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H. R. 2986

[Report No. 116–]

To amend the United States Energy Storage Competitiveness Act of 2007 to establish a research, development, and demonstration program for grid-scale energy storage systems, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MAY 23, 2019

Mr. FOSTER (for himself, Mr. CASTEN of Illinois, Ms. HERRERA BEUTLER, and Mr. GONZALEZ of Ohio) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

MARCH --, 2020

Reported with an amendment, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed

[Strike out all after the enacting clause and insert the part printed in italic]

[For text of introduced bill, see copy of bill as introduced on May 23, 2019]

A BILL

To amend the United States Energy Storage Competitiveness Act of 2007 to establish a research, development, and demonstration program for grid-scale energy storage systems, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Better Energy Storage Technology Act" or the "BEST Act".

SEC. 2. ENERGY STORAGE.

(a) IN GENERAL.—The United States Energy Storage Competitiveness Act of 2007 (42 U.S.C. 17231) is amended—

(1) by redesignating subsections (l) through (p) as subsections (p) through (t), respectively; and

(2) by inserting after subsection (k) the following:

"(l) ENERGY STORAGE RESEARCH AND DEVELOPMENT PROGRAM.—

"(1) IN GENERAL.—Not later than 180 days after the date of enactment of the Better Energy Storage Technology Act, the Secretary shall establish a research and development program for energy storage systems, components, and materials across multiple program offices of the Department.

"(2) REQUIREMENTS.—In carrying out the program under paragraph (1), the Secretary shall—

"(A) coordinate across all relevant program offices throughout the Department, including the

Office of Electricity, the Office of Energy Efficiency and Renewable Energy, the Advanced Research Projects Agency – Energy, the Office of Science, and the Office of Cybersecurity, Energy Security, and Emergency Response;

"(B) adopt long-term cost, performance, and demonstration targets for different types of energy storage systems and for use in a variety of regions, including rural areas;

"(C) incorporate considerations of sustainability, sourcing, recycling, reuse, and disposal of materials, including critical elements, in the design of energy storage systems;

"(D) identify energy storage duration needs;

"(E) analyze the need for various types of energy storage to improve electric grid resilience and reliability; and

"(F) support research and development of advanced manufacturing technologies that have the potential to improve United States competitiveness in energy storage manufacturing.

"(3) STRATEGIC PLAN.—

"(A) IN GENERAL.—No later than 180 days after the date of enactment of the Better Energy Storage Technology Act, the Secretary shall de-

velop a 5-year strategic plan identifying research, development, demonstration, and commercial application goals for the program in accordance with this section. The Secretary shall submit this plan to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

"(B) CONTENTS.—The strategic plan submitted under subparagraph (A) shall—

"(i) identify programs at the Department related to energy storage systems that support the research and development activities described in paragraph (4), and the demonstration projects under subsection (m); and

"(ii) include timelines for the accomplishment of goals developed under the plan.

"(C) UPDATES TO PLAN.—Not less frequently than once every 3 years, the Secretary shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate an updated version of the plan under subparagraph (A).

"(4) RESEARCH AND DEVELOPMENT.—In carrying out the program established in paragraph (1), the Secretary shall focus on developing—

"(A) energy storage systems that can store energy and deliver stored energy for a minimum of 6 hours in duration to balance electricity needs over the course of a single day;

"(B) long-duration energy storage systems that can store energy and deliver stored energy for 10 to 100 hours in duration; and

"(C) energy storage systems that can store energy and deliver stored energy over several months and address seasonal scale variations in supply and demand.

"(5) TESTING AND VALIDATION.—The Secretary shall support the standardized testing and validation of energy storage systems under the program through collaboration with 1 or more National Laboratories, including the development of methodologies to independently validate energy storage technologies by—

"(A) performance of energy storage systems on the electric grid, including—

"(i) when appropriate, testing of application-driven charge and discharge protocols;

"(ii) evaluation of power capacity and energy output;

"(iii) degradation of the energy storage systems from cycling and aging;

"(iv) safety; and

"(v) reliability testing under grid duty cycles; and

"(B) prediction of lifetime metrics.

"(6) COORDINATION.—In carrying out this subsection, the Secretary shall coordinate with—

"(A) programs and offices that aim to increase domestic manufacturing and production of energy storage systems, such as those within the Department and within the National Institute of Standards and Technology;

"(B) other Federal agencies that are carrying out initiatives to increase energy reliability through the development of energy storage systems, including the Department of Defense; and

"(C) other stakeholders working to advance the development of commercially viable energy storage systems.

"(7) TECHNICAL ASSISTANCE PROGRAM.—

"(A) IN GENERAL.—The Secretary shall provide technical assistance for commercial application of energy storage technologies to eligible entities.

"(B) TECHNICAL ASSISTANCE.—Technical assistance provided under this paragraph—

"(i) may include assistance with—

"(I) assessment of relevant technical and geographic characteristics;

"(II) interconnection of electricity storage systems with the electric grid; and

"(III) engineering design; and

"(ii) may not include assistance relating to modification of Federal, State, or local regulations or policies with respect to energy storage systems.

