

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA



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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)

**COMMENTS OF THE DIVISION OF RATEPAYER ADVOCATES
ON SMART GRID SCOPING MEMO**

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The Division of Ratepayer Advocates (DRA) hereby submits these comments in response to the February 8, 2010 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 (Ruling).

I. INTRODUCTION

DRA recommends the following:

- Deployment plans (Plans) should be used as a set of guidelines;
- Utilities should submit annual status reports including an update of Plans. Any updates should be thoroughly vetted with a chance for party input and status reports should also be a means to track and review all Smart Grid investments;
- Plans may be one factor in considering investment requests, but should not relieve the utilities of their burden of proof in showing a project is reasonable and cost-beneficial;
- A 'presumption of reasonableness' in the Smart Grid context is unlawful and not supported by the long term procurement process;

- Some of the proposed standards for review of Plans are not applicable, and should be further refined/developed in the planned workshops;
- Ideally, Smart Grid investment request will be made through general rate cases (GRCs), although some projects may merit the closer scrutiny offered by separate application;
- Prior to establishing information disclosure policies, a discussion is necessary regarding cyber security, data, and privacy rules for that data;
- Special incentives to encourage development of devices in the home that interact with Smart Grid are unnecessary.

II. IMPLEMENTATION OF SENATE BILL 17

A. 3.1 Use of Smart Grid Deployment Plans

As noted in the Ruling, Senate Bill (SB) 17 requires that utilities develop and submit deployment plans (Plans) to the Public Utilities Commission (Commission) by July 1, 2011, but does not address the use of the Plans after adoption. The Ruling identifies three potential uses for approved Plans:

- 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)).¹

The Ruling tentatively proposes that Plans be used for the first two purposes identified above. DRA agrees that Plans should be used to assess and monitor a utility's deployment of Smart Grid capabilities and technologies. The development of Smart Grid Plan offers an opportunity to thoughtfully create guidelines to steer development of a Smart Grid. As part of the development of the Plan, DRA recommends the Commission order each utility to provide an inventory of all Smart Grid activities made to date. The inventory would provide a snapshot of California's Smart Grid progress, and provide guidance in how each utility will move forward.

DRA also supports the proposal that utilities submit annual status reports to measure progress relative to the baseline that reflect historical developments and include an update of future plans,² but believes the Commission should be more specific about what will happen when a utility includes an update of future plans. Updates to Plans may be required if a technology is found to be less cost-effective or optimal than originally forecasted in initial Plan development. In DRA's view, updates should be thoroughly vetted with a chance for parties' input. Thus, parties should have the opportunity to comment on any updates, and the Commission should approve or reject them.

However, deployment plans should not substitute for reasonableness reviews of individual Smart Grid investments. The Ruling states that Plans "should help to provide the strategic context for determining reasonableness of individual expenditures."³ While it may be appropriate to consider consistency with an investor-owned utility's (IOU's)

¹ Ruling at 6.

² *Id.* at 5, 7.

³ *Id.* at 7.

Plan as one factor justifying a requested Smart Grid project or investment, the Plan cannot be the sole justification. Rather, an IOU must file a specific application seeking ratepayer funding, and have the burden of proving that the funding is reasonable and in the public interest pursuant to Public Utilities Code § 451, or have funding requests reviewed through a general rate case (GRC). The Ruling appears to acknowledge this limit on a Plan’s application,⁴ but the point should be clarified. Deployment plans can help with long-term planning, and help assess specific funding requests, but should not be the sole basis for judging a specific Smart Grid project.

DRA is also concerned that the Ruling suggests the possible application of an unlawful “presumption of reasonableness” to Smart Grid projects that are consistent with an IOU’s Plan. To be clear, a Plan may not, consistent with law, confer a “presumption of reasonableness” on a specific Smart Grid project. Such a presumption would impermissibly shift the burden of proving reasonableness from the IOUs, where it belongs, to those opposing investment. DRA briefed the unlawfulness of such a presumption earlier, and incorporates those comments by reference here.⁵ Briefly, the IOU must prove and the Commission must find that expenditures of ratepayer funds are reasonable. Presumptions are not allowed in the statute.⁶ The suggestion that a Plan would confer such a presumption – or something akin to it – is all the more problematic given the Ruling’s acknowledgment of “the large level of uncertainty currently associated with the costs and performance characteristics of the new technologies that constitute the Smart Grid.”⁷

Reliance on the Commission’s long term procurement process (LTPP) does not support applying a presumption of reasonableness in the Smart Grid context. The

⁴ “[E]ven without any implications for the reasonableness of an investment,” a Plan “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.” *Id.*

⁵ DRA’s brief appears at <http://docs.cpuc.ca.gov/efile/CM/105491.pdf>.

