Non-Wires Solutions: Lessons Learned and Insights for Future Projects

Building Energy NYC

October 4, 2018
Non-Wires Solutions

- Traditional approach: build capacity based on forecast
Non-Wires Solutions

• Non-wires solution approach: lower forecast through EE/DM to defer upgrade
Non-Wires Solutions Identification

Planning Process and Sourcing Overview

- Identify System Need & Capital Plan
- NWS Suitability Criteria
- Traditional Solution
- NWS Opportunity Identification
- NWS Sourcing Development
- NWS Solicitation Process
  - NWS Opportunity Notification
  - NWS RFP Notification
## Con Ed/ORU Suitability Matrix

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Potential Elements Addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Type Suitability</strong></td>
<td>Project types include Load Relief and also those projects containing Load relief and Reliability. Other categories have minimal suitability and will be reviewed for potential modifications due to State policy or technological changes.</td>
</tr>
<tr>
<td><strong>Timeline Suitability</strong></td>
<td>Large Project (Projects that are on a major circuit or substation and above) 36 to 60 months</td>
</tr>
<tr>
<td></td>
<td>Small Project (Projects that are feeder level and below) 18 to 24 months</td>
</tr>
<tr>
<td><strong>Cost Suitability</strong></td>
<td>Large Project (Projects that are on a major circuit or substation and above) No cost floors for large scale projects</td>
</tr>
<tr>
<td></td>
<td>Small Project (Projects that are feeder level and below) Greater than or equal to 450k</td>
</tr>
</tbody>
</table>
High Level Non-Wires Process

1. Non-Wires Alternatives Opportunities Identification
2. Issue Solicitation
3. Technical and Commercial Viability
4. Develop Portfolio of Potential Solutions

5. Benefit-Cost Analysis
6. Procurement
7. Implementation
8. Project Completion
Non-Wires Solutions
Damei Jack
Manager
Customer Energy Solutions
About Consolidated Edison

<table>
<thead>
<tr>
<th>Customers</th>
<th>Infrastructure</th>
<th>Service Territory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric</td>
<td>3.3 million</td>
<td>One of the largest underground systems in the world</td>
</tr>
<tr>
<td>Gas</td>
<td>1.1 million</td>
<td>4,333 miles of gas mains and services</td>
</tr>
<tr>
<td>Steam</td>
<td>1,760</td>
<td>Largest district steam system in the world</td>
</tr>
</tbody>
</table>
## NWS Project Status Summary

<table>
<thead>
<tr>
<th>Projects</th>
<th>Market Solicitation</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>BQDM Program</td>
<td>RFP Closed</td>
<td>Under Implementation</td>
</tr>
<tr>
<td>Columbus Circle</td>
<td>RFP Closed</td>
<td>Vendor Engagement</td>
</tr>
<tr>
<td>Water Street</td>
<td>RFP Closed</td>
<td>Implementation/Vendor Engagement</td>
</tr>
<tr>
<td>Plymouth Street</td>
<td>RFP Closed</td>
<td>Vendor Engagement</td>
</tr>
<tr>
<td>West 42\textsuperscript{nd} St</td>
<td>RFP Closed</td>
<td>Under Review</td>
</tr>
<tr>
<td>Flushing Project</td>
<td>RFP Closed</td>
<td>Not a candidate for NWS</td>
</tr>
<tr>
<td>Hudson Feeder Project</td>
<td>RFP Closed</td>
<td>Not a candidate for NWS</td>
</tr>
<tr>
<td>Newtown Project</td>
<td>RFP Closed</td>
<td>Responses under review</td>
</tr>
<tr>
<td>Parkchester</td>
<td>Q4 2018</td>
<td>Pending RFP Release</td>
</tr>
<tr>
<td>Chelsea</td>
<td>Q4 2018</td>
<td>Pending RFP Release</td>
</tr>
</tbody>
</table>
Promoting Non-Wires Solutions to the Market

Non-Wires Solutions

Related Information

1. RFP Clarification Questions (PDF)
2. Non-Wires Alternative Program Agreement (PDF)
3. Non-Wires Alternative Program Agreement Addenda
4. Non-Wires Solutions Webinar (PDF)
5. RFP Questionnaire
6. Supplier Enablers Template (KLDI)
7. EIR 2022 Specification (PDF)

