Heat Maps

Customer Discussion

September 15, 2020
BPA’s 2018–2023 STRATEGIC GOALS
Delivering on our public responsibilities through a commercially successful business

#1 STRENGTHEN FINANCIAL HEALTH

#2 MODERNIZE ASSETS & SYSTEM OPERATIONS

#3 PROVIDE COMPETITIVE POWER PRODUCTS & SERVICES

#4 MEET TRANSMISSION CUSTOMER NEEDS EFFICIENTLY & RESPONSIVELY

For Discussion Purposes Only
Agenda

- Agency Enterprise Portal Update
- Load Interconnection Capability Map
- Commercial Transmission Inventory Map
Agency Enterprise Portal (AEP) - Areas of Content

- Public Outreach
- Tariff
- Business Practices
- Enterprise Public Portal (bpa.gov)
- Customer Portal
- Contracts
- Bills
- Dispute resolution tracking
- Metering
- Load and Resource Forecasts
- Tx Inventory Map

Blue – Currently available, in first phase
Green – May be added at a later phase

* Examples of content posted on EPP and CP. This is not a comprehensive list.
Agency Enterprise Portal

• A new modern digital customer experience when accessing public and customer-specific information on BPA’s website.

• The first phase of updates will go live in 2021 with additional improvements planned in future phases.
Load Interconnection Capability Maps
System Assessments

1. Seattle / Tacoma
2. Portland
3. Vancouver
4. Salem
5. Eugene
6. Olympic Peninsula
7. Tri-Cities
8. Longview
9. Mid-Columbia
10. Central Oregon
11. SW Washington Coast
12. Spokane
13. Centralia / Chehalis
14. Northwest Montana
15. SE Idaho / NW Wyoming
16. North Idaho
17. North Oregon Coast
18. South Oregon Coast
19. Fossil / DeMoss
20. Okanogan
21. Hood River / The Dalles
22. Pendleton / La Grande
23. Walla Walla
24. Burley

For Discussion Purposes Only
Deep Dive Information – On Demand

What is a Deep Dive?
• Focused analysis on an area
• Determine availability for new interconnections
• Communication to customer

Deep Dive analysis includes:
• Load analysis: historical and forecasted
• Review of past projects completed and future projects planned
• Completed interconnection studies, annual system assessments and any additional studies
• Powerflow studies to identify existing system limits and then testing the performance of potential or future projects.
• Presenting the information to the customer
Load Interconnection Capability

• Provides access to on-demand area capability information to economic development boards and customers
• Transmission Planning has completed 13 deep dives to date
• Future: More granular, utility customer specific capability information in the Enterprise (Customer) Portal.
Area Deep Dives

Load Interconnection Capacity Map

Deep Dive Area
BPA 230kV and above facilities
Foreign 230kV and above facilities

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Redmond Import Summer Limits

Sample Information

As of 12/3/19
Subject to Change

Main Grid Redmond Import Capacity 1145 MW

- Historic Peak Load 544 MW
- Aggressive Growth (9%) 1111 MW
- Forecasted Growth (4%) 768 MW
- System Average Growth (1.5%) 641 MW

For Discussion Purposes Only
Commercial Transmission Inventory Map Pilot

Customer Discussion
September 15, 2020
Today’s Tools and Reports

• Customer Tools and Reports.

Long-Term Availability Transfer Capability
  ★ ATC, AFC and Conditional Firm Inventory
  ★ AFC/ATC Less Pending Queued Request Inventory
  Contract Points List
  Long-Term Pending Queue
  ★ Long-Term Original PTDF Calculator
  Long-Term Redirect PTDF Calculator
  Long-Term Power Transfer Distribution Factors (PTDF) Table
  Transmission Reservation & Available Transfer Capability (ATC) Analysis Request
BPA’s Objectives

- Provide customers with a more intuitive inventory tool that will:
  - Inform customers about the potential impact their request may have on the transmission system.
  - Provide customers with preliminary flowgate information about the transmission systems ability to fulfil their long-term firm request.
  - Assist customers with making a decision to submit a formal request for service.
    - Help customers identify the potential need to request a study for Conditional Firm service.
    - Provide insight that a request may be sent to cluster study.
### Pilot – Commercial Transmission Inventory Map

