Utility 2.0 Long Range Plan

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The proposed Utility 2.0 investments are designed to benefit all Long Island customers.

- Our Utility 2.0 proposal is a component of a broader set of solutions to improve reliability and customer service while managing the total cost to customers.

- This initial proposal focused on ‘no regrets’ investments that have positive impact:
  - Direct Load Control programs to reduce system peaks (deferring other investments)
  - Energy efficiency programs to more efficiently use energy (lowering customer bills and emissions)
  - Related investments (Solar, CHP, geothermal)

- In parallel, PSEG Long Island is integrating better technology and processes to improve operations:
  - Call Center – process changes and Interactive Voice Response technology
  - Improving System Reliability – tree trimming program; FEMA grant supports hardening program; incorporating technology and best practices
  - Storm Response – new processes, communications and outage management system
  - Support Services – continuing transition from National Grid during 2014
  - Budget – seeking to improve results, within current T&D budgets
Process and Timeline

- **January 1**  PSEG Long Island starts engagement under OSA
- **April 25**  NYPSC initiates Reforming the Energy Vision or “REV” proceeding
- **July 1**  Filed Utility 2.0 Long Range Plan as required
- **July – August**  Public Technical Conference and Hearings
- **August 29**  Initial comments due to DPS LI
- **October**  PSEG-LI submits updated 2.0 Plan and DPS conducts second round of public comments
- **December**  Requested recommendation from DPS and approval from the Authority
- **1st half 2015**  NY REV proceeding concludes
- **2015 – 2018**  Implement Utility 2.0 Plan
- **July 1 annually**  Utility 2.0 filing and reporting

Coordinated / iterative processes – with:
- a) Capital planning process; b) February rate case; c) Integrated Resource Plan
Leverage experience to provide customers with cost-effective solutions and advance marketplace

- PSEG, the Authority, and Lockheed Martin would draw on significant success implementing EE, DLC, and renewable energy programs

- EE and DLC are typically the most cost-effective solutions
  - Cornerstone (along with solar from this and other programs) of a broader proposal
  - Broad set of solutions allow adaptability – seeking input to refine shape and have flexibility as program implemented to optimize cost-effectiveness

- Proposed $200M capital spend by PSEG from 2015 – 2018
  - Customer rate impacts mitigated through total cost savings and proposed long-term investment recovery (vs. current one-year approach)
  - Other elements funded through capital budget process (using LIPA capital).
  - Overall program can be resized, lengthened, mix of financing sources to optimize.

- Utility 2.0 will stimulate market for innovative energy services by educating customers and engaging leading DER providers and local labor force
Existing Programs and RFP’s

• Clean Energy Initiative resulted in 170 MW saved through 2009

• Efficiency Long Island has saved 222 MW through 2013, including energy efficiency and renewables.

• 2014 Energy Efficiency and Renewable budget is $94 million; we are on track to achieve 60 MW peak reduction this year, within budget

• Clean Solar Initiative I resulted in award to 50 MW solar PV, and Clean Solar Initiative II resulted in selection of 100 MW solar PV. Clean Renewable Energy Initiative offers further development incentive

• 280 MW Renewable RFP – bids received March 31, 2014. Decision on outcome expected by December 31
## Summary of Utility 2.0 Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
<th>Annual Demand Savings (MW)</th>
<th>Annual Energy Savings (MWh)</th>
<th>Total Investment ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programmable Thermostat Program Modernization and Expansion</td>
<td>Enhance existing direct load control program with modern technology and increase customer participation. Also, test smart plug technology through a pilot program targeting residential room air conditioning units.</td>
<td>100</td>
<td>2,700</td>
<td>$60</td>
</tr>
<tr>
<td>Targeted Solar PV Expansion</td>
<td>Provide incentives to commercial behind-the-meter solar PV, targeting Long Island customers unable to access existing incentives.</td>
<td>30</td>
<td>100,000</td>
<td>$45</td>
</tr>
<tr>
<td>Residential Home Energy Management</td>
<td>Provide targeted home energy reports and guidance to customers to reduce demand; 250,000 customers targeted.</td>
<td>10</td>
<td>25,000</td>
<td>$8</td>
</tr>
<tr>
<td>Incremental Energy Efficiency Expansion</td>
<td>Target additional opportunities for cost effective technology and underserved customers.</td>
<td>10</td>
<td>41,200</td>
<td>$30</td>
</tr>
<tr>
<td>Energy Conservation Program for Hospitals</td>
<td>Design and offer energy efficiency retrofit program tailored for hospital customers.</td>
<td>5</td>
<td>28,000</td>
<td>$30</td>
</tr>
<tr>
<td>Energy Efficiency Expansion on the Rockaways</td>
<td>Offer energy efficiency enhancements for low-income multi-family housing, public facilities, and other customers on the Rockaways.</td>
<td>5</td>
<td>21,500</td>
<td>$13</td>
</tr>
<tr>
<td>Combined Heat &amp; Power</td>
<td>Provide incentives for commercial CHP installations, targeting Long Island customers unable to access existing incentives.</td>
<td>5</td>
<td>39,000</td>
<td>$5</td>
</tr>
<tr>
<td>Geothermal Heating and Cooling</td>
<td>Expand rebates for geothermal heating and cooling systems.</td>
<td>5</td>
<td>7,800</td>
<td>$9</td>
</tr>
<tr>
<td><strong>Utility 2.0 Investment</strong></td>
<td></td>
<td><strong>170</strong></td>
<td><strong>265,200</strong></td>
<td><strong>$200</strong></td>
</tr>
<tr>
<td>South Fork Improvements</td>
<td>Proceed with various energy efficiency, distributed generation, and direct load control investments, potential combined with battery storage, to defer needed transmission and peaking generation.</td>
<td><strong>TBD</strong></td>
<td><strong>TBD</strong></td>
<td><strong>TBD</strong></td>
</tr>
<tr>
<td>Large Customer Advanced Metering Initiative</td>
<td>Deploy advanced metering to 25,000 customers representing 2% of customers but over 20% of the electric load on Long Island.</td>
<td>15</td>
<td>45,000</td>
<td>$15</td>
</tr>
<tr>
<td><strong>Capital Budget Investment</strong></td>
<td></td>
<td><strong>15</strong></td>
<td><strong>45,000</strong></td>
<td><strong>$15</strong></td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td></td>
<td><strong>185</strong></td>
<td><strong>310,200</strong></td>
<td><strong>$215</strong></td>
</tr>
</tbody>
</table>

