

116TH CONGRESS  
1ST SESSION

# S. 2048

To require the Secretary of Energy to establish a demonstration initiative focused on the development of long-duration energy storage technologies, including a joint program to be established in consultation with the Secretary of Defense, and for other purposes.

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## IN THE SENATE OF THE UNITED STATES

JUNE 28 (legislative day, JUNE 27), 2019

Mr. KING (for himself and Ms. MCSALLY) 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 a demonstration initiative focused on the development of long-duration energy storage technologies, including a joint program to be established in consultation with the Secretary of Defense, 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 “Joint Long-Term Stor-  
5 age Act of 2019”.

6 **SEC. 2. PURPOSES.**

7 The purposes of this Act are—

1           (1) to facilitate the development of long-dura-  
2           tion energy storage technologies;

3           (2) to increase the commercial viability of long-  
4           duration energy storage technologies; and

5           (3) to increase the energy resilience and energy  
6           security and national security of the United States  
7           through the use of long-duration energy storage  
8           technologies.

9   **SEC. 3. LONG-DURATION ENERGY STORAGE DEMONSTRA-**  
10                   **TION INITIATIVE.**

11           (a) DEFINITIONS.—In this section:

12           (1) DIRECTOR OF ARPA-E.—The term “Direc-  
13           tor of ARPA-E” means the Secretary of Energy,  
14           acting through the Director of the Advanced Re-  
15           search Projects Agency—Energy.

16           (2) DIRECTOR OF ESTCP.—The term “Director  
17           of ESTCP” means the Secretary of Defense, acting  
18           through the Director of the Environmental Security  
19           Technology Certification Program of the Depart-  
20           ment of Defense.

21           (3) DIRECTORS.—The term “Directors” means  
22           the Director of ARPA-E and the Director of  
23           ESTCP, acting jointly.

1           (4) INITIATIVE.—The term “Initiative” means  
2           the demonstration initiative established under sub-  
3           section (b).

4           (5) JOINT PROGRAM.—The term “Joint Pro-  
5           gram” means the joint program established under  
6           subsection (f).

7           (b) ESTABLISHMENT.—Not later than 200 days after  
8           the date of enactment of this Act, the Director of ARPA—  
9           E shall establish a demonstration initiative composed of  
10          demonstration projects focused on the development of  
11          long-duration energy storage technologies.

12          (c) GOALS.—The goals of the Initiative shall be—

13               (1) to demonstrate the potential benefits of  
14               long-duration energy storage to—

15                       (A) the resilience of the electricity grid, in-  
16                       cluding the security of critical infrastructure;  
17                       and

18                       (B) efficient use of the electricity grid  
19                       through—

20                               (i) peak load reduction; or

21                               (ii) avoided investments in traditional  
22                       grid infrastructure;

23               (2) to increase the commercial viability of long-  
24               duration energy storage technologies;

1           (3)(A) to identify the range of services that  
2           long-duration energy storage technologies can pro-  
3           vide to the electricity grid; and

4           (B) to the maximum extent practicable, to  
5           quantify the value of those services;

6           (4) to investigate challenges to the greater de-  
7           ployment of long-duration energy storage tech-  
8           nologies;

9           (5) to identify and develop a range of tech-  
10          nology types; and

11          (6) to improve the integration of energy storage  
12          and the grid.

13          (d) SELECTION OF PROJECTS.—To the maximum ex-  
14          tent practicable, in selecting demonstration projects to  
15          participate in the Initiative, the Director of ARPA-E  
16          shall—

17               (1) ensure a range of technology types;

18               (2) ensure regional diversity among projects, in-  
19               cluding appropriate representation of rural areas;

20               (3) consider microgrid, islanded, or off-grid ap-  
21               plications; and

22               (4) ensure that any project selected is designed  
23               to achieve 1 or more of the goals described in sub-  
24               section (c).

1 (e) COOPERATION WITH ELECTRIC UTILITIES.—A  
2 demonstration project selected to participate in the Initia-  
3 tive may be carried out in cooperation with the electric  
4 utility that owns the grid facilities in the electricity control  
5 area in which the demonstration project is carried out.

