NER/TJS/oma 2/8/2010

FILED
02-08-10
03:37 PM

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Consider Smart Grid Technologies Pursuant to Federal Legislation and on the Commission's own Motion to Actively Guide Policy in California's Development of a Smart Grid System.	Rulemaking 08-12-009 (Filed December 18, 2008)

ASSIGNED COMMISSIONER AND ADMINISTRATIVE LAW JUDGE'S JOINT RULING AMENDING SCOPING MEMO AND INVITING COMMENTS ON PROPOSED POLICIES AND FINDINGS PERTAINING TO THE SMART GRID

1. Summary

Today's ruling requests that parties submit comments pertaining to proposed policies and findings concerning the Smart Grid that fall into three broad areas.

First, this ruling revises the scoping memo of this proceeding to include the policy matters assigned to this Commission by the passage of Senate Bill (SB) 17 (Padilla).[1] SB 17, which endorses the development of Smart Grid policies and requires the development of Smart Grid deployment plans, sets tight deadlines for Commission action. This ruling invites comments and schedules workshops pertaining to Smart Grid policies to fulfill the requirements of SB 17.

[1] Chapter 327, Statutes of 2009. A copy of the full text of SB 17 is included as Attachment A.

In addition, the ruling sets out a procedural schedule to meet the statutory deadlines set in SB 17.

Second, Decision (D.) 09-12-046, adopted in December 2009, sets out specific tasks for this phase of the proceeding. Specifically, Ordering Paragraph five requires that the Commission "consider rules to provide customers and third parties with access to usage and price data consistent with Energy Information and Security Act of 2007 standards, the general public interest, and state privacy rules."[2] This ruling, therefore, invites comments on these matters and sets a workshop to assist the Commission in the development of these rules to provide access to usage and pricing information.

Finally, this ruling solicits comments and schedules workshops pertaining to this Commission's proposals, advanced at the start of this Order Instituting Rulemaking (OIR), to adopt policies to promote California's Smart Grid infrastructure.[3] Specifically, the Commission seeks to develop policies to prepare California's electric infrastructure for the communications and coordination challenges that a greater reliance on demand reduction, load management, renewable resources and electric vehicles pose.

2. Procedural History

Since the issuance of the Assigned Commissioner and Administrative Law Judge's Joint Ruling (Joint Ruling of September 28, 2009),[4] Governor Arnold

---

[2] D.09-12-046 at 78.

[3] OIR 08-12-009 at 3.

[4] We note that the Joint Ruling of September 28, 2009 contains a detailed history of this proceeding. Similarly, Decision (D.) 09-12-046 also contains a detailed history. This ruling will not repeat the detailed history contained in these documents.

Schwarzenegger signed into law Senate Bill (SB) 17 (Padilla), which is attached as Attachment A to this ruling. SB 17 asks the Commission "to determine the requirements for a Smart Grid deployment plan consistent with the policies set forth in the bill and federal law" by July 1, 2010. Therefore, today's ruling amends the scope of this proceeding and solicits the information needed to implement the regulatory provisions adopted in SB 17. In particular, this ruling solicits the information to enable the Commission to provide policy guidance so that electric utilities may develop Smart Grid deployment plans by July 1, 2011, as required by SB 17.[5]

The Commission's adoption of D.09-12-046 on December 17, 2009, in addition to fulfilling the state obligations adopted by the Energy Information and Security Act of 2007 (EISA),[6] set policies to promote access to electricity usage and price information by consumers and authorized third parties. These policies, however, require implementation. Therefore, D.09-12-046 ordered this proceeding to develop the rules needed to effectuate these policies, consistent with EISA, the public interest, and state privacy rules.

Finally, we note that this proceeding was initiated both to fulfill the statutory requirements that EISA added to Public Utility Regulatory Policies Act of 1978 and to develop state policies that develop a Smart Grid in ways beneficial

---

5 We note that § 8368 states that the Commission may "modify or adjust the requirements of this chapter for any electrical corporation with fewer than 100,000 service connections, as individual circumstances merit." This clause has the affect of permitting the Commission to exempt PacifiCorp, Sierra Pacific Power Company, Bear Valley Electric Service, and Mountain Utilities from the provisions of the legislation. It mirrors the Commission's action in D.09-07-039 that relieved these utilities from mandatory participation in this proceeding as respondents.

6 16 U.S.C. § 2621(d).

to California and consistent with state policies towards renewable energy, distributed energy, demand response, and other programs already in place. Although the Commission has completed the determinations required by EISA, the Commission has not yet adopted policies to advance the policy goals originally set forth in the Order Instituting Rulemaking (OIR) that initiated this proceeding. This ruling, therefore, solicits comments on these matters.

3. Amendment to Scoping Memo to Address SB 17 (Padilla) Issues

The passage of SB 17 imposed additional statutory requirements on both the Commission and the electrical utilities that the Commission regulates pertaining to the Smart Grid. SB 17 states:

> § 8362(a) By July 1, 2010, the commission, in consultation with the Energy Commission, the ISO, and other key stakeholders 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 Energy Regulatory 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.

The passage of SB 17 causes us to amend the scope of this proceeding. Thus, this proceeding will consider and determine the requirements for the development of Smart Grid deployment plans pursuant to § 8360 and federal law. In addition, as required by the statute, this proceeding will consider and adopt standards and protocols that ensure the functionality and interoperability of the Smart Grid systems developed by Investor-owned Utilities (IOUs) subject to Commission jurisdiction.

3.1 Use of Smart Grid Deployment Plans

SB 17 requires the filing of 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.

Thus, § 8364(a) requires that the utilities develop and submit Smart Grid deployment plans to the Commission by July 1, 2011 for Commission approval. SB 17 does not, however, address what occurs after a utility deployment plan is approved. In other words, how will the Commission, utilities, and other stakeholders use a deployment plan once it has been approved? Once the use of a deployment plan is decided, what level of review is required to produce it?

There are several ways in which a deployment plan could be used by the Commission and parties in the future:

- The approval of a deployment plan could be a means to establish a baseline for the Commission to monitor a utility's deployment of Smart Grid technologies and capabilities. The Commission could require periodic status reports to measure progress relative to the baseline in the approved plan.
- A utility or other party could cite to an approved deployment plan as part of the rationale for why specific investments are or are not just and reasonable. Although

under this approach, the inclusion of a specific investment in a deployment plan does not convey a presumption of reasonableness, consistency with a Commission approved deployment plan would be an important factor in the evaluation of the reasonableness of investments.

- An approved Smart Grid deployment plan could be treated similar to an approved procurement plan pursuant to Pub. Util. Code § 454.5, in that after-the-fact reasonableness review would be eliminated for utility expenditures that are made in compliance with an approved Smart Grid deployment plan (similar to § 454.5(d)(2)) and the Commission would ensure timely recovery of prospective costs incurred pursuant to an approved Smart Grid deployment plan (similar to § 454.5(d)(3)).

We note that these three identified potential uses for an approved Smart Grid deployment plan may not be mutually exclusive. There may also be additional uses for an approved plan, which parties may suggest in their comments.

We tentatively propose that an approved Smart Grid deployment plan be used for the first two purposes identified above. In particular, Commission approval would establish a baseline for measuring deployment of Smart Grid technologies and capabilities. Moreover, these uses of a deployment plan would require less detailed information on the costs and benefits of the Smart Grid than would the adoption of a deployment plan that conveys a presumption of reasonableness on future investments.

In addition, we also recommend that a utility be required to file periodic status reports that provide updates to the plan.[7] We propose that status reports be filed every year starting on October 1, 2010 and continuing through October 1,

[7] Note: we discuss metrics pertaining to Smart Grid deployment below.

