



December 1, 2014

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

To be submitted via e-mail: A-and-R-Docket@epa.gov

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

**Comments by the GridWise Alliance to the EPA and States on the Proposed
“Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric
Utility Generating Units” and the Role of Grid Modernization Technologies in
Helping States to Achieve Compliance**

Dear Administrator McCarthy:

The GridWise Alliance (GWA) is pleased to submit these comments on the Proposed “Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units” or, “Clean Power Plan” Proposed Rule, to reduce greenhouse gas emissions from existing power plants under Section 111(d) of the Clean Air Act.¹

We welcome the high degree of flexibility reflected in the Proposed Rule. Along these lines, we are pleased to see demand-side energy efficiency as one of the four main “Building Blocks” that can be used by states in their “Best System of Emission Reduction” (BSER) to help them comply with state emission reduction targets.

As the U.S. Environmental Protection Agency (EPA) moves toward finalization of this Proposed Rule, the GWA recommends that more explicit consideration – **and recognition** (i.e., calling out) – be given to investments in *grid modernization* for states and regions to comply with the carbon dioxide (CO₂) emission reduction targets set forth in this Proposal. That is, we recommend that a separate, new **Grid Modernization “Building Block”** be created. Similarly, as EPA considers the guidance it provides to the states to use in developing their plans to reduce CO₂ emissions (from existing power plants), we likewise recommend explicit recognition of grid modernization investments.

¹Please note that these comments do not reflect the views of GWA’s RTO and ISO members.

Should you have any questions regarding this submission, please do not hesitate to contact me at: bharrison@gridwise.org or GWA's Policy Director, Ladeene Freimuth, at: ladeene@freimuthgroup.com.

Sincerely,

A handwritten signature in cursive script that reads "Becky Harrison".

Becky Harrison
CEO
GridWise Alliance

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GWA appreciates the flexibility that is built into the Proposed Rule and recognizes that a laundry list could be seen as trying to be overly prescriptive or could inadvertently omit a technology or group of technologies. While having seen reference to the recognition that the “operations of the electricity system itself rely on the flexibility made available and achieved through” demand management and more, we are raising the degree to which “smart grid,” or grid modernization, including grid efficiency and “smart” load management (e.g., load monitoring technologies, demand management/load shifting) and related elements, such as demand response, are reflected in this proposal.

I. Recognition of Grid Modernization as a New, Separate Building Block

As EPA moves toward finalization of this Proposed Rule, we recommend that more explicit consideration – **and recognition** (i.e., calling out) – **be given to investments in grid modernization for the reasons that follow. That is, we recommend that Grid Modernization be called out as a new, and separate, “Building Block” as an acceptable mechanism** to help states and regions achieve compliance with the CO₂ emission reduction targets set forth in this Proposed Rulemaking.

More specifically, for the purposes of this Proposed Rule, we recommend that grid modernization consist of the following: grid efficiency, i.e., having a good power factor, saving fuel; and, “smart” load management, which can encompass optimizing the use of low- or zero-carbon emitting resources or, offsetting generation altogether, as well as levelizing loads (e.g., running appliances at times when excess low- or zero-emitting generation is available, thereby maximizing the use of clean energy resources to serve the load). Smart load management can also “fill the valleys” by utilizing available power, when feasible, thereby making the entire electric system more efficient, recognizing that this would have to be done with nuclear or renewable energy, to meet the objectives of this Proposed Rule. **Demand response** – i.e., helping to reduce peak load(s) – is a subset of “smart” (or “advanced”) load management. All of these efforts contribute to reductions in CO₂ emissions.

GWA further recommends that:

- The greenhouse gas (GHG) reduction methodology outlined in the Proposed Rule be modified to account for **grid modernization** in order for this mechanism to help aggregate and provide credit to states in achieving compliance with the reduction targets established in this Proposed Rule;

- Similarly, the Agency explicitly recognize **grid modernization, as defined herein, in the guidance** it provides to the states to use in developing their plans to reduce CO2 emissions from existing power plants; and,
- Grid modernization technologies, e.g., Advanced Metering Infrastructure (AMI), be used to facilitate accounting, monitoring, and verification.

Investor-owned utilities currently lack sufficient incentives to invest in technologies that allow them to monitor the real-time load or reduce losses on their electric grid, particularly on the distribution grid, but also to some extent on the transmission grid.

Utilities historically have used voltage reductions in emergency situations to reduce load and avoid power outages. With advances in monitoring and control technologies, particularly on the distribution grid, some utilities now are reducing voltage during peak conditions to reduce the need for peaking generation. This capability can be expanded greatly, as incentives grow for investments in relevant technologies and, as changes occur over time in related business and regulatory models. Through the implementation of sophisticated volt-VAR management, which also will increase as these incentive structures change, utilities can improve the efficiency of the grid during all loading conditions and can optimize voltage levels on their systems during peak and non-peak loading conditions, thereby optimizing the use of low- or zero-carbon emitting generation. Certain grid modernization investments, e.g., in transformers, also help achieve structural efficiencies. The investments in the grid needed to help achieve efficiencies and, thereby, help reduce greenhouse gas emissions, also will provide benefits to customers by improving power quality.

