

SCE Smart Grid Recommendations for Draft IEPR

Southern California Edison Company (SCE) has reviewed the previous California Energy Commission IEPR reports (2007 IEPR Report and 2008 IEPR Update) as well as the 2009 IEPR Scoping Memo. We respectfully submit the following recommendations regarding smart grid technologies for the CEC's consideration as the CEC develops the initial draft of the 2009 IEPR Report.

In sum, SCE supports the 2009 IEPR Scoping Memo items which call for the development of plans and blueprints for the deployment of smart grid technologies including:

- Deployment of advanced, intelligent distribution/transmission grid technology;
- Integration of renewables, energy storage, and distributed energy resources; and
- Adoption of customer smart energy solutions (inclusive of energy efficiency and demand response).

SCE also supports items in the 2009 IEPR Scoping Memo which consider continued research & development, coordinated policy development, and stakeholder awareness activities, all with the goal of ultimately making smart grid advancements possible.

SCE notes, however, that the 2009 IEPR Scoping Memo places relatively little emphasis on the electric distribution system as an important area of energy policy interest; most of the smart grid technology discussion is confined to transmission issues and integration of renewable generation. We agree that the discussed areas are critical, but also believe that the state's energy policy goals will have significant impacts on the distribution system as well. We suggest that distribution impacts be emphasized in a manner similar to the 2007 IEPR Report, which dedicates an entire chapter to "California's Electric Distribution System."

SCE acknowledges and agrees with the emphasis on research & development in support of smart grid technologies in the 2009 IEPR Scoping Memo. In the past, CEC-sponsored R&D has focused on greater understanding and development of technologies with longer-term time horizons for actual implementation by utilities. Given the current strong push towards smart grid deployment (coming from a variety of different stakeholders); SCE suggests that research efforts supported in this IEPR properly place a nearer-term focus on technologies that could support achievement of more immediate state energy policy goals, many of which will require full technology implementation by 2020. Additional research priority must be placed on policies or technologies with the potential to alter existing system operations to ensure that economic, environmental and technical considerations are addressed.

The sections which follow provide specific items for consideration by the CEC as 2009 IEPR Report recommendations related to smart grid technology. These recommendations have been categorized in the areas of general smart grid technology, renewables integration, distributed energy resources (DER) integration, and customer energy-smart solutions (inclusive of energy efficiency and demand response).

1. General Smart Grid Technology (for both Transmission & Distribution Grid)

- Continue coordination with CPUC, CAISO, the utilities, and other stakeholders consistent with SB 17 to develop Smart Grid development plans that align with State energy policy objectives, are economically feasible and technically viable, and provide good customer value.
- Develop a joint CEC-CPUC regulatory framework for adopting those NIST Smart Grid interoperability and cyber security standards recommendations that are adopted by FERC, in order to ensure California remains aligned nationally and internationally. Also, consider the FERC Smart Grid Policy Statement in the development of California's Smart Grid Policy in concert with the CPUC's final ruling in the Smart Grid OIR (which is due in December 2009).

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- Identify and prioritize research & development focus areas to support renewable energy integration and green circuits development within the Distribution and Transmission Research Policy Advisory Committees (PACs).

2. Integration of Large Scale Renewable Resources

- Establish a PIER funding priority for research, development and demonstration on technologies that may mitigate or resolve intermittency and other system impacts (e.g., continued research into advanced energy storage systems, wide area controls, Flexible Alternating Current Transmission Systems (FACTS) devices, voltage and VAR control, etc.).

3. Integration of Distributed Energy Resources (DER)

- Coordinate with the CPUC to develop guidelines for DER integration that will inform revision of distribution infrastructure design standards and interconnection standards. These guidelines will also steer development of smart inverter criteria and communications and controls criteria. These coordination efforts resulting in DER integration guidelines should support State energy policies related to RPS, DER and Zero Net Energy buildings.
- Prioritize PIER funding to assess and address distribution system impacts of bi-directional power flows and power quality challenges resulting from increased levels of renewables and DER.
- Coordinate with NIST Smart Grid standards development efforts for the integration of DER, which includes development of revisions to IEEE 1547 for physical and electrical interconnections between the utility and distributed generation.

4. Energy Smart Customer Solutions (inclusive of Energy Efficiency & Demand Response)

- Develop guidelines for implementation of Zero Net Energy buildings to ensure ZNE buildings, and related issues concerning power quality and distribution system power flows, do not harm grid reliability or service to other customers.
- Coordinate a joint task force with CPUC, CAISO, utilities and energy services firms to coordinate operation and control of distributed resources (including demand response) and facilitate clarification of control and use of distributed energy resources (supply & demand) across mutually exclusive users. This may include establishing operating guidelines for the dispatch of distribution system-connected demand resources for CAISO market and grid operations, utility procurement and distribution system operations, or energy services firm commercial purposes. Each use of demand resources is nearly always mutually exclusive. Failure to coordinate and prioritize these uses can create significant and detrimental distribution system impacts on reliability and power quality. These coordination efforts could be included as part of the CEC Load Management proceeding.
- Coordinate with NIST Smart Grid interoperability and cyber security standards development efforts in the area of demand response and load control, including emerging energy smart consumer devices, plug-in electric vehicles and appliances. Once standards development is complete, adopt resulting recommendations in alignment with FERC rulings to ensure national and international compatibility.