2020. The reports should reflect information that is current as of June 30 of the year in which the report is filed. The reports should reflect historical developments and include an update of future plans.

We believe that establishing a baseline through the approved plan and requiring updates will help us further the purposes of § 8360 and will assist the Commission in the preparation of reports pursuant to § 8367, which are due annually starting on January 1, 2011. An annual reporting requirement for utilities would permit the Commission to prepare the annual reports required by statute.

In addition, a utility or other party should be encouraged to cite to an approved Smart Grid deployment plan when presenting arguments in proceedings reviewing investments, such as a General Rate Case (GRC), to justify a given expenditure as reasonable. A Smart Grid deployment plan, even without any implications for the reasonableness of an investment, will be a useful tool for the Commission and parties in future proceedings since it will cover a long-term horizon and a broad set of Smart Grid capabilities. The Smart Grid deployment plan should help to provide the strategic context for determining the reasonableness of individual expenditures.

At this point we do not envision that a utility's Smart Grid deployment plan will have sufficient specificity to warrant treating the deployment plans similar to the procurement plans that were created pursuant to § 454.5. Conferring a finding of reasonableness on investments made pursuant to a deployment plan would place much more importance on the approval of the plan than the uncertainty of current technology and Smart Grid plans warrants at this time. For example, the plan would need to contain enough detail for the Commission to make cost-effectiveness and reasonableness findings, which would prove extremely difficult to make at this time. As a result, a proceeding considering a Smart Grid deployment plan would become very contentious and be quite lengthy.

Since we believe Smart Grid expenditures should be considered in GRCs, and in limited cases in special applications, it would be more appropriate to authorize investments and make reasonableness determinations in those future rate cases or in specific applications for Smart Grid investments, rather than through approval of the deployment plan. Although the Commission and parties should look to the deployment plan when evaluating specific investments and making regulatory filing, the authorization of investment and the determination of reasonableness should be made in the context of reviewing a specific proposal. This approach is necessary because of the large level of uncertainty currently associated with the costs and performance characteristics of the new technologies that constitute the Smart Grid. As time goes on and more becomes known concerning Smart Grid technologies and performance, a better estimate of the costs and benefits should become possible. This assessment will constitute the heart of subsequent reasonableness reviews.

3.2. Standards for Review of Smart Grid Plans

SB 17 establishes a policy that:

> By July 1, 2010, the commission, in consultation with the Energy Commission, the ISO, and other key stakeholders 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).[8]

Section 8360 sets out California policies pertaining to the Smart Grid. It states:

> § 8360 It is the policy of the state to modernize the state's electrical transmission and distribution system to maintain safe, reliable, efficient, 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, including appropriate consideration for asset management and utilization of related 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-efficient 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.

---

[8] § 8360.

> (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.

In addition, SB 17 requires the evaluation of the costs and benefits of Smart Grid deployment along seven dimensions. Specifically, SB 17 states:

> § 8366 Smart grid technology may be deployed in a manner to maximize the benefit and minimize the cost to ratepayers and to achieve the benefits of smart grid technology. 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 as set forth in the California 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 a less environmentally adverse net impact on the state, meet stringent costs versus benefit assessments, and provide the ratepayers with new options in meeting their individual energy needs.

(g) Implementation of technology to improve worker safety, protection, and productivity.[9]

Parties should therefore comment on the best way that the Commission can incorporate the policies adopted in § 8360 into its criteria for reviewing Smart Grid deployment plans.

In addition, parties may comment on how the Commission can ensure the subsequent Smart Grid proposals have sufficient information so that the Commission can evaluate utility investments in Smart Grid along the criteria identified in § 8366 and can ensure their consistency with the Energy Action Plan adopted by this Commission and the California Energy Commission. Should the Commission, for example, require that parties demonstrate how their proposed Smart Grid deployment plan meets these policy objectives?

As we review the record of this proceeding, one way of developing the requirements for a deployment plan would be to return to the principles and legislative goals that are driving Smart Grid development. The major driving forces to build a Smart Grid system can be divided in three general categories.

---

[9] § 8366.

1. Increasing reliability, efficiency and safety of the power grid. (§ 8360 a, b, i, and j; § 8366 a, c, e, f, and g.)
2. Enabling decentralized power generation so homes can be both an energy consumer and supplier (provide consumers with interactive tools to manage energy usage). (§ 8360 c, d, e, f, g, h, and i; § 8366 b and d.)
3. Flexibility of power consumption at the consumer side to allow supplier selection (enables distributed generation, solar, wind, biomass, etc.). (§ 8360 c, d, e, f, and g; § 8366 a and c.)

Therefore, we propose that a Smart Grid must:

- Be self-healing and resilient – Using real-time information from embedded sensors and automated controls to anticipate, detect, and respond to system problems, a smart grid can automatically avoid or mitigate power outages, power quality problems, and service disruptions. (§ 8360 a, b, and d; § 8366 a, e, f, and g.)
- Motivate consumers to actively participate in operations of the grid – A smart grid should enable consumers to change their behavior around dynamic prices or to pay vastly increased rates for the privilege of reliable electrical service during high-demand conditions. (§ 8360 c, d, e, f, g, and h; § 8366 a, b, c, and d.)
- Resist attack – A smart grid system should better identify and respond to man-made or natural disruptions. A smart grid system using real-time information should enable grid operators to isolate affected areas and redirect power flows around damaged facilities. (§ 8360 a, b, and d; § 8366 a, e, f, and g.)
- Provide higher quality power that will save money wasted from outages – A smart grid system should create and provide more stable and reliable power to reduce downtime. (§ 8360 a and b; § 8366 a, e, f, and g.)
- Accommodate all generation and storage options – A smart grid system should continue to support traditional power loads, and also seamlessly interconnect with renewable

energy, micro-turbines, and other distributed generation technologies at local and regional levels. (§ 8360 b, c, d, e, f, and g; § 8366 a, e, f, and g.)

- Enable electricity markets to flourish – A smart grid system should create an open marketplace where alternative energy sources from geographically distant locations can easily be sold to customers wherever they are located. Intelligence in distribution grids should enable small producers to generate and sell electricity at the local level using alternative sources such as rooftop-mounted photo voltaic panels, small-scale wind turbines, and micro hydro generators. (§ 8360 b, c, d, e, f, g, h, i, and j; § 8366 a, b, c, and d.)
- Run more efficiently – A smart grid system should optimize capital assets while minimizing operations and maintenance costs (optimized power flows reduce waste and maximize use of lowest-cost generation resources). (§ 8360 a; § 8366 g.)
- Enable penetration of intermittent power generation sources – As climate change and environmental concerns increase, the demand for renewable energy resources will also increase; since these are for the most part intermittent in nature, a smart grid system should enable power systems to operate with larger amounts of such energy resources. (§ 8360 c, g, and j; § 8366 a, b, c, and d.)

We propose that in filing their deployment plan, IOUs should discuss in detail how their vision of the Smart Grid will perform in each of the areas stated above, particularly with reference to the relevant sections of § 8360 and § 8366. IOUs should also give a timeline stating the current state of their system and what it will take to build a Smart Grid system. Finally, IOUs should give an estimate of the financial investment necessary to build such a system.

In summary, the deployment plan should have the following:

- A demonstrable vision consistent with the goals of SB 17;

- Timeline (where are you now, and how long will it take to upgrade system); and
- Projected cost, to the extent possible at this time.

Parties are invited to comment whether the proposed structure for deployment plans offers a practical way of proceeding that will enable the Commission to evaluate the plans consistent with the guidance set forth in SB 17's § 8360 and § 8366.

