2018 Project Statistics

Transmission Expansion Advisory Committee
February 7, 2019
Each slide summarizes the estimated costs for projects presented at the TEAC or Sub-regional TEAC meetings.

- Costs are provided by the Designated Entity or Transmission Owners. Cost estimation methods may vary by company. Estimated costs in this document may include cost caps or cost containment even though it isn’t specifically noted.
- Cost estimates may change over time as new information is known and incorporated into the estimate by the project sponsor, this document reflects the current estimates that are provided to PJM.
- A single cost is provided for each project identifier, without any additional breakdown (for example, cost by state).
2018 Baseline Projects
Presented to PJM Board

Note: this slide shows costs presented to the PJM Board in 2018. Title is updated to reflect this.
2018 Generation and Merchant Network Upgrade Projects
Presented to PJM Board

Note: this slide shows costs presented to the PJM Board in 2018. Title is updated to reflect this.
2018 Supplemental Projects
Presented to PJM Board

Note: this slide shows costs presented to the PJM Board in 2018. Title is updated to reflect this.

![Cost Breakdown Graph]

- **Start of Year**: $19,811
- **New Projects**: $6,098
- **Cost Change**: $381
- **Cancellations**: ($71)
- **End of Year**: $26,219

Estimated Cost ($ million)
New Projects in 2018
Project Drivers

Estimated Cost of Baseline Projects Approved by PJM Board

Estimated Cost of Supplemental Projects Presented by TOs to the TEAC

Baseline Load Growth Deliverability & Reliability $99
Congestion Relief - Economic $44
Generator Deactivation $201
Operational Performance $113
Short Circuit $44
TO Criteria Violation $1,509

Equipment Material Condition, Performance and Risk $2,338
Operational Flexibility and Efficiency $960
Customer Service $60
Multiple Drivers $2,377

Note: updated drivers originally categorized as “Null” or “Not Specified” or “Other”
Estimated Cost of Baseline Projects Approved by PJM Board

- Baseline Load Growth Deliverability & Reliability: $99
- Congestion Relief - Economic: $44
- Generator Deactivation: $261
- Operational Performance: $113
- Short Circuit: $44
- TO Criteria Violation: $1,509

Estimated Cost of Baselines Projects Driven by TO Criteria Violations

- Aging Infrastructure: $807
- Other TO Criteria: $702

Note: updated drivers originally categorized as “Not Specified”
New Projects in 2018
Supplemental Project Drivers

Estimated Cost of Supplemental Projects Presented by TOs to the TEAC

Estimated Cost of Supplemental Projects with Multiple Drivers

Note: updated drivers originally categorized as “Null” or “Other”
Distribution of New Baseline and Supplemental Projects Approved by the PJM Board (baseline) or Presented (supplemental) in 2018

- **Baseline**: Represented by blue bars.
- **Supplemental**: Represented by green bars.

The chart shows the estimated costs in millions of dollars for each project, with the following costs:

- AEC: $0()
- AEP: $1.05
- APS: $0.00
- ATSI: $0.07
- BGE: $0.00
- ComEd: $0.00
- Dayton: $0.00
- DEOK: $0.00
- DL: $17
- Dominion: $4,46
- DPL: $0.00
- EKPC: $0.00
- JCPL: $0.00
- ME: $0.00
- MISO: $0.00
- OVEC: $0.00
- PECO: $0.00
- PENELEC: $35
- PPL: $71
- PSEG: $1,063
- RECO: $1,458
- RMU: $0.00
- UGI: $9

PJM TEAC – 2/7/2019 12

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Distribution of New Baseline and Supplemental Projects Approved by the PJM Board (baseline) or Presented (supplemental) since 2005
Baseline and Supplemental Projects by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Baseline Projects</th>
<th>Supplemental Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>$2,053</td>
<td>$5,117</td>
</tr>
<tr>
<td>2016</td>
<td>$761</td>
<td>$879</td>
</tr>
<tr>
<td>2017</td>
<td>$3,234</td>
<td>$3,212</td>
</tr>
<tr>
<td>2018</td>
<td>$2,071</td>
<td>$5,735</td>
</tr>
</tbody>
</table>

- **Baseline Projects Approved by PJM Board**
- **Supplemental Projects Presented to the TEAC**
Baseline and Supplemental Projects by Year

- **2015**
  - Baseline Projects Approved by PJM Board: $2,000
  - Supplemental Projects Presented to the TEAC: $4,000
- **2016**
  - Baseline Projects Approved by PJM Board: $1,000
  - Supplemental Projects Presented to the TEAC: $3,000
- **2017**
  - Baseline Projects Approved by PJM Board: $2,000
  - Supplemental Projects Presented to the TEAC: $5,000
- **2018**
  - Baseline Projects Approved by PJM Board: $3,000
  - Supplemental Projects Presented to the TEAC: $6,000

