

[DISCUSSION DRAFT]

MAY 17, 2007

1 **TITLE III—SMART GRID AND**
2 **DEMAND RESPONSE**

Subtitle A—Smart Grid

- Sec. 301. Statement of policy on modernization of electricity grid.
- Sec. 302. Grid Modernization Commission.
- Sec. 303. Grid assessment and report.
- Sec. 304. Federal matching fund for smart grid investment costs.
- Sec. 305. Smart Grid technology deployment.
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Subtitle B—Demand Response

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3 **Subtitle A—Smart Grid**

4 **SEC. 301. STATEMENT OF POLICY ON MODERNIZATION OF**
5 **ELECTRICITY GRID.**

6 It is the policy of the United States to support the
7 modernization of the Nation’s electricity transmission and
8 distribution system to incorporate digital information and
9 controls technology to achieve each of the following:

- 10 (1) Increased reliability and security of the elec-
11 tric grid,
- 12 (2) Dynamic optimization of grid operations
13 and resources,
- 14 (3) Deployment of distributed resources and
15 generation,

1 (4) Development and incorporation of demand
2 response and energy efficiency resources,

3 (5) Deployment of advanced “smart” tech-
4 nologies for metering and distribution automation,

5 (6) Advanced “smart” appliances and consumer
6 devices,

7 (7) Deployment of renewable energy resources,

8 (8) Deployment of advanced electricity storage
9 technologies, including plug-in electric and hybrid
10 electric vehicles,

11 (9) Provision to consumers of new information
12 and control options,

13 (10) Continual environmental improvement in
14 electricity production and distribution, and

15 (11) Enhanced capacity and efficiency of elec-
16 tricity networks and reduction of line losses.

17 The Secretary of Energy and the Federal Energy Regu-
18 latory Commission and other Federal agencies as appro-
19 priate shall undertake programs to support the develop-
20 ment and demonstration of Smart Grid technologies to
21 maximize the achievement of these goals. It is further the
22 policy of the United States that no State, State agency,
23 or local government or instrumentality thereof should pro-
24 hibit, or erect unreasonable barriers to, the deployment
25 of a smart grid technologies by an electric utility on the

1 utility's distribution facilities, or unreasonably limit the
2 services that may be provided using such technologies.

3 **SEC. 302. GRID MODERNIZATION COMMISSION.**

4 (a) ESTABLISHMENT AND MISSION.—

5 (1) ESTABLISHMENT.—The President shall es-
6 tablish a Grid Modernization Commission composed
7 of 7 members. Three members of the Commission
8 shall be appointed by the President, and one each
9 shall be appointed by the Speaker and Minority
10 Leader of the United States House of Representa-
11 tives and by the Majority Leader and Minority
12 Leader of the United States Senate. The President
13 shall designate one Commissioner to serve as Chair-
14 person.

15 (2) MISSION.—The mission of the Grid Mod-
16 ernization Commission shall be to facilitate the
17 adoption of Smart Grid technologies and practices
18 across the Nation's electricity grid to the point of
19 general adoption and ongoing market support in the
20 United States electric sector. The Commission shall
21 be responsible for monitoring developments, encour-
22 aging progress toward common standards and proto-
23 cols, identifying barriers and proposing solutions, co-
24 ordinating with all Federal departments and agen-
25 cies, and coordinating approaches on smart grid im-

1 plementation with States and local governmental au-
2 thorities.

3 (b) MEMBERSHIP.—The members appointed to the
4 Commission shall, collectively, have expertise in electric
5 utility operations and infrastructure, digital information
6 and control technologies, security, market development, fi-
7 nance and utility regulation, energy efficiency, demand re-
8 sponse, renewable energy, and consumer protection.

9 (c) AUTHORITIES TO INTERVENE.—The Commission
10 shall have the authority to intervene and represent itself
11 before the Federal Energy Regulatory Commission and
12 other Federal and State agencies as it deems necessary
13 to accomplish its mission.

14 (d) TERMS OF OFFICE.—The term of office of each
15 Commissioner shall be 5 years, and any member may be
16 reappointed for not more than one additional term of 5
17 years.

18 (e) TERMINATION.—Unless extended by Act of Con-
19 gress, the Commission shall complete its work and cease
20 its activities by January 1, 2020, or on such earlier date
21 that the Commission determines that the proliferation,
22 evolution, and adaptation of Smart Grid technologies no
23 longer require Federal leadership and assistance.

24 (f) COMPENSATION OF MEMBERS.—Each member of
25 the Commission who is not an officer or employee of the

1 Federal Government shall be compensated at a rate equal
2 to the daily equivalent of the annual rate of basic pay pre-
3 scribed for level III of the Executive Schedule under sec-
4 tion 5315 of title 5, United States Code, for each day (in-
5 cluding travel time) during which such member is engaged
6 in the performance of the duties of the Commission. All
7 members of the Commission who are officers or employees
8 of the United States shall serve without compensation in
9 addition to that received for their services as officers or
10 employees of the United States.

11 (g) TRAVEL EXPENSES.—The members of the Com-
12 mission shall be allowed travel expenses, including per
13 diem in lieu of subsistence, at rates authorized for employ-
14 ees of agencies under subchapter I of chapter 57 of title
15 5, United States Code, while away from their homes or
16 regular places of business in the performance of services
17 for the Commission.

18 (h) MEETINGS.—The Commission shall meet at the
19 call of the Chairman. Commission meetings shall be open
20 to the public, but as many as three Commissioners may
21 meet in private without constituting a meeting requiring
22 public access.

