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	R.08-12-009 (Filed December 18, 2008)

SOUTHERN CALIFORNIA EDISON COMPANY'S (U-338-E) COMMENTS TO 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

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I.

INTRODUCTION

Southern California Edison Company (SCE) appreciates the opportunity to respond to the 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). In the comments below, SCE presents our proposal concerning the scope and methods for Commission evaluation of the Smart Grid Deployment Plans (Deployment Plans), pursuant to Senate Bill (SB) 17. We also comment on rules governing the customer data standards and objectives adopted in the first phase of this proceeding. Finally, we address other topics introduced in the Ruling.

SCE, Pacific Gas and Electric Company, and San Diego Gas and Electric Company have collaborated on certain elements of our responses to the Ruling. Specifically, the three Investor-Owned Utilities (IOUs) have been working on common elements for their Deployment Plans. SCE has endeavored to ensure the plans are consistent with joint efforts by utilities (including Electric Power Research Institute and Sacramento Municipal Utility District) on the California Energy Commission's (CEC) Public Interest Energy Research (PIER) project entitled "California Utility Vision and Roadmap for the Smart Grid of Year 2020." In addition, the three IOUs have collaborated to assess the appropriateness and viability of collecting and reporting the Smart Grid metrics proposed in the Ruling.

II.

COMMISSION SMART GRID POLICY

SCE believes our recommended framework will advance the state and federal energy policy goals in the most efficient manner possible for California ratepayers. As a critical first step toward implementing this framework, we propose that in Phase II of this proceeding, the Commission adopt a set of Smart Grid objectives similar to those proposed in the Ruling.[1] These objectives will inform the Commission's evaluation of Deployment Plans submitted by IOUs and will help to ensure that each IOU's Deployment Plan directionally supports the Commission's key policy goals. These objectives will also help guide future reasonableness reviews of specific Smart Grid investment proposals that will be made in General Rate Cases (GRCs) or in stand-alone applications.

In the sections below, we will present our proposal for the requirements and the Commission's consideration of Deployment Plans. We will then provide comments on specific issues and questions raised by the Ruling.

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[1] We are proposing the formal adoption of functionality criteria here. Specific recommendations for criteria, including comments on those proposed in the ruling are addressed in Section II.B.1.

A. Deployment Plan Proposal

Consistent with positions stated in the Ruling, SCE proposes that Deployment Plans take the form of a Smart Grid Strategy and Technology Roadmap. The plans should describe the directional alignment of each utility's Smart Grid strategy to its proposed technology adoption roadmap for evaluating and deploying Smart Grid technologies. Deployment Plans should describe IOUs' processes for identifying and prioritizing these projects, based on state and federal energy policy goals, business needs, and ratepayer interests. We therefore respectfully propose the following guidelines for the creation, use, and evaluation of Deployment Plans:

1) The Commission should formally adopt a set of Smart Grid objectives that will inform the Commission's evaluation of both Deployment Plans and specific Smart Grid investment proposals.
2) Specific Smart Grid investment proposals should be evaluated outside of Deployment Plans, in either GRCs or stand-alone applications.
3) Deployment Plans should contain the following elements:
    a) A Smart Grid vision and strategy, aligned with state and federal objectives.
    b) A Smart Grid technology evaluation and deployment roadmap, including technology categories and timeline, and their alignment with element (a) above.
    c) Conceptual cost estimates should be included, if possible. As part of its Test Year 2012 GRC, SCE will be developing projected costs for ongoing Smart Grid technology evaluation and capital projects for period 2012 through 2014. SCE plans to include this information in its Deployment Plan. For the period 2015 and beyond, SCE proposes to provide conceptual range estimates of cost for informational purposes. In light of the dynamic and changing nature of the regulatory environment, as well as the uncertainties that necessarily accompany the development of nascent and complex technologies, these cost estimates will be

subject to change, and therefore are not appropriate for reasonableness review of specific projects.

d) The Commission should also consider that Smart Grid projects included in Deployment Plans will fall into two broad categories. The first category of investments are those that must be made to meet regulatory requirements or policies. In this category, the underlying "driver" has already been justified in the public policy setting process. These projects typically require that the utility show that a proposed investment is the "best fit" alternative to meet a regulatory requirement or policy. The second category of investments would be those that improve utility operational performance and are warranted even in the absence of any specific policy requirement.

4) Commission review and acceptance of the Deployment Plans should provide strategic guidance for future utility specific Smart Grid investment proposals. Elements of Deployment Plans, particularly conceptual cost estimates and projected timelines, should be regarded by the Commission as provisional guidance on the IOUs' anticipated Smart Grid activities. IOUs must necessarily retain the right to refine or alter these conceptual estimates, based on changing policy requirements, technology developments or business and operational needs, when submitting specific Smart Grid projects for Commission review in GRCs or stand-alone applications.

5) The Commission should evaluate the Deployment Plans based on:

   a) Their consistency with its adopted Smart Grid objectives; and

   b) Their inclusion of all 4 elements listed under Guideline #3 above;

6) Deployment Plans should be updated on an annual basis.[2]

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[2] See Section II.B.5 for a discussion of the timing and content of Deployment Plan updates.

B. Comments on the Ruling's Specific Proposals and Questions

1. The Commission Should Adopt a Set of Smart Grid Objectives and Deployment Plans that Align with those Objectives

The Ruling requests comments on the best way to incorporate legislatively-directed Smart Grid policy, as adopted by SB 17, into the Commission's criteria for reviewing Smart Grid Deployment Plans.[3] The Ruling further synthesizes these SB 17 Smart Grid definitions and objectives into 8 Smart Grid "must haves,"[4] and proposes that IOUs discuss in their Deployment Plans how their Smart Grid vision aligns with these 8 requirements.

As stated in Section II.A above, the Commission should formally adopt a set of Smart Grid objectives and that IOUs should describe in their Deployment Plans how their Smart Grid technology evaluation and deployment programs align with these objectives.

With respect to the specific eight requirements proposed by the Ruling, we note that workplace safety and effectiveness represents a critical part of SCE's Smart Grid efforts. It is essential that we consider the dramatic workforce changes that will be required to support the adoption of a significant number of new technologies while simultaneously adapting to changing business practices -- all of which will occur during a decade when the utility industry is expecting to see 50% of its workforce retire. SCE respectfully submits that Smart Grid Deployment Plans must consider workforce safety and effectiveness.

2. Deployment Plans Should Include a Timeline

SCE agrees with the Ruling that "IOUs should also give a timeline stating the current state of their system and what it will take to build a Smart Grid system."[5] A technology evaluation and deployment timeline should represent a component of Deployment Plans. The

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3 Ruling, p. 11.
4 *See* bullet pointed items on pp. 12-13 of the Ruling.
5 Ruling, p. 13.

Commission should recognize, however, that timelines included in Deployment Plans will likely require updates and modifications as a result of dynamic and changing policy requirements, technology developments, and business or operational needs. IOUs should therefore retain flexibility to propose specific Smart Grid investments in their GRCs (or in stand-alone applications) following submission of the Deployment Plans. The timeline of these specific investments may not ultimately align with timelines projected in the Deployment Plans.

