

114TH CONGRESS  
1ST SESSION

**S.** \_\_\_\_\_

To amend the Energy Independence and Security Act of 2007 to modify provisions relating to smart grid modernization, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

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\_\_\_\_\_ introduced the following bill; which was read twice and referred to the Committee on \_\_\_\_\_

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## **A BILL**

To amend the Energy Independence and Security Act of 2007 to modify provisions relating to smart grid modernization, 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 Grid Act of  
5 2015”.

6 **SEC. 2. SMART GRID INTEROPERABILITY WORKING GROUP.**

7 Section 1303 of the Energy Independence and Secu-  
8 rity Act of 2007 (42 U.S.C. 17383) is amended—

9 (1) by striking the section designation and  
10 heading and inserting the following:

1 **“SEC. 1303. SMART GRID ADVISORY COMMITTEE; SMART**  
2 **GRID TASK FORCE; SMART GRID INTEROPER-**  
3 **ABILITY WORKING GROUP.”;**

4 (2) by redesignating subsection (c) as sub-  
5 section (d);

6 (3) by inserting after subsection (b) the fol-  
7 lowing:

8 “(c) SMART GRID INTEROPERABILITY WORKING  
9 GROUP.—

10 “(1) ESTABLISHMENT.—Not later than 180  
11 days after the date of enactment of this paragraph,  
12 the Secretary, in collaboration with the National In-  
13 stitute of Standards and Technology of the Depart-  
14 ment of Commerce, the Institute of Electrical and  
15 Electronics Engineers, and the Smart Grid Inter-  
16 operability Panel, shall establish a working group, to  
17 be known as the ‘Smart Grid Interoperability Work-  
18 ing Group’—

19 “(A) to identify additional efforts the Fed-  
20 eral Government can take to better promote the  
21 establishment and adoption of open standards  
22 that enhance connectivity and interoperability  
23 on the electric grid;

24 “(B) to study the market and policy bar-  
25 riers to deploying responsive appliances at  
26 scale; and

1                   “(C) to develop a plan for establishing and  
2                   promoting the widespread adoption of inter-  
3                   operability standards.

4                   “(2) MEMBERSHIP.—The Smart Grid Inter-  
5                   operability Working Group shall include such rep-  
6                   resentatives as the Secretary determines to be ap-  
7                   propriate from—

8                   “(A) appliance manufacturers;

9                   “(B) utilities;

10                   “(C) software providers;

11                   “(D) energy efficiency and environmental  
12                   stakeholders; and

13                   “(E) relevant Federal departments and  
14                   agencies.

15                   “(3) REPORT.—Not later than 18 months after  
16                   the date of enactment of this paragraph, the Smart  
17                   Grid Interoperability Working Group shall submit to  
18                   the Secretary a report that describes the initial find-  
19                   ings and recommendations of the Smart Grid Inter-  
20                   operability Working Group, as described in para-  
21                   graph (1).”; and

22                   (4) in subsection (d) (as redesignated by para-  
23                   graph (2)), by striking “and Smart Grid Task  
24                   Force” and inserting “, the Smart Grid Task Force,

1 and the Smart Grid Interoperability Working  
2 Group”.

3 **SEC. 3. SMART GRID TECHNOLOGY RESEARCH, DEVELOP-**  
4 **MENT, AND DEMONSTRATION PROGRAM POL-**  
5 **ICY.**

6 Section 1304 of the Energy Independence and Secu-  
7 rity Act of 2007 (42 U.S.C. 17384) is amended—

8 (1) in subsection (b)—

9 (A) in paragraph (1), in the second sen-  
10 tence, by inserting “and lessons learned from  
11 demonstration projects implemented under this  
12 section” before the period at the end;

13 (B) in paragraph (2)—

14 (i) in subparagraph (D), by striking  
15 “and” at the end;

16 (ii) in subparagraph (E), by striking  
17 the period at the end and inserting “;  
18 and”; and

19 (iii) by adding at the end the fol-  
20 lowing:

21 “(F) to identify best practices for the im-  
22 plementation of the Fair Information Practice  
23 Principles (FIPPS) of the Federal Trade Com-  
24 mission for the collection, use, disclosure, and

1 retention of individual customer information.”;  
2 and

3 (C) in paragraph (3)—

4 (i) in subparagraph (A)—

5 (I) by striking the subparagraph  
6 designation and heading and all that  
7 follows through “the initiative” and  
8 inserting the following:

9 “(A) FINANCIAL ASSISTANCE.—

10 “(i) IN GENERAL.—In carrying out  
11 the Initiative, subject to clause (ii)”;

12 (II) by adding at the end the fol-  
13 lowing:

14 “(ii) REQUIREMENT.—In selecting  
15 smart grid demonstration projects to re-  
16 ceive assistance under this subparagraph,  
17 the Secretary shall ensure, to the max-  
18 imum extent practicable—

19 “(I) geographical diversity; and

20 “(II) diversity among types of  
21 electricity markets and regulatory en-  
22 vironments.”;

23 (ii) by redesignating subparagraphs  
24 (B) through (F) as subparagraphs (C)  
25 through (G), respectively;

1 (iii) by inserting after subparagraph  
2 (A) the following:

3 “(B) ADDITIONAL DEMONSTRATION  
4 PROJECT FUNDING.—

5 “(i) IN GENERAL.—In carrying out  
6 the Initiative, in addition to financial as-  
7 sistance provided under subparagraph (A),  
8 the Secretary shall provide grants, on a  
9 competitive basis, for demonstration  
10 projects in any of the following 7 program  
11 areas:

12 “(I) TRANSACTIVE ENERGY.—  
13 Projects that implement a system of  
14 economic or control mechanisms that  
15 optimizes the dynamic balance of sup-  
16 ply and demand across the electrical  
17 infrastructure, using economic value  
18 as a key operational parameter.

19 “(II) INNOVATION IN VALUATION  
20 OF NEW TECHNOLOGY GRID SERVICES  
21 AND EFFICIENCY.—Projects that im-  
22 plement innovative ways of valuing  
23 the grid services provided by demand  
24 response, energy efficiency, distributed

1 generation, electric vehicles, and stor-  
2 age.

3 “(III) RATE DESIGN—DISTRIBU-  
4 TION SYSTEM.—Projects that imple-  
5 ment rates, such as 3-part rates, to  
6 equitably ensure cost-recovery and the  
7 reliability of the distribution grid,  
8 while also supporting the increased  
9 penetration of distributed generation,  
10 storage, and electric vehicles.

11 “(IV) RATE DESIGN—CONSUMER  
12 ACCEPTANCE OF TIME-BASED PRIC-  
13 ING.—Projects that—

14 “(aa) study consumer adop-  
15 tion of time-based retail elec-  
16 tricity rates through the imple-  
17 mentation of time-based rates, in  
18 conjunction with randomized con-  
19 trol trials; and

20 “(bb) may—

21 “(AA) provide to cus-  
22 tomers a range of time-  
23 based pricing options, as  
24 well as options to adopt ena-  
25 bling technology; and

1                   “(BB) implement a het-  
2                   erogeneity of marketing and  
3                   outreach approaches.

4                   “(V)     ENERGY     STORAGE.—  
5                   Projects that demonstrate innovative  
6                   approaches for using energy storage  
7                   for grid services, including—

8                   “(aa) flexibility; and  
9                   “(bb) the integration of  
10                  intermittent renewable energy.

11                  “(VI) SMART ELECTRIC VEHICLE  
12                  CHARGING.—Projects that—

13                  “(aa) demonstrate innova-  
14                  tive approaches for integrating  
15                  electric vehicles into grid oper-  
16                  ations; or

17                  “(bb) produce, test, and cer-  
18                  tify to IEEE/UL standards  
19                  bidirectional power electronics for  
20                  electric vehicles.

21                  “(VII) OTHER PROGRAM AREA.—  
22                  Projects in 1 additional program area  
23                  that the Secretary may identify, by  
24                  regulation.