Thus, these are additional examples and reasons why grid modernization should be explicitly included as this Rule becomes finalized.

Energy Storage

Energy storage can add significant value, when paired with grid modernization technologies and efforts and, therefore, should be considered as part of GWA’s recommended Grid Modernization “Building Block,” for which states should receive credit toward their compliance targets accordingly. Regardless, storage also should be included under the Energy Efficiency “Building Block,” as some already believe to be the case.

In the context recommended herein, storage not only supports renewable energy generation, as a generation asset, but also enables grid owners/operators to deploy storage as a grid asset at the transmission and distribution levels (across the grid): it can help support the integration of variable resources (e.g., wind, solar), as well as levelize/smooth loads, increase the efficiency of baseload generation, and reduce power outages. In this way, reliance on fossil generation is reduced – and CO2 emissions, as a result.

Storage can reduce system peak demands and the impact that has on peaking generation needs. It can do so both by deployment in the grid itself and deployment at customer premises for demand management. In doing so, storage, again, would contribute further to reductions in CO2 emissions.

Storage also provides the capability for transmission and distribution system operators to optimize grid performance, thereby enhancing consumer reliability, as well. By incorporating the value of storage in support of customer-owned distributed energy resources (DERs), e.g., rooftop solar, and in providing ancillary services that can reduce the need for hard “spinning” reserves (i.e., running generation sources for potentially-needed reserves), CO2 emissions thereby decrease. (Consumer utility bills also drop; and, transactions in the wholesale power market are enhanced.)

Electric Vehicle Fleets and Electric Vehicles as Grid Modernization/Load Management Technologies

GWA recognizes that this Proposed Rule focuses on existing power plants. Nonetheless, GWA recommends that the *integration* of electric vehicles (EVs) and electric vehicle fleets into the power grid, as a way to manage electricity (and electricity consumption), should be considered as a mechanism to help states comply with the targets established in this Proposed Rule.

That is, electric vehicles and electric vehicle fleets should be considered as “smart grid” or, grid modernization, technologies/“smart” loads that can help manage the entire electric system. In other words, EVs, like other grid modernization technologies, help optimize and/or levelize loads in a manner that optimizes the use of low- or zero-carbon emitting generation. As an example, with “smart grid” technologies, utilities can charge EVs when low- or zero-carbon emitting generation is available (e.g., sunny afternoons and the middle of the night). Moreover, EVs and electric utility fleet trucks can be used to export power back to the grid (as is currently being pilot tested by some utilities in this manner) to help reduce and/or avoid power outages. EVs and electric fleets also can reduce demand for other generation sources in these ways. Thus, they are helping to reduce CO2 emissions from existing power plants, when examined in this context and, hence the need to take a broader, more holistic approach in this Rule. EVs and electric vehicle fleets, therefore, should be considered an acceptable mechanism or, part of a broader Grid Modernization “Building Block” or mechanism, to help states and regions achieve compliance with proposed CO2 emission reduction targets.

In the same vein, GWA believes consideration also should be given to: utilities that can demonstrate emissions reductions from their vehicle fleets as a result of automating the control of their various grid systems. An example is the use of Advanced Metering Infrastructure (AMI) to perform remote services orders, such as “connects” and “disconnects.” For instance, according to one Edison Foundation report, NV Energy avoided over ***one million truck rolls per year*** by using remote connect and disconnect. This utility also experienced net operational savings of about \$25 million annually. This

translates to significant GHG emission reductions, as EPA knows – and has calculated, and continues to calculate, well.

Moreover, grid technologies that enable outage situations that are on the customer side of the meter versus the utility side of the meter to be diagnosed remotely can greatly reduce the “truck rolls” of a utility and, thereby, can dramatically reduce GHG emissions from these vehicles. For example, during Superstorm Sandy, one utility *alone* reported such efforts saved more than 6,000 truck rolls. The removal of such a substantial quantity of trucks from the road (i.e., this is just one utility during one extreme weather event) results in significant GHG emission reductions. (These efforts also resulted in at least one million dollars in restoration cost savings, and other substantial societal cost savings.)

One GridWise utility member expressed amazement at the fuel savings and emission reductions realized, upon having deployed an advanced metering system to perform remote service orders and other types of remote diagnoses, as outlined herein, and subsequently tracking savings in truck rolls. New grid technologies, like smart grid sensors and distribution automation equipment, also can help reduce truck rolls and the number of miles utility crews must drive during power outages or to conduct grid maintenance, thereby, also translating to still further GHG emission reductions.