"(C) APPLICATIONS.—

"(i) IN GENERAL.—The Secretary shall seek applications for technical assistance and grants under the program—

"(I) on a competitive basis; and

"(II) on a periodic basis, but not less frequently than once every 12 months.

"(ii) PRIORITIES.—In selecting eligible entities for technical assistance for commercial applications, the Secretary shall give priority to eligible entities with projects that have the greatest potential for—

"(I) strengthening the reliability and resilience of the electric grid to the impact of extreme weather events, power grid failures, and interruptions in supply of electricity;

"(II) reducing the cost of energy storage systems; or

"(III) facilitating the use of net zero emission energy resources.

"(8) PROGRAM DEFINED.—In this subsection, the term 'program' means the research and development program established under paragraph (1).".

(b) ENERGY STORAGE DEMONSTRATION PROGRAM.—The United States Energy Storage Competitiveness Act of 2007 (42 U.S.C. 17231), as amended, is further amended by inserting after subsection (l), as added by subsection (a), the following:

"(m) ENERGY STORAGE DEMONSTRATION PROGRAM.—

"(1) ESTABLISHMENT.—The Secretary shall establish a competitive grant program for the demonstration of energy storage systems, as identified by the Secretary, that use either—

"(A) a single system; or

"(B) aggregations of multiple systems.

"(2) ELIGIBILITY.—Entities eligible to receive a grant under paragraph (1) include—

"(A) a State, territory, or possession of the United States;

"(B) a State energy office;

"(C) a tribal organization (as defined in section 3765 of title 38, United States Code);

"(D) an institution of higher education (as defined in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001));

"(E) an electric utility, including—

"(i) a rural electric cooperative;

"(ii) a political subdivision of a State, such as a municipally owned electric utility, or any agency, authority, corporation, or instrumentality of one or more State political subdivisions; and

"(iii) an investor-owned utility; and

"(F) a private company, such as but not limited to an energy storage company.

"(3) SELECTION REQUIREMENTS.—In selecting eligible entities to receive a grant under this section, the Secretary shall, to the maximum extent practicable—

"(A) ensure regional diversity among eligible entities that receive the grants, including participation by rural States and small States;

"(B) ensure that specific projects selected for grants—

"(i) expand on the existing technology demonstration programs of the Department of Energy; and

"(ii) are designed to achieve one or more of the objectives described in paragraph (4);

"(C) give consideration to proposals from eligible entities for securing energy storage through competitive procurement or contract for service; and

"(D) prioritize projects that leverage matching funds from non-Federal sources.

"(4) OBJECTIVES.—Each demonstration project selected for a grant under paragraph (1) shall include one or more of the following objectives:

"(A) To improve the security of critical infrastructure and emergency response systems.

"(B) To improve the reliability of the transmission and distribution system, particularly in rural areas, including high energy cost rural areas.

"(C) To optimize transmission or distribution system operation and power quality to defer or avoid costs of replacing or upgrading electric grid infrastructure, including transformers and substations.

"(D) To supply energy at peak periods of demand on the electric grid or during periods of significant variation of electric grid supply or demand.

"(E) To reduce peak loads of homes and businesses, particularly to defer or avoid investments in new electric grid capacity.

"(F) To advance power conversion systems to make the systems smarter, more efficient, able to communicate with other inverters, and able to control voltage.

"(G) To provide ancillary services for grid stability and management.

"(H) To integrate one or more energy resources, including renewable energy resources, at the source or away from the source.

"(I) To increase the feasibility of microgrids or islanding.

"(J) To enable the use of stored energy in forms other than electricity to support the natural gas system and other industrial processes.

"(5) RESTRICTION ON USE OF FUNDS.—Any eligible entity that receives a grant under paragraph (1) may only use the grant to fund programs relating to the demonstration of energy storage systems connected to the electric grid, or that provides bi-directional energy storage capable of providing back-up energy in the event of grid outages, including energy storage systems sited behind a customer revenue meter.

"(6) COST SHARING.—In carrying out this section, the Secretary shall require cost sharing under this section in accordance with section 988 of the Energy Policy Act of 2005 (42 U.S.C. 16352).

"(7) NO PROJECT OWNERSHIP INTEREST.—The United States shall hold no equity or other ownership

interest in an energy storage system for which a grant is provided under paragraph (1).

"(8) RULES AND PROCEDURES; AWARDING OF GRANTS.—

"(A) RULES AND PROCEDURES.—Not later than 180 days after the date of enactment of the Better Energy Storage Technology Act, the Secretary shall adopt rules and procedures for carrying out the grant program under subsection (m).

"(B) AWARDING OF GRANTS.—Not later than 1 year after the date on which the rules and procedures under paragraph (A) are established, the Secretary shall award the initial grants provided under this section.

