



Electric System Reliability and Transmission Impacts Resulting from Compliance with EPA's Proposed Clean Power Plan

Statement for the Federal Energy Regulatory Commission
Technical Conference on Environmental Regulations and
Electric Reliability, Wholesale Electricity Markets and
Energy Infrastructure
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It is an honor to submit this statement to the Federal Energy Regulatory Commission (FERC) in advance of the February 19, 2015 *Technical Conference on Environmental Regulations and Electric Reliability, Wholesale Electricity Markets and Energy Infrastructure*. My perspectives in this statement are formed by my consideration of the Clean Power Plan proposed by the U.S. Environmental Protection Agency (EPA) as Commissioner of the Tennessee Department of Environment and Conservation. This statement is also informed by dialogue with many of my colleagues across the country in my capacity as President of the Environmental Council of States (ECOS). ECOS is the national nonprofit, nonpartisan association of state and territorial environmental commissioners.

At the outset, we must acknowledge that states are vastly different with regard to their generation portfolios, energy regulatory structure, resource availability, utility structure and governance (i.e., organization integration; management control and direction), ratepayer structures, historic energy-related investments, and connection to the electricity grid. As such, if finalized, the Clean Power Plan will present distinctive opportunities and challenges for individual states, both in its overall concept and as they set out to implement the guidelines based on their specific administrative, legislative, regulatory, resource, and utility market characteristics.

It should also be noted that many of the comments from states indicate that states have concerns regarding whether or not EPA's proposed Best System of Emission Reduction (BSER), both the individual building blocks and the building blocks taken in combination, is technically feasible, legally supportable, and/or adequately demonstrated. EPA acknowledges that program development, fuel supply, infrastructure growth, transmission infrastructure changes, renewable energy development and delivery will all be required to implement the Clean Power Plan. While utilities, states, and regional organizations have historically integrated measures included in the proposed BSER into their systems, they have done so over a lengthy time period and with relative flexibility to make investment choices, without having to meet an overall level of emissions reductions over a defined compliance period. The Clean Power Plan will require states, all at the same time and over a relatively short compliance timeframe, to adopt lower-emitting generation strategies. The numerous moving parts and entities involved in and responsible for generation, transmission, distribution and end-use consumption of electricity must coordinate effectively to reduce carbon while continuing to supply adequate, reliable, and affordable electricity. Therefore, ensuring the BSER is feasible and adequately demonstrated with the considerations noted above in mind will be critical to the success of the Clean Power Plan.

1. What operational issues could arise under different compliance approaches? Are there operational issues that could arise if neighboring states adopt different methods of compliance?

“Operational” in this sense could mean two things: (1) operation of the electric system and (2) operation or implementation of the Clean Power Plan. Each can also influence the other. The points below attempt to address operational issues under both (1) and (2).

- New Challenges for Air Planning: State environmental agency air programs traditionally plan in a context that looks at technology at specific facilities and/or through the adoption of programs that are formulaic in the way they are valued and credited in state plans. Under the Clean Power Plan, many air programs will now be planning and acting in areas in which they have less historic knowledge or experience (i.e., energy efficiency, renewable energy).

Air programs that do not have experience in these areas will need assistance in determining how to value and incorporate elements of energy efficiency and renewable technologies into plans. Also, many questions remain around the state's legal authority to mandate or enforce some of these programs.