Again, the role of EVs and electric vehicle fleets, in combination with grid modernization technologies in these respects, should be considered and should be explicitly recognized in this Rule (i.e., under a new Grid Modernization “Building Block,” per GWA’s recommendation herein, or other appropriate manner, as this Rule becomes finalized), to the extent feasible. As noted in the Proposed Rule: “[T]he agency recognizes that the most cost-effective system of emission reduction for GHG emissions from the power sector under CAA section 111(d) entails not only improving the efficiency of fossil fuel-fired EGUs [(i.e., electric generating units)], but also addressing their utilization by taking advantage of opportunities for lower-emitting generation and reduced electricity demand across the electricity system’s interconnecting network or grid.”

II. The Role of Grid Modernization (“Smart Grid”) Technology in Facilitating the Accounting of Interstate Electricity Imports and Exports, Non-Utility Programs, and the Crediting of Allocations for Compliance with GHG Emissions Reductions Targets

GWA recommends that EPA clarify, with respect to its proposed interstate accounting methods, the interstate effects of emission reductions. Relatedly, EPA in its Technical Support Document (TSD) appears to adopt an asymmetrical approach to interstate accounting for renewable energy versus energy efficiency measures. (TSD, page 88)

While different stakeholders ultimately appear to have differing perspectives on this issue and/or perspectives that differ from EPA’s Proposed Rule, this issue of accounting for interstate and multi-state clean energy deployment and energy efficiency savings, and avoiding double counting of such measures, and the related crediting of emission reductions is a critical one.

Thus, GWA brings the following points to the Agency's attention in this regard.

- Grid modernization technology, such as Advanced Metering Infrastructure (AMI), can play a substantial role in collecting data and thereby facilitating the accounting, and related monitoring and verification (M&V), of identifying where clean energy and reductions in energy consumption, and so on, are occurring.
 - That is, AMI enhances data accuracy in these regards.
- Grid modernization technology, such as Dynamic Line Ratings (DLR), allows existing transmission infrastructure to carry more power over the existing transmission footprint, thereby helping to maximize the value of existing transmission lines in integrating low- and zero-emitting carbon generation.
- With the help of such enhanced grid modernization technology, EPA, presumably in partnership with other appropriate federal, regional, and state entities, should develop the requisite M&V rules, protocols, and/or guidelines to determine actual energy savings and GHG emission reductions. EPA then will be able to determine where and how to accomplish this interstate accounting in the most equitable and effective manner possible as well as the ways in which to effectively and fairly allocate emission reduction credits, accordingly.
- Such technology similarly can play a significant role in helping to eliminate double counting of emissions reductions.
- Along these lines, GWA recommends that procedures for auditing the M&V results also be developed, as necessary.

GWA also echoes points made by the Business Council for Sustainable Energy (BCSE) in its November 2014 Comments with respect to energy efficiency and M&V, that: “[s]upply-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,” GWA similarly “requests that EPA clarify several activities, including incorporation of non-utility rate-payer and private sector energy efficiency investment; and, as previously noted, “providing clear Evaluation, Measurement, and Verification (EM&V) guidelines for states to use when accounting for energy efficiency.”

Moreover, GWA underscores BCSE's recommendation that, while private sector delivered efficiency initiatives, including projects implemented under Energy Service Performance Contracts (ESPCs), which take place outside of the regulated utility currently do not appear to receive the same methodological guidance, that such private sector efficiency initiatives *should* be taken into consideration and receive such guidance, as this Rule becomes finalized.

In instances pertaining to efficiency as well as to renewable energy, ensuring a means by which to accomplish the EM&V and, ultimately, of avoiding double counting of GHG emissions reductions will be essential. Thus, GWA strongly urges EPA to consider using grid modernization technology to facilitate accounting, monitoring, and verification in all of these regards.

III. Compliance Period Time Frame and Incentives for Immediate Action to Reduce Emissions

GWA concurs with the Business Council for Sustainable Energy (BCSE) in its Comment (November 19, 2014) that: “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 compliance schedule should ensure emission reductions are secured as soon as possible and that state plans include provisions to correct shortfalls.”

IV. Conclusion

In summary, storage, electric vehicles and vehicle fleets in this context, and other grid modernization technologies and techniques/efforts, help reduce the demand and need for existing, typically higher-emitting generation sources. Therefore, grid modernization should be an essential component that states and regions use to help comply with the CO₂ emissions reductions targets established in this proposed rule and should comprise a new “Building Block” as this Proposed Rule becomes final.

GWA appreciates the opportunity to provide comments on this Proposed Rule. We hope these will be of value, as this process continues.