⁶ Pub. Util. Code § 451; *Yaeger v. City Council of Fullerton*, 231 Cal. App. 2d 557, 562 (Cal. App. 4th Dist. 1965); 1 Witkin Cal. Evid. Burden § 10.

⁷ Ruling at 8.

establishment of the LTPP process followed the California Energy Crisis of 2000-01. The IOUs claimed they could not enter into long-term energy contracts without advance assurance that their procurement hedging mechanisms would not be second guessed by the Commission if it later turned out to be a poor investment. Hence, the Legislature granted the IOUs a presumption in order to avoid the IOUs' procurement mechanisms from being second guessed at a time when virtually all power being purchased in short term markets was subject to rampant market manipulation.

Thus, the utilities did not achieve relief from after-the-fact reasonableness reviews on procurement activities by regulatory fiat, they did so by legislation. Therefore, unless the Commission can shoehorn Smart Grid deployment into the purview of Public Utilities Code § 454.4 – and DRA believes it cannot – the proponents of a presumption or other assurance of reasonableness must obtain relief from the Legislature. SB 17 does not confer such status on Smart Grid deployment plans.

Smart Grid is an altogether different proposition from LTPP, an umbrella proceeding which guides the IOUs in the purchasing of energy and capacity. Smart Grid is a developing concept that includes infrastructure and technology from the generation plant all the way to the smart appliance found in the customer's home. It will take years to implement, and is not a response to a crisis. The term "Smart Grid" encompasses many nascent technologies that are not yet widely disseminated or regulated. A select few industry players have access to the most up-to-date information about the viability and reliability of those technologies at this stage, and many ways of implementing the Smart Grid have not yet been conceived. Thus, the Commission should not make an advanced finding of reasonableness based on information provided in the Plan. Smart Grid investments should be afforded a full review through the GRC or separate application, with any reference to the Plan being just one factor in the determination of reasonableness.

B. 3.2 Standards for Review of Smart Grid Plans

The Ruling makes several suggestions, based on Public Utilities Code §§ 8360 and 8366, about what a Smart Grid must be able to do. One proposed criterion is that "[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.”⁸ Nowhere in §§ 8360 and 8366 does the Legislature discuss rates, much less direct the Commission to enact or consider dynamic prices or penalties for usage during high-demand times. Additionally, home area network (HAN) equipment necessary to automate the load reduction during a critical peak period won’t be readily available until around 2012, and it may take a year or two for that equipment to become affordable to some customers, perhaps even longer for low-income customers. If time-of-use rates are adopted for residential customers, residential customers may respond better to positive incentives such as rebates or lowered rates for reducing consumption during critical times, rather than penalties for continuing with the *status quo*.

Another proposed criterion requires clarification. The Ruling states that a Smart Grid should “[e]nable 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.”⁹ However, electric restructuring/deregulation is currently barred in California as a consequence of the 2000-2001 Energy Crisis, and there is no current open marketplace that sells electricity supply directly to residential customers.¹⁰ While Senate Bill 695 was recently enacted, allowing a very limited re-opening of Direct Access for non-residential customers, the legislation does not apply to residential customers. Thus, the foregoing criterion should be modified to state, “A smart grid system may create an open marketplace for non-residential customers.”

DRA agrees with the Ruling’s proposal that Plans should include a “demonstrable vision consistent with the goals of SB 17,” a timeline, and projected costs.¹¹ Milestones

⁸ *Id.* at 12.

⁹ *Id.* at 13.

¹⁰ There is an exception for a very small amount of residential customers who remained on Direct Access after the 2000-2001 Energy Crisis.

¹¹ *Id.* at 13-14.

and other metrics for success should be developed. Additionally, Plans should include descriptions of how Smart Grid technology can be “deployed in a manner to maximize the benefit and minimize the cost to ratepayers and to achieve the benefits of smart grid technology” as stated in Public Utilities Code § 8366.

Smart Grid technologies are nascent and can be very expensive.¹² As California implements a Smart Grid, ratepayers must see and experience the benefits, rather than simply being hit with skyrocketing rates. The current Smart Meter revolt which started in Bakersfield, California proves that ratepayers will resist Smart Grid investments that do not deliver obvious benefits to those the IOUs serve – the end users. Thus, Smart Grid projects must be subject to strict cost-benefit analysis and demonstrate that their tangible benefits exceed costs.

