BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

LC 80

In the Matter of PORTLAND GENERAL ELECTRIC CO., 2023 Integrated Resource Plan and Clean Energy Plan.	COMMENTS OF CASCADE RENEWABLE TRANSMISSION, LLC

Cascade Renewable Transmission, LLC ("CRT") appreciates the opportunity to provide comments to the Staff's Round 2 Comments and Recommendations. CRT is developing an 1100 MW HVDC transmission interconnection between BPA's Big Eddy substation and Portland General Electric's ("PGE") Harborton substation, the Cascade Renewable Transmission Project ("CRTP"). CRT has filed a Notice of Intent to File an Application for a Site Certificate ("NOI") with the Oregon Department of Energy ("ODOE"), and the NOI is the subject of a Project Order issued July 25, 2023; both the NOI and the Project Order are publicly available for review through the ODOE website.

As noted throughout PGE's Integrated Resource Plan ("IRP") and PGE's Reply Comments, there is a growing and significant need for incremental transmission for PGE to be able to secure sufficient renewable energy resources to meet its GHG requirements in 2030 and beyond as well as reliably serve load growth driven by electrification and new industry. Additionally, there is general consensus, perhaps too obvious to mention, that significant new transmission capacity requires long lead times, suggesting that for the purpose of meeting GHG

requirements, 2030 is just around the corner.

Table 7 in PGE's July 7th addendum filing identifies an estimated transmission need in MW of 1,051 by 2029, 1,658 by 2030 and 4,568 by 2035. In PGE's Responses to Round 1 Comments filed on September 6th, PGE indicated "There is not a location on the BPA system, or beyond, to site generation that does not have an impact on South of Allston flowgate. This is because of Power Transfer Distribution Factor (PTDF), which refers to the distribution of power flows on the networked transmission system." CRT appreciates the material concern raised by PGE and agrees the South of Allston ("SOA") flowgate constraint needs to be addressed in order for PGE to be able procure off system resources. It should further be noted, however, that PTDFs also impact flows from potential new off system renewable resources on the constrained Cross Cascade South ("CCS") flowgate[1], and will impact flows on the newly to be implemented and constrained North of Pearl ("NOPE") flowgate[2].

In its recently released draft Longer Term Local Transmission Plan, PGE expressed its concerns about the NOPE flowgate stating, "During the heat event in June 2021… PGE's system experienced flows never seen before during peak summer conditions, at least partially due to the importing of generation from California. The PGE Transmission System experienced heavy south-to-north flow from the Sherwood area to the Beaverton/Hillsboro area..."[3] The "never seen before" south-to-north flows from the Sherwood area to the Beaverton/Hillsboro area are driving the need for the NOPE flowgate. PGE further acknowledged that the issue still exists and if anything is getting worse when they stated, "Subsequent summers have experienced this flow pattern with

[1] In PGE's Comments filed on September 6th, PGE noted "The Cross Cascade South Path is the same as BPA flowgate known as West of Cross Cascade South (WOCS). The WOCS is currently known to be constrained and is viewed by some commenters in this docket as PGE's biggest obstacle to delivering new resources to company loads".
[2] In PGE's Comments filed on September 6th, PGE stated "It is worth noting that this calculator does not yet include the modifications necessary to account for the new BPA flowgates that are currently being implemented and impact PGE, including the North of Pearl flowgate (NOPE)…"
[3] PGE's Longer Term Local Transmission Plan for the 2023-2024 Planning Cycle, Draft – November 10, 2023, page 7.

increasing intensity and the Hillsboro area continues to see increased load demands, necessitating a continued focus on studying power flow into the area that was first experienced in the previously mentioned 2021 heat event."[4]

Exhibit 1, attached hereto, shows the results of BPA's PTDF analysis for 100 MW of energy deliveries to PGE's service territory (BPAT PGE) from three different BPA substations east of the Cascades: Maupin (Central Oregon), Slatt (near Boardman) and Vantage (near Mid-C). The three point of receipt substations for the energy deliveries were selected to give a diverse view of PGE's ability to procure resources broadly across BPA's system, including Montana and Wyoming wind delivered into Boardman across the new B2H transmission line. In all three cases, the 100 MW of energy delivery showed material impact on the constrained SOA, CCS and NOPE[5] flowgates. Based on this analysis, for PGE to procure significant incremental off system renewable resources and have them deliverable to PGE's load, particularly to rapidly growing load near Beaverton/Hillsboro, PGE will most likely need to resolve constraints on all three flowgates: SOA, CCS, and NOPE.

