



Energy Act of 2020 Elevates Innovation Investments in Energy Storage

December 2020

Energy Act of 2020

Status: Enacted with FY 2021 Omnibus

Various sections of the [legislation](#) would authorize \$1 billion over 5 years for cross-cutting energy storage research, development, and demonstration (RD&D) programs primarily at the U.S. Department of Energy (DOE); \$150 million over 5 years for storage and microgrid demonstrations; and incorporation of distributed storage into DOE loan programs. Key provisions include:

- Sec 3201: Better Energy Storage Technologies (\$201 MM/year)
 - Cross-DOE Energy Storage RD&D Program (\$100 MM/year)
 - New Critical Material Recycling and Reuse RD&D Program
 - Energy Storage Demonstration Projects; Pilot Grant Program (\$71 MM/year)
 - Joint DOE-Defense Long Duration Demonstration Initiative (\$30 MM/year)
- Sec 3202: Energy Storage and Microgrid Assistance for Rural Communities (\$15MM/year)
- Sec 8011: Microgrid and Integrated Microgrid Systems Program (\$15MM/year)
- Sec 9010: DOE Loan Program Modifications to Include Distributed Storage

A bicameral, bipartisan deal on the omnibus bill contains numerous energy bills from the 116th congressional session, including the content of the Better Energy Storage Technologies Act or “BEST Act” of 2020 (S.1602), as well as various forms of assistance to support storage microgrid development in rural areas. **A total of \$1 billion is authorized for energy storage technology innovation from fiscal years 2021 to 2025.** Passed as part of the FY 2021 omnibus spending bill, the legislation will elevate energy storage to one of the top priorities of U.S. energy technology research, development, and demonstration (RD&D).

Legislative Summary

Section 3201: Better Energy Storage Technology

based on S. 1602 BEST Act

The RD&D program would entail the development of a 10-year strategic plan by DOE with evaluation metrics for development of grid energy storage technologies. The bill defines “energy storage system” widely to include mechanical, electrochemical, thermal, power-to-gas, and other processes to convert and store energy. The program would focus on energy storage for a variety of durations (sub-hourly & hourly, 6-10 hours, 10-100 hours, and “seasonal”) and a variety of applications, including building-grid integration and vehicle-grid integration. Additionally, the program would undertake work on systems and methods for recycling and reuse of storage materials; advanced controls for storage systems; pumped hydroelectric energy storage; modeling of storage across a variety of applications; and testing

and validation of storage technology performance. Significantly, the RD&D program would be cross-cutting across several DOE program offices; a lead office may be identified by the Secretary of Energy. The bill authorizes \$100MM annually over fiscal years 2021-2025 (\$500MM total) for this program.

A critical material recycling and reuse RD&D program would be established for energy storage systems containing critical minerals. RD&D activities include technologies, process improvements, and design optimizations that facilitate and promote critical material recycling of energy storage systems; technologies and methods that mitigate emissions and environmental impacts; technologies to enable extraction, recovery, and reuse of storage systems from electric vehicles; and technologies and methods to enable the safe transport, storage, and disposal of storage systems containing critical materials. The authorization is included as an amendment to existing DOE authority on storage RD&D and does not have a specific authorization of appropriations.

A competitive grant program would be available to states, utilities, and private companies to undertake energy storage demonstration projects for a variety of purposes, including transportation and industrial processes in addition to buildings and power system operations. DOE would also be directed to initiate separate agreements to carry out at least 3 such energy storage system demonstration projects by September 2023. Grants will be awarded with greater consideration to proposals that increase geographic diversity of storage deployments and use competitive procurement or contracting. The bill authorizes \$71MM annually over fiscal years 2021-2025 (\$355MM total) for the competitive grant program and demonstration projects.

A long-duration demonstration initiative would be established as a joint program between the Department of Defense (DOD) and DOE to demonstrate longer-duration energy storage technologies across technology types and geographic regions, as well as at all levels of the electric system. The bill authorizes \$30MM annually over fiscal years 2021-2025 (\$150MM total) for the joint DOD-DOE program.

