NORTHEAST SOLAR MARKET OVERVIEW

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Vice-President, Sales & Marketing
Agenda

• Intro to Community Energy
• Northeast Solar Markets Overview
  – New Jersey
  – Pennsylvania
  – Massachusetts
Community Energy

*Building a Clean Energy Future*

- Clean energy market pioneer
- Experienced wind and solar developer
- Clean energy supplier to
  - 120,000+ residences and businesses
  - 20 utility green power programs
  - Some of the largest green power purchasers in the nation
• Dedicated to maintaining and growing strong markets for renewable energy in the United States.

• Advocacy and education at federal, state, and regional levels

www.renewablemarketers.org
Smith College Solar
Eastern University Solar
Mid-Atlantic (PJM) Solar Demand

Solar Share Capacity per State 2009-2020
*capacity factor 12%
NJ, PA and MA Solar Demand

- Current installed capacity and demand

<table>
<thead>
<tr>
<th>State</th>
<th>Supply Installed MW</th>
<th>Demand 2010</th>
<th>Demand 2011</th>
<th>Demand 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>NJ</td>
<td>185</td>
<td>190</td>
<td>295</td>
<td>395</td>
</tr>
<tr>
<td>PA</td>
<td>27</td>
<td>24</td>
<td>39</td>
<td>61</td>
</tr>
<tr>
<td>MA</td>
<td>9</td>
<td>30</td>
<td>69</td>
<td>?</td>
</tr>
</tbody>
</table>
New Jersey

• From rebates to S-RECs
• 190MW in 2010 to 1,500+ MW by 2020
  – In state requirement
• Fixed, declining Alternative Compliance Payment (ACP)
  – Currently almost $700/MWh
New Jersey

- In short market, spot market prices near ACP
New Jersey Utility Programs

• PSEG Solar Loan
  – PSEG loans 50-60% of capital cost
  – Repayment in S-RECs at floor price through 15 year repayment term
  – 75% of market value after repayment
  – Residential and Non-Residential segments up to 2MW
## New Jersey Utility Programs

### Program Total Capacity Commitments

<table>
<thead>
<tr>
<th>PSE&amp;G Solar Program Segments</th>
<th>Capacity DC kW</th>
<th>Capacity Subscribed DC kW</th>
<th>Capacity Available</th>
<th>% Subscribed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>10,347</td>
<td>2,632</td>
<td>7,715</td>
<td>25.4%</td>
</tr>
<tr>
<td>Non-Residential Small (&lt;= 150 kW)</td>
<td>16,515</td>
<td>2,088</td>
<td>14,427</td>
<td>12.6%</td>
</tr>
<tr>
<td>Non-Residential Large (&gt;150, &lt;=500 kW)</td>
<td>11,111</td>
<td>5,705</td>
<td>5,406</td>
<td>51.3%</td>
</tr>
<tr>
<td>Non-Residential Very Large (&gt;500, &lt;=2,000 kW)</td>
<td>14,315</td>
<td>2,999</td>
<td>11,315</td>
<td>21.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>52,288</strong></td>
<td><strong>13,425</strong></td>
<td><strong>38,863</strong></td>
<td><strong>25.7%</strong></td>
</tr>
</tbody>
</table>
New Jersey Utility Programs

• S-REC Based Financing Program
  – ACE, JCP&L, RECO
  – RFP for 10-15 year S-RECs contracts
  – Winners based on Net Present Value (NPV) of contracts
  – Small and Large project segments up to 500kW
  – Goal 64 MW of solar over 3 years
New Jersey Utility Programs

- S-REC Based Financing Program

<table>
<thead>
<tr>
<th></th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
<th>Round 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bids received</strong></td>
<td>8 bids (1,594.73 kW)</td>
<td>44 bids (7,009.628 kW)</td>
<td>63 bids (9,940.548 kW)</td>
<td>23 bids (5,025.025 kW)</td>
</tr>
<tr>
<td><strong>Awards</strong></td>
<td>7 awards (1,585.37 kW)</td>
<td>39 awards (6,521.798 kW)</td>
<td>57 awards (9,332.978 kW)</td>
<td>20 awards (3,931.945 kW)</td>
</tr>
<tr>
<td><strong>Rejected bids</strong></td>
<td>1 bid (9.36 kW)</td>
<td>5 bids (487.830 kW)</td>
<td>6 bids (607.570 kW)</td>
<td>3 bids (1,093.080 kW)</td>
</tr>
<tr>
<td><strong>Pricing</strong></td>
<td>Average $409.71/SREC Low $369.00/SREC</td>
<td>Average $405.15/SREC Low $272.44/SREC</td>
<td>Average $424.18/SREC Low $349.74/SREC</td>
<td>Average $466.21/SREC Low $413.69/SREC</td>
</tr>
</tbody>
</table>
## New Jersey

<table>
<thead>
<tr>
<th>Offtake</th>
<th>Term</th>
<th>Price</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSEG Solar Loan</td>
<td>15 years</td>
<td>Floor between $350-$410</td>
<td>Up to 2MW</td>
</tr>
<tr>
<td>S-REC RFPs JCP&amp;L, ACE, RECO</td>
<td>10-15 years</td>
<td>Average between $410-$475</td>
<td>Up to 500kW</td>
</tr>
<tr>
<td>Bi-lateral with utilities and suppliers</td>
<td>3-5 years</td>
<td>$300-$400</td>
<td>No cap, most likely larger projects 2MW+</td>
</tr>
<tr>
<td>Spot Market</td>
<td>N/A</td>
<td>$610-$650</td>
<td>Full range</td>
</tr>
</tbody>
</table>
Pennsylvania

- 24 MW in 2010 to 800+ MW in 2020
  - Tripling of solar carve-out requirement in late years to 1.5% has been proposed
  - All PJM S-RECs eligible

- ACP = 2x market value S-RECs
  - Fixing ACP has been proposed as well as reduction in ACP value
Pennsylvania

• **S-REC-Based Incentive Structure**

<table>
<thead>
<tr>
<th>Offtake</th>
<th>Term</th>
<th>Price</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility RFP</td>
<td>7-10 years</td>
<td>$256 (PECO only data point so far)</td>
<td>Highly competitive, but most 3rd party financeable option</td>
</tr>
<tr>
<td>S-REC Aggregators</td>
<td>3-5 years or upfront payment for 10-year rights</td>
<td>$230-$280 at term $850-1,200 for upfront</td>
<td>Mostly smaller projects, may look to Ohio market</td>
</tr>
<tr>
<td>Spot Market</td>
<td>N/A</td>
<td>$250-300</td>
<td>Not financeable, may look to Ohio market</td>
</tr>
</tbody>
</table>

• **Bottom Line:** Market still developing.
Massachusetts

- From Rebates to S-RECs
- 30MW in 2010 to 400MW total
- 6MW cap per project
- ACP: $600 for 2010
  - Can be reduced up to 10% each year
Massachusetts S-REC Auction

• Solar Credit Clearinghouse Fixed-Price auction at year-end is a backstop
  – set floor price of $300
  – unsold SRECs given additional year of eligibility and carried forward into next energy year
  – DOER will increase requirement to address this surplus
Conclusion

• Each market is different
• Increasing trend toward S-REC markets away from rebates in Northeast
• NJ is the Wild West
• Other states just getting started
Questions?

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