

114TH CONGRESS
1ST SESSION

S. 1256

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

IN THE SENATE OF THE UNITED STATES

MAY 7, 2015

Mr. FRANKEN 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, loan 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 2015”.

6 **SEC. 2. DEFINITIONS.**

7 In this Act:

8 (1) **ENERGY STORAGE SYSTEM.**—The term “en-
9 ergy storage system” means a system or strategy

that improves the ability to shift the dispatch of energy in time, across multiple timescales.

(2) ISLANDING.—The term “islanding” means a distributed generator or energy storage device continuing to power a location in the absence of electric power from the primary source.

(3) LOAN.—The term “loan” has the meaning given the term “direct loan” in section 502 of the Federal Credit Reform Act of 1990 (2 U.S.C. 661a).

(4) MICROGRID.—The term “microgrid” means an integrated energy system consisting of interconnected loads and distributed energy resources, including generators and energy storage devices, within clearly defined electrical boundaries that—

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

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

(5) RENEWABLE ENERGY SOURCE.—The term “renewable energy source” includes—

(A) biomass;

(B) geothermal energy;

(C) hydropower;

(D) landfill gas;

- 1 (E) municipal solid waste;
- 2 (F) ocean (including tidal, wave, current,
- 3 and thermal) energy;
- 4 (G) organic waste;
- 5 (H) photosynthetic processes;
- 6 (I) photovoltaic energy;
- 7 (J) solar energy; and
- 8 (K) wind.

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

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

12 (a) IN GENERAL.—There is established within the
13 Advanced Research Projects Agency–Energy established
14 by section 5012(b) of the America COMPETES Act (42
15 U.S.C. 16538(b)) a program for the research of energy
16 storage systems.

17 (b) AUTHORIZATION OF APPROPRIATIONS.—There is
18 authorized to be appropriated to carry out this section
19 \$50,000,000.

20 **SEC. 4. ENERGY STORAGE SYSTEM DEMONSTRATION AND**
21 **DEPLOYMENT LOAN PROGRAM.**

22 (a) LOAN PROGRAM.—

23 (1) IN GENERAL.—Subject to the provisions of
24 this subsection and subsections (b) and (c), the Sec-

retary shall establish a program to provide to eligible entities—

(A) loans for the demonstration and deployment of energy storage systems in a specific project; and

(B) loans to provide funding for programs to finance the demonstration and deployment of multiple energy storage systems through a revolving loan fund, credit enhancement program, or other financial assistance program.

(2) ELIGIBILITY.—Entities eligible to receive a loan 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 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450b));

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

(E) an electric utility, including—

(i) a rural electric cooperative;

(ii) a municipally owned electric utility; and

1 (iii) an investor-owned utility.

2 (3) SELECTION REQUIREMENTS.—In selecting
3 eligible entities to receive a loan under this section,
4 the Secretary shall, to the maximum extent prac-
5 ticable, ensure—

6 (A) regional diversity among eligible enti-
7 ties that receive the loans, including participa-
8 tion by rural States and small States; and

9 (B) that specific projects selected for
10 loans—

11 (i) expand on the existing technology
12 demonstration and deployment programs
13 of the Department of Energy; and

14 (ii) are designed to achieve 1 or more
15 of the objectives described in paragraph
16 (4).

17 (4) OBJECTIVES.—Each demonstration and de-
18 ployment project selected for a loan under paragraph
19 (1) shall include 1 or more of the following objec-
20 tives:

21 (A) With respect to energy storage sys-
22 tems, the improvement of—

23 (i) the feasibility of microgrids or
24 islanding; or

1 (ii) the transmission and distribution
2 capability to improve reliability in rural
3 areas, including high energy cost rural
4 areas.

5 (B) Use of energy storage systems to im-
6 prove the security of emergency response infra-
7 structure.

8 (C) Integration of energy storage systems
9 with a renewable energy resource production
10 source, at the source or away from the source.

11 (D) Use of energy storage systems to pro-
12 vide ancillary services for grid management.

13 (E) Advancement of power conversion sys-
14 tems to make the systems smarter, more effi-
15 cient, able to communicate with other inverters,
16 and able to control voltage.

17 (F) Use of energy storage systems to opti-
18 mize transmission and distribution operation
19 and power quality to address overloaded lines
20 and maintenance of transformers and sub-
21 stations.

22 (G) Use of energy storage systems for
23 peak load management of homes, businesses,
24 and the grid, particularly to offset investments
25 in new grid capacity.

1 (H) Use of energy storage system devices
2 to meet electricity demand during nonpeak gen-
3 eration periods to make better use of existing
4 grid assets.

5 (5) RESTRICTION ON USE OF FUNDS.—Any eli-
6 gible entity that receives a loan under paragraph (1)
7 may only use the loan to fund programs relating to
8 the demonstration and deployment of energy storage
9 systems in households, businesses, and communities.

10 (b) LOAN TERMS AND CONDITIONS.—

11 (1) TERMS AND CONDITIONS.—Notwithstanding
12 any other provision of law, in providing a loan under
13 this section, the Secretary shall provide the loan on
14 such terms and conditions as the Secretary deter-
15 mines, after consultation with the Secretary of the
16 Treasury, in accordance with this section.

17 (2) SPECIFIC APPROPRIATION.—No loan shall
18 be made unless an appropriation for the full amount
19 of the loan has been specifically provided for that
20 purpose.

