

i-PCGRID Workshop



- **What Steps Can Break Down the Barriers to Deployment of Advanced Technologies**

03/27/14

Introduction



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- **Good Morning My name is Ali Yari, I am the Director of the Transmission Grid Operations at SDG&E.**
 - **It is a pleasure to be here and I appreciate the opportunity to address what steps SDG&E is taking to break down the barriers to deployment of advance technologies**
 - **SDG&S is a very progressive company, for the most part we have been successful breaking down a lot of the barriers to development of advance technology**

SDG&E Excellence



- SDG&E received the 2012 POWER **Smart Grid Award** from POWER magazine for launching one of the most ambitious and comprehensive smart grid deployment programs in the nation.
- SDG&E received the “**Top Ten Utility**” award for excellence in smart grid development from Greentech Media.
- SDG&E has been named “**Most Intelligent Utility**” for three years in a row according to IDC Energy Insights and Intelligent Utility Magazine
- SDG&E was recognized by the PA Consulting and Received the
 - **ReliabilityOne Award** for reliability performance among utilities in the western states and Canada **for the seventh year** in a row,

SDG&E and Its Commitment to New Technologies



- SDG&E has a solid position as a national leader in transforming the conventional electric grid into a smart grid by using new technology to enhance reliability, integrate renewable energy and provide new benefits to customers.
- SDG&E believes that investment in new technology will yield benefits to its customers, promote public policy, and advance the industry.
- At SDG&E we have worked hard to overcome the barriers
 - Typical Barriers in developing New Technologies:
 - Cost - New Technologies are expensive and funding is hard to justify
 - Very hard to demonstrate its benefits under the old paradigms
 - Power industry is an old industry very set in its ways
 - Technical difficulties of integrating new technologies with old technologies
 - Finding personnel trained in New Technologies and/or re-training of the work force that develops the projects

What Can Be Done to Break Down Barriers?

- Revenues can offset some costs by taking advantage of the Intellectual Property obtained through advanced technology deployment
- A good example for using Intellectual Property to develop business opportunities to offset the cost of new technology ----- is the -----
SDG&E has patented the “**Smart Transformer**” idea
 - “Smart Transformer” (tracking, controlling and balancing electric loads, especially helpful with widespread Electric Vehicle charging)
 - Collects data and Reduces Capital Expenses (will improve asset utilization)
 - SDG&E currently has about 60 of the smart transformer monitors deployed on distribution transformers that serve one or more electric vehicle.
- Build alliances to ensure support from –Regulators - Public / Local Gov.
- Tax credits can also assist
- Do a better job of identifying the true costs of implementation advance technology by taking all the benefits including societal benefit into account.

What New Technologies bring

- **Improved Reliability** - SDG&E has been working over the past few years to make the electrical grid more reliable and able to incorporate large-scale renewables, plug-in electric vehicles and rooftop solar panels.
- **Cleaner Environment** - New Technologies such as the electric vehicle and active participation of the customer to manage demand will contribute to a cleaner environment.
- **Benefits to the Customers** - By leveraging advanced technologies --- customers can better manage their home energy usage.

Major Filings of New Technologies

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- **Smart Grid Deployment Plan** – filed 6/2011 – approved 6/2013 – serves as a policy guide for future investment applications
 - **General Rate Case** – Filed for the new technology investments cost recovery
 - Funding for energy storage (\$26M)
 - Research ----- Development --and -- Demonstration

Major Categories of New Technologies

- Renewables, especially PV and Wind
- Advanced Energy Storage & Microgrids
- Electric Vehicles
- Systems Improvements, including
 - GIS
 - Distributed Energy Resource Management
 - Expanded SCADA applications
 - Smart Grid Communications
 - AMI --- Smart Meters
 - Synchrophasors

New Technologies and the Smart Grid

- New technologies should be evaluated based on the functionality they provide
- New technologies have to be valued as a whole
 - Each technology may not seem to add enough value individually, but when looked at as part of a set of various technologies, the added value is meaningful. Synergies are key.

At SDG&E, we have been involved in many new technology projects. Many of these have served and keep serving, as stepping stones towards the Smart Grid.

New Technologies SDG&E has Developed (continues)



- **GIS** – Implemented new system from ESRI
- **Network Management System** – allows outage management
- **Multiple small Energy Storage** devices with Multiple Modes of Operation at various locations
- **Wireless Fault Indicators** – about 3000 installed on OH distribution.
- **FAA lights management automation** – about 500 installed
- **Electric Vehicles**
 - San Diego has one of the highest concentrations of plug in electric vehicles in the state and nation with over 4,600 on its streets
- **Solar Car Ports** at various locations in San Diego