Transmission Losses #9

Step 1: Introduction and Education
Step 2: Description of the Issue
Step 3: Data and/or Analysis that Supports the Issue
Agenda

- Introduction and education (Step 1)
- Description of the issue (Step 2)
- Data and/or analysis that supports the issue (Step 3)
  - Value
  - Actual vs Expected Returns
  - Administrative Burden
Objective

- Update the BPA process for the provision and settling of losses which captures the value of capacity and energy used to provide losses and minimizes load uncertainty, the administrative burden of system administration, maintenance, and reconciliation of deviations
Current Loss Energy Return Options

BPA provides customers with three methods for returning their loss energy obligations to BPA:

- In-Kind (168 Hours later) – 88.77%
- Financial Settlement – 0.82%
- Slice – 10.41%

*Percentage breakdown of MW Obligations year to date 2019.
In-Kind Challenges

In-Kind is the most challenging option due to:

- **Value**: In-kind replacement of losses results in mismatches in value between the time the losses occur and the time the energy is returned 168 hours later.

- **Actual vs. expected returns**: BPA receives losses from the parties where parties do not schedule the entire loss obligation or schedule the incorrect amounts of losses.

- **Administrative Burden**: Current process requires significant FTE time to manage routine daily processes and system maintenance. Losses app requires a monthly maintenance fee.
Value: Physical Loss Returns Compensation

- Returning physical losses at t+168 hours results in roughly neutral energy-related revenue for the loss provider
  - Assuming flat MW quantities
  - Energy values fluctuate but generally equalize over time
- The loss provider (Power Services) is not compensated for holding out capacity necessary to provide losses.
Actual vs Expected Returns

Percent of Days with Deviation

April, May, June monthly totals including losses waived by Power Services during over supply season.
# Actual vs Expected Returns

<table>
<thead>
<tr>
<th>Year:</th>
<th>Month:</th>
<th>Total Obligation MWh</th>
<th>Return Total MWh</th>
<th>MWh Difference</th>
<th>Days Reviewed</th>
<th>Days With Difference</th>
<th>Percent of Days with Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>October</td>
<td>200,010</td>
<td>199,770</td>
<td>240</td>
<td>31</td>
<td>13</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>187,305</td>
<td>186,896</td>
<td>409</td>
<td>30</td>
<td>16</td>
<td>53%</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>218,803</td>
<td>218,869</td>
<td>-66</td>
<td>31</td>
<td>10</td>
<td>32%</td>
</tr>
<tr>
<td></td>
<td>January</td>
<td>246,744</td>
<td>246,674</td>
<td>70</td>
<td>31</td>
<td>19</td>
<td>61%</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>194,324</td>
<td>194,132</td>
<td>192</td>
<td>28</td>
<td>21</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>213,126</td>
<td>213,028</td>
<td>98</td>
<td>31</td>
<td>22</td>
<td>71%</td>
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<tr>
<td></td>
<td>April</td>
<td>207,187</td>
<td>206,656</td>
<td>531</td>
<td>30</td>
<td>24</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>225,901</td>
<td>212,846</td>
<td>13,055</td>
<td>31</td>
<td>19</td>
<td>61%</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>235,718</td>
<td>235,478</td>
<td>240</td>
<td>30</td>
<td>20</td>
<td>67%</td>
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<tr>
<td></td>
<td>July</td>
<td>259,763</td>
<td>259,605</td>
<td>158</td>
<td>31</td>
<td>13</td>
<td>42%</td>
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<tr>
<td></td>
<td>August</td>
<td>275,905</td>
<td>275,564</td>
<td>341</td>
<td>31</td>
<td>16</td>
<td>52%</td>
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<tr>
<td></td>
<td>September</td>
<td>266,291</td>
<td>266,053</td>
<td>238</td>
<td>30</td>
<td>8</td>
<td>27%</td>
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<tr>
<td>2019</td>
<td>October</td>
<td>207,522</td>
<td>207,312</td>
<td>210</td>
<td>31</td>
<td>18</td>
<td>58%</td>
</tr>
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</table>

Monthly totals including losses waived by Power Services during over supply season.
Administrative Burden

