

**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

Comments of the California Independent System Operator Corporation on the Assigned Commissioner's Proposed Decision Adopting Requirements For Smart Grid Deployment Plans Pursuant To Senate Bill 17 (Padilla), Chapter 327, Statutes Of 2009

I. Background

On May 21, 2010, the Assigned Commissioner in the above-captioned proceeding, Nancy E. Ryan, released a Proposed Decision describing how the Commission intends to meet its obligations under Senate Bill (SB) 17 (Padilla).¹ The primary focus of the Proposed Decision is on what subjects Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company (collectively, the IOUs) must address in their SB 17-mandated smart grid deployment plans. Specifically, the Proposed Decision mandates that IOUs must address the following eight topics in their deployment plans and delineates what issues should be addressed as part of each topic:

¹ Chapter 327, Statutes of 2009.

1. Smart grid vision statement.
2. Deployment baseline.
3. Smart grid strategy.
4. Grid security and cyber security strategy.
5. Smart grid roadmap.
6. Cost estimates.
7. Benefits estimates.
8. Metrics.

The Proposed Decision also addresses several other issues related to the deployment plans, including how the Commission intends to utilize the plans, how the Commission intends to review the plans, and what role interoperability standards should play in the plans.

The California Independent System Operator Corp. (ISO) offers the comments below for the Commission's consideration. In general, the ISO believes that the Proposed Decision lays out a smart grid vision that properly acknowledges the broad nature of what smart grid can accomplish across all parts of the electric system. The ISO believes that the Commission should encourage the IOUs to explain what actions they will take to address these broad issues in their deployment plans even if ultimate resolution or implementation of those matters in some cases may fall beyond the Commission's jurisdictional boundaries. The ISO believes that the deployment plans will provide the greatest value in guiding the build-out of California's smart grid if they consider all relevant aspects of California's electric power system.

II. Recommended Contents of the Deployment Plans

A. Smart Grid Vision Statement

The Proposed Decision states that the vision statement should address the smart grid characteristics defined in SB 17, which are that a smart grid should:

- Be self-healing and resilient.
- Motivate consumers to actively participate in operations of the grid.
- Resist attack.
- Provide higher quality power that will save money wasted from outages.
- Accommodate all generation and storage options.
- Enable electricity markets to flourish.
- Run more efficiently.
- Enable penetration of intermittent power generation sources.

Each IOU's smart grid vision statement should address these characteristics from the perspective of how they create: (1) smart markets; (2) smart customers; and (3) smart utilities. As the Proposed Decision explains: "[E]ach IOU's vision statement should consider how the utility plans to promote a Smart Market, a Smart Customer, and a Smart Utility."

1. Smart Market

According to the Proposed Decision, a smart market should:

- Be sufficiently transparent and provide price, tariff and usage information sufficient to facilitate wholesale demand response and distributed generation.
- Have sufficient communication capabilities to enable participation of wholesale demand response and distributed generation.

- Provide pricing structures needed to ensure cost-effective demand response, distributed generation, and conservation responses needed to benefit customers.

With one addition, the ISO supports this notion of a smart market. Along with the issues mentioned above, the ISO suggests that the Commission include within its concept of a smart market the need to create pricing structures and market products that help integrate renewable resources into the grid. This addition aside, the ISO believes that accomplishing the goals listed above would capture several of the most important aspects of smart grid. Indeed, these goals are so important that the ISO encourages the Commission to clarify that review of the deployment plans will not be the extent of the Commission's engagement on these issues. Creating such smart markets requires leadership from the Commission in guiding the IOUs to adopt the necessary pricing structures and communication capabilities.

Additionally, because some of these issues, such as wholesale demand response, involve participation in the ISO's markets, the ISO encourages the Commission and the IOUs to consult with the ISO as the Commission and the IOUs consider how to foster smart markets. It is particularly important that as the IOUs work to support smart markets, they maintain close communications with the ISO to find ways to link wholesale market prices, which are explicitly designed to reflect temporal and locational grid conditions, to retail signals and pricing. The ISO thus encourages the Commission to require IOUs to engage with the ISO on this issue. The deployment plans also should describe what technological capabilities will be needed to link grid conditions with signals to retail customers.

