About NorthWestern

Montana Operations

Electric
- 353,600 customers
- 24,300 miles – transmission & distribution lines
- 895 MW of baseload power generation
- 105 MW of regulating services generation

Natural Gas
- 189,000 customers
- 7,200 miles of transmission and distribution pipeline
- 18 Bcf of gas storage capacity
- Owns 70 Bcf of proven natural gas reserves

South Dakota Operations

Electric
- 62,500 customers
- 3,500 miles – transmission & distribution lines
- 360 MW of power generation

Natural Gas
- 45,500 customers
- 1,655 miles of transmission and distribution pipeline

Nebraska Operations

Natural Gas
- 42,000 customers
- 750 miles of distribution pipeline

All data as of 12/31/2014
NorthWestern Energy serves 354,000 Montana electric customers in 187 communities, and provides essential infrastructure for electric cooperatives and other transmission customers.
Electric Transmission
Electric Transmission

- 97,540 + sq. mi. service territory
- Electric transmission operations (50-500 kilovolt)
  - Montana
    - 6,900 circuit miles
    - 53 substations
    - 326,000 customers
- Operate in two reliability councils – WECC and MRO
- Operates in both organized and vertically integrated SD (SPP) and unbundled (changing) markets in MT
- System Dispatch operations for gas and electric for all three states
- Montana balancing authority area (BAA) serves more than 3,600 MW of generation
• Colstrip 500-kV transmission system
• AMPS line
• Retail choice & non-NWE generation
• Generation > load within NWMT Balancing Authority Area; generally an exporting Balancing Authority (at least for now…)
• Large volume of transmission service requests: 1500 to 2000+ per week
• Open Access Transmission Tariff (OATT) differences from other Western utilities resulting from deregulation, IPPs, choice loads
WECC-Rated Paths

Reliability and Commercial Operations

Path 8
Montana-Northwest
2-500 kV lines
5-230 kV lines
3-115 kV lines

Path 18
Montana-Idaho
1-230 kV line
1-161 kV line

Path 80
Montana-Southeast
1-230 kV line
1-161 kV line

Path 83
MATL
1-230 kV line

WAPA Miles City DC Tie

DC Tie
150 MW

WAPA Miles City
200 MW

300 MW

300 MW

300 MW

1350 MW

256 MW

383 MW

600 MW

600 MW

Presented to Wind & Transmission Working Group
September 22, 2016
Latest trend - Solar applications for interconnection to Distribution system as Qualifying Facilities

FERC Open Access Transmission Tariff (OATT) Generation Interconnection

FERC Order 2003 and Order 2006 - Large and Small Generator Interconnection Procedures (LGIP/SGIP)

Boom and Bust...

Potential Montana Generation

Generation Interconnection Requests Per Year
• Application received along with deposit
  – This step is what establishes Queue position
• Scoping meeting held
• Study Work
  – Feasibility (may be bypassed)
  – System Impact
  – Facilities
• Generator Interconnection Agreement
<table>
<thead>
<tr>
<th></th>
<th>Small, Up to 20 MW</th>
<th>Large, Greater than 20 MW</th>
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<tbody>
<tr>
<td><strong>Feasibility</strong></td>
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<tr>
<td>Cost</td>
<td>$1,000</td>
<td>$10,000</td>
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<tr>
<td>Time duration</td>
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<td>45 Calendar days</td>
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<tr>
<td><strong>System Impact</strong></td>
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<td>Cost</td>
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<tr>
<td>Time duration</td>
<td>45 Business days</td>
<td>90 Calendar days</td>
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<tr>
<td><strong>Facilities</strong></td>
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<tr>
<td>Cost</td>
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</tr>
<tr>
<td>Time duration</td>
<td>45 Business days</td>
<td>90 to 180 Calendar days</td>
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</table>