DRA looks forward to further developing requirements for deployment plans through workshops.

C. 3.3 Review of Subsequent Investment Plans: What Regulatory Forums Should Consider Individual Proposals for Smart Grid Investments – Traditional GRCs or Separate Applications?

DRA recommends that Plans themselves should be approved in a single proceeding. While it is reasonable that Plans may differ for each utility according to their long term planning, approving the Plans in one proceeding will help ensure some congruity. Once Plans have been approved, any Smart Grid investment requests must come through either a GRC or an application. As discussed in Section 3.1, Plans should not determine approval of Smart Grid investment requests.

Ideally, Smart Grid investment requests would be made through GRCs, so that they can be compared against all other “traditional” capital, and operation and management (O&M) investments. Increasingly, utilities have been applying for various

¹² See, for example, <http://www.smartmeters.com/the-news/815-is-the-smart-grid-too-expensive.html> and http://www.denverpost.com/business/ci_14394848.

funding requests via applications. This makes it more difficult to track various investment approvals as there is no longer one place to evaluate all utility expenditures. GRC's encourage utilities to plan and budget, as they only occur every three to four years, and provide the ability to evaluate the need and cost of capital expenditures across the entire utility on a comprehensive basis. Using the GRC process will ultimately provide the utility with some flexibility in how they manage and prioritize the implementation of various projects, which can assure that there are some natural constraints on spending and should result in lower rates. Investment requests in the GRC should not conflict with the Commission's Smart Grid policies, nor allow redundant investments. GRCs are the appropriate vehicle in which to review *all* capital and O&M investments, and GRCs should evolve accordingly as the Commission moves away from traditional utility investments into the Smart Grid.

However, some projects may merit closer scrutiny than a GRC might offer. Especially projects employing new technologies such as AMI. And, as CLECA pointed out in its workshop comments, it is more difficult for intervenors to participate in GRCs.¹³ Barring all investment requests being made through GRCs, SCE's recommendation that the Commission either direct utilities to file special applications that meet minimum functionality requirements established in advance by the Commission or use traditional GRCs to make gradual investments over time¹⁴ seems reasonable. It may also be useful, once Plans are developed, to review the Smart Grid categories in those Plans and make a determination about specific types of projects that should go through an application process versus a GRC proceeding.

Finally, DRA recommends that when utilities file annual status reports, the Commission not only use those reports for filings at the Legislature, but as a means to track and review all Smart Grid investments as a whole. Providing one arena for review

¹³ Ruling at 15.

¹⁴ Ruling at 15.

of Smart Grid deployment will allow the Commission to evaluate the success of Smart Grid deployment, and restructure Smart Grid policy via the Plans as necessary.

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

The Scoping Memo seeks input on what the requirements of the Plan should contain, referring to Public Utilities Code § 8360 and federal law. Section 8360 sets forth various benefits that will result from modernization of the electric grid: improved reliability, cyber security, renewable and other demand-side resource integration, advanced metering, energy storage, electric vehicle integration, and interoperability. DRA supports inclusion of each of the § 8360 goals in the IOUs' Plans.

To the extent that the Plan must comply with federal law, the Commission has already determined that it has substantially complied with the requirements set forth in Title XIII of the Energy Independence and Security Act of 2007 (EISA) by virtue of implementing this proceeding and through prior Commission action.¹⁵ Section 1307 of EISA amended certain provisions of the Public Utility Regulatory Policies Act of 1978 ("PURPA") to require states to determine whether to compel an electric utility to consider an investment in a qualified smart grid system before traditional investments based on appropriate factors, including – (i) total costs; (ii) cost-effectiveness; (iii) improved reliability; (iv) security; (v) system performance; and (vi) societal benefit.¹⁶ States must also consider regulatory standards that allow utilities to recover Smart Grid investments through rates, including a reasonable rate of return on the capital expenditures of the utility for the deployment of a qualified Smart Grid system. Furthermore, states must consider recovery of the book-value costs of equipment rendered obsolete by the deployment of a Smart Grid system, based on the remaining depreciable life of the obsolete equipment. EISA also establishes federal standards on

¹⁵ D.09-12-046.