23 (i) OFFICES AND STAFF.—The Secretary of Energy
24 shall provide the Commission with offices in the Depart-
25 ment of Energy and shall make available to the Commis-

1 sion the expertise and staff resources of both the Office
2 of Electricity Delivery and Energy Reliability and the Of-
3 fice of Energy Efficiency and Renewable Energy.

4 (j) **DETAIL OF GOVERNMENT EMPLOYEES.**—Any
5 Federal Government employee may be detailed to the
6 Commission without reimbursement, and such detail shall
7 be without interruption or loss of civil service status or
8 privilege.

9 (k) **EXECUTIVE DIRECTOR.**—The Secretary of En-
10 ergy shall appoint an officer of the Senior Executive Serv-
11 ice to serve as Executive Director to the Commission.

12 (l) **PROCUREMENT OF TEMPORARY AND INTERMIT-**
13 **TENT SERVICES.**—The Chairman of the Commission may
14 procure temporary and intermittent services under section
15 3109(b) of title 5, United States Code, at rates for individ-
16 uals which do not exceed the daily equivalent of the annual
17 rate of basic pay prescribed for level V of the Executive
18 Schedule under section 5316 of such title.

19 (m) **INFORMATION FROM FEDERAL AGENCIES.**—The
20 Commission may secure directly from any Federal depart-
21 ment or agency such information as the Commission con-
22 siders necessary to carry out this Act. Upon request of
23 the Chairman of the Commission, the head of such depart-
24 ment or agency shall furnish such information to the Com-
25 mission. The Commission shall maintain the same level of

1 confidentiality for such information made available under
2 this subsection as is required of the head of the depart-
3 ment or agency from which the information was obtained.

4 (n) **POSTAL SERVICES.**—The Commission may use
5 the United States mails in the same manner and under
6 the same conditions as other departments and agencies of
7 the Federal Government.

8 **SEC. 303. GRID ASSESSMENT AND REPORT.**

9 (a) **IN GENERAL.**—The Grid Modernization Commis-
10 sion shall undertake, and update on a biannual basis, an
11 assessment of the progress toward modernizing the elec-
12 tric system from generation to ultimate electricity con-
13 sumption, including implementation of “smart grid” tech-
14 nologies. The Commission shall prepare this assessment
15 with input from stakeholders including but not limited to
16 electric utilities, other Federal offices, States, companies
17 involved in developing related technologies, electricity cus-
18 tomers, and persons with special related expertise. The as-
19 sessment shall include each of the following:

20 (1) An updated inventory of existing smart grid
21 systems.

22 (2) A description of the condition of existing
23 grid infrastructure and procedures for determining
24 the need for new infrastructure;

1 (3) A description of any plans of States, utili-
2 ties, or others to introduce smart grid systems and
3 technologies.

4 (4) An assessment of constraints to deployment
5 of smart grid technology and most important oppor-
6 tunities for doing so.

7 (5) An assessment of remaining potential bene-
8 fits resulting from introduction of smart grid sys-
9 tems, including benefits related to improved reli-
10 ability, improved security, reduced prices, and im-
11 proved integration of renewable resources.

12 (6) Recommendations for legislative or regu-
13 latory changes to remove barriers to and create in-
14 centives for smart grid system implementation and
15 to meet the policy goals of section 301.

16 (7) An estimate of the potential costs required
17 for modernization of the electricity grid, with speci-
18 ficity relative to geographic areas and components of
19 the grid, together with an assessment of whether the
20 necessary funds would be available to meet such
21 costs.

22 (8) An assessment of ancillary benefits to other
23 economic sectors or activities beyond the electricity
24 sector, such as potential broadband service over
25 power lines.

1 (9) An assessment of the readiness of market
2 forces to drive further implementation and evolution
3 of “smart grid” technologies in the absence of gov-
4 ernment leadership.

5 (10) Recommendations to the Secretary of En-
6 ergy and other Federal officers on actions they
7 should take to assist.

8 The Commission may request electric utilities to provide
9 information relating to deployment and planned deploy-
10 ment of smart grid systems and technologies. At the re-
11 quest of the utility, the Commission shall maintain the
12 confidentiality of such information. The Commission shall
13 provide opportunities for input and comment by interested
14 persons, including representatives of electricity consumers,
15 the electric utility industry, and state and local govern-
16 ment.

17 (b) STATE AND REGIONAL ASSESSMENT AND RE-
18 PORT.—States or groups of States are encouraged to par-
19 ticipate in the development of State or regional specific
20 components of the assessment and report under subsection
21 (a). Such state specific components may address the as-
22 sessment and reporting criteria above but also may include
23 but not be limited to any of the following:

24 (1) Assessment of specific security threats to
25 electricity delivery

1 (2) Energy assurance and response plans to ad-
2 dress security threats.

3 (3) Plans for introduction of smart grid sys-
4 tems and technologies over 3, 5, and 10 year plan-
5 ning horizons.

6 The Commission may make grants to States that begin
7 development of a State or Regional Plan within 180 days
8 of enactment to offset up to one-half of the costs required
9 to develop such plans.

10 (c) SMART GRID REPORT.—Based on its completed
11 initial assessment under subsection (a), the Commission
12 shall submit a report to Congress and the President not
13 later than 2 years after the date of enactment of this sec-
14 tion, and subsequent reports every 2 years thereafter.
15 Each report shall include recommendations to the Presi-
16 dent and to the Congress on actions necessary to mod-
17 ernize the electricity grid. The Commission shall annually
18 update and revise its report and as well as conduct ongo-
19 ing monitoring and evaluation activities.

