BONNEVILLE POWER ADMINISTRATION

Instructions for Inventory Maps

Updated: June 1, 2023

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.

The FCRPS as the Evaluated POR (Source) is available for NT customers as well as specific NT Delivery points to their load (ending in NTDP). These points can only be reserved by NT customers on a Transmission Service Request.

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, contact your BPA Transmission Services Account Executive or the Reservation Desk at tblresdesk@bpa.gov.

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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. Points ending in NTDP are scheduling points for NT customers only. 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	-0.1643	-0.2898	12.6%	12.6	Potential LTF
CROSS CASCADES SOUTH E>W	0.1352	-0.6281	76.3%	76.3	Study for CFS
NORTH OF HANFORD N>S	-0.6154	-0.5172	-9.8%	0.0	Potential LTF
RAVER-PAUL N>S	-0.1063	-0.1924	8.6%	8.6	Potential LTF
SOUTH OF ALLSTON N>S	-0.1704	-0.3026	13.2%	13.2	Study for CFS
WEST OF JOHN DAY E>W	-0.4336	-0.2140	-22.0%	0.0	Potential LTF
WEST OF SLATT E>W	-0.1669	-0.1417	-2.5%	0.0	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0625	-0.0576	-0.5%	0.0	Potential LTF
SOUTH OF CUSTER N>S	-0.0029	-0.0064	0.4%	0.4	Potential LTF
NORTH OF ECHO LAKE S>N	0.0446	0.0472	-0.3%	0.0	Potential LTF
WEST OF MCNARY E>W	-0.1527	-0.1234	-2.9%	0.0	Potential LTF
WEST OF HATWAI E>W	0.0443	0.0427	0.2%	0.2	Potential LTF
NORTH OF GRIZZLY N>S	0.0528	-0.0225	7.5%	7.5	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.
- *Study for CFS (Orange)* – Low likelihood of LTF service being available but there is a possibility of Conditional Firm Service (CFS) service being available on this flowgate after participating in a Cluster Study or an Individual Study. Note: NT customers are not eligible for CFS therefore will need to be studied for a Plan of Service (PoS).
- *Study for PoS (Red)* - Low likelihood for any available long term service on this flowgate therefore participating in a Cluster Study will likely be necessary to establish a Plan of Service (PoS

Long-Term Original Map:

PTDF #:	40341	40824			
Flowgate	Source	Sink	% Impact	MW Impact	Result
CROSS CASCADES NORTH E>W	-0.1643	-0.2898	12.6%	125	Potential LTF
CROSS CASCADES SOUTH E>W	0.1352	-0.6281	76.3%	763	Study for CFS
NORTH OF HANFORD N>S	-0.6154	-0.5172	-9.8%	0	Potential LTF
RAVER-PAUL N>S	-0.1063	-0.1924	8.6%	86	Study for CFS
SOUTH OF ALLSTON N>S	-0.1704	-0.3026	13.2%	132	Study for PoS
WEST OF JOHN DAY E>W	-0.4336	-0.2140	-22.0%	0	Potential LTF
WEST OF SLATT E>W	-0.1669	-0.1417	-2.5%	0	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0625	-0.0576	-0.5%	0	Potential LTF
SOUTH OF CUSTER N>S	-0.0029	-0.0064	0.4%	3	Potential LTF
NORTH OF ECHO LAKE S>N	0.0446	0.0472	-0.3%	0	Potential LTF
WEST OF MCNARY E>W	-0.1527	-0.1234	-2.9%	0	Potential LTF
WEST OF HATWAI E>W	0.0443	0.0427	0.2%	1	Potential LTF
NORTH OF GRIZZLY N>S	0.0528	-0.0225	7.5%	75	Potential LTF

Long-Term Redirect Map:

PTDF #:	47814	40.	40303				
Flowgate	Child Source: JNSCNYN230PAC	Child Sink: PSEI_STHCN	Parent Sink: SEATTLECNTGS	Parent Impact		Net Impact	Result
CROSS CASCADES NORTH E>W	-0.1445		-0.8571	712.6000		0.0000	No Impact
CROSS CASCADES SOUTH E>W	0.1651		-0.0791	244.2000		192.0000	Study for CFS
NORTH OF HANFORD N>S	-0.6024		-0.0369	0.0000		0.0000	No Impact
RAVER-PAUL N>S	-0.0912		0.0379	0.0000		240.2000	Study for CFS
SOUTH OF ALLSTON N>S	-0.1464		0.0889	0.0000		0.0000	No Impact
WEST OF JOHN DAY E>W	0.0644		-0.0302	94.6000		62.8000	Potential LTF
WEST OF SLATT E>W	0.0521		-0.0209	73.0000		39.9000	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0695		-0.0300	0.0000		0.0000	No Impact
SOUTH OF CUSTER N>S	0.0003		-0.0266	26.9000		0.0000	No Impact
NORTH OF ECHO LAKE S>N	0.0404		-0.0396	80.0000		0.0000	No Impact
WEST OF MCNARY E>W	0.6158		-0.0225	638.3000		37.1000	Potential LTF
WEST OF HATWAI E>W	0.0387		0.0399	0.0000		0.0000	No Impact
NORTH OF GRIZZLY N>S	-0.0073		0.0021	0.0000		0.0000	Potential LTF

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

- If any flowgate result is 'Study for PoS' then there is a low likelihood the request will receive service without participation in a Cluster Study or an Individual Study.
- If one or more flowgate results is 'Study for CFS' 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	-0.1643	-0.2898	12.6%	125.5	Potential LTF
CROSS CASCADES SOUTH E>W	0.1352	-0.6281	76.3%	763.3	Study for CFS
NORTH OF HANFORD N>S	-0.6154	-0.5172	-9.8%	0.0	Potential LTF
RAVER-PAUL N>S	-0.1063	-0.1924	8.6%	86.1	Study for CFS
SOUTH OF ALLSTON N>S	-0.1704	-0.3026	13.2%	132.2	Study for PoS
WEST OF JOHN DAY E>W	-0.4336	-0.2140	-22.0%	0.0	Potential LTF
WEST OF SLATT E>W	-0.1669	-0.1417	-2.5%	0.0	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0625	-0.0576	-0.5%	0.0	Potential LTF
SOUTH OF CUSTER N>S	-0.0029	-0.0064	0.4%	3.5	Potential LTF
NORTH OF ECHO LAKE S>N	0.0446	0.0472	-0.3%	0.0	Potential LTF
WEST OF MCNARY E>W	-0.1527	-0.1234	-2.9%	0.0	Potential LTF
WEST OF HATWAI E>W	0.0443	0.0427	0.2%	1.6	Potential LTF
NORTH OF GRIZZLY N>S	0.0528	-0.0225	7.5%	75.3	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.

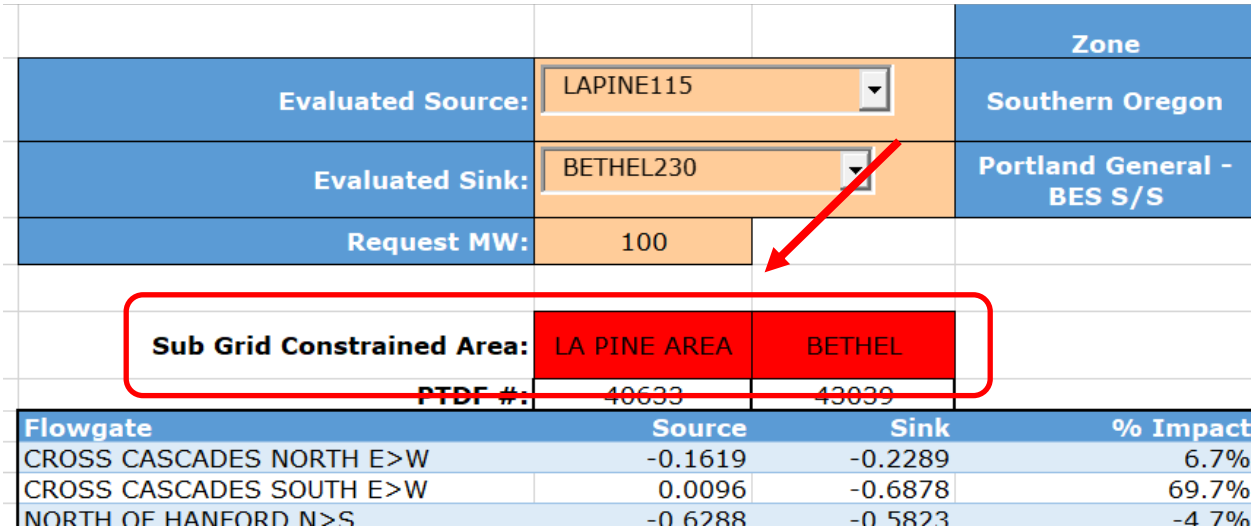
Long-Term Redirect Map:

PTDF #:		PTDF #:	47814	40303		
Flowgate	Ch... J...	Child Impact	Parent Source: JNSCNYN230PAC	Parent Sink: SEATTLECNTGS	Parent Impact	Net Impact
CROSS CASCADES NORTH E>W		51.8700	-0.1445	-0.85...	71.2600	0.0000
CROSS CASCADES SOUTH E>W		43.6200	0.1651	-0.07...	24.4200	19.2000
NORTH OF HANFORD N>S		0.0000	-0.6024	-0.03...	0.0000	0.0000
RAVER-PAUL N>S		24.0200	-0.0912	0.03...	0.0000	24.0200
SOUTH OF ALLSTON N>S		0.0000	-0.1464	0.08...	0.0000	0.0000
WEST OF JOHN DAY E>W		15.7400	0.0644	-0.03...	9.4600	15.7400
WEST OF SLATT E>W		11.2900	0.0521	-0.02...	7.3000	11.2900
WEST OF LOWER MONUMENTAL E>W		0.0000	-0.0695	-0.03...	0.0000	0.0000
SOUTH OF CUSTER N>S		1.6600	0.0003	-0.02...	2.6900	0.0000
NORTH OF ECHO LAKE S>N		0.6700	0.0404	-0.03...	8.0000	0.0000
WEST OF MCNARY E>W		67.5400	0.6158	-0.02...	63.8300	3.7100
WEST OF HATWAI E>W		0.2000	0.0387	0.03...	0.0000	0.0000
NORTH OF GRIZZLY N>S		0.0000	-0.0073	0.00...	0.0000	0.0000

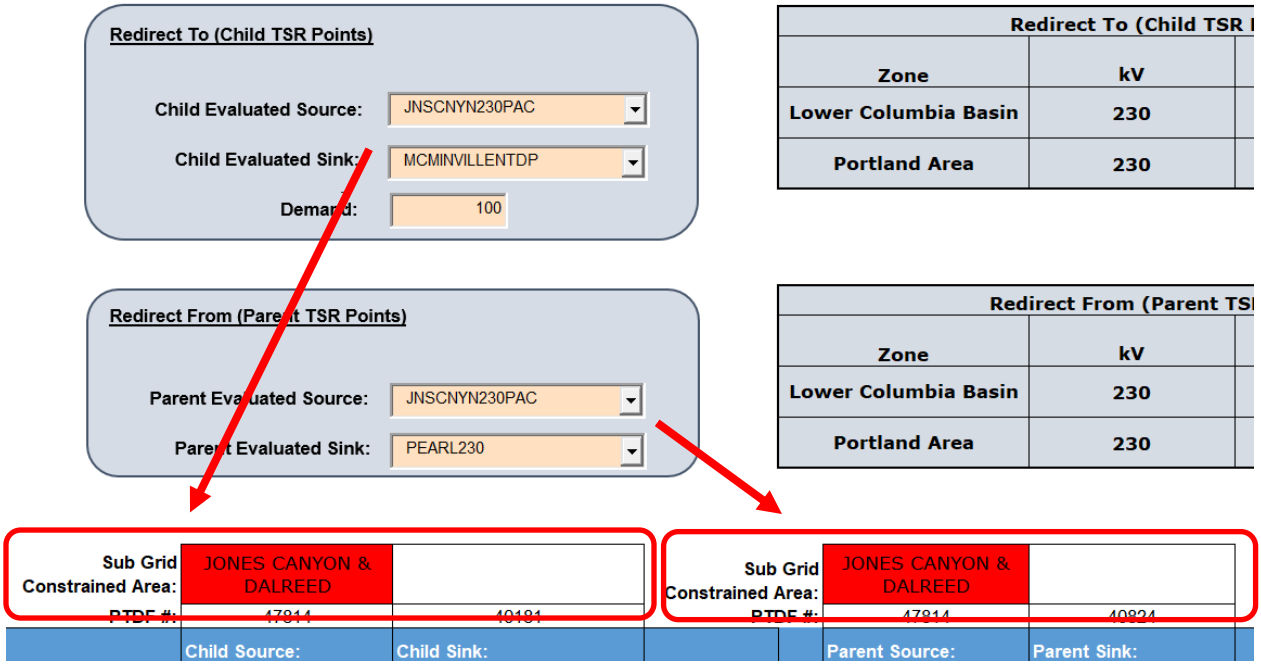
See the [De Minimis Impact Dead-band For Network Flowgates] for more on the de Minimis rules.