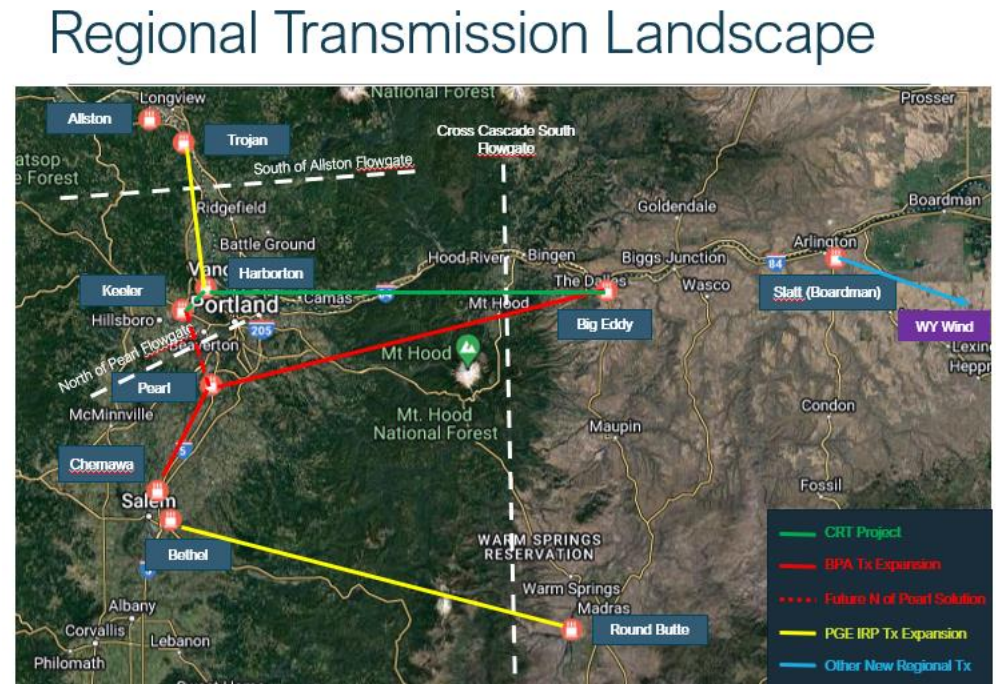
CRT performed another BPA Power Transfer Distribution Factor analysis from those same three substations as the point of receipt, but this time used Big Eddy as the point of delivery. Big Eddy is the location for CRTP's eastern converter station. The results of this analysis are shown in Exhibit 2. With Big Eddy as the point of delivery, there are no material impacts on CCS or NOPE and only in the case of sourcing from the Vantage substation is there an impact on SOA. As shown in Exhibit 2, the impact on the SOA flowgate is estimated by BPA to be 12.7 MW. CRT has performed a separate analysis of the anticipated impact on SOA with a 100 MW CRTP injection at PGE's Harborton substation. This analysis indicated an approximate 20 MW relief to

[4] PGE's Longer Term Local Transmission Plan for the 2023-2024 Planning Cycle, Draft – November 10, 2023, page 8.
[5] BPA began including the NOPE flowgate in the calculator for power transfer distribution factors in October 2023.

the SOA flowgate in the N-S direction. So, on a net basis, there should not be a material impact on SOA with 100 MW sourced from Vantage, delivered to Big Eddy and in turn delivered into Harborton utilizing CRTP.