- Current State Daily Process - ~1.4 FTE
  - Calculation Review
  - Obligations vs Actuals
  - Checkout & Carry Forward
- Software
  - Recurring maintenance of customized loss module
  - Application Regression Testing
- Management and resolution
  - Issues around changes in loss return elections
  - Uncollected/unreturned loss obligations
Administrative Burden

Workflow Process for Current State 168 Hour Loss Returns - does not include time estimates for software maintenance, testing, or resolution of periodic contract problems

<table>
<thead>
<tr>
<th>Calculate &amp; Verify Routine</th>
<th>Day Prior to Preschedule</th>
<th>Preschedule</th>
<th>Real Time</th>
<th>After-the-Fact</th>
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</thead>
<tbody>
<tr>
<td>BPA Transmission</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start</td>
<td>Calculate losses 30 Hrs/Mo</td>
<td>Post losses to CDE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loss Variance Report 20 Hrs/Mo</td>
<td>OASIS Validate ISR</td>
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<td></td>
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<tr>
<td></td>
<td>Remote Check 20 Hrs/Mo</td>
<td>F-Tag Validate Tag</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Unmatched Tag Check 20 Hrs/Mo</td>
<td>Check Schedule Against Obligation 20 Hrs/Mo</td>
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<td></td>
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<tr>
<td></td>
<td>Verify Loss Exemptions 20 Hrs/Mo</td>
<td>Daily Checkout w/Customers 20 Hrs/Mo</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No Error</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preschedule</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Real Time Schedule</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ATT EOM Calculation 40 Hrs/Mo</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carry Forward 20 Hrs/Mo</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 Hrs/Mo</td>
<td></td>
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</tbody>
</table>

BPA Transmission Total = 230 Hrs/Mo = 1.4 FTE

130 Hrs/Mo

BPA Power

Customer

Planning Runs (Forecasts Gen & Load)

Download Schedules from CDE

Create TIR

Create Tag

Modify Tag

Real Time Schedule

Preschedule

Real Time Schedule

Preschedule

Real Time Schedule

Apply to Slice R50 Test

OSM Management Loss Water/leakage 1 Hrs/Day

Download Schedules from CDE

Create TIR

Create Tag

Modify Tag

Real Time Schedule

Preschedule

Real Time Schedule

Preschedule

Real Time Schedule

Apply to Slice R50 Test

December 12, 2019

Pre-decisional. For Discussion Purposes Only.
Administrative Burden

Workflow Process for Current State 168 Hour Loss Returns – does not include time estimates:

- **Start**: Loss Reports Metered vs. Internal System
  - Calculate Losses 20 Hrs/Mo
  - Loss Variance Report 30 Hrs/Mo
  - Resale Check 30 Hrs/Mo
  - Unmatched Tag Check 30 Hrs/Mo
  - Verify Loss Exemptions 20 Hrs/Mo

- **Day Prior to Preschedule**
  - Post Losses to CDE

- **BPA Transmission**
  - Planning Runs
    - (Forecasts Gen & Load)
  - OSM Management
    - Loss Waiver in Spring
      - 1 HR/Day

- **BPA Power**
  - Download Schedules from CDE

- **Customer**

Total Administrative Burden: 130 Hrs/Mo
Administrative Burden
Administrative Burden
Software Maintenance/Testing

- FTE impacts not included on process diagram
  - App is prone to errors/software variances
  - App needs testing during monthly software upgrades even when not included.

- Financial
  - Monthly maintenance fee
Uncollected Obligations

- BPA engages customers when physical losses are not returned on time – this can be the result of:
  
  - A customer allowing its loss return agreement to lapse after repeated attempts from BPA to renew;
  - A PTP agreement expiring before a replacement agreement can be signed for a contract to be in place to bill losses against;
  - A generator returning losses in-kind ceases operation before an “in-kind” loss obligation is satisfied.
Consequences

- BPA Transmission AEs work with the BPA Power Services Trading Floor to make alternate arrangements to make BPA whole.
- Trading Floor performs a “lookback” to calculate the financial value of the losses.
- BPA Transmission AE executes a Letter Agreement allowing for the one-time financial settlement of losses.
- Customer is billed for losses.
- This process is labor intensive and takes all involved off task for a one-off solution.
  - In the last calendar, year we have had multiple instances which have required review, analysis and resolution.
  - These issues arise each year.