"(9) REPORTS.—The Secretary shall submit to Congress and make publicly available—

"(A) not less frequently than once every 2 years for the duration of the grant program under subsection (m), a report describing the performance of the grant program, including a synthesis and analysis of any information the Secretary requires grant recipients to provide to the Secretary as a condition of receiving a grant; and

"(B) on termination of the grant program under subsection (m), an assessment of the success of, and education provided by, the measures carried out by grant recipients under the grant program.

"(10) PROGRAM DEFINED.—In this subsection, the term 'program' means the demonstration program established under paragraph (1).".

(c) AUTHORIZATION OF APPROPRIATIONS.—The United States Energy Storage Competitiveness Act of 2007 (42 U.S.C. 17231) is amended, in subsection (t) (as redesignated by subsection (a)(1))—

(1) in paragraph (5), by striking "and" at the end;

(2) in paragraph (6), by striking the period at the end and inserting ";"; and

(3) by adding at the end the following:

"(7) the research and development program for energy storage systems under subsection (l)—

"(A) $62,000,000 for fiscal year 2020;

"(B) $ 65,100,000 for fiscal year 2021;

"(C) $ 68,355,000 for fiscal year 2022;

"(D) $ 71,773,000 for fiscal year 2023; and

"(E) $ 75,362,000 for fiscal year 2024; and

"(8) the demonstration program for energy storage systems under subsection (m), $50,000,000 for each of fiscal years 2020 through 2024.".

SEC. 3. CRITICAL MINERAL RECYCLING AND REUSE RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.

The United States Energy Storage Competitiveness Act of 2007 (42 U.S.C. 17231) is amended by inserting after subsection (m), as added by section 2(b) of this Act, the following:

"(n) CRITICAL MINERAL RECYCLING AND REUSE RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.—

"(1) DEFINITIONS.—In this subsection:

"(A) CRITICAL MINERAL.—The term 'critical mineral' means any of a class of chemical elements that have a high risk of a supply disruption and are critical to one or more new, energy-related technologies such that a shortage of such element would significantly inhibit large-scale deployment of technologies that store energy.

"(B) RECYCLING.—The term 'recycling' means the separation of critical minerals embedded within an energy storage system through

physical or chemical means and reuse of those separated critical minerals in other technologies.

"(2) ESTABLISHMENT.—Not later than 180 days after the date of enactment of the BEST Act, the Secretary shall establish a research, development, and demonstration program of recycling of energy storage systems containing critical minerals.

"(3) RESEARCH, DEVELOPMENT, AND DEMONSTRATION.—In carrying out the program, the Secretary may focus research, development, and demonstration activities on—

"(A) technologies, process improvements, and design optimizations that facilitate and promote recycling, including—

"(i) improvement of efficiency and rates of collection of products and scrap containing critical minerals from consumer, industrial, and other waste streams;

"(ii) separation and sorting of component materials in energy storage systems containing critical minerals, including improving the recyclability of such energy storage systems;

"(iii) safe storage of energy storage systems, including reducing fire risk;

"(iv) safe transportation of energy storage systems and components; and

"(v) development of technologies to advance energy storage recycling facility infrastructure, including integrated recycling facilities that can process multiple materials;

"(B) research and development of technologies that mitigate emissions and environmental impacts that arise from recycling, including disposal of toxic reagents and byproducts related to recycling processes;

"(C) research and development of technologies to enable recycling of critical materials from batteries in electric vehicles;

"(D) research on and analysis of non-technical barriers to improving the transportation of energy storage systems containing critical minerals; and

"(E) research on technologies and methods to enable the safe disposal of energy storage systems containing critical minerals, including waste materials and components recovered during the recycling process.

"(4) REPORT TO CONGRESS.—Not later than 2 years after the date of enactment of the BEST Act, and every 3 years thereafter, the Secretary shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a report summarizing the activities, findings, and progress of the program.

"(o) DEFINITIONS.—For purposes of subsections (l), (m), and (n), the following definitions apply:

"(1) ENERGY STORAGE SYSTEM.—The term 'energy storage system' means a system, equipment, facility, or technology relating to the electric grid that—

"(A) is capable of absorbing energy, storing such energy for a period of time, and dispatching such energy after storage; and

"(B) uses a mechanical, electrical, chemical, electrochemical, or thermal process to store such energy, or any other process that the Secretary determines relevant.

"(2) ISLAND.—The term 'island' means one or more distributed generators or energy storage systems that continues to power a location in the absence of electricity from the electric grid.

"(3) MICROGRID.—The term 'microgrid' means an integrated energy system consisting of inter-connected loads and distributed energy resources, including generators and energy storage systems, within clearly defined electrical boundaries that—

"(A) acts as a single controllable entity with respect to the grid;

"(B) can connect and disconnect from the grid to operate in either grid-connected mode or island-mode; or

"(C) can operate in the absence of the grid.

"(4) NATIONAL LABORATORY.—The term 'national laboratory' has the meaning given the term in section 2 of the Energy Policy Act of 2005 (42 U.S.C. 15801).".