20 (d) CONSULTATION AND PUBLIC INPUT.—The Com-
21 mission shall consult with the Secretary of Energy and
22 the Federal Energy Regulatory Commission on technical
23 issues associated with advanced electricity grid tech-
24 nologies. The Commission shall to the extent feasible pro-

1 vide for broad and frequent input from stakeholders and
2 the general public

3 (e) INTEROPERABILITY PROTOCOL.—

4 (1) IN GENERAL.—The Grid Modernization
5 Commission shall work with Smart Grid stake-
6 holders to lead towards the earliest feasible develop-
7 ment of a flexible, uniform, and consensus protocol
8 for connecting smart grid devices and systems. Such
9 protocol shall function over multiple communication
10 methods, including but not limited to wireless, cable,
11 satellite, broadband-over-power line, and telephone,
12 and should align policy, business, and technology ap-
13 proaches in a way that enables all electric resources,
14 including demand side resources, to contribute to an
15 efficient, reliable electricity network.

16 (2) SCOPE OF PROTOCOL.—The Protocol shall
17 accommodate traditional, centralized generation and
18 transmission resources and consumer distributed re-
19 sources, including distributed generation, renewable
20 generation, energy storage, energy efficiency, and
21 demand response and enabling devices and systems.

22 (3) ESTABLISHMENT OF WORKING GROUP.—
23 Not later than 90 days after the date of enactment
24 of this title, the Commission shall establish a work-
25 ing group comprised of electric industry experts, to

1 be appointed by the Chairman, to develop the pro-
2 tocol described in this subsection. Members ap-
3 pointed to the working group shall represent the var-
4 ious sectors of the electricity industry, including sec-
5 tors relating to the generation, transmission, dis-
6 tribution and end-user.

7 (4) DEVELOPMENT OF PROTOCOL.—In devel-
8 oping the Protocol, the working group shall consult
9 with Gridwise Architecture Council, the Institute of
10 Electrical and Electronics Engineers, other electric
11 industry groups, and any appropriate Federal and
12 State agencies. The proposed Protocol shall be made
13 available for public review and comment.

14 (5) PROPOSAL FOR PROTOCOL.—

15 (A) IN GENERAL.—Not later than 1 year
16 after the date of enactment of this title, the
17 working group shall submit to the Commission
18 recommendations for a proposed Protocol and a
19 plan for the implementation of the Protocol.

20 (B) REVIEW BY THE COMMISSION.—On re-
21 ceipt of the proposed Protocol and plan , the
22 Commission shall take such action as necessary
23 to implement the Protocol and plan through
24 regulation.

1 (f) AUTHORIZATION OF APPROPRIATIONS.—There
2 are authorized to be appropriated to carry out the pur-
3 poses of this section the sum of \$25,000,000 for each of
4 the fiscal years 2008 through 2012, and such sums as may
5 be necessary thereafter through fiscal year 2018.

6 **SEC. 304. FEDERAL MATCHING FUND FOR SMART GRID IN-**
7 **VESTMENT COSTS.**

8 (a) MATCHING FUND.—The Secretary of Energy
9 shall establish a Smart Grid Investment Matching Grant
10 Program to provide reimbursement of one-fourth of quali-
11 fying Smart Grid investments.

12 (b) QUALIFYING INVESTMENTS.—Qualifying Smart
13 Grid investments may include any of the following:

14 (1) In the case of appliances covered for pur-
15 poses of establishing energy conservation standards
16 under part B of title III of the Energy Policy and
17 Conservation Act of 1975 (42 U.S.C. 6291 and fol-
18 lowing), the documented expenditures incurred by a
19 manufacturer of such appliances associated with
20 purchasing or designing, creating the ability to man-
21 ufacture, and manufacturing and installing for one
22 calendar year, internal devices that allow the appli-
23 ance to engage in Smart Grid functions.

24 (2) In the case of specialized electricity-using
25 equipment installed in industrial or commercial ap-

1 plications, the documented expenditures incurred by
2 its owner or its manufacturer of installing devices or
3 modifying that equipment to engage in Smart Grid
4 functions.

5 (3) In the case of metering devices, sensors,
6 control devices, and other devices integrated with
7 and attached to an electric utility system that are
8 capable of engaging in Smart Grid functions, the
9 documented expenditures incurred by the electric
10 utility and its customers to purchase and install
11 such devices.

12 (4) In the case of software that enables devices
13 or computers to engage in Smart Grid functions, the
14 documented purchase costs of the software.

15 (5) In the case of entities that operate or co-
16 ordinate operations of regional electric grids, the
17 documented expenditures for purchasing and install-
18 ing such equipment that allows Smart Grid func-
19 tions to operate and be combined or coordinated
20 among multiple electric utilities and between that re-
21 gion and other regions.

22 (6) In the case of persons or entities other than
23 electric utilities owning and operating a distributed
24 electricity generator, the documented expenditures of
25 enabling that generator to be monitored, controlled,

1 or otherwise integrated into grid operations and elec-
2 tricity flows on the grid utilizing Smart Grid func-
3 tions.

4 (7) In the case of electric or hybrid-electric ve-
5 hicles, the documented expenses for devices that
6 allow the vehicle to engage in Smart Grid functions.

