

116TH CONGRESS  
1ST SESSION

# S. 1593

To require the Secretary of Energy to establish an energy storage research program, a demonstration program, and a technical assistance and grant program, and for other purposes.

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## IN THE SENATE OF THE UNITED STATES

MAY 22, 2019

Ms. SMITH (for herself, Ms. COLLINS, Ms. HIRONO, Ms. DUCKWORTH, Ms. CORTEZ MASTO, Ms. STABENOW, Mr. HEINRICH, Mr. GARDNER, and Ms. HASSAN) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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## A BILL

To require the Secretary of Energy to establish an energy storage research program, a demonstration program, and a technical assistance and grant program, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Promoting Grid Stor-  
5 age Act of 2019”.

6 **SEC. 2. DEFINITIONS.**

7 In this Act:

1           (1) ENERGY STORAGE SYSTEM.—The term “en-  
2           ergy storage system” means equipment or facilities  
3           relating to the electric grid that are capable of ab-  
4           sorbing energy, storing the energy for a period of  
5           time, and dispatching the energy, that—

6                   (A) use mechanical, electrochemical, bio-  
7                   chemical, or thermal processes to store energy  
8                   that was generated at an earlier time for use at  
9                   a later time;

10                   (B) use mechanical, electrochemical, bio-  
11                   chemical, or thermal processes to store energy  
12                   generated from mechanical processes that would  
13                   otherwise be wasted for delivery at a later time;  
14                   or

15                   (C) store thermal energy for direct use for  
16                   heating or cooling at a later time in a manner  
17                   that avoids the need to use electricity at that  
18                   later time, as is offered by grid-enabled water  
19                   heaters.

20           (2) ISLANDING.—The term “islanding” means  
21           a distributed generator or energy storage device con-  
22           tinuing to power a location in the absence of electric  
23           power from the primary source.

24           (3) MICROGRID.—The term “microgrid” means  
25           an integrated energy system consisting of inter-

1 connected loads and distributed energy resources, in-  
2 cluding generators and energy storage devices, with-  
3 in clearly defined electrical boundaries that—

4 (A) acts as a single controllable entity with  
5 respect to the grid; and

6 (B) can connect and disconnect from the  
7 grid to operate in both grid-connected mode  
8 and island mode.

9 (4) SECRETARY.—The term “Secretary” means  
10 the Secretary of Energy.

11 **SEC. 3. ENERGY STORAGE RESEARCH PROGRAM.**

12 (a) IN GENERAL.—The Secretary shall establish a  
13 cross-cutting national program within the Department of  
14 Energy for the research of energy storage systems, compo-  
15 nents, and materials.

16 (b) ADDITIONAL REQUIREMENTS.—In establishing  
17 the program under subsection (a), the Secretary shall—

18 (1) identify and coordinate across all relevant  
19 program offices throughout the Department of En-  
20 ergy key areas of existing and future research with  
21 respect to a portfolio of technologies and approaches;  
22 and

23 (2) adopt long-term cost, performance, and im-  
24 plementation targets for specific applications of en-  
25 ergy storage systems.

1 **SEC. 4. TECHNICAL ASSISTANCE AND GRANT PROGRAM.**

2 (a) ESTABLISHMENT.—

3 (1) IN GENERAL.—The Secretary shall establish  
4 a technical assistance and grant program (referred  
5 to in this section as the “program”)—

6 (A) to disseminate information and provide  
7 technical assistance directly to eligible entities  
8 so the eligible entities can identify, evaluate,  
9 plan, design, and develop processes to procure  
10 energy storage systems; and

11 (B) to make grants to eligible entities so  
12 that the eligible entities may contract to obtain  
13 technical assistance to identify, evaluate, plan,  
14 design, and develop processes to procure energy  
15 storage systems.

16 (2) TECHNICAL ASSISTANCE.—

17 (A) IN GENERAL.—The technical assist-  
18 ance described in paragraph (1) shall include  
19 assistance with 1 or more of the following ac-  
20 tivities relating to energy storage systems:

21 (i) Identification of opportunities to  
22 use energy storage systems.

23 (ii) Assessment of technical and eco-  
24 nomic characteristics.

25 (iii) Utility interconnection.

26 (iv) Permitting and siting issues.

1 (v) Business planning and financial  
2 analysis.

3 (vi) Engineering design.

4 (B) EXCLUSION.—The technical assistance  
5 described in paragraph (1) shall not include as-  
6 sistance relating to modification of Federal,  
7 State, or local regulations or policies relating to  
8 energy storage systems.

9 (3) INFORMATION DISSEMINATION.—The infor-  
10 mation disseminated under paragraph (1)(A) shall  
11 include—

12 (A) information relating to the topics de-  
13 scribed in paragraph (2), including case studies  
14 of successful examples;

15 (B) computer software for assessment, de-  
16 sign, and operation and maintenance of energy  
17 storage systems; and

18 (C) public databases that track the oper-  
19 ation of existing and planned energy storage  
20 systems.