3.3. Review of Subsequent Investment Plans: What regulatory forums should consider individual proposals for Smart Grid investments – Traditional GRCs or separate applications?

The most recent workshop in this proceeding (July 31, 2009), addressed the question of what regulatory approach would provide the most appropriate method for evaluating incremental Smart Grid-related investments. For example, the workshop examined whether the utilities should be directed to file special applications that meet minimum functionality requirements, whether utilities should be directed to develop a Smart Grid "deployment plan" subject to Commission review, or whether they should be directed to traditional GRCs for funding for Smart Grid investments.[10]

3.3.1. Positions of Parties

Division of Ratepayer Advocates (DRA), in its workshop presentation, stated that Smart Grid-related items are currently appearing in applications and GRCs, and there is a separate process for projects receiving stimulus funds. DRA argued that filings in multiple venues create confusion for the regulators, the

[10] Scoping Memo at 17 dated May 1, 2009.

utilities, and intervenors.[11] DRA, therefore, advocated that the single most important issue about ratemaking treatment is to select one venue for Smart Grid cost recovery.

California Large Energy Consumers Association (CLECA), in its workshop comments, cautioned against the inclusion of Smart Grid investments in GRCs because that will raise hurdles for intervenors wishing to participate and could obscure the costs associated with Smart Grid investments.[12] CLECA argued that participation in a multi-issue proceeding is extremely expensive for a group that has an interest in only a few special issues.

Southern California Edison Company (SCE) stated that reviewing Smart Grid investments either in a GRC or through an application can work but asks that the Commission either direct the utilities to file special applications that meet minimum functionality requirements established in advance by the Commission (following the advanced metering initiative model) or use traditional GRCs to make gradual Smart Grid-related investments over time.[13]

Pacific Gas and Electric Company (PG&E) recommended that the Commission encourage utilities to make either targeted applications or GRC proposals aligned with Smart Grid priorities.[14] PG&E also asked the Commission to provide advance policy guidance and pre-approval for categories of Smart Grid investments it determines to be in the public interest. PG&E

---

[11] DRA Workshop 5 – Regulatory Approach at slide 6.

[12] CLECA Workshop 5 – Regulatory Approach at slide 3.

[13] SCE Workshop 5 – Regulatory Approach at slide 2.

[14] PG&E Workshop 5 – Regulatory Approach at slide 4.

proposed that, based on the Commission's policy guidance and pre-approval, each utility should be authorized to file for the approval of Smart Grid investments and projects in its GRCs or in individual applications, subject to Commission review of the reasonableness of the costs and ratemaking associated with specific projects.[15]

3.3.2. Discussion

The adoption of SB 17 makes it clear that California desires a common and consistent regulatory approach across the utilities and believes that the best way to implement such an outcome is to adopt requirements for Smart Grid deployment plans by July 1, 2010. Consistent with SB 17, we will, with the advice and participation of the California Energy Commission and California Independent System Operator, develop standards that Smart Grid deployment plans must meet and propose them to the Commission for adoption.

In particular, we propose that a utility's Smart Grid deployment plan should provide a timetable and milestones concerning the deployment of specific Smart Grid investments. If adopted, this deployment plan would subsequently serve as the basis for guiding future Smart Grid investments and regulatory reviews.

Since the Smart Grid covers every aspect of utility infrastructure, as such, it is important that the Commission ensure ratepayers that specific Smart Grid investments are in the interest of ratepayers. Accordingly, this roadmap (i.e., deployment plan) will serve as the overall vision for a Smart Grid system.

---

15 PG&E Comments 2/9/09 at 29.

In addition, we note SB 17 requires utilities to file Smart Grid deployment plans consistent with the adopted policies by July 1, 2011 for authorization by the Commission.

We believe that the most efficient regulatory approach would consider all Smart Grid deployment plans in a single proceeding. However, we note that SB 17 did not require a single regulatory proceeding to review deployment plans.

Moreover, the parties who have commented on the issue of the appropriate regulatory process for the review of Smart Grid investments have not voiced a clear preference on which venue would be best. Thus, we now seek comments on whether the Commission should consider Smart Grid deployment plans via separate utility applications or in a single proceeding for authorizing each utility's plans.

As noted in our discussion of SB 17, we anticipate that the Smart Grid deployment plans will serve to inform filings made in a GRC or via special applications seeking the Commission's authorization of expenditures and the review of the reasonableness of costs.

3.4. Comments Sought on Uses of Smart Grid Deployment Plan and on Procedures and Standards for Evaluating the Smart Grid

In summary, parties should comment on the potential uses of an approved Smart Grid deployment plan and recommend any additional uses of an approved Smart Grid deployment plan. Parties should address the preliminary conclusions laid out above.

Parties should also offer proposals to enable the Commission to "determine the requirements for a smart grid deployment plan consistent with

Section 8360 and federal law."[16] Specifically, parties should provide comments on what the requirements for a Smart Grid deployment plan should be and what a Smart Grid deployment plan should demonstrate in order to gain Commission approval.

We also invite parties to provide comments on the proposal outlined in Section 3.3, whereby utilities will file and the Commission will review the Smart Grid deployment plans in a single regulatory proceeding but leave the review of specific investments to either a GRC or a specific application.

In addition to inviting comments, we have scheduled a workshop to discuss proposals that "determine the requirements for a smart grid deployment plan consistent with Section 8360."[17] The schedule for comments, workshops, and replies is discussed below.

3.5. Standards and Protocols Adopted Pursuant to § 8362

Section 8362(a) states:

> 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 Energy Regulatory Commission.

---

[16] § 8360.

[17] *Id*.

The groups identified in § 8362, however, have not yet adopted protocols and rules to ensure functionality and interoperability of the Smart Grid. For this reason, we envision several approaches that the Commission can take to meeting this statutory obligation: 1) deferring Commission consideration in this proceeding until a number of the listed agencies have adopted standards or protocols; 2) deferring Commission consideration of protocols to another proceeding that will commence after a number of the listed agencies have adopted standards or protocols; or 3) adopting a "performance standard" in this proceeding requiring that those implementing a Smart Grid technology take steps to ensure that it has the capability to function and operate with devices developed pursuant to standards adopted by major standard setting agencies, including 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 Energy Regulatory Commission. Under the first or second approach, the Commission would defer further consideration of protocols and standards at this time.

We invite parties to provide comments on which approach to meeting the requirements of § 8362(a) best promotes the public interest.

4. Tasks Assigned to This Phase of the Proceeding by D.09-12-046

D.09-12-046, even as it decided that prior action by the Commission implementing information disclosure policies in the context of the utilities' advanced metering initiative qualified as a "prior state action" pursuant to 16 U.S.C. § 1621(d), and thus, no further regulatory action was required, noted that the public interest would be advanced by providing customers and authorized third parties access to usage and price information. Specifically, D.09-12-046 adopted as a policy objective the provision of retail and wholesale price information by the "end of 2010,"[18] access to usage data through an agreement with a third party by the "end of 2010,"[19] and access to usage information on a near real-time basis for customers with an Advanced Metering Infrastructure (AMI) meter by the "end of 2011."[20]

To implement these policies, D.09-12-046 stated that:

> In the next part of this proceeding, we will consider how to require that the three large IOUs provide retail prices and wholesale costs on a real-time or near real-time basis in a machine-readable form consistent with any Smart Grid EISA standards recommended by the National Institute of Standards and Technology (NIST).
>
> Through additional workshops and/or comments, the Commission will develop a record that determines the best way to require utilities to provide retail and wholesale prices to customers (and to authorized third parties) on a real-time or near real-time basis in a machine readable form.[21]

Furthermore, D.09-12-046 stated:

> To guide the workshops and comments that follow, the Commission hereby sets the following requirements to be met through the workshops/comments in the next part of this proceeding:
>
> > Policy Objective 1: Identify low cost or no cost methods to meet the requirement of providing retail and wholesale prices to customers (and to authorized third

[18] D.09-12-046 at 54.

