
November 19, 2014

The Honorable Gina McCarthy
Administrator, United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

To Be Submitted via: A-and-R-Docket@epa.gov

**RE: Docket ID No. EPA-HQ-OAR-2013-0602**

**Comments to the EPA and States on the Proposed Clean Power Plan Regulating Existing Power Plants under Section 111(d) of the Clean Air Act**

Dear Administrator McCarthy:

The Business Council for Sustainable Energy (BCSE or the Council) appreciates the opportunity to provide the Environmental Protection Agency (EPA) with comments on the proposed Clean Power Plan. The Council offers its views with the aim of improving the final rule and to assist states as they begin the process of implementation planning.

BCSE is a coalition of companies and trade associations from the energy efficiency, natural gas, and renewable energy sectors, and also includes independent electric power producers, investor-owned utilities, public power, commercial end-users, and environmental and energy market service providers. Founded in 1992, the Council advocates for policies at the state, national, and international levels that increase the use of commercially-available clean energy technologies, products, and services. The coalition's broad-based business membership is united around the revitalization of the economy and the creation of a secure and sustainable energy future for America.

The Council has provided comments to EPA on a range of air quality and climate change initiatives since its founding. With regard to reducing greenhouse gas (GHG) emissions, the Council supports market-based programs that utilize performance-based metrics. Further, BCSE represents a portfolio of commercially-available resources, technologies, and services that are proven to reduce air pollution and GHG emissions in an affordable and reliable manner. These solutions should be used to their full potential as compliance options. Of note, as a diverse coalition, not all members take positions or endorse all the issues discussed in this submission.

**A Changing US Energy Landscape**

The Council, in partnership with Bloomberg New Energy Finance (BNEF), produces an annual Sustainable Energy in America Factbook to track the investment and market trends in the US energy sector.[1] The 2014 edition documents the continued transformation of how the US produces and consumes energy. Key points from the 2014 Factbook include:

- The country's total annual energy consumption in 2013 was 5.0 percent below 2007 levels, due in large measure to advances in energy efficiency. This trend was in part prompted by the economic downturn of 2008-09, but as economic growth has returned energy use has not grown at a commensurate rate. The net result is a more energy-efficient and energy productive economy (i.e., higher GPD per unit of energy consumed).

- Over that same period (2007-13), use of lower- and zero-carbon energy sources has grown, while other major energy sources such as coal and oil have experienced significant declines. Natural gas production and consumption hit all-time highs in 2013, and natural gas-fired power plants provided 28 percent of US electricity in 2013, up from 22 percent in 2007. Renewable electricity generation, including power from large hydro projects, grew from 8.3 percent to 12.9 percent over that period. Since 1997, 94 percent of new power generation capacity built in the US has come in the form of natural gas plants or renewable energy facilities.

- Renewable electricity generation costs touched all-time lows allowing renewables in some locations to under-price traditional fossil-powered competitors. Prices of solar modules have declined by 99 percent since 1976 and by about 80 percent since 2008. For wind, utilities in Texas, the Southwest, and the Midwest signed PPAs in the $20-35/MWh range for wind projects that are coming online in the 2014-15 period; these prices are well below the levelized cost of electricity of fossil technologies.

- Energy efficiency policy is maturing, and investments are ramping up to the benefit of buildings and industries. As of 2013, 26 states had energy efficiency resource standards (EERS); 31 states, covering 77 percent of the US population, had legislation enabling energy efficiency deployment to be paid through property tax bills, or property assessed clean energy (PACE) financing (although PACE financing is not yet available in most of these states); and 7 percent of US commercial sector floor space was covered under policies requiring buildings to achieve energy efficiency benchmarks or mandating disclosure of energy consumption. Energy efficiency financing across two major frameworks – utility spending to comply with resource standards and energy service companies' (ESCOs) investments – has been on an upward trend and amounted to more than $12bn in 2012. Energy intensity in key industrial sectors has been falling; while manufacturing industrial output decreased by 3 percent over 2002-10, energy consumption fell by 17 percent.

- Transportation is being revolutionized by new policies, technologies, and fuels. Federal corporate average fuel economy (CAFE) standards for cars are set to double by 2025, relative to 2011 levels. Medium- and heavy-duty vehicle fuel economy standards have been implemented

[1] *Sustainable Energy in America Factbook*. Business Council for Sustainable Energy, Bloomberg New Energy Finance. February 2014. http://www.bcse.org/sustainableenergyfactbook.html

with more stringent standards in the works, while fleets have adopted numerous voluntary measures. Sales of hybrids and plug-in electric vehicles are rising and totalled nearly 600,000 vehicles in 2013 (3.8 percent of US passenger vehicle sales). Fuel Cell Electric Vehicles (FCEVs) are coming to market and hydrogen infrastructure investments are being made. Additionally, eight states recently signed a MOU to deploy more than 3 million zero emission vehicles by 2025. Natural gas use in the transport sector is up 33 percent since 2007. These developments, along with a growing role for biofuels, have driven gasoline consumption down 7.7 percent since 2005. Information and communications technology (ICT) advances have been critical from individual vehicle efficiency to logistics software and GPS applications to elements of evolving intelligent transportation systems, which should be viewed as integral components of our energy infrastructure.

- These trends have combined to put US carbon dioxide emissions on a long-term downward trajectory. In 2009, President Obama announced a goal of achieving a 17 percent reduction in GHG emissions by 2020 relative to 2005 levels. Total GHG emissions peaked in 2007 at 7.26Gt and have dropped by an estimated 9.8 percent since 2005, putting the US more than halfway to its goal.

**BCSE Engagement with EPA Prior to the Release of the Proposed Clean Power Plan**

BCSE submitted comments to the EPA on December 13, 2013 offering preliminary recommendations for the design of regulations for carbon emissions from existing power plants. BCSE recommended that the proposed rule:

- Allow energy efficiency (including combined heat and power (CHP), waste heat to power, and utilization of waste heat recovery), the full set of renewable energy options, as well as natural gas and propane to be made eligible and viable as compliance options.
- Provide flexibility to states to develop and implement cost-effective compliance plans.
- Adopt a system-wide approach to compliance that permits outside the fence activities to contribute toward meeting the state targets.
- Provide guidance on Evaluation, Monitoring, and Verification (EM&V) protocols that give confidence to states and other actors that energy efficiency, renewable energy, and natural gas can be used as compliance tools.
- Recognize programs and policies at state and regional levels that have been drivers of clean energy technology deployment and GHG reductions including the importance of predictable siting and permitting processes for new infrastructure.