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:

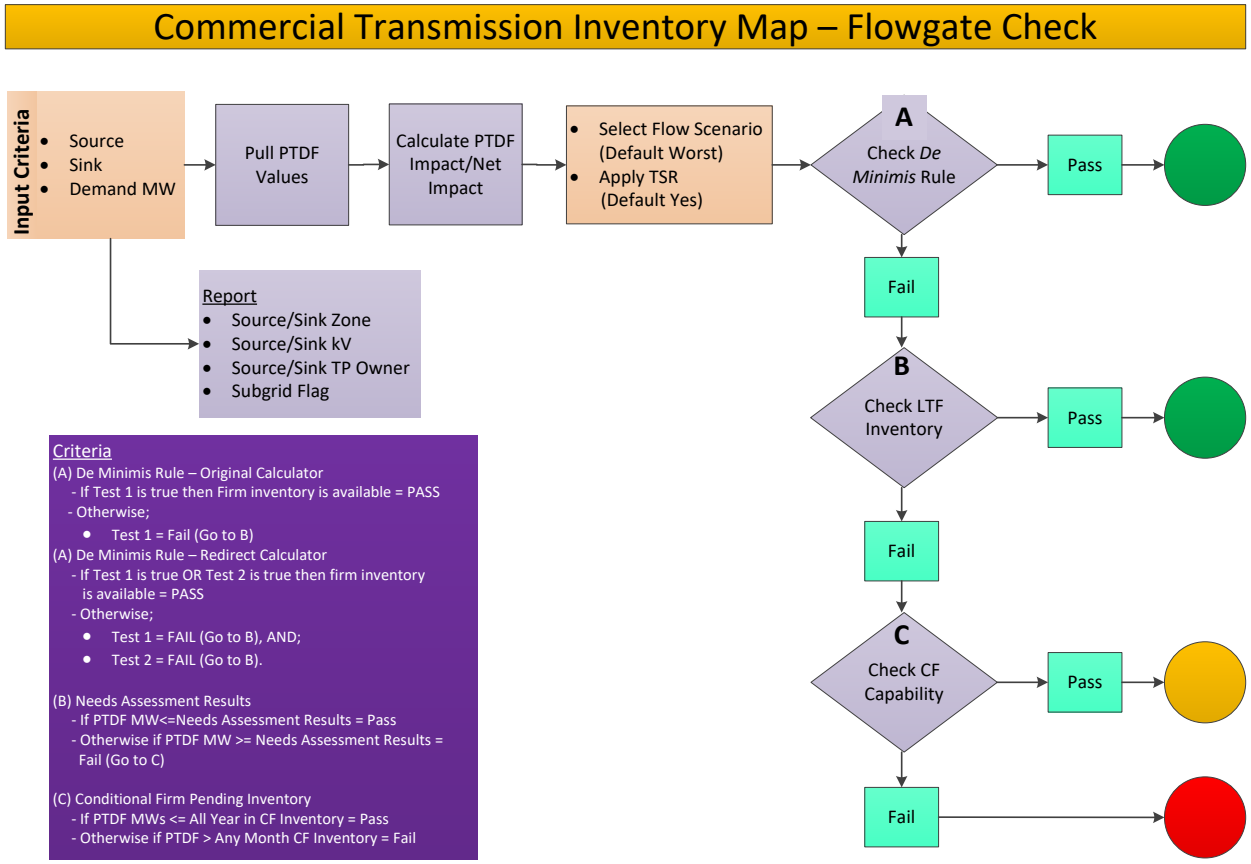


Long-Term Redirect Map:



