MEMORANDUM

TO: Council Members  
FROM: Brian DeKiep, Montana Staff  
SUBJECT: Northern Grid Transmission.

BACKGROUND:

Presenter: Dave Angel and Chelsea Loomis

Summary:

Jurisdictional and non-jurisdictional entities have formed a single transmission planning association – NorthernGrid – that will facilitate regional transmission planning across the Pacific Northwest and Intermountain West. The association members executed a Planning Agreement that will provide the region with:

- One common set of data and assumptions
- More opportunities to identify regional transmission projects
- A single stakeholder forum
- Elimination of duplicative administrative processes

The members intend for NorthernGrid to facilitate compliance with FERC requirements (including Order Nos. 890 and 1000) for those utilities that are required (or elect) to comply with such requirements, including cost allocation, when applicable. After Federal Energy Regulatory Commission approval, NorthernGrid replaced ColumbiaGrid and Northern Tier Transmission Group which facilitate the compliance today.
The NorthernGrid members include Bonneville Power Administration, investor-owned utilities, and consumer-owned utilities located in California, Idaho, Montana, Oregon, Utah, Washington and Wyoming.


https://www.northerngrid.net/private-media/documents/2020.06.06.NG_Introduction.pdf
Topics

Introduction to NorthernGrid

2030 Data Submission

Regional Transmission Power Flows
Association of Members
Regional Transmission Process

- Work together to create a Regional Plan that “exceeds” a simple rollup of all the Local Area Plans

**Study Scope**
- Gather Data
- Develop Study Plan
- Economic Study requests submittal
- Cost Allocation submittal
- Interregional coordination

**Analysis**
- Perform Analysis
- Updated data in Q5
- Economic Study submittal/analysis
- Cost Allocation analysis
- Interregional coordination

**Report**
- Finalize Report
- Finalize Cost Allocation

A Regional Transmission Plan is not a Construction Plan
NorthernGrid Schedule of Deliverables

- **March 31, 2020**: Member Data Submission
- **April 30, 2020**: Stakeholder Data Submission
- **July 8, 2020**: Draft Study Scope
- **Sept. 8, 2020**: End– Stakeholder Project Submission
- **TBD**: Revised Draft Regional Transmission Plan
- **Dec. 31, 2021**: Final Regional Transmission Plan
- **Sept. 23, 2021**: Draft Final Regional Transmission Plan w/Cost Allocation

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**Dates for Deliverables**

- **March 31, 2020**: Member Data Submission
- **June 30, 2020**: Stakeholder Data Submission
- **July 8, 2020**: Draft Study Scope
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**Stakeholder Data Submission**

- **March 31, 2020**: Member Data Submission
- **June 30, 2020**: Stakeholder Data Submission
- **TBD**: Revised Draft Regional Transmission Plan
- **Sept. 23, 2021**: Draft Final Regional Transmission Plan w/Cost Allocation

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**Final Study Scope**

- **July 8, 2020**: Draft Study Scope
- **14 August 2020**: Final Study Scope
- **TBD**: Revised Draft Regional Transmission Plan
- **Sept. 23, 2021**: Draft Final Regional Transmission Plan w/Cost Allocation
NorthernGrid Subregions

• Pacific Northwest
• Intermountain
Summer Load

Annual Summer Load Growth and Peak Load
2024 - 2030

<table>
<thead>
<tr>
<th>Summer Peak Load</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 1,500 MW</td>
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<tr>
<td>1,501 - 2,200 MW</td>
<td></td>
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<tr>
<td>2,201 - 4,400 MW</td>
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<tr>
<td>&gt; 4,400 MW</td>
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</tbody>
</table>

Northern Grid

Annual Summer Load Growth
- Small Load Growth (<0.5%)
- Moderate Load Growth (0.5-1%)
- Significant Load Growth (>1%)
- Declining Load

Map showing load growth and peak load for different regions.
Winter Load

Annual Winter Load Growth and Peak Load
2024 - 2030

Winter Peak Load
- <= 2,000 MW
- 2,001 - 4,000 MW
- 4,001 - 7,400 MW
- > 7,400 MW

Northern Grid

Annual Winter Load Growth
- 0.0% - 0.5%
- 0.6% - 1.0%
- 1.1% - 1.8%
- Declining Load

NorthernGrid
2030 Resource Retirements

- Coal
- Natural Gas
- Wind

- NorthernGrid
- County with Resource Retirement

Numbers indicate total MW of retirement in the county.
2030 Resource Additions

- Hydro
- Natural Gas
- Nuclear
- Solar
- Storage
- Wind
- Wood Waste

Numbers indicate total MW of addition in the county.
2030 Member Transmission Projects

- Antelope 345 kV AC*
- Boardman to Hemingway 500 kV AC
- Gateway South 500 kV AC
- Gateway West 500 kV AC

NorthernGrid
2030 Regional and Interregional Projects

- Natural Gas
- Solar
- Wind
- Cascade Renewable 400 kV DC
- Cross-tie 500 kV AC
- Loco Falls 230kV AC
- SWIP North 500 kV
- Transwest Express 500 kV DC
- Transwest Express 500 kV AC

Northern Grid
Past, Present and Potential Future Flows
AC plus DC Intertie Daily Transfers

4/19/1998

4/19/2020

Northern Grid
AC plus DC Intertie Monthly Transfers

1998    2020

SouthernGrid
Northwest to British Columbia Daily Transfers

4/19/1998

4/19/2020
Northwest to British Columbia Daily Transfers

4/19/2020

4/19/2030
Northwest to British Columbia Monthly Transfers

1998

2020
Northwest to British Columbia Monthly Transfers

2020

NW to BC 2020

2030

Northwest to British Columbia 2030

January  February  March  April  May  June  July  August  September  October  November  December
Northwest to Montana Daily Transfers

4/19/1998

4/19/2020
Northwest to Montana Monthly Transfer

1998

2020

Montana to Northwest 1998

Montana to Northwest 2020

January, February, March, April, May, June, July, August, September, October, November, December
Northwest to Idaho Monthly Transfers

2020

2030

Idaho to Northwest 2020

Idaho to Northwest 2030

Northern Grid
Unpacking the 2030 Flows for Analysis
1) Heavy Summer Load
July 30th
Hour ending 16:00
2) Heavy Winter Load
December 19th
Hour ending 12:00
3) High Wyoming Wind Generation Output
February 1\textsuperscript{st} Hour ending 1:00
4) High Northwest to Idaho Transfer
July 20th
Hour ending 17:00
5) High Transfer Across Idaho September 29th Hour ending 1:00
6) High California to Northwest Transfer
March 10th
Hour ending 15:00
7) High West of Cascades Transfer
April 3rd
Hour ending 11:00
8) High Northwest Hydro
June 4th
Hour ending 18:00
Thank you!

Dave Angell
Vice President
Regional Transmission Activities
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