21 (b) ELIGIBILITY.—Any not-for-profit or for-profit en-  
22 tity shall be eligible to receive technical assistance and  
23 grants under the program.

24 (c) APPLICATIONS.—

1           (1) IN GENERAL.—An eligible entity desiring  
2 technical assistance or grants under the program  
3 shall submit to the Secretary an application at such  
4 time, in such manner, and containing such informa-  
5 tion as the Secretary may require.

6           (2) APPLICATION PROCESS.—The Secretary  
7 shall seek applications for technical assistance and  
8 grants under the program—

9                   (A) on a competitive basis; and

10                   (B) on a periodic basis, but not less fre-  
11 quently than once every 12 months.

12           (3) PRIORITIES.—In selecting eligible entities  
13 for technical assistance and grants under the pro-  
14 gram, the Secretary shall give priority to eligible en-  
15 tities with projects that have the greatest potential  
16 for—

17                   (A) strengthening the reliability and resil-  
18 iency of energy infrastructure to the impact of  
19 extreme weather events, power grid failures,  
20 and interruptions in supply of fossil fuels;

21                   (B) reducing the cost of energy storage  
22 systems;

23                   (C) facilitating the use of renewable energy  
24 resources;

1 (D) minimizing environmental impact, in-  
2 cluding regulated air pollutants and greenhouse  
3 gas emissions;

4 (E) improving the feasibility of microgrids  
5 or islanding, particularly in rural areas, includ-  
6 ing high energy cost rural areas; and

7 (F) maximizing local job creation.

8 (d) GRANTS.—On application by an eligible entity,  
9 the Secretary may award grants to the eligible entity to  
10 provide funds to cover not more than—

11 (1) 100 percent of the costs of the initial as-  
12 sessment to identify net system benefits of using en-  
13 ergy storage systems;

14 (2) 75 percent of the cost of guidance relating  
15 to methods to assess energy storage in long-term re-  
16 source planning and resource procurement;

17 (3) 60 percent of the cost of studies to assess  
18 the cost-benefit ratio of energy storage systems; and

19 (4) 50 percent of the cost of guidance on com-  
20 plying with State and local regulatory technical  
21 standards, including siting and permitting stand-  
22 ards.

23 (e) RULES AND PROCEDURES.—

24 (1) RULES.—Not later than 180 days after the  
25 date of enactment of this Act, the Secretary shall

1       adopt rules and procedures for carrying out the pro-  
2       gram.

3           (2) GRANTS.—Not later than 120 days after  
4       the date of issuance of the rules and procedures for  
5       the program, the Secretary shall issue grants under  
6       this section.

7       (f) REPORTS.—The Secretary shall submit to Con-  
8       gress and make available to the public—

9           (1) not less frequently than once every 2 years,  
10       a report describing the performance of the program  
11       under this section, including a synthesis and analysis  
12       of any information the Secretary requires grant re-  
13       cipients to provide to the Secretary as a condition of  
14       receiving a grant; and

15           (2) on termination of the program under this  
16       section, an assessment of the success of, and edu-  
17       cation provided by, the measures carried out by eli-  
18       gible entities under the program.

19   **SEC. 5. DEPARTMENT OF ENERGY WORKSHOPS.**

20       The Secretary shall hold 1 or more workshops during  
21       each of calendar years 2021 and 2023 to facilitate the  
22       sharing, across the Department of Energy, the States,  
23       local and Tribal governments, industry, and the academic  
24       research community, of research developments and new



1 technical knowledge gained in carrying out sections 3 and  
2 4.

3 **SEC. 6. ENERGY STORAGE SYSTEM DEMONSTRATION PRO-**  
4 **GRAM.**

5 (a) ENERGY STORAGE GRANT PROGRAM.—

6 (1) ESTABLISHMENT.—The Secretary shall es-  
7 tablish a competitive grant program for pilot energy  
8 storage systems, as identified by the Secretary, that  
9 use either—

10 (A) a single system; or

11 (B) aggregations of multiple systems.

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

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

16 (B) a State energy office;

17 (C) a tribal organization (as defined in sec-  
18 tion 3765 of title 38, United States Code);

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

22 (E) an electric utility, including—

23 (i) a rural electric cooperative;

24 (ii) a political subdivision of a State,  
25 such as a municipally owned electric util-

1           ity, or any agency, authority, corporation,  
2           or instrumentality of one or more State po-  
3           litical subdivisions; and

4                   (iii) an investor-owned utility; and

5           (F) a private energy storage company that  
6           is a small business concern (as defined in sec-  
7           tion 3 of the Small Business Act (15 U.S.C.  
8           632)).

