



August 17, 2012

California Energy Commission  
Docket Office, MS-4  
Sacramento, CA 95814-5512  
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Re: California Energy Commission Docket No. 12-EPIC-01: Development of the California Energy Commission Investment Plan for the Electric Program Investment Charge Program

To Whom It May Concern:

Southern California Edison Company (“SCE”) participated in the California Energy Commission’s (“CEC”) Electric Program Investment Charge (“EPIC”) program workshops which were held in Sacramento on August 2-3 and Los Angeles on August 9-10. SCE appreciates the opportunity to provide these written comments on the EPIC workshops.

Investor Owned Utility (“Utility”) customers would derive the most benefit from the EPIC program by targeting initiatives that help the State achieve its energy goals and environmental mandates. In this context, SCE would like to specifically provide further comments regarding clean generation, grid operations, transmission and distribution systems, electric vehicles, demand side management, and health and safety.

#### Clean Generation

SCE recommends that to provide maximum Utility customer benefits, clean generation program initiatives should focus on supporting the State’s energy and environmental goals, such as the Governor’s proposed 12,000 MW of Localized Energy Resources (“LERS”) and 33% Renewable Portfolio Standard (“RPS”). Specifically, SCE recommends the following program initiatives that also examine potential benefits and costs for Utility customers:

- Research analysis of further placement of peaker or flexible generation units for grid stability.
- Research analysis of using demand response (per the report prepared by Navigant for the California Public Utilities Commission) for renewable integration.
- Market analysis and tariff development for customer renewable distributed generation systems that can provide voltage/VAR support for distribution circuits.
- Development of new market products for load following in collaboration with the California Independent System Operator (“CAISO”).

- Examination of using Air Quality Management District's ("AQMD") banked emission credits for new energy generation.

### Grid Operations

To ensure Utility customers derive the maximum benefits from grid operations, SCE recommends project initiatives that improve and further integrate the electric grid with customer demand management, such as:

- Integration of systems resulting in increased grid efficacy with a specific focus on customer-side-of-the-meter tactics. This includes building area networks, home area networks, gateways, building scale storage, community scale storage, smart single/three phase inverters, "n way" communication capability of end use devices, electric vehicle impacts, optimization of smart meter functionality, and interfaces with grid control systems.
- Analysis of behavioral issues to support the quantification of human factors on energy demand and system reliability. This includes in home displays and price signal drivers.
- Examination of expanding storage activities to include other viable storage technologies, such as customer scale compressed air and pumped hydro.

### Transmission and Distribution Systems

The Utilities have invested in advanced technologies such as synchrophasors to improve monitoring capabilities and increase the ability to recognize and respond to instability on the transmission grid. Criteria for research initiatives should include leveraging existing deployed equipment like synchrophasors to extend their use to the benefit of Utility customers. In the synchrophasor example, these devices could provide additional input to the following systems:

- Development of interoperability standards and consistent definitions for dispatchable technologies.
- Adaptive protection schemes;
- Closed loop control on special protection schemes; and
- State estimation systems

Conducting applied research to leverage existing Utility technology is an important component of maximizing asset use and reducing overall costs to Utility customers. The applied research and technology demonstration programs should also seek to partner with federal government programs like the American Recovery and Reinvestment Act (ARRA), Advanced Projects Research Agency – Energy (ARPA-e), and the Department of Energy's Sunshot Initiative. Criteria for research initiatives should include leveraging these funding opportunities

to the greatest extent possible to maximize California's electricity customer-funded research and to avoid duplication of work that may be funded by the federal government or private funds.

Transmission and distribution infrastructure upgrades will continue to be an important component of enabling interconnection of renewable generation, incorporating advanced devices, evolving and securing communication and control networks, and maintaining a stable and reliable grid. Applied research in the area of equitably allocating costs to fund these critical transmission and distribution upgrades would be beneficial to reduce barriers and to ensure infrastructure upgrades occur in a cost-effective and timely manner.

### Electric Vehicles

The CEC appropriately added electric vehicles to the section on "grid operations, T&D systems, and electric vehicles." SCE believes it is appropriate to have electric vehicles as part of the CEC program and also recommends that electric vehicles be defined broadly as electric transportation including dual-mode technologies that electrify some of their miles. This broader definition would include both plug-in hybrid electric vehicles and battery electric vehicles, catenary and hybrid-catenary technologies, and several other technologies. It also would include light duty vehicles, heavy duty vehicles, off-road vehicles, port and material handling equipment, and trains.

SCE also recommends that the CEC focus its electric transportation efforts on areas within its sole authority under the EPIC program (e.g., research and development ("R&D") and market facilitation actions). While the Department of Energy and the private sector may perform some R&D and market facilitation on electric transportation, we believe there are areas which would benefit from the CEC's involvement. For example, the South Coast Air Quality Management District ("AQMD"), the San Joaquin AQMD, and the California Air Resources Board have released the "Vision for Clean Air" plan which is envisioning large scale deployment of near zero and zero-emission transportation in almost all market segments by 2023 in order to meet both federal air quality deadlines and state greenhouse gas reduction goals. The draft 2012 South Coast AQMD plan has similar goals for electric transportation. SCE recommends that the CEC work with stakeholders and the Utilities to better understand the R&D and market facilitation needs.

### Demand Side Management

SCE recommends focusing energy demand side management ("DSM") projects on metrics and standards for advanced technology. To provide Utility ratepayer benefits, SCE specifically recommends targeting the following program initiatives for metrics and standards:

- Research analysis of grid impacts and costs to customers between various renewable deployment scenarios of utility-scale and local, distributed generation.
- Inclusion of power quality metrics for DSM technologies (e.g. measuring total harmonic distortion) and understanding the impacts on a building's total power consumption and power quality levels.

- Development of regional metrics for energy/acre feet of "cold water" transported and used (i.e., a gallon used in one city will have a different energy footprint than another).

Additionally, SCE recommends that the CEC conduct an analysis on the cost-effectiveness of different methods to reach Zero Net Energy ("ZNE") for use in on-going policy discussions among California regulators.

### Health and Safety

Advanced technologies present health and safety concerns for Utility customers and employees. The development of the smart grid may increase radio frequency ("RF") exposure to the public. Though these RF exposures are likely smaller than those from mobile phones and Wi-Fi networks, customers have expressed concerns regarding the use of wireless RF signals for the smart grid. SCE recommends that the CEC research the effect of RF exposure. This research would benefit Utility customers and employees and others that interact with electrical systems, such as first responders.

New technologies and regulations may also cause occupational hazards. Environmental regulations require that Utilities change the chemicals used in generation, transmission, and distribution equipment. In general, these newer chemicals have not been studied as extensively as those previously used. SCE recommends that the CEC research the effects of the newer chemicals, including the short and long-term effects on employee health, the effects on equipment maintenance and reliability, and the controls necessary to prevent hazardous exposure. New equipment and methods may also necessitate ergonomic research.

As always, SCE appreciates the opportunity to submit its comments. Please feel free to contact me regarding any questions or concerns.

Very truly yours,

/s/ Manuel Alvarez

Manuel Alvarez