2. Smart Customer

According to the Proposed Decision, a smart grid should:

- Create customers that are informed about the grid and allow them to use electricity more efficiently and save money.
- Consider customer expectations about smart grid and educate customers so that expectations align with the realities of technology.
- Foster an evolution of utility customer from recipient of energy to participant in the grid, by creating detailed education marketing of why energy issues matter to individual customers.

The ISO believes that creating educated customers who are empowered to act upon meaningful information will be a key ingredient to a smart grid. In particular, creating smart customers will be a key factor in determining the success of the smart markets discussed above. As with smart markets, the ISO encourages the Commission to remain engaged in the process of educating energy customers. The ISO also believes that a key aspect of creating customers that are informed about the grid is providing them with meaningful and actionable information about real-time grid conditions. The smart grid technologies deployed by IOUs should thus support ways to reflect temporal and locational grid conditions to retail customers. Customers need an easy to follow method of understanding when grid stability and reliability depend on their immediate action. In particular, in connection with the integration of an increased quantity of variable energy resources, that immediate customer action may include *increased* consumption (such as during times of oversupply), as well as the more traditional notions of decreased consumption during periods of scare supply. The ISO believes that the IOUs should develop the methods of educating customers about real-time grid conditions in conjunction with the ISO.

3. Smart Utility

According to the Proposed Decision, a utility's smart grid plan should address how smart grid will enable them to operate their transmission and distribution systems in ways that anticipate events and permit automatic or self-healing responses by the grid.

As with smart markets, the ISO believes that this statement captures one of the key aspects of smart grid and gets to the heart of the ISO's core mission. The ISO encourages the CPUC to expand on this notion of a smart utility by specifically requiring IOUs to include in their deployment plans how their smart grid efforts can create situational awareness that provides visibility and coordination over the operations of the transmission and distribution systems. For example, with both the ISO and IOUs having common access to information generated from phasor measurement units (PMU), it is possible that the ISO and an IOU may both take action to address an issue highlighted through PMU data. With both parties taking action, the result could be an overcorrection that creates its own challenges for the grid. The deployment plans additionally should address how the IOUs intend to meet the load forecasting challenges posed by the adoption of new technologies, such as plug-in electric vehicles and rooftop photovoltaic. The ISO is eager to work with the IOUs as they consider how to formulate and implement their deployment plans in this area.

B. Deployment Baseline

The Proposed Decision describes the deployment baseline as an inventory of current smart grid infrastructure investments. According to the Proposed Decision, this should be a description of smart technologies that IOUs have deployed and the scope of those deployments and investments.

The ISO believes that creating such an inventory would be invaluable in establishing a starting point of IOUs' efforts. This inventory will be even more useful if the Commission clarifies a few additional requirements for the baseline. First, the baseline should describe what particular smart grid policy objective is being achieved by specific smart grid technologies. Second, the inventory should be comprehensive and not limited solely to distribution-level assets. Third, part of the baseline should be a description of what types of data are being generated from the current smart grid assets. Making this part of the inventory may highlight ways that the maximum value can be extracted from current assets. For example, specifying the types of data that are being generated could highlight previously unrecognized opportunities for third party demand response aggregators. Similarly, identifying the specific types of data being generated by current technology could suggest additional ways that the ISO and the IOUs could jointly develop visibility across all aspects of the electric delivery system.

C. Smart Grid Strategy

The Proposed Decision describes the strategy section of the deployment plans as providing a description of how the IOUs will meet the SB 17 smart grid characteristics. Part of this strategy should include a description of how the IOU will follow established interoperability standards and minimize the risks of stranded costs where standards are still evolving.

The ISO believes that part of this strategy statement should include a discussion of how the IOUs intend to work with other entities, such as the ISO and the CPUC, in accomplishing their strategic smart grid goals. Cooperation with other entities will be an essential component of successfully achieving the smart grid goals identified in SB 17.

D. Grid Security and Cyber Security Strategy

The Proposed Decision states that “every Smart Grid deployment plan should discuss how it plans to incorporate NIST requirements and guidelines into the security program of the utility.” In general, the ISO believes that this is a reasonable approach. However, the ISO believes that the IOUs should specify how they will participate in the development of standards created by NIST, as well as other Standards Development Organizations. The eventual standards will be strengthened by IOUs’ active participation. The IOUs also should specify how they plan to consider and incorporate any existing standards, including those developed by international Standards Development Organizations. Aside from standards development and adoption issues, the Commission should also consider requiring the IOUs to describe in their deployment plans how they intend to work with the ISO in identifying and eliminating any potential gaps in grid and cyber security that may exist at the seams between the transmission and distribution systems.