An important aspect of Deployment Plans will consist of identifying and distinguishing between technology evaluation activities and investment/capital deployment activities. While some Smart Grid projects may be ready for deployment today, others will need further evaluation to determine whether a future deployment makes sense. IOUs should utilize a decision criteria framework to determine the appropriate timing of such a future deployment.

SCE has developed such a decision criteria framework. The factors we consider include strategic and regulatory policy alignment, future scenario assessment, business functionality alignment, technical maturity, market maturity, and integration complexity.

To summarize, Smart Grid deployment cannot be thought of simply as a "system upgrade" with a clear beginning and end. Rather, Smart Grid deployment encompasses an evolving process of staggered investments which are made as technologies mature and business and policy compliance needs are clarified over time.

3. Projected Costs Should be Included in Deployment Plans but not for Reasonableness Review

Although it is premature to develop detailed business-case-quality cost estimates for many Smart Grid projects, SCE agrees with the Ruling that high-level conceptual cost range estimates can be included in Deployment Plans. We propose, however, that such cost estimates in Deployment Plans only be used for informational purposes.

Development of conceptual cost estimates, particularly for proposed activities in later years of Deployment Plans, will include consideration of future Smart Grid technologies that

may not yet be technically mature or commercially viable. Costs, benefits and ensuing rate impacts associated with these emerging technologies may not yet be fully understood, and it may prove impossible to accurately estimate such items in the timeframe set by statute for Deployment Plans. Therefore, any conceptual cost estimates provided in Deployment Plans should be regarded as provisional and subject to change when specific proposals are submitted for Commission consideration in GRCs or stand-alone applications.

4. Deployment Plans Should Serve as a Strategic Reference for Future Smart Grid Investments

The Ruling proposes that Deployment Plans be used to "establish a baseline for the Commission to monitor a utility's deployment of Smart Grid technologies and capabilities"[6] and that a "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."[7] The Ruling specifies that "the inclusion of a specific investment in a deployment plan does not convey a presumption of reasonableness."[8]

SCE agrees that Deployment Plans should be used to establish a strategic baseline plan for evaluating and deploying technology, and to serve as a reference for future Smart Grid technology evaluation and investment proposals by the IOUs. We further agree that the Commission should not evaluate the Deployment Plans to the extent that approval would convey a presumption of reasonableness for all future investments included in the plans. Finally, we agree that a "utility or other party" could cite to an approved deployment plan as part of the rationale for why specific utility investments are or are not reasonable.[9]

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6 Ruling, pp. 5-6.
7 *Id*. at p. 7.
8 *Id*. at pp. 5-6.
9 *Id*. SCE interprets the term "party" to refer to an intervener that is challenging or supporting the reasonableness of the utility's investment.

5. Deployment Plans Updates

The Ruling recommends that IOUs file reports that provide updates to Deployment Plans annually beginning on October 1, 2010. SCE agrees that yearly updates to Deployment Plans should be submitted by the IOUs in order to inform the Commission's annual report to the Governor and Legislature on Smart Grid progress, as required by SB 17. These updates will also prove critical if Deployment Plans are referenced in reasonableness reviews of specific Smart Grid investment proposals in other proceedings. In order that Deployment Plans effectively serve this function, they must reflect a current description of the policy, operational, and business drivers of Smart Grid development. Thus, the Commission should also create a process for the annual approval of these Deployment Plan updates.

With respect to timing, the Ruling proposes that "status reports be filed every year starting on October 1, 2010 and continuing through October 1, 2020. The reports should reflect information that is current as of June 30 of the year in which the report is filed."[10] SCE agrees with the annual timing of reporting. However, both the utility planning cycle and the compilation of many metrics occur on a calendar-year basis. Therefore, information provided in the reports should be current as of December 31st of the *preceding* year. Finally, since IOUs will not be required to submit Deployment Plans until July 1, 2011, it is not logical to have utilities begin filing update reports in October of 2010. As an alternative, we propose an initial reporting that is limited to the metrics discussed in Section IV.A below. The initial metric-based reporting should occur this year and next, with formal updates to Deployment Plans commencing in 2012.

6. Deployment Plans Should be Considered in a Single Proceeding, and Smart Grid Investments Should Primarily be Considered in GRCs

SCE agrees with the Ruling's proposal that all IOUs' Deployment Plans filed by July 1, 2011 be evaluated and approved in a single proceeding. To accomplish this task, we propose

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[10] Ruling, p. 6.

that the Commission either open a separate phase of this Rulemaking, or initiate a single new proceeding to consider all of the IOUs' Deployment Plans and annual updates to those Plans. Subsequent review of these plans should occur as part of an individual utility's future GRC or separate application for Smart Grid technology evaluation or capital investment requests.

SCE also agrees with the position stated in the Ruling that "Smart Grid expenditures should be considered in GRCs, and in limited cases in special applications."[11] While SCE supports the use of the GRC proceedings to consider many[12] Smart Grid investment proposals, SCE reaffirms its comments made in Phase I of this rulemaking. Our earlier comments indicated that some Smart Grid projects may need to be considered in special proceedings. The Commission's flexibility with regard to regulatory approach is essential.

C. Smart Grid Interoperability Standards

The Ruling seeks comments on an approach to adopting Smart Grid interoperability standards pursuant to California Public Utilities Code § 8362. The Ruling proposes three options to meet this requirement. These options consist of the following: "(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."[13]

As a starting point, SCE would like to clarify the roles and progress of the National Institute of Standards and Technology (NIST), the Federal Energy Regulatory Commission (FERC), and the various Standards Development Organizations (SDOs) named in the Ruling and in SB 17 with respect to Smart Grid interoperability standards. Under the Energy Independence

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[11] Ruling, p. 8.
[12] *See* SCE Opening Comments in Phase I of OIR, pp. 4, 8.
[13] Ruling, p. 19.

and Security Act of 2007 (EISA), NIST is charged with identifying gaps and achieving industry consensus on standards to promote the interoperability of the Smart Grid. As part of this effort, NIST identifies gaps and standards development priorities for relevant SDOs, who separately work through the processes they have in place to create, refine or expand standards to meet the needs of Smart Grid systems. NIST's role, therefore, is to prioritize and achieve consensus on standards developed by SDOs. NIST itself does not develop standards. NIST is also engaged in close collaboration with the International Electrotechnical Commission (IEC) to establish a set of global Smart Grid standards.

EISA further states that FERC "shall institute a rulemaking proceeding" to adopt interoperability standards any time after, in FERC's judgment, NIST's work on such standards has led to "sufficient consensus."[14] In January 2010, NIST issued the *NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0* (Release 1.0).[15] In Release 1.0, NIST identifies 25 standards around which NIST states "there is strong stakeholder consensus."[16] Starting in May of this year, NIST plans to publicly release a series of abstracts of standards for which it believes consensus has been reached. These abstracts will serve as the trigger for FERC to institute a rulemaking as described above.

