

**M e m o r a n d u m**

**Date:** April 15, 2009

**To:** The Commission  
(Meeting of April 16, 2009)

**From:** Pamela Loomis, Deputy Director  
Office of Governmental Affairs (OGA) — Sacramento

**Subject:** **SB 17 (Padilla) – Electricity: smart grid systems.**  
**As introduced: December 1, 2008**

**LEGISLATIVE SUBCOMMITTEE RECOMMENDATION: SUPPORT WITH AMENDMENTS**

**SUMMARY OF BILL:**

The bill establishes as state policy the modernization of the state’s electrical grid to maintain reliable and secure electrical service with infrastructure that can meet future growth in demand while achieving several other objectives such as integration of distributed generation resources, demand-side resources and ‘smart’ technologies.

**SUMMARY OF SUPPORTING ARGUMENTS FOR RECOMMENDATION:**

This bill codifies various smart grid related policies and activities that the California Public Utilities Commission (CPUC) has already initiated. The bill gives proper latitude to the CPUC in determining cost-recovery for Smart Grid investments as appropriate. The recommended changes below are intended to provide the CPUC the necessary flexibility to properly scope and assess its regulatory approach and timing.

**DIVISION ANALYSIS (Energy Division):**

Title XIII of the Energy Independence and Security Act of 2007 (EISA), as amended by the American Recovery and Reinvestment Act, addresses Smart Grid technology and provides specific objectives for the Smart Grid. EISA contains several important sections pertaining to Smart Grid:

- 1) Section 1301 lists the characteristics of a Smart Grid.
- 2) Section 1304 authorizes the Department of Energy (DOE) to provide up to fifty percent matching funding for Smart Grid Demonstration projects.
- 3) Section 1305(a) gives primary responsibility to the National Institute of Standards and Technology (NIST) to “coordinate the development of a [Smart Grid interoperability] framework that includes” standards and protocols.

- 4) Section 1306(a) creates a Smart Grid Investment Program that authorizes DOE to provide up to fifty percent matching funding for qualifying Smart Grid investments.
- 5) Sec. 1307 requires states to consider smart grid investment by regulated utilities and recovery of associated Smart Grid investments.

Regulatory Approach: The bill establishes a regulatory approach for the CPUC and the investor-owned utilities (IOUs), to follow for consideration and deployment of Smart Grid technology. Specifically the bill directs the CPUC, in consultation with the California Energy Commission (CEC) and the California Independent System Operator (CAISO), to determine the requirements of a Smart Grid deployment plan by July 1, 2010. The IOUs are then required to submit plans to the CPUC (by July 1, 2011) in accordance with those requirements. The bill also allows Smart Grid infrastructure to be deployed incrementally, and directs the CPUC (in consultation with the CEC, the CAISO and the IOUs) to evaluate the impact of deployment on major state initiatives and policies such as the implementation of the Advanced Metering Initiative (AMI), achievement of a Renewables Portfolio Standard (RPS), and reduction of greenhouse gas (GHG) emissions.

The CPUC opened a Rulemaking on December 18, 2008 on its own motion and in response to federal legislation, to consider policies for California IOUs to enhance the ability of the electric grid to support policy goals such as reducing GHG, increasing Energy Efficiency and Demand Response, expanding use of renewable energy, and improving reliability.

The CPUC has the authority to begin a formal proceeding on Smart Grid issues in the absence of legislation and has already done so. However, the legislation is helpful in establishing Smart Grid functionality guidelines that the Legislature believes are important to pursue.

One of the key objectives of the CPUC's Smart Grid OIR is determining an appropriate regulatory approach to support the development of a cost-effective Smart Grid. Related to that determination are specific issues, such as how shall the CPUC assess cost-effectiveness of Smart Grid expenditures, what are the characteristics or requirements for a Smart Grid, and how shall benefits of the Smart Grid be quantified or otherwise assessed? The Smart Grid OIR also seeks stakeholder input on questions about deployment strategies and on how the CPUC should assess progress. The regulatory approach established by the bill may indeed turn out to be the best approach for the CPUC, but the CPUC should have the flexibility to make a final determination on both process and timeline after receiving stakeholder input.

