

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.

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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

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## 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

1 that improves the ability to shift the dispatch of en-  
2 ergy in time, across multiple timescales.

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

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

10 (4) MICROGRID.—The term “microgrid” means  
11 an integrated energy system consisting of inter-  
12 connected loads and distributed energy resources, in-  
13 cluding generators and energy storage devices, with-  
14 in clearly defined electrical boundaries that—

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

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

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

22 (A) biomass;

23 (B) geothermal energy;

24 (C) hydropower;

25 (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-

1       retary shall establish a program to provide to eligible  
2       entities—

3               (A) loans for the demonstration and de-  
4               ployment of energy storage systems in a specific  
5               project; and

6               (B) loans to provide funding for programs  
7               to finance the demonstration and deployment of  
8               multiple energy storage systems through a re-  
9               volving loan fund, credit enhancement program,  
10              or other financial assistance program.

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

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

15              (B) a State energy office;

16              (C) a tribal organization (as defined in sec-  
17              tion 4 of the Indian Self-Determination and  
18              Education Assistance Act (25 U.S.C. 450b));

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)); and

22              (E) an electric utility, including—

23                      (i) a rural electric cooperative;

24                      (ii) a municipally owned electric util-  
25                      ity; 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(e); 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.

○