Department of Energy
Washington, DC 20585

June 19, 2018

MEMORANDUM TO THE DEPARTMENT OF ENERGY

ELECTRICITY ADVISORY COMMITTEE

From: Bruce J. Walker
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Subject: DOE Response to EAC Grid Modernization Recommendations

I want to thank all members of the Department of Energy's (DOE) Electricity Advisory Committee (EAC) for your efforts developing these recommendations during 2016 and 2017.

The purpose of this memo is to provide you with the DOE's response to your analyses and recommendations in a systematic and inclusive form for the following EAC work products:

- **The Value of a VAr – Perspectives on Electric Grid Voltage Support, September 2016**
- **New Technologies Require a Modern Grid: Report on the U.S. Department of Energy Grid Modernization Initiative, June 2017**
- **Distributed Energy Resource Valuation and Integration, June 2017**

Since the three work products listed above are all related to DOE's efforts in grid modernization, we have combined our response to address these at the same time in order to reduce redundancy. DOE reviewed the EAC recommendations and organized them into broad themes. The following sections provide responses to the recommendations in each of the work products followed by a summary of the path forward.

The Value of a VAr – Perspectives on Electric Grid Voltage Support, September 2016

Communication and Education

DOE agrees with the importance of improving communication and education on current and emerging technology issues such as VAr. DOE leverages many channels to disseminate information, including its website which hosts the EAC work products and the options available through the Grid Modernization Laboratory Consortium (GMLC).

Models and Planning Tools

DOE agrees with the importance of developing models and planning tools to improve decision making. OE's advanced grid modeling (AGM) program supports the development of advanced models and tools to better inform decision making and operations, including understanding the value of VArs.

Assessments and Standards

DOE agrees that evaluating technologies and supporting standards will help reduce barriers to technology adoption. DOE's R&D portfolio aims to improve the understanding and technical requirements for these standards to ensure the range of functionalities and benefits of these technologies are comprehensively captured, including the provision of VArs.

New Technologies Require a Modern Grid: Report on the U.S. Department of Energy Grid Modernization Initiative, June 2017

Grid Research Community

DOE agrees that fostering a grid research community is a vital role. Through DOE's various grid R&D programs, a broad range of researchers across universities, vendors, consultants, utilities, and the national labs are engaged and included. Through peer reviews, program reviews, and engagement with the grid research communities, DOE aims to expand the perspectives and expertise to draw on to solve the complex challenges of grid modernization.

Simulation Platforms

DOE agrees that setting up comprehensive simulation capabilities will be an important tool for grid modernization. DOE has various programs that support advancements in grid simulation platforms such as OE's AGM program. DOE will continue to leverage the expertise and capabilities at the National Laboratories, through the GMLC, to develop and improve grid simulation capabilities and decision support tools for planning and design.

Test Laboratories

DOE agrees that test laboratories are as important as simulation platforms. DOE continues to support the improvement and development of the testing capabilities and expertise available at the National Laboratories, including through the GMLC.

System Technologies vs. Component Technologies

DOE recognizes the important distinction between grid systems research and components research. The GMI captures all the grid-related research in DOE and includes both systems research and components research. Individual program offices continue to support component research (e.g., energy storage, transformers, inverters) while the GMLC are pursuing aspects of systems level research.

Grid Modernization and Policy

DOE recognizes the important intersection of grid modernization and policy and considers this issue as part of the system level challenges. The Institutional Support program area of the GMLC, which addresses the policy aspect of grid modernization, contains five three-year projects that actively engages regulatory entities. Outside of the GMLC, a large amount of the electricity policy technical assistance requested and provided to state-level electricity officials by DOE is on grid modernization policy issues, both at the distribution and bulk power levels.

Distributed Energy Resource Valuation and Integration, June 2017

DER Valuation and Integration

DOE recognizes the challenges associated with the valuation and integration of distributed energy resources (DERs) and agrees with the recommendations provided by the EAC. Several GMLC projects focus on addressing this issue, including the DER valuation framework and the grid services project.

State and Industry Perspective

DOE agrees with the EAC and recognizes the important perspective of states and industry to understand the range of technologies and resources available and how they can support improvement and operation of the grid, especially DERs. DOE will engage, where appropriate with states and industry to that end.

Modeling and Simulation Tools

DOE will continue to support advances in methods and tools for DER integration and valuation. For instance, DOE continues to fund projects at the university level to conduct research, development and demonstrations of advanced modeling, data analytic, visualization, and computational approaches needed for operations and planning associated with the mass deployment of DER.

Summary

The EAC findings and recommendations highlight the important role DOE plays in grid modernization and furthering grid security, flexibility, and resiliency. They also highlight the breadth of challenges that span technologies, markets, and policies, requiring an integrated and comprehensive approach, especially when it comes to the valuation of VArs and the integration of DERs.

Over the past several years, DOE has begun placing considerable emphasis on the provision and valuation of grid services (including reactive support) in meeting electric system needs. This includes thinking about the role of flexible assets in meeting reliability, security, and resilience objectives. The recommendations by the EAC underscore the importance of this research.

DOE has been addressing systems level challenges and component level research through the GMI. DOE will continue to engage the full range of stakeholders to identify issues and opportunities, including communicating and disseminating research results, lessons learned, and best practices. DOE will be reviewing the GMI projects as part of a peer review on September 4-7, 2018; interested members of EAC are welcome to attend. DOE is also updating its GMI Multi-Year Program Plan (MYPP), which will include themes such as voltage support and DER valuation/integration. DOE will circulate that report for comment when it is ready for review.

If you would like to discuss this response further, we are available and look forward to continued interaction. I am committed to ensuring a strong and fruitful working relationship between the EAC and DOE.