[19] *Id*. at 65.

[20] *Id*.

[21] *Id*. at 53.

> parties) on a real-time or near real-time basis in a uniform manner to customers and authorized third parties in a machine readable form.
>
> Policy Objective 2: Implement the regulatory requirement of Policy Objective 1 by the end of 2010, and if possible sooner – particularly if there are standards recommended for adoption by NIST – for all customers that have smart meters.
>
> Policy Objective 3: Estimate the costs, if any, of providing access to the information identified in Policy Objective 1 and designate a method through which the utility can recover the costs, if any, of providing customers and authorized third parties with access to price information.
>
> Policy Objective 4: Ensure all information is secure and that a customer's privacy is protected.[22]

Concerning access to usage data, D.09-12-046 states:

> We will require that by the end of 2010, the utilities will have put into place operations that allow customers to access their information easily through an agreement with a third party, provided sufficient privacy and security measures are in place to mitigate the potential for fraud and hacking. We intend to develop and adopt necessary rules and policies related to authorized third party access to usage data during the next phase of this proceeding. Thus, the access to usage data must be provided consistent with the rules we adopt to ensure that access is provided consistent with EISA, the general public interest, and state privacy rules.
>
> Additionally, to ensure that real-time or near-real time access to this data and to the benefits offered by

[22] *Id*. at 54.

> AMI are realized, we will explicitly require that each IOU be capable of providing a customer with an AMI meter with access to the customer's usage information on a near real-time basis by the end of 2011 should the customer desire that information. Once again, this access to usage data must be provided consistent with the rules we adopt to ensure that access is provided consistent with EISA, the general public interest, and state privacy rules.[23]

We therefore, seek comments concerning the rules that the Commission should adopt to meet the objectives of providing access to wholesale and retail price data, access to usage data for authorized third parties, and access on a near real-time basis to usage data by consumers and/or authorized third parties.

Attachment B provides a draft of possible rules that are modeled on rules adopted by the Texas Public Utilities Commission and on Tariff Rule 22, which was adopted previously to implement direct access service in California and to provide Energy Service Providers access to usage information collected by traditional meters that are read once a month.[24] We particularly invite comments on these possible rules.

In addition, following the receipt of comments, we will hold a workshop concerning access to information on usage and price information. The schedule for comments, workshops, and replies is discussed below.

---

[23] *Id.* at 65.

[24] PG&E's Tariff Rule 22 is available online at: http://beta1.pge.com/nots/rates/tariffs/pdf/ER22.pdf.

5. The OIR and the Scoping Memo Set Specific Tasks for this Proceeding to Accomplish

The OIR and the initial scoping memo in this proceeding posed a series of questions for parties and invited comment. We now turn to those previously posed questions that remain unresolved and not subsumed in either SB 17 or the Commission's previous decisions in this proceeding.

We address each question in turn and briefly summarize the comments received to date and how subsequent policy and statutory changes have affected the particular question.

5.1. Should the Commission measure Smart Grid deployment using quantitative metrics? What metrics should the utilities be required to use?

At the July 31, 2009 workshop in this proceeding, we solicited input on whether the Commission could use the metrics identified in the Department of Energy's (DOE) Smart Grid System Report to measure progress in implementing a Smart Grid in California.

Workshops comments were generally negative about using the metrics in the DOE report.[25] SCE stated that although these metrics were helpful "from a conceptual framing perspective" they were not necessarily helpful in determining whether a Smart Grid met California's policy needs. San Diego Gas & Electric Company (SDG&E) similarly argued that the metrics should only

---

[25] See "Metrics for Measuring Progress Toward Implementation of the Smart Grid," Results of the Breakout Session Discussion at the Smart Grid Implementation Workshop, June 19-20, 2008, Washington, DC, prepared by Energetics, Incorporated, July 31, 2008 (http://www.oe.energy.gov/DocumentsandMedia/Smart_Grid_Workshop_Report_Final_Draft_08_12_08.pdf).

serve as "a guide." PG&E argued against the use of DOE's metrics, pointing out that the Commission has its own metrics for reliability, customer satisfaction, and cost efficiency. Parties also pointed out that the DOE metrics are "build metrics" focused on measuring progress in deploying Smart Grid technologies, but it would be more useful to have metrics focused on the outcomes that California hopes to achieve through Smart Grid.

Similarly, DRA argued that the Commission should establish its own metrics, based on the principles embedded in the Commission's Energy Action Plan.

CLECA also opposed adoption of DOE metrics, stating that the Commission should focus on "results and net benefits."

5.1.1. Discussion

Metrics offer a good way of measuring progress in the implementation of any policy. Thus, this ruling invites comments recommending how the Commission can measure progress in implementing a Smart Grid.

Based on the workshop presentations, our staff has developed proposed metrics. Those proposed metrics are Attachment C to this ruling.

These metrics are structured according to the characteristics of California's Smart Grid enumerated in § 8360 in order to allow the Commission to measure the progress of the Smart Grid with regard to each of these characteristics.

The metrics proposed by staff are a mix of "build" metrics and "outcome"-related metrics. The metrics rely on information that the utilities have. In some cases the proposed metrics are already being measured and reported by the utilities in other contexts, e.g., reliability metrics and energy efficiency savings.

Our preliminary proposal is that the Commission adopt a set of metrics and require each utility to measure its performance relative to the metrics as part of its Smart Grid deployment plan. The utilities would be required to submit annual updates to the metrics in the annual reports that we propose.

5.1.2. Questions for Parties

Parties should comment on the appropriateness of requiring that the utilities include metrics as part of their Smart Grid deployment plans. Parties should also comment on the specific draft metrics that are attached to this ruling. Parties should propose additions, modifications, and deletions to the proposed metrics. When recommending additions or modifications, parties should recommend specific wording.

5.2. Are incentives needed to encourage the deployment of consumer devices that interact with the Smart Grid? Would establishment of a demarcation point between utility and consumer help or hurt such deployment? Does a physical demarcation point make sense in an electronics world?

A concern throughout the Smart Grid workshops was how the Commission could act to advance Smart Grid technologies without discouraging the interaction of consumer electronic devices and consumer energy controls with the electric grid. In particular, a major workshop concern was whether adopting specific communications standards and protocols prematurely or requiring the use of open standards would have the unintended side-effect of discouraging the deployment of consumer devices capable of interacting with the Smart Grid.

Fortunately, we note that SB 17 requires that:

> § 8362(a) …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 Energy Regulatory Commission.

Thus, SB 17 implicitly requires that the Commission either wait for the adoption of standards by the listed agencies or consider what steps the Commission can take now to ensure the functionality and the interoperability of devices, such as household electronics, with the Smart Grid when future standards are adopted.

One approach used in the telecommunications industry to encourage the development of consumer electronics that interact with the telecommunications transmission network was the designation of a demarcation point whereby everything that was physically on one side of the demarcation point was the property of the utility, while the utility was prohibited from making any new investments on the other side of the demarcation point. In addition, in telecommunications regulation, the utility was prohibited from owning devices – "customer premises equipment" – on the customer's side of the demarcation point. This network boundary provided some of the certainty that investors in new technologies and devices required.

An open question for this proceeding is to consider whether designating a network demarcation point that limits the extent of a utility's investments offers an interim approach pending the adoption of open standards that would facilitate investments by customers and service providers in devices that use information available from AMI and other components of the Smart Grid.

