Clean Energy Standard 2017
LSE Obligations and REC/ZEC Purchases from NYSERDA

November 22, 2016
Agenda

• Clean Energy Standard - Overview
  – Tom Rienzo, New York State Department of Public Service

• Updates based on November 2016 Orders
  – Tom Rienzo, New York State Department of Public Service

• Approved Purchase and Sale Agreement – Terms and Conditions
  – Peter Keane, NYSERDA

• NYSERDA REC sales to Load Serving Entities
  – Jeff Pitkin, NYSERDA

• NYSERDA ZEC sales to Load Serving Entities
  – Jeff Pitkin, NYSERDA

• CES Phase 1 Implementation Plan
  – Doreen Harris, NYSERDA

• Next Steps
  – Doreen Harris, NYSERDA

• Questions and Answers – use “chat” function on webinar to ask Questions
Clean Energy Standard - Overview
Clean Energy Standard (CES)

- By Order issued August 1, 2016, the Public Service Commission adopted the State Energy Plan (SEP) goal that 50% of New York’s electricity is to be generated by renewable sources by 2030 as one strategy to reduce GHG emissions 40% by 2030.

- The Clean Energy Standard (CES) anticipates a series of initiatives including, but not limited to, obligations upon LSEs and opportunities for voluntary contributions, all of which will contribute to attaining the 50 by 30 goal.

- The Order provides for two mandated requirements:
  - a Renewable Energy Standard (RES) requirement, and
  - a Zero-Emissions Credit (ZEC) requirement.

- The RES component and the ZEC component are interrelated but the goals are additive.
  - ZECs will not count toward satisfying the 50% by 2030.
Clean Energy Standard ZEC Program

- Multi-year contract from NYSERDA
- LSE Obligation
  - Compliance through acquisition of ZECs (tracked through NYGATS)
  - Additional to the 50% Renewable Energy Standard.
- Eligibility:
  - Existing at-risk nuclear zero-emissions attributes
LSE ZEC Obligation

• The LSE ZEC obligation is designed to ensure that enough revenues are in place so that the plants continue to operate and produce carbon-free emissions.

• ZEC cap = 27,618,000 per year.
  – Based on July 2015 – June 2016 output.
  – If not all owned by same owner, then separate limits for each owner.

• If fewer MWh are produced, then the level of required ZEC purchases goes down.

• Each LSE will be responsible for purchasing ZECs equal to their load share percentage for the entire State.

• The annual compliance period is April 1 - March 31.
Renewable Energy Standard (RES) Tier 1

- LSE mandates
- Compliance through acquisition of RECs (tracked through NYGATS) or Alternative Compliance Payments (ACP)
- Eligibility:
  - Technological requirements similar to existing RPS Main Tier
  - Behind-the-meter eligibility TBD
  - COD 1/1/2015 or after
  - Adjacent control areas eligible (require energy deliverability)
- Long term contracting by NYSERDA
LSE Tier 1 Obligation

- The cornerstone of the RES is the obligation placed on all LSEs under the Commission’s jurisdiction to acquire an increasing portion of their annual retail load from new (in service after December 31, 2014) renewable resources.

- The Order set, through 2021, the annual goal in total statewide MWh translated as a percentage of each LSEs load:

<table>
<thead>
<tr>
<th>Year</th>
<th>MWh</th>
<th>Percentage of LSE Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>974,000</td>
<td>0.6%</td>
</tr>
<tr>
<td>2018</td>
<td>1,741,270</td>
<td>1.1%</td>
</tr>
<tr>
<td>2019</td>
<td>3,124,100</td>
<td>2.0%</td>
</tr>
<tr>
<td>2020</td>
<td>5,302,371</td>
<td>3.4%</td>
</tr>
<tr>
<td>2021</td>
<td>7,530,642</td>
<td>4.8%</td>
</tr>
</tbody>
</table>
LSE Tier 1 Obligation

• An LSE may satisfy its obligation by one of the following ways:
  
  • LSEs may purchase RECs from NYSERDA;
    – The Commission directed NYSERDA to conduct Tier 1 REC procurement solicitations at least once annually.
  
  • LSEs may enter directly into agreements, including long-term power purchase agreements (PPAs), with renewable energy resources;
  
  • LSEs may pay an alternative compliance payment (ACPs);
  
• Or some combination of the three.
Renewable Energy Standard (RES) Tier 2

- Elimination of proposed Tier 2A
- Extension of current RPS Maintenance Resource Program
- Financial support, through open book Maintenance Contracts, to facilities at risk of financial failure or retirement
- No tradable attributes
Updates Based on November 17, 2016 Commission Orders
November 17, 2016 Order

Issued in response to NYSERDA Petition for Clarification

• 2017 Tier 1 RES Obligation on LSEs is equal to \(0.035\%)\) of total load served by an LSE during 2017.
  – Relates directly to the estimated number of Tier 1 RECs that NYSERDA will offer for sale in 2017 and projected 2017 compliance period load (details covered in a later section).

