

116TH CONGRESS  
1ST SESSION

# S. 2335

To accelerate smart building development, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

JULY 30, 2019

Ms. CANTWELL (for herself and Ms. SMITH) introduced the following bill;  
which was read twice and referred to the Committee on Energy and Nat-  
ural Resources

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## A BILL

To accelerate smart building development, 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 “Smart Building Accel-  
5 eration Act of 2019”.

6 **SEC. 2. FINDINGS.**

7 Congress finds that—

8 (1) the building sector uses more than 40 per-  
9 cent of the energy of the United States;

1           (2) emerging building energy monitoring and  
2           control technologies are enabling a transition of the  
3           building sector to “smart” buildings that have dra-  
4           matically reduced energy use and improved quality  
5           of service to occupants;

6           (3) an analysis of select private-sector smart  
7           buildings by the Department of Energy would docu-  
8           ment the costs and benefits of the emerging tech-  
9           nologies, promote the adoption of the technologies,  
10          and accelerate the transition to the technologies;

11          (4) with over 400,000 buildings, the Federal  
12          Government is the largest building owner in the  
13          United States; and

14          (5) the Federal Government can also accelerate  
15          the transition to smart building technologies by dem-  
16          onstrating and evaluating emerging smart building  
17          technologies using existing programs and funding to  
18          showcase selected Federal smart buildings.

19 **SEC. 3. DEFINITIONS.**

20          In this Act:

21           (1) DEPARTMENT.—The term “Department”  
22           means the Department of Energy.

23           (2) PROGRAM.—The term “program” means  
24           the Federal Smart Building Program established  
25           under section 4(a).

1           (3) SECRETARY.—The term “Secretary” means  
2     the Secretary of Energy.

3           (4) SMART BUILDING.—The term “smart build-  
4     ing” means a building, or collection of buildings,  
5     with an energy system that—

6                 (A) is flexible and automated;

7                 (B) has extensive operational monitoring  
8             and communication connectivity, allowing re-  
9             mote monitoring and analysis of all building  
10            functions;

11                (C) takes a systems-based approach in in-  
12            tegrating the overall building operations for  
13            control of energy generation, consumption, and  
14            storage;

15                (D) communicates with utilities and other  
16            third-party commercial entities, if appropriate;

17                (E) protects the health and safety of occu-  
18            pants and workers; and

19                (F) is cybersecure.

20           (5) SMART BUILDING ACCELERATOR.—The  
21     term “smart building accelerator” means an initia-  
22     tive that is designed to demonstrate specific innova-  
23     tive policies and approaches—

24                (A) with clear goals and a clear timeline;  
25     and

1 (B) that, on successful demonstration,  
2 would accelerate investment in energy effi-  
3 ciency.

4 **SEC. 4. FEDERAL SMART BUILDING PROGRAM.**

5 (a) ESTABLISHMENT.—Not later than 1 year after  
6 the date of enactment of this Act, the Secretary shall, in  
7 consultation with the Administrator of General Services,  
8 establish a program to be known as the “Federal Smart  
9 Building Program”—

10 (1) to implement smart building technology;  
11 and

12 (2) to demonstrate the costs and benefits of  
13 smart buildings.

14 (b) SELECTION.—

15 (1) IN GENERAL.—The Secretary shall coordi-  
16 nate the selection of not fewer than 1 building from  
17 among each of several key Federal agencies, as de-  
18 scribed in subsection (d), to compose an appro-  
19 priately diverse set of smart buildings based on size,  
20 type, and geographic location.

21 (2) INCLUSION OF COMMERCIALY OPERATED  
22 BUILDINGS.—In making selections under paragraph  
23 (1), the Secretary may include buildings that are  
24 owned by the Federal Government but are commer-  
25 cially operated.

1 (c) TARGETS.—Not later than 18 months after the  
2 date of enactment of this Act, the Secretary shall establish  
3 targets for the number of smart buildings to be commis-  
4 sioned and evaluated by key Federal agencies by 3 years  
5 and 6 years after the date of enactment of this Act.

6 (d) FEDERAL AGENCY DESCRIBED.—The key Fed-  
7 eral agencies referred to subsection (b)(1) shall include  
8 buildings operated by—

- 9 (1) the Department of the Army;
- 10 (2) the Department of the Navy;
- 11 (3) the Department of the Air Force;
- 12 (4) the Department of Energy;
- 13 (5) the Department of the Interior;
- 14 (6) the Department of Veterans Affairs; and
- 15 (7) the General Services Administration.

16 (e) REQUIREMENT.—In implementing the program,  
17 the Secretary shall leverage existing financing mechanisms  
18 including energy savings performance contracts, utility en-  
19 ergy service contracts, and annual appropriations.

