

115TH CONGRESS
1ST SESSION

S. 1851

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

IN THE SENATE OF THE UNITED STATES

SEPTEMBER 25, 2017

Mr. FRANKEN (for himself and Mr. HEINRICH) 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, demonstration and deployment program, and 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 “Advancing Grid Stor-
5 age Act of 2017”.

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 capable of absorbing energy, storing the energy for
 4 a period of time, and dispatching the energy, that—

5 (A) use mechanical, electrochemical, or
 6 thermal processes to store energy that was gen-
 7 erated at an earlier time for use at a later time;

8 (B) use mechanical, electrochemical, or
 9 thermal processes to store energy generated
 10 from mechanical processes that would otherwise
 11 be wasted for delivery at a later time; or

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

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

21 (3) MICROGRID.—The term “microgrid” means
 22 an integrated energy system consisting of inter-
 23 connected loads and distributed energy resources, in-
 24 cluding generators and energy storage devices, with-
 25 in clearly defined electrical boundaries that—

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

3 (B) can connect and disconnect from the
 4 grid to operate in both grid-connected mode
 5 and island mode.

6 (4) RENEWABLE ENERGY SOURCE.—The term
 7 “renewable energy source” includes—

8 (A) biomass;

9 (B) geothermal energy;

10 (C) hydropower;

11 (D) landfill gas;

12 (E) municipal solid waste;

13 (F) ocean (including tidal, wave, current,
 14 and thermal) energy;

15 (G) organic waste;

16 (H) photosynthetic processes;

17 (I) photovoltaic energy;

18 (J) solar energy; and

19 (K) wind.

20 (5) SECRETARY.—The term “Secretary” means
 21 the Secretary of Energy.

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

23 (a) IN GENERAL.—There is established within the
 24 Advanced Research Projects Agency—Energy established
 25 by section 5012(b) of the America COMPETES Act (42

1 U.S.C. 16538(b)) a program for the research of energy
2 storage systems, components, and materials.

3 (b) AUTHORIZATION OF APPROPRIATIONS.—There is
4 authorized to be appropriated to carry out this section
5 \$50,000,000 for the period of fiscal years 2018 through
6 2022.

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

8 (a) ESTABLISHMENT.—

9 (1) IN GENERAL.—The Secretary, in consulta-
10 tion with the Assistant Secretary for Electricity De-
11 livery and Energy Reliability, shall establish a tech-
12 nical assistance and grant program (referred to in
13 this section as the “program”)—

14 (A) to disseminate information and provide
15 technical assistance directly to eligible entities
16 so the eligible entities can identify, evaluate,
17 plan, design, and develop processes to procure
18 energy storage systems; and

19 (B) to make grants to eligible entities so
20 that the eligible entities may contract to obtain
21 technical assistance to identify, evaluate, plan,
22 design, and develop processes to procure energy
23 storage systems.

24 (2) TECHNICAL ASSISTANCE.—

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

5 (i) Identification of opportunities to
6 use energy storage systems.

7 (ii) Assessment of technical and eco-
8 nomic characteristics.

9 (iii) Utility interconnection.

10 (iv) Permitting and siting issues.

11 (v) Business planning and financial
12 analysis.

13 (vi) Engineering design.

14 (B) EXCLUSION.—The technical assistance
15 described in paragraph (1) shall not include as-
16 sistance relating to modification of Federal,
17 State, or local regulations or policies relating to
18 energy storage systems.

19 (3) INFORMATION DISSEMINATION.—The infor-
20 mation disseminated under paragraph (1)(A) shall
21 include—

22 (A) information relating to the topics de-
23 scribed in paragraph (2), including case studies
24 of successful examples;

1 (B) computer software for assessment, de-
2 sign, and operation and maintenance of energy
3 storage systems; and

4 (C) public databases that track the oper-
5 ation and deployment of existing and planned
6 energy storage systems.

7 (b) ELIGIBILITY.—Any nonprofit or for-profit entity
8 shall be eligible to receive technical assistance and grants
9 under the program.

10 (c) APPLICATIONS.—

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

16 (2) APPLICATION PROCESS.—The Secretary
17 shall seek applications for technical assistance and
18 grants under the program—

19 (A) on a competitive basis; and

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

22 (3) PRIORITIES.—In selecting eligible entities
23 for technical assistance and grants under the pro-
24 gram, the Secretary shall give priority to eligible en-

1 tities with projects that have the greatest potential
2 for—

3 (A) strengthening the reliability and resil-
4 iency of energy infrastructure to the impact of
5 extreme weather events, power grid failures,
6 and interruptions in supply of fossil fuels;

7 (B) improving the feasibility of microgrids
8 or islanding, particularly in rural areas, includ-
9 ing high energy cost rural areas;

10 (C) facilitating the use of renewable energy
11 resources;

12 (D) minimizing environmental impact, in-
13 cluding regulated air pollutants and greenhouse
14 gas emissions; and

15 (E) maximizing local job creation.

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

19 (1) 100 percent of the costs of the initial as-
20 sessment to identify system benefits of deploying en-
21 ergy storage systems;

22 (2) 75 percent of the cost of guidance relating
23 to methods to assess energy storage in long-term re-
24 source planning and resource procurement;

1 (3) 60 percent of the cost of studies to assess
2 the cost-benefit ratio of energy storage systems; and

3 (4) 50 percent of the cost of guidance on com-
4 plying with State and local regulatory technical
5 standards, including siting and permitting stand-
6 ards.