• The new renewable resources from NY Sun and other Customer Sited Tier projects are counted toward the 50% statewide renewable goal but are not included in the mandated quantity that the LSEs are mandated to procure in 2017.
November 17, 2016 Order

PSC approved:

1. Standard agreements for LSE purchase of RECs and ZECs from NYSERDA
   — Agreements to be executed by LSEs within 30 days of the Order issuance date (by December 19, 2016)

2. NYSERDA administrative budget for 2017
   — REC administration, system builds and cost recovery fee funded through repurposed funds
   — Administrative adder for ZEC purchases ($0.0594/ZEC)
Approved Purchase and Sale Agreement – Terms and Conditions
November 17, 2016 Order - Purchase Agreements

Electronic execution using links provided by NYSERDA

• REC Agreement – executed at time order placed (by December 1)
  – NYSERDA provides confirmation of quantity to be delivered (early December)
  – NYSERDA provides payment schedule with confirmation
  – Payments to NYSERDA occur from January – December 2017

• ZEC Agreement – executed through links provided by NYSERDA (by December 19)
  – Quantity specified and payment schedule provided in e-mail communication from NYSERDA (early December)
  – Payments to NYSERDA occur from April 2017 – March 2018
NYSERDA REC
Sales to LSEs
Timeline - 2016 Tier 1 REC Sales

- **November 2 – December 1, 2016** – NYSERDA interface is available for LSEs to sign up to buy RECs
- **December 2 – 15, 2016** – NYSERDA evaluates REC orders and determines contracted values
- **By December 15, 2016** – REC agreements are sent to LSEs by NYSERDA with schedule of payments
- **January 2017** – REC Payments to NYSERDA commence
- **Quarterly throughout 2017** – NYSERDA will transfer purchased and available RECs to LSEs in the New York Generation Attribute Tracking System (NYGATS)
- **January – June 2018** – 2017 REC Reconciliation Period
- **June 2018** – ACPs are due to NYSERDA
NYSERDA Communication to LSEs Regarding REC sales *(Email dated November 2, 2016)*

- LSEs may elect to purchase Tier 1 RECs from NYSERDA to meet their compliance obligations.
- LSEs opting to purchase RECs from NYSERDA for the 2017 compliance year must notify NYSERDA by **December 1, 2016** using the link and details in the November 2nd email.
- LSEs are guaranteed the minimum quantity of RECs as indicated in the referenced email.
  - LSEs may request to purchase more RECs, subject to availability.
- After December 1, 2016, NYSERDA will confirm the quantity and the payment schedule in accordance with the terms and conditions.
- In the absence of procuring 2017 Tier 1 RECs, LSEs may also fulfill their 2017 RES compliance obligation by making an alternative compliance payment (ACP) to NYSERDA in early 2018.
NYSERDA filing regarding 2017 REC Sales

- Filed under Case 15-E-0302 on November 1, 2016
- Available on NYSERDA’s website at nyserda.ny.gov/clean-energy-standard
- Directly correlates with 0.035% Tier 1 LSE RES Obligation clarified in November 17, 2016 Order

<table>
<thead>
<tr>
<th>2017 Tier 1 RECs to be offered for sale by NYSERDA</th>
<th>2017 Tier 1 REC Price</th>
<th>2017 ACP Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>56,142</td>
<td>$21.16</td>
<td>$23.28</td>
</tr>
</tbody>
</table>
NYSERDA Communication to LSEs Regarding REC sales *(Email dated November 2, 2016)*

<table>
<thead>
<tr>
<th>Legal entity name:</th>
<th>LSE XYZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Energy Load Served by LSE During Base Year ended 3/31/2016:</td>
<td>500,000 MWh</td>
</tr>
<tr>
<td>LSEs Percentage of Statewide Electric Energy Load:</td>
<td>0.3230%</td>
</tr>
<tr>
<td>LSE Minimum REC Quantity Available:</td>
<td>181</td>
</tr>
<tr>
<td>ISO Abbreviation:</td>
<td>XYZ</td>
</tr>
</tbody>
</table>

56,142 x .3230% = 181

NYSERDA will guarantee LSE XYZ 181 Tier 1 RECs should the LSE submit an order to NYSERDA by 12/1/16. The LSE may also request more RECs, subject to availability and confirmation by NYSERDA.
Example 1 – Actual Obligation Larger than Forecast

The Public Service Commission's August 1, 2016 Order Adopting a Clean Energy Standard stated that each LSE’s RES obligation would be determined by multiplying the LSE’s actual load served in the Compliance Period times the Compliance Obligation Percentage.

