BONNEVILLE POWER ADMINISTRATION

# Instructions for Inventory Maps

**Updated: January 20, 2021**

**Purpose**

There are two inventory evaluation maps for customer use. One is the Long-Term Original Map and the other is the Long-Term Redirect Map (Maps). Both may be used to determine the potential impacts of a Long-Term Firm (LTF) Point-to-Point (PTP) or Network Integration (NT) Transmission Service Request (TSR) on internal paths within BPA's Transmission System. They cannot be used to accurately calculate impacts of Short-Term Firm TSRs or requirements for Generation Interconnection. The Maps are designed to provide a visual display of the commercial transmission assessment based on the user's selected Source and Sink combinations, associated Source/Sink Power Transfer Distribution Factors (PTDF), and the requested demand (MW).

Available inventory used to evaluate the request is based on the last completed Needs Assessment, in support of the TSEP Cluster Study. Available inventory does not include TSRs in study status that have not participated in a completed Cluster Study. BPA's Conditional Firm Inventory is derived from the analysis of actual historical flows against TTCs during constrained periods.

Users will be unable to use FCRPS as the Evaluated POR (Source) or Evaluated POD (Sink) for LTF PTP requests.

Please note that these tools cannot be used to accurately determine the calculated impact of Short-Term Firm (STF) requests. Refer to the posted Short –Term Firm PTDF Calculator for information on impacts of STF requests.

**Important Disclaimer:** Use of and access to the Maps are subject to this disclaimer. The Maps are provided for informational purposes only. The results are based on information provided by the user at the time of the assessment and should not be construed as any form of advice. BPA is not responsible for any decisions made by the user based on the information provided by the Maps. ***Results may vary due to 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. In exchange for using the Maps, the user agrees that errors, omissions, or changes in the information in the Maps, and any decision made based on information or other content made available through the Maps, will not be made the basis for any claim, demand or cause for action.

For additional questions and comments, or to request a more exact analysis, contact your BPA Transmission Services Account Executive or the Reservation Desk at tblresdesk@bpa.gov.

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# How to Use the Calculator Tab

## Fields for Customer to Populate:

Populate all cream colored fields starting with the Sources/PORs and Sinks/PODs. For purposes of the Maps the Source and Sink are the available OASIS scheduling points (PORs/PODs) plus available Sources/Sinks. For a redirect request select the Source and Sink for both the Child TSR Points and the Parent TSR Points. Note: The Maps do not do path validation. Path validation is conducted when a transmission service request is submitted on OASIS. Next, input the MWs of the transmission service request. Press 'Enter' to calculate the results.

**Long-Term Original Map:**

| | | Zone | kV | Owner Name |
|---|---|---|---|---|
| Evaluated Source | WASCO | Lower Columbia Basin | 69 | Bonneville Power Admin |
| Evaluated Sink | PEARL230 | Portland Area | 230 | Bonneville Power Admin |
| Request MW | 100 | | | |

**Long-Term Redirect Map:**

Redirect To (Child TSR Points)

Child Evaluated Source: JNSCNYN230PAC

Child Evaluated Sink: PSEI_STHCNTGS

Demand: 100

| Redirect To (Child TSR Points) | | |
|---|---|---|
| Zone | kV | Owner Name |
| Lower Columbia Basin | 230 | Bonneville Power Admin |
| THURSTN | 230 | Puget Sound Energy |

Redirect From (Parent TSR Points)

Parent Evaluated Source: JNSCNYN230PAC

Parent Evaluated Sink: SEATTLECNTGS

| Redirect From (Parent TSR Points) | | |
|---|---|---|
| Zone | kV | Owner Name |
| Lower Columbia Basin | 230 | Bonneville Power Admin |
| Seattle Area, Olympic Peninsula | 230 | Bonneville Power Admin |

## Determining the PTDF Impacts:

The calculator identifies the PTDF value for the selected Source(s) and Sink(s) plus the MW impact of the request for each flowgate. The Long-Term Original Map also shows the percentage impact.