**BCSE Views on the Proposed Clean Power Plan**

BCSE commends the release of the proposed Clean Power Plan in June 2014. Further, the timeline set for finalization and implementation of the standards show that the United States seeks to take meaningful steps to address climate change at the federal level.

As data from the past several years has revealed, the mix of the US energy supply is changing rapidly, with low-carbon sources gaining market share. At the same time, energy consumption is down, despite overall economic growth. This demonstrates that the US can reduce GHG emissions without harming

the US economy. The proposed Clean Power Plan recognizes these trends and seeks to build upon them.

BCSE appreciates that several of its preliminary recommendations were considered and incorporated into the proposed Clean Power Plan. Of note, the proposal recognizes:

- A diverse portfolio of clean energy technologies that are available as compliance options;
- Prior investments and established programs that have reduced emissions; and
- State flexibility in designing and implementing emission reductions, which is critical for cost-effective compliance.

In considering compliance options, it is important to evaluate them based on the emissions profile of the state or region where the investment is being made.

The Council would also like to commend EPA for incorporating output-based metrics in establishing the Best System of Emissions Reduction (BSER). In addition, BCSE appreciates EPA's inclusion of both rate-based and mass-based approaches in the proposal. As such, BCSE supports EPA's view that renewable energy and demand-side energy efficiency measures may be incorporated into a rate-based approach through an adjustment or tradable credit system. This approach should be applied to all demand-side solutions, including fuel cells and CHP.

While the BCSE has not provided comments on the range of issues related to EPA's approach to establishing the BSER under the proposed Clean Power Plan, EPA's inclusion of the system-wide approach to compliance is fundamental to increasing the use of clean energy technologies and substantially lowering emissions. Without this, the states would have fewer options for compliance and less flexibility. Utilizing a diverse portfolio of clean energy options available for compliance will make the US economy stronger, reduce emissions and increase resiliency. BCSE notes the legal arguments underpinning system-wide compliance that were included in the proposal[2] as well views that concur with this approach.[3]

Further, BCSE supports the recognition of past investments and initiatives that have generated GHG emission reductions, and encourages EPA to do so it its final rule.

In reviewing the proposal, there are a number of areas that the BCSE seeks further clarification. Please see the following sections that outline the Council's questions and recommendations.

**BCSE Comments on Design Elements in the Proposed Clean Power Plan**

The BCSE comments are arranged in several sections. The first section focuses on cross-cutting issues. The subsequent sections focus on industry specific topics related to the areas of energy efficiency, renewable energy, and natural gas. BCSE has focused its comments largely on aspects of the proposal

[2] Carbon Pollution Emissions Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Proposed Rule. June 18, 2014. 79 Fed. Reg. 34,902-34,903 (pg 74-75).
[3] Robert R. Nordhaus and Ilan W. Gutherz, *Regulation of CO2 Emissions From Existing Power Plants Under §111(d) of the Clean Air Act: Program Design and Statutory Authority*, 44 Envtl. L. Rep. 10366, 10383-10385 (2014). http://64.106.168.122/files/9035_44%2010366.pdf

that inform compliance planning. BCSE encourages EPA to consider the comments submitted by its members on other aspects of the proposal as well as technical issues related to their sectors.

## *1. Section 1 – Cross-Cutting Topic Areas*

### *1.1 Affirm that Non-Building Block Technologies, Resources, and Practices are Eligible as Compliance Options*

There are many readily-available clean energy technologies, resources, and practices that can be used by states to reduce GHG emissions. EPA should affirmatively indicate that technologies, resources, and practices that are not included in the Building Blocks can be eligible as compliance options for states. This is essential to ensure that all viable clean energy technology options are considered.

### *1.2 Support Regional Compliance Planning in the Clean Power Plan*

BCSE urges EPA to support all mechanisms necessary to allow states to engage in a regional compliance approach. Regional compliance options have the potential to give states additional flexibility, while also minimizing the risks of double counting carbon reduction gains. To facilitate consideration of regional approaches, EPA should develop guidance for states and offer technical assistance. This could be in the form of developing model regional and multi-state agreements as well as setting minimum standards for this method of compliance. In addition, given the complexity of interstate issues, BCSE recommends that the regional EPA offices convene stakeholders to address implementation questions including the importance of predictable siting and permitting processes for new energy infrastructure that will enable compliance. Implementation will prove difficult for many states, especially in regards to interstate crediting, and leadership at the regional level will likely prove helpful to states and affected stakeholders.

Further, the guidance provided by EPA should indicate that regional or multi-state agreements can have varying degrees of formality. For example, states could trade, average or otherwise allocate emissions and emissions rates based on a Memorandum of Understanding (MOU).[4] States interested in collaboration should not have to submit a joint compliance plan nor should their arrangements have to be as thorough or as formal as regional agreements such as the Regional Greenhouse Gas Initiative (RGGI). Additionally, if states opt for a multi-state compliance option, EPA should clarify if partnering states must be adjacent to each other to be considered to be within the same region.

There are many options available to states to demonstrate cooperative compliance planning. It is critical to ensure this is clear to states as they craft their plans.

### *1.3 Accounting of Interstate Renewable Electricity Imports and Exports, and Energy Efficiency*

BCSE agrees with EPA's proposal that a state should be able take into account all of the carbon emission reductions from renewable energy measures implemented by the state, whether they occur in the state or in other states. The Clean Power Plan offers a number of options states have when considering potential approaches for the treatment of these emission reduction activities. In general, consistent

[4] The MOU might indicate that states party to the MOU both use same basis (mass- or rate-), have consistent evaluation, measurement, and verification (EM&V) and emissions quantification approaches, and have developed some mechanism for the trading, averaging, and allotting of emissions.

with one of the options set forth in the proposed rule, the implementing state or entity (i.e., states or entities that create the measure that led to the production of the energy) should be able to claim the environmental attributes of purchased renewable electricity from out-of-state generation, regardless of where it occurs, in its state compliance plan.

With respect to multi-state or regional compliance plans, the Council agrees that states should be able to address the crediting of the interstate effects of renewable energy through cooperative agreements between states and regional determinations. This gives flexibility to the states to choose from a variety of pathways to credit emission reductions in a manner that best addresses how they want to distribute credits and likely will encourage multi-state or regional compliance approaches.