¹⁶ PURPA Section 111(d)(18)(A)

data information provided to electricity purchasers. Under EISA, a state is free to adopt any standard, including rejecting the PURPA standard, provided the state initiates an investigation or proceeding, issues a written decision, and makes it available to the public within a certain timeframe.¹⁷

Per the December 17, 2009 *Decision Adopting Policies And Findings Pursuant To The Smart Grid Policies Established By The Energy Information And Security Act Of 2007* (D.09-12-046), the Commission has declined to adopt many of these proposed federal standards. The Commission should not re-litigate those findings here. While the Commission has determined that it has substantially complied with federal law, neither should it conflict with federal policy. Other federal policies, not addressed by D.09-12-046 nor § 8360, should be considered. For example, in developing a Plan, the Commission should

- (a) consider the impact that implementation of such standard would have on small businesses engaged in the design, sale, supply, installation or servicing of energy conservation, energy efficiency or other demand side management measures, and
- (b) implement such standard so as to assure that utility actions would not provide such utilities with unfair competitive advantages over such small businesses.¹⁸

To the extent the Scoping Memo seeks input on whether the Plan should be relied on to determine the reasonableness of a Smart Grid investment, see the discussion in Section II.A above.

¹⁷ PURPA Section 111(c)

¹⁸ 16 U.S.C. § 2611.

E. 3.5 Standards and Protocols Adopted Pursuant to Section 8362

Section 8362(a)¹⁹ of the Public Utilities Code requires the Commission to adopt standards to ensure functionality and interoperability of the Smart Grid in California. The Commission notes that the groups identified in § 8362 have not yet adopted protocols and rules to ensure functionality and interoperability of the Smart Grid. For this reason, the Commission has required parties to provide comments on the following three approaches that it could take to meet its statutory obligation:

- Deferring Commission consideration in this proceeding until a number of the listed agencies have adopted standards or protocols;
- Deferring Commission consideration of protocols to another proceeding that will commence after a number of the listed agencies have adopted standards or protocols;
- 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.²⁰

The Commission should defer consideration of standards and protocols until the listed agencies – which are in a better position to analyze the technical aspects of interoperability – have adopted appropriate standards or protocols. By the same token, DRA does not object to the Commission convening a workshop of industry experts to help contribute to this standards-setting process for the Smart Grid in California. The workshop could bring together utilities, Standards Development Organizations (such as

¹⁹ “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.”

²⁰ Ruling at 19.

the American National Standards Institute (ANSI),²¹ the Institute of Electrical and Electronics Engineers (IEEE)²² Standards Coordinating Committee 21 “P 2030,” and others), and other stakeholders. DRA agrees comprehensive standards and rules that ensure the functionality and interoperability of the Smart Grid are essential. DRA favors development and adoption of an Open Architecture under National Standards.

Open Architecture requires that the specifications for services, protocols, interfaces, and data formats are:

- Agreed upon in an open process;
- Vendor neutral;
- Developed under the auspices of a nationally-recognized standards body;
- Designed to enable configuration of the system, operation and substitution of the elements of the system, its computer or controller software or its components, with other implementations available from different vendors;
- Published and readily available.²³

²¹ ANSI, a 501(c)3 private, not-for-profit organization, was founded in 1918 to enhance both the global competitiveness of U.S. business and the U.S. quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems, and safeguarding their integrity. ANSI is comprised of government agencies, organizations, companies, academic and international bodies, and individuals, and is the official U.S. representative to the International Organization for Standardization (ISO) and, via the U.S. National Committee, the International Electrotechnical Commission (IEC). ANSI is also a member of the International Accreditation Forum (IAF) and, regionally, the U.S. member of the Pacific Area Standards Congress (PASC), the Pan American Standards Commission (COPANT), the Pacific Accreditation Cooperation (PAC), and, via the ANSI-ASQ National Accreditation Board (ANAB), a member of the Inter American Accreditation Cooperation (IAAC). Source: ANSI, at http://www.ansi.org/about_ansi/overview/overview.aspx?menuid=1

²²IEEE, successor to the American Institute of Electrical Engineers, founded in 1884, is a 501(c)3 non-profit organization, renamed when it merged with the Institute of Radio Engineers in 1963. IEEE is the world’s largest professional association, advancing innovation and technological excellence for the benefit of humanity, through a global community, through its highly cited publications, conferences, technology standards, and professional and educational activities. IEEE is an ANSI-accredited Standards Development Organization. Source: IEEE, at <http://www.ieee.org/web/aboutus/home/index.html>

²³ The Commission agreed with DRA’s recommended Open Architecture requirements in Decision 96-10-074, filed October 25, 1996, in Order Instituting Rulemaking (OIR.94-04-031) on the Commission’s Proposed Policies Governing Restructuring California’s Electric Services Industry and Reforming Regulation.