7 (8) The documented expenditures related to
8 purchasing and implementing Smart Grid functions
9 in such other cases as the Secretary of Energy shall
10 identify.

11 (c) INVESTMENTS NOT INCLUDED.—Qualifying
12 Smart Grid investments do not include any of the fol-
13 lowing:

14 (1) Expenditures for electricity generation,
15 transmission, or distribution infrastructure or equip-
16 ment not directly related to enabling the use of
17 Smart Grid functions.

18 (2) After the effective date of a standard under
19 paragraph (21) of section 111(d) of the Public Util-
20 ity Regulatory Policies Act of 1978 (relating to
21 Smart Grid information), an investment that is not
22 in compliance with such standard.

23 (3) Expenditures for physical interconnection of
24 generators or other devices to the grid except those

1 that are directly related to enabling the use of
2 Smart Grid functions.

3 (4) Expenditures for travel, lodging, meals or
4 other personal costs.

5 (5) Ongoing operation and maintenance expend-
6 itures.

7 (6) Such other expenditures that the Secretary
8 of Energy determines not to be Qualifying Smart
9 Grid Investments by reason of the lack of the ability
10 to perform Smart Grid Functions.

11 (d) SMART GRID FUNCTIONS.—The term “Smart
12 Grid functions” means any of the following:

13 (1) The ability to develop, store, send and re-
14 ceive digital information concerning electricity use,
15 costs, prices, time of use, nature of use, storage, or
16 other information relevant to device, grid, or utility
17 operations, to or from or by means of the electric
18 utility system.

19 (2) The ability to develop, store, send and re-
20 ceive digital information concerning electricity use,
21 costs, prices, time or use, nature of use, storage, or
22 other information relevant to device, grid, or utility
23 operations to or from a computer or other control
24 device.

1 (3) The ability to measure or monitor electricity
2 use as a function of time of day, power quality char-
3 acteristics such as voltage level, current, cycles per
4 second, or source or type of generation and to store,
5 synthesize or report that information by digital
6 means.

7 (4) The ability to sense and localize disruptions
8 or changes in power flows on the grid and commu-
9 nicate such information instantaneously and auto-
10 matically for purposes of enabling automatic protec-
11 tive responses to sustain reliability and security of
12 grid operations.

13 (5) The ability of any appliance or machine to
14 respond to such signals, measurements, or commu-
15 nications automatically or in a manner programmed
16 by its owner or operator without independent human
17 intervention.

18 (6) The ability to use digital information to op-
19 erate functionalities on the electric utility grid that
20 were previously electro-mechanical or manual.

21 (7) Such other functions as the Secretary of
22 Energy may identify as being necessary or useful to
23 the operation of a Smart Grid.

24 (e) OFFICE.—The Secretary of Energy shall—

1 (1) establish an Office to administer the Smart
2 Grid Investment Grant Program, assuring that ex-
3 pert resources from the Commission on Grid Mod-
4 ernization, the Office of Energy Distribution and
5 Electricity Reliability, and the Office of Energy Effi-
6 ciency and Renewable Energy are fully available to
7 advise on its administration and actions;

8 (2) appoint a Senior Executive Service officer
9 to direct the Office, together with such personnel as
10 are required to administer the Smart Grid Invest-
11 ment Grant program;

12 (3) establish and publish in the Federal Reg-
13 ister, within 180 days after the enactment of this
14 section, procedures by which applicants who have
15 made qualifying Smart Grid investments can seek
16 and obtain reimbursement of one-fourth of their doc-
17 umented expenditures;

18 (4) establish procedures to assure that there is
19 no duplication or multiple reimbursement for the
20 same investment or costs, and that the reimburse-
21 ment goes to the party making the actual expendi-
22 tures for Qualifying Smart Grid Investments;

23 (5) maintain public records of reimbursements
24 made, recipients, and qualifying Smart Grid invest-
25 ments which have received reimbursements;

1 (6) establish procedures to provide, in cases
2 deemed by the Secretary to be warranted, advance
3 payment of moneys up to the full amount of the pro-
4 jected eventual reimbursement, to creditworthy ap-
5 plicants whose ability to make Qualifying Smart
6 Grid Investments may be hindered by lack of initial
7 capital, in lieu of any later reimbursement for which
8 that applicant qualifies, and subject to full return of
9 the advance payment in the event that the Quali-
10 fying Smart Grid investment is not made; and

11 (7) establish procedures to provide, in the event
12 appropriated moneys in any year are insufficient to
13 provide reimbursements for qualifying Smart Grid
14 investments, that such reimbursement would be
15 made in the next fiscal year or whenever funds are
16 again sufficient, with the condition that the insuffi-
17 ciency of funds to reimburse Qualifying Smart Grid
18 Investments from moneys appropriated for that pur-
19 pose does not create a Federal obligation to that ap-
20 plicant.

21 (f) AUTHORIZATION OF APPROPRIATIONS.—There
22 are authorized to be appropriated to the Secretary of En-
23 ergy the sums of—

1 (1) \$10,000,000 for each of fiscal years 2008
2 through 2012 to provide for administration of the
3 Smart Grid Investment Matching Fund; and

4 (2) \$250,000,000 for fiscal year 2008 and
5 \$500,000,000 for each of fiscal years 2009 through
6 2012 to provide reimbursements of one-third of
7 Qualifying Smart Grid Investments.