### Estimated Cost ($ million)

- **2015**: $6,000
- **2016**: $5,000
- **2017**: $5,000
- **2018**: $6,000

### NERC/PJM Criteria Violations

- **2015**: $791
- **2016**: $670
- **2017**: $824
- **2018**: $561

### TO Criteria Violations

- **2015**: $1,261
- **2016**: $91
- **2017**: $2,410
- **2018**: $1,509

### Supplemental Projects

- **2015**: $5,117
- **2016**: $879
- **2017**: $3,212
- **2018**: $5,735
Baseline Projects by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Eligible for Competitive Window</th>
<th>Not Eligible for Competitive Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>$912</td>
<td>$1,140</td>
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<tr>
<td>2016</td>
<td>$471</td>
<td>$290</td>
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<td>2017</td>
<td>$142</td>
<td>$3,092</td>
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<tr>
<td>2018</td>
<td>$50</td>
<td>$2,020</td>
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</tbody>
</table>

- **NERC/PJM Criteria Violations**
- **TO Criteria Violations**

- Not Eligible for Competitive Window
- Eligible for Competitive Window
Baseline Projects by Designated Entity
Approved by PJM Board 2015-2018

Estimated Cost ($ million)

<table>
<thead>
<tr>
<th>Entity</th>
<th>Eligible for Competitive Window</th>
<th>Not Eligible for Competitive Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEC</td>
<td>$402</td>
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<tr>
<td>AEP</td>
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<td>$724</td>
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<td>APS</td>
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<td>$33</td>
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<tr>
<td>ATSI</td>
<td>$33</td>
<td>$5</td>
</tr>
<tr>
<td>BGE</td>
<td>$23</td>
<td>$23</td>
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<tr>
<td>ComEd</td>
<td>$43</td>
<td>$183</td>
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<td>Dayton</td>
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<td>$1</td>
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<tr>
<td>DEOK</td>
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<td>$16</td>
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<td>DL</td>
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<td>$40</td>
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<td>Dominion</td>
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<td>DPL</td>
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<td>$5</td>
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<td>$39</td>
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<td>LS POWER</td>
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<td>ME</td>
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<td>$4</td>
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<td>NIPSCO</td>
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<td>$0</td>
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<td>OVEC</td>
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<td>$0</td>
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<tr>
<td>PECON</td>
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<td>$0</td>
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<tr>
<td>PSEG Power</td>
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<td>$4</td>
</tr>
<tr>
<td>RECO</td>
<td>$9</td>
<td>$4</td>
</tr>
<tr>
<td>RMU</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>Transource</td>
<td>$269</td>
<td>$0</td>
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<tr>
<td>UGI</td>
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</tr>
</tbody>
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Supplemental Projects by Transmission Owner
Presented to the TEAC/Sub-regional TEAC Meetings in 2015-2018

- AEC: $97, $157, $98
- AEP: $493, $295, $1,386, $2,412
- APS: $40, $1, $0
- ATSI: $102, $3, $193, $511
- BGE: $317, $186, $137, $98
- ComEd: $53, $33, $173
- Dayton: $11, $4, $21
- DEOK: $235, $6, $124, $17
- DPL: $17, $46, $69
- EKPC: $10, $33, $35
- JCPL: $0
- ME: $4, $95
- ODEC: $1
- PECO: $135, $1
- PENELEC: $1, $0, $21, $355
- PPL: $2,282, $306, $788, $1,458
- PSEG: $1,340, $49, $10
- PSEG Power: $10
- RMU: $17
- UGI: $0, $9
Baseline Projects by Voltage
Approved by PJM Board 2015-2018

Note: updated voltage categorized as “Not Specified” previously
Baseline Projects by Voltage
Approved by PJM Board 2015-2018

Note: updated voltage categorized as “Not Specified” previously
Baseline Projects by Voltage
Approved by PJM Board 2015-2018

Note: updated voltage categorized as “Not Specified” previously
Baseline Projects Eligible for Competitive Window Approved by PJM Board 2015-2018

Estimated Cost ($ million)

- Baseline Load Growth Deliverability & Reliability
- Congestion Relief - Economic
- Generator Deactivation
- Operational Performance
- Short Circuit
- TO Criteria Violation

Categories:  
- <100 kV: $60  
- 100-200 kV: $309  
- 230 kV: $429  
- 345 kV: $309  
- 500 kV: $108  
- 765 kV: $132
Supplemental Projects by Voltage
Presented to the TEAC/Sub-regional TEAC Meetings in 2015-2018

Note: updated voltage categorized as “Not Specified” previously
• V1 – 01/07/2019 – Original Slides Posted
• V2 – 02/01/2019 – Updated Slides Posted