NorthWestern’s Transmission System

[Map of North Western's Transmission System]
Open Access
- FERC Order 890
  - Provides non-discriminatory access to all eligible customers

Total Transmission Capacity (TTC)
- Total designed and approved capacity

Available Transmission Capacity (ATC)
- Available capacity after considering commitments

Reliability – adequacy and security of the transmission system to operate properly under stressed conditions
The Basics about Transmission

What does the Transmission System Do?

- Provides interconnections to other systems for export and import
- Provides transmission paths from Designated Resources to Loads
  - Loads include NorthWestern’s retail customers
  - Loads include NorthWestern’s customers under the Open Access Transmission Tariff
- Resources may be internal or external to NorthWestern’s system
- Provides access (to a point) to the regional energy market
Why is a transmission discussion important?
- Transmission capacity is not unlimited
- Transmission to prevailing markets can become “congested”
- Transmission development, permitting and construction can be very difficult and very time consuming
- NorthWestern’s Transmission system has experienced congestion recently
- New, large loads on system
Interconnected System Paths - TTC
<table>
<thead>
<tr>
<th>Path 8</th>
<th>Export TTC</th>
<th>Export ATC</th>
<th>Import TTC</th>
<th>Import ATC</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW-MT to BPAT.NWMT</td>
<td>492</td>
<td>171</td>
<td>863</td>
<td>222</td>
</tr>
<tr>
<td>NW-MT to AVAT.NWMT</td>
<td>382</td>
<td>297</td>
<td>382</td>
<td>381</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Path 18</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTE to BRDY</td>
<td>296</td>
<td>6</td>
<td>184</td>
<td>59</td>
</tr>
<tr>
<td>NWMT.SYSTEM to JEFF</td>
<td>87</td>
<td>0</td>
<td>72</td>
<td>72</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Path 80</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NWMT.SYSTEM to MTSE</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>385</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Path 83</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GTFALLSNWMT to MATL.NWMT</td>
<td>325</td>
<td>46</td>
<td>300</td>
<td>196</td>
</tr>
</tbody>
</table>
Energy Supply Portfolio

- Retail load of about 765 aMW
  - (Choice load approximately 425 aMW)
- Peak retail load of about 1,200 MW
- Owned resources and on-system resources under long-term contract produced 665 aMW in 2017
- Peak capacity of our resources is about 800 MW
  - Deficit of 400+ MW
– BAA – Balancing Authority Area
– NSI – Net Scheduled Interchange
  • Negative number indicates import to BAA
– Total Transmission Capacity (TTC)
  • Total designed and approved capacity
– Available Transmission Capacity (ATC)
  • Available capacity after considering commitments.
– BPA – Bonneville Power Administration
June 30, 2018, BAA Load, NSI, Colstrip Generation, Total BA Wind, and BPAT ATC Vs. Time

Peak BA Load
1297 MW
Peak BA Load
1332 MW
August 10, 2018 BAA Load, NSI, Colstrip Generation, Total BA Wind, and BPAT ATC Vs. Time

Peak BA Load
1843 MW
– Import Capability from the most liquid market has been significantly stressed as shown in slides

– Causes included
  • Increasing peak loads (new peak BA load)
  • Reduced Montana dispatchable generation

– Concern about long-term generation reductions/retirements

– Significant reliance on market

– Long term generation resource planning

– Long term transmission planning