SCE proposes that the Commission act in parallel with FERC to adopt Smart Grid standards as NIST achieves consensus. SCE further recommends that Smart Grid standards adoption be taken up as a part of this Rulemaking, rather than opening another proceeding to deal specifically with this issue.

The Commission should also consider, as part of this proceeding, mechanisms adopting those specific standards for which NIST has achieved consensus. We respectfully recommend that the Commission incorporate these standards by reference in its final decision in an appropriate proceeding. We offer the model used by FERC with respect to business practice

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[14] EISA 2007, Section 1305.

[15] Available at: http://www.nist.gov/public_affairs/releases/smartgrid_interoperability_final.pdf

[16] NIST Special Publication 1108, "NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0", p. 61. *See* pp. 50-60 for the list of 25 standards described above.

standards promulgated by the North American Energy Standards Board (NAESB) as an example for reference.[17] We also submit SCE's whitepaper, *A Lifecycle Framework for Self-Sustaining Implementation of Smart Grid Interoperability and Cyber Security Standards*,[18] as a conceptual framework for considering the role of regulators with respect to standards.

To address a specific issue raised by the Ruling, we do not believe that the Commission needs to monitor activity by SDOs or adopt standards based on progress at the level of these entities. The Commission should instead leverage NIST's efforts to monitor, organize and prioritize SDOs' work and the resulting NIST recommendations. Further, the Commission should also engage NIST directly to coordinate consideration of California's adoption of NIST's recommendations. NIST has expressed a willingness to work closely with the Commission.

III.

CUSTOMER ACCESS TO ENERGY INFORMATION

Consistent with Commission, state, and national policy, SCE fully supports the empowerment of customers and the realization of Smart Grid benefits through providing energy information to customers and authorized third parties. To access this data, customers are best served by a robust, secure and flexible architecture based on open standards that enable innovation and competition in new products and services. All of these features can help consumers optimize their energy usage. Toward that end, the Commission in Decision (D.) 09-12-046 established the following policy objectives for the second phase of this proceeding:[19]

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[17] *See* FERC Order No. 676-E, issued November 24, 2009.

[18] This whitepaper is available online at: http://www.sce.com/NR/rdonlyres/CE04DC9A-5793-4ED6-89DE-6688894E6AD4/0/0905_SCESmartGridStandardsAdoptionLifecycle.pdf

[19] D.09-12-046, p. 54.

Access to Usage, Retail and Wholesale Pricing Information

- Identify low-cost or no-cost methods to provide retail and wholesale prices to customers (and to authorized third parties) on a real-time or near real-time basis in a uniform manner and in a machine readable form;
- Implement policies governing such access to customer price data for all customers with smart meters by the end of 2010, especially if there are standards recommended for adoption by NIST;
- Estimate the costs, if any, of providing access to the pricing information to customers and authorized third parties, and identify a method through which the utility can recover the costs, if any, of providing customers and authorized third parties with access to price information;
- Ensure all information is secure and that a customer's privacy is protected; and
- Provide retail and wholesale price and generation source information in a uniform manner consistent with widely accepted national standards or formats where available.

To meet these customer data access objectives, it is important that all customers, regardless of their level of technological sophistication, possess access to energy usage data in near real-time. To this end, the Commission has already approved the deployment of smart meters for SCE's customers. These smart meters are designed to provide universal access to near real-time energy usage data directly from the smart meter through the Home Area Network (HAN) interface incorporated into the smart meters being deployed. This HAN interface can securely and reliably provide customer access to energy usage data in the meter (*e.g.*, instantaneous consumption and demand information). SCE originated this concept in 2005 as part of its smart meter development effort. The universal nature of SCE's smart meter deployment means that all consumers will have the option to receive energy usage data in near real-time.

SCE will also provide customer access to historical interval usage information for the previous 24-hour period and the past 13 months, in a manner consistent with CPUC requirements for smart metering systems and as approved in SCE's smart meter deployment application.

SCE intends to provide information and access to information that empowers customers to better manage their energy usage, in step with the Commission's goals based on State energy policy. In the sections below, SCE presents its plan to meet these objectives and raises important issues related to these goals for the Commission's consideration.

A. Real-Time or Near Real-Time Presentment of Retail Prices

D.09-12-046[20] and the Ruling[21] direct that workshops and/or comments be utilized to explore methods through which the IOUs will be able to meet the policy objective of providing retail and wholesale prices to customers (and to authorized third parties) on a real-time or near real-time basis. SCE supports this policy objective, but suggests that the usefulness of near real-time and real-time retail prices must be evaluated in this Rulemaking, particularly in light of the current rate structures in California (*e.g.*, tiered residential rates).

1. The Commission's Objective Of Real-Time Presentment Of Retail Prices to Customers Needs To Be Fully Explored

The March 19 workshop will address issues associated with customer access to usage and pricing information. SCE recommends that the policy objective of providing retail pricing information be assessed in terms of its usefulness to customers in taking meaningful steps to manage their energy usage. The near real-time presentment of retail prices may be useful only to those customers on a real-time pricing (RTP) rate structure whose hourly rates are tied to the market price for energy. The IOUs will not be able to develop such a rate structure until

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[20] *See* D.9-12-046, p. 54.
[21] Ruling, p. 20.

appropriate coordination exists with the California Independent System Operator's (CAISO's) markets to support the structure. Furthermore, SCE serves over 99 percent of its residential customers on static inverted block rate structures, with rate levels that: (a) do not change in real-time or near real-time; and (b) are readily available to SCE's customers on its website, SCE.com.

2. Near Real-Time Presentment Of Tiered Rates Is Misleading And Could Lead To Customer Confusion

The tiered residential rate structure presents unique challenges for real-time presentment of prices, because prices are based on total usage during a customer's billing cycle rather than usage during any particular hour or portion of the billing cycle. SCE's current five-tier rate structure was adopted in 2001 as a means to provide conservation signals to residential customers by imposing an average rate on those customers that increases with their total energy consumption during the billing cycle. Providing near-real time pricing data to residential customers may cause customer confusion and have the perverse effect of increasing overall electricity consumption. For example, providing a $0.12/kWh tier 1 price signal at the beginning of a billing cycle will send the wrong signal to customers whose consumption falls into the upper tiers shortly thereafter. Thus, for customers on tiered rates, retail price signals must reflect the expected price the customer would pay at the *end* of his/her billing cycle, and not what the price is based on the customer's usage up to any particular time during that billing cycle.

3. IOUs Should Meet the Requirements to Provide Price Data By Providing Relevant And Actionable Price Information

SCE fully supports providing customers with access to price information that is actionable. Market research indicates that customers are interested in tools that will help them manage their energy bills. This research also indicates that customers are primarily concerned with their monthly bill amount, and not necessarily the price paid at any given minute.[22] In

[22] SCE.com SmartConnect Design Prototype Usability Testing, April 24, 2009.

particular, mass market customers need information about their (retail) costs based on the applicable tariff rate and the quantity to which the rate applies.