Example:

<table>
<thead>
<tr>
<th>Legal entity name:</th>
<th>LSE XYZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSE XYZ Tier 1 RECs Purchased from NYSERDA during 2017:</td>
<td>181</td>
</tr>
<tr>
<td>LSE XYZ Actual Load for 2017 Compliance Period (MWh):</td>
<td>550,000</td>
</tr>
<tr>
<td>RES Tier 1 Compliance Obligation Percent:</td>
<td>0.035%</td>
</tr>
<tr>
<td>LSE XYZ RES Tier 1 Compliance Obligation for 2017 Compliance Period:</td>
<td>193</td>
</tr>
<tr>
<td>Additional Tier 1 RECs or ACPs necessary for LSE XYZ RES compliance:</td>
<td>12</td>
</tr>
</tbody>
</table>

Load increased 50,000 MWh from forecast

- If available, LSE may purchase additional RECs from NYSERDA at 2017 Tier 1 REC price.
- LSE may purchase additional RECs from another LSE or 3rd party.
- LSE may pay ACPs.
Example 2 – *Actual Obligation Smaller than Forecast*

**Example:**

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</tr>
<tr>
<td>LSE XYZ <em>Actual</em> Load for 2017 Compliance Period (MWh):</td>
<td>450,000</td>
</tr>
<tr>
<td>RES Tier 1 Compliance Obligation Percent:</td>
<td>0.035%</td>
</tr>
<tr>
<td>LSE XYZ RES Tier 1 Compliance Obligation for 2017 Compliance Period:</td>
<td>158</td>
</tr>
<tr>
<td>Excess Tier 1 RECs held by LSE XYZ:</td>
<td>23</td>
</tr>
</tbody>
</table>

- LSE may sell excess RECs back to NYSERDA at cost ($21.16/MWh)
- LSE may bank excess RECs (subject to Commission approval)
Example 3 – **NYSERDA has fewer RECs than Projected**

- In the event of a NYSERDA REC shortfall, RECs will be distributed proportionally to REC orders received by NYSERDA.
- As long as an LSE submits a REC Order by December 1, 2016, LSEs may pay ACPs at the REC price of $21.16/MWh for any shortfall.

<table>
<thead>
<tr>
<th>Example:</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>NYSERDA 2017 Tier 1 RECs Ordered by LSEs</td>
<td>56,142</td>
</tr>
<tr>
<td>LSE XYZ Tier 1 RECs Purchased from NYSERDA during 2017:</td>
<td>181</td>
</tr>
<tr>
<td><strong>Actual NYSERDA 2017 Tier 1 RECs:</strong></td>
<td>40,000</td>
</tr>
<tr>
<td>LSE XYZ RES Tier 1 Compliance Obligation for 2017 Compliance Period:</td>
<td>181</td>
</tr>
<tr>
<td>Tier 1 RECs actually available from NYSERDA:</td>
<td>129</td>
</tr>
<tr>
<td>LSE XYZ RES Tier 1 ACP Quantity:</td>
<td><strong>52</strong></td>
</tr>
</tbody>
</table>

- RECs decreased 16,142 MWh
- ACP available at REC price
NYSERDA ZEC
Sales to LSEs
Timeline – ZEC Sales

- Early December, 2016 – NYSERDA will contact LSEs with a process to execute mandatory agreements with NYSERDA to purchase ZECs
- By December 19, 2016 – ZEC agreements are sent to NYSERDA by LSEs
- By December 31, 2016 – NYSERDA finalizes ZEC agreements with all LSEs by providing schedule of payments
- April 2017 – ZEC Payments to NYSERDA commence
- Quarterly throughout 2017/2018 – NYSERDA will transfer purchased and available ZECs to LSEs in the New York Generation Attribute Tracking System (NYGATS)
## 2017/2018 ZEC Sales

<table>
<thead>
<tr>
<th>2017/2018 Maximum ZEC quantity to be purchased by NYSERDA (MWh)</th>
<th>2017/2018 ZEC Price*</th>
</tr>
</thead>
<tbody>
<tr>
<td>27,618,000</td>
<td>$17.5394</td>
</tr>
</tbody>
</table>

*ZEC Price = $17.48 (NYSERDA purchase price) + $0.0594 (Commission Approved Adder)*
Example 4 – Additional ZECs required for compliance

The Public Service Commission's August 1, 2016 Order Adopting a Clean Energy Standard stated that each LSE’s ZEC obligation would be determined by multiplying the LSE’s actual percent of load served in the Compliance Period times the ZEC Quantity actually purchased by NYSERDA.