III. TASKS ASSIGNED TO THIS PHASE OF THE PROCEEDING BY D.09-12-046

A. 4.0 Comments on Straw Proposal for Information Disclosure Policies

The Ruling proposes language for information disclosure policies. The privacy implications of the Smart Grid – and especially in-home devices – are significant. Prior to establishing information disclosure policies a discussion is necessary regarding cyber security, the data itself, and privacy rules for that data.

In D.09-12-046 adopted in this proceeding, the Commission declared as policy objectives “ensuring all information is secure and a customer’s privacy is protected” and requiring utilities to have operations in place by the end of 2010 allowing customers access to their information through an agreement with a third party.²⁴ It may be difficult to meet both of these goals, given the limited amount of time, but protection of privacy should be paramount. Thus, DRA urges the Commission to focus first on ensuring the privacy and security of customer information.

Privacy concerns exist wherever personal identifiable information is collected and stored. Once information is released, it is practically impossible to retract.. Further, many agencies are examining the privacy issues related to the Smart Grid, including the National Institute of Standards and Technology (NIST), the Federal Energy Regulatory Commission, the Federal Communications Commission, and Congress. The Commission, at the very least, should apprise itself of the issues these agencies are examining rather than going it alone and inadvertently compromising customer privacy..

²⁴ D.09-12-046 at 54.

DRA has met with various leaders in the privacy field²⁵ and has learned a great deal about the ways in which energy usage data can be compromised or misused. While the data has important uses for energy conservation – at least for customers with the potential to load shift – its release can be very harmful to consumers. Data can be compiled for various discriminatory, anti-competitive, or illegal uses. Privacy protections can be, and have been, circumvented by user error, disgruntled company employees, or hackers. Further, even when data is released legally, a third party’s use of it may be undefined and beyond the Commission’s jurisdiction, making it even more important to establish rules about data collection and distribution now.

Along with DRA’s recommendations in Section IV.E about cyber security, below are just some of the potential issues – many brought to DRA’s attention by privacy experts with many years experience dealing with technology/privacy issues – that the Commission must consider in making rules protecting customer privacy:

- The data released may disclose intimate personal details related to customers’ presence in or absence from the home; purchasing preferences (*i.e.*, appliances in the home); health; cohabitation arrangements. For example:
 - Scant energy usage may allow third parties, and potentially criminals, to determine which homes are empty;
 - Hackers have used poorly secured utility networks to pass their utility charges to other customers, disconnect customers from the grid;

²⁵ On Friday, February 26, DRA attended a meeting regarding privacy concerns at TURN. In attendance were representatives from Consumer Federation of California, True North Associates, a consumer affairs consultant, NBrockway & Associates, Center for Democracy and Technology, Electronic Privacy Information Center, Electronic Frontier Foundation, California Office of Privacy Protection, World Privacy Forum, PrivacyActivism.org, National Consumer Law Center, Texas Legal Services Center, Privacy Rights Clearinghouse, TURN, DRA, and Samuelson Law, Technology and Public Policy Clinic, UC Berkeley School of Law.

- Law enforcement agencies in Texas have mined thousands of customers' energy usage data—without their consent—to identify and target high energy users as potentially running marijuana-growing operations, raising questions about customer privacy rights;²⁶
- Landlords may be able to determine how many people live in a home, perhaps in violation of a leasing arrangement;
- In home devices may allow two-way communication and facilitate the reading of Radio Frequency Identification tags (RFIDs), disclosing, for example, occupants' prescription data to third parties;
- The Commission does not regulate third parties, so if they obtain customer data they may sell it, use it for advertising purposes, and barrage customers with unwanted or even nefarious advertisements and promotions. Before allowing such release, the Commission must consider how to ensure that data is not misused when third parties gain access to it. The Commission can surmount this regulatory hurdle by forbidding the IOUs from releasing customer data to third parties that are not subject to enforceable agreements protecting privacy in the manner discussed here;
- Fair Information Practice Policies (FIPP) are already available and applicable in a number of privacy contexts and are designed to ensure:
 - self-policing by companies dealing in customer data;
 - some regulation of companies dealing with customer data for compliance purposes;
 - adequate notice to customers of the consequences of their allowing data to be released. Customer notices are often dense and unintelligible, and this failing should be rectified. Simply requiring

²⁶ See <http://www.austinchronicle.com/gyrobase/Issue/story?oid=oid%3A561535>

customers to click “accept” on a computer screen does not assure knowing consent;

- informed consent by consumers to such release;
 - minimization so only essential data is released;
 - relevance of data released to purpose for which it is released; and
 - practices to ensure the quality of data released (that it is up-to-date and accurate)
- Data may be stored at the meter, so if a meter is not de-energized when one tenant leaves, the next tenant could have access to that data;
 - There is a greater risk of compromising customer privacy if the data leaves the home to be processed;
 - Data sent over wireless devices is easily intercepted by drive-by data collectors and must be securely encrypted to prevent interception. All Smart Meters have HAN functionality, even if the meters are not yet activated; once activated they enable wireless transmission of data with the consequent risk of compromising data;
 - Entities with access to usage data may gain a competitive edge over other market players;
 - Meaningful customer education must take place prior to deploying devices in the home and releasing customer data to third parties.