9           (3) SELECTION REQUIREMENTS.—In selecting  
10          eligible entities to receive a grant under this section,  
11          the Secretary shall, to the maximum extent prac-  
12          ticable—

13                   (A) ensure regional diversity among eligi-  
14                   ble entities that receive the grants, including  
15                   participation by rural States and small States;

16                   (B) ensure that specific projects selected  
17                   for grants—

18                           (i) expand on the existing technology  
19                           demonstration programs of the Depart-  
20                           ment of Energy; and

21                           (ii) are designed to achieve 1 or more  
22                           of the objectives described in paragraph  
23                           (4);

24                   (C) prioritize projects from eligible entities  
25                   that do not have an energy storage system;

1 (D) give consideration to proposals from  
2 eligible entities for securing energy storage  
3 through competitive procurement or contract  
4 for service;

5 (E) prioritize projects that coordinate with  
6 the local incumbent utility for in-front-of-the-  
7 meter projects that do not formally involve a  
8 utility; and

9 (F) prioritize projects that leverage match-  
10 ing funds from non-Federal sources.

11 (4) OBJECTIVES.—Each demonstration project  
12 selected for a grant under paragraph (1) shall in-  
13 clude 1 or more of the following objectives:

14 (A) To improve the security of critical in-  
15 frastructure and emergency response systems.

16 (B) To improve the reliability of the trans-  
17 mission and distribution system, particularly in  
18 rural areas, including high energy cost rural  
19 areas.

20 (C) To optimize transmission or distribu-  
21 tion system operation and power quality to  
22 defer or avoid costs of replacing or upgrading  
23 electric grid infrastructure, including trans-  
24 formers and substations.

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

4           (E) To reduce peak loads of homes and  
5 businesses, particularly to defer or avoid invest-  
6 ments in new electric grid capacity.

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

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

13           (H) To integrate a renewable energy re-  
14 source production source at the source or away  
15 from the source.

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

18           (J) To enable the use of stored energy in  
19 forms other than electricity to support the nat-  
20 ural gas system and other industrial processes.

21           (5) RESTRICTION ON USE OF FUNDS.—Any eli-  
22 gible entity that receives a grant under paragraph  
23 (1) may only use the grant to fund programs relat-  
24 ing to the demonstration of energy storage systems

1 connected to the electric grid, including energy stor-  
2 age systems sited behind a customer revenue meter.

3 (6) FUNDING LIMITATIONS.—

4 (A) FEDERAL COST SHARE.—The Federal  
5 cost share of a project carried out with a grant  
6 under paragraph (1) shall be not more than 50  
7 percent of the total costs incurred in connection  
8 with the development, construction, acquisition  
9 of components for, or engineering of a dem-  
10 onstration project.

11 (B) MAXIMUM GRANT.—The maximum  
12 amount of a grant awarded under paragraph  
13 (1) shall be \$5,000,000.

14 (7) NO PROJECT OWNERSHIP INTEREST.—The  
15 United States shall hold no equity or other owner-  
16 ship interest in an energy storage system for which  
17 a grant is provided under paragraph (1).

18 (8) COMPARABLE WAGE RATES.—Each laborer  
19 and mechanic employed by a contractor or subcon-  
20 tractor in performance of construction work fi-  
21 nanced, in whole or in part, by the grant shall be  
22 paid wages at rates not less than the rates prevailing  
23 on similar construction in the locality as determined  
24 by the Secretary of Labor in accordance with sub-

1 chapter IV of chapter 31 of title 40, United States  
2 Code.

3 (b) RULES AND PROCEDURES; AWARDING OF  
4 GRANTS.—

5 (1) RULES AND PROCEDURES.—Not later than  
6 180 days after the date of enactment of this Act, the  
7 Secretary shall adopt rules and procedures for car-  
8 rying out the grant program under subsection (a).

9 (2) AWARDING OF GRANTS.—Not later than 1  
10 year after the date on which the rules and proce-  
11 dures under paragraph (1) are established, the Sec-  
12 retary shall award the initial grants provided under  
13 this section.

14 (c) REPORTS.—The Secretary shall submit to Con-  
15 gress and make publicly available—

16 (1) not less frequently than once every 2 years  
17 for the duration of the grant program under sub-  
18 section (a), a report describing the performance of  
19 the grant program, including a synthesis and anal-  
20 ysis of any information the Secretary requires grant  
21 recipients to provide to the Secretary as a condition  
22 of receiving a grant; and

23 (2) on termination of the grant program under  
24 subsection (a), an assessment of the success of, and

1 education provided by, the measures carried out by  
2 grant recipients under the grant program.

3 **SEC. 7. AUTHORIZATION OF APPROPRIATIONS.**

4 There are authorized to be appropriated—

5 (1) for each of fiscal years 2020 through 2024,  
6 \$175,000,000 to carry out section 3;

7 (2) for the period of fiscal years 2020 through  
8 2024, \$100,000,000 to carry out section 4, to re-  
9 main available until expended; and

10 (3) for the period of fiscal years 2020 through  
11 2024, \$150,000,000 to carry out section 6, to re-  
12 main available until expended.

○