

STATE OF CALIFORNIA

Public Utilities Commission
San Francisco

M e m o r a n d u m

Date: May 12, 2008

To: The Commission
(Meeting of May 15, 2008)

From: Bryan Crabb, Legislative Liaison
Office of Governmental Affairs (OGA) — Sacramento

Subject: **SB 1438 (Padilla) – Smart grid systems.**
As amended April 22, 2008

LEGISLATIVE SUBCOMMITTEE RECOMMENDATION: SUPPORT IF AMENDED

SUMMARY OF BILL:

SB 1438 has been significantly revised and addresses the Energy Division's objections to the original submission, described in the April 3rd version. The current version, however, raises a few new and different concerns which will be described below and throughout the memo.

This bill would require that:

- 1) By July 15, 2009, the California Public Utilities Commission (CPUC), in conjunction with California Energy Commission(CEC) and the California Independent System Operator (CAISO), define "smart grid" (SG) and develop "standards and protocols" for the deployment of SG "technologies *and* services;"
- 2) By June 30, 2010, all "electrical corporations" submit SG deployment plans to the CPUC for approval;
- 3) The CPUC, in consultation with CEC & CAISO, evaluate the SG deployment impact in terms of state's major initiatives, including AMI, RPS requirements, GHG emission reductions, EE & DR goals, modernization of the (aging) grid, and utilization of environmentally sound innovative technologies and methods to meet future energy growth needs more efficiently, cost-effectively, and flexibly;

- 4) Allows (but does not require) the CPUC to authorize recovery of reasonable costs of deploying SG “technologies *and* services” from ratepayers, and
- 5) Identifies the goals of SG deployment as improving overall efficiency, reliability, cost-effectiveness (and security) of electrical system operations, planning and maintenance and lists at least ten “characteristics” of a SG. It acknowledges that SG deployment could be done in an incremental manner.

SUMMARY OF SUPPORTING ARGUMENTS FOR RECOMMENDATION:

- Certain aspects of the bill are rather broad (SG definition, “standards & protocols” and “technologies and services”), rendering the July 2009 deadline as too aggressive.
- The bill does not appear to acknowledge the initiatives already put in play by federal EISA 2007, including SG regional demonstration projects [SEC. 1304 (b)].
- The bill’s reference to “each electrical corporation”, who are mandated to deploy SG, applies only to IOUs and exempt POUs.
- The bill appears to advance an IOU-centric deployment of SG “technology and services” based on the usual “reasonable cost recovery” framework. A SG initiative offers the opportunity to contemplate a role for non-utility, private sector firms in potentially providing some portion of SG related technologies and services and on a non-cost recovery basis, possibly resulting in reduced costs to ratepayers for implementing SG.

SUMMARY OF SUGGESTED AMENDMENTS:

- Allow at least 18 months from the time the bill becomes law for to develop the SG definition and develop appropriate standards and protocols (and adjust SG deployment plan submission deadline accordingly).

The current bill puts into place an aggressive timeline which would increase the possibility of missed opportunities. More time is needed (to appropriately define what smart grid is, develop the standards & protocols and flesh out the scope of technologies and services fro SG) so that the SG investments make the most sense for California ratepayers. There are many potential stakeholders who need to provide their input, most notably the CAISO and the technology industry. Also, any state effort needs to be coordinated with federal initiatives directed by EISA 2007

- Encourage state’s participation and coordination with federal SG initiatives identified in EISA 2007.

Such participation and coordination could better position California utilities to receive grant monies made available by the federal legislation, ensure interoperability with SG deployments elsewhere in the country, and avoid potential market fragmentation. EISA 2007 calls for SG regional demonstration projects, supported by federal financial assistance (up to 50%) toward the cost of the projects [SEC 1304 (b)]. The federal law also gives primary responsibility to NIST [SEC. 1305 (a)] to “coordinate the development of a [SG interoperability] framework that includes” standards and protocols.

- Encourage SG deployment by POU's.