BCSE encourages EPA to provide further guidance in the final rule on the crediting of the interstate effects of emission reductions. In particular, clarification should be provided on how states should avoid double counting in instances in which one state claims credit for renewable generation and another state that holds the environmental attributes of the same energy also claims credit. To that end, the Council recommends that the Clean Power Plan encourage states to develop or participate in an environmental crediting accounting system for renewable energy. If a state chooses not to do so, EPA should only allow a state to include renewable energy MWhs in its compliance plan if it can demonstrate entities in the state have submitted environmental attributes (i.e., credits) for those MWhs. BCSE believes that these modifications should resolve the uncertainty created by the proposed rule and provide a strong signal to renewable energy developers and purchasers that their existing and future contracts for the environmental attributes of the energy will be honored. The Council also requests that the EPA encourage the expansion of the existing framework for tracking and crediting of renewable energy to an even larger footprint in order to further enable the verification and quantification of emission reductions from renewable energy.

For energy efficiency activities, EPA should consider defining compliance crediting mechanisms similar to Renewable Energy Certificates (RECs). Counting verifiable emission reductions due to energy efficiency projects would provide similar benefits for the Clean Power Plan.

Of note, EPA's Technical Support Document (TSD) on State Plan Considerations suggests an asymmetric approach to energy efficiency as compared to renewable energy.[5] The TSD suggests that for renewable energy, the state that implements the renewable energy measure should be able to take credit for emissions reductions regardless of whether the reductions occur. However, the same TSD suggests that states implementing energy efficiency should only be credited for emissions avoided within the state. BCSE suggests that energy efficiency and renewable energy be treated in a similar fashion with respect to interstate accounting. EPA should provide guidance for allowing states to take full credit for both energy efficiency and renewable energy or other low- and zero-carbon power resulting in interstate emissions avoidance.

### *1.4 Incentives for Immediate Action to Reduce Emissions*

EPA needs to clarify the compliance period in order to ensure there is no disincentive to make investments in clean energy and energy efficiency before the start of the interim compliance period in 2020. States should be given flexibility with respect to meeting targets over a multi-year period, but the

[5] EPA's Technical Support Document (TSD) on State Plan Considerations, page 88
http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-state-plan-considerations.pdf

compliance schedule should ensure emission reductions are secured as soon as possible and that state plans include provisions to correct shortfalls.

EPA should allow credit for new carbon reduction actions (i.e., from increasing existing policies, new policies and/or adding new qualifying facilities) taken after a final state plan is submitted to EPA, and before the beginning of the plan performance period (2020), to count toward achievement of the state's emissions goals. This would help ensure that states have an incentive to engage in carbon reduction measures prior to that period and get a jump on being better positioned to achieve their final compliance goals.

There are two areas related to energy efficiency that also need a more clear explanation. First, EPA assumed in its drafting of the plan that energy efficiency measures are sustained on an average of ten years. BCSE members encourage EPA to permit credit for the full term of the contract or for a longer period of time if so decided by a state.

Second, in the proposed rule, in the section regarding "actions" taken under existing "requirements, programs, and measures"[6] after the rule's proposal (June 2, 2014) would be creditable in 2020. This could be interpreted to allow credit for buildings that have been built under outdated building codes and standards. To remedy this, EPA could use a baseline building code standard using such standards that are place in 2014.

### *1.5 Benchmarking Progress during Interim Compliance Period (2020-2029)*

BCSE and its members appreciate the flexibility given to states under the proposed rule. However, the Council advises the EPA to request a mid-point review or evaluation of state progress towards meeting its goals and plan implementation. This will allow states to more effectively plan and comply with the rule. It will also create certainty for stakeholders such as affected electricity generating units (EGUs), relevant state agencies, and other affected entities that may be impacted by state compliance plans. In addition, this flexibility will give states and EPA an opportunity to take corrective measures as needed throughout the compliance period in a timely and cost-effective manner.

Section 111(b) of the Clean Air Act, under which EPA is proposing to regulate carbon emissions from new fossil-fired power plants, directs the agency, at least every eight years, to review and, if appropriate, revise federal emission standards of performance for such sources to account for new technology developments. While Section 111(d), which applies to existing fossil-fired power plants, does not require regular review and revision, nothing in the statute prohibits EPA from instituting such a review of periodic review for those sources to ensure that they also account for new technology developments. To that end, EPA should consider committing to review the BSER and resulting state targets for existing sources at least every eight years.

### *1.6 Request for Inclusion of Updated Data*

It is critical that the EPA utilize up-to-date data in the development of the Clean Power Plan in order to enable more accurate compliance planning. As the rule is currently written, out-of-date data is

[6] Carbon Pollution Guidelines for Existing Power Plants: Emission Guidelines for Greenhouse Gas Emissions From Existing Stationary Sources: Electric Utility Generating Units. June 2, 2014. Section §60.5750.

sometimes used when more current information is available. For example, in terms of solar, the data used does not reflect current solar capacity or market projections. Today's solar capacity is already exceeding the estimates the EPA has used. This is also the case for other resources such as hydropower.

## 2. Section 2 – Industry Specific Comments

### *2.1 Renewable Energy*

Renewable energy technologies play an increasingly important role in the US energy mix and BCSE appreciates the recognition that EPA provides for many of these technologies as compliance options under the proposed rule. However, there are a number of areas under the rule as it pertains to renewable energy's role in compliance that need further clarification and refinement.

#### *2.1.1 Include Alternative Approach under Building Block Three in Final Rule*

The BCSE does not provide comments on the range of issues related to EPA's approach to establishing the BSER under the proposed Clean Power Plan. However, should EPA follow a system-wide approach to setting the BSER, the BCSE is in favor of the alternative (technical and economic) renewable energy Building Block 3 approach included in the June 2 Technical Supporting Documents, with the modification detailed in the October 28th Notice of Data Availability (NODA) to calculate the economic renewable resource on a regional instead of a state-by-state basis. The regionalized NODA technical and economic approach is vastly superior to the other proposed methods for calculating renewable energy for purposes of the BSER.