Thus, SCE intends to provide bill-to-date and bill forecast information to its SmartConnect metered customers[23] in late 2010 on SCE.com My Account. Bill-to-date functionality will use the electricity usage at any point during the billing period (provided by the Edison SmartConnect meter) to estimate the customer's bill at the end of its billing cycle.[24] Customers will also be able to enroll in optional alerts, which will notify them by voice, text, or email when they exceed their preset budget amount. In addition, SCE will provide event notifications[25] to customers informing them that Peak Time Rebate and Critical Peak Pricing[26] rates will be in effect. These capabilities will provide relevant, actionable information that consumers can use to manage their energy usage, and will avoid the potentially negative consequences of presenting near real-time pricing information for tiered rates.

In addition to the bill-to-date and bill forecast functionalities, SCE intends to assist customers by continuing to provide education and outreach on tiered rates, energy management, and conservation programs to reduce bills. We are also considering supplementing the existing rate schedules available on SCE.com with simple, customer-friendly tools for customers on time-of-use rates. The goals and intent of retail price presentment should be discussed in greater detail at the workshop, in the context of providing customers with useful information to manage their energy usage.

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[23] Bill-to-date and bill forecast information will be provided to customers on the standard residential and small commercial rates (*i.e.*, customers on Schedule D and Schedule GS-1) who have a billing-ready Edison SmartConnect meter.

[24] The bill calculation will include the bill-to-date cumulative energy usage multiplied by the applicable rate.

[25] This option is available to customers on an opt-in basis.

[26] Peak Time Rebate is available to residential customers as part of the standard residential rate (Schedule D).

B. Real-time or Near Real-time Presentment of Wholesale Price Information

The Ruling reiterates the Commission's policy objective to "provide retail and *wholesale prices* to customers (and to authorized third parties) on a real-time or near real-time basis… in machine readable form… by the end of 2010."[27] Thus, SCE recommends that the usefulness of providing wholesale price information be determined at the workshop. Unless the customers' bills are directly influenced by the wholesale prices of energy, the relative value and usefulness of providing wholesale prices is extremely limited.

1. Near Real-Time Wholesale Prices Are Not Meaningful To Most Customers

There is no clear linkage between most retail rates and wholesale prices. Retail customers do not pay generation rates based on wholesale prices alone, as wholesale prices generally do no reflect generation capacity costs, or the IOU's energy supply resource mix (including utility-owned generation, procured generation contracts, and ancillary services). Moreover, customers pay generation costs through both fixed and variable charges, adding to the complexity of providing clear, meaningful information to customers.

Furthermore, the presentment of near real-time wholesale prices to unsophisticated mass market customers would lead to confusion regarding the difference between wholesale prices and the rate that customers ultimately pay. In fact, The Utility Reform Network (TURN) "…objects to the notion that residential customers must be informed about wholesale and retail time-based prices for the essential electricity service."[28] California Large Energy Consumers Association (CLECA) shares this position and noted that "Unless future rates are based on wholesale prices, we do not see a reason to provide customers with wholesale price information."[29] The Division of Ratepayer Advocates (DRA) also noted that "While time-based wholesale electricity price information may not be useful to residential and small business customers, CAISO will make such information available…"[30] D.09-12-046 recognizes that customers and interested parties

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[27] D.09-12-046 at 51 (emphasis added).

can already access wholesale prices in near real-time from the CAISO's Open Access Same-time Information System (OASIS) website.[31]

Accordingly, the Commission should further review the policy objective of providing real-time wholesale prices before it mandates that the IOUs present these prices to all customers. Real-time wholesale prices are available on CAISO's website to those customers whose rates are based on such prices, or who wish to access them for informational purposes.

C. Access to Usage Data by Third Parties

In D.09-12-046, the Commission ordered that "SCE, SDG&E, and PG&E shall provide an authorized third party with access to the customer's usage information that is collected by the utility by the end of 2010 should the customer desire that information."[32] SCE agrees with the Commission that providing customer data to authorized third parties should enable innovation in the marketplace and more effective energy management. Toward that end, SCE notes that California IOUs already provide authorized third parties with access to customers' usage information upon written authorization of the customer, pursuant to California law and numerous Commission decisions. In fact, interval usage data is already available for large customers,[33] and will become available for residential and small commercial customers as the IOUs' smart meters are deployed. SCE fully supports the Commission's directive to provide customers access to usage data. We recommend, based on our experience with providing usage data to large customers and Electric Service Providers (ESPs), that the following issues should be explored in greater detail at the March 19, 2010 workshop:

First, customers already have the right to authorize third-party access to their confidential

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28 TURN Comments on September 28, 2009 Assigned Commissioner's Ruling (9/28 ACR), p. 8.
29 CLECA Comments on 9/28 ACR, p. 7.
30 DRA Comments on 9/28 ACR, p. 7.
31 D.9-12-046, p. 66.
32 D.09-12-046, Ordering Paragraph 3.
33 Customers with demands greater than 200 kW represent approximately 38% of SCE's load.

usage information upon written notice to the IOU. Thus, customer data privacy, security, and confidentiality should be the primary concerns in determining any new rules needed for authorized third-party access to a customers' usage information. The Commission's rules should require that IOUs and third-parties comply with all applicable State and Federal privacy and security laws when handling IOU customer usage data. Moreover, consistent with California law,[34] customer authorization for third party access should occur in written form (which can also be accomplished through electronic transactions pursuant to the California Electronic Transactions Act).[35]

Additionally, customers should be able to terminate third-party authorization at any time upon written notice to the IOU. Customers should have the ability to limit the duration and scope of third party access, should they see merit in doing so. For example, a customer seeking to switch to direct access (DA) service may wish to allow one-time (or limited) access to ESPs to enable the ESPs to offer terms and conditions of DA service to the customer. The customer may not wish to provide indefinite access to his/her confidential usage data to an ESP unless and until the customer elects to conduct business with that ESP. Certainly, customers should have the option to authorize a third party to access their confidential usage data indefinitely (*i.e.,* unless and until the customer's authorization is affirmatively terminated through written notice to the IOU). However, indefinite access should not be the only option available to customers.

With regard to the data that the IOU provides to a third party at the customer's direction through proper written authorization, SCE recommends that the IOU should have no obligation to monitor, supervise or control how an authorized third party uses the customer data. The IOUs do not have the ability to monitor or control the third party's use of the customer's data, or its

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[34] *See* Section 394.4(a) of the California Public Utilities Code.

[35] The California Electronic Transactions Act (Civil Code Section 1633.1 *et seq.*) provides that if a record or signature must be in writing, then an electronic record or signature satisfies the requirement, as long as the parties have agreed to conduct the transaction by electronic means and the electronic record is capable of retention by the recipient at the time of receipt. Therefore, customers can *elect* to provide their consent by electronic means, but the IOUs still require alternative means of obtaining the customer's written consent if the customer does not wish to provide its written consent via electronic means.

presentation of data to the customer. As the customer's agent, the third party is accountable to the customer (and not the IOU) for its handling and presentment of the customer's usage data. Therefore, consistent with the Commission's existing policy on this issue, the customer and its third-party agent should be required to indemnify and hold the IOU harmless for the third-party's use of the customer's information.

