

114TH CONGRESS
1ST SESSION

S. _____

To advance the integration of clean distributed energy into electric grids,
and for other purposes.

IN THE SENATE OF THE UNITED STATES

Mrs. SHAHEEN introduced the following bill; which was read twice and
referred to the Committee on _____

A BILL

To advance the integration of clean distributed energy into
electric grids, 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 “Clean Distributed En-
5 ergy Grid Integration Act”.

6 **SEC. 2. FINDINGS.**

7 Congress finds that—

- 8 (1) research by the Secretary of Energy and the
9 Administrator of the Environmental Protection
10 Agency has found that clean distributed energy tech-

1 nologies can create important values for both the
2 host facility and the electric grid operator;

3 (2) the values described in paragraph (1) can
4 include, for the host facility—

5 (A) energy bill savings;

6 (B) additional revenue from offering ancil-
7 lary services to the electric grid operator;

8 (C) increased electric reliability in the
9 event of grid outages; and

10 (D) improved electric power quality;

11 (3) the values described in paragraph (1) can
12 include, for the electric grid operator—

13 (A) avoiding the need for transmission and
14 distribution upgrade investments;

15 (B) enhanced grid stability by providing
16 reactive power;

17 (C) voltage and frequency stabilization;
18 and

19 (D) more reliable and stable operation of
20 the grid by providing dispatchable energy to the
21 grid during periods of insufficient capacity or
22 supply; and

23 (4) new advances in intelligent sensing and sim-
24 ulation and control technologies offer the potential
25 to enhance the benefits of clean distributed genera-

1 tion to both the host facility and the electric grid op-
2 erator from dynamic, adaptive, and anticipatory re-
3 sponse to changing grid conditions.

4 **SEC. 3. DEFINITIONS.**

5 In this Act:

6 (1) **ANCILLARY SERVICE.**—The term “ancillary
7 service” means those services necessary to support
8 the transmission of electric power from seller to pur-
9 chaser given the obligations of control areas and
10 transmitting utilities within those control areas to
11 maintain reliable operations of the interconnected
12 transmission system.

13 (2) **CLEAN DISTRIBUTED ENERGY.**—The term
14 “clean distributed energy” means energy tech-
15 nologies that are located on the customer site oper-
16 ating on the customer side of the electric meter and
17 are interconnected with the electric grid.

18 (3) **COMBINED HEAT AND POWER TECH-**
19 **NOLOGY.**—The term “combined heat and power
20 technology” means the generation of electric energy
21 and heat in a single, integrated system that meets
22 the efficiency criteria in clauses (ii) and (iii) of sec-
23 tion 48(c)(3)(A) of the Internal Revenue Code of
24 1986, under which heat that is conventionally re-

1 jected is recovered and used to meet thermal energy
2 requirements.

3 (4) ENERGY STORAGE.—The term “energy
4 storage” means technologies that store electric en-
5 ergy and are able to discharge on demand to meet
6 customer or grid needs for electric energy.

7 (5) FUEL CELL.—The term “fuel cell” means a
8 device that produces electric energy directly from a
9 chemical reaction.

10 (6) GRID.—The term “grid” means the electric
11 grid that is composed on both distribution and
12 transmission lines, and associated facilities, includ-
13 ing substations, sensors, and operational controls.

14 (7) INTELLIGENCE.—The term “intelligence”
15 means any devices or technologies that manifest
16 adaptive, anticipatory, and dynamic optimization be-
17 havior.

18 (8) QUALIFIED WASTE HEAT RESOURCE.—

19 (A) IN GENERAL.—The term “qualified
20 waste heat resource” means—

21 (i) exhaust heat or flared gas from
22 any industrial process;

23 (ii) waste gas or industrial tail gas
24 that would otherwise be flared, incinerated,
25 or vented;

1 (iii) a pressure drop in any gas for an
2 industrial or commercial process; or

3 (iv) any other form of waste heat re-
4 source, as determined by the Secretary.

5 (B) EXCLUSION.—The term “qualified
6 waste heat resource” does not include a heat re-
7 source from a process the primary purpose of
8 which is the generation of electricity using a
9 fossil fuel.

10 (9) SECRETARY.—The term “Secretary” means
11 the Secretary of Energy.

12 (10) WASTE HEAT TO POWER TECHNOLOGY.—
13 The term “waste heat to power technology” means
14 a system that generates electricity through the re-
15 covery of a qualified waste heat resource.

16 **SEC. 4. RESEARCH AND DEPLOYMENT PLAN FOR EN-**
17 **HANCED INTEGRATION OF CLEAN DISTRIB-**
18 **UTED ENERGY WITH THE GRID.**

19 (a) IN GENERAL.—The Secretary shall carry out ef-
20 forts for advancing the integration of clean distributed en-
21 ergy into electric grids.

22 (b) STUDY AND REPORT ON THE STATUS OF GRID
23 INTEGRATION.—

24 (1) IN GENERAL.—In carrying out the efforts
25 under subsection (a) and not later than 180 days

1 after the date of enactment of this Act, the Sec-
2 retary shall conduct a study on the status of integra-
3 tion of clean distributed energy into the grid, identi-
4 fying any issues that require additional research or
5 regulatory development.

6 (2) INCLUSIONS.—In conducting the study
7 under paragraph (1), the Secretary shall—

8 (A) identify and quantify the benefits to all
9 stakeholders of expanded integration of clean
10 distributed energy resources into the grid;

11 (B) identify any technical issues that re-
12 quire research to identify solutions; and

13 (C) identify any regulatory barriers that
14 inhibit the expanded integration of clean dis-
15 tributed energy resources into the grid.