Any rules the Commission develops must also impose the following requirements:

- Data collection should be limited to specific lawful uses for which there is a determined need;
- Law enforcement access to data should be subject to legal process requirements such as warrants or court orders, except where existing statutes allow otherwise;
- Data must be up-to-date and accurate;
- Data must be collected and stored in a secure manner;

- Audits of data collection practices, usage, and dissemination should be performed on a regular basis,
- Parties that violate the rules may be subject to enforcement action, and regulators should consider appointing chief privacy officers to ensure compliance;
- Notice must be given to customers whose data has been compromised,
- Those in charge of handling data must comport with established CPUC-recognized privacy standards.

Finally, the Commission should make use of the experience gained in the telecommunications industry. The FCC's Customer Proprietary Network Information (CPNI) docket²⁷, for example, has examined data privacy issues in-depth and should be used here. There is no reason for this Commission to reinvent the wheel. *See* 47 U.S.C. § 222 (CPNI requirements).

Moreover, DRA recommends that the Commission invite representatives with expertise in privacy issues to speak on a panel at the March 19 workshop. It would also be helpful to understand how consumer information is currently handled with third parties participating in the market, such as demand response aggregators. Parties can then comment on their input and begin the process of developing privacy standards particular to Smart Grid data prior to the Commission adopting information disclosure rules.

²⁷ *See* Federal Communications Commission, In the Matter of Implementation of the Telecommunication Act of 1996: Telecommunications Carriers' Use of Customer Proprietary Network Information and Other Consumer Information, Order FCC 07-22, Apr. 2, 2007, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-22A7.pdf. *See also* CC Docket 96-114 and WC Docket No. 04-36.

IV. REMAINING ISSUES

A. 5.1 Should the Commission Measure Smart Grid Deployment Using Quantitative Metrics? What Metrics Should the Utilities Be Required to Use?

DRA agrees with the Ruling’s proposal to adopt a set of metrics to measure progress in implementing a Smart Grid in California, and require the IOUs to file them annually. However, reporting alone is inadequate; the Commission should direct Energy Division to evaluate and report on the metrics after their submission. The proposed metrics in Attachment C to the Ruling are a good starting point for a workshop, but need further development. Regardless of what metrics are adopted, they may need to change once deployment plans are adopted, and will likely need adjustment down the road as technology and the Smart Grid is developed.

DRA provides some initial comments and concerns about the proposed metrics below:

- Cost-effectiveness – there are no metrics measuring cost-effectiveness. A metric should be included showing savings and increases to actual bills due to Smart Grid technologies. The Commission could use the cost-effectiveness metrics specified in the “California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects”²⁸ (SPM) as a foundation for developing Smart Grid cost-effectiveness metrics. Two advantages to this approach are that the SPM is well know and used throughout the United States, and it would allow comparisons to investments in demand-side management programs.
- Section 2 “Dynamic Optimization of the Grid Including Asset Management, with Full Cyber-Security” – DRA is unclear what the metric “average energy consumption during summer peak period divided by average energy consumption during summer off-peak period” is intended to measure. A more

²⁸ See <http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/EM+and+V/>

useful metric might measure the load factor; that is, average load divided by peak load. The load factor will indicate how steady the electrical load is over time.

- Section 4 “Incorporation of Cost-Effective Demand Response, Demand-Side Resources, and Energy Efficiency Resources” – the metric measuring energy efficiency calls for reporting total megawatt-hours of energy efficiency savings. This metric may seem simple on the surface, but calculation has been very contentious in the Commission’s energy efficiency proceedings.²⁹ DRA would support verified ex-post numbers from Energy Division’s energy efficiency consultant. Further, DRA recommends that the Commission consider including a metric about overall decreases in consumption, as drops in consumption may be more indicative of effective energy efficiency than megawatt-hours of energy efficiency savings.
- Some of the metrics measure specific technology such as microgrids, Supervisory Control and Data Acquisition (SCADA) systems, phasor measurement units, phasor data concentrators, and thermal-storage air conditioning. As yet, there has been no determination about the technologies that will constitute the Smart Grid. Metrics established at this point should not favor certain technologies over others.