In Workshop 5, SCE endorsed setting a clear point separating the infrastructure that is the responsibility of the utility and that which is the responsibility of the customer.[26] Nevertheless, even as SCE endorsed a regulatory approach that sets a clear separation between the utility's grid and home devices, SCE also speculated that traditional boundaries may become blurred in the context of newer technologies.

PG&E, in contrast, asked that the Commission avoid "drawing hard lines … now for services beyond the meter."

DRA, on the other hand, argued that customers should own all the equipment on the customer side of the meter, and that the customer should own the device that provides the interface between customers and their data.

CLECA argued that the utility should not own equipment on the customer's side of the meter and that there should be standards that allow the market to develop devices that meet customer needs and respond to price or reliability signals.

As the above discussion makes clear, the question of whether the approach of setting a clear physical demarcation point, which made policy sense in the 1980's telecommunications networks, would make sense in the Smart Grid context remains open.

In particular, we note that effective interconnection between consumer devices and a Smart Grid may arise as a function of communications software and hardware that breaks the link between location and functionality. For example, if consumer devices communicate with the electric grid through the Internet cloud, is there really a point of interconnection at the meter?

---

26 We note that in electric utility tariffs, this point is called the "service delivery point" and is commonly the meter. The customer has responsibility for service facilities on the customer's side of the service delivery point.

We therefore, seek comments on the best regulatory approach to spur the creation of Smart Grid services, devices, and functions that allow for interconnection with energy using devices in ways that can promote the public interest. The comments should also specifically address whether the establishment of a demarcation point is an appropriate regulatory response in the face of current uncertainty.

Finally, we note that although the Joint Ruling of September 28, 2009 indicated that we did not believe that investments in the Smart Grid warranted special financial incentives, we believe that the issue of whether special incentives, such as regulatory streamlining or direct financial incentives, are warranted to encourage the deployment of devices in the home that interact with the Smart Grid is a different question. We therefore, invite comments on whether and how the Commission can provide incentives that encourage the deployment of devices in the home that interact with the Smart Grid in ways that facilitate the management of electric load.

5.3. Electric Vehicle-Related Issues

The OIR and scoping memo included a consideration of issues related to electric vehicles. At the Commission meeting of August 20, 2009, the Commission initiated Rulemaking (R.) 09-08-009 to consider alternative-fueled vehicle tariffs, infrastructure and policies to support California's greenhouse gas emissions reductions goals.

Since the Commission has initiated a proceeding that is broadly examining issues related to alternative-fueled vehicles, including plug-in hybrid and battery electric vehicles, we do not need to duplicate that examination here. However, the *Assigned Commissioner's Scoping Memo* issued on January 12, 2010 in R.09-08-009, does conclude that a consideration of standards related to electric vehicles is appropriately conducted in this proceeding since the adoption of Smart Grid standards more broadly is within the scope of this proceeding. We reaffirm that determination here.[27] We therefore, invite comments on what standards the Commission should adopt pursuant to the use of electrical vehicles by customers.

5.4. Should Smart Grid proposals include storage options, or are they best considered in conjunction with transmission and/or generation projects? Should Smart Grid proposals limit storage options for consideration? If so, how?

5.4.1. Position of Parties

Many parties have identified energy storage as a key element of the Smart Grid or as a technology that is uniquely linked to the Smart Grid. SCE "envisions a smart grid that leverages advancements in energy technologies, such as … new energy storage technologies"[28] and sees "tremendous opportunities in using storage technologies to effectively integrate"[29] renewable resources. PG&E defines Smart Grid as an "electric utility infrastructure system that supports … [d]eployment and integration of … advanced energy storage,"[30] among other elements. California Energy Storage Alliance (CESA) notes that "storage is a necessary component of the smart grid"[31] and suggests that this proceeding place a "maximum focus on the benefits of energy storage and peak

---

[27] *Assigned Commissioner's Scoping Memo* (R.09-08-009), January 12, 2010, at 12.

[28] SCE Comments of 2/9/09 at 2.

[29] *Id.* at 43.

[30] PG&E Comments of 2/9/09 at 2.

shaving technology in its many forms…as an integral, indeed central, part of the smart grid."[32] AES Corp. comments that "Energy storage provides an essential part of a smart grid."[33]

Parties note that energy storage can be used in a range of different uses. A partial list of the many benefits that the parties have attributed to energy storage include outage avoidance, demand response, increased reliability of the electric system (including the ability to self-heal) and resistance to attacks, and enhanced power quality. Parties believe that storage can provide ancillary services to stabilize the grid, integrate intermittent and variable renewable generation (both large-scale and distributed),[34] reduce peak demand, increase the capacity of Transmission and Distribution (T&D) networks, permit energy arbitrage, improve grid efficiency, and reduce emissions.[35]

At the workshop held in this proceeding on June 26, 2009, parties provided much information about the increasing role that electricity storage can play in the operation of a modern grid that relies heavily on renewable power, such as solar

---

[31] CESA presentation at 6/26/09 Workshop at 1.

[32] CESA Comments of 2/9/09 at 1.

[33] AES Corp. presentation at 6/26/09 Workshop at 4.

[34] For example, see 130 FERC ¶61, 053 in which the Federal Energy Regulatory Commission has opened a Notice of Inquiry to determine "the extent to which barriers may exist that impede the reliable and efficient integration of variable energy resources (VERs) into the electric grid, and whether reforms are needed to eliminate those barriers."[35] AES Corp. presentation at 6/26/09 Workshop at 4-5; CESA Comments of 2/9/09 at 3.

or wind power, in which generated power can rapidly change when environmental conditions change. Many parties emphasized the importance of storage to meeting California's ambitious Renewables Portfolio Standard goal, for example, through storage-based ancillary services. In addition, both PG&E and Sacramento Municipal Utility District (SMUD) discussed how storage could be an effective solution for integrating wind energy into the electric grid by banking the off-peak "over-generation" and making the energy available during peak hours.[36] Parties at the workshop noted that while storage technologies can provide important benefits to the Smart Grid at either the distribution or transmission system level, they are likely to be most useful at points closest to load centers. In addition, a key point that emerged from the workshop is that the integration of storage facilities into the operation of the grid will require the ability of the grid operators to engage in two-way real-time communications directly with storage devices for many of the proposed applications to work.

Parties have also acknowledged that energy storage has the ability to mimic different behavior relative to the grid at different times and thereby generate multiple benefit streams over time. For example, a storage asset could at different times behave as a power generator, as a load which demands power, or as a "substitute" for constrained T&D capacity.

While there is much research and innovation occurring in the development of energy storage technologies, some suggest that "storage systems are

---

[36] PG&E presentation at 6/26/09 Workshop at 4; SMUD presentation at 6/26/09 Workshop.

commercially ready and can be deployed quickly,"[37] at least at the sub-100 MW level in the near-term and scaling up to 1 GW or more level in six to ten years.[38]

It has also been noted that for energy storage to provide significant benefits to the grid, storage need not be limited to centralized, bulk storage that is owned and operated by the utility. CESA, in particular, encourages the Commission to "consider non-traditional business models [for energy storage] in addition to utility ownership and deployment of supply-side resources,"[39] such as ownership and operation by third parties under contract with a distribution grid utility or distributed storage resources that are owned and rate-based by utilities.[40] CESA observes that "distributed energy storage is deployable in utility-scale capacity as a strategically critical resource in the evolution of the smart grid."[41]

Some parties argue that certain regulatory barriers impede the deployment of storage and offered measures to address them. CESA suggests that it is "difficult to aggregate complete value streams provided by storage"[42] and submits that storage should be "integrated in all aspects of policy making."[43] Beacon recommends separation of regulation and energy markets to enable

---

[37] CESA presentation at 6/26/09 Workshop at 4.

