

**AMENDMENT OFFERED BY MR. WELCH OF
VERMONT
TO THE AMENDMENT IN THE NATURE OF A
SUBSTITUTE FOR H.R. 8**

In chapter 1 of subtitle A of title IV, add at the end
the following new section:

1 SEC. 4117. SMART BUILDING ACCELERATION.

2 (a) DEFINITIONS.—In this section:

3 (1) INTERNET OF THINGS TECHNOLOGY SOLU-
4 TION.—The term “internet of things technology so-
5 lution” means a solution that improves energy effi-
6 ciency and predictive maintenance through cutting-
7 edge technologies that utilize internet connected
8 technologies including sensors, intelligent gateways,
9 and security embedded hardware.

10 (2) PROGRAM.—The term “program” means
11 the Federal Smart Building Program established
12 under subsection (b)(1).

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

16 (A) is flexible and automated;

1 (B) has extensive operational monitoring
2 and communication connectivity, allowing re-
3 mote monitoring and analysis of all building
4 functions;

5 (C) takes a systems-based approach in in-
6 tegrating the overall building operations for
7 control of energy generation, consumption, and
8 storage;

9 (D) communicates with utilities and other
10 third-party commercial entities, if appropriate;
11 and

12 (E) is cybersecure.

13 (4) SMART BUILDING ACCELERATOR.—The
14 term “smart building accelerator” means an initia-
15 tive that is designed to demonstrate specific innova-
16 tive policies and approaches—

17 (A) with clear goals and a clear timeline;
18 and

19 (B) that, on successful demonstration,
20 would accelerate investment in energy effi-
21 ciency.

22 (b) FEDERAL SMART BUILDING PROGRAM.—

23 (1) ESTABLISHMENT.—Not later than 1 year
24 after the date of enactment of this Act, the Sec-

1 retary shall establish a program to be known as the
2 “Federal Smart Building Program”—

3 (A) to implement smart building tech-
4 nology; and

5 (B) to demonstrate the costs and benefits
6 of smart buildings.

7 (2) SELECTION.—

8 (A) IN GENERAL.—The Secretary of En-
9 ergy shall coordinate the selection of not fewer
10 than 1 building from among each of several key
11 Federal agencies, as described in paragraph (4),
12 to compose an appropriately diverse set of
13 smart buildings based on size, type, and geo-
14 graphic location.

15 (B) INCLUSION OF COMMERCIALY OPER-
16 ATED BUILDINGS.—In making selections under
17 subparagraph (A), the Secretary may include
18 buildings that are owned by the Federal Gov-
19 ernment but are commercially operated.

20 (3) TARGETS.—Not later than 18 months after
21 the date of enactment of this Act, the Secretary
22 shall establish targets for the number of smart
23 buildings to be commissioned and evaluated by key
24 Federal agencies by 3 years and 6 years after the
25 date of enactment of this Act.

1 (4) FEDERAL AGENCY DESCRIBED.—The key
2 Federal agencies referred to in this subsection shall
3 include buildings operated by—

- 4 (A) the Department of the Army;
5 (B) the Department of the Navy;
6 (C) the Department of the Air Force;
7 (D) the Department of Energy;
8 (E) the Department of the Interior;
9 (F) the Department of Veterans Affairs;

10 and

- 11 (G) the General Services Administration.

12 (5) REQUIREMENT.—In implementing the pro-
13 gram, the Secretary shall leverage existing financing
14 mechanisms including energy savings performance
15 contracts, utility energy service contracts, and an-
16 nual appropriations.

17 (6) EVALUATION.—Using the guidelines of the
18 Federal Energy Management Program relating to
19 whole-building evaluation, measurement, and
20 verification, the Secretary shall evaluate the costs
21 and benefits of the buildings selected under para-
22 graph (2), including an identification of—

- 23 (A) which advanced building tech-
24 nologies—

25 (i) are most cost-effective; and

- 1 (ii) show the most promise for—
- 2 (I) increasing building energy
- 3 savings;
- 4 (II) increasing service perform-
- 5 ance to building occupants;
- 6 (III) reducing environmental im-
- 7 pacts; and
- 8 (IV) establishing cybersecurity;
- 9 and
- 10 (B) any other information the Secretary
- 11 determines to be appropriate.