Customer pays actual study costs and will be either reimbursed or invoiced, accordingly.
<table>
<thead>
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<th>Day</th>
<th>0</th>
<th>30</th>
<th>35</th>
<th>65</th>
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<th>406</th>
<th>421</th>
<th>451</th>
<th>466</th>
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<tbody>
<tr>
<td>Application submitted</td>
<td>Scoping Meeting (has to be scheduled within 10 days)</td>
<td>NWE tenders FEAS study agreement</td>
<td>Customer returns FEAS study agreement along with deposit</td>
<td>Customer completes study report</td>
<td>Results meeting on FEAS results</td>
<td>SIS study agreement to Customer</td>
<td>SIS study agreement returned along with deposit</td>
<td>Customer receives completed study report</td>
<td>Results meeting on SIS results</td>
<td>FAC study agreement sent to Customer</td>
<td>FAC agreement returned along with deposit</td>
<td>Customer receives completed Draft report, estimates accurate within 20%</td>
<td>Results meeting on FAC held</td>
<td>Customer responds with written comments to FAC report</td>
<td>Customer receives Final FAC draft report</td>
<td>Customer receives Final LGIA</td>
<td>Final LGIA</td>
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</tbody>
</table>

**Large Generator Interconnection Timeline**

**Presented to Wind & Transmission Working Group**

**September 22, 2016**
Public/Private

- Public: Project number, Date request received, Location, Type (Network or Energy), In-service date, available (scrubbed) studies
- Private: Project name and sponsor (until signed)

• 40 Active projects (unsigned, not yet in service)
  – 14 Wind, 26 Solar
• Approximately 140 MW of Solar, 2116 MW of Wind
• All projects and upgrades are funded by the Customer
• Customer gets reimbursed for Network upgrades over time (for online generation)
• Customer applies for long-term, firm Transmission Service with Transmission Services Department
  – FERC OATT and Business Practices on OASIS describe required information

• Transmission Services reviews application and works with Planning to ascertain if request can be accommodated with the system “as is” or if study is required
• Path 8 – Interconnections to BPA and Avista
  – ATC to BPAT.NWMT approximately = 158 MW
  – ATC to AVAT.NWMT approximately = 297 MW
• Path 18 – Interconnections to PAC
  – ATC to BRDY approximately = 6 MW
  – ATC to JEFF approximately = 0 MW
• Path 80 Interconnections to PAC and WAPA
  – ATC to Crossover (WAPA) approximately = 450 MW
  – ATC to Yellowtail (PAC) approximately = 400 MW
• www.oasis.oati.com/NWMT for current ATC
• Currently very little activity in the long-term, firm Transmission Service Queue
  – This has varied in the past 5 years, with the queue being very busy at times (hundreds of MW)
  – Currently the queue is empty to the NorthWest
  – Customers must have transmission service in neighboring transmission providers areas to move energy from NorthWestern
• Queue may include Network (load serving) or Point to Point (wheeling) request
• Ancillary Services to consider
  – System Balancing / Regulation
  – Contingency Reserves (3% of Generation and 3% of Load)
• NWMT OATT Firm Yearly Transmission Rate = $37,920 / MW-Year
  – Plus Scheduling fee (total coupled charge of $39,920 / MW-year)
  – Charge is based on capacity reserved

• Consider other Transmission Providers rates and requirements
  – Will need transmission service on systems from source to sink
• Very similar to GIA process
  – No Feasibility option
  – SIS is $10,000, 60 day study from start date
  – FAC is $30,000, 60 day study from start date
  – Customers pays actual study costs
• Studies available upon request once completed
• Transmission Service Agreement tendered upon completion of study process
• Requires upgrades to the Transmission System
  – Similar to GIA, can be Direct Assignment or Network Upgrades
• NorthWestern’s OATT has security requirements for resulting upgrades
• Resulting Transmission Cost could be higher than OATT embedded rate (Higher of Pricing structure)
Major Transmission Development Challenges
NWE Past Proposed Transmission Projects

- Collector System
- MSTI, 500 kV AC
  - Townsend to Midpoint substation, 1500 MW
    - Shelved in 2012, $24M write off
- Colstrip 500 kV Upgrade, $1.1M write off
• Large spinning mass, loss of which has many potential impacts, including:
  – Export capability/reductions
  – Local area voltage support
  – Loss of resource to Large Industrial Customers
  – Transfer capability through the South of Great Falls cut plane
  – Replacement generation and the issue of Inertia
  – Change in operation of Colstrip Transmission System
• Potential Colstrip Shutdown
  • What happens to that capacity?
  • Colstrip Transmission System
  • Montana Intertie
  • Puget/Talen

• Still No Clear Indication that Montana Wind will be competitive and valuable to out of State Interests
  • NorthWestern not interested in funding development – won’t “build and they will come”
  • Mechanisms under OATT for interested customers to fund through TSRs

• Siting Challenges are still present – may be worse
Delivering a bright future