1                   “(ii) PRIORITY REQUIREMENTS.—In  
2 selecting demonstration projects to receive  
3 grants under clause (i), the Secretary shall  
4 give priority to—

5                   “(I) for demonstration projects  
6 described in subclause (I) of clause  
7 (i), projects that—

8                   “(aa) incorporate real-time  
9 prices and technologies that allow  
10 prices to be directly delivered to  
11 end-user devices (an approach  
12 commonly known as ‘prices to de-  
13 vices’); or

14                   “(bb) advance device visi-  
15 bility in grid system operations;

16                   “(II) for demonstration projects  
17 described in subclause (II) of clause  
18 (i), projects that address valuation of  
19 ancillary services, capacity, and serv-  
20 ices offered in price-responsive mar-  
21 kets;

22                   “(III) for demonstration projects  
23 described in subclause (III) of clause  
24 (i), projects that assess—

1                   “(aa) the impact of the rates  
2 described in that subclause on  
3 customer electricity consumption  
4 patterns;

5                   “(bb) customer interest and  
6 enrollment in the new rates;

7                   “(cc) the impact of rates on  
8 the economics of distributed gen-  
9 eration and storage;

10                   “(dd) the impact of rates on  
11 consumer adoption patterns of  
12 distributed generation and stor-  
13 age; or

14                   “(ee) the effectiveness of  
15 various educational outreach  
16 measures in presenting the rates  
17 to customers;

18                   “(IV) for demonstration projects  
19 described in subclause (IV) of clause  
20 (i), projects that—

21                   “(aa) investigate the effects  
22 on customer participation and  
23 satisfaction rates of—

24                   “(AA) choice architec-  
25 ture, such as defaulting to

1 an opt-in, versus an opt-out,  
2 program; and

3 “(BB) enabling tech-  
4 nology; or

5 “(bb) demonstrate how the  
6 lessons learned from the study  
7 described in that subclause can  
8 be used to develop a rate transi-  
9 tion plan that facilitates signifi-  
10 cant and lasting enrollment in  
11 the new rates with a high degree  
12 of customer satisfaction;

13 “(V) for demonstration projects  
14 described in subclause (V) of clause  
15 (i), projects that maximize—

16 “(aa) benefits to intermit-  
17 tent renewable energy generation;  
18 and

19 “(bb) the range of grid serv-  
20 ices provided by storage; and

21 “(VI) for demonstration projects  
22 described in subclause (VI) of clause  
23 (i), projects that demonstrate methods  
24 of—

1                   “(aa) maximizing the grid  
2 services provided by electric vehi-  
3 cles; and

4                   “(bb) minimizing load spikes  
5 and grid costs associated with  
6 electric vehicles.”;

7                   (iv) in subparagraph (C) (as redesign-  
8 nated by clause (ii))—

9                   (I) by striking “subparagraph  
10 (A) shall be carried out” and inserting  
11 the following:

12                   “subparagraph (A) or (B) shall be—

13                   “(i) carried out”;

14                   (II) by striking the period at the  
15 end and inserting “; and”; and

16                   (III) by adding at the end the  
17 following:

18                   “(ii) given priority in selection for as-  
19 sistance based on the extent to which the  
20 project demonstrates strong collaboration  
21 among—

22                   “(I) State energy agencies;

23                   “(II) State public utility and  
24 public service commissions;

25                   “(III) electric utilities;

1 “(IV) power aggregators; and

2 “(V) if applicable, independent  
3 system operators, regional trans-  
4 mission organizations, or wholesale  
5 market operators.”;

6 (v) in subparagraph (D) (as redesign-  
7 nated by clause (ii)), by striking “subpara-  
8 graph (B)” and inserting “subparagraph  
9 (C)”;

10 (vi) in subparagraph (E) (as redesign-  
11 nated by clause (ii)), by striking the sub-  
12 paragraph designation and heading and all  
13 that follows through “No person” and in-  
14 serting the following:

15 “(E) ELIGIBILITY FOR OTHER FUNDING.—

16 “(i) IN GENERAL.—A person or entity  
17 that receives financial assistance for a  
18 demonstration project in any program area  
19 described in subparagraph (A) or any of  
20 subclauses (I) through (VII) of subpara-  
21 graph (B)(i) may be eligible to receive as-  
22 sistance under any other such program  
23 area, if the person or entity establishes to  
24 the satisfaction of the Secretary a synergy  
25 between the program areas.