**Long-Term Original Map:**

| PTDF #: | 40341 | 40824 | | | |
|---|---|---|---|---|---|
| Flowgate | Source | Sink | % Impact | MW Impact | Result |
| CROSS CASCADES NORTH E>W | -0.1968 | -0.3190 | 12.2% | 12.2 | Potential CF |
| CROSS CASCADES SOUTH E>W | 0.1511 | -0.6233 | 77.4% | 77.4 | Potential LTF |
| NORTH OF HANFORD N>S | -0.5685 | -0.4832 | -8.5% | 0.0 | Potential LTF |
| NORTH OF JOHN DAY N>S | -0.7694 | -0.7603 | -0.9% | 0.0 | Potential LTF |
| PAUL TO ALLSTON N>S | -0.1597 | -0.2652 | 10.6% | 10.6 | Potential LTF |
| RAVER TO PAUL N>S | -0.1268 | -0.2103 | 8.4% | 8.4 | Potential LTF |
| SOUTH OF ALLSTON N>S | -0.1976 | -0.3266 | 12.9% | 12.9 | Potential CF |
| WEST OF JOHN DAY E>W | -0.4262 | -0.2059 | -22.0% | 0.0 | Potential LTF |
| WEST OF SLATT E>W | -0.1681 | -0.1424 | -2.6% | 0.0 | Potential LTF |
| WEST OF LOWER MONUMENTAL E>W | -0.0731 | -0.0652 | -0.8% | 0.0 | Potential LTF |
| SOUTH OF CUSTER N>S | 0.0003 | -0.0039 | 0.4% | 0.4 | Potential LTF |
| NORTH OF ECHO LAKE S>N | 0.0350 | 0.0385 | -0.4% | 0.0 | Potential LTF |
| WEST OF MCNARY E>W | -0.1538 | -0.1250 | -2.9% | 0.0 | Potential LTF |
| WEST OF HATWAI E>W | 0.0434 | 0.0430 | 0.0% | 0.0 | Potential LTF |

**Long-Term Redirect Map:**

| PTDF #: | 47814 | 42802 | | PTDF #: | 47814 | 40303 | | |
|---|---|---|---|---|---|---|---|---|
| Flowgate | Child Source: JNSCNYN230PAC | Child Sink: PSEI_STHCNTGS | Child Impact | | Parent Source: JNSCNYN230PAC | Parent Sink: SEATTLECNTGS | Parent Impact | Net Impact |
| CROSS CASCADES NORTH E>W | -0.1476 | -0.7378 | 59.0200 | | -0.1476 | -0.8983 | 75.0700 | 0.0000 |
| CROSS CASCADES SOUTH E>W | 0.1580 | -0.2325 | 39.0500 | | 0.1580 | -0.0819 | 23.9900 | 15.0600 |
| NORTH OF HANFORD N>S | -0.6090 | -0.1689 | 0.0000 | | -0.6090 | -0.0374 | 0.0000 | 0.0000 |
| NORTH OF JOHN DAY N>S | -0.7582 | -0.4531 | 0.0000 | | -0.7582 | -0.0315 | 0.0000 | 0.0000 |
| PAUL TO ALLSTON N>S | -0.1178 | 0.1943 | 0.0000 | | -0.1178 | 0.0658 | 0.0000 | 0.0000 |
| RAVER TO PAUL N>S | -0.0926 | -0.2472 | 15.4600 | | -0.0926 | 0.0373 | 0.0000 | 15.4600 |
| SOUTH OF ALLSTON N>S | -0.1461 | 0.2564 | 0.0000 | | -0.1461 | 0.0912 | 0.0000 | 0.0000 |
| WEST OF JOHN DAY E>W | 0.0773 | -0.0755 | 15.2800 | | 0.0773 | -0.0298 | 10.7100 | 4.5700 |
| WEST OF SLATT E>W | 0.0506 | -0.0524 | 10.3000 | | 0.0506 | -0.0218 | 7.2400 | 10.3000 |
| WEST OF LOWER MONUMENTAL E>W | -0.0677 | -0.0377 | 0.0000 | | -0.0677 | -0.0324 | 0.0000 | 0.0000 |
| SOUTH OF CUSTER N>S | 0.0028 | -0.0043 | 0.7100 | | 0.0028 | -0.0065 | 0.9300 | 0.0000 |
| NORTH OF ECHO LAKE S>N | 0.0372 | 0.0048 | 3.2400 | | 0.0372 | -0.0535 | 9.0700 | 0.0000 |
| WEST OF MCNARY E>W | 0.5959 | -0.0540 | 64.9900 | | 0.5959 | -0.0237 | 61.9600 | 3.0300 |
| WEST OF HATWAI E>W | 0.0351 | 0.0224 | 1.2700 | | 0.0351 | 0.0188 | 1.6300 | 0.0000 |

The Long-Term Redirect Map has an extra step to determine the impact of a request on a Flowgate. For the impact of a redirect request the Parent Impact must be netted from the Child Impact. The Netted impact for each Flowgate is shown in MWs.