8 **SEC. 305. SMART GRID TECHNOLOGY DEPLOYMENT.**

9 (a) POWER GRID DIGITAL INFORMATION TECH-
10 NOLOGY.—The Secretary of Energy shall conduct pro-
11 grams to—

12 (1) deploy advanced techniques for measuring
13 peak load reductions and energy efficiency savings
14 on customer premises from smart metering, demand
15 response, distributed generation and electricity stor-
16 age systems;

17 (2) implement means for demand response, dis-
18 tributed generation, and storage to provide ancillary
19 services;

20 (3) advance the use of wide-area measurement
21 networks including data mining, visualization, ad-
22 vanced computing, and secure and dependable com-
23 munications in a highly distributed environment; and

1 (4) implement reliability technologies in a grid
2 control room environment against a representative
3 set of local outage and wide area blackout scenarios.

4 (b) SMART GRID REGIONAL DEMONSTRATION PRO-
5 GRAM.—

6 (1) ESTABLISHMENT OF PROGRAM.—The Sec-
7 retary of Energy shall establish a program of dem-
8 onstration projects specifically focused on advanced
9 technologies for power grid sensing, communications,
10 analysis, and power flow control. The goals of this
11 program shall be to—

12 (A) demonstrate the potential benefits of
13 concentrated investments in advanced grid tech-
14 nologies on a regional grid;

15 (B) facilitate the commercial transition
16 from the current power transmission and dis-
17 tribution system technologies to advanced tech-
18 nologies; and

19 (C) facilitate the integration of advanced
20 technologies in existing electric networks to im-
21 prove system performance, power flow control
22 and reliability.

23 (2) DEMONSTRATION PROJECTS.—The Sec-
24 retary shall establish Smart Grid demonstration
25 projects for not more than 5 electric utility systems

1 of various types and sizes under this subsection.
2 Such demonstration projects shall be undertaken in
3 cooperation with the electric utility. Under such
4 demonstration projects, financial assistance shall be
5 available to cover not more than one-half of the
6 qualifying Smart Grid technology investments made
7 by the electric utility.

8 (c) AUTHORIZATION.—

9 (1) POWER GRID DIGITAL INFORMATION TECH-
10 NOLOGY PROGRAMS.—There are authorized to be ap-
11 propriated to carry out subsection (a) such sums as
12 are necessary for each of the fiscal years 2008
13 through 2012.

14 (2) SMART GRID REGIONAL DEMONSTRATION
15 PROGRAM.—There is authorized to be appropriated
16 to carry out subsection (b) \$100,000,000 for each of
17 the fiscal years 2008 through 2012.

18 **SEC. 306. SMART GRID INFORMATION REQUIREMENTS.**

19 (a) FINDINGS.—Congress finds that Smart Grid
20 technologies will require, for their optimum use by elec-
21 tricity consumers, that such consumers have access to crit-
22 ical information in possession of their utilities or elec-
23 tricity suppliers, in order to assist the customers in opti-
24 mizing their electricity use and limiting the associated en-
25 vironmental impacts.

1 (b) DEVELOPMENT OF RULES.—The Commission on
2 Grid Modernization shall within two years of its initial
3 meeting develop and promulgate rules and regulations to
4 standardize the collection, presentation and delivery of in-
5 formation to the consumer as required by the standard
6 under section 111(d)(21) of the Public utility Regulatory
7 Policies Act of 1978. Such rules and regulations shall pro-
8 vide consumers with different access options for such in-
9 formation. Such rules and regulations shall be developed
10 with input from the Secretary of Energy, the Federal En-
11 ergy Regulatory Commission, the Administrator of the
12 Environmental Protection Agency, States, and stake-
13 holders representing, but not limited to, electric utilities,
14 energy efficiency and demand response experts, environ-
15 mental organizations and consumer organizations.

16 **SEC. 307. STATE CONSIDERATION OF INCENTIVES FOR**
17 **SMART GRID.**

18 (a) CONSIDERATION OF ADDITIONAL STANDARDS.—
19 Section 111(d) of the Public Utility Regulatory Policies
20 Act (16 U.S.C. 2621(d)) is amended by adding at the end:
21 “(18) UTILITY INVESTMENT IN SMART GRID IN-
22 VESTMENTS.—Each electric utility shall prior to un-
23 dertaking investments in non-advanced grid tech-
24 nologies demonstrate that alternative investments in

1 advanced grid technologies have been considered, in-
2 cluding from a standpoint of cost-effectiveness.

3 “(19) UTILITY COST OF SMART GRID INVEST-
4 MENTS.—Each electric utility shall be permitted
5 to—

6 “(A) recover from ratepayers the capital
7 and operating expenditures and other costs of
8 the utility for qualified smart grid system, in-
9 cluding a reasonable rate of return on the cap-
10 ital expenditures of the utility for a qualified
11 smart grid system, and

12 “(B) recover in a timely manner the re-
13 maining book-value costs of equipment rendered
14 obsolete by the deployment of a qualified smart
15 grid system, based on the remaining depreciable
16 life of the obsolete equipment.

17 “(20) DECOUPLING FROM UTILITY PROFITS.—
18 A major portion of each utility’s profit shall be
19 based on criteria related to performance, achieve-
20 ment of designated goals, service reliability, and cus-
21 tomer support and assistance to achieve greater effi-
22 ciency of electricity use and shall not be based exclu-
23 sively on the volume of electricity sales.

