Interoperability
of
Demand Response Resources
in
New York

a

Smart Grid

Demonstration

February 3, 2009

EPRI / Consolidated Edison
Smart Grid Demonstration

- Project update

- Ongoing work

- 2009 activities

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Company Overview

Service Territory

Customers	3,200,000
Population	9,100,000
Area	604 mi^2
Peak Demand	13,141 MW
Con Ed Load Density	21.8 MW/mi^2
NY State Load Density	0.7 MW/mi^2

System Voltages

Transmission	345kV, 500kV, 138kV 69kV
Primary Distribution	33kV, 27kV, 13kV, 4kV
Secondary Distribution	120V, 265V

New York City & Westchester County

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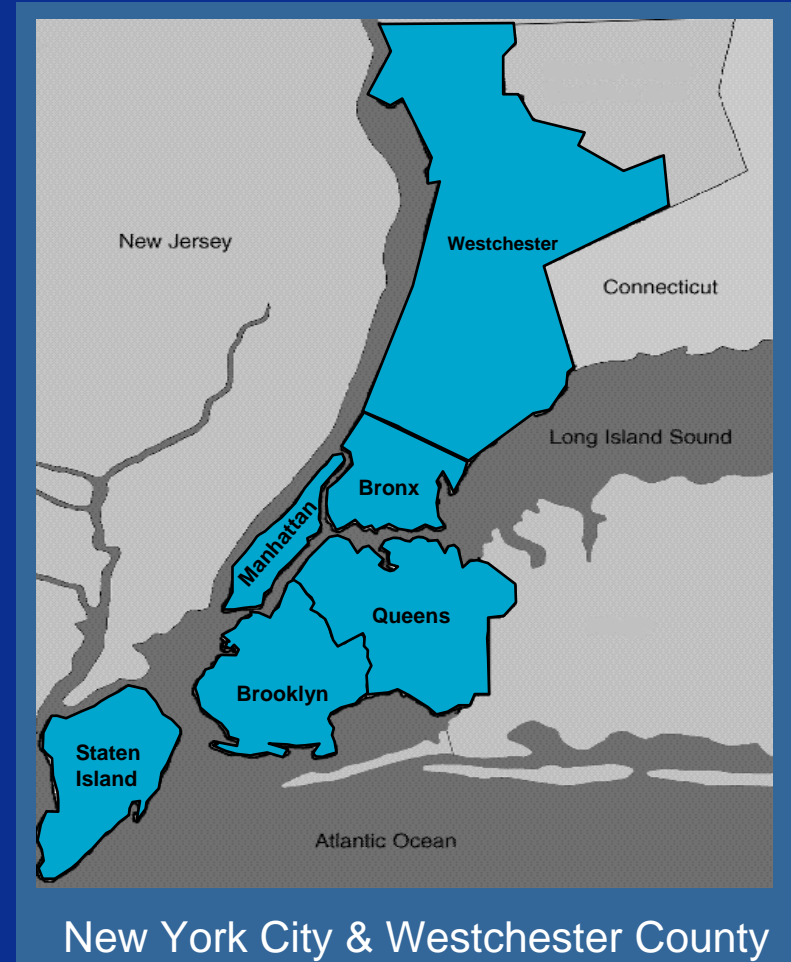
In Perspective

- 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

47,214 Square Miles

604 Square Miles

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Project Participants

- **Con Edison –**
  - Electric Delivery Company and
  - Transmission Operator

- **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 by NYSERDA to comprise ~2GW (almost 20%) of the annual coincident peak demand;

But only about 1% (~140 MW) currently participate in demand response programs.

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Project Background

We seek increased availability and use of distributed energy resources (DSM + DG) in discrete network areas for providing power or reducing demand during peak periods and adverse system conditions.

Project Objectives

- Better integrate distributed resources for distribution reliability

- Enhance intelligence of electric delivery system

- Develop enhanced interoperability

- Aggregate demand response resources - create a virtual power plant

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Smart Grid – It's All About Information

- What information is communicated among participants?

- At what level of operations do the protocols take effect?

- What is "real time" data?

- What is the 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 networks?

- What are metrics of success?

EPRI Smart Grid Demonstration Project
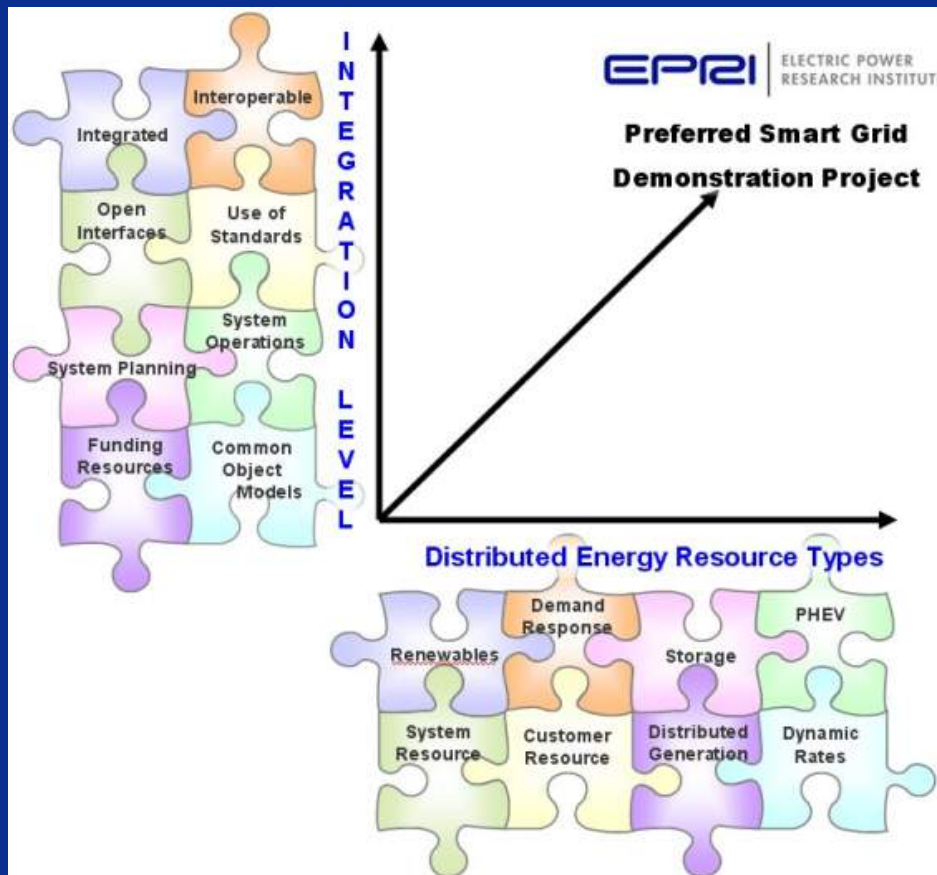
- Applies Critical Integration Technologies & Standards

- Includes Multiple Types of Distributed Resources

- Connects retail customers with wholesale conditions

- Integrates with System Planning and Operations

- Compatible with EPRI's Initiative and Approach

- Leverages additional funding

Project Update

- Phase 1 in progress

- Assembling and validating the cohort of 30$^+$ sites

- Site equipment and operation inventory software in use

- First milestone report in preparation

- Phase one is a study to define & justify Phases 2 & 3

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