[38] *Id.*

[39] CESA Comments of 2/9/09 at 5.

[40] *Id.*

[41] *Id*. at 3.

[42] CESA presentation at 6/26/09 Workshop at 7.

[43] *Id.*

storage to bid into markets for ancillary services and to provide for storage-specific "net-metering."[44]

Finally, we note that § 8360(g) considers storage an integral part of the Smart Grid.

5.4.2. Discussion

From the comments, workshops, and SB 17, it is clear that Smart Grid deployment plans may include various types of storage technologies. Like the situation for electric vehicles, it is critical that other Smart Grid technologies have the capacity to engage in communications with storage technologies. This communications capability will be critical to the operation of storage as an integral part of a modern grid that can support renewable and distributed generation while providing a secure supply of electric power.

We invite parties to file comments recommending how the Commission should evaluate storage proposals included as part of Smart Grid deployment plans and what steps, if any, the Commission should take to ensure that the necessary communication services needed to use storage technologies effectively and efficiently are available within the grid.

5.5. What cyber security principles should Smart Grid proposals meet?

With an increase in the amount of and access to data that accompanies Smart Grid technologies, many concerns arise about the security of that data and individual privacy.

---

[44] Beacon Power presentation at 6/26/09 Workshop at 10.

These issues were initially examined at a Smart Grid workshop held as part of this proceeding. At the May 27, 2009 workshop, Deidre Mulligan of the University of California presented an overview of the cyber security issues that the implementation of a Smart Grid can pose. She noted that smart meters will generate thousands of data points from each home, whereas in the past electric usage could be summed up with one data point per month. This data will be used by individuals to better manage their electricity use, and by many others to better manage grid operation. However, it also could be used to develop profiles of house occupancy and thereby make homeowners vulnerable to theft.

The Commission has adopted a policy to provide that some third parties can have access to this data with the customer's permission. In addition, we note the real possibility that others may have access without a customer's permission, including criminals, law enforcement officials, and other government agencies. Furthermore, recent media articles have made clear that cyber attacks on elements of the nation's infrastructure are become more common. Thus, cyber security is an issue with many dimensions.

5.5.1. Position of Parties

Several parties in this proceeding have noted the specific security and privacy concerns associated with the Smart Grid, and in particular, the increased amount of, and need for access to, information.

Enspiria, for example, notes that:

> Security issues will be significant with the exponential growth of devices that are connected to the electric infrastructure and have the potential to destabilize the system. The industry has seen significant discussion on the impact of internal switches into solid state meters and the concern of a hacker manipulating the switches. A similar, if not magnified, concern with the more pervasive smart grid operational vision is that the potential impact of cyber-mischievous or terrorism is a significant concern.[45]

Google, while noting that "Electricity usage information should be freely available to consumers since it belongs to them,"[46] also notes that "Consumer electricity usage data should be kept private unless the consumer grants permission for a third-party to access the information. Consumers should have full control over who is given access to their data."[47]

Several of the utilities have stated that they recognize the importance of the security issues associated with the Smart Grid. SDG&E, for example, states that "Much work remains to be completed to insure information is properly classified and secured."[48] SCE points out that "The United States has arrived at a critical juncture in its energy future. The current stakes for addressing climate change, energy independence and infrastructure security could not be higher."[49]

---

45 Enspiria Comments 2/9/09 at 3.

46 Google Comments 2/9/09 at 7.

47 *Id.*

48 SDG&E Comments 2/9/09 at 18.

49 SCE Comments 2/9/09 at 6.

PG&E states:

> The basic building block of the smart grid is enhanced two-way communication of information between the utility and its customers and its suppliers. However, as some parties note, with enhanced communication of information comes the increased potential for breach of customers' privacy and breach of electric grid security…. (V)arious smart grid concepts and ideas, especially those that involve expanded real-time two-way communication of customer information, may create new and unforeseen risks to customer privacy. Likewise, various smart grid ideas and proposals, particularly those involving third-party vendors, may raise new cyber-security questions and issues.[50]

The benefits that customers and society derive from the Smart Grid increase with access to information.

At the same time, parties have also discussed the need to both secure the grid and protect individual privacy. The Consumer Federation of California (CFC) states "This conflict between open access and security must be resolved, and in resolving it, California's constitutional protection of individual privacy must be taken into account."[51]

---

50 PG&E Reply Comments at 8.

51 CFC Comments of 2/9/09 at 13.

Similarly, Western Power Trading Forum (WPTF) notes that:

> Grid security and stability are legitimate concerns and monopoly-regulated information services that provide information that is or can be used in real-time power system operations need to be free from threats of hacking or unauthorized access. However, customer specific access to information for conservation, demand response and energy efficiency efforts should not be constrained. Data security needs to be at a high level, but access to someone who the customer authorizes should be unimpeded.[52]

Security is not just an issue for the individual consumer, but for society as a whole. SCE, for example, states that:

> The electric grid is a national security asset. SCE is a leading contributor to the development of a cyber-security framework for a smart grid, and recently completed the first element for a secure advanced metering infrastructure in partnership with ten other utilities nationwide, the U.S. Department of Energy, and Carnegie Mellon University.[53]

---

[52] WPTF Comments of 2/9/09 at 5.

[53] SCE Comments of 2/9/09 at 10.

And also that:

> SCE is actively collaborating with PG&E and SDG&E in this important area…. SCE is also currently making modifications to its grid network to comply with recent cyber-security statutes mandated by NERC and FERC, and will continue to support implementation of additional cyber-security standards as necessary.[54]

PG&E states that "PG&E is continuing to develop and apply robust and state-of-the-art cyber-security and dynamic optimization protocols."[55]

5.5.2. Discussion

The security of the Smart Grid requires ensuring that the information of California consumers and companies obtains the level of protection needed to safeguard the interests of Californians and that passing information intrinsic to the operation of the Smart Grid will not leave electric systems vulnerable to cyber attack or prone to system malfunction.

Despite the national need for the protection of information and utility infrastructure, it is unclear that current efforts are adequate. At this time the extent to which a federal agency such as FERC will be developing security standards, and if those standards will be sufficient to protect California's grid as well as individual privacy, is not known.

In the absence of federal action, any standards eventually adopted in California must be both comprehensible and flexible enough to encompass emerging security threats and risks, as well as protecting privacy. This is especially important as new technologies and information systems are deployed.

---

[54] *Id.* at 18.

[55] PG&E Comments of 2/9/09 at 15.

In addition, the implementation of any adopted state or federal standards is complicated in an industry with a multitude of participants, including utilities, software vendors, equipment manufacturers and installers, energy service providers, etc., each of whom may have differing security capabilities, limitations, and proprietary tools.

Finally, the question arises as to whether the Commission should require, as a funding criterion for a Smart Grid project, that the project proponents verify that the project conforms to state or federal standards.

5.5.3. Questions for Parties

The security of California's electric grid and the privacy of California's citizens are of major importance to the Commission. While we hope that federal standards will provide an important basis for addressing security concerns, in the absence of federal standards it may be necessary to undertake special reviews to ensure that Smart Grid developers take the steps necessary to address particular aspects of California's system.

We would like parties to provide comments on how the Commission can ensure that the Smart Grid proposals funded in California provide the security for the network and privacy protections needed.

Most specifically, we are interested in developing rules that enable the Commission to implement the policies adopted in D.09-12-046 and discussed in Section 4 of this ruling.