1 “(ii) INELIGIBILITY.—No person”;

2 and

3 (vii) in subparagraph (F) (as redesignated by clause (ii))—

4 (I) in the first sentence, by striking  
5 (I) in the first sentence, by striking  
6 ing “The Secretary” and inserting the  
7 following:

8 “(i) ESTABLISHMENT OF CLEARING-  
9 HOUSE.—The Secretary”;

10 (II) by striking the second sen-  
11 tence and inserting the following:

12 “(ii) PROVISION OF INFORMATION.—  
13 As a condition of receiving financial assist-  
14 ance under this subsection, a utility or  
15 other participant in a smart grid dem-  
16 onstration project shall provide such infor-  
17 mation as the Secretary may require, to  
18 become available through the smart grid  
19 information clearinghouse and for purposes  
20 of producing the reports described in sub-  
21 clauses (IV) and (V) of clause (iv), in such  
22 form and at such time as the Secretary  
23 may require.”;

1 (III) in the third sentence, by  
2 striking “The Secretary shall assure”  
3 and inserting the following:

4 “(iii) PROTECTED INFORMATION.—  
5 The Secretary shall ensure”; and

6 (IV) by adding at the end the fol-  
7 lowing:

8 “(iv) WORKING GROUPS.—

9 “(I) ESTABLISHMENT.—For each  
10 program area described in subpara-  
11 graph (A) or any of subclauses (I)  
12 through (VII) of subparagraph (B)(i),  
13 the Secretary shall establish a work-  
14 ing group, to be composed of rep-  
15 resentatives of each project selected to  
16 receive assistance within that program  
17 area.

18 “(II) MEETINGS.—Each working  
19 group established under subclause (I)  
20 shall meet not less frequently than  
21 once every 90 days.

22 “(III) PARTICIPATION RE-  
23 QUIRED.—As a condition of receiving  
24 financial assistance under this sub-  
25 section, the owner or operator of a

1 demonstration project shall designate  
2 a representative of the project to serve  
3 as a member of the applicable working  
4 group established under subclause (I),  
5 including by attending each meeting  
6 of the working group under subclause  
7 (II).

8 “(IV) REPORTS.—Each working  
9 group established under subclause (I)  
10 shall submit to the Secretary reports  
11 regarding the demonstrations projects  
12 carried out by members of the work-  
13 ing group, at such times and con-  
14 taining such information as the Sec-  
15 retary may require.

16 “(V) PUBLICATION.—The Sec-  
17 retary shall periodically publish re-  
18 ports and other appropriate informa-  
19 tional materials for use, within each  
20 program area described in subclause  
21 (I), by—

22 “(aa) State regulators;

23 “(bb) wholesale market op-  
24 erators;

25 “(cc) electric utilities; and



1                                   “(dd) such other individuals  
2                                   and entities as the Secretary de-  
3                                   termines to be appropriate.”; and

4                   (2) by striking subsection (e) and inserting the  
5           following:

6           “(e) AUTHORIZATION OF APPROPRIATIONS.—There  
7   are authorized to be appropriated such sums as are nec-  
8   essary to carry out this section for each of fiscal years  
9   2017 through 2021.”.

10 **SEC. 4. FEDERAL MATCHING FUND FOR SMART GRID IN-**  
11 **VESTMENT COSTS.**

12           Section 1306(f) of the Energy Independence and Se-  
13   curity Act of 2007 (42 U.S.C. 17386(f)) is amended by  
14   striking “fiscal years 2008 through 2012” and inserting  
15   “each of fiscal years 2017 through 2021”.