DRA suggests that the Commission hold a workshop to further develop Smart Grid metrics.

²⁹ See R.06-04-010, now R.09-11-014, and 2010-12 portfolio applications, A.08-07-021.

B. 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?

Since Workshop 5, held in 2009 in this proceeding, DRA has learned a great deal about privacy concerns stemming from the use of in-home devices. DRA is concerned about the prospect of a multitude of new vendors – most of which are not regulated by this Commission or any other governmental body – having access to information that could compromise customers’ safety, privacy and financial relationships. *See* Section III.A above. Before the Commission decides on a demarcation point/service delivery point or incentives to grow the market for in-home devices and services, it must first consider issues of consumer protection and privacy.

DRA continues to believe that customers should own all equipment on the customer side of the meter, as well as data about their own use, as the Scoping Memo notes.³⁰ Other issues regarding who should have access to customers’ data, be entitled to place devices in the home, or otherwise track customers' detailed usage patterns must await study on the important privacy issues we present above.

DRA does not believe that “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.”³¹ The Ruling cites the experience with the telecommunications market as a guide. That market has experienced a proliferation of investment in handheld devices such as cell phones, smart phones, laptops, set top boxes, modems and the like without government subsidies. From the number of companies marketing their wares in this area, the number of “summits” on the Smart Grid, and the

³⁰ Ruling at 27 (“DRA . . . 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.”).

³¹ *Id.* at 28.

number of intervenors seeking party status in this proceeding, it is clear that the market does not need special help to develop.

Many of the players in this case – including Google and those operating in the same space as Google – are well-funded entities that consistently oppose government regulation of their businesses. Subsidies and other incentives should come with tradeoffs. If the Commission were to provide incentives such as subsidies or regulatory forbearance to “encourage the deployment of devices in the home that interact with the Smart Grid in ways that facilitate the management of electric load,”³² the recipients should be subject to some form of Commission regulation, in order to monitor and evaluate the use of ratepayer funds as well as ensure compliance with privacy rules, in return. DRA suspects most market players would not be content to strike this bargain.

There is no record to establish that incentives or other “encouragement” is necessary for devices in any event. The Scoping Memo alludes to Workshop 5 in this proceeding but does not cite specific record evidence or other material showing a need. Before the Commission commits funding or lowers regulatory barriers for such devices, there must be a showing that such actions are necessary.

Development of the Smart Grid is likely to be a decades-long project. There is no need to imprudently rush to develop policies that have an impact on ratepayers and end-user customers without careful consideration. Treating any business like a new gold rush inevitably has consequences – usually for those least likely to be able to bear them. The Commission can meet its regulatory deadlines pursuant to SB 17 without making hasty decisions now that it will ultimately have to undo.

C. 5.3 Electric Vehicle-Related Issues

The Commission is considering alternative-fueled vehicle tariffs, infrastructure and policies supporting California’s greenhouse gas emissions reduction goals in Rulemaking (R.) 09-08-009. In that rulemaking, the Assigned Commissioner concluded

³² *Id.*

that a consideration of standards related to electric vehicles should be conducted in this Smart Grid proceeding. The Ruling therefore invites comments on what standards the Commission should adopt pursuant to the use of electric vehicles by customers.

Plug-in Electric Vehicle (PEV) manufacturers have disclosed no current plans to provide PEVs to the market that are Vehicle to Grid (V2G) capable. The V2G capability ideally would provide energy storage which would help support Smart Grid deployment, as explained further below. It may be several years before PEVs will have this capability. However, DRA expects that in the long run as demand for PEVs grows the role of PEVs as storage devices will become more important. The V2G capability, if large enough in aggregate, would have similar benefits as other storage technologies. Storage would help smooth out the variations in intermittent generation and loads, make grids more secure, facilitate ancillary services and more. It would be prudent to design Smart Grid components to be able to utilize PEVs efficiently for this purpose. However, the Commission has plenty of time to consider these issues as forecasts indicate that mass deployment will not occur for quite awhile.³³

In the interim, the Commission must address increased demand placed on the grid by on-peak charging of PEVs. The Smart Grid should be designed to address burdens placed on the grid by on-peak fast charging. In addition, Smart Grid design should accommodate potential separate metering of PEVs in residential buildings.