6. Proposed Schedule

To resolve the issue identified within this ruling, we establish the following schedule:

- Comments on all issues identified in this ruling March 5, 2010

• Workshop 1 to consider the best methods for providing access to electricity prices and usage	March 10, 2010
• Workshop 2 to address issues concerning the review of Smart Grid deployment plans	March 11-12, 2010
• Reply Comments on all issues identified in this ruling or discussed in workshops	April 1, 2010
• Projected mailing of Proposed Decision	May 3, 2010
• Commission consideration of Proposed Decision addressing SB 17 issues	June 3, 2010

With this schedule, we anticipate that we will meet the deadlines adopted in SB 17 for setting requirements for the Smart Grid deployment plans of the three major California electric utilities.

However, we anticipate that it may not prove possible to resolve the issues in this proceeding not related to the SB 17 requirements in the proposed decision of May 3. In that case, we will provide more information concerning the schedule for resolving any outstanding issues via a ruling following the adoption by the Commission of a decision resolving the SB 17 issues.

7. Deadline Extended

Pursuant to § 1701.5, the current statutory deadline for this proceeding is November 1, 2010. This ruling amending the scope of the proceeding extends the deadline to permit, first, the resolution of all issues that SB 17 requires resolved by deadline of July 1, 2010 and, subsequently, of all remaining Smart Grid issues by August 8, 2011, which is within 18 months of the mailing of this ruling.

IT IS RULED that:

1. The scope of this proceeding is amended to include those issues set by Senate Bill (SB) 17 (Padilla) for resolution by this Commission.

2. The schedule set forth herein is adopted, and may be changed by the Administrative Law Judge if needed.

3. Parties shall file comments and replies to the issues and questions listed above. Opening comments are due March 5, 2010.

4. Workshop 1 will be held on March 10, 2010 at the Commission Courtroom, State Office Building, 505 Van Ness Avenue, San Francisco, CA 94102. Workshop 2 will also be held at the Commission Courtroom on March 11-12, 2010.

5. Workshop 2 will be held to address issues concerning what requirements an Investor-owned Utility Smart Grid deployment plan should meet and how the Commission should conduct the reviews of deployment plans envisioned in SB 17.

6. Reply comments may be filed no later than April 1, 2010, and may both respond to opening comments and address issues raised in the workshops.

7. The deadline for resolution of this proceeding is extended to August 8, 2011.

Dated February 8, 2010, at San Francisco, California.

/s/ NANCY E. RYAN by AGC
Nancy E. Ryan
Assigned Commissioner

/s/ TIMOTHY J. SULLIVAN
Timothy J. Sullivan
Administrative Law Judge

ATTACHMENT A
Senate Bill No. 17
CHAPTER 327

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

[Approved by Governor October 11, 2009. Filed with Secretary of State October 11, 2009.]

LEGISLATIVE COUNSEL'S DIGEST

SB 17, 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), the Independent System Operator (ISO), and other key stakeholders, 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. 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 the commission to report, by January 1, 2011, and by January 1 of each year thereafter, to the Governor and the

Legislature on the commission's recommendations for a smart grid, the plans and deployment of smart grid technologies by the state's electrical corporations, and the costs and benefits to ratepayers.

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.

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 safe, reliable, efficient, 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, including appropriate consideration for asset management and utilization of related 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-efficient 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, "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.

§ 8362(a) By July 1, 2010, the commission, in consultation with the Energy Commission, the ISO, and other key stakeholders 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 Energy Regulatory 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.

§ 8363 This chapter shall be implemented in a manner that does not compromise customer or worker safety or the integrity or reliability of the electrical transmission and distribution system in this state.

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

(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's approval of the electrical corporation's timely filed smart grid deployment plan.

§ 8366 Smart grid technology may be deployed in a manner to maximize the benefit and minimize the cost to ratepayers and to achieve the benefits of smart grid technology. 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 as set forth in the California 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 a less environmentally adverse net impact on the state, meet stringent costs versus benefit assessments, and provide the ratepayers with new options in meeting their individual energy needs.

(g) Implementation of technology to improve worker safety, protection, and productivity.

§ 8367 By January 1, 2011, and by January 1 of each year thereafter, the commission shall report to the Governor and the Legislature on the commission's recommendations for a smart grid, the plans and deployment of smart grid technologies by the state's electrical corporations, and the costs and benefits to ratepayers.

§ 8368 The commission may modify or adjust the requirements of this chapter for any electrical corporation with fewer than 100,000 service connections, as individual circumstances merit.

§ 8369 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.

(END OF ATTACHMENT A)

ATTACHMENT B
Proposed Access Rules

Customer Access to Data

1. An electrical corporation shall provide a customer, the customer's electric service provider (ESP), the customer's demand response provider (DRP) or other third party entity authorized by the customer read-only access to the customers' advanced meter data, including meter data used to calculate charges for electric service, historical load data and any other proprietary customer information. The access shall be convenient and secure, and the data shall be made available no later than the next day of service. Such authorization may be made in writing or via electronic signature, consistent with industry, privacy and security standards and methods.

2. An electrical corporation shall use industry standards and methods for providing secure customer, ESP, DRP and third party access to a customer's meter data. [The electrical corporation shall have an independent security audit of the mechanism for customer and third party access to meter data conducted within one year of initiating such access and report the findings to the Commission.]

3. The California Independent System Operator, or any subsequent regional transmission organization or regional reliability entity, shall have access to information necessary or required for wholesale settlement, load profiling, load research and reliability purposes.

4. A customer may authorize its data to be available to an entity other than its Load Serving Entity or Utility Distribution Company.

5. An electrical corporation shall provide access to data, as described above, in a manner consistent with and in accordance with the time frame as decided by the Commission in Decision ________,

Revised rule modeled on Tariff Rule 22[56]

3. Providing Access to Customer Usage Data Captured by AMI for Authorized Third Parties

[Insert utility] will provide customer-specific usage data to parties ~~specified~~ authorized by the customer, subject to the following provisions:

a. Except as provided in Section d, the inquiring party must have ~~written~~ authorization from the customer to release such information to the inquiring party only. At the customer's request, this authorization may also indicate if customer information may be released to other parties as ~~specified~~ authorized by the customer.

b. Subject to customer authorization, [Insert utility] will provide ~~a maximum of~~ the most recent twelve (12) months of customer usage data ~~or the amount of data for that specific service account~~ in a format consistent with industry standards as approved by the Commission. Customer information will be released to the customer or an authorized agent ~~up to two (2) times per year per service account~~ at no cost to the requesting party or the customer. ~~Thereafter, [insert utility] will have the ability to assess a processing charge only if approved by the Commission.~~

[56] Tariff Rule 22 was the tariff adopted by electric utilities to provide for Direct Access Service. A copy of PG&E's Tariff Rule 22 is available online at: http://beta1.pge.com/nots/rates/tariffs/pdf/ER22.pdf. The relevant portion is at C.3, on tariff sheets 11-12.

c. ~~As a one-time requirement at the initiation of Direct Access,~~ [insert utility] will make available a database containing a twelve (12) month history of customer-specific usage information with geographic and SIC information, but with customer identities removed, to a ~~customer's ESP, DRP or other~~ third party~~ies~~ approved by the Commission where a customer has authorized such disclosure. ~~and with customer authorization. [Insert utility] will have the ability to assess a charge only if approved by the Commission.~~

~~d. By electing to take Direct Access service from an ESP, the customer consents to release to the ESP metering information required for billing, settlement and other functions required for the ESP to meet its requirements and twelve (12) months of historical data.~~

d. By authorizing a ~~DRP or other~~ third party to access their information, the customer consents to release to a ~~DRP or other~~ third party information required for billing, settlement and other functions and services required for that entity to meet its requirements and obligations and twelve (12) months of historical data.

