Edison Electric INSTITUTE

Energy Storage Subcommittee Update

DOE Electricity Advisory Committee
June 2019

Lola Infante

Agenda

Current Topics & Products

Potential New Products

2018 Biennial Energy Storage Review

Current Topics

Risk Mitigation for Energy Storage

2020 Energy Storage Assessment

Assisting State-Level Implementation, Valuation, and Policy Treatment of Energy Storage

Status

- Recommendations
  1. DOE should support research and pilot projects that address market and regulatory design
  2. DOE should facilitate sharing of lessons learned and storage deployment experiences
- Voted March 2019
- DOE Response June 2019
  1. DOE supports research and pilot projects that address market and regulatory design.
     Will focus on regional differences and on projects that quantify resiliency benefits
     Will engage regulators earlier and throughout the duration of the programs
  2. DOE facilitates sharing of lessons learned and storage deployment experiences
     Will improve dissemination of information and will expand target stakeholder groups
     Will not fund DSIRE nor combine renewable and energy storage data

Energy Storage Risk Assessment

Rationale

- Utilities and regulators historically manage operational and financial risks
  - Utilities undertake actions to manage risk
  - Regulators recognize long-term cost-savings from these actions and allow recovery of their costs
- Innovation and deployment of new technologies are difficult because the regulatory community is risk averse: if a new technology is unsuccessful, customers pay for the failed experiment and the ‘replacement’
- Pilot and demonstration projects supported by the Department are examples of how government can introduce new technologies while hedging customer risk

Energy Storage Risk Assessment

Limitations

- The Department is limited in its ability to underwrite utility-scale pilot projects
- Public utility commissions are reluctant to assess cost risks to customers
- Utility executives need to balance where to place burden

→ Question: How do we reduce risk of technological failure to levels that are acceptable to the principal players—utilities, regulators, and customers?

Energy Storage Risk Assessment

Approach

- Panel at June, 2019 meeting to discuss potential approaches to mitigate risks
- Potential white paper stemming from panel

2020 Energy Storage Assessment

Approach and Rationale

- Statutory Requirement
- Scope
- Process Changes Ongoing
- Expected Report March 2021

Potential New Products

- Reducing the Physical and Cyber Security Risks of Deploying Energy Storage and Other DERs (Technology and Practices)
- The Value of Energy Storage in Enabling a Lower Carbon Grid
- Maximizing the Value of DERs: The Standardization of Interfaces

Questions

2018 Biennial Energy Storage Review

Process

Recommendations

2018 Energy Storage Review

Statutory Requirement

- Energy Independence and Security Act of 2007 (EISA)
  - Energy Storage (Technologies) Subcommittee of EAC formed in March, 2008 in response to Title VI, Section 641(e)
- Title VI, Section 641(e) imposes two requirements on the energy storage subcommittee
  - Section 641(e)(4): '. . . every five years [the Energy Storage Technologies Subcommittee], in conjunction with the Secretary, shall develop a five-year plan for. . . domestic energy storage industry for electric drive vehicles, stationary applications, and electricity transmission and distribution.'
  - Section 641(e)(5): '. . . the Council shall (A) assess, every two years, the performance of the Department in meeting the goals of the plans developed under paragraph (4); and (B) make specific recommendations to the Secretary on programs or activities that should be established or terminated to meet those goals.'

2018 Energy Storage Review

Scope

- 2012 review focused on energy storage-related activities of OE
- 2014 review expanded this scope to further include EERE, ARPA-E, and SC
  - Also examined coordination between the Department and other Federal agencies (*e.g.*, NSF and DOD)
  - In-line with offices and agencies included in the Department's overall strategy
- 2016 review maintained the same broad programmatic scope
  - Technological scope was expanded beyond electricity in/electricity out storage
  - Included power-to-gas, thermal, and virtual storage
- 2018 review is maintaining this same breadth

2018 Energy Storage Review

Process

- Focus and Scope
  - Build on last Review and use DOE's response to the 2016 review (received April, 2018) to guide the 2018 assessment (Follow up on 2016 recommendations, changes in program goals requiring examination?)
- Information gathering
  - Webinar by DOE offices relating to ongoing energy storage activities, August 2018
  - DOE OE Energy Storage Peer Review 2018, New Mexico, Sept 2018
- Interviews
  - Desired Universe: Energy storage and renewable energy developers, deployers, researchers, state policymakers, ISOs/RTOs, NERC, FERC, think tanks and NGOs
  - Peer Review meeting
  - Supplemental telephone interviews
- June, 2019 EAC approval

2018 Energy Storage Review

Conclusions

- The goals of DOE's energy storage activities are appropriate
- DOE is making excellent progress towards meeting its goals
- The EAC's recommendations are intended to achieve better alignment between energy storage-related R&D and the needs of third party users

2018 Energy Storage Review

Recommendations

Resources, dissemination and coordination

- Better dissemination of resources and information
- Better coordination between offices and better integration of different goals in the design of programs and activities

Technology research – Greater focus on:

- Economically viable long-duration energy storage technologies
- Hybrid energy storage systems
- Manufacturing and supply-chain issues
- Providing an unbiased third -party platform to test and validate the technical capabilities of energy storage

Valuation, integration, and education

- Continue valuation and modeling work to ensure that the work remains useful across various market, operational, and planning regions
- Consider very forward-looking integration and valuation studies
- Consult and coordinate with stakeholders to better tailor their needs to research activities

Vote