Proposed Projects
Smart Green Grid – ARRA Funding
San Diego Gas and Electric Co.

The *Demand Response and Programmable Home Displays and Control* Project

Scope - Design and deployment of a comprehensive demand response management application that can account for and dispatch loads, storage and generation to any geographic scale and offer granularity down to the individual customer device.
These applications will utilize an Advanced Metering Infrastructure that communicates with HAN devices. Additionally, this proposal would entail development and deployments of programmable controllable devises and other enabling technologies for Residential and Commercial Customers. These devices would accommodate metering and control of individual appliances, energy management systems/controllers for homes and small businesses, solar generation output metering, battery storage and plug-in vehicle metering and control.

Potential Benefits - Improved visibility into enrolled demand capacity, job creation in manufacturing and construction personnel, improved visibility into distributed generation and storage, improved resource program management user interfaces, reduced use of spinning reserves, increased automation for control systems, customer Savings, reduction in greenhouse gas

The *Self Healing Grid* Project

Scope - Expansion of Supervisory Control and Data Acquisition (SCADA) and Self-Healing Grid Technology to provide improved reliability of service by automatically isolating failed grid components and restore service to as many customers as possible as well as to support public policy

Potential Benefits - Increased reliability to customers, deferred capacity projects, reduced operating and maintenance expenses, automated functions by remote control of devices, construction workforce job creation, improved ability to diagnose and solve system problems, expedite electric load curtailment activities,

The *Network Communications* Project

Scope – This project will enable the smart grid technologies being deployed on the grid and further the expansion of customer offerings. This project will include the design and deployment of a dedicated mission critical wireless network of networks. The network addresses the broadest communications requirements of SDG&E encompassing fixed asset monitoring and control for Smart Grid technologies and supporting mobile and meeting communications

Potential Benefits - Improved communications system reliability, job creation in telecommunications and construction, increased communications coverage to Grid assets, lowered communications system operating expenses, boost communication system capacity, and improved communications system flexibility

The *Integration and Study of Electric Vehicles* Project

Scope: The electric transportation project would include the following five components:

- **Study on the impact and integration of Electric Vehicles on the distribution system.**
- **Funding for vehicle charging technology and mobile utility revenue grade metering**
- **Funding to deploy the infrastructure for Electric Vehicle charging stations** in conjunction with EV car manufacturers (with the potential to buy-down EV costs to increase adoption of EVs);
- **Development of software necessary for the integration of Electric Vehicles and the electric grid.**

- **Electric Transmission & Distributed Energy** - California Advanced Battery Center (utility would own and lease batteries to Electric Vehicle owners, and exchange batteries once useful life in vehicle is complete; post-vehicle, explore battery use for distributed energy applications – IOU's could handle battery reuse for distributed energy and disposal);

Potential Benefits: Fuel savings, Greenhouse Gas reduction, EV industry growth and job creations

The *Dynamic Rating* **Project**

Scope - Dynamic ratings provide an opportunity to reduce aspects of capital investments and operate the grid at higher efficiencies. As costs of technologies and equipment decrease dynamic ratings use can be expanded to substations and the distribution system

Potential Benefits - Enable ability to allow additional power through a conductor at critical need times, as opposed to purchasing the necessary required power from an alternate generator, reduced transmission congestion, increased operations flexibility, improved reliability, and potential capital investment deferral, maximize utilization of assets

The *Energy Storage* **Project**

Scope - Creation of viable solutions for challenges related to the intermittency of renewable energy as California's Renewable Portfolio Standards moves to 33%

Potential Benefits - Modification of load profile which will create the need for less infrastructure, job creation for construction and manufacturing personnel, facilitation of renewable energy deployment, reduction in greenhouse gas, potential capital investment deferral

The *Phasor Measurement Units (PMU)* **Project**

Scope - The use of synchrophasor data to improve electric network reliability. With the current SEu phasor network comprising of 5 Phasor Measurement Units (PMU), the effort will focus on expanding the number of PMUs, developing a Phasor Data Collector (PDC) and deploy real-time wide area monitoring capabilities on grid dynamics to operators and reliability coordinators

Potential Benefits - Understanding potential problems with the grid and are therefore a key component of a stable, self healing grid, monitoring and visualization for improved control room operations, wide-area control and protection, power system restoration, improved wholesale market efficiency

The *Fault Location Sensors* **Project**

Scope - Incorporation of a system of sensors, communication technologies and IT systems to reduce the frequency and duration of customer outages

Potential Benefits - Increased reliability to customers, quicker location of outages, shorter outage response times, reduced operating and maintenance expenses, better vegetation management

The *Smart Grid Standards* **Project**

Scope - Standards are essential tools to ensure future system upgrades do not require retrofits. Standards are needed for data exchange between different operational systems (e.g. Geographic Information Systems and Outage Management systems). They are needed to ensure consumer devices can respond to grid events, such as high energy prices or system disturbances. Interoperability through standards is key. All assets in the power system should be able to communicate with each other without incurring high integration costs.

Potential Benefits - Inter-operability, reduced equipment costs, no proprietary standards

For additional information, contact:

Dan Skopec
Vice President, Regulatory Affairs
San Diego Gas and Electric Company/Southern California Gas Co.
415-202-9986
Dskopec@semprautilities.com