Interregional Targeted Market Efficiency Projects

Market Efficiency Process Enhancement Task Force

December 7, 2018
• Respond to stakeholder requests for TMEP examples
Interregional TMEPs Approved in 2017
• NERC FG ID: 2286/2205
• Ownership: CE-NIPS
• Outages Impacting: None known
• Planned Upgrades Impacting: None known
• Current Rating: 1195/1195
• Upgrade: Reconfigure Munster as ring bus (NIPSCO)
• Upgraded Rating: 1201/1441
• TMEP Cost: $6.7 Million
• TMEP Benefit: $32 Million
• NERC FG ID: 2647
• Ownership: ATSI – ITC
• Outages Impacting: None known
• Planned Upgrades Impacting: None known
• Current Rating: 1262/1494
• Upgrade: Replace conductor on river-crossing span (FE)
• Upgraded Rating: 1486/1702
• Upgrade Cost: $1 Million
• TMEP Benefit: $17 Million
Michigan City – Bosserman 138kV

- NERC FG ID: 2427/2540
- Ownership: NIPS – AEP
- Outages Impacting: New Carlisle (~20%)
- Planned Upgrades Impacting: None known
- Current Rating: 156/156
- Upgrade: Reconductore (NIPSCO)
- Upgraded Rating: 186/221
- TMEP Cost: $6.0 Million
- TMEP Benefit: $29.6 Million
• NERC FG ID: 20729/2548/2685
• Ownership: NIPS
• Outages Impacting: None known
• Planned Upgrades Impacting: None known
• Current Rating: 287/287
• Upgrade: Replace terminal equipment at Reynolds (NIPSCO)
• Upgraded Rating: 305/366
• TMEP Cost: $120 k
• TMEP Benefit: $14.5 Million
• NERC FG ID: 2577/2531
• Ownership: NIPS
• Outages Impacting: None known
• Planned Upgrades Impacting: None known
• Current Rating: 158/158
• Upgraded Rating: 434/525
• Proposed Upgrade: Reconductor (NIPSCO)
• TMEP Cost: $6.1 Million
• TMEP Benefit: $6.5 Million
### Summary of Approved TMEPs

<table>
<thead>
<tr>
<th>Facility</th>
<th>Transmission Owner</th>
<th>PJM Project ID</th>
<th>MISO Project ID</th>
<th>TMEP Cost (Million $)</th>
<th>TMEP Benefit (Million $)</th>
<th>Benefit Allocation (%PJM/%MISO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burnham - Munster 345kV</td>
<td>CE - NIPS</td>
<td>b2971</td>
<td>14264</td>
<td>6.7</td>
<td>32</td>
<td>88/12</td>
</tr>
<tr>
<td>Bayshore - Monroe 345kV</td>
<td>ATSI - ITC</td>
<td>b2972</td>
<td>14265</td>
<td>1</td>
<td>17</td>
<td>89/11</td>
</tr>
<tr>
<td>Michigan City – Bosserman 138kV</td>
<td>NIPS - AEP</td>
<td>b2973</td>
<td>14266</td>
<td>6.0</td>
<td>29.6</td>
<td>90/10</td>
</tr>
<tr>
<td>Reynolds-Magnetation 138kV</td>
<td>NIPS</td>
<td>b2974</td>
<td>14267</td>
<td>0.12</td>
<td>14.5</td>
<td>41/59</td>
</tr>
<tr>
<td>Roxana - Praxair 138kV</td>
<td>NIPS</td>
<td>b2975</td>
<td>14268</td>
<td>6.1</td>
<td>6.5</td>
<td>24/76</td>
</tr>
</tbody>
</table>
Interregional TMEPs Recommended for December 2018 Board Approval
Facilities Count

- **61** • M2M facilities with >$1 million congestion (2016 + 2017)
- **33** • Addressed by planned system upgrade/changes
- **16** • Outage driven
- **10** • Don’t meet TMEP Criteria
- **2** • Recommended TMEPs

*See October 5 IPSAC for full details: https://pjm.com/committees-and-groups/stakeholder-meetings/ipsac-midwest.aspx*
2016/2017 Congestion Cost

- $213 mil (41%)
- $201 mil (38%)
- $55 mil (11%)
- $25 mil (4.8%)
- $3.5 mil (0.7%)
- $2.7 mil (0.5%)
- $17 mil (3.3%)
- $6.0 mil (1.1%)

- Approved TMEP Resolves
- Planned Sys Change Resolves
- Outage Driven
- No Persistent Congestion
- Does Not Meet B/C Ratio
- TMEP Effectiveness Uncertain
- TMEP Upgrade Unknown
- TMEP Recommended
Marblehead 138/161 kV

Flowgate ID(s): 23418  
Historical Congestion: $15.5 million  
Ownership: AMIL  
Outages Impacting: None Identified  
Planned Upgrades: None Identified  
Current Rating: 280/287/287/287  
Upgrade Type: Terminal equipment  
Upgrade Cost: $175 k  
Upgraded Rating: 300/300/300/300
Flowgate ID(s): 2047, 21530, 22613
Historical Congestion: $ 9.8 Million
Ownership: DEI – IPL tie
Outages Impacting: None Identified
Planned Upgrades: None Identified
Current Rating: 1195/1195/1195/1195
Upgrade Type: Substation equipment
Upgrade Cost: $4.3 million
Upgraded Rating: 1374/1374/1798/1798 MVA
## Summary of Recommended TMEPs

<table>
<thead>
<tr>
<th>Facility</th>
<th>Transmission Owner</th>
<th>TMEP Cost (Million $)</th>
<th>TMEP Benefit (Million $)</th>
<th>Benefit Allocation (%PJM/% MISO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marblehead 161/138 kV</td>
<td>AMIL</td>
<td>0.175</td>
<td>12.4</td>
<td>0 / 100</td>
</tr>
<tr>
<td>Gibson – Petersburg 345 kV</td>
<td>DEI - IPL</td>
<td>4.3</td>
<td>19.5</td>
<td>7 / 93</td>
</tr>
</tbody>
</table>