The Council suggests, however, that EPA make improvements to this approach to make it more accurately reflect the cost-effective level of renewable energy deployment that can be achieved under the BSER, including (but not limited to): (1) remove the "technical resource" step in which it imposes an arbitrary cap on the percentage of the technical renewable resource that can be developed in a state or region; (2) in quantifying which renewable energy resources are economic, EPA should begin with current, real-world data on the cost of renewable energy technologies; (3) for projecting changes in the economics and performance of renewable energy through the year 2030, EPA should rely on the detailed and thoroughly peer-reviewed cost and performance projections developed through the Department of Energy and the National Renewable Energy Laboratory; (4) in its economic modeling, EPA should not impose a firm cap on the percentage of variable (wind and solar) renewable energy that can be deployed in a state or region, but rather should economically model the cost of renewable curtailment that could occur at extremely high renewable energy penetrations; and (5) changes to the generation mix and other power system changes that are expected to occur between now and 2030, including those that are triggered by the provisions of 111(d) itself, should also be included in the analysis of the economics of higher renewable penetrations.

EPA should exclude the technical potential benchmark from the alternative approach and rely solely on the Integrated Planning Model (IPM) model results, which would produce a more accurate representation of likely future development. The EPA has previously relied on the IPM model to analyze the impact of other air emissions policies on the US electric power sector, such as the Clean Air Interstate Rule, Cross-State Air Pollution Rule (CSAPR), the Mercury and Air Toxics Standards (MATS),

and the proposed Carbon Pollution Standards for New Power Plants.[7] Therefore, there is precedent for relying solely on the IPM model when setting renewable targets for each state.

### *2.1.2 Support the Full Potential of Renewable Energy Technologies as Compliance Tools*

The full set of renewable energy technologies should be eligible as compliance options and given full compliance credit under the final rule. In addition, EPA should recognize the accounting and definitions of eligible renewable energy technologies in each state.

### *2.1.3 Hydropower*

In order to account for the full potential of emissions reductions from clean energy sources, hydropower must be treated equitably compared to other forms of renewable energy and denoted as a compliance option for states. Currently, hydropower is not included in Building Block 3 and it is not clear whether states can use hydropower as a compliance option. Hydropower is the largest source of renewable electricity in the US, regularly avoiding approximately 180 to 220 million tons of carbon emissions per year. In addition, hydropower (and pumped storage) plays an important role in ensuring grid reliability. As a flexible baseload source of power, hydropower generation is a critical integrator of intermittent renewable energy generation and also allows asset owners to utilize fossil generation resources more efficiently, reducing emissions output even further.

Simply stated, meeting EPA's targets will be significantly challenged without hydropower's current and future contributions to a clean energy future. For the Clean Power Plan to be successful, ensuring the protection and preservation of generation from the nation's existing hydropower facilities, as well as promoting new development, is critical.

Under the current construction, the proposed rule appears to undervalue hydropower's clean air benefits and future growth potential. It is important to note that the United States Department of Energy (DOE) has identified significant opportunities for development in the hydropower sector. In an April 2012 study, the DOE estimated 12 GW of hydropower potential at non-powered dams across the US.[8] In a recent April 2014 study, the DOE also estimated over 65 gigawatts (GW) of potential new stream-reach hydropower development.[9] In response to these results, the DOE has launched a Hydropower Vision initiative to create a roadmap for realizing this growth.[10]

As the EPA moves forward on the rule, it should provide clear guidance and direction to the states on the value of hydropower to meeting the goals of the Clean Power Plan. EPA must also ensure that hydropower is treated equitably under the final rule and included as an eligible compliance option in state plans. BCSE understands that the National Hydropower Association and other industry members

[7] Regulatory Impact Analysis for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants. June 2014. Page 3-3.
http://www.epa.gov/ttn/ecas/regdata/RIAs/111dproposalRIAfinal0602.pdf
[8] An Assessment of Energy Potential at Non-Powered Dams in the United States. US Department of Energy, Energy Efficiency and Renewable Energy, Wind and Water Power Program. April 2012.
http://nhaap.ornl.gov/system/files/NHAAP_NPD_FY11_Final_Report.pdf
[9] New Stream-reach Development: A Comprehensive Assessment of Hydropower Energy Potential in the United States, US Department of Energy http://nhaap.ornl.gov/sites/default/files/ORNL_NSD_FY14_Final_Report.pdf
[10] Please see link for more information, http://energy.gov/eere/water/new-vision-united-states-hydropower

will comment further on the role of hydropower under the Clean Power Plan. BCSE directs you to those comments for further information.

### *2.1.4 Biomass*

Biomass energy plays an important role in the mix of energy sources helping to reduce US GHG emissions. The White House, the EPA's Science Advisory Board (SAB), and the international scientific community have all recognized that sustainable biomass can be an important source of low-carbon energy, particularly waste biomass and residues from sustainable forestry management and forest products manufacturing. These energy sources provide consistent, baseload, renewable sources of energy and should be given a clear pathway for utilization under the proposed rule. Biomass energy is recognized in nearly every state that has a Renewable Portfolio Standard (RPS). Failure to adequately credit the carbon mitigation attributes of low-carbon sustainable biomass in the final rule could result in state compliance plans that exclude this clean energy technology and the potential closure of these facilities and a lost opportunity for greater GHG reductions. Additionally, in order for biomass energy to be given adequate recognition for its emission reducing benefits, EPA must complete the biogenic framework that commenced three years ago.[11]

Additionally, EPA should clarify that states should give full compliance value for all electricity generated from renewable energy technologies when determining how to measure compliance with the Clean Power plan's goals. For instance, all states that define waste-to-energy (WTE) as renewable give full credit for each megawatt hour of electricity generated by WTE, as do federal standards. EPA should make clear that states have the flexibility and discretion to value the full electrical generation from renewable sources (such as WTE) toward compliance with the Clean Power Plan.

### *2.1.5 Recognition of Renewable Technologies Displacing Emissions from Covered Sources for Water and Space Heating*

The EPA should allow for renewable energy measures that displace the electricity from covered sources used for water heating and space heating to count under state compliance plans. This would include geothermal heat pumps, solar heating and cooling, and other renewable energy measures that are directly displacing the electricity from covered sources.

