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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'S AND
ADMINISTRATIVE LAW JUDGE'S JOINT RULING**

1. Summary

Today's joint ruling addresses the topic of Smart Grid metrics and the topic of Smart Grid security and customer privacy.

First, this joint ruling proposes revised metrics pertaining to the Smart Grid that will allow the Commission, other parties and the public to measure, compare and contrast the adherence of Southern California Edison Company (SCE), Pacific Gas and Electric Company (PG&E) and San Diego Gas & Electric Company (SDG&E) to statutes and policies created by the Commission. These new metrics are contained in Attachment A.

Previously, a set of proposed metrics was attached to the Joint Ruling of February 8, 2010,¹ which invited comments from all parties. Although numerous parties to the proceeding provided initial comments on those

¹ *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 (February 8, 2010)* ("Joint Ruling of February 8, 2010").

proposed metrics, Decision (D.) 10-06-047 found that further consideration of the topic and the comments of parties was warranted.

Second, this joint ruling sets the schedule for comments and a workshop to address, review and modify Commission Staff's proposed revised metrics. Opening comments are due on August 17, 2010. A workshop follows on August 25, 2010. Reply comments are due on September 9, 2010.

This schedule will allow for parties and the Commission to have a more thorough and reasoned review of metrics, and will culminate in the Commission adoption of metrics that will be used to measure, compare and contrast the performance and adherence to policies set forth by the Commission in regards to Smart Grid deployment by SCE, PG&E and SDG&E.

Consideration and Commission adoption of metrics in a timely manner will provide utilities with a clear direction and afford utilities adequate time to incorporate these metrics into their initial deployment plan filings, due by July 1, 2011. As directed by D.10-06-047, this initial deployment plan will contain a baseline measurement of utility investments in Smart Grid.² These adopted metrics will provide additional information for the Commission, parties and the public for a more thorough understanding of Smart Grid investments and deployments.

Finally, this joint ruling schedules a prehearing conference (PHC) on August 20, 2010, to discuss the steps that the Commission should take to protect the privacy of electricity consumers and the security of their energy usage data while providing timely access to information, consistent with the policy targets

² *Id.* at 21.

adopted in D.09-12-046. We note that the National Institute of Standards and Technology (NIST) has issued new draft guidelines on Smart Grid cyber security and the Commission is working with NIST to hold a conference on privacy and security at the Commissions the third week of August 19, 2010.³ Since our PHC will likely follow this event, we expect that the NIST discussions will improve our understanding of these issues.

2. Metrics

As stated in the February Joint Ruling of February 8, 2010, “[m]etrics offer a good way of measuring progress in the implementation of any policy.”⁴ The Joint Ruling of February 8, 2010 contained a list of proposed metrics⁵ based on comments and on presentations made in a July 31, 2009 workshop in this proceeding, as well as on metrics identified by the Department of Energy in its “Smart Grid System Report.”⁶ The original proposed metrics were structured to conform with § 8360 of the Pub. Util. Code, and were designed to be a mix of “build” and “outcome” related metrics.

2.1 Discussion

In response to the directive of the Joint Ruling of February 8, 2010, numerous parties filed comments on the metrics. The majority of parties supported metrics, but many requested additions and modifications to the

³ NIST is also holding an outreach and workshop in coordination with California State Poly Technical University, Pomona on August 10 - 11, 2010.

⁴ Joint Ruling of February 8, 2010 at 24.

⁵ See Joint Ruling of February 8, 2010 at Attachment C.

⁶ NIST Draft Interagency Report (NISTIR) 7628, “Guidelines for Smart Grid Cyber Security” (July 2010).

proposed set. In contrast PG&E, SCE and SDG&E proposed a much smaller sub-set of metrics in their comments.⁷

D.10-06-047 declined to adopt metrics because of the inadequacy of the record developed through workshops and initial filings. Instead, D.10-06-047 directed Commission Staff to review comments received on the original proposed metrics, and prepare a new set of proposed metrics for comments and further consideration by the Commission.

This review by staff has resulted in the proposed metrics that are included in today's joint ruling as Attachment A. The goals of this proposal are unchanged from that of the Joint Ruling of February 8, 2010, which were 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."⁸

As D.10-06-047 ordered, metrics adopted in this phase of the proceeding should be included in the utilities' Smart Grid deployment plan filings due by July 1, 2011. Additionally, the utilities are required to submit an annual report on performance relative to the metrics as part of their annual reports, to be filed annually pursuant to the timetable adopted the by Commission. Currently, D.10-06-047 requires filing of annual reports, commencing on October 1, 2012.⁹

⁷ *SCE Comments on 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* (March 9, 2010) at 22; *SDG&E Opening Comments* (March 9, 2010) at 21; *Opening Comments of PG&E on Proposed Policies and Findings Pertaining to the Smart Grid* (March 9, 2010) at 13.

⁸ Joint Ruling of February 8, 2010 at 25.