7 (e) RULES AND PROCEDURES.—

8 (1) RULES.—Not later than 180 days after the
9 date of enactment of this Act, the Secretary shall
10 adopt rules and procedures for carrying out the pro-
11 gram.

12 (2) GRANTS.—Not later than 120 days after
13 the date of issuance of the rules and procedures for
14 the program, the Secretary shall issue grants under
15 this section.

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

18 (1) not less frequently than once every 2 years,
19 a report describing the performance of the program
20 under this section, including a synthesis and analysis
21 of any information the Secretary requires grant re-
22 cipients to provide to the Secretary as a condition of
23 receiving a grant; and

24 (2) on termination of the program under this
25 section, an assessment of the success of, and edu-

1 cation provided by, the measures carried out by eli-
 2 gible entities under the program.

3 (g) AUTHORIZATION OF APPROPRIATIONS.—There is
 4 authorized to be appropriated to carry out this section
 5 \$100,000,000 for the period of fiscal years 2018 through
 6 2022, to remain available until expended.

7 **SEC. 5. ENERGY STORAGE SYSTEM DEMONSTRATION AND**
 8 **DEPLOYMENT PROGRAM.**

9 (a) ENERGY STORAGE GRANT PROGRAM.—

10 (1) ESTABLISHMENT.—The Secretary shall es-
 11 tablish a competitive grant program for pilot energy
 12 storage systems, as identified by the Secretary, that
 13 use either—

14 (A) a single system; or

15 (B) aggregations of multiple systems.

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

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

20 (B) a State energy office;

21 (C) a tribal organization (as defined in sec-
 22 tion 4 of the Indian Self-Determination and
 23 Education Assistance Act (25 U.S.C. 5304));

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

4 (E) an electric utility, including—

5 (i) a rural electric cooperative;

6 (ii) a municipally owned electric util-
7 ity; and

8 (iii) an investor-owned utility.

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 and deployment programs
20 of the Department of Energy; and

21 (ii) are designed to achieve one or
22 more of the objectives described in para-
23 graph (4); and

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

1 (4) OBJECTIVES.—Each demonstration and de-
2 ployment project selected for a grant under para-
3 graph (1) shall include one or more of the following
4 objectives:

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

7 (B) To improve the reliability of the trans-
8 mission and distribution system, particularly in
9 rural areas, including high energy cost rural
10 areas.

11 (C) To optimize transmission or distribu-
12 tion system operation and power quality to
13 defer or avoid costs of replacing or upgrading
14 electric grid infrastructure, including trans-
15 formers and substations.

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

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

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

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

3 (H) To meet electricity demand during
4 nonpeak generation periods to make better use
5 of existing grid assets.

6 (I) To integrate a renewable energy re-
7 source production source at the source or away
8 from the source.

9 (J) To increase the feasibility of
10 microgrids or islanding.

11 (5) RESTRICTION ON USE OF FUNDS.—Any eli-
12 gible entity that receives a grant under paragraph
13 (1) may only use the grant to fund programs relat-
14 ing to the demonstration and deployment of energy
15 storage systems in households, businesses, and com-
16 munities.

17 (6) FUNDING LIMITATIONS.—

18 (A) FEDERAL COST SHARE.—The Federal
19 cost share of a project carried out with a grant
20 under paragraph (1) shall be not more than 50
21 percent of the total costs incurred in connection
22 with the development, construction, acquisition
23 of components for, or engineering of a dem-
24 onstration project.

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

4 (7) NO OWNERSHIP INTEREST.—The United
5 States shall hold no equity or other ownership inter-
6 est in an energy storage system for which a grant
7 is provided under paragraph (1).

8 (8) COMPARABLE WAGE RATES.—Each laborer
9 and mechanic employed by a contractor or subcon-
10 tractor in performance of construction work fi-
11 nanced, in whole or in part, by the grant shall be
12 paid wages at rates not less than the rates prevailing
13 on similar construction in the locality as determined
14 by the Secretary of Labor in accordance with sub-
15 chapter IV of chapter 31 of title 40, United States
16 Code.

17 (b) RULES AND PROCEDURES; AWARDING OF
18 GRANTS.—

19 (1) RULES AND PROCEDURES.—Not later than
20 180 days after the date of enactment of this Act, the
21 Secretary shall adopt rules and procedures for car-
22 rying out the grant program under subsection (a).

23 (2) AWARDING OF GRANTS.—Not later than 1
24 year after the date on which the rules and proce-
25 dures under paragraph (1) are established, the Sec-

1 retary shall award the initial grants provided under
2 this section.

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

5 (1) not less frequently than once every 2 years
6 for the duration of the grant program under sub-
7 section (a), a report describing the performance of
8 the grant program, including a synthesis and anal-
9 ysis of any information the Secretary requires grant
10 recipients to provide to the Secretary as a condition
11 of receiving a grant; and

12 (2) on termination of the grant program under
13 subsection (a), an assessment of the success of, and
14 education provided by, the measures carried out by
15 grant recipients under the grant program.

16 (d) AUTHORIZATION OF APPROPRIATIONS.—There is
17 authorized to be appropriated to carry out this section
18 \$150,000,000 for the period of fiscal years 2018 through
19 2022, to remain available until expended.

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