ED recommends that POU's also be encouraged to develop plans and deploy SG, as it believes that SG is a key element in achieving state's goals relating to AB 32, EE, DR, etc and its effectiveness could be limited by exempting large portions of the state's electrical infrastructure.

- Authorize CPUC to consider direct participation of non-IOU players in deployment of SG technologies and services.

ED recommends that the CPUC be allowed the flexibility to consider alternative means to encourage SG technologies and services such that the provision of such technologies and services are not necessarily IOU-centric. This would entail consideration of direct participation of non-IOU entities to compete with IOUs in providing SG technologies and services.

DIVISION ANALYSIS (Energy Division):

- The bill has implications for both publicly-owned and investor-owned utilities in the state. The following analysis is limited to just the investor-owned utilities (IOUs) and Commission policy and practices.
- 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 maintains the CPUC discretion in the area of IOU cost-recovery relative to SG deployment as well.
- CPUC is already in the midst of approving advanced meters for each investor-owned utility. The CPUC will need to ensure that the definition of SG is appropriately aligned with the current investment in advanced meters. This can best be done via a CPUC-led proceeding where the technical functionalities of the SG are completely vetted and understood in the context of the advanced meters that will be deployed.
- Title XIII of the Energy Independence and Security Act of 2007 Pub. L. 110-140 addresses SG technology. Section 1306(a) of the Bill creates a matching Smart

Grid Investment Program up to 1/5 of qualifying SG investments. Sec. 1307 requires states to consider smart grid investment by regulated utilities and recovery of associated SG investments. Section 1305 (a) gives primary responsibility to the National Institute of Standards and Technology (NIST) to “coordinate the development of a [SG interoperability] framework that includes” standards and protocols.

- The CPUC has the authority to begin a formal proceeding on SG issues in the absence of legislation. That being said, the legislation is helpful in establishing SG functionality guidelines that the Legislature believes are important to pursue.

LEGISLATIVE HISTORY:

Congress recently passed the EISA 2007 in December, setting up a SG framework and directing states to begin consideration of SG by 12/08 and make a determination regarding SG deployment by 12/09.

FISCAL IMPACT:

- Total fiscal impact is \$330,407 (one ALJ, two PURA positions).
- At least three Public Utility Regulatory Analysts (PURA) and one Utility Engineer (UE) would be needed for these proceedings along with an Administrative Law Judge (ALJ). These positions are necessary to enable the CPUC to define the scope of SG, determine cost recovery guidelines, and develop a framework to evaluate and approve IOU SG deployment plans. SG technologies and services encompass applications across several resource policy and technology areas, such as: demand response, dynamic pricing, advanced metering, reliability, distributed generation, storage, grid operations, resource planning, etc. Given the multi-dimensional aspects of the Smart Grid concept involving rapidly evolving technologies, any effort to set “standards and protocols” that also anticipates future needs will be challenging and require much, specific expertise. In addition, the bill requires CPUC to address “services” associated with SG, a relatively new area to be contemplated by CPUC. Also, determining if the utility SG proposals align with CPUC’s new SG guidelines, as well as with existing CPUC policy in these resource areas, will require specific expertise. The roles of each staff person are anticipated in the following order:
 - ALJ: overall coordinator of the proceeding
 - Utility Engineer: reliability issues
 - PURA III: demand response and dynamic pricing issues

- PURA III: advanced metering alignment issues
- PURA III: distributed generation technology and issues.
- An initial proceeding on this issue can be expected to last at least a year, possibly 18 months. Implementation following an initial Commission decision is anticipated to be over 5 years.
- Several implementation tasks will require at least two PURA analysts:
 - Monitoring of utility deployment of smart grid technology such as:
 - Ensuring the deployment complies with CPUC orders and policy.
 - Ensuring the deployment aligns with the advanced meters already in place
 - Ensuring the deployment is complimentary with existing and anticipated distributed generation technology.
 - Ensure the deployment meets the Commission's expectations for improvements to reliability.
 - Addressing roadblocks and implementation barriers.
 - Ensuring that cost recovery is implemented in accordance with CPUC orders.
 - Implementation of changes/expansion to existing demand response and distributed generation programs and policies. Includes:
 - Development of a smart grid evaluation plan for purposes of determining how smart grid technology enhances/changes existing demand response and distributed generation programs and policies.
 - Administration/oversight of the evaluation plan and interpretation of the smart grid evaluation results.
 - Making appropriate adjustments to demand response and distributed generation program/tariff designs and operations to incorporate the changes brought on by smart grid technology.
 - Oversight of development of updated marketing, customer education plans for revised demand response and distributed generation programs/tariffs
- Development of long-term smart grid policy

