

Energy Storage Subcommittee Update

Lola Infante

Edison Electric Institute

Electricity Advisory Committee
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Outline

- 1 2018 Biennial Storage Review
- 2 Rate, Tariff, and Market Design for Energy Storage

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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) has two parts pertaining to this subcommittee
 - 1 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.'
 - 2 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.'

EISA Requirements

- The '2012 Storage Report: Progress and Prospects: Recommendations for the U.S. Department of Energy,' approved 24 January, 2014, fulfilled both requirements
- The '2014 Storage Plan Assessment: Recommendations for the U.S. Department of Energy,' approved 25 September, 2014, fulfilled the second
- The '2016 Storage Plan Assessment: Recommendations for the U.S. Department of Energy,' approved 29 September, 2016, fulfilled both requirements
- The '2018 Storage Plan Assessment: Recommendations for the U.S. Department of Energy,' is proposed to fulfill the second

Scope

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

Interviews

- Interview 'users' and 'implementers' of the Department's storage program to inform assessment and recommendations
- Interviewee groups
 - 1 Energy-storage developers
 - 2 Energy-storage deployers
 - 3 Energy-storage researchers
 - 4 State policymakers
 - 5 ISOs/RTOs
 - 6 NERC
 - 7 FERC
 - 8 Energy and environment think tanks and NGOs
 - 9 Renewable developers
- DOE/OE Energy Storage Peer Review 2018
- Telephone interviews to supplement the peer review

Planned Process

- 1 Use Department's response to the 2016 review (received April, 2018) to guide the 2018 assessment
 - Are there 2016 recommendations requiring follow up?
 - Are there changes in program goals requiring examination?
- 2 Determine desired interviewees
- 3 Interviews at peer review
- 4 Supplemental telephone interviews
- 5 Aiming for March, 2019 EAC approval

DOE/OE Energy Storage Peer Review 2018

- 25–27 September, 2018, in Santa Fe, New Mexico
- Flora Flygt, Lola Infante, and Ramteen Sioshansi attended
- Conducted five interviews
- Interviewees consisted of energy-storage developers, researchers, and deployers
- Peer review also provided opportunity to see the totality of OE's research portfolio

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Background

- Energy storage is a unique power system asset that can 'behave' like a generation, load, transmission, and/or distribution asset
- Some services that storage can provide are priced in markets, others are not
- Traditional regulatory and market approach treats assets as either being market- or rate-based, which may not be suitable for energy storage

Aims

- Raise the problems created by historical market, rate, tariff, and regulatory designs as they pertain to energy storage
- Survey what has been implemented in practice and proposals on the table to address these issues
- Make recommendations for further work or study
- Help the Department assist state regulators and legislators determine how to address energy storage within regulatory proceedings and legislation

Planned Process

- 1 February, 2018 EAC Panel Session
- 2 June, 2018 Department of Energy/National Laboratory Briefing
- 3 Interviews with state regulators (to be scheduled)
- 4 Aiming for March, 2019 EAC approval

EAC Panel Session

20 February, 2018

- 1 Hisham Othman (Quanta)
- 2 Scott Baker (PJM)
- 3 Commissioner Carla Peterman (California Public Utilities Commission)
- 4 Arnie Quinn (FERC)

Department of Energy/National Laboratory Briefing

13 June, 2018

- 1 Welcome and Energy Storage Program Overview; Imre Gyuk (DOE)
- 2 Energy Storage System Analysis, Use Case Analysis; Patrick Balducci (PNNL)
- 3 State Regulatory Support, Utility Planning Models; Jeremy Twitchell (PNNL)
- 4 Market Analysis and Demonstration Projects; Babu Chalamala (SNL)
- 5 Rate and Tariff Design; Naim Darghouth (LBNL)

Questions?