16 (3) REPORT.—Not later than 1 year after the
17 date of enactment of this Act, the Secretary shall
18 submit to Congress a report describing the results of
19 the study conducted under paragraph (1).

20 (4) FUNDING.—The Secretary shall use unobli-
21 gated funds of the Department of Energy to carry
22 out this subsection.

23 (c) RESEARCH INTO THE TECHNICAL BARRIERS TO
24 THE INTEGRATION OF CLEAN DISTRIBUTED ENERGY
25 WITH THE GRID.—

1 (1) IN GENERAL.—Not later than 18 months
2 after the date of enactment of this Act, the Sec-
3 retary shall—

4 (A) issue a solicitation for research pro-
5 posals to address the technical barriers identi-
6 fied in the report submitted under subsection
7 (b)(3); and

8 (B) make grants to those applicants with
9 research proposals selected by the Secretary in
10 accordance with paragraph (2).

11 (2) CRITERIA.—The Secretary shall select re-
12 search proposals to receive a grant under this sub-
13 section on the basis of merit, using criteria identified
14 by the Secretary, including the likelihood that the
15 research results will address critical barriers identi-
16 fied by the Secretary.

17 (3) FUNDING.—Beginning in the first full fiscal
18 year following the date of enactment of this Act, and
19 annually thereafter for 2 years, the Secretary may
20 request funding as necessary to carry out this sub-
21 section, but in no case shall funding exceed
22 \$5,000,000 in any 1 fiscal year.

23 (d) CREATION OF A STAKEHOLDER WORKING
24 GROUP.—

1 (1) IN GENERAL.—Not later than 18 months
2 after the date of enactment of this Act, the Sec-
3 retary shall convene a working group (referred to in
4 this subsection as the “Group”) to address regu-
5 latory barriers to deployment of intelligent grid inte-
6 gration of clean distributed energy technologies.

7 (2) PURPOSE.—The purpose of the Group is to
8 provide guidance on how to address the technical,
9 regulatory and economic factors that limit wide-
10 spread integration of grid-level clean distributed en-
11 ergy use in order to advance the integration of clean
12 distributed energy into electric grids.

13 (3) MEMBERSHIP.—

14 (A) IN GENERAL.—The Group shall be
15 composed of representatives of all groups deter-
16 mined by the Secretary to have a material in-
17 terest in the development, implementation,
18 siting, and integration of clean distributed en-
19 ergy technology or systems into the electric
20 grid.

21 (B) CRITERIA.—Members shall be se-
22 lected—

23 (i) from representatives that apply as
24 a result of a public announcement from the
25 Secretary; and

1 (ii) by the Secretary based on quali-
2 fications and balance of interests rep-
3 resented by the selected individuals.

4 (4) DUTIES.—The duties of the Group shall
5 be—

6 (A) to review the regulatory barriers iden-
7 tified in the report prepared by the Secretary
8 under subsection (b)(3);

9 (B) to identify any additional regulatory
10 barriers that inhibit the installation of distrib-
11 uted energy; and

12 (C) to recommend to the Secretary any ac-
13 tions that should be undertaken to remove these
14 barriers.

15 (5) REPORT.—Not later than 3 years after the
16 date of enactment of this Act, the Secretary shall
17 prepare and submit to Congress a report based on
18 the recommendations of the Group under paragraph
19 (4)(C), to be made publicly available.

20 (6) FUNDING.—The Secretary may request
21 funding as necessary to carry out this subsection,
22 but in no case shall funding exceed \$2,000,000 in
23 any 1 fiscal year.

24 (e) DEMONSTRATIONS OF INTELLIGENT GRID INTE-
25 GRATION OF CLEAN DISTRIBUTED ENERGY SYSTEMS.—

1 (1) IN GENERAL.—Based on the findings in the
2 reports conducted under this section and not later
3 than 3 years after the date of enactment of this Act,
4 the Secretary shall issue a solicitation for dem-
5 onstration of integration of distributed energy re-
6 sources into the grid.

7 (2) ELIGIBLE ENTITIES.—Any individual entity
8 or group of entities may submit to the Secretary
9 proposals for demonstration projects based on the
10 solicitation described in paragraph (1), including—

- 11 (A) State and local agencies;
- 12 (B) public institutions;
- 13 (C) private companies;
- 14 (D) electric utilities; and
- 15 (E) equipment manufacturers.

16 (3) GRANTS AUTHORIZED.—The Secretary may
17 make grants, in amounts not to exceed a total of
18 \$5,000,000, to eligible entities to carry out dem-
19 onstration projects, to be selected based on—

- 20 (A) the technical merits of the demonstra-
21 tion project;
- 22 (B) the likelihood that the demonstration
23 project will address critical barriers identified
24 by the Secretary under this section; and

1 (C) the share of non-Federal funds for the
2 demonstration project.

3 (4) FUNDING.—Beginning in the third full fis-
4 cal year following the date of enactment of this Act,
5 and annually thereafter for 3 years, the Secretary
6 may request funding as necessary to carry out this
7 subsection, but in no case shall funding exceed
8 \$15,000,000 in any 1 fiscal year.

9 (f) REPORT.—The Secretary annually shall submit to
10 Congress a report that—

11 (1) describes the progress made in carrying out
12 this section; and

13 (2) identifies any technical or regulatory issues
14 that require legislative action.