Interoperability of Demand Response Resources in New York

A USDOE Funded Project
December 9, 2008
Outline

• Company Overview
• Participants
• Background
• Objectives
• Interoperability
• Schedule
• Feedback
Company Overview

Customers: 3,250,000
Population: 9,200,000
Area: 604 mi²
Peak Demand: 13,141 MW
Con Ed Load Density: ~22 MW/mi²
NY State Load Density: ~0.7 MW/mi²

System Voltages
Transmission: 345, 138 & 69 kV
Primary Distribution: 33, 27, 13 & 4 kV
Secondary Distribution: 120 & 265 V
In Perspective

• Con Edison service territory represents **1.3%** of NY State land area

• Con Edison customer delivery represents **35%** of NY State 2007 electricity use

• Con Edison customer load represents **40%** of NY State 2007 peak demand
Project Participants

Prime Contractor
• Con Edison - Electric Delivery Company and Transmission Operator

Sub Contractors
• Verizon - Retail Electric Customer and Demand Response Resource Owner
• Innoventive Power - Project Management and Demand Response Service Provider
• Infotility - Interoperability Software Developer
Project Background

In New York City, backup generators are estimated to comprise ~2GW (almost 20%) of the annual coincident peak demand.

But only about 140 MW currently participate in demand response programs.
Project Background

We seek increased availability and use of distributed energy resources (DSM + DG) in discrete portions of underground urban networks for providing power or reducing demand during peak periods and adverse system conditions.
Project Objectives

- Enhanced reliability of distribution network
- Better integration of distributed resources
- Expanded interoperability
- Increased distributed generation unit interconnection
- Aggregation of added demand response resources
Ultimate Implementation - One Vision

Dynamic Load Shaping within Local Networks
(Aggregated demand response at feeder level, DER integration, VAR management, intelligent islanding, dynamic reconfiguration, fault isolation, condition-based maintenance, availability/performance monitoring & dispatch from utility control, etc.)
Some Challenges

• What information is communicated among participants?
• At what level of operations do the protocols take effect?
• What is “real time” data?
• At what frequency is real time data communicated?
• How best to aggregate and display information so utility operators can make informed decisions about using resources in specific pockets of networks.
Interoperability Demonstration Aspects

• Includes multiple distributed resource types
• Exercises integration technologies and standards
• Integrates with system planning and operations
• Integrates with distribution planning and ops
• Connects retail customers with wholesale conditions (demand response & ancillary services)
Project Schedule

**Phase 1** – Gather Data & Study Feasibility:
October 1, 2008 – September 30, 2009

**Phase 2** – Design & Construct:
October 1, 2009 – June 30, 2010

**Phase 3** – Operate and Measure Performance:
October 1, 2010 – September 30, 2011