decrease its carbon emissions 28% through 2020.[53] These examples only scratch the surface of the experience states and utilities have in working with beyond the fence line technologies.

Despite its reliance on existing RPS policies to formulate building block 3, the Clean Power Plan allows Florida to use other policies, besides an RPS, for compliance with its emission targets. EPA has outlined several other policies that it will consider in addition to RPS and EERS, which are listed below.[54] Florida already has many of these policies in place. The following is a non-comprehensive list of policies that can promote the deployment of advanced energy in Florida.

- Interconnection Standards and Net Metering - In 2008, the Commission adopted rules that allowed Florida customers owning distributed generation to connect to the grid via investor owned utilities. However, interconnection standards vary across utilities. These

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[46] 2012 Annual Highlights, Efficiency Vermont, http://www.efficiencyvermont.com/about_us/information_reports/annual-highlights-2012.aspx
[47] California Energy Commission, Draft 2013 Integrated Energy Policy Report 23 (2013), http://www.energy.ca.gov/2013publications/CEC-100-2013-001/CEC-100-2013-001-LCD.pdf
[48] https://www.aps.com/en/ourcompany/aboutus/energyefficiency/Pages/home.aspx
[49] 2012 Annual Highlights, Efficiency Vermont, http://www.efficiencyvermont.com/about_us/information_reports/annual-highlights-2012.aspx
[50] California Energy Commission, Draft 2013 Integrated Energy Policy Report 23 (2013), http://www.energy.ca.gov/2013publications/CEC-100-2013-001/CEC-100-2013-001-LCD.pdf
[51] https://www.aps.com/en/ourcompany/aboutus/energyefficiency/Pages/home.aspx
[52] http://www.pjm.com/~/media/documents/presentations/pjm-value-proposition.ashx
[53] https://cienergyefficiency.pepco.com/CombinedHeat.aspx
[54] State Plan Considerations, Technical Support Document http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-ghg-abatement-measures.pdf

standards can be strengthened to encourage more widespread adoption of distributed generation resources.

- Renewable Energy and Energy Efficiency Incentives - Florida has a number of tax incentive programs already in place including a renewable energy production tax credit,[55] local loan programs, utility loan and rebate programs, and PACE financing.[56]
- Value of Solar Tariff - A value of solar tariff (VOST), like the one recently adopted in Minnesota, replaces net metering and separates electricity usage and generation. Under a VOST, a customer is charged for the electricity they use and is credited separately with the amount of electricity they generate, allowing the utility to recover the cost of serving the customer.[57]
- Decoupling - does not in and of itself encourage energy efficiency but rather removes the incentive for utilities to sell more electricity by eliminating the link between revenue and electricity sales. It is most effective when used in conjunction with other policies such as an EERS. [58]
- On-Bill Financing - allows customers to overcome the high upfront cost of major distributed generation or energy efficiency purchases by dispersing them over a longer period of time directly on their utility bill. On-bill financing was adopted by Hawaii last year as part of its Green Infrastructure Financing program.[59]
- Smart Grid Development - According to the Grid Modernization Index, Florida is already a leader in smart grid deployment and ranks eleventh overall in grid modernization.[60] Smart grid capabilities offer significant environmental benefits and can reduce CO2 emissions per customer by 55-592 lbs per year.[61] Florida can develop smart grid technologies through a number of policy measures including deploying advanced metering infrastructure, Volt/VAR optimization and other advanced technologies.[62][63]
- Behavioral Energy Efficiency (BEE) - when coupled with smart grid technology like advanced metering infrastructure, BEE programs have been shown to consistently reduce energy consumption.[64] If deployed to all households in the U.S. for which it is cost effective, it could avoid CO2 emissions of 10.2 million metric tons per year.[65]

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[55] http://www.freshfromflorida.com/Divisions-Offices/Energy/Florida-Renewable-Energy-Tax-Incentives
[56] http://pacenow.org/
[57] http://mn.gov/commerce/energy/topics/resources/energy-legislation-initiatives/value-of-solar-tariff-methodology%20.jsp
[58] https://www.ase.org/resources/utility-rate-decoupling-0
[59] http://www.forbes.com/sites/justingerdes/2013/07/26/why-hawaii-just-became-an-even-better-market-for-solar/
[60] http://www.gridwise.org/documents/GridModernizationIndex_July2013.pdf
[61] http://www.smartgridnews.com/artman/publish/Business_Consumer_Engagement/Smart-grid-value-to-a-consumer-154-65-per-year-And-we-can-prove-it-6160.html/#.U8gxwI1dVtk
[62] http://www.eia.gov/analysis/studies/electricity/pdf/sreg_policies.pdf
[63] https://www.nema.org/Policy/Energy/Smartgrid/Documents/VoltVAR-Optimazation-Improves%20Grid-Efficiency.pdf
[64] http://www.energyandresources.vic.gov.au/energy/about/legislation-and-regulation/energy-saver-incentive-scheme-management/ris/
[65] http://info.aee.net/epa-advanced-energy-tech-report

- Aligning Utility Incentives - one of the largest barriers to energy efficiency resource gains is a misalignment of utility and customer incentives.[66] There are many policy options available to help restructure these incentives in ways that make energy efficiency resources attractive investments for utilities.[67]
- Reforming the Utility Business Model - Having found the utility business model outdated, some states are re-evaluating the notion that utilities should simply procure and sell electricity to customers. The next generation utility might be a "Distribution System Platform Provider", like in New York, or some other model as in Massachusetts and Hawaii.[68] Minnesota has also initiated a stakeholder process around the idea of "Utility 2.0." "Utility 2.0" would take greater account of distributed and energy efficiency resources and the myriad other services and technologies that are increasingly cost-effective solutions to energy challenges.

[66] http://www.epa.gov/cleanenergy/documents/suca/incentives.pdf
[67] http://www.aceee.org/sector/state-policy/toolkit/utility-programs/performance-incentives
[68] http://www3.dps.ny.gov/W/PSCWeb.nsf/All/26BE8A93967E604785257CC40066B91A?OpenDocument