

Interoperability  
of  
Demand Response  
Resources  
in  
New York

A USDOE Funded Project  
December 9, 2008



# Outline

- Company Overview
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- Schedule
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# Company Overview

Customers	3,250,000
Population	9,200,000
Area	604 mi <sup>2</sup>
Peak Demand	13,141 MW
Con Ed Load Density	~22 MW/mi <sup>2</sup>
NY State Load Density	~0.7 MW/mi <sup>2</sup>

## 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.**

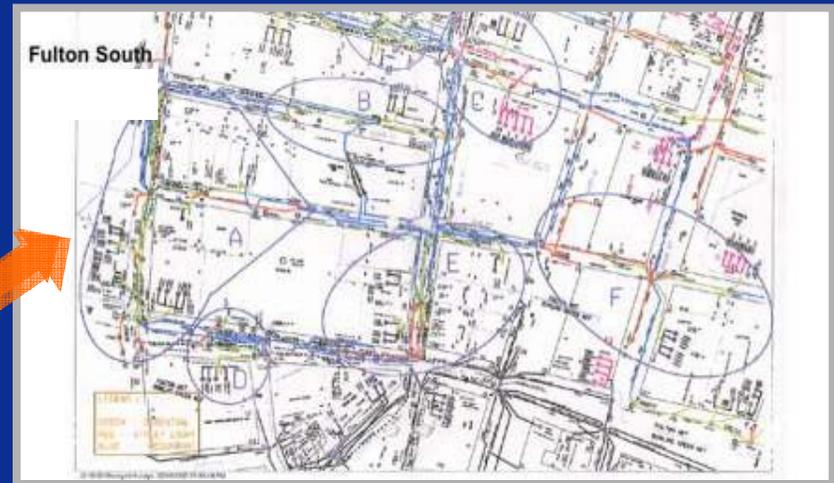
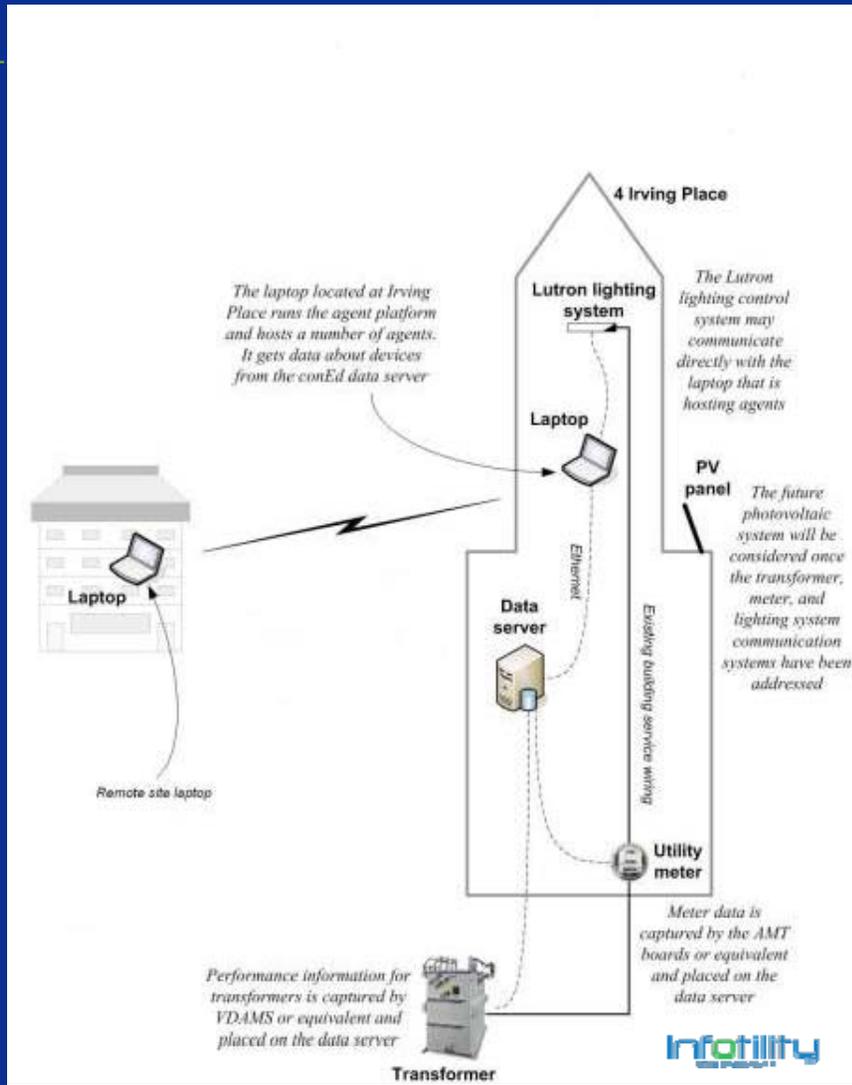
## Project Background

**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