Benefits Calculation

May 18, 2018
Energy Benefits Key Elements and Recent Updates

- Simulation Years*
  - Simulate benefits for RTEP year only
- Trend Extrapolation*
  - Fix benefits beyond RTEP year at RTEP year benefits
- Benefit Calculation Period*
  - 10 years after project in-service date, capped at RTEP+10
- Sensitivities*
  - Mandatory sensitivities
    - To be defined prior to the beginning of market efficiency window
    - Have a B/C ratio threshold of 1.00
  - Optional sensitivities
    - To be defined during market efficiency project evaluation process
    - Do not have to pass any B/C ratio threshold

* Updated since last MEPETF Meeting on 4/20/18
Energy Benefits Key Elements and Recent Updates (cont’d)

• Benefit Adjustment for In-Service Date*
  – It is PJM’s goal to address energy constraints by the RTEP year, and to incentivize projects that are designed and proposed to be in service by RTEP year
  – PJM will adjust energy benefits of projects that are proposed to be in service later than the RTEP year to account for any savings forgone due to later in-service date
  – Example:

<table>
<thead>
<tr>
<th>Proposal 1:</th>
<th>Proposal 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual benefit = $10M</td>
<td>Annual benefit = $10M</td>
</tr>
<tr>
<td>Annual revenue requirements = $4M</td>
<td>Annual revenue requirements = $4M</td>
</tr>
<tr>
<td>In-Service year = RTEP</td>
<td>In-Service year = RTEP+1</td>
</tr>
<tr>
<td>B/C Ratio = 2.50</td>
<td>Lost savings in RTEP = $6M</td>
</tr>
<tr>
<td></td>
<td>B/C Ratio = 2.27</td>
</tr>
</tbody>
</table>

* Updated since last MEPETF Meeting on 4/20/18
Capacity Benefits Key Elements and Recent Updates

• Simulation Years
  – RPM and RTEP years

• Benefit Calculation Period*
  – 2 years

• In-Service Date*
  – To be in service prior to establishing planning parameters for the next BRA planning period.
  – In the event a transmission expansion cannot be attained by the RPM year, PJM will consider capacity market solutions beyond RPM year, and before RTEP year.

• Benefit Adjustment for In-Service Date*
  – PJM will adjust capacity benefits of projects that are proposed to be in service later than the RPM year to account for any savings forgone due to later in-service date

* Updated since last MEPETF Meeting on 4/20/18
• PJM does not include the zones which have an increase in total Net Load Payments (over project evaluation period) when calculating total energy benefits.

• However, annual negative benefits for transmission zones with a positive total benefit are included in project benefit calculation.

<table>
<thead>
<tr>
<th>Zonal Benefit</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>...</th>
<th>Year 14</th>
<th>Year 15</th>
<th>Benefit NPV</th>
<th>Zone included?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>$(751)</td>
<td>$(348)</td>
<td>$(348)</td>
<td>$55</td>
<td>$458</td>
<td>...</td>
<td>$3,020</td>
<td>$3,261</td>
<td>$8,932</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone 2</td>
<td>$385</td>
<td>$231</td>
<td>$77</td>
<td>$(77)</td>
<td>$(234)</td>
<td>...</td>
<td>$(712)</td>
<td>$(766)</td>
<td>$(1,515)</td>
<td>No</td>
</tr>
</tbody>
</table>

• Including zones with a total negative benefit in energy benefit calculation will
  – penalize zones that are paying high LMPs by not addressing the congestion
  – reduce the chance of approving market efficiency projects
  – make benefit calculation inconsistent with cost allocation