The white dashed lines in Figure 1 below show the general location of the constrained SOA, CCS and NOPE flowgates. The yellow lines show two transmission lines proposed in PGE's Draft Longer Term Local Plan for the 2023-2024 Planning Cycle issued on November 10, 2023; one a double circuit 230 KV line from Harborton to Trojan and the other converting the 91 mile 230 KV Bethel to Round-Butte line to 500 KV. The combination of the two new PGE transmission lines would in some manner address the constraints on SOA and CCS. Figure 1 also shows with the red line the general route of BPA's proposed upgrade of the Big Eddy to Chemawa 230 KV line, which will loop into the Pearl 500kV and Ostrander 500kV substations. This upgrade would also address the constraints on CCS. Finally, there is a dashed red line from the Pearl Substation to the Keeler substation. This is simply to reflect something, most likely a new 500kV transmission line, which will be required to resolve the newly constrained NOPE flowgate. The blue line shows the general route of the B2H transmission line for accessing MT and WY wind. In summary, because of the implications of PTDFs across the networked AC system, PGE's SOA solution, plus a NOPE solution plus either BPA's or PGE's CCS solution will most likely be required for PGE to be able to access significant incremental off system renewable resources east of the Cascades and serve growing load in Beaverton/Hillsboro.

Figure 1



The green line in Figure 1 shows the location of the proposed Cascade Renewable Transmission Project. It is designed to run DC from BPA's Big Eddy substation directly into PGE's Harborton substation. By landing in PGE's Harborton substation, CRTP addresses the CCS constraint while bypassing the SOA and NOPE flowgates. In fact, electricity flows on CRTP injected at the Harborton substation would actually "push back on" and relieve some of the constraints on SOA and NOPE. Therefore, in the context of serving the growing load in Beaverton/Hillsboro and meeting the HB2021 requirements in 2030 and beyond, CRTP should be viewed as complementary to building the combination of PGE's SOA solution, plus a NOPE solution, plus either BPA's or PGE's CCS solution; one line instead of three.

In the OPUC Staff Round 2 Comments and Recommendations, Staff acknowledges the general need for transmission but cautions more analysis is needed to define the specific solutions

when it states, "Staff does not undermine the need for transmission resources in general, but believes that additional analysis is needed to evaluate potential value of on-system distributed energy resources, alternative transmission strategies, and a clear description of options that PGE says it will pursue for the SoA line."[6] CRT agrees with this view and we encourage the Commission to request PGE to include CRTP in any analysis of transmission alternatives. It is very important that in any transmission analysis performed by PGE, up-to-date cost estimates, including required system upgrades, are utilized for all potential transmission solutions. PGE indicated "the company continues to rely on the 2018 report "Relative Costs of Transporting Electrical Chemical Energy" to form the basis of the transmission proxy costs in the CEP/IRP."[7] Given the dramatic price escalation which has occurred since 2018 for the cost of energy infrastructure, the cost estimates utilized by PGE in its IRP could be 30-50% below a reasonable estimate prepared today. Accounting for system upgrade costs is also very important. CRT has completed its WECC Phase 2B path rating and is in the process of finalizing its facilities studies as part of its request to interconnect at each of the BPA and PGE substations. This gives CRT very good visibility into the scope and cost of incremental system upgrades which will be required to reliably integrate CRTP into the overall AC grid. To compare various transmission solutions on an equal basis, the costs of all required system upgrades should also be considered.

In addition to costs, the Commission should also direct PGE to evaluate <u>all</u> potential benefits of the various transmission solutions. For instance, BPA's Big Eddy to Chemawa upgrade and PGE's Bethel to Round Butte upgrade are expansions of overhead 230 KV lines to 500 KV lines in existing ROWs through high wildfire risk areas of the Cascade Mountains. In contrast, CRTP is a DC line buried for its entire route underground or under the Columbia riverbed using

[6] OPUC Docket LC 80 – Staff Round 2 Comments and Recommendations filed October 24, 2023, page 15.
[7] PGE Reply to Round 1 Comments filed on September 6, 2023, page 24.