The data exchange format used by the IOU and other parties should adhere to the OpenADE standard under development within the NIST framework. Non-OpenADE solutions may require duplicative processing or rework, or give rise to inconsistencies with national standards. As noted above, the Commission should adopt a policy of requiring IOUs to comply with Smart Grid standards as recommended by NIST. This will help ensure that each IOU's data and systems are compatible and interoperable with those of other Smart Grid stakeholders.

The Ruling also seeks comments on the possibility of utilizing the rules included in Attachment B of the Ruling.[36] SCE questions the need for a new rule, given that customers already have the ability to authorize that the IOUs release their usage data to third parties. Rather than needing an entirely new rule, the existing IOU processes appear to simply require updating to allow for electronic transactions; the use of OpenADE and compliance with Smart Grid standards as recommended by NIST; the ability for customers to provide indefinite access to third parties unless/until affirmatively terminated; and other modifications, as appropriate, to the customer authorization form. To the extent a new rule is considered, it should include the principles discussed above.

D. SCE Is Evaluating Interim Solutions To Meet The 2010 Timeline Requirement.

Currently, the OpenADE standard is not final. IOU implementation requires final standards and systems implementation - - including design, build, and testing. Given that the

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[36] Ruling, p. 22.

OpenADE standard is not yet finalized, SCE is exploring the potential for an interim solution to meet the 2010 requirement based on existing DA and Community Choice Aggregation (CCA) customer data exchange and Customer Information Service Request (CISR) processes reflected in SCE's Rules 22 and 23. The existing process will require modifications to IT systems to accommodate new third parties and data types, resulting in costs that may not be used towards a permanent solution, but will help meet the Commission's goal of providing access by year-end 2010. The interim solution also requires more manual processing, and thus has certain volume limitations. The timeline for SCE's permanent solution will be dependant on a ratified OpenADE standard. However, SCE expects that its permanent solution will be available in 2011.

E. Cost Recovery

In D.09-12-046 the Commission asked the IOUs to estimate the costs, if any, of providing customers or authorized third parties with access to retail and wholesale price information on a real-time or near real-time basis and identify a method through which the utility can recover those costs.[37] SCE assumes that such costs also include the costs associated with any newly-adopted rules to provide customers or authorized third parties with real-time or near real-time access to customer usage information.

SCE agrees with the Commission's objective of allowing for recovery of costs associated with the provision of customer usage data. SCE expects that such costs may include costs of new or revised utility operations or processes, customer care systems modifications, and the development of web-based tools to present such customer information. As discussed in previous sections, SCE expects to deploy an interim solution to meet the Commission's "end of 2010" objective to provide the customer data. This interim process will be based on the existing

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[37] Ruling, p. 54.

process to provide customer data to ESPs. SCE will deploy a long-term strategy that will be based on the adoption of OpenADE standards adopted by NIST. As such, SCE recommends that it be permitted to seek recovery of any incremental costs incurred in 2010 and 2011 to meet the Commission's policy objectives for customer data access that are not already recovered through other mechanisms. SCE may file a separate application to recover any such incremental costs. The ongoing operations and maintenance expenses for the customer data access processes are appropriate for recovery through the GRC process, and SCE expects to include such costs in its future GRC proceedings.

IV.

OPEN QUESTIONS IN THIS PROCEEDING

A. Metrics

The Ruling invites comments on how it can measure progress in implementing a Smart Grid and proposes specific metrics for IOUs to collect and report on an annual basis.

Many of the Ruling's proposed performance metrics are logical indicators of Smart Grid deployment progress. These metrics can be useful in helping the Commission fulfill its annual reporting obligations to the Legislature and Governor under SB 17. At the same time, the Commission should avoid the use of costly, potentially ambiguous or onerous metrics that may not be correlated with the achievement of its policy goals. Obtaining and reporting such metrics would pose unnecessary administrative burdens on both IOU and Commission staff in their efforts to complete their annual reporting requirements.

As part of its efforts in supporting the CEC PIER California Smart Grid Vision and Roadmap Project, SCE has worked closely with the other California IOUs to evaluate the feasibility and usefulness of the Ruling's proposed metrics. We therefore propose the following list of 10 metrics, derived from the Ruling's list, that provides an initial set of measures to gain a meaningful assessment of Smart Grid deployment progress. Gathering and reporting these

metrics provides a cost-effective way to inform Commission Staff and meet the Commission's reporting needs under SB 17.

Proposed Smart Grid Metrics

1.	Reliability Metrics - SAIDI
2.	Reliability Metrics – SAIFI
3.	Reliability Metrics – MAIFI
4.	Renewable Resources Integrated - MW of integrated renewable resources (at both Transmission and Distribution levels)
5.	AMI Meters Installed - Total Number and as a % of Total
6.	Home Area Network Coverage - Number and % of Customers with 1 or more HAN devices registered to link with their smart meter
7.	Demand Response (bundled customers only) • Interruptible Load Programs – Expected MWs • Demand Response Programs – Expected MWs • Edison SmartConnect™ Enabled Demand Response Programs – Demand Reduction (MW)
8.	Energy Efficiency & Conservation – • Total GWh of Energy Efficiency Savings • Edison SmartConnect™ Enabled Demand Response Programs – Energy Savings (MWh) • Edison SmartConnect™ Enabled Demand Energy Conservation Programs – Energy Savings (MWh)
9.	Customer Information Access - Number and % of Customers enrolled with utility to access customer usage and pricing data
10.	Electric Vehicles - Number of EVs enrolled on utility EV Rates/Programs

Going forward, additional metrics will likely surface around other emerging Smart Grid technologies and systems considered in Deployment Plans. SCE may propose such metrics its initial Deployment Plan, to be filed in 2011, or in annual updates thereto.

B. Innovation, Utility-Customer Demarcation and Incentives

The Ruling seeks comment 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," and specifically requests comments on: (i) the appropriateness of a demarcation point between the utility and customer, and (ii) 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."[38]

1. Demarcation should be functional, not physical

The Ruling seeks comments concerning whether a designated network demarcation point that limits the extent of a utility's investment would facilitate investments in Smart Grid devices.[39] A longstanding practice in the electric utility industry is to have a physical demarcation point between where utility service ends and where customer responsibility begins. Today, that physical demarcation point has generally been delineated at the meter. As noted in the Ruling, with the advent of advanced Smart Grid technology (including the smart meter), the physical demarcation point becomes less relevant.

A clear separation of roles and responsibilities may spur innovation and the development of customer-owned energy equipment. Using a physical demarcation point, particularly the meter, is simply impractical and ignores the nature and complexities of the architecture for advanced metering and home area networks. SCE agrees that a physical demarcation point at the meter may be irrelevant if consumer devices communicate with the electric grid over the internet.[40] In addition, demarcation points may change over time as emerging technologies, and new market entrants and services become available.

Rather than establish a physical demarcation point, clear functional roles should be acknowledged for the utility with respect to Smart Grid consumer products and services. Given the evolving nature of Smart Grid technologies, SCE recommends that the definition of a functional demarcation point of utility service involve the following requirements:

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[38] Ruling, p. 28.
[39] *Id*. at p. 26.
[40] *Id*. at p. 27.

