

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.

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

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.

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