Con Edison’s Infrastructure Delivers Energy to New York City And Westchester

- 3.3 million electric customers
- 1.1 million gas customers
- 1,800 steam customers
- 690 MW of regulated generation
- 36,000 miles of overhead transmission and distribution lines
- 94,000 miles of underground transmission and distribution lines
- 4,300 miles of gas mains
- 105 miles of steam mains and lines
## Solar Distributed Generation

<table>
<thead>
<tr>
<th>Technology</th>
<th>MW</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Combustion Engine</td>
<td>118.0</td>
<td>46%</td>
</tr>
<tr>
<td>Combustion Turbine</td>
<td>82.3</td>
<td>32%</td>
</tr>
<tr>
<td>Steam Turbine</td>
<td>43.5</td>
<td>17%</td>
</tr>
<tr>
<td>Hydroelectric</td>
<td>2.0</td>
<td>1%</td>
</tr>
<tr>
<td>Fuel Cell</td>
<td>3.5</td>
<td>1%</td>
</tr>
<tr>
<td>Microturbine</td>
<td>5.0</td>
<td>2%</td>
</tr>
<tr>
<td>Photovoltaic</td>
<td>3.0</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>257</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Coney Island Terminal (210kW)
Potential Impacts of DG on Electric and Gas Distribution Systems

- High pressure gas needed for Cogeneration equipment can impact gas distribution system pressure
- Increased fault duty on company circuit breakers
- Interference with the operation of protection systems
- Islanding
  - System restoration and Power system stability
- Power Quality
  - Harmonic distortion contributions and Voltage flicker
Potential Impacts of DG on Gas Distribution System

- Higher pressure gas to Cogeneration equipment can impact gas distribution system pressure

- Some areas have available high pressure (55 psi) – ConEdison and PSC ruling required

- Transmission Pressure not available to customers.

- For equipment requiring more than 7” wc – (1/4 psi)
  - Pressure switch trips gas booster if gas distribution system drops to 3” wc.
  - Check valve closes on back flow.
  - Gas Blue Book Standard G-2040
Online Information for Distributed Generation

- www.coned.com/dg
- Technical requirements, tariffs, application forms, links to PSC, etc.
- DG Technical Expert and Ombudsman – provide additional support
- Interconnection Applications Process – Online early 2010

www.coned.com/es
- Single point of Contact – ‘Find my Representative’
- Gas and Electric ‘Blue Book’
- Application for gas and new electric service through ‘Project Center’
Electrical Interconnection Applications

- Authorization letter
- Equipment Detail Application Form
- Standardized Contract
- Three Line Diagram
- Copy of the Manufacturer Data Sheets
- Operations and Verification Test Procedures
- Application Fee
Three Line Diagram - Sample

- **Inverter**
- **ConEd Meter Service Voltage**
- **AC Disco (labeled)**

Show ‘New’ and ‘Existing’ Indicate Field Labeling
Electrical Interconnection Application Process

- Application review
  - Whether complete
  - Whether meets requirements of the Standardized Interconnections Requirements (SIR) and the Utility
- Cost Estimate for the Coordinated Electric System Interconnection Review (CESIR)
  - Applicant Commits to CESIR
  - Utility Completes CESIR
- Construction
- Metering installed once installation is complete
- System Test
- Final Acceptance Letter and Cost reconciliation
- Issued once verification test is complete and approved

http://www.dps.state.ny.us/Final_SIR_02-12-09_Clean.pdf
Cogeneration Gas Application Process

- File online through Project Center.
- Customer Project Manager (CPM) is single point of contact.
  - Load letter to Energy Services
  - Rider H applications
    - Load factor requirement
    - Separately metered Cogeneration Rate requires separate dedicated meter run
- Timing Issues with Gas Turn on for testing/DOB/FDNY approvals.
Typical Gas Booster Installation - Specification G-2040

NOTES:

1- This valve may be omitted if the booster is in close proximity to another dedicated shut-off valve. The service head valve or meter valve may replace the valve upstream of the booster. The gas train valve may replace the valve downstream of the booster. This need not be a Con Edison approved valve.

2- Con Edison approved equipment. See Con Edison “Requirements for Gas Services” (Table XVII).

3- The low pressure switch shall be wired to the booster control panel. The switch shall have a manual reset and be set to open at 3" WC to shut the booster off.

4- This valve may be omitted if the line is fed from a dedicated service and approved in writing by Con Edison.
Web Based Application – what to expect

• Already exists for new and upgraded Electric and Gas service

• Registration – for Customer and Contractor

• Application documents

• Application tracking and contact information
  – Milestones
  – Status and Responsibility - who is responsible for the next milestone, customer / contractor or Con Edison.

• Expected in place for CoGen January 2010
Web Based Application – what to expect
Con Edison Incentives for Cogeneration

• Favorable Gas and Electric Rates for High Load Factor Cogen

• Ability to participate in Targeted, Economic, and Emergency Demand Side Management and Energy Efficiency Programs

• Specifications under development for participation in NYISO Ancillary Markets – telemetry through Transmission Owner.

• Net metering extended to CHP and Fuel Cells under 10kW.

• Energy Cost Savings Program – City incentive through Utility
THANK YOU!!

Con Edison
Department of Buildings
Cogeneration Forum

September 24, 2009