



**Department of Energy**  
Washington, DC 20585

July 27, 2018

MEMORANDUM TO THE DEPARTMENT OF ENERGY  
ELECTRICITY ADVISORY COMMITTEE

FROM: Bruce Walker, Assistant Secretary  
Office of Electricity

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SUBJECT: DOE Response to Electricity Advisory Committee Recommendations on  
Securing the 21st-Century Grid: The Potential Role of Storage in  
Providing Resilience, Reliability, and Security Services

I want to thank all members of the Department of Energy's Electricity Advisory Committee for their thoughtful recommendations on the efforts within the Office of Electricity to advance role energy of storage in resilience, reliability, and security.

I look forward to continued discussions on the path of our programs and am committed to ensuring a strong and fruitful working relationship between the Committee and this office. If you wish to discuss this matter further, my staff is available to meet with the Committee, as needed.

Thank you.



**Recommendation #1: The DOE should continue to educate and inform regulators on efforts to assess the value of energy storage technologies as it relates to reliability, resiliency, and security**

DOE's Energy Storage Program has played and will continue to play a significant role in educating and informing stakeholders as to the value of energy storage, the basics of energy storage technologies, and disseminating learnings and best practices from pilot demonstration projects. For example, in the past year, OE provided educational workshops to Public Utility Commission staff in the western US, to the staff at Federal Energy Regulatory Commission, to the staff and members of the National Rural Electric Cooperative Association (NRECA), and to attendees at the IEEE T&D Annual Conference. These efforts have provided critical information to a diverse set of stakeholders on a broad range of energy storage topics including: energy storage technologies and cost trends, use-cases and value assessments, and safety and reliability considerations.

**Recommendation #2: The DOE should continue and further emphasize its research and development on specific power system security requirements**

The DOE OE Energy Storage Program actively supports continued energy storage R&D efforts related to materials research, device development, grid analytics, safety and reliability, and security. The Energy Storage program developed the Energy Storage Test Pad at Sandia National Laboratory as a user facility for reliability evaluation of utility scale grid tied energy storage systems. Early testing of the megawatt scale prototype system has led to the development of DOE Energy Storage Performance Protocols that are widely adopted in the industry. These protocols and resource guides are being adapted as IEEE Recommended Practice Guides as standards for the industry.

The OE ES program also supported the development of resilient microgrids in collaboration with US Army Basecamp Integration Laboratory. This work provided early reference design for energy storage enabled resilient microgrids. Moreover, DOE OE has supported individual projects like Orcas Power and Light Cooperative (OPALCO) in WA State where energy storage is being evaluated to defer an upgrade of an underwater transmission line. DOE also provided support to a project in Sterling, MA where a demonstration showed a storage system integrated with existing photovoltaics could provide necessary resiliency for the Police headquarters and dispatch center. These projects play a critical role in advancing our understanding of the reliability and resiliency benefits of energy storage at a local level. These efforts, combined with DOE OE support of current projects in AK, OR, MA, and HI will further advance key concepts in storage deployed for system reliability and resiliency. As the EAC notes, dissemination of the lessons learned from these efforts to key stakeholders will be critical and will form the basis of larger scale systems models and valuing energy storage benefits for resiliency in the coming years.

**Recommendation #3: The DOE should continue to examine power sector vulnerabilities**

DOE appreciates this recommendation and is moving in the direction suggested by the EAC. An emerging area within the DOE OE Energy storage program is energy storage research targeting the impact of energy storage to mitigate power sector vulnerabilities. In FY18, the program initiated efforts investigating the role of storage in support of grid cybersecurity and will look for opportunities to expand these research areas in FY19.