E. Smart Grid Roadmap

The Proposed Decision describes the roadmap as a projection of the timing of smart grid investments. The Proposed Decision explains that such a roadmap will help the Commission and stakeholders plan to review projects that are part of the IOUs’ infrastructure plans. This roadmap should also include the essential infrastructure steps needed to provide customers with access to the consumption pricing data pursuant to D.09-12-046.

The ISO encourages the Commission to clarify that the roadmap should not be limited to discussion of investments on the distribution system, but should discuss projected smart grid investments on all parts of the electric system. The roadmaps will

also be more useful if they articulate how the IOUs believe particular technologies deployed over time will help meet specific smart grid policy objectives.

F. Cost Estimates

The ISO has no comment on the cost estimates portion of the Proposed Decision but it reserves the right to comment on this matter further in its reply comments.

G. Benefits Estimates

The Proposed Decision discusses three categories of potential benefit from the smart grid:

1. Meeting legislative/policy goals.
2. Significant but difficult to quantify benefits.
3. Economic benefits.

The Proposed Decision explains that the first category will be analyzed through least-cost analysis. The second category relates to benefits such as improved grid reliability and development of worker safety programs. The third category involves economic benefits that result in lower electric bills and better use of electric infrastructure; they should be quantified as best as possible in the deployment plans. The Proposed Decision also mentions storage and the various benefits it can provide such as: reduced emissions, reduced need for transmission, peak shaving, and increased grid reliability. If an IOU's proposed plans involve storage, the IOUs should address the various benefits of storage.

The ISO believes that it is uniquely positioned to help evaluate many of these benefits. Storage is a good example because the potential benefits of storage relate to the ISO's core functions. Grid reliability is another area where the ISO has particular expertise. Additionally, the ISO can offer significant input regarding the potential market

benefits of smart grid deployment because such benefits will derive from improved operation of the ISO's markets. In all these areas, the ISO can provide additional insight and analysis of smart grid benefits beyond what the IOUs can provide in their smart grid deployment plans. Thus, the ISO encourages both the IOUs and the Commission to consult with it as the deployment plans are formulated and reviewed.

H. Metrics

The ISO has no comment on the metrics portion of the Proposed Decision but it reserves the right to comment on this matter further in its reply comments.

III. **Other Topics Related to the Deployment Plans**

A. Interoperability

The Proposed Decision notes that nearly all commenters agree that California's smart grid deployment should follow national standards. On this issue, the Proposed Decisions states that IOUs should "recommend the adoption of a particular communications protocol as part of their Smart Grid deployment plans and to seek Commission approval of appropriate Smart Grid interoperability standards or guidelines identified by NIST."

The Commission should also consider requiring the IOUs to include their specific plans for involvement in Standard Development Organizations, including NIST, as part of their deployment plans. Greater participation in the standards-setting processes on the part of the IOUs will help maximize the chances that the eventual standards will meet the IOUs' needs.

B. How Will Smart Grid Investments Be Considered?

During the course of the rulemaking process, the Commission has considered whether smart grid investments should be considered through general rate cases or

through a special application. The Proposed Decision states that either approach can be followed. The ISO has no comment on this matter but it reserves the right to comment on this matter further in its reply comments.

C. Demarcation Point Between Consumer and IOU Investment

During the course of the rulemaking process, the Commission has considered whether the meter should serve as a point of demarcation between IOU investment and customer or third party investment. The Proposed Decision does not adopt a demarcation point at this time. The ISO has no comment on this matter but it reserves the right to comment on this matter further in its reply comments.

IV. Conclusion

The ISO appreciates this opportunity to offer its comments on the Proposed Decision. Generally, the ISO agrees with the smart grid vision reflected in the Proposed Decision. The ISO encourages the Commission to require the IOUs not to limit their deployment plans to consideration of distribution issues exclusively. Many of the smart grid characteristics enshrined in SB 17 involve issues that cut across the traditional boundaries between transmission and distribution.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on June 10, 2010, I served on the Service List for Proceeding R.08-12-009, by electronic mail and United States mail, a copy of the foregoing:

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Executed on June 10, 2010 at
Folsom, California

/s/Jane Ostapovich

Jane Ostapovich,
An employee of the California Independent
System Operator