21 (3) REPAYMENT.—No loan shall be made un-
22 less the Secretary determines that there is reason-
23 able prospect of repayment of the principal and in-
24 terest by the borrower of the loan.

1 (4) INTEREST RATE.—A loan provided under
 2 this section shall bear interest at a fixed rate that
 3 is equal or approximately equal, in the determination
 4 of the Secretary, to the interest rate for Treasury
 5 securities of comparable maturity.

6 (5) TERM.—The term of the loan shall require
 7 full repayment over a period not to exceed the lesser
 8 of—

9 (A) 20 years; or

10 (B) 90 percent of the projected useful life
 11 of the physical asset to be financed by the loan
 12 (as determined by the Secretary).

13 (6) USE OF PAYMENTS.—Payments of principal
 14 and interest on the loan shall—

15 (A) be retained by the Secretary to support
 16 energy research and development activities; and

17 (B) remain available until expended, sub-
 18 ject to such conditions as are contained in an-
 19 nual appropriations Acts.

20 (7) NO PENALTY ON EARLY REPAYMENT.—The
 21 Secretary may not assess any penalty for early re-
 22 payment of a loan provided under this section.

23 (8) RETURN OF UNUSED PORTION.—In order to
 24 receive a loan under this section, an eligible entity
 25 shall agree to return to the general fund of the

1 Treasury any portion of the loan amount that is un-
2 used by the eligible entity within a reasonable period
3 of time after the date of the disbursement of the
4 loan, as determined by the Secretary.

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

14 (c) RULES AND PROCEDURES; DISBURSEMENT OF
15 LOANS.—

16 (1) RULES AND PROCEDURES.—Not later than
17 180 days after the date of enactment of this Act, the
18 Secretary shall adopt rules and procedures for car-
19 rying out the loan program under subsection (a).

20 (2) DISBURSEMENT OF LOANS.—Not later than
21 1 year after the date on which the rules and proce-
22 dures under paragraph (1) are established, the Sec-
23 retary shall disburse the initial loans provided under
24 this section.

1 (d) REPORTS.—Not later than 2 years after the date
 2 of receipt of the loan and annually thereafter for the term
 3 of the loan, an eligible entity that receives a loan under
 4 this section shall submit to the Secretary a report describ-
 5 ing the performance of each program and activity carried
 6 out using the loan, including itemized loan performance
 7 data.

8 (e) AUTHORIZATION OF APPROPRIATIONS.—There
 9 are authorized to be appropriated to carry out this section
 10 such sums as are necessary.

11 **SEC. 5. TECHNICAL ASSISTANCE AND GRANT PROGRAM.**

12 (a) ESTABLISHMENT.—

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

18 (A) to disseminate information and provide
 19 technical assistance directly to eligible entities
 20 so the eligible entities can identify, evaluate,
 21 plan, and design energy storage systems; and

22 (B) to make grants to eligible entities so
 23 that the eligible entities may contract to obtain
 24 technical assistance to identify, evaluate, plan,
 25 and design energy storage systems.

1 (2) TECHNICAL ASSISTANCE.—The technical
2 assistance described in paragraph (1) shall include
3 assistance with 1 or more of the following activities
4 relating to energy storage systems:

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

7 (B) Assessment of technical and economic
8 characteristics.

9 (C) Utility interconnection.

10 (D) Permitting and siting issues.

11 (E) Business planning and financial anal-
12 ysis.

13 (F) Engineering design.

14 (3) INFORMATION DISSEMINATION.—The infor-
15 mation disseminated under paragraph (1)(A) shall
16 include—

17 (A) information relating to the topics de-
18 scribed in paragraph (2), including case studies
19 of successful examples;

20 (B) computer software for assessment, de-
21 sign, and operation and maintenance of energy
22 storage systems; and

23 (C) public databases that track the oper-
24 ation and deployment of existing and planned
25 energy storage systems.

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

4 (c) APPLICATIONS.—

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

10 (2) APPLICATION PROCESS.—The Secretary
11 shall seek applications for technical assistance and
12 grants under the program—

13 (A) on a competitive basis; and

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

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

21 (A) facilitating the use of renewable energy
22 resources;

23 (B) strengthening the reliability and resil-
24 iency of energy infrastructure to the impact of

1 extreme weather events, power grid failures,
2 and interruptions in supply of fossil fuels;

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

6 (D) minimizing environmental impact, in-
7 cluding regulated air pollutants and greenhouse
8 gas emissions; and

9 (E) maximizing local job creation.

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

13 (1) 100 percent of the costs of the initial as-
14 sessment to identify energy storage system opportu-
15 nities;

16 (2) 75 percent of the cost of feasibility studies
17 to assess the potential for the implementation of en-
18 ergy storage systems;

19 (3) 60 percent of the cost of guidance on over-
20 coming barriers to the implementation of energy
21 storage systems, including financial, contracting,
22 siting, and permitting issues; and

23 (4) 45 percent of the cost of detailed engineer-
24 ing of energy storage systems.

25 (e) RULES AND PROCEDURES.—

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

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

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

11 (1) not less frequently than once every 2 years,
12 a report describing the performance of the program
13 under this section, including a synthesis and analysis
14 of the information provided in the reports submitted
15 to the Secretary under section 3(c); and

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

20 (g) AUTHORIZATION OF APPROPRIATIONS.—There is
21 authorized to be appropriated to carry out this section
22 \$250,000,000 for the period of fiscal years 2016 through
23 2020, to remain available until expended.

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