well-established installation technology. CRTP's underwater installation avoids wildfire risk. As another example, a voltage source converter DC line such as CRTP can offer important system benefits compared with an AC line, such as black start capability and VAR support. It would also be worthwhile for PGE as part of its transmission analysis to lay out an expected timeline for every transmission alternative being considered. Key milestones for the timeline could include: (1) expected date of completing WECC path rating and system impact studies to better define the true scope and cost of the transmission project; (2) expected date of having all key State and Federal permits filed; (3) expected date of receiving all permits; (4) anticipated start date for construction; and (5) anticipated commercial operation date. This would help lay out a framework to better understand which transmission lines have a realistic possibility of being available to meet HB2021 2030 requirements and which are better alternatives to be considered for meeting the requirements of 2040 and beyond.

Lastly, the Staff recommends, "The Commission direct PGE to include a report on federal incentive implementation and its key impacts on the Company's Action Plan and 2030 resource strategy with its next IRP/CEP Update."[8] The availability of federal incentives for transmission investment through the Infrastructure Investment and Jobs Act and the Inflation Reduction Act are unprecedented. CRT commends PGE's partnership with the Confederated Tribes of the Warm Springs Reservation Oregon ("CTWS") and the receipt of a federal funding award. As part of the Bipartisan Infrastructure Law, Funding Opportunity Announcement for Grid Resilience and Innovation Partnerships recently released on November 13, 2023 ("FOA"), the DOE indicated the available funding is "…a unique chance to build partnerships between states, local governments, Tribes and power system operators that align industry objectives with broader regional, interregional and national goals to enhance reliability, all-hazards resilience and efficiency of the

[8] OPUC Docket LC 80 – Staff Round 2 Comments and Recommendations filed October 24, 2023, page 32.

electric grid".[9] The FOA goes on to indicate the DOE particularly seeks "Projects that demonstrate meaningful public/private partnership approaches through strategic involvement of *both* public and private sector actors."[10] For this reason, CRT believes a partnership among CRT, PGE and the State of Oregon would be a winning combination for another federal funding award for the region. CRT believes this partnership could be implemented in a way that would not conflict with either the OPUC's process and requirements for selecting transmission projects for cost recovery or the permitting requirements of Oregon Energy Facility Siting Council and other state and federal agencies.

While it may be too early in the process to select which transmission lines provide the best system benefits and value for ratepayers, it is not too early for the Commission to at a minimum acknowledge new transmission lines will be required to meet the requirements of HB2021. This acknowledgment by the Commission will help focus the PNW energy community on implementing transmission solutions for the region.

As demonstrated in PGE's IRP, to meet load growth and the requirements of HB2021, it is highly likely that several new transmission projects will need to be constructed. There is little downside risk and potentially strong benefits to encouraging the consideration and reasonable pursuit of as many transmission options as possible. While it may be impossible today to determine which proposed new transmission lines or transmission line upgrades can be developed successfully and on a timely basis, a "just-in-time approach" to transmission development cannot be a successful path forward. Rather, at this stage, every potentially viable transmission project should be encouraged to proceed with development.

Thank you for the opportunity to provide comments and please contact the undersigned

[9] Funding Opportunity Announcement issued November 13, 2023, page 3.
[10] Funding Opportunity Announcement issued November 13, 2023, page 20.

with any questions you may have.

Dated this 21st Day of November, 2023.

Respectfully submitted,

/s/ Jeffrey Wood

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Exhibit 1

BPA's Power Transfer Distribution Factors for 100 MW of energy deliveries from Maupin substation (Central Oregon), Slatt substation (near Boardman) and Vantage substation (near Mid-C) to PGE's service territory (BPAT PGE).[11]

- Deliveries to BPAT PGE from each of those three substations show significant MW impacts on SOA (14.0 – 27.2), CCS (64.6 – 72.7) and NOPE (24.6 – 32.3)[12]

		Zone	kV	Owner Name
Evaluated Source:	MAUPIN	Lower Columbia Basin	230	Bonneville Power Admin
Evaluated Sink:	BPAT.PGE	NA	NA	NA
Request MW:	100			

