Inter-regional Update
• 2025 summer and winter scenario build – on schedule
  – June preliminary builds - complete
  – July-August validation and final case posting - complete
  – October transfer analysis – in progress
  – December presentation & stakeholder input – in progress

• TC & EC recommendations
  – construct validated production cost simulation model for EI transmission studies. License issues under consideration
  – NERC MOD 32 activity – continue to monitor
• NCTPC
  – Preparation for 2016/17 operating year September 30 meeting
    • Draft coordinated operating plan discussed. Day ahead and Real time activities
    • Agreed to more closely coordinate power flow model interchange

• PJM/MISO JOA
  – Quick Hit upgrades
    • Tracking RTEP and MTEP upgrades addressing $300M congestion
    • Michigan Interface study light load issues in progress
      – Merged power flows
      – Coordinating market efficiency assumptions
• PJM/MISO JOA
  – Process Timeline
  • Review transmission issues 4Q15
  • Data exchange 1Q16
  • Identify M2M issues, limiting elements and potential upgrades 2Q16
  • Identify regional issues – 3Q16
  • Project solicitations September 2016 – February 2017
  • Joint model development November 2016 – March 2017
• Process drives metric discussions
  – File to eliminate $20 million threshold in 2015
  – Consider MISO lower voltage threshold
  – Consider “quick hit” process/metric enhancements
  – Economic project process enhancements, such as
    • Streamline and simplify evaluations and approvals
    • Number/scope of analyses
    • Use of B/C screening
    • Consider congestion relief metrics
MISO MEP Coordination
Newtonville – Coleman 161 kV congestion
Newtonville – Coleman 161 kV congestion

• Coordination on MISO MEP to relieve Newtonville – Coleman 161 kV congestion
  • MISO staff recommends Duff – Rockport – Coleman option
  • PJM found Duff – Rockport – Coleman option is more effective solution to Rockport operational issues
  • MISO board recommendation expected in December
  • To be included in RTEP power flows moving forward
  • AEP intends to include the project as a supplemental RTEP upgrade
• All PJM analyses are complete
• Studied Rockport – Coleman 345 kV DCTL
• Studied Rockport – Duff – Coleman 345 kV
• Analyses
  – Power flow, Stability, Short Circuit
• Results
  – No issues identified for Rockport – Duff – Coleman
  – Rockport - Coleman DCTL is unstable for specific area generation outputs and unity power factor at Rockport
Newtonville – Coleman 161 kV congestion

- Rockport – Coleman DCTL alternative studies complete
  - MISO identified $200 k reliability upgrades
  - Replaces Rockport SPS with minimal voltage limited operating guide required
  - No PJM thermal or voltage reliability issues identified
  - Administrative complexity for MISO - shared responsibility for double circuit tower line – cost sharing and competitive bid process

- Duff - Rockport – Coleman alternative studies complete
  - MISO identified $200 k reliability upgrades
  - Eliminates Rockport SPS – no operating guide required
  - No PJM thermal or voltage reliability issues identified
  - Less administrative complexity
## MISO 9-16-2015 PAC excerpt

<table>
<thead>
<tr>
<th>Network Upgrade</th>
<th>Duff – Coleman 345kV</th>
<th>Rockport – Coleman Double Circuit 345kV</th>
<th>Duff – Rockport - Coleman 345 kV</th>
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<tbody>
<tr>
<td><strong>Total Project Cost ($M)</strong></td>
<td>$67.2</td>
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<td>$152.5</td>
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<tr>
<td><strong>MISO Portion of Cost ($M)</strong></td>
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<td><strong>PJM Portion of Cost ($M)</strong></td>
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<td><strong>MISO B/C ratio</strong></td>
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<td>19.1</td>
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<tr>
<td><strong>Network Upgrade Costs from Reliability No Harm Test</strong></td>
<td>$200K</td>
<td>$200K</td>
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