### *2.1.6 Distributed Generation, Solar Heating and Cooling*

EPA should fully integrate distributed generation solar into all aspects of the Clean Power Plan. Distributed solar is a system of emissions reduction that is technically feasible, is implemented at reasonable cost, is driving solar innovation, and does not negatively impact the electric system. Further, distributed solar energy is adequately demonstrated to reduce emissions from covered sources. Utilities are already either directly owning distributed solar or purchasing the renewable energy credits from distributed solar systems. There are a number of ways to verify emissions reductions from distributed solar as well. Once the MWh of distributed solar generation are known, either through direct metering and renewable energy credits or the use of a performance estimate tool, the fossil fuel energy that is

[11] Business Council for Sustainable Energy Comments to EPA Regarding Docket ID No. EPA-HQ-OAR-2013-0495 – New Source Power Plants. May 9, 2014. http://www.bcse.org/images/2014CleanAir/BCSE 111b Comments_final.pdf

being displaced by the solar energy can be determined by using either capacity factor emission rates or system average emission rates.

For compliance planning, in addition to utility-scale solar PV and Concentrated Solar Power (CSP), the EPA should allow for distributed solar technologies, along with solar heating and cooling, to count as measures a state can include within a state compliance plan. As mentioned above, EPA should also recognize the ability of solar heating and cooling measures to displace the electricity that covered sources may use for heating and cooling.

### *2.1.7 Fuel Cells*

The EPA should explicitly list fuel cells as a compliance option under the proposed rule. As a carbon reduction technology, fuel cells provide low- or no-carbon baseload generation from natural gas or biogas through an efficiency non-combustion process. Fuel cells typically reach fuel-to-electricity efficiency of 60 percent; nearly double that of today's electric grid. Fuel cells not only allow for reduced carbon emissions, they also virtually eliminate criteria air pollutants. Furthermore, since fuel cells typically operate near the point of use, they bypass transmission systems, reducing or eliminating transmission losses, which currently average 6 percent in the US. As the EPA recognizes, some fuel cells also generate excess heat, which, if captured, can increase overall energy efficiency to more than 80 percent.

Should the EPA list fuel cells as a compliance option it would follow the precedent set by the California Air Resources Board (CARB) in 2007, which qualified fuel cells as an 'ultra-clean' technology under their existing standard. It would also follow guidelines set by the New York Public Service Commission, which qualified fuel cells as a compliance option under the state's Renewable Portfolio Standard.

Currently, twenty-two states, two territories, and the District of Columbia have recognized the role fuel cells can play in creating a more sustainable energy infrastructure. Therefore, the final EPA rule should explicitly highlight all fuel cells as a compliance option as a way to 1) reduce GHG emissions and other pollutants, 2) improve resiliency, and 3) utilize domestic energy supplies. These are all goals that are also outlined in the President's Climate Action Plan.

## *2.2 Energy Efficiency*

Supply-side and demand-side energy efficiency are prominent compliance tools within the proposed Clean Power Plan. To facilitate the utilization of energy efficiency in meeting the state standards, BCSE requests that EPA clarify several activities, including incorporation of non-utility rate-payer and private sector energy efficiency investment; providing clear Evaluation, Measurement, and Verification (EM&V) guidelines for states to use when accounting for energy efficiency; and, ensuring that the full efficiency and thermal benefits of combined heat and power (CHP) are recognized in the final rule.

### *2.2.1 Provide Greater Clarity on EM&V for Demand-Side and Supply-Side Energy Efficiency*

In reviewing the proposal, BCSE believes that there is a need for further information on the EM&V protocols available to states to ensure that energy efficiency is eligible and viable as a compliance option under the proposed Clean Power Plan.

EM&V guidance may differ between ratepayer programs and projects and non-ratepayer programs and projects. Examples include:

- Privately-contracted energy savings performance contracts (ESPCs) and private sector building projects;
- State and local level building energy codes, equipment standards, weatherization, commissioning and retrofit programs;
- Non-ratepayer industrial efficiency and Combined Heat and Power (CHP).

Additionally, there must be a balance between enforceability, EM&V, and other state plan considerations to ensure that energy efficiency measures can be accurately counted but not so rigorous that efficiency as a compliance option becomes too costly or too cumbersome.

Further, with more than 113 million residences consuming 22 percent of all U.S. energy, it is important that the existing homes in America play a part in meeting targeted emission reductions. During the past five years, the residential energy efficiency industry has developed capacity, tools and infrastructure that enable it to meet strict EM&V. BCSE encourages EPA to include standards and protocols that ensure residential energy efficiency can participate in state compliance obligations.[12]

### *2.2.2 Include Non-Utility Rate-Payer and Private Sector Energy Efficiency Actions as Compliance Options*

The proposed Clean Power Plan incorporates and provides information on how utility energy efficiency programs can assist states in meeting the proposed standards. However, private sector efficiency programs and projects that take place outside the regulated utility do not receive the same methodological guidance. Half or more of US energy efficiency investment occurs outside the ratepayer-program framework and thus should be given adequate guidance under the final rule. Examples of private sector delivered efficiency include projects implemented under ESPCs, or building projects that a business or city does in support of its local goals. EPA should provide appropriate support and guidance for these initiatives in the final rule.

EPA should permit states to establish a platform to recognize and account for non-rate payment energy efficiency actions that can be used for compliance purposes. For example, Connecticut currently has an RPS that includes a carve-out that requires Class III RECs that must be from non-ratepayer programs.

EPA should recognize the characteristics of the different types of non-utility efficiency resources and develop rules that enable each resource to contribute fully to the proposed rule, such as:

- **Building Codes,** which are enacted and enforced by state and local governments, and can provide the legal certification of savings that EPA and state regulators need;
- **Energy Savings Performance Contracts,** which are today delivered almost exclusively to public customers, with the guaranteed savings from each project monitored and verified using the International Performance Measurement and Verification Protocol (IPMVP), can be independently audited by third-party expert consultants, and accepted by public officials;

[12] Please see the comments submitted by Efficiency First and the Home Performance Coalition for additional details.