24 “(21) SMART GRID INFORMATION.—

1 “(A) STANDARD.—All electricity con-
2 consumers shall be provided direct access, both in
3 written and electronic machine-readable form,
4 to information from their electricity provider
5 about their time-based use, price, and source of
6 the electricity delivered to them, together with
7 any available optional electricity supplies and
8 their prices and sources. Such information shall
9 be offered in not less than hourly intervals and
10 available on not less than a daily basis.

11 “(B) INFORMATION.—Information pro-
12 vided under this section shall conform to the
13 standardized rules issued by the Commission on
14 Grid Modernization under section 307(b) of the
15 [SHORT TITLE Act of 2007] and shall in-
16 clude:

17 “(i) PRICES.—Consumers shall be
18 provided with information on:

19 “(I) Time-based electricity prices
20 in the wholesale electricity market;
21 and

22 “(II) Time-based electricity retail
23 prices or rates that are available to
24 the consumer.

1 “(ii) USAGE.—Consumers shall be
2 provided with the number of electricity
3 units, expressed in kwh consumed.

4 “(iii) SOURCES.—Consumers shall be
5 provided with information on the sources
6 of the power provided to them by type of
7 generation, including greenhouse gas emis-
8 sions associated each type of generation,
9 during the reported electricity consumption
10 periods.

11 “(iv) INTERVALS AND PROJEC-
12 TIONS.—Updates shall be offered on not
13 less than a daily basis, shall include hourly
14 price and source information, and shall in-
15 clude a day-ahead projection of such infor-
16 mation.

17 “(C) INFORMATION.—Information pro-
18 vided to consumer shall include but not be lim-
19 ited to:

20 “(i) PRICES.—Consumers shall be
21 provided with information on:

22 “(I) Time-based electricity prices
23 in the wholesale electricity market;
24 and

1 “(II) Time-based electricity retail
2 prices or rates that are available to
3 the consumer.

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10 generation, including greenhouse gas emis-
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14 “(iv) INTERVALS AND PROJEC-
15 TIONS.—Updates shall be offered on not
16 less than a daily basis, shall include hourly
17 price and source information, and shall in-
18 clude a day-ahead projection of such infor-
19 mation.

20 “(D) ACCESS.—Consumers shall be able to
21 access such information at any time through
22 the internet and on other means of communica-
23 tion elected by that utility for Smart Grid appli-
24 cations.”.

1 (b) RECONSIDERATION OF CERTAIN STANDARDS.—
2 Section 112 of the Public Utility Regulatory Policies Act
3 of 1978 (16 U.S.C. 2622) is amended by adding the fol-
4 lowing at the end thereof:

5 “(g) RECONSIDERATION OF PRIOR TIME-OF-DAY
6 AND COMMUNICATION STANDARDS.—Not later than 1
7 year after the enactment of this paragraph, each State
8 regulatory authority (with respect to each electric utility
9 for which it has ratemaking authority) and each nonregu-
10 lated utility shall commence a reconsideration under sec-
11 tion 111, or set a hearing date for reconsideration, with
12 respect to the standards established by paragraphs (3)
13 and (14) of section 111(d) to take into account Smart
14 Grid technologies. Not later than 2 years after the date
15 of the enactment of the this paragraph, each State regu-
16 latory authority (with respect to each electric utility for
17 which it has ratemaking authority), and each nonregulated
18 electric utility, shall complete the reconsideration, and
19 shall make the determination, referred to in section 111
20 with respect to the standards established by paragraphs
21 (3) and (14) of section 111(d).”.

22 (c) COMPLIANCE.—

23 (1) TIME LIMITATIONS.—Section 112(b) of the
24 Public Utility Regulatory Policies Act of 1978 (16

1 U.S.C. 2622(b)) is amended by adding the following
2 at the end thereof:

3 “(6)(A) Not later than 1 year after the enact-
4 ment of this paragraph, each State regulatory au-
5 thority (with respect to each electric utility for which
6 it has ratemaking authority) and each nonregulated
7 utility shall commence the consideration referred to
8 in section 111, or set a hearing date for consider-
9 ation, with respect to the standards established by
10 paragraphs (18) through (20) of section 111(d). Not
11 later than 6 months after the promulgation of rules
12 by the Commission on Grid Modernization under
13 section 306(b) of the [SHORT TITLE Act fo
14 2007], each State regulatory authority (with respect
15 to each electric utility for which it has ratemaking
16 authority) and each nonregulated utility shall com-
17 mence the consideration referred to in section 111,
18 or set a hearing date for consideration, with respect
19 to the standard established by paragraph (21) of
20 section 111(d).

21 “(B) Not later than two years after the date of
22 the enactment of the this paragraph, each State reg-
23 ulatory authority (with respect to each electric utility
24 for which it has ratemaking authority), and each
25 nonregulated electric utility, shall complete the con-

1 sideration, and shall make the determination, re-
2 ferred to in section 111 with respect to each stand-
3 ard established by paragraphs (18) through (20) of
4 section 111(d). Not later than 18 months after the
5 promulgation of rules by the Commission on Grid
6 Modernization under section 306(b) of the [SHORT
7 TITLE Act fo 2007] each State regulatory authority
8 (with respect to each electric utility for which it has
9 ratemaking authority), and each nonregulated elec-
10 tric utility, shall complete the consideration, and
11 shall make the determination, referred to in section
12 111 with respect to each standard established by
13 paragraph (21) of section 111(d).”.