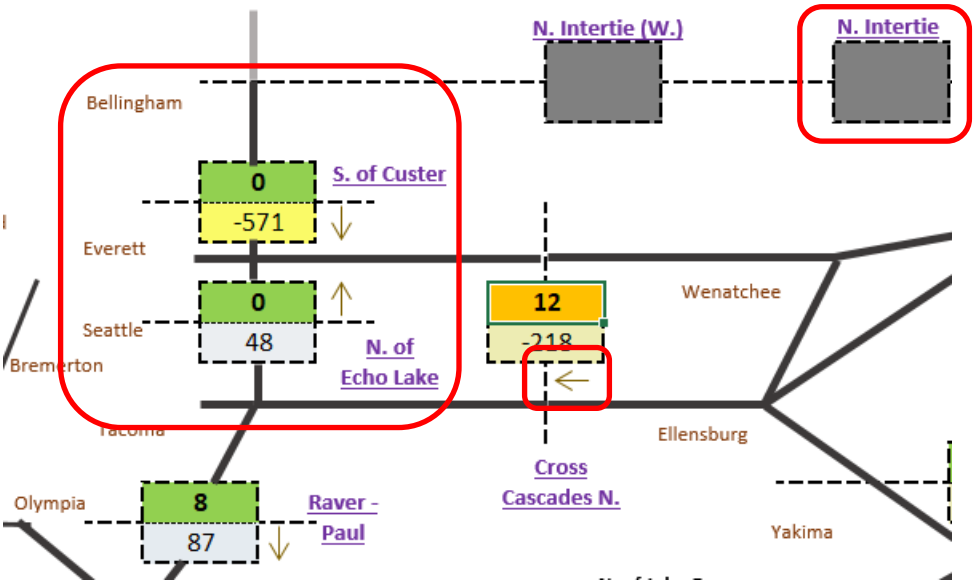
Printing Results: To keep a copy of the results for future reference the Calculator tab can be printed.

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.

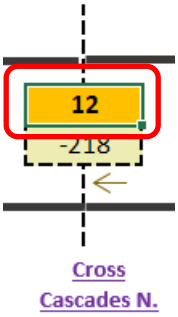


How to Use the Map Tab

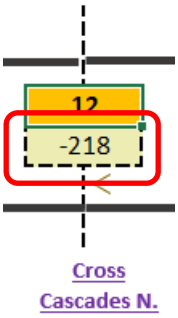
Flowgate Information: This tab shows the results of the request from the Calculator tab. The boxes are the constrained paths of BPA's Transmission System in a rough geographical representation. Black boxes are BPA's external paths and interties. Arrows indicate the direction of constrained flows. There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



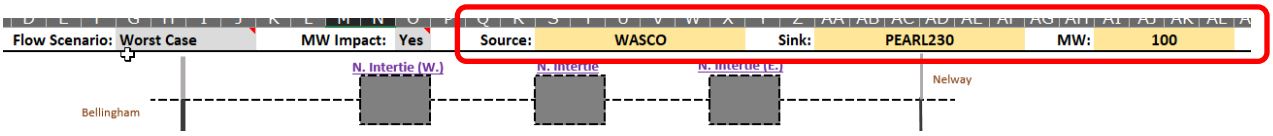
The top half of the flowgate boxes is the MW impact of the request from the Original Calculator tab or the Net Impact of the request from the Redirect Calculator tab if using the Long-Term Redirect Calculator. The colors are the same as the results column also from the Calculator tab.



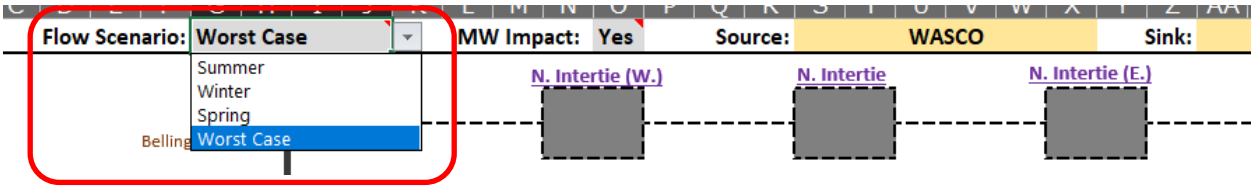
The bottom half of the flowgate box is the amount of available inventory from the last published Needs Assessment. This is a flow based estimate of the amount of available inventory. The available inventory accounts for queued TSRs previously studied and still in the queue. It does not account for TSRs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



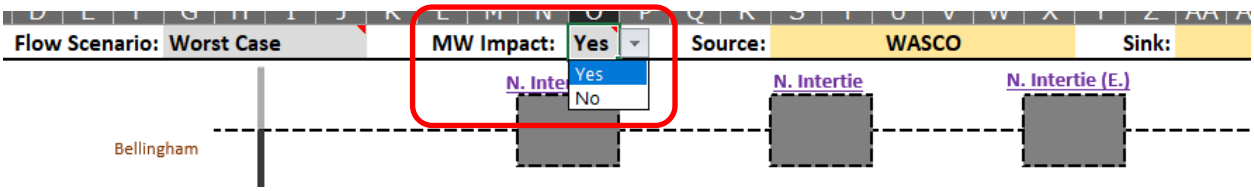
Information Row: The top row is an information row. The Source, Sink, and MW cells are the request values input on the Calculator tab.



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.