- **Utilities should participate in functions essential to grid reliability.** Grid reliability is a core utility function, and the IOUs should maintain operational control and dispatching of load management programs, such as air conditioning cycling.
- **Utilities should participate in functions essential to Smart Grid cyber security**. Cyber security and customer confidentiality/privacy are critical to the proper functioning of the Smart Grid. Utilities, as well as other parties, should adopt and maintain appropriate cyber-security measures, including compliance with appropriate NIST-recommended standards.
- **Back office support to enable the smart meter's HAN interface should be provided by the IOUs.** The IOU's smart meters include a HAN interface that requires related back office support activities. These support activities would most effectively be handled by the IOUs, to enable security and privacy protections on the utility side of the meter. Examples of HAN interface-related support include: (1) customer device registration (pairing customer devices with the smart meter to enable privacy and cyber security); and (2) smart meter HAN interface servicing and troubleshooting.
- **Industry participants may provide multiple roles.** It is not necessary for IOUs or third parties to provide full Smart Grid service capabilities on an end-to-end basis. We suggest that the Commission give consideration to the following roles:
    - Programs (*e.g.*, incentives, rebates, financing)
    - Ownership
    - Installation
    - Phone support (*e.g.*, troubleshooting)
    - In-home support (*e.g.*, troubleshooting and/or repairs)
    - Device control for peak load curtailment

  Each of these roles may be played by different market participants. For example, a customer may purchase her/his own in-home display (ownership), pay a

third party retailer to install the device (installation), receive an Energy Efficiency rebate from the IOU (program), call the IOU for phone support (phone support), and obtain in-home servicing from the IOU, retailer, or outside service company (in-home support).

It is likely that some roles will be provided by multiple participants. For example, phone support will likely be provided by device manufacturers. However, IOUs may also provide phone support, as (1) some consumers may first call their utility company (similar to calling the cable/DSL company when a third party wireless router is installed), and (2) the consumer will not know whether the device or the HAN interface needs troubleshooting.

- **New services and technologies should not interfere with safe, reliable and cost efficient electric service.** SCE is obligated to deliver safe and reliable electric service. As such, the delivery of new services and technologies enabled by the Smart Grid should not interfere with SCE's ability to provide safe and reliable electrical service. The Smart Grid benefits should be evaluated in the context of the IOUs franchise obligation to serve their customers, and safeguard their employees and members of the public.

2. Incentives to Encourage Deployment of Smart Grid Consumer Devices

The Ruling seeks 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…"[41] Incentives can serve as an effective way to encourage the deployment of customer-owned Smart Grid devices to facilitate energy management. However, any incentive programs funded by IOU ratepayers should provide direct benefits to IOU ratepayers.

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41 Ruling, p. 28.

The Commission should continue the current cost-effective incentive structure that encourages customer participation in load management and energy efficiency programs. The utilities can leverage these traditional incentive programs to encourage the adoption of Smart Grid technologies and facilitate load management and energy efficiency. For example, demand response programs should encourage customers to use Smart Grid devices to enable and automate load reductions when dispatched during peak hours (*e.g.*, Programmable Communicating Thermostats (PCTs) that enable dispatchable demand response during air-conditioning cycling events). Energy efficiency rebates should continue to be available for customer adoption of new energy-efficiency technologies that help to reduce overall demand and usage (*e.g.,* rebates for "smart" appliances).

In addition, SCE is currently authorized to fund specific incentives to leverage the Edison SmartConnect™ functionality. Specifically, in D.08-09-039 (authorizing SmartConnect deployment), SCE received funding for a voluntary PCT program through year 2012, in order to provide incentives for the installation of PCTs to participating customers as well as to homebuilders and retrofit companies. Additionally, SCE received funding to provide personal computer (PC)-based information display devices for those residential customers who have a SmartConnect meter and want to connect their PCs to the Zigbee meter interface that receives the near real-time information from the HAN interface. Accordingly, SCE sees no need for additional ratepayer-funded incentives for Smart Grid devices at this time.

3. Regulatory Approaches to Innovation and Cyber Security

The Ruling seeks comment 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," and encourages consumer interaction with the Smart Grid in ways that facilitate the management of electric load.[42] From a regulatory perspective,

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[42] Ruling, p. 28.

SCE recommends that the Commission: (1) adopt Smart Grid standards recommended by NIST after it determines consensus has been reached; (2) support Smart Energy Profile version 2.0 (SEP 2.0); and (3) allow for multiple channels to deliver customer information.

a) The Commission Should Adopt the NIST Standards To Foster Innovation In Smart Grid Consumer Products And Services

As discussed above, a key regulatory approach to promote development of Smart Grid products and services is the Commission's adoption of NIST-recommended standards for Smart Grid deployments in California. National consistency with respect to Smart Grid standards is essential to promote interoperability and innovation in products and services. Adoption of these standards by the Commission and other state regulatory agencies will establish a broad, ubiquitous platform, which will create certainty in the Smart Grid product development market. This certainty should, in turn, spur vendors and manufactures to develop innovative products and services to help customers manage their energy consumption.

b) SCE strongly supports NIST's adoption of SEP 2.0

Similar to its smart meter approach, SCE supports choosing the right technology and standards for its customers the first time, even if the technology and standards are not immediately available. Thus, SCE strongly supports SEP 2.0 as the appropriate standard for the exchange of customer data. SEP 2.0 provides a number of advanced capabilities which improve customer experience, stimulate innovation, and provide robust cyber security. For example, SEP 2.0's Internet Protocol encourages product innovation by expanding the market for manufacturers, enabling multiple communication protocols for Multiple Dwelling Units and Plug-in Electric Vehicles (*e.g.*, WiMax, Power Line Carrier, Wi-Fi), and improving customer support (*e.g.*, mature IP troubleshooting tools).[43]

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[43] SEP 2.0 has the full support of five of the six major smart meter providers (Landis+Gyr, General Electric, Itron, Echelon, and Elster). SEP 2.0 also meets the Association of Home Appliance Manufacturers' three "Essential

Continued on the next page

Smart Energy Profile version 1.0 (SEP 1.0) is available today. However, it poses certain customer experience risks that may hamper adoption, innovation, and support. Unlike SEP 2.0, SEP 1.0 does not support advanced customer billing options and rates such as pre-payment, PEV-specific rates, and energy storage options. In addition, SEP 2.0 is not backward compatible with SEP 1.0. This incompatibility will result in obsolete consumer devices (*i.e.*, the Betamax experience) and/or complex and risky upgrades. The Commission should consider the risks of moving forward with a less robust standard, in light of the risk and potential cost of customer backlash or non-acceptance associated with a lesser standard.

In summary, SEP 2.0 represents the work of hundreds of companies from around the globe, and builds on years of thinking from innovative product manufacturers and utilities worldwide. SEP 2.0 provides the best solution to enable a robust and secure HAN-to-grid interface.