**Evaluated Source:**
- Zone: Southeast Washington
- Owner Name: Bonneville Power Admin

**Evaluated Sink:**
- Zone: Portland Area
- Owner Name: Bonneville Power Admin

**Request MW:** 100

<table>
<thead>
<tr>
<th>Flowgate</th>
<th>Source</th>
<th>Sink</th>
<th>% Impact</th>
<th>MW Impact</th>
<th>Result</th>
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<tr>
<td>CROSS CASCADES NORTH E&gt;W</td>
<td>-0.1582</td>
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<td>WEST OF MCNARY E&gt;W</td>
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<td>Cluster Study Likely</td>
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**PTDF #:** 40621 40824
Prototype – The “Map”

Flow Scenario: Worst Case
MW Impact: Yes
Source: LAGRAND230
Sink: PEARL230
MW: 100

Legend

Impact Check Score
- Pass (Inventory may be available or de minimis flow)
- Fail, but CF may be available
- Fail, and CF not available

Available Inventory Ranking
- Max Inventory Available
- Zero Inventory Available
- Inventory Unavailable

For Discussion Purposes Only
The Basic Logic

Commercial Transmission Inventory Evaluation Map – Flowgate Check

Input Criteria
- Source
- Sink
- Demand MW

A
Check De Minimis Rule
- If either is true then Firm inventory is available,
  - If PTDF % <= 10%, AND
  - If PTDF MW <= 10 MW = PASS
- Otherwise;
  - If PTDF % > 10% = Fail (Go to B), OR;
  - If PTDF MW > 10 MW = FAIL (Go to B).

B
Check LTF Inventory
- If PTDF MW <= Needs Assessment Results = Pass
- Otherwise if PTDF MW >= Needs Assessment Results = Fail (Go to C)

C
Check CF Capability
- If PTDF MWs <= All Year in CF Inventory = Pass
- Otherwise if PTDF > Any Month CF Inventory = Fail

For Discussion Purposes Only
Inventory in the Map

• Long-term Firm Inventory
  – Is a flow based estimate of the amount of available inventory.
    • It is power flow inventory from the last completed Needs Assessment, in support of the TSEP Cluster Study.
  – The available inventory accounts for firm transmission rights, bridge conditional firm, and queued TSRs previously studied as part of a Cluster Study and waiting for energization of a plan of service.
  – It does not account for TSRs in the queue that have not participated in a completed Cluster Study.
  – A negative number is a lack of inventory due to the impact of higher queued requests.

• BPA’s Conditional Firm Inventory is derived from the analysis of actual historical flows against TTCs during constrained periods.
Disclaimers

- The results are based on information provided by the user at the time of the assessment and are for information purposes only.
- BPA is not responsible for any decisions made by the user based on the information provided by the Map.
- Results may vary due a variety of factors including but not limited to: changes in system topology, changes in the long-term queue, sub-grid constraints, and actual points used to evaluate a TSR at time of submittal.
- The information provided at the time of assessment is subject to change without notice.
- The map cannot be used to accurately calculate impacts of Short-Term Firm TSRs or requirements for Generation Interconnection.
Customer’s Next Step

Customer Decisions
- Reevaluate
- What-If
- TSR

BPA Process
- PTDF-Based Evaluation
- Sub-Grid Assessment
- PTDF- Based Evaluation
- Study- Based Analysis

Results to Customer
- Findings Report
- Offer Service
- Recommend Cluster Study

For Discussion Purposes Only
Concept for Transmission Inventory
• Load Interconnection Capability Map: https://www.bpa.gov/transmission/Doing%20Business/Interconnection/LoadInterconnectionCapability/Pages/default.aspx

• Commercial Inventory Map: https://www.bpa.gov/transmission/Reports/TransmissionAvailability/Documents/tx-inventory-map.xlsx
Additional Comments & Feedback

• Load Interconnection Capability Map
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  – Subject Load Interconnection Capability Map

• Commercial Inventory Map
  – tblresdesk@bpa.gov
  – Subject Commercial Inventory Map