

Energy Storage Subcommittee Update

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The Ohio State University

Electricity Advisory Committee
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Outline

- 1 2020 Biennial Storage Review
- 2 2021 Biennial Storage Review
- 3 Panel on Long-Duration Energy Storage

2020 Biennial Storage Review

Statutory Requirement

- Energy Independence and Security Act of 2007 (EISA)
 - ➔ Energy Storage (Technologies) Subcommittee of EAC was 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.’

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2020 Biennial Storage Review

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 Biennial Energy Storage Review,' approved 20 June, 2019, fulfilled the second
- The '2020 Biennial Energy Storage Review' will fulfill the second

2020 Biennial Storage Review

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 examined also co-ordination 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 did and 2020 review will maintain this same breadth

2020 Biennial Storage Review

Process

- 1 DOE program update
- 2 2019 DOE/OE Energy Storage Program Peer Review
- 3 Outside Interviews
- 4 Drafting by working group (Lola Infante, Flora Flygt, Laney Brown, and Ramteen Sioshansi)
- 5 Energy Storage Subcommittee review, discussion, and vote
- 6 EAC review, discussion, and vote (aiming for May, 2020)

2020 Biennial Storage Review

DOE Program Update

- 20 September, 2019 webinar
- Full EAC membership invited
- Presentations by each program office (OE, EERE, SC, ARPA-E) on energy storage-related research, development, and deployment activities

2020 Biennial Storage Review

2019 DOE/OE Energy Storage Program Peer Review

- 23–26 September, 2019, in Albuquerque, New Mexico
- Flora Flygt, Clay Koplín, and Ramteen Sioshansi attended
- Reviewed the totality of OE's research portfolio

2020 Biennial Storage Review

Interviews

- Outside interviews: users and implementers of the Department's storage program to inform assessment and recommendations
- Interviewee groups:
 - 1 Energy-storage industry
 - 2 Generation industry
 - 3 Utility industry
 - 4 State regulators, energy officials, and legislators
 - 5 Consumer advocates
 - 6 Energy and environment think tanks and NGOs
 - 7 Department and National Laboratory program managers

2021 Biennial Storage Review

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2021 Biennial Storage Review

Energy Storage Grand Challenge (ESGC)

- The Department's 10-year strategic roadmap
- EAC engaging in all phases of ESGC to provide input and feedback throughout the process
 - February EAC meeting
 - Public regional workshops
 - EAC input to initial draft of ESGC
 - EAC comments on ESGC RFI
- EAC will rely on member engagement throughout the ESGC process as well as on additional appropriate stakeholder input
- Timeline will co-incide with ESGC schedule

Panel on Long-Duration Energy Storage

May, 2020 Meeting

- Panel on long-duration and megawatt-scale energy storage (e.g., power-to-gas energy storage)
- Electric industry is beginning to look at long-duration scalable energy storage, especially as policy mandates around renewable energy are being passed—the first 70%–80% are manageable while the final 20–30% is more challenging
- Economics are challenging, given few cycles and long durations that energy is stored
- Briefing from DOE and national laboratories to clarify the specific focus of the panel, based on identified knowledge gaps

Thank you