Simultaneous Import Limit (SIL) Study Methodology & Update

Tom Bowe
July 15, 2010
• Brief SIL Overview
  – Definition
  – Purpose
  – Inputs into Analysis
• April 30\textsuperscript{th} Action Items
• Results Overview
• Next Steps
April 30th - Conference call with Impacted Parties

- **Action items**
  - TO’s to contact Tom Bowe directly with contact information of additional participants.
    - Only four TO’s have shown interest
  - PJM contacted FERC to schedule face to face meeting
    - FERC has an interest
    - Awaiting FERC response regarding scheduling

- **PJM will supply 2009 SIL results by end of July**
  - Include sufficient information to allow TO’s to tailor the results to their individual needs.
Simultaneous Import Limit (SIL) Definition

- Simultaneous Import Limit (SIL) is a calculation of total transfer capability based on historic interchange data. SIL is an estimate of the simultaneous imports into PJM that could have been utilized by remote resources.

\[
\text{SIL} = \text{Base case transfer (interchange)} + \text{ATC (FCITC)}
\]
• Basis for transmission access analyses
  – FERC’s two Market Power Indicative screens
  – Delivered Price Test analyses
  – For use by FERC in performing comparative analysis with other markets
• SIL calculation uses AFC/ATC software and data (modified)
  – Outage data and adjoining systems’ forecasted peak loads from NERC SDX
  – PJM loads from PJM ATC calculation process (from PJM Load Forecast program)
  – Reservation data from PJM and external OASIS nodes
  – Data modifications:
    • Source points (external areas combined into a single POR)
    • Sink points (PJM is a single POD)
## 2009 Results

### WORLD to PJM RTO

<table>
<thead>
<tr>
<th>Year</th>
<th>Import MW*</th>
<th>Load</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>432</td>
<td>120313</td>
<td>Pruntytown-Mt. Storm 500 kV for loss of Black Oak-Bedington 500 kV</td>
</tr>
<tr>
<td>Spring</td>
<td>0</td>
<td>105933</td>
<td>Person-Halifax 230 kV for loss of Wake-Carson 500 kV</td>
</tr>
<tr>
<td>Summer</td>
<td>0</td>
<td>134105</td>
<td>Pruntytown-Mt. Storm 500 kV for loss of Black Oak-Bedington 500 kV</td>
</tr>
<tr>
<td>Fall</td>
<td>2293</td>
<td>97963</td>
<td>Mt. Storm-Doubs 500 kV for loss of Black Oak-Bedington 500 kV</td>
</tr>
</tbody>
</table>

* Import MW amount represented a snapshot in time during the peak season, calculated based on the same method as the ATC calculation. It should not be looked at as an indication that PJM had no import capability throughout the season. The method of calculation does not consider off-cost redispatch and/or switching procedures.
### PJM to Eastern PJM Submarket

<table>
<thead>
<tr>
<th></th>
<th><strong>Import MW</strong></th>
<th><strong>Load</strong></th>
<th><strong>Limit</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>9944</td>
<td>24284</td>
<td>Graceton-Manor 230 kV for loss of Conastone-Peach Bottom 500 kV</td>
</tr>
<tr>
<td>Spring</td>
<td>9477</td>
<td>23558</td>
<td>Graceton-Manor 230 kV for loss of Conastone-Peach Bottom 500 kV</td>
</tr>
<tr>
<td>Summer</td>
<td>11543</td>
<td>31353</td>
<td>Mt. Storm-Doubs 500 kV for loss of Mt. Storm-Greenland Gap 500 kV</td>
</tr>
<tr>
<td>Fall</td>
<td>6927</td>
<td>20539</td>
<td>Cedar Grove_F-Clifton_K 230 kV for loss of Cedar Grove_B-Roseland 230 kV</td>
</tr>
</tbody>
</table>

** Import MW amount were based on the load level and generation availability to balance the load at a snapshot in time during the peak season. Off-cost redispatch and/or switching procedures were not included as part the study.
Differences Between 2009 vs. 2006

- SIL Limits are Lower in 2009 than 2006 Study
- Differences are the result of:
  - Software used and power flow cases
  - Higher west to east flow
  - Outages
  - Transmission Service Requests (TSRs)
  - PJM base case net interchange
### Differences Between 2009 vs. 2006 (continued)

#### 2006 SIL vs. 2009 SIL

<table>
<thead>
<tr>
<th></th>
<th>2006 Import MW</th>
<th>2006 Limiting Facility</th>
<th>2009 Import MW</th>
<th>2009 Limiting Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Winter</strong></td>
<td>13600</td>
<td>Waldwick-Hawthorne 230 kV for loss of Waldwick-Hillsdale 230 kV</td>
<td>432</td>
<td>Pruntytown-Mt. Storm 500 kV for loss of Black Oak-Bedington 500 kV</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>8300</td>
<td>Person-Halifax 230 kV for loss of Wake-Carson 500 kV</td>
<td>0</td>
<td>Person-Halifax 230 kV for loss of Wake-Carson 500 kV</td>
</tr>
<tr>
<td><strong>Summer</strong></td>
<td>9200</td>
<td>Person-Halifax 230 kV for loss of Wake-Carson 500 kV</td>
<td>0</td>
<td>Pruntytown-Mt. Storm 500 kV for loss of Black Oak-Bedington 500 kV</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>3300</td>
<td>Mitchell-Elrama 138 kV</td>
<td>2293</td>
<td>Mt. Storm-Doubs 500 kV for loss of Black Oak-Bedington 500 kV</td>
</tr>
</tbody>
</table>
NEXT STEPS

• Schedule a Detailed WebEx to discuss methodology and draft report (by the end of July)
• Assess any recommended enhancements to analysis/report (mid August)
• PJM and FERC Staff Meeting (early-mid August)
• Produce Final Report (Early September)
The PJM SIL analysis was independently conducted in accordance with FERC Order 697

- Required modification to the representation of PJM and the adjoining BA’s.
- Considering all contiguous BA’s as a single source and the PJM as a single sink limits the granularity of the PJM market in the SIL analysis.
- No attempt was made to modify the SIL analysis to represent PJM zones.
- The calculated SIL’s should be considered conservative estimates.
- PJM real time data includes the impact of economics in PJM operations.
Questions