PJM-NYISO CTS Credit
(Coordinated Transaction Scheduling)

Credit Subcommittee
June 19, 2013
• The objective of Coordinated Transaction Scheduling (CTS) between NYISO and PJM is to improve interchange scheduling efficiency

• CTS transaction bids consist of an offer to schedule a coordinated buy and sell transaction across the NYISO-PJM border at the specified locations when the forecasted price differential is greater than the specified amount

• Transactions occur every 15 minutes on a 24/7 basis, and are entered 75 minutes before the top of the scheduled hour

• Transaction bids require an OASIS reservation to be accepted

• All transaction bids are submitted to the NYISO, which then coordinates with PJM for processing and acceptance
In Real Time,
- NYISO will incorporate PJM’s forward looking prices into its existing scheduling process for the purpose of evaluating CTS bids.
- PJM will incorporate advisory schedules from NYISO’s scheduling process for the purpose of determining its forward-looking prices.

Prior to Bid Clearing,
- NYISO sends bids to PJM for PJM credit check
- PJM returns bids that have passed credit screen
• Credit Exposure exists for the ISO/RTO that contains the export node for the transaction
• Unlike virtual or FTR transactions, credit exposure for CTS is for the entire price of energy at the source location, not a differential between different locations or points in time
  – This is true whether or not the transaction is profitable for the participant
• Although price forecasts are used to determine whether the transaction will clear, actual Real-time locational prices are paid to/from the source and sink ISO/RTOs, respectively
### PJM Look-Ahead Price Analysis

#### IT SCED

<table>
<thead>
<tr>
<th>Interval</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
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<tbody>
<tr>
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<td>0.53167</td>
<td>55.4997</td>
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<tr>
<td>2</td>
<td>6.96919</td>
<td>0.48667</td>
<td>59.0518</td>
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<td>2.72133</td>
<td>0.15667</td>
<td>72.4996</td>
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<td>4</td>
<td>-0.22039</td>
<td>0.01667</td>
<td>78.9419</td>
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#### % Occurrence by Interval

<table>
<thead>
<tr>
<th>$ Difference</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>&gt;20</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>10 to 20</td>
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<td>4</td>
</tr>
<tr>
<td>5 to 10</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
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<tr>
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<td>54</td>
<td>47</td>
<td>42</td>
</tr>
<tr>
<td>-10 to -5</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>-20 to -10</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>&lt; -20</td>
<td>11</td>
<td>11</td>
<td>17</td>
<td>20</td>
</tr>
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</table>

The 2\textsuperscript{nd} Interval is the solution data that will be used in the CTS process.

Price forecasts have fat tails (potential exposure).
• Due to levels of historical variances between price forecasts and actual prices, PJM proposes to use primarily historical prices to establish credit requirements, but switch to forecasted prices if they indicate that system conditions could pose greater exposure than historically experienced.

• The credit requirement for a bid would be the greater of
  – The historical value for the month (e.g. 97th percentile)
  – The 15-minute price forecast

• Charges and credits compared against the credit available would accumulate (net) for the current day and three prior calendar days
  – Additional bids exceeding credit available would be rejected
  – Credit available would be set aside specifically for these transactions

• Minimum participation requirements same as for Virtual transactions
• CTS is being discussed in joint meetings involving both PJM and NYISO stakeholders
  – Next meeting is 10:00 am – 3:00 pm, Tuesday, June 25 at PJM
• CTS is also the subject of separate, internal PJM stakeholder process which will consider changes in PJM documents (Tariff, etc.) that would be required
• Initial presentation of proposed document changes is anticipated at the July Market Implementation Committee meeting