**Long-Term Redirect Map:**

| PTDF #: | 47814 | 42802 | | PTDF #: | 47814 | 40303 | | |
|---|---|---|---|---|---|---|---|---|
| Flowgate | Child Source: JNSCNYN230PAC | Child Sink: PSEI_STHCNTGS | Child Impact | | Parent Source: JNSCNYN230PAC | Parent Sink: SEATTLECNTGS | Parent Impact | Net Impact |
| CROSS CASCADES NORTH E>W | -0.1476 | -0.7378 | 59.0200 | | -0.1476 | -0.8983 | 75.0700 | 0.0000 |
| CROSS CASCADES SOUTH E>W | 0.1580 | -0.2325 | 39.0500 | | 0.1580 | -0.0819 | 23.9900 | 15.0600 |
| NORTH OF HANFORD N>S | -0.6090 | -0.1689 | 0.0000 | | -0.6090 | -0.0374 | 0.0000 | 0.0000 |
| NORTH OF JOHN DAY N>S | -0.7582 | -0.4531 | 0.0000 | | -0.7582 | -0.0315 | 0.0000 | 0.0000 |
| PAUL TO ALLSTON N>S | -0.1178 | 0.1943 | 0.0000 | | -0.1178 | 0.0658 | 0.0000 | 0.0000 |
| RAVER TO PAUL N>S | -0.0926 | -0.2472 | 15.4600 | | -0.0926 | 0.0373 | 0.0000 | 15.4600 |
| SOUTH OF ALLSTON N>S | -0.1461 | 0.2564 | 0.0000 | | -0.1461 | 0.0912 | 0.0000 | 0.0000 |
| WEST OF JOHN DAY E>W | 0.0773 | -0.0755 | 15.2800 | | 0.0773 | -0.0298 | 10.7100 | 4.5700 |
| WEST OF SLATT E>W | 0.0506 | -0.0524 | 10.3000 | | 0.0506 | -0.0218 | 7.2400 | 10.3000 |
| WEST OF LOWER MONUMENTAL E>W | -0.0677 | -0.0377 | 0.0000 | | -0.0677 | -0.0324 | 0.0000 | 0.0000 |
| SOUTH OF CUSTER N>S | 0.0028 | -0.0043 | 0.7100 | | 0.0028 | -0.0065 | 0.9300 | 0.0000 |
| NORTH OF ECHO LAKE S>N | 0.0372 | 0.0048 | 3.2400 | | 0.0372 | -0.0535 | 9.0700 | 0.0000 |
| WEST OF MCNARY E>W | 0.5959 | -0.0540 | 64.9900 | | 0.5959 | -0.0237 | 61.9600 | 3.0300 |
| WEST OF HATWAI E>W | 0.0351 | 0.0224 | 1.2700 | | 0.0351 | 0.0188 | 1.6300 | 0.0000 |

## Results of the PTDF Impact:

The calculators estimates the service potential for each flowgate if this were to be submitted as a TSR to BPA's Reservation Desk. Results are:

- *Potential LTF (Green)* - Higher likelihood of Long-term Firm (LTF) service being available on this flowgate.
- *No Impact (Green)* – Redirect Calculator Only – The redirect request has no PTDF impact on the flowgate after netting the parent impact from the child impact.
- *Potential CF (Orange)* – Low likelihood of LTF service being available but there is a possibility of Conditional Firm (CF) service being available on this flowgate after participating in a Cluster Study or an Individual Study.
- *Cluster Study Likely (Red)* - Low likelihood for any available long term service on this flowgate therefore participating in a Cluster Study will likely be necessary to understand the impact of the request across the flowgate.

**Long-Term Original Map:**

| PTDF #: | 40341 | 40824 | | | |
|---|---|---|---|---|---|
| Flowgate | Source | Sink | % Impact | MW Impact | Result |
| CROSS CASCADES NORTH E>W | -0.1968 | -0.3190 | 12.2% | 122.2 | Potential CF |
| CROSS CASCADES SOUTH E>W | 0.1511 | -0.6233 | 77.4% | 774.4 | Potential CF |
| NORTH OF HANFORD N>S | -0.5685 | -0.4832 | -8.5% | 0.0 | Potential LTF |
| NORTH OF JOHN DAY N>S | -0.7694 | -0.7603 | -0.9% | 0.0 | Potential LTF |
| PAUL TO ALLSTON N>S | -0.1597 | -0.2652 | 10.6% | 105.5 | Potential LTF |
| RAVER TO PAUL N>S | -0.1268 | -0.2103 | 8.4% | 83.5 | Potential LTF |
| SOUTH OF ALLSTON N>S | -0.1976 | -0.3266 | 12.9% | 129.0 | Cluster Study Likely |
| WEST OF JOHN DAY E>W | -0.4262 | -0.2059 | -22.0% | 0.0 | Potential LTF |
| WEST OF SLATT E>W | -0.1681 | -0.1424 | -2.6% | 0.0 | Potential LTF |
| WEST OF LOWER MONUMENTAL E>W | -0.0731 | -0.0652 | -0.8% | 0.0 | Potential LTF |
| SOUTH OF CUSTER N>S | 0.0003 | -0.0039 | 0.4% | 4.2 | Potential LTF |
| NORTH OF ECHO LAKE S>N | 0.0350 | 0.0385 | -0.4% | 0.0 | Potential LTF |
| WEST OF MCNARY E>W | -0.1538 | -0.1250 | -2.9% | 0.0 | Potential LTF |
| WEST OF HATWAI E>W | 0.0434 | 0.0430 | 0.0% | 0.4 | Potential LTF |