Posted 10/18/23

Sub Grid Constrained Area:	BIG EDDY/MAUPIN 230	PORTLAND AREA
PTDF #:	40709	321

Flowgate	Source	Sink	% Impact	MW Impact	Result
CROSS CASCADES NORTH E>W	-0.1607	-0.2985	13.8%	13.8	Potential LTF
CROSS CASCADES SOUTH E>W	0.1024	-0.6132	71.6%	71.6	Study for CFS
NORTH OF HANFORD N>S	-0.6171	-0.5054	-11.2%	0.0	Potential LTF
RAVER-PAUL N>S	-0.1035	-0.1971	9.4%	9.4	Potential LTF
SOUTH OF ALLSTON N>S	-0.1659	-0.3056	14.0%	14.0	Study for CFS
NORTH OF PEARL S>N	0.0846	-0.2311	31.6%	31.6	Study for PoS
WEST OF JOHN DAY E>W	-0.2866	-0.2094	-7.7%	0.0	Potential LTF
WEST OF SLATT E>W	-0.1853	-0.1331	-5.2%	0.0	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0597	-0.0569	-0.3%	0.0	Potential LTF
SOUTH OF CUSTER N>S	-0.0021	-0.0067	0.5%	0.5	Potential LTF
NORTH OF ECHO LAKE S>N	0.0439	0.0471	-0.3%	0.0	Potential LTF
WEST OF MCNARY E>W	-0.1475	-0.1233	-2.4%	0.0	Potential LTF
WEST OF HATWAI E>W	0.0503	0.0431	0.7%	0.7	Potential LTF
NORTH OF GRIZZLY N>S	0.1097	-0.0233	13.3%	13.3	Potential LTF

[11] BPA PTDF Calculator Effective 10/18/2023.

[12] Anything high-lighted in yellow is viewed by BPA as being an immaterial impact on the flowgate.

		Zone	kV	Owner Name
Evaluated Source:	SLATT	Lower Columbia Basin	500	Bonneville Power Admin
Evaluated Sink:	BPAT.PGE	NA	NA	NA
Request MW:	100			

Posted 10/18/23

Sub Grid Constrained Area:		PORTLAND AREA
PTDF #:	40989	321

Flowgate	Source	Sink	% Impact	MW Impact	Result
CROSS CASCADES NORTH E>W	-0.1315	-0.2985	16.7%	16.7	Potential LTF
CROSS CASCADES SOUTH E>W	0.1139	-0.6132	72.7%	72.7	Study for CFS
NORTH OF HANFORD N>S	-0.6623	-0.5054	-15.7%	0.0	Potential LTF
RAVER-PAUL N>S	-0.0835	-0.1971	11.4%	11.4	Study for CFS
SOUTH OF ALLSTON N>S	-0.1350	-0.3056	17.1%	17.1	Study for CFS
NORTH OF PEARL S>N	0.0922	-0.2311	32.3%	32.3	Study for PoS
WEST OF JOHN DAY E>W	0.1935	-0.2094	40.3%	40.3	Potential LTF
WEST OF SLATT E>W	0.5072	-0.1331	64.0%	64.0	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0749	-0.0569	-1.8%	0.0	Potential LTF
SOUTH OF CUSTER N>S	-0.0009	-0.0067	0.6%	0.6	Potential LTF
NORTH OF ECHO LAKE S>N	0.0431	0.0471	-0.4%	0.0	Potential LTF
WEST OF MCNARY E>W	-0.1939	-0.1233	-7.1%	0.0	Potential LTF
WEST OF HATWAI E>W	0.0410	0.0431	-0.2%	0.0	Potential LTF
NORTH OF GRIZZLY N>S	0.0586	-0.0233	8.2%	8.2	Potential LTF

		Zone	kV	Owner Name
Evaluated Source:	VANTAGE	Central Washington	230	Bonneville Power Admin
Evaluated Sink:	BPAT.PGE	NA	NA	NA
Request MW:	100			