⁹ D.10-06-047 at 5.

2.2 Comments Invited

This joint ruling invites parties to comment on the attached proposed metrics included as Attachment A to this joint ruling. Comments should focus on the appropriateness of the metrics, and should propose additions, modifications, or deletions to the proposed metrics. When recommending additions or modifications, parties should recommend specific wording and the reasoning behind their proposal.

2.3 Proposed Schedule

To resolve the issues concerning metrics identified within this joint ruling, we establish the following schedule:

Comments on proposed metrics attached to this joint ruling	August 17, 2010
Workshops at 10:00 a.m. to 4:00 p.m. to consider metrics	August 25-26, 2010
Reply Comments on issues relating to metrics identified in this joint ruling, opening comments or discussed in the workshop	September 9, 2010
Projected mailing date of Proposed Decision	September 28, 2010
Commission consideration of Proposed Decision	October 28, 2010

3. Privacy and Security

D.10-06-047 stated:

Further, we note that we anticipate a separate decision before the end of the year adopting privacy rules prior to the Commission ordering third-party access to customer data. A ruling will follow this decision setting a schedule for resolving privacy issues.¹⁰

¹⁰ D.10-06-047 at 4-5.

We therefore have scheduled a PHC for August 20, 2010 for 10:00 a.m. at the Commission Courtroom, State Office Building, 505 Van Ness Avenue, San Francisco, California 94102.

Parties are invited to furnish PHC statements that address:

1. Proposals that will provide customers with their usage and pricing data in a timely matter.
2. The regulatory policies that the Commission should adopt to protect the privacy of California power customers and to protect the security of the grid.
3. The regulatory policies that the Commission should adopt to permit authorized third parties with access to this data, and the conditions that they must meet for continued access.
4. Whether there are issues involved with a party's proposal that may require evidentiary hearings for resolution.
5. Proposed schedule and procedures for addressing privacy and security issues.

A PHC to address these matters is scheduled at 10:00 a.m., August 20, 2010. PHC Statements are due August 13, 2010.

IT IS RULED that:

1. The schedule set forth herein is adopted and may be changed by the Administrative Law Judge if needed.
2. Parties may file opening comments and replies to the issues and questions listed in Section 2 of this ruling. Opening comments are due August 17, 2010. Reply comments are due September 9, 2010 and may comment on topics raised in the workshop, as well as topics raised in Opening Comments.
3. A workshop on proposed metrics will be held from 10:00 a.m. to 4:00 p.m., on August 25, 2010 at the Commission's Courtroom, State Office Building,

505 Van Ness Avenue, San Francisco, California 94102. If needed, a second day of workshops will be held at 10:00 a.m., on August 26, 2010.

4. A prehearing conference to consider privacy and security policies needed to provide customers and third parties access to usage data and prices, as outlined in Decision 10-06-047, is scheduled for 10:00 a.m., August 20, 2010, at the Commission's Courtroom, State Office Building, 505 Van Ness Avenue, San Francisco, CA 94102.

5. Parties to this proceeding may file prehearing conference statements addressing the questions in Section 3 of this ruling or other issues requiring resolution regarding privacy and security issues. Prehearing conference statements should be filed and served by August 13, 2010.

Dated July 30, 2010, at San Francisco, California.

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

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

ATTACHMENT A

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 Program¹; parties' presentations at the Commission's Smart Grid workshops; parties' comments in the Commission's Smart Grid proceeding; 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 system-wide total number of minutes per year of sustained outage per customer served as reflected by the System Average Interruption Duration Index (SAIDI) and by customer class and location
 - How often the system-wide average customer was interrupted in the reporting year as reflected by the System Average Interruption Frequency Index (SAIFI) and by customer class and location
 - The number of momentary outages per customer system-wide per year as reflected by the Momentary Average Interruption Frequency Index (MAIFI) and by customer class and location

¹ 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.

- The changes in SAIDI, SAIFI and MAIFI on a year-to-year basis due to investments in Smart Grid and grid efficiency technologies
 - The number of customer reported outages versus outages identified by use of digital information
 - The number of outages listed by transmission and distribution circuits
 - Tons of CO₂-equivalent emissions avoided through improved efficiency of the use of existing fossil resources (including ancillary services).
2. Dynamic Optimization of the Grid Including Asset Management (§ 8360(b))
- Number and percentage of miles of transmission circuits being operated under dynamic line ratings
 - Percentage of miles of distribution circuits being operated under dynamic line ratings
 - 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
 - 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

3. Grid and Cyber Security

- Number of attempted cyber attacks on the utility
- Number of security breaches experienced by the utility
- Number and percentage of customers affected by security breaches
- Monetary damages suffered by utilities as a result of cyber attacks on the utility or its infrastructure
- Number and total number of minutes of outages attributable to grid and cyber attacks

4. 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 (split between renewable and non-renewable)
- Total annual production of distributed generation facilities
- 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