**Long-Term Redirect Map:**

| Flowgate | Child Source: JNSCNYN230PAC | Child Sink: PSEI_STHCN | Parent Sink: SEATTLECNTGS | Parent Impact | Net Impact | Result |
|---|---|---|---|---|---|---|
| CROSS CASCADES NORTH E>W | -0.1476 | | -0.8983 | 75.0700 | 0.0000 | No Impact |
| CROSS CASCADES SOUTH E>W | 0.1580 | | -0.0819 | 23.9900 | 15.0600 | Potential CF |
| NORTH OF HANFORD N>S | -0.6090 | | -0.0374 | 0.0000 | 0.0000 | No Impact |
| NORTH OF JOHN DAY N>S | -0.7582 | | -0.0315 | 0.0000 | 0.0000 | No Impact |
| PAUL TO ALLSTON N>S | -0.1178 | | 0.0658 | 0.0000 | 0.0000 | No Impact |
| RAVER TO PAUL N>S | -0.0926 | | 0.0373 | 0.0000 | 15.4600 | Potential CF |
| SOUTH OF ALLSTON N>S | -0.1461 | | 0.0912 | 0.0000 | 0.0000 | No Impact |
| WEST OF JOHN DAY E>W | 0.0773 | | -0.0298 | 10.7100 | 4.5700 | Potential LTF |
| WEST OF SLATT E>W | 0.0506 | | -0.0218 | 7.2400 | 10.3000 | Potential LTF |
| WEST OF LOWER MONUMENTAL E>W | -0.0677 | | -0.0324 | 0.0000 | 0.0000 | No Impact |
| SOUTH OF CUSTER N>S | 0.0028 | | -0.0065 | 0.9300 | 0.0000 | No Impact |
| NORTH OF ECHO LAKE S>N | 0.0372 | | -0.0535 | 9.0700 | 0.0000 | No Impact |
| WEST OF MCNARY E>W | 0.5959 | | -0.0237 | 61.9600 | 3.0300 | Potential LTF |
| WEST OF HATWAI E>W | 0.0351 | | 0.0188 | 1.6300 | 0.0000 | No Impact |

The individual flowgate results need to be analyzed together to understand the single transmission service request:

- If any flowgate result is 'Cluster Study Likely' then there is a low likelihood the request will receive service without participation in a cluster study.
- If one or more flowgate results is 'Potential CF' then there is a high likelihood the request will have CF conditions associated with the identified flowgates after participating in a Cluster Study or an Individual Study.
- If all flowgate results are Potential LTF then there is a higher likelihood to be granted Long-term Firm Point to Point Service subject to additional analysis for changes in system topology, changes in the long-term queue, sub-grid, and other possible limitations.
- Results are not a guarantee of service just as there is no guarantee service is not available. For official results customers must submit their request on OASIS in accordance with BPA Transmission Service's Requesting Transmission Service business practice.

**De Minimis Flags:** There are different de Minimis rules for an original request and for a redirect request. In the Long-Term Original Map the yellow highlighted cells in the MW Impact column means the request may have a de Minimis impact on the flowgate. That is an impact less than 10 MW and less than 10%.

| PTDF #: | 40341 | 40824 | | | |
|---|---|---|---|---|---|
| Flowgate | Source | Sink | % Impact | MW Impact | Result |
| CROSS CASCADES NORTH E>W | -0.1968 | -0.3190 | 12.2% | 12.2 | Potential CF |
| CROSS CASCADES SOUTH E>W | 0.1511 | -0.6233 | 77.4% | 77.4 | Potential LTF |
| NORTH OF HANFORD N>S | -0.5685 | -0.4832 | -8.5% | 0.0 | Potential LTF |
| NORTH OF JOHN DAY N>S | -0.7694 | -0.7603 | -0.9% | 0.0 | Potential LTF |
| PAUL TO ALLSTON N>S | -0.1597 | -0.2652 | 10.6% | 10.6 | Potential LTF |
| RAVER TO PAUL N>S | -0.1268 | -0.2103 | 8.4% | 8.4 | Potential LTF |
| SOUTH OF ALLSTON N>S | -0.1976 | -0.3266 | 12.9% | 12.9 | Potential CF |
| WEST OF JOHN DAY E>W | -0.4262 | -0.2059 | -22.0% | 0.0 | Potential LTF |
| WEST OF SLATT E>W | -0.1681 | -0.1424 | -2.6% | 0.0 | Potential LTF |
| WEST OF LOWER MONUMENTAL E>W | -0.0731 | -0.0652 | -0.8% | 0.0 | Potential LTF |
| SOUTH OF CUSTER N>S | 0.0003 | -0.0039 | 0.4% | 0.4 | Potential LTF |
| NORTH OF ECHO LAKE S>N | 0.0350 | 0.0385 | -0.4% | 0.0 | Potential LTF |
| WEST OF MCNARY E>W | -0.1538 | -0.1250 | -2.9% | 0.0 | Potential LTF |
| WEST OF HATWAI E>W | 0.0434 | 0.0430 | 0.0% | 0.0 | Potential LTF |

In the Long-Term Redirect Map, a yellow highlight in the Parent Impact, Child Impact, or Net Impact column means the impact passed de Minimis test #1. A blue highlight in the Net Impact column means the Net Impact passed de Minimis test #2. A yellow/blue gradient highlight in the Net Impact column means the Net Impact passed both de Minimis tests #1 and #2.