Posted 10/18/23

Sub Grid Constrained Area:		PORTLAND AREA
PTDF #:	41111	321

Flowgate	Source	Sink	% Impact	MW Impact	Result
CROSS CASCADES NORTH E>W	-0.0364	-0.2985	26.2%	26.2	Potential LTF
CROSS CASCADES SOUTH E>W	0.0327	-0.6132	64.6%	64.6	Study for CFS
NORTH OF HANFORD N>S	0.0025	-0.5054	50.8%	50.8	Potential LTF
RAVER-PAUL N>S	-0.0195	-0.1971	17.8%	17.8	Study for CFS
SOUTH OF ALLSTON N>S	-0.0332	-0.3056	27.2%	27.2	Study for PoS
NORTH OF PEARL S>N	0.0150	-0.2311	24.6%	24.6	Study for PoS
WEST OF JOHN DAY E>W	-0.0033	-0.2094	20.6%	20.6	Potential LTF
WEST OF SLATT E>W	0.0085	-0.1331	14.2%	14.2	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0456	-0.0569	1.1%	1.1	Potential LTF
SOUTH OF CUSTER N>S	-0.0054	-0.0067	0.1%	0.1	Potential LTF
NORTH OF ECHO LAKE S>N	0.0310	0.0471	-1.6%	0.0	Potential LTF
WEST OF MCNARY E>W	0.0218	-0.1233	14.5%	14.5	Potential LTF
WEST OF HATWAI E>W	0.0189	0.0431	-2.4%	0.0	Potential LTF
NORTH OF GRIZZLY N>S	0.0069	-0.0233	3.0%	3.0	Potential LTF

Exhibit 2

BPA's Power Transfer Distribution Factors for 100 MW of energy deliveries from Maupin substation (Central Oregon), Slatt substation (near Boardman) and Vantage substation (near Mid-C) to Big Eddy substation, the location of CRTP's eastern converter station.[13]

- Deliveries to Big Eddy show no MW impact on the currently constrained CCS and NOPE and only in the case of deliveries from Vantage is there an impact on SOA in the amount of 12.7 MW. However, CRT's analysis indicates a 100 MW injection at Harborton would have an approximately 20 MW benefit on SOA, so on a net basis, with CRTP there should not be a material impact on SOA.

With CRTP, PGE should be able to procure resources from Maupin, Slatt and Vantage and have them delivered to PGE's service territory without the need to upgrade SOA, CCS or NOPE.

			Zone	kV	Owner Name
Evaluated Source:	MAUPIN		Lower Columbia Basin	230	Bonneville Power Admin
Evaluated Sink:	BIGEDDY		Lower Columbia Basin	500	Bonneville Power Admin
Request MW:	100				
Posted 10/18/23					
Sub Grid Constrained Area:	BIG EDDY/MAUPIN 230				
PTDF #:	40709	40111			

Flowgate	Source	Sink	% Impact	MW Impact	Result
CROSS CASCADES NORTH E>W	-0.1607	-0.1545	-0.6%	0.0	Potential LTF
CROSS CASCADES SOUTH E>W	0.1024	0.1428	-4.0%	0.0	Potential LTF
NORTH OF HANFORD N>S	-0.6171	-0.6425	2.5%	2.5	Potential LTF
RAVER-PAUL N>S	-0.1035	-0.1000	-0.3%	0.0	Potential LTF
SOUTH OF ALLSTON N>S	-0.1659	-0.1606	-0.5%	0.0	Potential LTF
NORTH OF PEARL S>N	0.0846	0.1012	-1.7%	0.0	Potential LTF
WEST OF JOHN DAY E>W	-0.2866	-0.5245	23.8%	23.8	Potential LTF
WEST OF SLATT E>W	-0.1853	-0.1823	-0.3%	0.0	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0597	-0.0640	0.4%	0.4	Potential LTF
SOUTH OF CUSTER N>S	-0.0021	-0.0028	0.1%	0.1	Potential LTF
NORTH OF ECHO LAKE S>N	0.0439	0.0453	-0.1%	0.0	Potential LTF
WEST OF MCNARY E>W	-0.1475	-0.1528	0.5%	0.5	Potential LTF
WEST OF HATWAI E>W	0.0503	0.0439	0.6%	0.6	Potential LTF
NORTH OF GRIZZLY N>S	0.1097	0.0557	5.4%	5.4	Potential LTF

[13] BPA PTDF Calculator Effective 10/18/2023.