Con Edison Hosting Capacity Web Application

Non-Wires Solutions Network

Staten Island

Primary Feeder Relief - Columbus Circle
RFP closed. Under evaluation.
RFP Questionnaire

Primary Feeder Relief - Hudson
RFP closed. Will not proceed.
RFP Questionnaire

Water Street Cooling Project
RFP closed. Under evaluation.
RFP Questionnaire

Primary Feeder Relief - Williamsburg
RFP closed. Under evaluation.
RFP Questionnaire

East River Crossing
RFP available
RFP Questionnaire

Wynmouth Street Cooling Project
RFP closed. Under evaluation.
RFP Questionnaire

Load Transfer - 31st
RFP available
RFP Questionnaire

W. 40th Street - 31
Project deferred due to increase in the projected load
Project Description

Eileen Project
RQOM Auction rules available
2019 RQOM Program Extension Auction Requirements
2019 RQOM Program Agreement
2019 RQOM Program FAQs

Yorkville Crossing
No longer a candidate
Project Description
Brooklyn-Queens Demand Management Program ("BQDM")

- Peak growth in 3 networks in Brooklyn-Queens
- Would require ~$1 billion in capital upgrades
- In 2014 Con Edison authorized to spend $200 million through 2018 to enable deferral of upgrade
- In 2017 Con Edison authorized to extend BQDM Program timeline
BQDM Program: **Portfolio Approach is Key**

**Key Considerations**
- Ensure reliability
- Customer experience
- Diversified portfolio
- Integration of diverse technologies

---

**BQDM Program Portfolio**

- Energy Storage
- NYSERDA_CHP
- NYCHA
- RESI
- Fuel Cells
- EEMF
- SBDI
- Utility Sided Solutions
- Forecasted Need 2018
BQDM PROGRAM

Multi-Technology Installation at Affordable Housing Facility

DER technologies installed at an affordable housing facility include:
- 300kW/1200kWh Li-ion Battery
- 400 kW Fuel Cell
- 390 kW Solar
BQDM PROGRAM

Multi-Technology Installations at Brooklyn Hospital

- 3.1 MW Fuel Cells
- 1.2 MW Combined Heat & Power
- 0.13 MW Energy Efficiency (Lighting)
BQDM PROGRAM

Energy Efficiency Across Various Customer Segments

Residential Lighting Direct Install

- Door-to-door canvassing efforts in the BQDM zone to offer Residential (1-4 family) customers no cost LED lighting upgrades.
- This is a “street sweep” effort: canvassers will be walking the neighborhoods, knocking on doors, offering upgrades.

Commercial

Multi-family

INCENTIVES STILL AVAILABLE
## BQDM Program’s Risks to Execution

**Lessons Learned: Non-Financial Risks Persist**

<table>
<thead>
<tr>
<th>Risks →</th>
<th>Resources ↓</th>
<th>Customer Acquisition</th>
<th>Electric Interconnection</th>
<th>Gas Interconnection</th>
<th>City Planning or Buildings Department</th>
<th>Fire Department New York</th>
<th>Budgetary Cycle and/or Lead Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHP</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Fuel Cells</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Demand Response</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>High*</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Battery</td>
<td>High</td>
<td>Medium</td>
<td>N/A</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Thermal Storage</td>
<td>High</td>
<td>Medium</td>
<td>N/A</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Solar</td>
<td>High</td>
<td>Medium</td>
<td>N/A</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>Medium</td>
<td>N/A</td>
<td>N/A</td>
<td>Low</td>
<td>N/A</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Residential EE</td>
<td>High</td>
<td>N/A</td>
<td>N/A</td>
<td>Low</td>
<td>N/A</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Public Entity EE</td>
<td>Low</td>
<td>N/A</td>
<td>N/A</td>
<td>Low</td>
<td>N/A</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>C&amp;I EE</td>
<td>Medium</td>
<td>N/A</td>
<td>N/A</td>
<td>Low</td>
<td>N/A</td>
<td>Medium</td>
<td>Medium</td>
</tr>
</tbody>
</table>