C. Standards the Commission Should Adopt Related to the Use of Electric Vehicles

The Ruling states that "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" and invites comments on what standards it should adopt with respect to electric vehicles.[44]

We propose that, consistent with Section II.C above, the Commission confine its consideration in this proceeding to those electric vehicle standards that are related to the integration of PEVs to the Smart Grid, and adopt those standards for which NIST determines industry consensus has been achieved. To ensure the proper context, SCE provides below certain background information regarding the development of standards for electric vehicles.

Continued from the previous page

Requirements" as published in its December 2009 whitepaper. A copy of that whitepaper can be found at http://www.aham.org/ht/a/GetDocumentAction/i/44191

[44] Ruling, pp. 28-29.

Traditionally, most plug-in electric vehicle (PEV) standards have principally focused on vehicle charging safety standards. However, currently there are multiple industry efforts to create standards to bring about ubiquitous charging infrastructure and to standardize PEV-to-grid communications.

Since the early 1990s, SCE has been a strong supporter and key contributor to a substantial majority of PEV standardization efforts. Most recently, SCE led the effort to create an initial set of PEV Use Cases that were later adopted by the Society of Automotive Engineers' (SAE) task force on PEV-to-Grid Communication. SCE is also an active participant in various industry efforts to advance PEV-Smart Grid integration, including acting as the official liaison between the NIST Priority Action Plan (PAP) 11 "Electric Transportation" / SAE and the SEP 2.0 development team.

The standards efforts described above are informed by industry plans to deploy smart metering systems, Smart Grid systems, and electric vehicles. Indeed, electric vehicles standards constitute an area where NIST's efforts to prioritize and coordinate standards development are essential to ensure that the various standards development organizations are collaborating toward a common interoperability strategy. SAE, the International Electromechanical Commission (IEC) and the Institute of Electrical and Electronics Engineers (IEEE) are all working on standards that, taken together, should allow the vehicle to be compatible with future Smart Grid communication and ensure that vehicles operate within a common infrastructure system.

Attachment A to this Response lists a full range of electric vehicle standards in use and under development. Those standards that specifically relate to the Smart Grid and are the subject of NIST evaluations are highlighted in yellow.

D. Energy Storage

1. Energy Storage Should be Included in Smart Grid Deployment Plans and Proposals Should be Evaluated Based on Specific Technologies and Applications

The Ruling asks parties to make recommendations concerning how the Commission should evaluate storage proposals included as part of Smart Grid Deployment Plans. SCE is conducting extensive evaluations of energy storage technologies as potentially critical solutions to a number of grid challenges. These challenges include integrating centralized and distributed renewable energy resources, reducing peak demand, improving power quality, optimizing distribution system operation and efficiency, and relieving transmission congestion. Solutions to these problems are consistent with the definitions and goals of Smart Grid systems as enumerated in the EISA, SB 17 and the Ruling. Smart Grid Deployment Plans should therefore include energy storage.

Consistent with our general proposal for Deployment Plans in Section II above, however, the discussions of energy storage therein should not include specific investment or project proposals. Treatment of energy storage in Deployment Plans should include a timeline for each IOU's plan to evaluate and deploy energy storage technologies, the estimated costs of such evaluation and deployment, and an assessment of the extent to which these plans are aligned with the Smart Grid objectives adopted by the Commission. The Commission should then evaluate the energy storage-related elements of the Smart Grid Deployment Plans consistent with its evaluation of the rest of each IOU's plan.

The Ruling also asks whether energy storage is best considered in conjunction with transmission and/or generation projects (as opposed to being considered as part of Deployment Plans). SCE has existing and proposed demonstration projects that are aimed at determining (i) which storage technologies meet the technical specifications required for several potential uses of energy storage, and (ii) which technologies can do so in a cost-effective manner. We

expect that various energy storage technologies may prove to be viable in applications across the electric power system from the generating station to the customer premise. Each storage technology will have its own strengths and limitations. Storage should therefore not be considered as a homogenous concept. Rather, specific storage technologies should be considered in the context of specific applications.

Consistent with this view, Smart Grid Deployment Plans may include storage options, and storage may also be considered in conjunction with transmission or generation projects. The degree and nature of the Commission's evaluation of storage projects will depend on the specific technologies and uses in a given proposal. In general, any storage that is not located behind the meter or behind the generation interconnect should be considered a grid asset.

We would also note that, apart from a small number of storage technologies and applications (*e.g.*, pumped hydro for energy shifting), the industry currently is working to develop an understanding of the costs, benefits and uses of the various energy storage technologies for power system applications. The United States Department of Energy awarded $184 million under the Smart Grid Demonstration Project stimulus program to energy storage demonstration projects, with a total budget of over $770 million to expand the industry's understanding of these potentially valuable technologies. As such, we believe it would be inappropriate to impose any energy storage development or procurement mandates for energy storage. Doing so would be akin to "picking winners" before technology standards are established.

2. Communications

The Ruling seeks comments on "what steps, if any, the Commission should take to ensure that the necessary communications services needed to use energy storage technologies effectively and efficiently are available within the grid."[45] Effective communication with all

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[45] Ruling, p. 33.

components of a Smart Grid system, including energy storage, should rely on the adoption and enforcement of compliance with industry-accepted standards, include those currently identified in Release 1.0. Efforts to develop standards for communication with energy storage systems are nascent, as industry stakeholders are still developing an understanding of the uses and applications of energy storage. Ultimately, the Commission should adopt standards recommended or developed by NIST governing storage system-grid communications.

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

The Ruling states that "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,"[46] and that "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."[47] In addition, the Ruling notes the challenges of implementing federal standards that have been adopted, given that the electric industry is characterized by multiple stakeholders with varied capabilities, roles and interests. The Ruling therefore seeks comment on how it can ensure that Smart Grid deployments in California provide adequate security and privacy protections, particularly with respect to the customer energy data policies adopted in Phase 1 of this Rulemaking.

Federal and national agencies are making substantial progress towards addressing the security concerns raised by the deployment of Smart Grid systems. NIST's Release 1.0 identifies 6 cyber security standards among the 25 for which it claims "there is strong stakeholder consensus."[48] In a separate effort, on February 2, 2010, NIST released its second

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[46] Ruling, p. 38.
[47] Ruling, p. 39.
[48] See Standards number 19-25 on the table at pages 50-60 of Release 1.0.

version of its *Smart Grid Cyber Security Strategy and Requirements* (NISTIR).[49] This document describes a process which will result in a comprehensive set of cyber security requirements. Finally, the current revision of the North American Electricity Reliability Corporation's Critical Infrastructure Protection (NERC/CIP) standards[50] will provide robust physical and cyber protections for the bulk power system. The primary substantive revisions to NERC/CIP will be contained in Version 4 of the standards. NERC is currently drafting this portion of the revisions and expects to gain broad-based industry approval of the revision by the end of 2010, followed by formal adoption in 2011.

The Commission does not need to take specific action with respect to cyber security, apart from adopting consensus Smart Grid standards identified by NIST.

V.