(END OF ATTACHMENT B)

ATTACHMENT C

Proposed Metrics

The following proposed metrics are organized according to the ten characteristics of California's Smart Grid as enumerated in § 8360. These proposed metrics are based on metrics contained in the U.S. Department of Energy's Funding Opportunity Announcements for the Smart Grid Investment Grant Program and Smart Grid Demonstration Program;[57] parties' presentations at the Commission's Smart Grid workshops; and additional proposals from staff. Each utility would be expected to measure and report performance relative to these metrics.

1. Increased Use of Digital Information and Controls to Improve Reliability, Security, and Efficiency of the Grid (§ 8360(a))

- The number and percentage of electricity customers and magnitude of total load served by advanced metering infrastructure.
- The number of complaints related to advanced meters.
- The system-wide total number of minutes per year of sustained outage per customer served as reflected by the System Average Interruption Duration Index (SAIDI).
- How often the system-wide average customer was interrupted in the reporting year as reflected by the System Average Interruption Frequency Index (SAIFI).
- The number of momentary outages per customer system-wide per year as reflected by the Momentary Average Interruption Frequency Index (MAIFI).

[57] United States Department of Energy, *Financial Assistance Funding Opportunity Announcement: Smart Grid Investment Grant Program (SGIG)* (DE-FOA-0000058), June 25, 2009, pp. 10-11; U.S. Department of Energy, *Financial Assistance Funding Opportunity Announcement: Smart Grid Demonstration Program (SGDP)* (DE-FOA-0000036), June 25, 2009, pp. 12-14.

- Energy efficiency of the transmission system as measured by energy delivered to the distribution grid divided by energy entering the transmission system.
- Energy efficiency of the distribution system as measured by the energy delivered to end-use customers divided by energy entering the distribution grid.
- The number of customer reported outages versus system identified outages.

2. Dynamic Optimization of the Grid Including Asset Management, with Full Cyber-Security (§ 8360(b))

- Percentage miles of transmission circuits being operated under dynamic line ratings.
- Average energy consumption during summer peak period divided by average energy consumption during summer off-peak period.
- Capacity factor of transmission system as measured by the total annual energy transmitted by the transmission system divided by the total annual energy capacity of the transmission system.
- Capacity factor of distribution system as measured by the total annual energy transmitted by the distribution system divided by the total annual energy capacity of the distribution system.
- Number of minutes during the year when the average nodal price in the service territory is negative in the ISO-operated day-ahead market and in the real-time market.
- Number of minutes during the year when at least one nodal price in the service territory is negative in the ISO-operated day-ahead market and in the real-time market.
- [Cybersecurity placeholder].

3. Deployment and Integration of Distributed Resources, Including Renewable Resources (§ 8360(c))

- The number and percentage of electricity customers and magnitude of total load served by grid-connected distributed generation (renewable and non-renewable).
- The number and percentage of installations and magnitude of total load covered by microgrids.
- Percentage of substations capable of handling reverse power flows caused by distributed energy resources.
- Average number of days between interconnection request for distribution-level distributed generation and activation of resource, including separate averages for consumer-owned generation and non-consumer-owned generation.
- Frequency and duration of interruptions of distributed generation due to transmission or distribution interruptions as measured in terms of an interruption duration index, interruption frequency index, and momentary interruption frequency index.
- Frequency and duration of interruptions of customers caused by distributed resources as measured in terms of an interruption duration index, interruption frequency index, and momentary interruption frequency index.

4. Incorporation of Cost-Effective Demand Response, Demand-Side Resources, and Energy-Efficient Resources (§ 8360(d))

- Total megawatts of demand response (expected load impact when called).
- Total megawatt-hours of energy efficiency savings.
- The amount of consumer load participating in ancillary services markets.
- The amount of consumer load providing ancillary services to the grid.

- The amount of consumer load participating in the wholesale market.

5. Deployment of Cost-Effective Smart Technologies (§ 8360(e))

- The number and percentage of electricity customers and magnitude of total load served by appliances and/or equipment which can communicate information automatically about on/off status and availability for load control.
- The number and percentage of installations and magnitude of total load served by substations or feeder lines that use automation equipment or that possess advanced measurement technologies.
- The number of points and percentage and magnitude of the total load covered by Supervisory Control and Data Acquisition (SCADA) systems.
- The number of installation points and percentage and magnitude of the total load in the service territory covered by phasor measurement units (PMUs).
- The number of installation points and percentage and magnitude of the total load served by phasor data concentrators (PDCs) receiving data from PMUs that share all relevant data with external parties in support of reliability management.
- The number of installation points and percentage and magnitude of the total load served by real-time data management and visualization systems receiving data from PDCs and PMUs.
- The number of installation points and percentage magnitude of the load covered by automated electric transmission systems or possessing advanced measurement.

6. Integration of Cost-Effective Smart Appliances and Consumer Devices (§ 8360(f))

- Number of consumer devices actively communicating with Home Area Networks.
- Number of Home Area Networks able to communicate with consumer devices.
- Number of customer complaints related to interaction of consumer devices with Home Area Networks.

7. Deployment and Integration of Energy Storage and Peak Shaving (§ 8360(g))

- The number and percentage of electricity customers and magnitude of total load served by energy storage.
- The number and percentage of electricity customers and magnitude of total load served by thermal-storage air conditioning.
- The amount of energy storage participating in ancillary services markets.
- The amount of energy storage providing ancillary services to the grid.

8. Deployment and Integration of Electric Vehicles

- Estimated number of plug-in electric and hybrid electric vehicles in the service territory and estimated peak vehicle charging load.
- The magnitude and percentage of total load served by hybrid electric vehicles and/or equipment which can communicate information automatically with load.
- The number and percentage of installations on distribution and transmission system in response to hybrid electric vehicles.

9. Provide Consumers with Timely Information and Control Options (§ 8360(h))

- Number of customers and authorized third parties accessing energy usage information through the Internet.
- Number of authorized third parties accessing customer energy usage information.
- Number of meters with an activated HAN.
- Number of customers accessing real-time usage and/or pricing information.
- The number and percentage of electricity customers and magnitude of total load served by dynamic pricing programs (e.g., real-time pricing, and/or critical peak pricing).
- The number and percentage of electricity customers and magnitude of total load served by load management programs (e.g., interruptible tariffs, direct load control, and consumer load control with incentives).

10. Develop Standards for Interoperability (§ 8360(i))

- If needed

11. Lowering Barriers to Adoption of Smart Grid (§ 8360(j))

- If needed

(END OF ATTACHMENT C)

INFORMATION REGARDING SERVICE

I have provided notification of filing to the electronic mail addresses on the attached service list.

Upon confirmation of this document's acceptance for filing, I will cause a Notice of Availability of the filed document to be served upon the service list to this proceeding by U.S. mail. The service list I will use to serve the Notice of Availability of the filed document is current as of today's date.

Dated February 8, 2010, at San Francisco, California.

/s/ OYIN MILON
Oyin Milon

N O T I C E

Parties should notify the Process Office, Public Utilities Commission, 505 Van Ness Avenue, Room 2000, San Francisco, CA 94102, of any change of address to ensure that they continue to receive documents. You must indicate the proceeding number on the service list on which your name appears.

* *

The Commission's policy is to schedule hearings (meetings, workshops, etc.) in locations that are accessible to people with disabilities. To verify that a particular location is accessible, call: Calendar Clerk (415) 703-1203.

If specialized accommodations for the disabled are needed, e.g., sign language interpreters, those making the arrangements must call the Public Advisor at (415) 703-2074 or TDD# (415) 703-2032 five working days in advance of the event.