- Utility Dispatching to Meet Emissions Targets: As reliance on traditional base load power generation decreases and more demand side and/or intermittent resources are introduced into the system, utilities have shared concerns around what they see as a paradigm shift in the way they manage dispatch decisions. Shifting generation from coal to natural gas at significant capacity factors and managing daily or even hourly dispatch decisions on meeting an emission target has not historically been done at a large scale; therefore, it is unclear what reliability and/or cost implications these choices will have.
- State Borders do not reflect Utility System Borders: Various utilities serve multi-state jurisdictional areas and will be impacted by how each of the states within their service area chooses to implement the Clean Power Plan. Some of the key factors will be whether the states choose individual or multi-state plans, whether the states allow utilities/Electric Generating Units (EGUs) to trade (either within the state or across multiple states), and whether the states take a rate or mass-based approach. For example, if one state uses a mass-based approach and allows for trading (either within the state between utilities/EGUs or in a multi-state region), but another state uses a rate-based approach and will not allow trading and is not part of a multi-state plan, then the utility may have more flexibility in one part of its service area where it can trade between utilities/EGUs, but is otherwise required to meet a specific rate at an EGUs in another part of its service area. It is likely that this scenario may constrain dispatch choices and potentially increase the costs of delivering power and/or impact reliability in way we may not understand today.
- Retirements that May Strand Assets and/or Reduce Reserve Margins: There is some concern that the Clean Power Plan may result in the retirement or idling of coal EGUs that could potentially either strand investments in those assets and/or reduce reserve margins that utilities and regional organizations may rely on. However, until state goals are finalized and state plans are designed, it is hard to determine whether, when and where this may occur.
- Strong Reliance on Natural Gas in the Clean Power Plan: The Clean Power Plan, as proposed, relies heavily on an increased use of natural gas-fired plants running at higher capacities than they have historically have for long periods of time. It remains unclear whether the natural gas industry and infrastructure will simply grow to meet the need as EPA projects or whether this concentrated growth may impact prices, availability, and system reliability.
- Other Questions and Issues that Arise as States Look at Compliance Approaches:
 - How are states to account for cross state flows of electricity—importer/exporter states; mass-based vs. rate based? Leakage?
 - How are specific strategies like energy efficiency and renewable energy resources to be valued and credited in state plans so as not to be double counted?

- If utilities operate in multiple states and are members of multiple Regional Transmission Organizations, how are states to account for utility overlaps?
- Considerations for multistate approaches or common element approaches—e.g., credit tracking systems, trading programs for reductions or credits
- Enforceability and legal authority questions

2. What tools are available to address these potential issues and ensure that electric reliability is maintained as states and regions comply with the proposed rule?

- Utility Planning and Models: Large electric utilities often engage in Integrated Resource Planning and typically utilize sophisticated modeling programs to simulate projected electric demand and generation resource options, including energy efficiency and demand response performance. However, these simulations are not necessarily conducted on a state-by-state basis, but instead align with the utility’s service area. In some instances this may be less than an entire state. In other instances, a utility may serve portions of multiple states. Also, not all utilities engage in Integrated Resource Planning or have access to sophisticated modeling programs. Many state air programs also do not have the same sophisticated modeling tools that utilities do. Therefore, while traditional planning and modeling tools within the utility industry will be significantly helpful in thinking through compliance options under the Clean Power Plan, these tools are unlikely to wholly serve state air programs in their development of state plans given the issues noted above.
- Public Utility Commissions/Public Service Commissions: Many states have a single state agency that is responsible for regulating electric utilities, a public utilities commission (PUC) or public service commission (PSC). PUCs and PSCs, like larger utilities, may have access to and utilize modeling programs similar to those used by utilities and may be able to model electric demand and supply to ensure reliability within a given state and do so with an independent perspective or with a perspective of advocating for ratepayers within the state. However, not all PUCs and PSCs have access to or resources for these planning tools. PUCs and PSCs also have a wealth of knowledge about the utilities they regulate. These entities, where they exist, and their available tools will be critical to state air programs in evaluating different compliance approaches.
- Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs): RTOs and ISOs play a critical role in the transmission and distribution of electricity. These entities often engage in transmission system maintenance and expansion planning; supply forecasting, reliability coordination, and load balancing; and energy market operations within their respective service areas. As states develop their compliance approaches, these entities will be critical in helping to evaluate what impacts may occur within the transmission and distribution system that need to be addressed.

