

Calendar No. 272

116TH CONGRESS
1ST SESSION**S. 2335****[Report No. 116–151]**

To accelerate smart building development, and for other purposes.

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 Natural Resources

OCTOBER 24, 2019

Reported by Ms. MURKOWSKI, without amendment

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”.

1 **SEC. 2. FINDINGS.**

2 Congress finds that—

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

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

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

15 (4) with over 400,000 buildings, the Federal
16 Government is the largest building owner in the
17 United States; and

18 (5) the Federal Government can also accelerate
19 the transition to smart building technologies by dem-
20 onstrating and evaluating emerging smart building
21 technologies using existing programs and funding to
22 showcase selected Federal smart buildings.

23 **SEC. 3. DEFINITIONS.**

24 In this Act:

25 (1) DEPARTMENT.—The term “Department”
26 means the Department of Energy.

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

4 (3) SECRETARY.—The term “Secretary” means
5 the Secretary of Energy.

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

9 (A) is flexible and automated;

10 (B) has extensive operational monitoring
11 and communication connectivity, allowing re-
12 mote monitoring and analysis of all building
13 functions;

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

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

20 (E) protects the health and safety of occu-
21 pants and workers; and

22 (F) is cybersecure.

23 (5) SMART BUILDING ACCELERATOR.—The
24 term “smart building accelerator” means an initia-

1 tive that is designed to demonstrate specific innova-
2 tive policies and approaches—

3 (A) with clear goals and a clear timeline;

4 and

5 (B) that, on successful demonstration,

6 would accelerate investment in energy effi-

7 ciency.

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

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

14 (1) to implement smart building technology;

15 and

16 (2) to demonstrate the costs and benefits of
17 smart buildings.

18 (b) SELECTION.—

19 (1) IN GENERAL.—The Secretary shall coordi-

20 nate the selection of not fewer than 1 building from

21 among each of several key Federal agencies, as de-

22 scribed in subsection (d), to compose an appro-

23 priately diverse set of smart buildings based on size,

24 type, and geographic location.

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

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

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

- 14 (1) the Department of the Army;
- 15 (2) the Department of the Navy;
- 16 (3) the Department of the Air Force;
- 17 (4) the Department of Energy;
- 18 (5) the Department of the Interior;
- 19 (6) the Department of Veterans Affairs; and
- 20 (7) the General Services Administration.

21 (e) REQUIREMENT.—In implementing the program,
22 the Secretary shall leverage existing financing mechanisms
23 including energy savings performance contracts, utility en-
24 ergy service contracts, and annual appropriations.

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

- 7 (1) which advanced building technologies—
8 (A) are most cost-effective; and
9 (B) show the most promise for—
10 (i) increasing building energy savings;
11 (ii) increasing service performance to
12 building occupants;
13 (iii) reducing environmental impacts;
14 and
15 (iv) establishing cybersecurity; and
16 (2) any other information the Secretary deter-
17 mines to be appropriate.

18 (g) AWARDS.—The Secretary may expand awards
19 made under the Federal Energy Management Program
20 and the Better Building Challenge to recognize specific
21 agency achievements in accelerating the adoption of smart
22 building technologies.

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

24 (a) SURVEY.—The Secretary shall conduct a survey
25 of privately owned smart buildings throughout the United

1 States, including commercial buildings, laboratory facili-
2 ties, hospitals, multifamily residential buildings, and build-
3 ings owned by nonprofit organizations and institutions of
4 higher education.

5 (b) SELECTION.—From among the smart buildings
6 surveyed under subsection (a), the Secretary shall select
7 not fewer than 1 building each from an appropriate range
8 of building sizes, types, and geographic locations.

9 (c) EVALUATION.—Using the guidelines of the Fed-
10 eral Energy Management Program relating to whole-build-
11 ing evaluation, measurement, and verification, the Sec-
12 retary shall evaluate the costs and benefits of the buildings
13 selected under subsection (b), including an identification
14 of—

15 (1) which advanced building technologies and
16 systems—

17 (A) are most cost-effective; and

18 (B) show the most promise for—

19 (i) increasing building energy savings;

20 (ii) increasing service performance to
21 building occupants;

22 (iii) reducing environmental impacts;

23 and

24 (iv) establishing cybersecurity; and

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

3 **SEC. 6. LEVERAGING EXISTING PROGRAMS.**

4 (a) **BETTER BUILDING CHALLENGE.**—As part of the
5 Better Building Challenge of the Department, the Sec-
6 retary, in consultation with major private sector property
7 owners, shall develop smart building accelerators to dem-
8 onstrate innovative policies and approaches that will accel-
9 erate the transition to smart buildings in the public, insti-
10 tutional, and commercial buildings sectors.

11 (b) **RESEARCH AND DEVELOPMENT.**—

12 (1) **IN GENERAL.**—The Secretary shall conduct
13 research and development to address key barriers to
14 the integration of advanced building technologies
15 and to accelerate the transition to smart buildings.

16 (2) **INCLUSION.**—The research and development
17 conducted under paragraph (1) shall include re-
18 search and development on—

19 (A) achieving whole-building, systems-level
20 efficiency through smart system and component
21 integration;

22 (B) improving physical components, such
23 as sensors and controls, to be adaptive, antici-
24 patory, and networked;

1 (C) reducing the cost of key components to
2 accelerate the adoption of smart building tech-
3 nologies;

4 (D) data management, including the cap-
5 ture and analysis of data and the interoper-
6 ability of the energy systems;

7 (E) protecting against cybersecurity
8 threats and addressing security vulnerabilities
9 of building systems or equipment;

10 (F) business models, including how busi-
11 ness models may limit the adoption of smart
12 building technologies and how to support
13 transactive energy;

14 (G) integration and application of com-
15 bined heat and power systems and energy stor-
16 age for resiliency;

17 (H) characterization of buildings and com-
18 ponents;

19 (I) consumer and utility protections;

20 (J) continuous management, including the
21 challenges of managing multiple energy systems
22 and optimizing systems for disparate stake-
23 holders; and

1 (K) other areas of research and develop-
2 ment, as determined appropriate by the Sec-
3 retary.

4 **SEC. 7. REPORT.**

5 Not later than 2 years after the date of enactment
6 of this Act, and every 2 years thereafter until a total of
7 3 reports have been made, the Secretary shall submit to
8 the Committee on Energy and Natural Resources of the
9 Senate and the Committee on Energy and Commerce and
10 the Committee on Science, Space, and Technology of the
11 House of Representatives a report on—

12 (1) the establishment of the Federal Smart
13 Building Program and the evaluation of Federal
14 smart buildings under section 4;

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

17 (3) any recommendations of the Secretary to
18 further accelerate the transition to smart buildings.

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