12 (7) AWARDS.—The Secretary may expand

13 awards made under the Federal Energy Manage-

14 ment Program and the Better Building Challenge to

15 recognize specific agency achievements in accel-

16 erating the adoption of smart building technologies.

17 (c) SURVEY OF PRIVATE SECTOR SMART BUILD-

18 INGS.—

19 (1) SURVEY.—The Secretary shall conduct a

20 survey of privately owned smart buildings through-

21 out the United States, including commercial build-

22 ings, laboratory facilities, hospitals, multifamily resi-

23 dential buildings, and buildings owned by nonprofit

24 organizations and institutions of higher education.

1 (2) SELECTION.—From among the smart build-
2 ings surveyed under paragraph (1), the Secretary
3 shall select not fewer than 1 building each from an
4 appropriate range of building sizes, types, and geo-
5 graphic locations.

6 (3) EVALUATION.—Using the guidelines of the
7 Federal Energy Management Program relating to
8 whole-building evaluation, measurement, and
9 verification, the Secretary shall evaluate the costs
10 and benefits of the buildings selected under para-
11 graph (2), including an identification of—

12 (A) which advanced building technologies
13 and systems—

14 (i) are most cost-effective; and

15 (ii) show the most promise for—

16 (I) increasing building energy
17 savings;

18 (II) increasing service perform-
19 ance to building occupants;

20 (III) reducing environmental im-
21 pacts; and

22 (IV) establishing cybersecurity;

23 and

24 (B) any other information the Secretary
25 determines to be appropriate.

1 (d) LEVERAGING EXISTING PROGRAMS.—

2 (1) BETTER BUILDING CHALLENGE.—As part
3 of the Better Building Challenge of the Department
4 of Energy, the Secretary, in consultation with major
5 private sector property owners, shall develop smart
6 building accelerators to demonstrate innovative poli-
7 cies and approaches that will accelerate the transi-
8 tion to smart buildings in the public, institutional,
9 and commercial buildings sectors.

10 (2) RESEARCH AND DEVELOPMENT.—

11 (A) IN GENERAL.—The Secretary shall
12 conduct research and development to address
13 key barriers to the integration of advanced
14 building technologies and to accelerate the tran-
15 sition to smart buildings.

16 (B) INCLUSION.—The research and devel-
17 opment conducted under subparagraph (A)
18 shall include research and development on—

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

22 (ii) improving physical components,
23 such as sensors and controls, to be adapt-
24 ive, anticipatory, and networked;

1 (iii) integration of internet of things
2 technology solutions, including measure to
3 increase water and energy efficiency, im-
4 prove water quality, support real-time util-
5 ity management, and enable actionable
6 analytics and predictive maintenance to
7 improve building systems long-term viabil-
8 ity;

9 (iv) reducing the cost of key compo-
10 nents to accelerate the adoption of smart
11 building technologies;

12 (v) data management, including the
13 capture and analysis of data and the inter-
14 operability of the energy systems;

15 (vi) protecting against cybersecurity
16 threats and addressing security
17 vulnerabilities of building systems or
18 equipment;

19 (vii) business models, including how
20 business models may limit the adoption of
21 smart building technologies and how to
22 support transactive energy;

23 (viii) integration and application of
24 combined heat and power systems and en-
25 ergy storage for resiliency;

1 (ix) characterization of buildings and
2 components;

3 (x) consumer and utility protections;

4 (xi) continuous management, includ-
5 ing the challenges of managing multiple
6 energy systems and optimizing systems for
7 disparate stakeholders; and

8 (xii) other areas of research and de-
9 velopment, as determined appropriate by
10 the Secretary.

11 (e) REPORT.—Not later than 2 years after the date
12 of enactment of this Act, and every 2 years thereafter until
13 a total of 3 reports have been made, the Secretary shall
14 submit to the Committee on Energy and Natural Re-
15 sources of the Senate and the Committee on Energy and
16 Commerce of the House of Representatives a report on—

17 (1) the establishment of the Federal Smart
18 Building Program and the evaluation of Federal
19 smart buildings under subsection (b);

20 (2) the survey and evaluation of private sector
21 smart buildings under subsection (c); and

22 (3) any recommendations of the Secretary to
23 further accelerate the transition to smart buildings.