Smart Grid Standards and Protocols: The bill directs the CPUC to "adopt standards and protocols...developed by public and private entities including, but not limited to, the National Institute of Standards and Technology, Gridwise Architecture Council,..." In its rulemaking, the CPUC recognizes the importance of setting policies with respect to functionality and interoperability, but will consider the appropriate role of the CPUC in

this regard. National or international standards would likely be more supportive of innovation and lower costs than California-specific standards. Therefore, rather than require the CPUC to adopt standards developed by other entities, the bill should be amended so that the CPUC has the flexibility to make a final determination, after receiving stakeholder input and monitoring the progress of national standards efforts, if and how such standards should be adopted.

Publicly-owned Utilities: The bill directs publicly-owned utilities (POUs) with more than 100,000 service connections to develop a Smart Grid deployment plan by July 2011 *consistent* with federal law. SB 17's requirement that POUs be compliant only with federal law could be interpreted to mean that they only *consider* Smart Grid investments, and not be required to actually deploy any Smart Grid infrastructure.

POUs should be subject to the same policies as IOUs in order to further the policies in Section 8360 of SB 17 such as the integration of renewable power, incorporation of demand-side resources, and deployment of cost-effective technologies to increase efficiency, security and reliability. Applying different standards to POUs could lead to a fragmented grid that could be less effective in meeting statewide energy objectives.

Rate-Recovery: When an investor-owned utility procures equipment for the purpose of providing electric service to its ratepayers, the CPUC has the authority to determine what expenditures will be recoverable from ratepayers and the method by which the expenditures will be recovered. This bill appropriately maintains the CPUC's discretion in the area of IOU cost-recovery relative to Smart Grid deployment as well.

The CPUC has approved advanced metering projects for the three largest investor-owned electric utilities. The CPUC will need to ensure that investments in the Smart Grid infrastructure are appropriately aligned with current investments in advanced meters. This can best be done via a CPUC-led proceeding where the technical functionalities of the Smart Grid are completely vetted and understood in the context of the advanced meters that will be deployed.

#### **PROGRAM BACKGROUND:**

Advanced Metering Infrastructure (AMI) proceedings: In 2004, the CPUC directed the three largest IOUs to submit AMI business cases along with full deployment proposals for the purpose of advancing the CPUC's policy to expand demand response in the state. As noted previously, the AMI proceedings are now final, with each IOU being given the authorization to deploy smart meters throughout their territories. The deployment of smart meters is expected to be complete by 2012.

Demand Response proceedings: The CPUC has initiated several proceedings over the past 5 years that have focused on increasing demand response as a resource for the IOUs. As a result, the IOUs operate various demand response programs and dynamic pricing tariffs that are designed to incent customers to reduce their electricity usage during peak hours. As of December 2008, the IOUs have approximately 3,000 MWs of demand response potential capacity.

General Rate Case (GRC) proceedings: IOUs typically seek ratepayer funding for capital investment projects, such as improvements to the grid, via their GRCs which occur every three years. In these proceedings, the CPUC endeavors to make sure that the IOUs' requests for cost recovery are reasonable and that the IOUs do their best to keep costs at a minimum consistent with the mandate to ensure reliable service and to meet the energy policy goals set by the Energy Action Plan. All of the IOUs' requests for cost recovery and rate increases are examined closely following a rigorous public process that provides for fact finding and public participation.

Distributed Generation: The CPUC regulates distributed generation on both the customer and utility wholesale side of the electric meter. Customer-side of the meter distributed generation incentive programs include the California Solar Initiative and the Self-Generation Incentive Program. These programs are supported by the CPUC's oversight of Net Energy Metering and Interconnection policies. Wholesale side of the meter distributed generation includes energy generated for sale to utilities and includes feed-in tariffs for both small renewables and combined heat and power (CHP) generators.