**Knowledge applied to future programs**
Non-Wires Alternatives

4 October 2018
Brian Picariello
Project Manager
Orange & Rockland (O&R)
Service Territory

- 305k electric customers served
- 133k gas customers served
- 1,350 square miles served
- 1,200+ employees
O&R has identified 7 NWA opportunities

<table>
<thead>
<tr>
<th>Project/Name Description</th>
<th>Project Type</th>
<th>Required Load Relief</th>
<th>Need-by Date</th>
<th>Estimated RFP Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monsey</td>
<td>Load Relief / Reliability</td>
<td>2.5 - 3MW</td>
<td>2021</td>
<td>Evaluating</td>
</tr>
<tr>
<td>Pomona</td>
<td>Load Relief</td>
<td>&lt;6 MW</td>
<td>2025</td>
<td>Evaluating</td>
</tr>
<tr>
<td>West Haverstraw</td>
<td>Reliability</td>
<td>5 MW</td>
<td>2021</td>
<td>Evaluating</td>
</tr>
<tr>
<td>Blooming Grove</td>
<td>Load Relief / Reliability</td>
<td>15.5 MW</td>
<td>2021</td>
<td>Developing RFP</td>
</tr>
<tr>
<td>Sterling Forest</td>
<td>Load Relief / Reliability</td>
<td>746 kW</td>
<td>2021</td>
<td>Q3-2019</td>
</tr>
<tr>
<td>(Tuxedo Park)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Warwick</td>
<td>Load Relief / Reliability</td>
<td>7 MW</td>
<td>2022</td>
<td>Q3-2019</td>
</tr>
<tr>
<td>Mountain Lodge Park</td>
<td>Load Relief / Reliability</td>
<td>280 kW</td>
<td>2022</td>
<td>Q4-2019</td>
</tr>
<tr>
<td>(Blooming grove)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Pomona: Provide **contingency support**, and up to **6 MW** of peak load reduction

- **Traditional**: Substation + associated T&D infrastructure
- **Non-Wires Alternative**: Meet need through
  - **1.5 MW** of energy efficiency (EE) + demand response (DR)
  - **4.5 MW** of distributed energy resources (DERs)
Pomona: 1.5 MW will be achieved through Energy Efficiency and Demand Response

• Progress:
  - Achieved 1.2 MW of reduction through O&R’s Small Business Direct Install (SBDI)
  - Achieved 340 kW of reduction through O&R’s Bring You Own Thermostat (BYOT)
  - Achieved 370 kW of reduction (May-Sep, 2018) through O&R’s Commercial System (CSRP) and Distribution System (DSRP) Relief Programs

• Next Steps:
  - Leverage SBDI funds to assess opportunity at existing sites
  - Implement targeted BYOT DR program
  - Continue to recruit eligible customers for CSRP and DSRP
Monsey: Provide contingency support on 2 banks and 3 circuits

• Need:
  – Traditional: Substation + distribution infrastructure
  – Non-Wires Alternative: EE + DR + ES

• Progress:
  – Bids received, evaluation continues
  – BCA approved by PSC

• Next Steps:
  – Award vendor for ES, execute contract
  – Implement EE and DR measures
  – Assess need, adjust as required
The NWA programs are supplemented by the adoption of efficiency measures through the My ORU Store

Offerings
- 190 products
- 10 categories
- Home services
- Instant rebates
- Co-rebates with water utility
- Buyer guides / live chat
Lessons Learned

• Improved internal coordination

• Request for proposals
  – Pricing options allow for flexibility in BCA, and developing business models
  – Clear delineation of included costs/benefits, to identify opportunities to partner

• EE customer acquisition
  – New customer segments require increased marketing activities
  – Activities include town halls and toll-free services to validate/communicate offerings
Thank you.
Contact us.

www.coned.com/nonwires
Damei Jack
JackDa@coned.com
212-460-2098

www.oru.com/nonwires
Brian Picariello
picariellob@oru.com
845-577-3182
Con Edison and O&R Insights for Future Projects

- Visit non-wire pages for most up to date information on non-wire opportunities
- Provide as much detail requested for the market solicitations
- Use supplemental data provided to determine feasible projects in the area
- Ensure alignment with years that load relief is needed
- Cost-effectiveness impacts project selection
- Projects are developed using a technology-agnostic approach
Questions