14 (2) FAILURE TO COMPLY.—Section 112(c) of
15 such Act is amended by adding the following at the
16 end: “ In the case of the standards established by
17 paragraphs (18) through (21) of section 111(d), the
18 reference contained in this subsection to the date of
19 enactment of this Act shall be deemed to be a ref-
20 erence to the date of enactment of such para-
21 graphs.”

22 (3) PRIOR STATE ACTIONS.—Section 112(d) of
23 such Act is amended by inserting “and paragraphs
24 (18) through (20)” before “of such 111(d)” .

1 **SEC. 308. DOE STUDY OF SECURITY ATTRIBUTES OF SMART**
2 **GRID SYSTEMS.**

3 (a) DOE STUDY.—The Secretary of Energy shall,
4 within 6 months after the Grid Modernization Commission
5 completes its first biennial assessment and report under
6 section 302 of the [SHORT TITLE Act of 2007], submit
7 a report to Congress that provides a quantitative assess-
8 ment and determination of the existing and potential im-
9 pacts of the deployment of Smart Grid systems on improv-
10 ing the security of the Nation’s electricity infrastructure
11 and operating capability. The report shall include but not
12 be limited to specific recommendations on each of the fol-
13 lowing:

14 (1) How smart grid systems can help in making
15 the Nation’s electricity system less vulnerable to dis-
16 ruptions due to intentional acts against the system.

17 (2) How smart grid systems can help in restor-
18 ing the integrity of the Nation’s electricity system
19 subsequent to disruptions.

20 (3) How smart grid systems can facilitate emer-
21 gency communications and control of the Nation’s
22 electricity system during times of localized or nation-
23 wide emergency.

24 (b) CONSULTATION.—The Secretary shall consult
25 with other Federal agencies in the development of the re-
26 port under this section, including but not limited to the

1 Secretary of Homeland Security, the Federal Energy Reg-
2 ulatory Commission and the Federal Energy Reliability
3 Organization.

4 (c) FUNDING.—The Secretary shall fund demonstra-
5 tion projects for the purpose of demonstrating the findings
6 of the report under this section. Not more than
7 \$_____ are authorized to be appropriated for
8 such projects.

9 **Subtitle B—Demand Response**

10 **SEC. 311. ELECTRICITY SECTOR DEMAND RESPONSE.**

11 (a) AMENDMENT OF NECPA.—Title V of the Na-
12 tional Energy Conservation Policy Act (42 U.S.C. 8201
13 and following) is amended by adding the following new
14 part at the end thereof:

15 **“PART 5—PEAK DEMAND REDUCTION**

16 **“SEC. 571. DEFINITIONS.**

17 “(a) SECRETARY.—As used in this part, the term
18 ‘Secretary’ means the Secretary of Energy.

19 “(b) FEDERAL AGENCY.—As used in this part, the
20 term ‘Federal agency’ has the same meaning as provided
21 by section 551 of this Act.

22 **“SEC. 572. FEDERAL ELECTRICITY PEAK DEMAND REDUC-** 23 **TION STANDARD.**

24 “(a) 2008 AGENCY ANNUAL ENERGY PLAN.—Each
25 Federal agency shall prepare, and include in its annual

1 report under section 548(a) of this Act, each of the fol-
 2 lowing:

3 “(1) A determination of the agency’s aggregate
 4 electricity demand during the system peak hours for
 5 the utilities providing electricity service to its facili-
 6 ties during 2006 and 2007.

7 “(2) A forecast for each year through 2018 of
 8 the projected growth in such peak demand in light
 9 of projected growth of facilities, staff, activities, elec-
 10 tric intensity of activities, and other relevant factors.

11 “(b) FEDERAL ELECTRICITY PEAK DEMAND REDUC-
 12 TION STANDARD.—

13 “(1) IN GENERAL.—Except as provided in para-
 14 graph (2), for calendar year 2009 and each calendar
 15 year thereafter, each Federal agency shall reduce its
 16 aggregate peak electricity demand by the percentage
 17 amount specified in the Federal Electricity Peak De-
 18 mand Reduction Standard set forth in the following
 19 table:

“Federal Electricity Peak Demand Reduction Standard

Calendar Year	Reduction of Peak Demand Forecast
2009	1 percent of the peak demand forecast for cal- endar year 2009
2010	2 percent of the peak demand forecast for cal- endar year 2010
2011	3 percent of the peak demand forecast for cal- endar year 2011
2012	4 percent of the peak demand forecast for cal- endar year 2012

“Federal Electricity Peak Demand Reduction Standard—
Continued

Calendar Year	Reduction of Peak Demand Forecast
2013	5 percent of the peak demand forecast for calendar year 2013
2014	6 percent of the peak demand forecast for calendar year 2014
2015	7 percent of the peak demand forecast for calendar year 2015
2016	8 percent of the peak demand forecast for calendar year 2016
2017	9 percent of the peak demand forecast for calendar year 2017
2018 and each calendar year thereafter.	10 percent of the peak demand forecast for the applicable calendar year

1 In the table above, the term ‘forecast’ refers to the fore-
 2 cast set forth in the 2008 report under section 548(a) of
 3 this Act as updated in accordance with subsection in
 4 (c)(1)(C).

5 “(2) EXCEPTION.—The standard shall not
 6 apply to any activity of a Federal agency relating to
 7 defense or national security if compliance with the
 8 standard would have an adverse mission impact on
 9 the activity, as determined by the Secretary of De-
 10 fense or the Secretary of Homeland Security.