**LEGISLATIVE HISTORY:**

SB 1438 was introduced in the 2008 legislative session. That bill, like SB 17, sought to establish as state policy the modernization of the grid. It contained many of the same components as SB 17.

**OTHER STATES' OR FEDERAL INFORMATION:**

As noted earlier, Congress passed the EISA 2007 in December 2007 that set up a Smart Grid framework and directed states to begin consideration of Smart Grid by December 2008 and make a determination regarding Smart Grid deployment by December 2009. The American Recovery and Reinvestment Act of 2009 amended the Smart Grid portions of EISA and appropriated funding for Smart Grid programs.

Activities by other states are unknown.

**STATUS:** Scheduled to be heard in Senate Committee on Energy, Utilities and Communications on April 21, 2009.

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**Date:** April 15, 2009 Revised

**BILL LANGUAGE:**

BILL NUMBER: SB 17           INTRODUCED  
                  BILL TEXT

INTRODUCED BY    Senator Padilla

DECEMBER 1, 2008

An act to add Chapter 4 (commencing with Section 8360) to Division 4.1 of the Public Utilities Code, relating to electricity.

LEGISLATIVE COUNSEL'S DIGEST

SB 17, as introduced, Padilla. Electricity: smart grid systems.

Under existing law, the Public Utilities Commission has regulatory authority over public utilities, including electrical corporations, as defined. Under existing law, the governing board of a local publicly owned electric utility, as defined, generally has authority over the activities of the utility.

This bill would require the commission, by July 1, 2010, and in consultation with the State Energy Resources Conservation and Development Commission (Energy Commission) and the Independent System Operator (ISO), to determine the requirements for a smart grid deployment plan consistent with the policies set forth in the bill and federal law. The bill would require that the smart grid improve overall efficiency, reliability, and cost-effectiveness of electrical system operations, planning, and maintenance. The bill would require each electrical corporation, by July 1, 2011, to develop and submit a smart grid deployment plan to the commission for approval and would authorize the commission to authorize an electrical corporation to recover reasonable costs of deploying smart grid technologies and services from ratepayers. The bill would authorize a smart grid deployment plan that is adopted to provide for deployment of smart grid products, technologies, and services by entities other than electrical corporations. The bill would authorize smart grid technologies to be deployed in an incremental manner to maximize the benefit to ratepayers and to achieve the benefits of smart grid technology, would authorize the commission to modify or adjust the bill's requirements for an electrical corporation with fewer than 100,000 service connections as individual circumstances merit, and would require the commission in consultation with the Energy Commission, the ISO, and electrical corporations, at each step of deployment, to evaluate the impact of deployment on major initiatives and policies.

The bill would require a local publicly owned electric utility, as defined, to develop by July 1, 2011, a smart grid deployment plan consistent with the policies set forth in federal law. By placing requirements upon local publicly owned electric utilities, the bill would impose a state-mandated local program.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

Vote: majority. Appropriation: no. Fiscal committee: yes.  
State-mandated local program: yes.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Chapter 4 (commencing with Section 8360) is added to Division 4.1 of the Public Utilities Code, to read:

CHAPTER 4. SMART GRID SYSTEMS

8360. It is the policy of the state to modernize the state's electrical transmission and distribution system to maintain reliable and secure electrical service, with infrastructure that can meet future growth in demand and achieve all of the following, which together characterize a smart grid:

(a) Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid.

(b) Dynamic optimization of grid operations and resources, with cost-effective full cyber security.

(c) Deployment and integration of cost-effective distributed resources and generation, including renewable resources.

(d) Development and incorporation of cost-effective demand response, demand-side resources, and energy-efficiency resources.

(e) Deployment of cost-effective smart technologies, including real time, automated, interactive technologies that optimize the physical operation of appliances and consumer devices for metering, communications concerning grid operations and status, and distribution automation.

(f) Integration of cost-effective smart appliances and consumer devices.

