Black Start Buffer Analysis: Classic Methodology

SRSTF Meeting
September 21, 2012
Black Start Balancing (B.S. vs. C.L.)
with Retirement Impacts

Data Legend:
• Critical Black Start (B.S.)
• Critical Load (C.L.)
• Classic Methodology focuses ratio of B.S. to C.L.

Current B.S. Buffer = 64% surplus
Post-retirements B.S. Buffer = 15% surplus
RTO Critical Black Start Fuel Mix – Classic Methodology

Black Start Unit Fuel Types (% of MW)

- Oil: 48.77%
- Dual Fuel: 18.72%
- Hydro: 15.27%
- Natural Gas: 5.91%
- Coal (ALR): 11.33%

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RTO Black Start Buffers: Classic Methodology

Black Start Buffers (Black Start / Critical Load)

**Blue** = Current, **Red** = Post-Retirements

<table>
<thead>
<tr>
<th>Ranges</th>
<th># of Transmission Owner Zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50%</td>
<td>2</td>
</tr>
<tr>
<td>50% to &lt; 100%</td>
<td>4</td>
</tr>
<tr>
<td>100% to &lt; 125%</td>
<td>5</td>
</tr>
<tr>
<td>&gt;= 125%</td>
<td>8</td>
</tr>
</tbody>
</table>

Data Legend:

- < 100% indicates B.S. shortage
- = 100% indicates B.S. balance
- > 100% indicates B.S. surplus
Conclusions

• Wide range of disparity of black start capability vs. critical load across Transmission Owner zones

• Projected retirements show shortage of black start capability in many zones, despite overall RTO surplus
  • RFPs
  • Exceptions through SOS-T