- **Privately Owned Commercial and Industrial (C/I) Retrofit Projects,** which today implement primarily short payback retrofits, the savings from which can be verified using the IPMVP;
- **Building Efficiency Rating Systems,** such as the US EPA ENERGY STAR Portfolio Manager or the USGBC LEED, which document both the initial savings from building design and the continuous improvement of building efficiency through operations.[13]

### *2.2.3 Building Codes*

EPA specifically invited comments on the role building energy codes might play in achieving an increased annual incremental savings rate.[14] A new Stanford Report on energy efficiency as a key part of state clean energy programs analyzes and makes specific recommendations on policies that states are using today to encourage energy efficiency.[15] The Report's second of thirteen recommendations is for the adoption and update of energy efficiency building codes:

> **Energy Efficient Building Codes.** States should adopt or update energy efficient building codes following an independent analysis of cost-effectiveness, distributional impacts, and other factors. Building energy codes are a relatively straightforward and transparent energy efficiency strategy. Updating codes is likely to be most worthwhile in states with the oldest existing codes.[16]

A building code is a set of rules that specify standards for buildings and non-building structures. There are many different types of building codes, but the ones relevant to this discussion address energy efficiency. BCSE recommends the 2012 International Energy Conservation Code ("IECC"), which is a model code adopted by many states and municipal governments. The IECC establishes minimum design and construction requirements for energy efficiency.

There are essentially three facets of energy building codes that would help to bolster the realization of EPA's goal of specific reductions of greenhouse gas emissions in the proposed Clean Power Plan. First, states have the authority to adopt building codes, which are generally based on model codes developed by organizations such as International Code Council ("ICC").[17] EPA should give credit in the final Clean Power Plan where states and municipalities adopt the 2012 IECC or some other code of similar rigor and integrity. Most states have existing building energy codes, but they are frequently outdated or in need of improvement. Therefore, EPA should also give credit where states upgrade or improve and enforce code requirements to reflect the most recent model code. Of course, building codes are really only effective when they are consistently and routinely enforced, so credits may be contingent on proof of

[13] Letter to EPA on Private & Non-Utility Energy Efficiency in Proposed Clean Power Plan http://www.bcse.org/images/2014CleanAir/Private%20and%20non-utility%20EE%20letter%20for%20signature.pdf
[14] (79 Fed. Reg. at 34,875).
[15] Stanford, Steyer-Taylor Center for Energy Policy and Finance, Hoover Institution: Shultz-Stephenson Task Force on Energy Policy, "The State Clean Energy Cookbook: A Dozen Recipes for State Action on Energy Efficiency and Renewable Energy," 2014.
[16] *Ibid*. at p. 6.
[17] The International Code Council is a member-focused association. It is dedicated to developing model codes and standards used in the design, build and compliance process to construct safe, sustainable, affordable and resilient structures (http://www.iccsafe.org/abouticc/Pages/default.aspx). Internationally, code officials recognize the need for a modern, up-to date energy conservation code addressing the design of energy-efficient building envelopes and installation of energy efficient mechanical, lighting and power systems through requirements emphasizing performance. Introduced in 1998 and continuing the leadership role in energy codes that the ICC legacy organizations started over 20 years before that, the International Energy Conservation Code ("IECC") addresses energy efficiency on several fronts including cost savings, reduced energy usage, conservation of natural resources and the impact of energy usage on the environment.

rigorous state enforcement. Similar to adoption and upgrades, enforcement of the strongest building codes should be recognized by EPA as deserving of credit in the CPP.

Building codes are important because modeling from various sources shows energy savings for residential, commercial, and industrial buildings. In addition, the most effective and comprehensive tool for promoting energy savings is building energy codes. In that EPA is eager to have EM&V data for such savings, building code adoption can deliver that crucial data and it is cost-effective and immediately available technology. EPA recognizes this in the Preamble to the Proposed Rule:

> If we were to capture the potential for additional policies such as the adoption and enforcement of state or local building energy codes, to contribute additional reductions in electricity demand beyond those resulting from energy efficiency programs, we could reasonably increase the targeted annual incremental savings rate beyond 1.5 percent.[18]

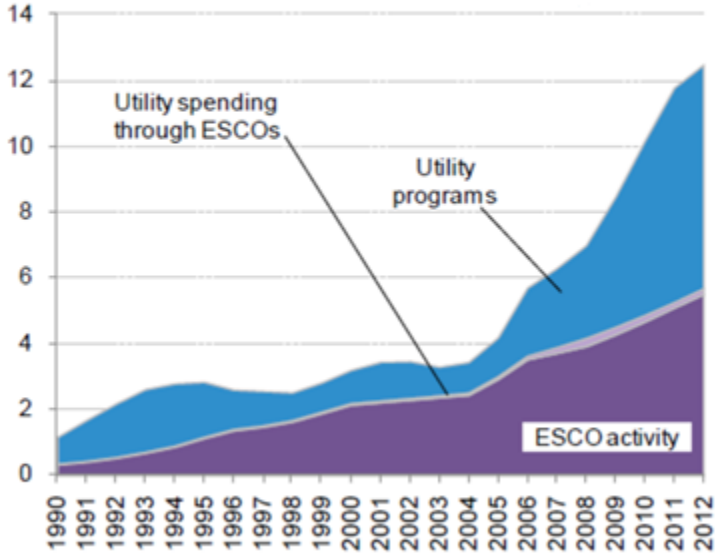
In studies sponsored by the Institute for Electric Innovation ("IEI") (formerly the Institute for Electric Efficiency) and the ACEEE, electricity savings achieved from improved adoption and enforcement of building energy codes is validated. The estimated electricity savings is significant. The electricity saved under all utility-administered energy efficiency programs in 2012 was 126 terawatt hours (TWh).[19]

**Electricity Savings from Building Energy Code Implementation**

| | **IEI[20]** | **ACEEE[21]** |
|---|---|---|
| Residential Code Adoption Scenarios | 2012 IECC in 2016<br>2015 IECC in 2019 | 2012 IECC in 2016<br>2021 IECC in 2022 *(2021 IECC is 50% better than 2006 IECC)* |
| Commercial Code Adoption Scenarios | 90.1-2010 in 2015<br>90.1-2013 in 2018 | 90.1-2010 in 2016<br>90.1-2016 in 2020 *(90.1-2016 is 50% better than 90.1-2004)* |
| 2020 Annual Savings | | **35 TWh** |
| 2025 Annual Savings | **75 TWh** | |
| 2030 Annual Savings | | **155 TWh** |
| 2035 Annual Savings | **123 TWh** | |

[18] 79 Fed. Reg. at 34,872.
[19] Institute for Electric Innovation, "Summary of Electric Utility Customer-Funded Energy Efficiency Savings, Expenditures, and Budgets," Issue Brief, March 2014.
[20] Institute for Electric Innovation, "Factors Affecting Electricity Consumption in the U.S. (2010-2035)," March 2013.
[21] American Council for an Energy-Efficiency Economy (ACEEE), "Change Is in the Air: How States Can Harness Energy Efficiency to Strengthen the Economy and Reduce Air Pollution," April 2014.