**Long-Term Redirect Map:**

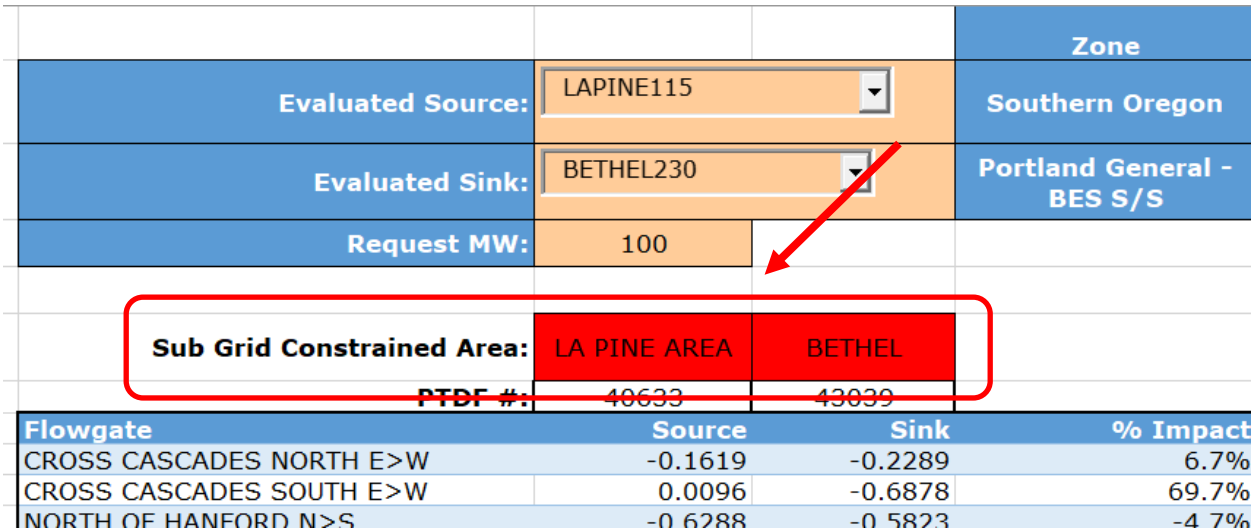
| PTDF #: | | PTDF #: | 47814 | 40303 | | |
|---|---|---|---|---|---|---|
| Flowgate | Cl J | Child Impact | Parent Source: JNSCNYN230PAC | Parent Sink: SEATTLECNTGS | Parent Impact | Net Impact |
| CROSS CASCADES NORTH E>W | 78 | 59.0200 | -0.1476 | -0.8983 | 75.0700 | 0.0000 |
| CROSS CASCADES SOUTH E>W | 25 | 39.0500 | 0.1580 | -0.0819 | 23.9900 | 15.0600 |
| NORTH OF HANFORD N>S | 9 | 0.0000 | -0.6090 | -0.0374 | 0.0000 | 0.0000 |
| NORTH OF JOHN DAY N>S | 31 | 0.0000 | -0.7582 | -0.0315 | 0.0000 | 0.0000 |
| PAUL TO ALLSTON N>S | 43 | 0.0000 | -0.1178 | 0.0658 | 0.0000 | 0.0000 |
| RAVER TO PAUL N>S | 2 | 15.4600 | -0.0926 | 0.0373 | 0.0000 | 15.4600 |
| SOUTH OF ALLSTON N>S | 4 | 0.0000 | -0.1461 | 0.0912 | 0.0000 | 0.0000 |
| WEST OF JOHN DAY E>W | 55 | 15.2800 | 0.0773 | -0.0298 | 10.7100 | 4.5700 |
| WEST OF SLATT E>W | 4 | 10.3000 | 0.0506 | -0.0218 | 7.2400 | 10.3000 |
| WEST OF LOWER MONUMENTAL E>W | 7 | 0.0000 | -0.0677 | -0.0324 | 0.0000 | 0.0000 |
| SOUTH OF CUSTER N>S | 43 | 0.7100 | 0.0028 | -0.0065 | 0.9300 | 0.0000 |
| NORTH OF ECHO LAKE S>N | 48 | 3.2400 | 0.0372 | -0.0535 | 9.0700 | 0.0000 |
| WEST OF MCNARY E>W | 0 | 64.9900 | 0.5959 | -0.0237 | 61.9600 | 3.0300 |
| WEST OF HATWAI E>W | 24 | 1.2700 | 0.0351 | 0.0138 | 1.6300 | 0.0000 |

See the [De Minimis Impact Dead-band For Network Flowgates] for more on the de Minimis rules.

## Sub Grid Constrained Area:

When the Evaluated Source or Sink selected is a known Sub Grid constraint the Map tools will identify the constrained area and highlight the constraint in red. In the case of a Redirect request, typically the Parent brings the sub grid with it therefore the child (needing the same sub grid) can be awarded if all other impacts pass.

