

# **2012 Smart Grid Program Peer Review Meeting**

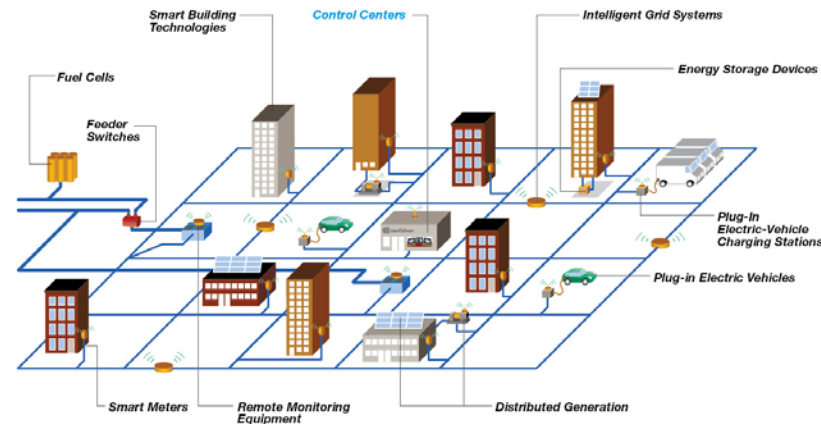
## **Smart Grid Demonstration Project**

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# Smart Grid Demonstration Project

## Objective

Demonstrate secure interoperable services between utility distribution systems and customer owned distributed resources (DR)



## Life-cycle Funding

<b>FY10 – FY13</b>
\$45.4 m

## Technical Scope

- Integrate Legacy and Smart Grid information systems
- Integrate external DR into distribution grid systems:
  - EV/Battery storage
  - Building Management Systems (BMS)
  - Standby generation
  - Photovoltaic

# Needs and Project Targets

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Integrate customer owned resources into distribution operations to enable customer participation and defer capital investment

- Integrate DR resources into operator platform
- Implement secure communications to DR resources
- Apply industry standards for communications and interfacing
- Reduce peak load growth by demand response

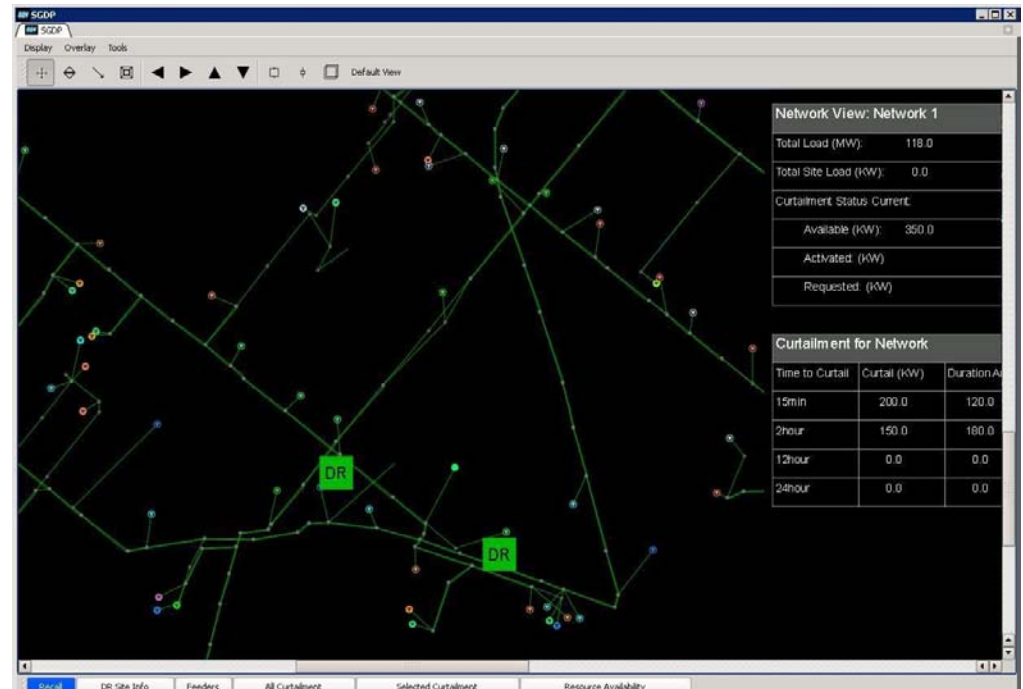
# Technical Approach

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- Establish standards based service oriented infrastructure
  - Interfaces
  - Services
  - Communications
- Integrate existing control center systems
- Interface to external Third Party Service providers
  - EV/Battery storage
  - Building Management Systems
  - Standby generation
  - Photovoltaic

# Technical Approach

- Con Edison Distribution System Status integrated with Smart Grid DR
- Target Demand Response Curtailment from the following
  - EV Charger/Battery Storage
  - BMS
  - Standby Generator
  - Photovoltaic



# Technical Accomplishments

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## **FY2010**

- Identified customer facilities
- Modeled Buildings for demand response
- Developed requirements for legacy and new smart grid systems
- Initiated procurement of equipment

## **FY2011**

- Developed Architecture and Interoperability Design
- Identified Cyber Security Requirements
- Alignment with NIST 7628
- Installed EV Charging and Battery at Customer Site

# Technical Accomplishments

## **FY2012**

### **March**

- Installed Secure Interoperable Service Architecture
- Established Network Operations Control Centers
  - Viridity, Green Charge Networks, Innoventive
- Integrated DR into Control Center Systems
- Demonstrated targeted Demand Response
  - BMS
  - EV Charging/Battery Storage
  - Standby Generator

### **August**

- Demonstrate interoperable services at Orange & Rockland

### **September and October**

- Integrate additional DRs
- Demonstrate load flow analysis and decision aid tools

## **FY2013**

### **April**

- Gather operational data

# Significance and Impact

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## •Smart Grid Significant Impacts

- Integrate existing and new DR
- Enable targeted curtailment
- Develop EV control technology
- Reduce Peak Load by demand response
- Enhance customer engagement



# Interactions & Collaborations

- **Con Edison**
  - Distribution Engineering
  - Distribution Control Centers – Operations
  - Energy Efficiency
  - Information Resources (IR)
- **Government Agencies**
  - Department of Energy
  - NIST
- **Partners/Subawardees**
  - Siemens/TIBCO
  - Viridity Energy
  - GreenCharge Networks
  - Innoventive
  - CALM
  - Columbia University
  - NYCEDC
  - SoftStuf
- **External Organizations**
  - Electric Power Research Institute (EPRI)
  - GridWise Alliance

# Contact Information

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Provide name/address/phone/email of PI and/or presenter.

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