Figure 1: Investment in energy efficiency through ESCOs and utility programs, categorized by program, 1993-2012 ($bn)




Source: Bloomberg New Energy Finance, "Sustainable Energy in America Factbook"

### *2.2.4 Energy Savings Performance Contracts (ESPCs)*[22]

The proposed rule is commendable for its flexible design that will enable states and market actors to utilize the most cost-effective options to reduce power sector GHG emissions, including efforts to increase demand-side energy efficiency. Demand-side energy efficiency can be deployed in a variety of ways, through utility programs, direct investment by companies, state led programs, and third-party energy efficiency projects delivered by private-sector energy service companies (ESCOs).

Much of this third-party work is done through performance-based contracts for energy savings, in which the ESCO reduces energy consumption of its customers by installing new energy efficient equipment at their facilities. This investment is paid off over time with the resulting savings from the customers' utility bill. The performance of the newly installed equipment, and the resulting energy savings for its customer, is contractually guaranteed by the ESCO. The performance of the project is measured and verified (M&V) by professionals, using internationally established protocols. This rigorous level of M&V is the foundation of the performance-based contract guarantee.

It appears that the energy efficiency elements of the proposed Clean Power Plan were developed primarily with utility energy efficiency programs in mind, despite the fact that energy efficiency investments through performance contracts approximate those made through utility programs (See Figure 1). Expressly allowing performance contracts to be a compliance option in the Clean Power Plan would significantly enhance state options for low-cost and rigorously verified GHG reductions. It would also bring to the effort those companies most focused on producing energy efficiency results.

Including performance contracting projects as an allowable compliance option for state plans is straightforward and consistent with the Clean Power Plan. However, additional guidance is needed for states to feel confident that EPA will recognize such projects and allow them to be included in state plans.

[22] ESCO Coalition Technical Paper on Performance Contracting in EPA's Section 111(d) Proposed Rule, October 14, 2014. Prepared by AJW, Inc.

As it finalizes the Clean Power Plan, EPA should:

- Acknowledge that existing performance contracting projects could provide substantial contribution to 111(d) compliance;
- Provide guidance to enable states to include energy savings performance contracting in their plans;
- Clarify how the state plan requirement to identify affected entities applies to performance contracting projects;
- Describe approvable approaches for aggregation of performance contracting projects;
- Identify approvable approaches for key compliance criteria to facilitate inclusion of emission reductions from performance contracting projects;
- Identify measurement and verification protocols acceptable for determining energy efficiency savings from performance contracting projects;
- Allow avoided electricity consumption delivered by performance contracting projects, with proper measurement and verification, to count toward 111(d) compliance;
- Provide states with flexibility to take credit for emission reductions resulting from performance contracting projects after the CPP was proposed and before the interim compliance period begins (2020);
- Resolve the energy efficiency penalty created when energy efficiency projects are implemented in electricity-importing states;
- Support the development and use of single-state and multi-state credit programs and other market-based systems.

### *2.2.5 Recognize Demand Response as Facilitator of Emissions Reductions*

Demand response can help facilitate emissions reductions and has many similarities to energy storage. BCSE urges EPA to recognize demand response, especially when it is evaluating opportunities for compliance options such as energy storage. Demand response can be a key facilitator of emissions reductions. For example, demand response can help integrate renewable energy resources and facilitate with load-shifting, which can increase cleaner generation. In a more limited set of circumstances demand response can reduce emissions through curtailment, similar to energy efficiency activities. States should be made aware of demand response in which EPA discusses energy storage.

### *2.2.6 Recognize the Benefit of Combined Heat and Power (CHP) as an Efficiency Compliance Tool*

Combined Heat and Power (CHP) and related technologies, such as Waste Heat to Power (WHP) and waste heat recovery, can serve as cost-effective tools to reducing emissions, both directly at affected power plants and by replacing the electricity generated at affected power plants with highly efficient on-site generation at industrial and other facilities. EPA should provide a clear signal to states that these emission reduction strategies are allowed as compliance strategies.

The most important way that EPA can recognize the benefit of efficient CHP is to ensure that the applicability criteria for what is an “affected EGU” under the rule do not inadvertently sweep in industrial facilities that utilize CHP or WHP technology. Relatedly, EPA should send a clear message to states that because compliance is measured with regard to the emission performance of affected EGUs, states should not force emission reductions from industrial CHP facilities that are not the kind of electricity generating units that are the subject of this rulemaking.

Adding or expanding CHP to existing fossil-fuel fired EGUs can reduce the emission rate of those EGUs. Adding CHP to existing affected facilities reduces pollution by using the energy potential of the fuel input twice or three times, yielding half to a third of the emissions from separate applications. BCSE applauds EPA for acknowledging the emission reducing potential of putting thermal output to productive use when calculating the emission rate of an affected EGU; however, by only allowing states to count 75 percent of that useful output, the Clean Power Plan unnecessarily limits the incentive to add or expand CHP at existing EGUs.

Instead, EPA should include 100 percent of useful thermal output when calculating affected EGU emission rates. EPA should also make clear that adding CHP to an existing affected coal facility that results in efficiency gains beyond the 6 percent heat rate improvement used to calculate state goals is an important and approvable compliance opportunity.

In addition, adding or expanding CHP at facilities other than affected EGUs—such as food processing, hospitals, industrial production and manufacturing, and commercial buildings—can measurably reduce demand for and therefore emissions from affected EGUs. The proposed rule acknowledges some of the benefits of CHP, including WHP, but needs to provide more clarity that CHP at a facility other than an affected EGU, qualifies as an efficiency resource. The regulatory benefit of new and expanded CHP at non-EGU facilities can be treated similarly to EPA's proposed accounting for end-use energy efficiency. The electric and thermal output of such facilities can easily be quantified and included in the compliance calculation in the same way as energy efficiency or other clean generating resources. EPA should provide clear guidance to the states that expanding CHP at facilities other than affected EGUs is an approvable and cost-effective compliance tool.