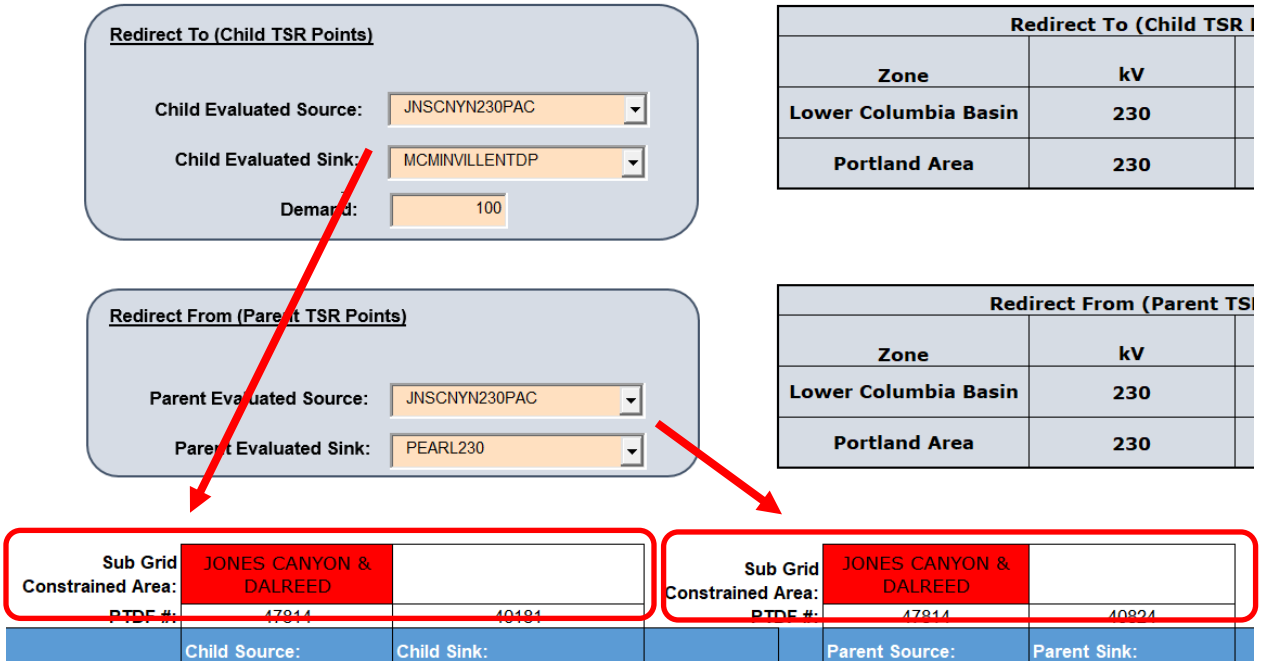
**Long-Term Original Map:**



| | | Zone |
|---|---|---|
| Evaluated Source: | LAPINE115 | Southern Oregon |
| Evaluated Sink: | BETHEL230 | Portland General - BES S/S |
| Request MW: | 100 | |
| Sub Grid Constrained Area: | LA PINE AREA | BETHEL |
| PTDF #: | 40633 | 43039 |

| Flowgate | Source | Sink | % Impact |
|---|---|---|---|
| CROSS CASCADES NORTH E>W | -0.1619 | -0.2289 | 6.7% |
| CROSS CASCADES SOUTH E>W | 0.0096 | -0.6878 | 69.7% |
| NORTH OF HANFORD N>S | -0.6288 | -0.5823 | -4.7% |

**Long-Term Redirect Map:**



Redirect To (Child TSR Points)

Child Evaluated Source: JNSCNYN230PAC

Child Evaluated Sink: MCMINVILLENTDP

Demand: 100

| Redirect To (Child TSR | |
|---|---|
| Zone | kV |
| Lower Columbia Basin | 230 |
| Portland Area | 230 |

Redirect From (Parent TSR Points)

Parent Evaluated Source: JNSCNYN230PAC

Parent Evaluated Sink: PEARL230

| Redirect From (Parent TSI | |
|---|---|
| Zone | kV |
| Lower Columbia Basin | 230 |
| Portland Area | 230 |