Example:

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<tr>
<td>LSE XYZ Estimated Load for 2017/2018 Compliance Period (MWh)</td>
<td>500,000</td>
</tr>
<tr>
<td>LSE XYZ Estimated Percent of Statewide Load for 2017/2018 Comp Period:</td>
<td>0.3230%</td>
</tr>
<tr>
<td>Maximum ZEC Quantity purchased by NYSERDA:</td>
<td>27,618,000</td>
</tr>
<tr>
<td>LSE XYZ ZEC Purchases from NYSERDA for the 2017/2018 Compliance Period:</td>
<td>89,206</td>
</tr>
<tr>
<td>LSE XYZ Actual Load for 2017/2018 Compliance Period (MWh):</td>
<td>550,000</td>
</tr>
<tr>
<td>LSE XYZ Actual Percent of Statewide Load for 2017/2018 Compliance Period:</td>
<td>0.34%</td>
</tr>
<tr>
<td>Actual ZEC Quantity purchased by NYSERDA:</td>
<td>27,000,000</td>
</tr>
<tr>
<td>LSE XYZ ZEC Compliance Obligation for 2017/2018 Compliance Period:</td>
<td>91,800</td>
</tr>
<tr>
<td>Additional ZECs to be Purchased from NYSERDA During Settlement:</td>
<td>2,594</td>
</tr>
</tbody>
</table>
**Example 5 – Excess ZECs acquired by LSE**

The Public Service Commission's August 1, 2016 Order Adopting a Clean Energy Standard stated that in the event the actual ZEC Quantity purchased by NYSERDA is less than the Maximum ZEC Quantity, LSEs will be refunded for excess ZEC purchases.

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</tr>
<tr>
<td>Actual ZEC Quantity purchased by NYSERDA:</td>
<td>25,000,000</td>
</tr>
<tr>
<td>LSE XYZ ZEC Compliance Obligation for 2017/2018 Compliance Period:</td>
<td>80,750</td>
</tr>
<tr>
<td>LSE Excess ZECs</td>
<td>8,456</td>
</tr>
<tr>
<td>NYSERDA refund to LSE XYZ (at $17.5394/ZEC):</td>
<td>$148,313.17</td>
</tr>
</tbody>
</table>
CES Phase 1 Implementation Plan
Phase 1 Implementation Plan

• Filed jointly by DPS and NYSERDA on October 31, 2016 for public comment and Commission decision-making.

• DPS will hold a webinar December 2, 2016 to review the Implementation Plan in detail – sign up by email ces@dps.ny.gov

• Comments due January 3, 2017.

• Proposes the following details and processes regarding:
  – RES Eligibility
  – Certification
  – Long Term Procurement for RECs
  – LSE Demonstration of Compliance
  – Reporting Requirements
REC and ZEC Banking

- ZECs – No Banking Allowed
- Tier 1 RECs
  - NYSERDA can bank for two years
  - LSEs can bank up to two subsequent compliance years
    - Banked certificates cannot exceed 30% of the certificates needed by the LSE for compliance in the year in which they were generated
  - LSEs can also sell excess Tier 1 RECs back to NYSERDA in 2017 (per Order)
- Borrowing is not permitted
Settlement/Compliance

- LSEs must demonstrate compliance with the CES’s RES Tier 1 and ZEC programs for each compliance period for which a RES and ZEC LSE compliance target is established
  - Separate compliance timelines
  - NYGATS reports used for documentation
- LSEs should register in NYGATS
- ACP Payments under RES to NYSERDA
- State Compliance Reporting
Next Steps
Next Steps for 2016

- **By December 1, 2016** – LSEs submit Orders for Tier 1 RECs from NYSERDA.
- **Early December 2016** – NYSERDA will send an email to LSE contact with ZEC Agreement process execution details.
- **By December 15, 2016** – REC agreements are sent to LSEs by NYSERDA with schedule of payments.
- **By December 19, 2016** – ZEC agreements are sent to NYSERDA by LSEs.
- **By December 31, 2016** – NYSERDA finalizes ZEC agreements with all LSEs by providing schedule of payments.
Questions?

NYSERDA Clean Energy Standard Website:
https://www.nyserda.ny.gov/clean-energy-standard