20 (f) EVALUATION.—Using the guidelines of the Fed-  
21 eral Energy Management Program relating to whole-build-  
22 ing evaluation, measurement, and verification, the Sec-  
23 retary shall evaluate the costs and benefits of the buildings  
24 selected under subsection (b), including an identification  
25 of—

- 1           (1) which advanced building technologies—  
2                (A) are most cost-effective; and  
3                (B) show the most promise for—  
4                    (i) increasing building energy savings;  
5                    (ii) increasing service performance to  
6                    building occupants;  
7                    (iii) reducing environmental impacts;  
8                and  
9                    (iv) establishing cybersecurity; and

10           (2) any other information the Secretary deter-  
11           mines to be appropriate.

12           (g) AWARDS.—The Secretary may expand awards  
13           made under the Federal Energy Management Program  
14           and the Better Building Challenge to recognize specific  
15           agency achievements in accelerating the adoption of smart  
16           building technologies.

17   **SEC. 5. SURVEY OF PRIVATE SECTOR SMART BUILDINGS.**

18           (a) SURVEY.—The Secretary shall conduct a survey  
19           of privately owned smart buildings throughout the United  
20           States, including commercial buildings, laboratory facili-  
21           ties, hospitals, multifamily residential buildings, and build-  
22           ings owned by nonprofit organizations and institutions of  
23           higher education.

24           (b) SELECTION.—From among the smart buildings  
25           surveyed under subsection (a), the Secretary shall select

1 not fewer than 1 building each from an appropriate range  
 2 of building sizes, types, and geographic locations.

3 (c) EVALUATION.—Using the guidelines of the Fed-  
 4 eral Energy Management Program relating to whole-build-  
 5 ing evaluation, measurement, and verification, the Sec-  
 6 retary shall evaluate the costs and benefits of the buildings  
 7 selected under subsection (b), including an identification  
 8 of—

9 (1) which advanced building technologies and  
 10 systems—

11 (A) are most cost-effective; and

12 (B) show the most promise for—

13 (i) increasing building energy savings;

14 (ii) increasing service performance to  
 15 building occupants;

16 (iii) reducing environmental impacts;

17 and

18 (iv) establishing cybersecurity; and

19 (2) any other information the Secretary deter-  
 20 mines to be appropriate.

21 **SEC. 6. LEVERAGING EXISTING PROGRAMS.**

22 (a) BETTER BUILDING CHALLENGE.—As part of the  
 23 Better Building Challenge of the Department, the Sec-  
 24 retary, in consultation with major private sector property  
 25 owners, shall develop smart building accelerators to dem-

1 onstrate innovative policies and approaches that will accel-  
 2 erate the transition to smart buildings in the public, insti-  
 3 tutional, and commercial buildings sectors.

4 (b) RESEARCH AND DEVELOPMENT.—

5 (1) IN GENERAL.—The Secretary shall conduct  
 6 research and development to address key barriers to  
 7 the integration of advanced building technologies  
 8 and to accelerate the transition to smart buildings.

9 (2) INCLUSION.—The research and development  
 10 conducted under paragraph (1) shall include re-  
 11 search and development on—

12 (A) achieving whole-building, systems-level  
 13 efficiency through smart system and component  
 14 integration;

15 (B) improving physical components, such  
 16 as sensors and controls, to be adaptive, antici-  
 17 patory, and networked;

18 (C) reducing the cost of key components to  
 19 accelerate the adoption of smart building tech-  
 20 nologies;

21 (D) data management, including the cap-  
 22 ture and analysis of data and the interoper-  
 23 ability of the energy systems;



1 (E) protecting against cybersecurity  
2 threats and addressing security vulnerabilities  
3 of building systems or equipment;

4 (F) business models, including how busi-  
5 ness models may limit the adoption of smart  
6 building technologies and how to support  
7 transactive energy;

8 (G) integration and application of com-  
9 bined heat and power systems and energy stor-  
10 age for resiliency;

11 (H) characterization of buildings and com-  
12 ponents;

13 (I) consumer and utility protections;

14 (J) continuous management, including the  
15 challenges of managing multiple energy systems  
16 and optimizing systems for disparate stake-  
17 holders; and

18 (K) other areas of research and develop-  
19 ment, as determined appropriate by the Sec-  
20 retary.

21 **SEC. 7. REPORT.**

22 Not later than 2 years after the date of enactment  
23 of this Act, and every 2 years thereafter until a total of  
24 3 reports have been made, the Secretary shall submit to  
25 the Committee on Energy and Natural Resources of the

1 Senate and the Committee on Energy and Commerce and  
2 the Committee on Science, Space, and Technology of the  
3 House of Representatives a report on—

4           (1) the establishment of the Federal Smart  
5 Building Program and the evaluation of Federal  
6 smart buildings under section 4;

7           (2) the survey and evaluation of private sector  
8 smart buildings under section 5; and

9           (3) any recommendations of the Secretary to  
10 further accelerate the transition to smart buildings.

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