DRA believes that the design of Smart Grid with regard to electric vehicles is an evolving process and cannot be completely designed and implemented from the outset. Ideally, the Commission should adopt national standards as they are developed. In general, the Smart Grid should be designed to accommodate two-way communications between the PEVs, meters, and the grid operator. It should enable operator access to tap into this storage resource in a timely manner, and remotely start or stop the charging of an electric vehicle. The more this interaction is standardized the fewer problems will occur in operating the grid. If the Commission determines that it need not wait for

³³ See DRA Opening Comments, October 5, 2009, in R.09-08-009.

national standards, it can hire consultants, specializing in this area, to develop proposed standards, and have them reviewed through workshops and /or working groups.

D. 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?

It is prudent to consider the impact of storage integration in the design of the Smart Grid. This proceeding should focus on broad design of the Smart Grid with compatibility and interoperability with storage projects in mind.

The integration of storage facilities into the operation of the grid will require the ability of the grid operator to engage in two-way real-time communications directly with storage devices. The storage device can be relied upon for generation in times of need as well as excessive “load” when too much generation is available. Storage can substitute for transmission or generation in some cases; increase the value and dispatchability of intermittent renewable generation; improve grid stability and safety, as well as defer upgrades; maintain power quality and reliability; and provide “emissionless” energy regulation. Use of storage would also be advantageous in other ancillary services, such as reactive power and voltage support that are more effective when utilized locally instead of bringing them through long distance transmission lines. Some storage capabilities, such as flywheels, can also perform black start capability.

There are various storage options available, and the choice among options depends on the goal for utilizing the storage facility. The Commission should consider the following matters in integrating storage into the design of Smart Grid:

- It would be preferable to place the energy storage facility at or near the load, and equip it with two-way remote communication capability accessible by the grid operator. Placing energy storage at or near the load would reduce potential line losses, saving money for the ratepayers. It would also save money by avoiding larger transmission and distribution lines;

- In addition to placing storage close to the load, it would also be prudent to place it at or near the source of generation. In the case of wind and solar generation, storage would reduce the need for large capacity transmission lines, saving money for ratepayers;
- Thermal energy storage can be used in buildings to lower the peak electric demand caused by large users during peak daytime hours (*e.g.*, air conditioning), saving money for large customers directly and ratepayers indirectly.

Finally, in DRA's view, another important use of the Smart Grid is for renewables integration, which storage helps facilitate. For example, DRA did not oppose the first stage of PG&E's proposal for a Compressed Air Energy Storage research and development project (Application A.09-09-019/D.10-01-025) because the project would examine the feasibility of smoothing out wind intermittency through in-state compressed air storage. Thus, DRA supports the inclusion of storage under the Smart Grid umbrella, and does not believe that Smart Grid proposals should limit the storage options for consideration. Storage options should be adopted based on the usage intended for them, as well as their cost-effectiveness and technological feasibility in meeting those needs.

E. 5.5 What Cyber Security Principles Should Smart Grid Proposals Meet?

If anything is clear from the number of news pieces one reads about hacking, identity theft and other misuses of cyber data, it is that corporate America needs to do more to protect the private, vital data of its customers. As the Scoping Memo notes, release of customer data presents a real safety risk:

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.³⁴

By the same token, allowing IOUs greater access to this data than competitive providers may restrict customers' access to the best technology and cause them to pay more for Smart Grid-related services. As with the inside wire industry in the telecommunications context, opening end-users' homes to the competitive market can lower prices, lead to better service quality, and pave the way for new products and services.

As discussed in Section III.A, privacy concerns should be paramount. The Commission must establish privacy rules and cyber security prior to allowing any third party access to data. DRA recommends that the Commission invite representatives with expertise in privacy issues to speak on a panel at the March 19 workshop. Such panelists could provide the Commission and parties with essential information to begin development of cyber security.

V. CONCLUSION

The Commission should adopt DRA's recommendations based on the comments set forth above.

³⁴ Ruling at 34.

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March 9, 2010

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of **COMMENTS OF THE DIVISION OF RATEPAYER ADVOCATES ON SMART GRID SCOPING MEMO** to the official service list in **R.08-12-009** by using the following service:

E-Mail Service: sending the entire document as an attachment to all known parties of record who provided electronic mail addresses.

U.S. Mail Service: mailing by first-class mail with postage prepaid to all known parties of record who did not provide electronic mail addresses.

Executed on **March 9, 2010** at San Francisco, California.

/s/ Imelda Eusebio
Imelda Eusebio

N O T I C E

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