- Analysis and development of how smart grid deployment will integrate with and impact the CPUC's energy policies such as long-term procurement planning, resource adequacy, renewable power, greenhouse gases
- Keeping up to date on advances made in smart grid technology. Smart grid technology has the potential to expand and offer higher functionalities, which could lead to IOU multi-year requests for ratepayer funding to upgrade smart grid systems.
- The requirements of the bill cannot be met with existing resources. Two positions (UE, one PURA) of the five positions described above are available via existing resources. The other three anticipated positions (ALJ, two PURAs) are currently not covered by existing resources.

STATUS:

SB 1438 will be heard before the Senate Appropriations Committee on May 12, 2008.

SUPPORT/OPPOSITION:

Support: PG&E (Support if amended-ltr dated 4/14/08)

Opposition: None on file.

Date: May 6, 2008

BILL LANGUAGE:

BILL NUMBER: SB 1438 AMENDED
BILL TEXT

AMENDED IN SENATE APRIL 22, 2008
AMENDED IN SENATE APRIL 9, 2008

INTRODUCED BY Senator Padilla
(Coauthor: Senator Cedillo)
(Coauthors: Assembly Members
Huffman and Tran)

FEBRUARY 21, 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 1438, as amended, Padilla. Electricity: smart grid systems.

Under existing law, the Public Utilities Commission has regulatory authority over public utilities, including electrical corporations, as defined. Existing law provides that the commission has no authority to establish rates or regulate the borrowing of money, the issuance of evidences of indebtedness, or the sale, lease, assignment, mortgage, or other disposal or encumbrance of the property of any electrical cooperative, but that electrical cooperatives are otherwise subject to the regulatory authority of the commission pursuant to the Public Utilities Act. 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 ~~January~~ July 15, 2009, and in consultation with the State Energy Resources Conservation and Development Commission (Energy Commission) and the Independent System Operator (ISO), to develop a definition of an electrical "smart grid" that will achieve certain goals and to develop standards and protocols for the deployment of smart grid technologies and services that will improve overall efficiency, reliability, and cost-effectiveness of electrical system operations, planning, and maintenance. The bill would require each electrical corporation, by June 30, 2010, 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 smart grid technologies and services to be deployed in an incremental manner to maximize the benefit to ratepayers and to achieve the benefits of smart grid technology and would require the commission in consultation with the Energy Commission, the ISO, and the electrical corporations, at each step of deployment, to evaluate the impact of deployment on major initiatives and policies.

Vote: majority. Appropriation: no. Fiscal committee: yes.

State-mandated local program: no.

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 digital information and control technology to improve reliability, security, and efficiency of the electric grid.

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

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

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

(e) Deployment of 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 smart appliances and consumer devices.

(g) Deployment and integration of 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 Resource Conservation and Development Commission.

8362. By ~~January~~ July 15, 2009, the commission, in consultation with the Energy Commission and the ISO, shall develop a definition of "smart grid" ~~that will achieve the goals of Section 8260~~ consistent with Section 8360 and develop standards and protocols for the deployment of smart grid technologies and services. The smart grid technologies and services shall, improve overall efficiency, reliability, and cost-effectiveness of electrical system operations, planning, and maintenance.

8364. (a) By June 30, 2010, 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.

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 the 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) Modernize the aging utility grid infrastructure.

(f) Meet 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 environment impact on the state, meet stringent costs versus benefit assessments, and provide the ratepayers with new options in meeting their individual energy needs.