(g) Deployment and integration of cost-effective advanced electricity storage and peak-shaving technologies, including plug-in electric and hybrid electric vehicles, and thermal-storage air-conditioning.

(h) Provide consumers with timely information and control options.

(i) Develop standards for communication and interoperability of appliances and equipment connected to the electric grid, including the infrastructure serving the grid.

(j) Identification and lowering of unreasonable or unnecessary barriers to adoption of smart grid technologies, practices, and services.

8361. For purposes of this chapter, the following terms have the following meanings:

(a) "ISO" means the Independent System Operator operating pursuant to Article 3 (commencing with Section 345) of Chapter 2.3 of Part 1 of Division 1.

(b) "Energy Commission" means the State Energy Resources Conservation and Development Commission.

8362. (a) By July 1, 2010, the commission, in consultation with the Energy Commission and the ISO, shall determine the requirements for a smart grid deployment plan consistent with Section 8360 and federal law, including the provisions of Title XIII (commencing with

Section 1301) of the Energy Independence and Security Act of 2007 (Public Law 110-140). The commission shall institute a rulemaking or expand the scope of an existing rulemaking to adopt standards and protocols to ensure functionality and interoperability developed by public and private entities, including, but not limited to, the National Institute of Standards and Technology, Gridwise Architecture Council, the International Electrical and Electronics Engineers, and the National Electric Reliability Organization recognized by the Federal Electric Reliability Commission. An adopted smart grid deployment plan may provide for deployment of cost-effective smart grid products, technologies, and services by entities other than electrical corporations. The smart grid technologies and services shall improve overall efficiency, reliability, and cost-effectiveness of electrical system operations, planning, and maintenance.

(b) This section does not require or authorize the commission to delay action on an application by an electrical corporation that is submitted prior to the commission determining the requirements for a smart grid deployment plan.

8364. (a) By July 1, 2011, each electrical corporation shall develop and submit a smart grid deployment plan to the commission for approval.

(b) The commission may authorize an electrical corporation to recover reasonable costs of deploying smart grid technologies and services from ratepayers. Costs may include capital investment, including a reasonable rate of return on the capital expenditures, operating expenditures, and other reasonable costs of the electrical corporation made for the deployment of the qualified smart grid system. The commission may modify or adjust the requirements of this chapter for an electrical corporation with fewer than 100,000 service connections, as individual circumstances merit.

(c) This section does not require or authorize the commission to delay action on an application by an electrical corporation that is submitted prior to the commission's approval of the electrical corporation's timely filed smart grid deployment plan.

8366. Smart grid technology may be deployed in an incremental manner to maximize the benefit to ratepayers and to achieve the benefits of smart grid technology. At each step of deployment, the commission in consultation with the Energy Commission, the ISO, and electrical corporations, shall evaluate the impact of deployment on major initiatives and policies including:

(a) Implementation of new advanced metering initiatives.

(b) Achievement of the renewables portfolio standard program requirements and the need to operate the smart grid of the future with a substantial increased percentage of electricity generated by eligible renewable energy resources.

(c) Achievement of state goals for reducing emissions of greenhouse gases reduction goals as set forth in the Global Warming Solutions Act of 2006 and other state directives.

(d) Achievement of the energy efficiency and demand response goals as required by Sections 454.5 and 454.55 and other state directives.

(e) Modernizing the aging utility grid infrastructure.

(f) Meeting the future energy growth needs of the state with new and innovative technologies and methods that utilize the existing assets more efficiently, result in less environmental impact on the state, meet stringent costs versus benefit assessments, and provide the ratepayers with new options in meeting their individual energy

needs.

8367. Each local publicly owned electric utility with more than 100,000 service connections, shall, by July 1, 2011, develop a smart grid deployment plan, that is consistent with federal law, including the provisions of Title XIII (commencing with Section 1301) of the Energy Independence and Security Act of 2007 (Public Law 110-140).

SEC. 2. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.