Transmission Expansion Advisory Committee
Market Efficiency Update

January 12, 2017
Market Efficiency Timeline

Year 0
- Develop Assumptions (Y1, Y5)
- Market Efficiency Analysis (Y1, Y5) (Accelerations and Modifications)
- Identify and evaluate Solution Options (Accelerations and Modifications)

Year 1
- Final Review with TEAC and approval by Board
- Develop Assumptions (Y1, Y5, Y8, Y11, Y15)
- Market Efficiency Criteria Analysis (Y1, Y5, Y8, Y11, Y15)
- Market Efficiency Analysis (Y1, Y5, Y8, Y11, Y15)
- Identify proposed solutions
- Update significant assumptions (Y0, Y4, Y7, Y10, Y14)
- Independent Consultant reviews of buildability
- Adjustments to solution options by PJM on analysis
- Develop Assumptions (Y1, Y5)
- Market Efficiency Analysis (Y1, Y5) (Accelerations and Modifications)
- Identify and evaluate Solution Options (Accelerations and Modifications)
- Final Review with TEAC and approval by Board

12-month cycle
24-month cycle
2016-2017  24-Month Market Efficiency Cycle

• Long term proposal window:  Nov 2016 - Feb 2017

• Mid-cycle update of major assumptions:  Jan 2017 – Apr 2017
  • Load forecast, Demand forecast, Fuel prices, Generation expansion, Network topology
  • Only updating the most significant changes, not full update.

• Analysis of proposed solutions:  May 2017 - Oct 2017
  • Independent consultant review of cost and ability to build
  • Review of analysis with TEAC: Jun 2017 - Nov 2017

• Determination of final projects:  Dec 2017
  • Final review with TEAC and Board approval
  • Projects may be approved earlier if analysis and review complete
2017 12-Month Market Efficiency Cycle

• Reevaluation Market Efficiency projects
  • Reevaluation of Market Efficiency projects approved during the 2014/2015 cycle

• Acceleration Analysis
  • Acceleration analysis to identify approved RTEP projects that can be accelerated or modified based on Market Efficiency criteria.
Mid-Cycle Update: Key Input Parameters

• Load and energy
• Demand resource
• Future generation
• Transmission topology
• Transmission constraints
• Outside regions
• Fuel prices
PJM zonal peak and energy forecast from 2017 Load Forecast Report

### 2017 PJM Peak Load and Energy Forecast

<table>
<thead>
<tr>
<th>Load</th>
<th>2017</th>
<th>2021</th>
<th>2024</th>
<th>2027</th>
<th>2031</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak (MW)</td>
<td>152,999</td>
<td>153,384</td>
<td>154,142</td>
<td>155,773</td>
<td>157,513</td>
</tr>
<tr>
<td>Energy (GWh)</td>
<td>814,838</td>
<td>820,415</td>
<td>827,522</td>
<td>835,137</td>
<td>845,602</td>
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</tbody>
</table>

**Notes:**
1.) Peak and energy values from PJM Load Forecast Report Table B-1 and Table E-1, respectively.
2.) Model inputs are at the zonal level, to the extent zonal load shapes create different diversity - modeled PJM peak load may vary.
Comparison 2016 and 2017 Load Forecasts

PJM Load Forecasts Comparison 2016 vs. 2017
Annual Peak (MW)
Mid-Cycle Update: Demand Resource Input Data

Model zonal demand resources consistent with Table B-7 of the 2017 Load Forecast Report

<table>
<thead>
<tr>
<th>Demand Resource (MW)</th>
<th>2017</th>
<th>2021</th>
<th>2024</th>
<th>2027</th>
<th>2031</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9,120</td>
<td>6,169</td>
<td>6,187</td>
<td>6,237</td>
<td>6,290</td>
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### Next Steps

#### Milestone Schedule 2016 - 2017

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>Reevaluation approved Market Efficiency projects</td>
<td>February – May 2017</td>
</tr>
<tr>
<td>Base Case Mid-Cycle Update Significant Assumptions</td>
<td>January – April 2017</td>
</tr>
<tr>
<td>Analyze Submitted Proposals</td>
<td>May – October 2017</td>
</tr>
<tr>
<td>Acceleration Analysis</td>
<td>May – October 2017</td>
</tr>
<tr>
<td>Final TEAC Review and Board Approval</td>
<td>December 2017</td>
</tr>
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