6 (f) JOINT PROGRAM.—

7 (1) ESTABLISHMENT.—As part of the Initia-  
8 tive, the Director of ARPA-E, in consultation with  
9 the Director of ESTCP, shall establish within the  
10 Department of Energy a joint program to carry out  
11 projects—

12 (A) to demonstrate promising long-dura-  
13 tion energy storage technologies at different  
14 scales; and

15 (B) to help new, innovative long-duration  
16 energy storage technologies become commer-  
17 cially viable.

18 (2) MEMORANDUM OF UNDERSTANDING.—Not  
19 later than 200 days after the date of enactment of  
20 this Act, the Director of ARPA-E shall enter into  
21 a memorandum of understanding with the Director  
22 of ESTCP to jointly administer the Joint Program.

23 (3) INFRASTRUCTURE.—In carrying out the  
24 Joint Program, the Directors shall—

1 (A) use existing test-bed infrastructure  
 2 at—

3 (i) Department of Energy facilities;  
 4 and

5 (ii) Department of Defense installa-  
 6 tions; and

7 (B) develop new infrastructure for identi-  
 8 fied projects, if appropriate.

9 (4) GOALS AND METRICS.—The Directors shall  
 10 develop goals and metrics for technological progress  
 11 under the Joint Program consistent with energy re-  
 12 silience and energy security policies.

13 (5) SELECTION OF PROJECTS.—

14 (A) IN GENERAL.—To the maximum ex-  
 15 tent practicable, in selecting projects to partici-  
 16 pate in the Joint Program, the Directors  
 17 shall—

18 (i) ensure that projects are carried  
 19 out under conditions that represent a vari-  
 20 ety of environments with different physical  
 21 conditions and market constraints; and

22 (ii) ensure an appropriate balance  
 23 of—

24 (I) larger, higher-cost projects;  
 25 and

1 (II) smaller, lower-cost projects.

2 (B) PRIORITY.—In carrying out the Joint  
3 Program, the Directors shall give priority to  
4 demonstration projects that—

5 (i) make available to the public key  
6 engineering and field data that will accel-  
7 erate deployment of long-duration energy  
8 storage technologies; and

9 (ii) will be carried out in the field.

10 (6) STATES AND PRIVATE SECTOR ENTITIES.—

11 In carrying out the Joint Program, the Directors  
12 shall encourage—

13 (A) States to become laboratories of inno-  
14 vation in the development of long-duration en-  
15 ergy storage technologies; and

16 (B) collaboration between participants in  
17 the Joint Program, States, and other appro-  
18 priate private sector entities.

19 (g) AUTHORIZATION OF APPROPRIATIONS.—There  
20 are authorized to be appropriated to carry out the Initia-  
21 tive—

22 (1) \$20,000,000 for fiscal year 2020;

23 (2) \$40,000,000 for fiscal year 2021; and

24 (3) \$60,000,000 for each of fiscal years 2022  
25 through 2024.

1 **SEC. 4. AUTHORIZATION OF APPROPRIATIONS FOR THE**  
 2 **DAYS PROGRAM OF THE ADVANCED RE-**  
 3 **SEARCH PROJECTS AGENCY—ENERGY.**

4 Section 5012(o) of the America COMPETES Act (42  
 5 U.S.C. 16538(o)) is amended—

6 (1) in paragraph (2)—

7 (A) by redesignating subparagraphs (A)  
 8 through (E) as clauses (i) through (v), respec-  
 9 tively, and indenting appropriately;

10 (B) by striking the paragraph designation  
 11 and heading and all that follows through “para-  
 12 graphs (4) and (5)” in the matter preceding  
 13 clause (i) (as so redesignated) and inserting the  
 14 following:

15 “(2) AUTHORIZATION OF APPROPRIATIONS.—

16 “(A) IN GENERAL.—Subject to paragraph  
 17 (4)”; and

18 (C) by inserting after clause (v) (as so re-  
 19 designated) the following:

20 “(B) DAYS PROGRAM.—There is author-  
 21 ized to be appropriated to carry out the Dura-  
 22 tion Addition to electricitY Storage program  
 23 (also known as the ‘DAYS program’) of ARPA—  
 24 E \$60,000,000 for each of fiscal years 2020  
 25 through 2024.”; and



- 1           (2) in paragraph (4), in the matter preceding
- 2           subparagraph (A), by striking “paragraph (2)” and
- 3           inserting “paragraph (2)(A)”.