Budgets and goals are estimates and subject to change based on detailed cost effectiveness screening and market potential.
Programmable Thermostat Expansion

- Existing direct load control program equipment reaching end of projected useful life. New technologies and communications devices offer significant operational flexibilities and better verification of performance.

- Mostly residential central air conditioners, with a limited number of pool pumps and small commercial business A/C units.

- Plan to issue an RFP for up to 100 MW of peak demand reduction using updated Wi-fi-based technology.

- Will replace existing technology and add new customers with advanced technology.

4-yr Target
100 MW
$60 mil
Targeted Solar PV Expansion

• MOU with NYSERDA will provide $60M in RGGI funds for rebates on solar PV systems up to 200 kW DC

• Clean Solar Initiative I & II applications and projects were mostly between 1,500 – 2,000 kW

• Incentives considered in Utility 2.0 Plan for customers installing west-facing systems with a capacity from 200 kW to 2,000 kW

• West-facing systems provide substantially more capacity when needed most, at the time of system peak
Residential Home Energy Management

- PSEG Long Island intends to offer a program targeting behavioral changes that save energy and peak demand

- Prominent U.S. utilities have successfully implemented similar programs with significant sustainable benefits, including customer behavior modifications

- These programs are expected to improve customer satisfaction along with saving energy and peak demand
Energy Conservation Program for Hospitals

- Modelled after a successful program implemented by PSE&G in New Jersey
- Starts with an investment grade audit
- Target deep retrofits such as installation of new chillers for hospitals with a peak demand of at least 1,000 kW
- PSEG to share portion of project costs and finance the customer’s contribution
Energy Efficiency Expansion in the Rockaways

• Targets customers facing barriers to existing clean energy programs (e.g., capital availability, expertise)

• Free installation of lighting and room air conditioners for customers in public housing. Room A/C will include a switch for control on peak days

• May also include new energy star refrigerators if cost-justified based on age of old units

• Expanded solar PV where possible in the Rockaways

• Direct installation for small commercial customers
Combined Heat & Power

- Targets residential and small commercial CHP systems 1,300 kW and below

- Added incentive could be offered to critical customers such as police, fire, hospital and emergency management where added reliability is critical

- PSEG Long Island is considering offering incentives similar to what is offered by NYSERDA
Geothermal Heating and Cooling

• One of the most energy efficient means of heating and cooling

• Improves electric system load factor, which is approaching 44% on Long Island

• Reduces summer peak and displaces fuel oil with cleaner, more efficient electric geothermal heating during off-peak periods

• Plan is to offer more generous incentives to stimulate this market
South Fork Improvements

- High growth area on electric system
- System upgrades needed to maintain reliability after 2017
- Plan would be to use a combination of solar PV, direct load control, battery storage, and peaking generation to meet required peak load
- Overall, this plan is lower cost than construction of new transmission lines
- Microgrid on east end is being considered
Advanced Metering Initiative

- 7,500 AMI meters are already in place
- Build the communication backbone so that any customer on Long Island could be read remotely, once AMI is installed
- Target an additional 24,500 of the most cost-effective customers as described on the next slide
AMI Specific details for targeted deployment

- 5,900 largest commercial customers
  - 20-25% of system load
  - Improved revenue management
  - Visibility to granular consumption data
  - Facilitates demand response
- 6,000 long-term estimate customers with hard-to-read meters
  - Improve meter reading baseline read rate performance by 0.5% - 1.0%
  - Improve customer satisfaction
- 8,500 net-metered customers utilizing renewable energy systems
  - Gain insights into DG/solar impacts on system
  - Support additional DG penetration
- 3,950 Retail Choice customers
  - Improve billing (bills now estimated based on the midnight read on the last business day of the month a customer enrolls with or drops a marketer)
  - Reduce disputes with marketers and customers
- 155 Recharge New York customers
  - Improve load settlement with actual interval data versus current estimates
Thank You

We look forward to continued input from our stakeholders