3. How will entities responsible for electric system planning (e.g., reliability entities, state public utility commissions, grid operators) coordinate with entities responsible for developing state and regional plans to comply with the proposed rule?

- Coordination of electric system planning and state and regional plan compliance has yet to be clearly determined and will likely vary considerably from one state or region to another. In some states, PUCs/PSCs, utilities, and entities responsible for developing state and regional plans may be already engaging in robust conversations regarding system planning. However in others, depending on electric utility regulatory context and utility service areas, these conversations may be in their infancy. Regardless, ongoing coordination throughout plan development and compliance periods between multiple parties will be challenging, but imperative to effective electric system planning as well as compliance with the Clean Power Plan.
- From our perspective, and in talking with other regulators, generally there are three ways through which interested parties are currently engaged in conversations to prepare for and shape compliance with the final Clean Power Plan rule. Some states have statutorily proscribed institutions which bring together interested parties; for example, siting councils or boards which are responsible for issuing permits for the construction of energy infrastructure. Because these state institutions are usually responsible for taking into account environmental impact of proposed facilities, the permit hearings that they carry out will likely affect compliance with the final Clean Power Plan. Some states bring together interested parties through semi-formal institutions, such as executive level advisory councils established by governors. These semi-formal groups may offer advice without the power of law, which may in turn be adopted by states to comply with the final Clean Power Plan. Perhaps most commonplace, informal conversations continue to occur between interested parties in hallways, on the sidelines at meetings, and in other situations, as they prepare for the potential impacts of the final Clean Power Plan.
- An example from my state of Tennessee: The Tennessee Valley Authority (TVA) provides about 99.7 percent of the state's electric generation. TVA is a significant public power entity that not only serves to generate our power, but also serves as the Regional Transmission Organization. TVA's Board also serves as the ratemaking authority for the electric rates in the vast majority of Tennessee much like a PUC or PSC would in another state. This may make it appear that coordination is a little easier in Tennessee than it might be in other states. However, it is important to note that TVA is not a vertically integrated utility, which means the hundreds of local power companies and cooperatives across TVA's system are not owned or operated by TVA, but by independent entities. Because the Clean Power Plan incorporates elements housed completely within the distribution system and Tennessee's system is broken up into various independent entities of various sizes, demand side program implementation like energy efficiency will be highly diffused and effective coordination will be essential if the state chooses to incorporate these elements into its plan.
- Although not listed specifically in the question above, many state legislatures are taking an active interest in the Clean Power Plan; therefore, many state agencies, commissions,

utilities, and grid operators are working to coordinate with legislators to answer questions and address concerns.

- Given the diversity in electric system planning across the states, it seems that a one size fits all approach to coordination would be difficult to craft, as entities coordinate according to local demands created by differing methods of power generation, existing coordination entities, and other factors. Regardless of approach, coordination will be critical to avoid unintended consequences.

4. Are additional tools or processes needed to address any potential operational issues or ensure coordination between relevant entities?

Yes, it will be imperative that additional tools and resources are developed that address potential operational issues and ensure coordination between relevant entities. Specific recommendations include:

- Cost effective modeling and planning resources that look across the regional and national transmission and distribution systems to ensure reliability as well as ones that can evaluate compliance options on a state-only basis if desired. State air programs need access to these tools without additional significant cost.
- Additional study of the interactions between building blocks included in the proposed Clean Power Plan to ensure that BSER truly is technically feasible and achievable at a reasonable cost without negative reliability impacts (e.g., interaction of building blocks 1 and 2; interaction of all 4 building blocks).
- Further study of long term performance of the NGCC fleet as a base load power generation source and conclusions regarding potential impacts to system reliability.
- Study that identifies specific infrastructure needs that arise from added dependence on the grid for transmission and distribution of increasing renewable energy (e.g., wind power from the west coming to the south and north east) and demand-side energy efficiency resources.

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Thank you for the opportunity to submit these remarks. I look forward to the discussion on February 19, 2015 and to continued engagement with the Commission on these important issues.