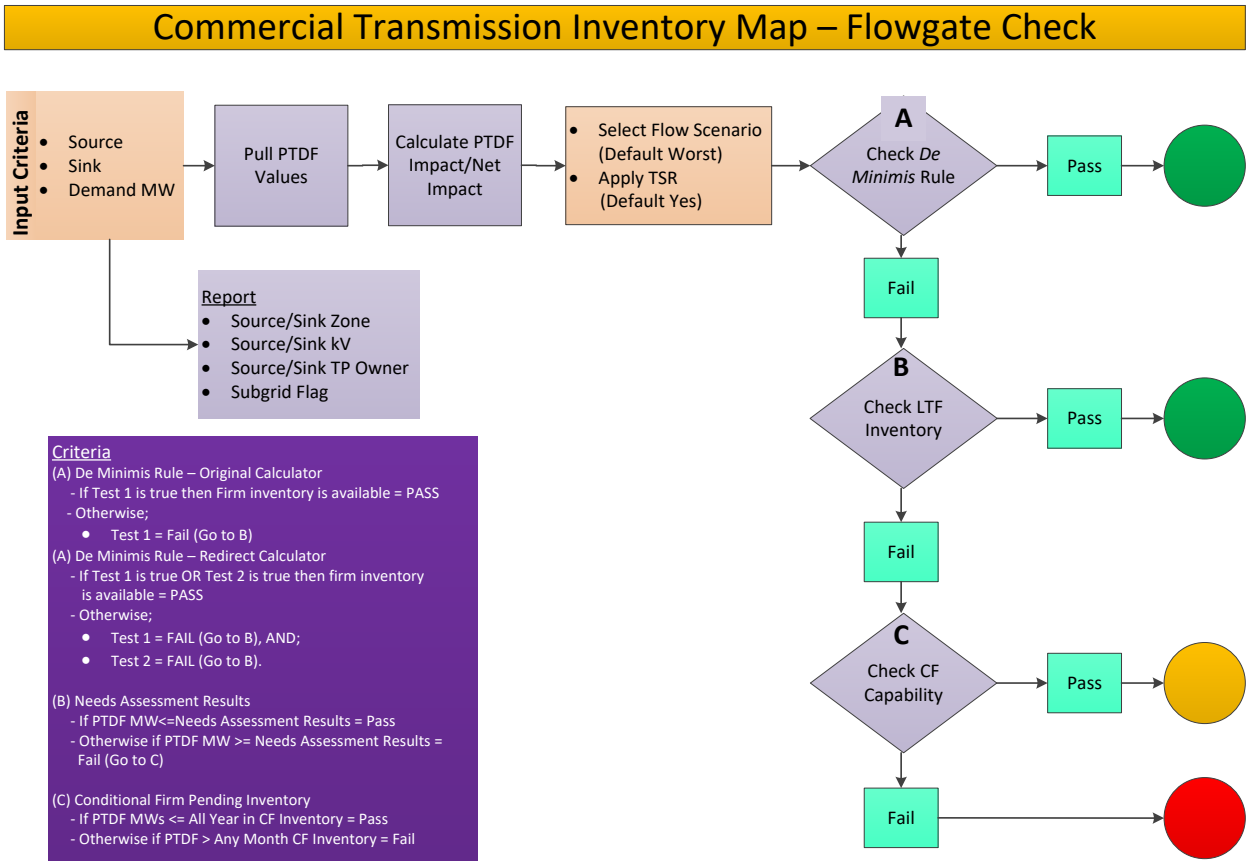
| | | | | | | |
|---|---|---|---|---|---|---|
| Sub Grid Constrained Area: | JONES CANYON & DALREED | | | Sub Grid Constrained Area: | JONES CANYON & DALREED | |
| PTDF #: | 47814 | 40181 | | PTDF #: | 47814 | 40824 |
| | Child Source: | Child Sink: | | | Parent Source: | Parent Sink: |

## Printing Results:

To keep a copy of the results for future reference the Calculator tab can be printed.

## Overview of Map Logic:

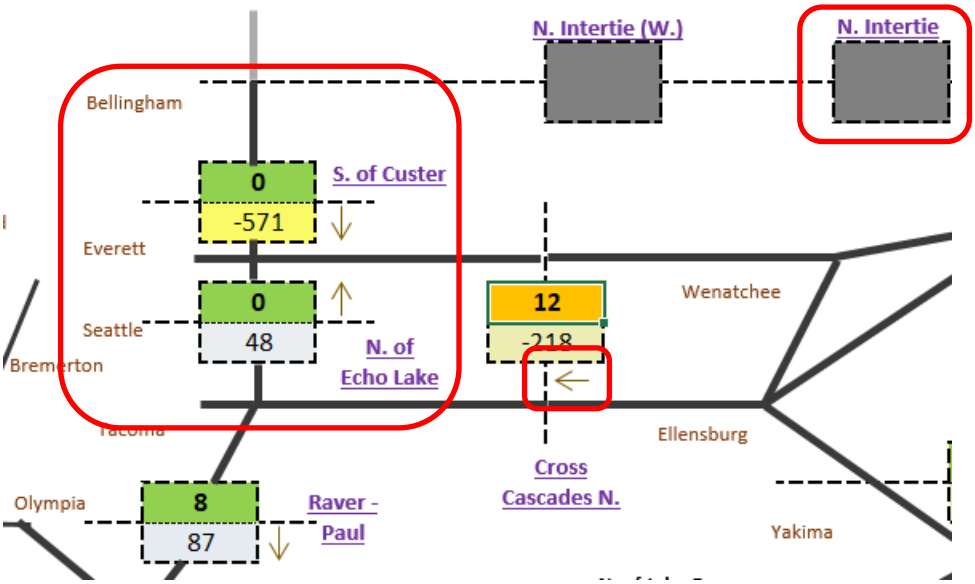
The chart below illustrates the steps the Maps go through to determine the results for each flowgate. The tan boxes are the customer inputs and calculation of PTDF values and PTDF Impacts. The Purple diamonds are the inventory checks. The blue box to the left has the description for each inventory check. The green, orange, red circles on the right are the color scoring (Results) that the Impact has on each flowgate for each test.