- Tons of CO₂-equivalent emissions avoided through improved efficiency of renewable resource integration
 - Metric needed pertaining to frequency and impacts on distribution grid due to distributed resources)
5. Incorporation of Cost-Effective Demand Response, Demand-Side Resources, and Energy-Efficient Resources (§ 8360(d))
- Total megawatts and percentage of peak load of demand response (expected load impact when called)
 - Total megawatt-hours of energy efficiency savings
 - The amount of load bidding in ancillary services market
 - The amount of load clearing in the ancillary services market
 - The amount of load bidding in the wholesale market
 - The amount of load clearing in the wholesale market
 - (How to measure consumption shifts in response to renewable production)
 - (Insert any other EE metrics)
 - Percentage of demand response AutoDR enabled
 - Metric needed to measure total decrease in demand, by customer class and by peak and off-peak, due to demand response
6. Deployment of Cost-Effective Smart Technologies (§ 8360(e))
- 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 phase 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
7. Integration of Cost-Effective Smart Appliances and Consumer Devices (§ 8360(f))
- Number of meters with an activated Home Area Network
 - Number of Home Area Networks able to communicate with consumer devices
 - Number of consumer devices registered with the utility
 - Number of consumer devices actively communicating with Home Area Networks
 - Number of customer complaints related to interaction of consumer devices with Home Area Networks
8. Deployment and Integration of Energy Storage and Peak Shaving (§ 8360(g))
- The number and percentage of electricity customers and magnitude and percentage of total load served by energy storage

- The number and percentage of electricity customers and magnitude and percentage 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
 - MW and Mwh of capacity of peak load-reducing energy storage installed
 - MW and Mwh of capacity installed energy storage
 - Distribution feeder load factor with and without energy storage
 - Increased substation capacity resulting from energy storage
 - Frequency and duration of interruptions of customers due to energy storage
9. Deployment and Integration of Plug-in Electric Vehicles
- Estimated number of plug-in electric vehicles registered within the utility service territory
 - Estimated electricity usage and peak demand attributable to plug-in electric vehicle charging during off-peak and on-peak hours
 - Number of customers utilizing a separate meter and number of customers utilizing a submeter to separately measure plug-in electric vehicle usage from facility usage
 - Number of customers enrolled in time-variant utility tariffs for plug-in electric vehicle customers
 - Number of customers participating in potential smart charging customer programs

- Number and type of demand response and ancillary service events sent by the ISO/utility to plug-in electric vehicle customers (including authorized third party electric vehicle service provider customers)
 - Estimated value of ancillary service products plug-in electric vehicles enable
 - Number of networked customer-premise plug-in electric vehicle charging facilities at residential, commercial and public locations
 - Number of networked customer-premise plug-in electric charging facilities that communicate with the utility: 1) Via the HAN; 2) Via the PLC; 3) Via the internet; 4) Via and alternative communications platform
 - Number of customers and authorized third parties accessing customer electricity fuel information
 - Number of customers accessing real-time usage and/or pricing information through vehicle communication systems
 - The number and percentage of networked device installations on distribution and transmission systems that can communicate with plug-in electric vehicles
 - Number and total minutes of avoided incremental peaking capacity procurement and distribution system costs attributable to demand side management programs for plug-in electric vehicles
10. Provide Consumers with Timely Information and Control Options (§ 8360(h))
- 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
 - Number of advanced meters replaced annually

- Number of outages attributed to advanced meter malfunctions
- Provide any reports created in response to advanced meter malfunctions
- Number of advanced meter audits requested by customers
- Number of customers accessing energy usage information through the Internet or other web-based portal
- Number of authorized third parties accessing customer energy usage information
- Number of customers accessing real-time usage and/or pricing information and how often
- The number and percentage of electricity customers and magnitude and percentage of total load served by dynamic or time-variant pricing programs (*e.g.*, real-time pricing, critical peak pricing, *et al.*) in total and by customer class
- The number and percentage of electricity customers and magnitude and percentage of total load served by default and voluntary dynamic or time-variant pricing programs in total and by customer class
- The number and percentage of electricity customers and magnitude and percentage of total load served by load management programs (*e.g.*, interruptible tariffs, direct load control, consumer load control with incentives) by customer class
- Tons of CO₂-equivalent emissions avoided (by load shifting or load reduction) as a result of increased customer awareness of the GHG emissions associated with energy consumption.

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

- Number of touch points (i.e. different types of outreach efforts to integrate and inform the consumer) to enable customers to become more informed about the Smart Grid and allow customers to use electricity more efficiently and save money.
- The steps being taken to ensure that the evolution of a utility customer from a recipient of energy and into a participant in the grid is successful (i.e. methods used to provide education and marketing of why Smart Grid is beneficial to the individual consumer).

(END OF ATTACHMENT A)

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Dated July 30, 2010, at San Francisco, California.

/s/ LILLIAN LI

Lillian Li

N O T I C E

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