		Zone	kV	Owner Name
Evaluated Source:	SLATT	Lower Columbia Basin	500	Bonneville Power Admin
Evaluated Sink:	BIGEDDY	Lower Columbia Basin	500	Bonneville Power Admin
Request MW:	100			

Posted 10/18/23

Sub Grid Constrained Area:		
PTDF #:	40989	40111

Flowgate	Source	Sink	% Impact	MW Impact	Result
CROSS CASCADES NORTH E>W	-0.1315	-0.1545	2.3%	2.3	Potential LTF
CROSS CASCADES SOUTH E>W	0.1139	0.1428	-2.9%	0.0	Potential LTF
NORTH OF HANFORD N>S	-0.6623	-0.6425	-2.0%	0.0	Potential LTF
RAVER-PAUL N>S	-0.0835	-0.1000	1.7%	1.7	Potential LTF
SOUTH OF ALLSTON N>S	-0.1350	-0.1606	2.6%	2.6	Potential LTF
NORTH OF PEARL S>N	0.0922	0.1012	-0.9%	0.0	Potential LTF
WEST OF JOHN DAY E>W	0.1935	-0.5245	71.8%	71.8	Potential LTF
WEST OF SLATT E>W	0.5072	-0.1823	69.0%	69.0	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0749	-0.0640	-1.1%	0.0	Potential LTF
SOUTH OF CUSTER N>S	-0.0009	-0.0028	0.2%	0.2	Potential LTF
NORTH OF ECHO LAKE S>N	0.0431	0.0453	-0.2%	0.0	Potential LTF
WEST OF MCNARY E>W	-0.1939	-0.1528	-4.1%	0.0	Potential LTF
WEST OF HATWAI E>W	0.0410	0.0439	-0.3%	0.0	Potential LTF
NORTH OF GRIZZLY N>S	0.0586	0.0557	0.3%	0.3	Potential LTF

		Zone	kV	Owner Name
Evaluated Source:	VANTAGE	Central Washington	230	Bonneville Power Admin
Evaluated Sink:	BIGEDDY	Lower Columbia Basin	500	Bonneville Power Admin
Request MW:	100			

Posted 10/18/23

Sub Grid Constrained Area:		
PTDF #:	41111	40111

Flowgate	Source	Sink	% Impact	MW Impact	Result
CROSS CASCADES NORTH E>W	-0.0364	-0.1545	11.8%	11.8	Potential LTF
CROSS CASCADES SOUTH E>W	0.0327	0.1428	-11.0%	0.0	Potential LTF
NORTH OF HANFORD N>S	0.0025	-0.6425	64.5%	64.5	Potential LTF
RAVER-PAUL N>S	-0.0195	-0.1000	8.1%	8.1	Potential LTF
SOUTH OF ALLSTON N>S	-0.0332	-0.1606	12.7%	12.7	Study for CFS
NORTH OF PEARL S>N	0.0150	0.1012	-8.6%	0.0	Potential LTF
WEST OF JOHN DAY E>W	-0.0033	-0.5245	52.1%	52.1	Potential LTF
WEST OF SLATT E>W	0.0085	-0.1823	19.1%	19.1	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0456	-0.0640	1.8%	1.8	Potential LTF
SOUTH OF CUSTER N>S	-0.0054	-0.0028	-0.3%	0.0	Potential LTF
NORTH OF ECHO LAKE S>N	0.0310	0.0453	-1.4%	0.0	Potential LTF
WEST OF MCNARY E>W	0.0218	-0.1528	17.5%	17.5	Potential LTF
WEST OF HATWAI E>W	0.0189	0.0439	-2.5%	0.0	Potential LTF
NORTH OF GRIZZLY N>S	0.0069	0.0557	-4.9%	0.0	Potential LTF