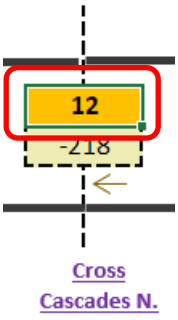
# How to Use the Map Tab

## Flowgate Information:

This tab shows the results of the request from the Calculator tab. The boxes are the constrained paths of BPA's Transmission System in a rough geographical representation. Black boxes are BPA's external paths and interties. Arrows indicate the direction of constrained flows. There is a legend to the right of the map.

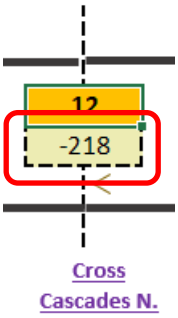



The top half of the flowgate boxes is the MW impact of the request from the Original Calculator tab or the Net Impact of the request from the Redirect Calculator tab if using the Long-Term Redirect Calculator. The colors are the same as the results column also from the Calculator tab.

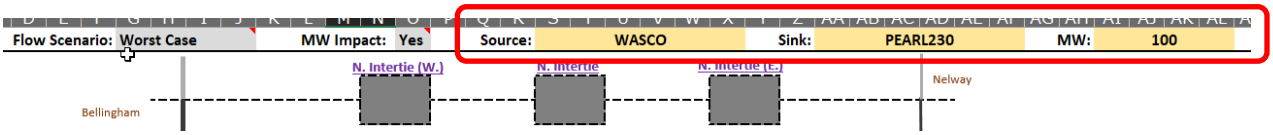



The bottom half of the flowgate box is the amount of available inventory from the last published Needs Assessment. This is a flow based estimate of the amount of available inventory. The available inventory accounts for queued TSRs previously studied and still in the queue. It does not account for TSRs in

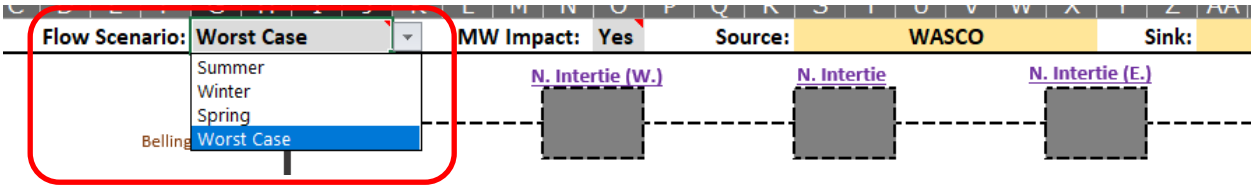
queue yet to be studied. A negative number is a lack of inventory due to the impact of higher queued requests. The scoring for the bottom half of the flowgate box is on a gradient scale. The darker the blue scoring the higher available inventory there is. White is zero. The darker the yellow scoring the more negative the inventory value is due to higher pending queued TSRs.



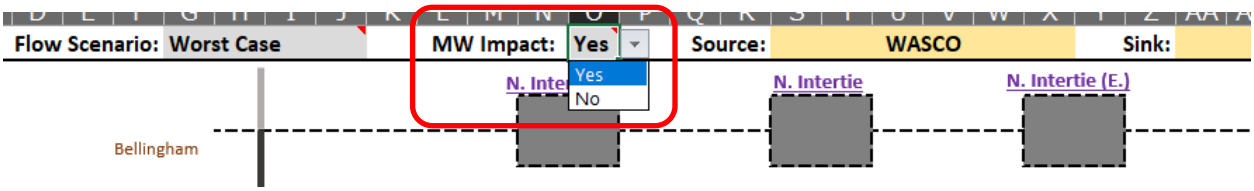

Information Row: The top row is an information row. The Source, Sink, and MW cells are the request values input on the Calculator tab.




Selecting A Flow Scenario: The Flow Scenario is defaulted to the most restrictive flow across all of the seasons. Customers can select different seasons to see the flow changes at each flowgate for each individual season. Spring and Fall flows are studied as one (Spring).




Excluding The Impact From Inventory: The MW Impact is defaulted to automatically deduct the MWs of the potential new request from the available inventory. Customers can turn this off by selecting "No" so that the inventory amount shown is the available inventory before taking into account the potential new request.



Below is an example of how this feature works. The example TSR has an 8 MW impact on the Raver-Paul flowgate. “Yes” automatically deducts the MW impact from the available inventory. “No” shows the available inventory before taking into account the MW impact of the request. In this example, there is 95 MW of available inventory on the Raver-Paul flowgate before deducting the impact of this request.