

EAC Energy Storage Subcommittee Update

Ramteen Sioshansi

Integrated Systems Engineering
The Ohio State University

Electricity Advisory Committee
14 September, 2017

Work Products

- 1 Energy Storage for Resilience & Reliability Work Product (Brown)
- 2 Alternate Storage Technologies Work Product (Lazar)
- 3 Rate, Tariff, & Regulatory Design for Energy Storage Work Product (Sioshansi)
- 4 2018 Biennial Storage Review (Sioshansi)

Energy Storage for Resilience & Reliability

Background

- Electricity service is necessary to the national economy, security, and citizen wellbeing
- Need for attention and definition of storage's role as a component of the power system as a reliability/resiliency/backup solution, while concurrently serving the system's routine needs
- Storage cost reductions and high-value use cases support the prospect of storage providing backup/resiliency/reliability services when the system is down and necessary services when the system is up
- Purpose of this work product is to survey these potential use cases for storage and make recommendations to the Department on how it can facilitate such use of storage
- Work product builds off of a day-long workshop on this topic held during the June, 2017 EAC meeting

Energy Storage for Resilience & Reliability

Progress and Next Steps

- Workshop material, transcript, and notes compiled
- Drafting work product for team review
- Expected completion date for March, 2018 EAC meeting

Alternate Storage Technologies

Background

- There are numerous energy storage technologies
- EAC has historically focused on electricity-in/electricity-out storage
- Recognize that this focus should be expanded
- Purpose of this work product is to provide definitional and scoping information to the Department on alternate storage technologies
- Follow-on work products will provide more concrete recommendations and identify opportunities and challenges for the Department to pursue

Alternate Storage Technologies

Progress and Next Steps

- Scoping memo that highlights alternate storage technologies drafted and circulated
 - Controlled electric water heaters
 - Air conditioning with ice or chilled-water storage
 - Controlled Water pumping and augmented water-supply storage
 - Hydrogen
 - Ammonia
 - Demand response that mimics storage
- Memo being revised based on feedback received
- Identify what else to cover with respect to these technologies in this work product

Rate, Tariff, & Regulatory Design for Energy Storage

Background

- Energy storage is a unique power system asset that can act as a generator and load
- Many storage devices can provide services that are priced in markets and others that are not
- Traditional regulatory approach treats assets as either being market- or rate-based, which may not be suitable for energy storage
- Purpose is to raise this problem, survey what has been implemented in practice, proposals on the table, and also make recommendations for further work or study
- Ultimate aim is to help the Department assist state regulators and legislators determine how to address energy storage within their regulatory proceedings
- Vision is not for the Department to be prescriptive, but to provide input and options based on current and past regulatory decisions and evolving storage-related science, applications, and research

Rate, Tariff, & Regulatory Design for Energy Storage

Progress and Next Steps

- Work group has drafted a starting list of topics/issues that should be pertinent to this work product
- Scheduling a conversation with the Department to see how the list should be expanded to provide a high-value work product

2018 Biennial Storage Review

Background

- 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.’

2018 Biennial Storage Review

Progress and Next Steps

- None
- We are awaiting the Department's response to the 2016 Biennial Storage Review (expected in a few weeks) before beginning work on the 2018 review
- We will begin work on the 2018 review within a month or so if the response is not forthcoming, to meet the September 2018 EAC meeting deadline

Questions?