11 “(c) IMPLEMENTATION OF STANDARD.—

12 “(1) IN GENERAL.—Not later than January 1,
 13 2010, and each calendar year thereafter, each Fed-
 14 eral agency shall include in the annual energy plan
 15 of the Federal agency each of the following:

16 “(A) An assessment of whether the Fed-
 17 eral agency was in compliance with the stand-

1 ard established in subsection (b) for the pre-
2 ceding year.

3 “(B) A description of—

4 “(i) the method by which the Federal
5 agency proposes to comply with the stand-
6 ard for the following calendar year; and

7 “(ii) the factors relied on by the head
8 of the Federal agency in determining
9 whether to participate in demand response
10 programs offered by an electric utility or
11 others during the preceding calendar year;
12 and

13 “(iii) if the Federal agency did not
14 participate in a demand response program
15 offered by each utility providing electric
16 service to facilities of the agency during
17 the preceding calendar year, an expla-
18 nation for the decision by the head of the
19 Federal agency to not participate.

20 “(C) An update of the agency’s prior fore-
21 cast for the remaining years in the period until
22 2018.

23 “(2) AVAILABILITY TO PUBLIC.—Not later than
24 January 1, 2010, and each calendar year thereafter,
25 the head of each Federal agency shall make available

1 to the public a description of each provision included
2 in the annual energy plan of the Federal agency de-
3 scribed in subparagraphs (A) through (C) of para-
4 graph (1).

5 “(d) MODIFICATIONS TO FEDERAL ENERGY MAN-
6 AGEMENT PROGRAM.—The Secretary shall make any
7 modification to the Federal Energy Management Program
8 of the Department of Energy that the Secretary deter-
9 mines to be necessary to

10 “(1) incorporate the standard established under
11 subsection (a) into the Federal Energy Management
12 Program;

13 “(2) assist any Federal agency to comply with
14 the standard established under subsection (b)
15 through any appropriate means, including con-
16 ducting 1 or more demonstration projects at Federal
17 facilities.

18 “(e) ANNUAL REPORT.—Not later than March 1,
19 2010, and annually thereafter, the Secretary shall submit
20 to Congress a report that evaluates the success of agencies
21 in meeting the standard established under subsection (a)
22 and the success of the Federal Energy Management Pro-
23 gram in assisting agencies with meeting the standard.

1 **“SEC. 573. NATIONAL ACTION PLAN FOR DEMAND RE-**
2 **SPONSE.**

3 “(a) NATIONAL ASSESSMENT AND REPORT.—The
4 Grid Modernization Commission established under subtitle
5 A of title III of the [SHORT TITLE Act of 2007] shall
6 conduct a National Assessment of Demand Response. The
7 Commission shall, within 18 months of the date on which
8 the full Commission first meets, submit a Report to Con-
9 gress that includes each of the following:

10 “(1) Estimation of nationwide demand response
11 potential in 5 and 10 year horizons, including data
12 on a State-by-State basis, and a methodology for up-
13 dates of such estimates on an annual basis.

14 “(2) Estimation of how much of this potential
15 can be achieved within 5 and 10 years after the en-
16 actment of this Act accompanied by specific policy
17 recommendations that if implemented can achieve
18 the estimated potential. Such recommendations shall
19 include options for funding and/or incentives for the
20 development of demand response resources.

21 “(b) NATIONAL ACTION PLAN ON DEMAND RE-
22 SPONSE.—The Grid Modernization Commission shall fur-
23 ther develop and implement a National Action Plan on De-
24 mand Response. Such Plan shall be completed within one
25 year after the completion of the National Assessment of

1 “(1) A quantitative assessment and determina-
2 tion of the existing and potential impacts of demand
3 response and ‘smart grid’ systems on air emissions
4 and air quality, including but not limited to carbon
5 dioxide, oxides of nitrogen and oxides of sulfur.

6 “(2) An assessment and determination of the
7 existing and potential impacts of demand response
8 and ‘smart grid’ systems on environmental param-
9 eters other than emissions and air quality, including
10 but not limited to:

11 “(A) Land use.

12 “(B) Water use.

13 “(C) Use of renewable energy.

14 “(D) Effect on energy sources other than
15 electricity.

16 “(3) A detailed plan for how Energy Efficiency
17 and Clean Energy programs administered by the
18 Agency, including the Energy Star Program, will in-
19 corporate and encourage demand response and
20 ‘smart grid’ systems and technologies, including but
21 not limited to each of the following:

22 “(A) Requirements that appliances and
23 other equipment are capable of manually and
24 automatically receiving and acting upon pricing
25 and control information and or instructions pro-

1 vided by the customer, a load serving entity or
2 a third-party designated by the customer.

3 “(B) Requirements for time-based valu-
4 ation of kilowatt hour reductions in planning
5 and evaluation of energy efficiency programs.

6 “(C) Education and communication, in-
7 cluding to state energy officials and state regu-
8 lators, that build awareness of demand response
9 and smart grid systems and technologies and
10 their existing and potential relationship to such
11 Agency programs.”.

12 (b) TABLE OF CONTENTS.—The table of contents for
13 such Act is amended by adding the following after the
14 items relating to part 4 of title V:

“PART 5—PEAK DEMAND REDUCTION

“Sec. 571. Definitions.

“Sec. 572. Federal Electricity Peak Demand Reduction Standard.

“Sec. 573. National action plan for demand response.

“Sec. 574. Study of environmental attributes and impacts of demand response
and smart grid systems.”.