CONCLUSION

SCE looks forward to working with the Commission, fellow utilities, and other parties to fulfill a year 2020 vision of modernizing the grid to deliver a cleaner energy supply from renewables and integrated distributed resources, energy-smart consumer devices, and electric vehicles while improving reliability, safety, and cost-effectiveness. SCE respectfully requests that Phase II of this Rulemaking be structured in accordance with SCE's responses as set forth herein.

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[49] This document is available at: http://csrc.nist.gov/publications/drafts/nistir-7628/draft-nistir-7628_2nd-public-draft.pdf

[50] NERC/CIP is among the 25 consensus standards identified in Release 1.0. *See* NIST's Release 1.0, p. 60.

Respectfully submitted,

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March 9, 2010

Attachment A

ELECTRIC VEHICLE STANDARDS

ATTACHMENT A
Electric Vehicle Standards

The Society of Automotive Engineers (SAE):

Document	Title	Status
J1711	*Recommended practice for measuring the exhaust emissions and fuel economy of Hybrid-Electric Vehicles*	Under Revision[51]
J1715	*Hybrid Electric Vehicle (HEV) and Electric Vehicle (EV) Terminology*	Under Revision
J1772™	*SAE Electric Vehicle Conductive Charge Coupler (Dictates EVSE Design Requirements, Charging Levels, AC and DC Power Couplers for conventional and fast chargers)*	AC Coupler: Issued DC Coupler: Under Revision
J1773	*SAE Electric Vehicle Inductively Coupled Charging*	Issued[52]
J1797	*Recommended Practice for Packaging of Electric Vehicle Battery Modules*	Issued
J1798	*Recommended Practice for Performance Rating of Electric Vehicle Battery Modules*	Issued
J2288	*Life Cycle Testing of Electric Vehicle Battery Modules*	Issued
J2289	*Electric-Drive Battery Pack System: Functional Guidelines*	Issued
J2293 / 1	*Energy Transfer System for Electric Vehicles – Part 1: Functional Requirements and System Architectures*	Under Revision
J2293 / 2	*Energy Transfer System for Electric Vehicles – Part*	Under

[51] Existing standard currently under document revision.
[52] Standard is approved and available for implementation.

	2: Communication Requirements and Network Architecture	Revision
J2344	*Guidelines for Electric Vehicle Safety*	Under Revision
J2380	*Vibration Testing of Electric Vehicle Batteries*	Issued
J2464	*Electric Vehicle Battery Abuse Testing*	Under Revision
J2758	*Determination of the Maximum Available Power from a Rechargeable Energy Storage System on a Hybrid Electric Vehicle*	Issued
J2836 / 1	*Use Cases for Communication between Plug-In Vehicles and the Utility Grid*	Pending Approval[53]
J2836 / 2	*Use Cases for Communication between Plug-In Vehicles and the Supply Equipment (EVSE)*	Pending Approval
J2836 /3	*Use Cases for Communication Between Plug-In Vehicles and the Utility Grid for Reverse Power Flow*	Under Development[54]
J2841	*Utility Factor Definitions for Plug-In Hybrid Vehicles Using 2001 US DOT National Household Travel Survey Data*	Issued
J2847 /1	*Communication between Plug-In Vehicles and the Utility Grid*	Pending Approval
J2847 / 2	*Communication between Plug-In Vehicles and the Supply Equipment (EVSE)*	Pending Approval
J2847 / 3	*Communication between Plug-In Vehicles and the Utility Grid for Reverse Power Flow*	Under Development
J2894 / 1	*Power Quality Requirements for Plug-In Vehicle Chargers – Part 1: Requirements*	Under Development

[53] Standard has been finalized and is waiting approval from the committee for publication.
[54] New standard being developed.

J2894 / 2	*Power Quality Requirements for Plug-In Vehicle Chargers – Part 2: Test Methods*	Under Development
J2907	*Power rating method for automotive electric propulsion motor and power electronics sub-system*	Issued
J2908	*Power Rating method for hybrid-electric and battery electric vehicle propulsion*	Issued
J2931	*Power Line Carrier Communications for Plug-in Electric Vehicles*	Under Development

Underwriters Laboratories (UL):

Document	Title	Status
UL 50	*Standard for Enclosures for Electrical Equipment*	Issued
UL 1439	*Determination of Sharpness of Edges on Equipment*	Issued
UL 2202	*EV Charging System Equipment*	Issued
UL 2231	*Personnel Protection Systems for EV Charging Circuits*	
UL 2251	*Plug, Receptacles and Couplers for Electric Vehicles*	Issued

International Electrotechnical Commission:

Document	Title	Status
IEC 60870-6	*Tele-control Protocols Compatible with ISO and CCITT Standards*	Under Revision
IEC 61334	*Distribution automation using distribution line carrier systems*	Under Revision
IEC 61850	*Power System IED Communication and Associated Data Models*	Under Revision
IEC 61970	*Energy Management System Application Program Interface*	Under Revision

IEC 61968	*Application integration at electric utilities-system interfaces for distribution management (Data Models being extended with SmartEnergy 2.0)*	Under Revision
IEC 62350	*Communications Systems for Distributed Energy Resources*	Under Revision
IEC 62210	*Data and Communication Security*	Under Revision
IEC 62325	*Framework for Deregulated Electricity Market Communications*	Under Development
IEC/TR 62357	*Interoperability within TC57 in Long Term*	Under Revision
IEC 62351 Parts 1-8	*Security for Protocols, network and system management, role based access control*	Under Revision

Institute of Electrical and Electronic Engineers (IEEE):

Document	Title	Status
1547	*Standard for Interconnecting Distributed Resources with the Electric Power System*	Issued
519	*Harmonic Control in Electrical Power Systems*	Issued
P1809	*Electric Sourced Transportation Infrastructure Guide*	Under Development
P1901	*Standard for Broadband over Power Line Networks*	Under Development
P2030	*Guide for Smart Grid Interoperability of Energy Technology and Information Technology Operation with the Electric Power System (EPS), and End-Use Applications and Loads*	Under Development

2008 National Electric Code (NFPA 70: NEC):

Article	Title	Status
Art. 625	*Electric Vehicle Charging System*	Issued

2007 California Code of Regulations Title 24: (CCR Title 24)

Code	Title	Status
CEC Art. 625	*Electric Vehicle Charging System (Adopts & Slightly Alters the NEC, Updated every three years)*	Issued
CBC Art 1202	*Ventilation Requirements for Electric Vehicle Charging Sites*	Issued
CGBC Art A406.1.5.2.1	*Requires CBC Art. 406.2(Motor Related Occupancies) to add both a 20A -120V outlet and a 40A-240V outlet / prep. Infrastructure for future vehicle usage. (Please note that table 406.1.5.2 notes how many EV ready parking spots are required per ratio of conventional parking)*	Issued

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true copy of SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) COMMENTS TO 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 on all parties identified on the attached service list(s). Service was effected by one or more means indicated below:

Transmitting the copies via e-mail to all parties who have provided an e-mail address. First class mail will be used if electronic service cannot be effectuated.

Executed this **9th day of March, 2010**, at Rosemead, California.

/s/ Cecilia Jones
Cecilia Jones
Project Analyst
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
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