Section 3202: Energy Storage and Microgrid Assistance for Rural Communities

based on S. 1183 EASE Act

An **energy storage and microgrid assistance program** would provide grants and technical assistance to rural electric cooperatives. The program will disseminate information on potential and existing storage and microgrid technologies to rural electric cooperatives and public utilities to assist with designing and demonstrating energy storage and microgrid projects that use energy from renewable energy resources. The Secretary of Energy may enter into contracts with third-party experts to carry out technical assistance. This bill authorizes \$15MM annually over fiscal years 2021 – 2025 (\$75MM) to carry out this program.

Section 8011: Microgrid and Integrated Microgrid Systems Program

based on H.R. 4447 Clean Energy & Jobs Act

This program would establish a **program to promote the development of “integrated microgrids”** for rural communities as well as microgrids to increase critical infrastructure resilience. Additionally, the program authorizes microgrid demonstration grants for municipal governments, rural electric cooperatives, and rural communities, directing grant awards to at least 20 recipients each year with each grant capped at \$500,000. An integrated microgrid system is one that is comprised of both conventional and renewable generation resources and may use energy storage. This program will be carried out in collaboration with states, Indian Tribes, local and regional government, higher education



institutions, and the private sector. This bill authorizes \$15MM annually over fiscal years 2021 – 2025 (\$75MM) to carry out this program.

Section 9010: DOE Loan Program Modifications to Include Distributed Storage

based on H.R. 4447 Clean Energy & Jobs Act

This bill amends Section 1702 of the Energy Policy Act of 2005 to defer collection of fees and other expenses from applicants until financial closing and **expand project eligibility to many technologies including energy storage** for residential, industrial, transportation, and power generation applications. The Secretary of Energy will conduct outreach to support loan applicants by providing assistance with completion of loan applications, disseminating information to potential applicants, and encouraging participation of supporting finance institutions and private lenders in eligible projects. Loans may be awarded for up to 6 projects that use the same/similar technologies as other projects, as long as not more than 2 projects that use the same/similar technology are in the same region. The bill authorizes administrative expenses over fiscal years 2021 – 2025 to support the Section 1702 loan program but does not change the overall financing authority.

Market Impact

- The legislation elevates federal innovation investments in energy storage moderately. Historically, energy storage RD&D appropriations at the Office of Electricity (OE) have hovered below \$50MM annually, although storage activities across multiple DOE programs have neared \$200MM annually. It is unclear whether the \$100MM annual RD&D authorization is expected to supplant the current OE budget, which would represent roughly a doubling of funding, or whether it will be expected to include the other DOE program offices, in which case it could represent a consolidation.
- All storage technologies are contemplated in the expansive definition in the statute, including thermal storage that includes building systems, vehicle-to-grid systems, and power-to-gas storage that includes hydrogen and synthetic natural gas. This is parallel with DOE's Energy Storage Grand Challenge already underway and signals investment in the full range of energy storage technology pathways.
- The \$350MM authorization for demonstration projects could be transformative for storage technologies. By orienting DOE activities toward soliciting competitive grants each year from both utilities and private storage companies, industry members will have a recurring annual opportunity to request federal funds to demonstrate a diversity of energy storage technologies and applications.
- It remains to be seen whether the additional \$30MM annual joint DOD program will complement the DOE portfolio as a distinct effort, or whether it will be integrated into DOE's existing work on longer duration storage.
- While the \$30MM annual funds for technical assistance and demonstration grants for microgrids represents a small opportunity for energy storage, these projects could be useful for accelerating updates to the state and local regulatory treatment of storage-enabled microgrids in a variety of jurisdictions.



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- While the addition of distributed energy storage to the DOE Loan Program authority is welcomed, it is unclear to what extent the program can be effectively availed, particularly for the relatively small project sizes expected from distributed storage installations. The cost and regulatory burdens of accessing DOE loans and loan guarantees, as well as DOE reluctance to execute projects, have inhibited their usefulness.

The bill text can be accessed [here](#).

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