### *2.3 Natural Gas*

Natural gas has played a large role in GHG emissions reductions in the US over the last several years and the proposed Clean Power Plan looks to natural gas to continue this trend. According to the *Sustainable Energy in America Factbook*, natural gas provided the US with 27 percent of its total energy supply, and 28 percent of US electricity in 2013, up from 22 percent in 2012.[23]

The use of natural gas for power generation has proven to be an effective method of lowering carbon dioxide emissions. According to the Energy Information Administration, US energy-related carbon dioxide emissions have declined in four of the last seven years since 2007 and are down a total of 10 percent from 2005 levels due in part to increased natural gas-fired generation.[24] In the proposed rule's base case year of 2012, power generation from combined cycle units and other natural gas generators reached an all-time high of 30 percent and contributed to carbon dioxide emissions falling to a 20 year low.[25] Importantly, these reductions demonstrate the ability of the natural gas industry and competitive markets to reliably deliver emission reductions without additional regulations. Natural gas generation

[23] Sustainable Energy in American Factbook 2014 edition, Bloomberg New Energy Finance
http://www.bcse.org/factbook/pdfs/2014%20Sustainable%20Energy%20in%20America%20Factbook.pdf
[24] U.S. Energy-Related Carbon Dioxide Emissions-2013, Energy Information Administration, October,2014 (http://www.eia.gov/environment/emissions/carbon/pdf/2013_co2analysis.pdf)
[25] Energy-related Carbon Dioxide Emissions Declined in 2012", Energy Information Administration, April 2013
http://www.eia.gov/todayinenergy/detail.cfm?id=10691

has a proven track record of lowering emissions and its inclusion in the proposed rule recognizes its environmental benefits.

### *2.3.1 Recognition of Natural Gas Markets*

The US possesses abundant natural gas supplies capable of meeting greater demand from the electric sector and other industries. In order to facilitate the greater use of natural gas-fired generation, and its corresponding emissions benefits, competitive natural gas markets must remain liquid to aid efficient delivery of natural gas to customers. A critical component of a healthy and liquid natural gas market is adequate infrastructure and an efficient and predictable siting and permitting process for the new infrastructure that will be needed in response to shifts in the sources of natural gas supply and demand.

With increasing supplies of natural gas coming online, new pipeline capacity will play an essential role in transporting gas to market. A recent study released by the Interstate Natural Gas Association of America (INGAA) Foundation found that new pipelines will need to accommodate an additional 43 billion cubic feet of gas per day by 2035 and annual capital expenditures of $14 billion are necessary over the same time frame to support new natural gas infrastructure.[26] The natural gas industry has shown its ability to quickly expand and improve natural gas infrastructure in the past and can continue to do so given clear market signals prompting investment. Regulators, including the Federal Energy Regulatory Commission (FERC), should remove any structural barriers that inhibit the construction of new natural gas pipelines and should support market stakeholders as they seek to ensure adequate and timely infrastructure is in place to support the greater use of natural gas.

In addition to building new infrastructure, the natural gas market features a wide array of contracting tools that facilitate efficient and timely natural gas use. Asset management agreements, pipeline park and loan services, storage contracts, and no notice service are just a few options at the disposal of customers. These tools when secured in advance as part of a diverse procurement strategy can assist generators in reliably meeting their obligations. Further, physical and financial hedging tools can help mitigate price swings and exposure to the spot market. Taken together, these procurement tools can assist power market participants in accessing robust and reliable supplies of natural gas for their needs.

### *2.3.2 Incorporate Distributed Energy that Uses Natural Gas as Compliance Option for States*

i. Recognize the Benefit of natural gas, all-electric Fuel Cells and Combined Heat and Power (CHP) as Compliance Tools

EPA should provide a clear signal to states that natural gas, all-electric Fuel Cells and CHP emission reduction strategies are allowed as compliance strategies. The proposed rule acknowledges some of CHP's benefits, but needs to provide more clarity that these benefits qualify as an efficiency resource. Additionally, EPA should give similar recognition for natural gas, all-electric Fuel Cells which re-use heat internally to generate electricity more efficiently and can be sited at facilities regardless of their thermal load and demand. EPA also should recognize the entire portfolio of thermal renewables: biogas and biomass pellets, solar thermal, geothermal and geothermal heat pumps, etc.

[26] North American Midstream Infrastructure through 2035: Capitalizing on Our Energy Abundance, INGAA Foundation, March 2014.

ii. Direct Use of Natural Gas and Propane for Heating Water and Space

In many states, direct use of natural gas and propane in homes and businesses for home heating and other thermal uses (e.g. water heating, cooking, clothes drying) can offer efficiency savings and GHG reductions compared to electric appliances. Depending on the emissions profile of the electricity generation in a state and the efficiencies of the electric and gas options being considered, using natural gas directly to serve thermal loads can avoid the significant efficiency losses that occur when electricity is generated from higher emitting sources in a large power plant, and transmitted across power lines. According to the American Gas Association, in some cases, using standard electric appliances for thermal needs can waste nearly 50 percent of the input natural gas energy, subsequently requiring that much more fuel to be combusted to serve the same energy needs. [27]

Calculating the net carbon emissions reduction from grid power plants that would be achieved by replacing a given number of water heaters or furnaces (e.g. in a utility rebate program) can be done using the same models of regional grid power (the mix of coal, natural gas, and renewables) as used for other outside the fence efficiency measures, along with measurement or estimates of the on-site GHG emissions.

In states where net emission reductions can be achieved with such direct use of natural gas and propane, appliance rebate programs could also provide an option for states to reduce the cost of compliance while providing significant other benefits for their citizens, including lower energy costs and in some cases better resilience in the event of severe storms. Rebates for switching from electric to natural gas or propane furnaces and water heaters are currently utilized in Oklahoma, Oregon and Florida.

**Conclusion**

BCSE appreciates the opportunity to provide you with its comments on the proposed Clean Power Plan and hopes these views will be useful as the EPA reviews and finalizes the rule. BCSE would like to be viewed as a resource to EPA during this process to help ensure the full portfolio of clean energy technologies and their full emissions reduction potential are recognized in Clean Power Plan compliance planning. Please contact the Council on the issues discussed if there are questions.

Sincerely,

Lisa Jacobson, President
Business Council for Sustainable Energy

[27] 2014 Playbook, American Gas Association
http://www.aga.org/ourissues/playbook/Documents/2014AGA_Playbook_FINAL.pdf