

## NTTG 2018-2019 Draft Regional Transmission Plan Stakeholder Comments and NTTG Response

Committer Contact Information			NTTG Tracking Information		
Date: January 24, 2019					
Name: Justin Bieber & Nathan Powell			Committee Assignment: Planning Committee		
Organization: "Joint Parties" On behalf of Utah Association of Energy Users, Deseret Power, Utah Municipal Power Agency, Utah Department of Commerce Office of Consumer Services, Utah Associated Municipal Power Systems, Wyoming Industrial Energy Consumers					
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I. Executive Summary	Pg. 4	<p>NTTG should retain the assumptions and caveats language from the 2016-2017 Final Regional Transmission Plan (FRTTP). This can be included at the bottom of the Executive Summary, similar to the final 2016-2017 report. For reference, the language is copied below.</p> <p>From the 2016-2017 FRTTP, pg. 3: "The NTTG 2016-2017 Regional Transmission Plan (RTP) is meant to inform local transmission planning processes and is not a construction plan. NTTG relies on the load and resource data submittals of its members and does not consider the re-dispatch or re-optimization of resource assumptions. The RTP studies are completed pursuant to the NTTG Transmission Providers' Attachment K.</p> <p>NTTG's transmission plan assumes that its members' submissions are reasonable and cost effective. The transmission plan is not an attempt to design an optimal portfolio of resources to meet the expected demand of the region's consumers. Instead, it is an attempt to design a reliable and cost-effective portfolio of</p>	1	1/31/19	Thank you for the comment. The Technical Workgroup (TWG) will recommend adding the text to a Preface to the report.

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		<p>transmission around the inputs of NTTG Members. The RTP is the result of the assumptions outlined in the report and solely represents a lower-cost transmission plan than one represented by a rollup of the combined Transmission Provider's plans.</p> <p>To the degree that those NTTG Transmission Providers' inputs are not realistic or cost-effective, the resulting NTTG Transmission Plan will likely be affected. However, NTTG regards correcting such potential errors as work to be undertaken in the context of integrated resource plans conducted by individual load-serving entities in their respective states."</p>			
I. Executive Summary	Pg. 4, Figure 1	Please clarify the units for the incremental costs in Figure 1. The incremental cost in Figure 1 appears to be an annual recurring cost, not a one time capital cost.	2	1/31/19	Yes. Figure 1 is the annualized incremental cost comparison of the recommended pRTP and the IRTP transmission configurations. Text has been added to the report.
II. A.	Pg. 6, Table 1	Why is the PacifiCorp (PAC) 2017 Actual Peak Demand replaced by its 2016 July Peak demand?	3	1/31/19	The table has been updated.
II. A.	Pg. 6, Table 1	<p>What is the PAC 2017 Actual Peak Demand?</p> <p>It appears inconsistent to replace 2017 demand with a 2016 demand.</p>	4	1/31/19	The table has been updated.
II. B.	Pg. 7, Table 2	Please reconcile the amount of resources in Wyoming.	5	1/31/19	The 727 MW PacifiCorp Wyoming resources include the retirement of Dave Johnson unit and Naughton 3 (-1042 MW), the

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		Table 2 indicates 727 MW of resource additions in WY. Footnote 9 indicates that Energy Vision 2020 will increase WY wind resources by 1311 MW.			Energy Vision 2020 projects (1311 MW) and another 458 MW of other wind and solar projects.  The column heading of Table 2 was changed to clarify that the table is a net resource change for each state.
II. B.	Pg. 7, Table 2	What is the total capacity of wind resources in WY today?	6	1/31/19	In the NTTG footprint of Wyoming, there is 1334 MW of existing wind capacity in operation today.
II. B.	Pg. 7, Table 2	What is the assumed capacity of wind resources in WY in 2028?	7	1/31/19	The Wyoming planned wind capacity in 2028 is expected to be 2949 MW.
II. B.	Pg. 7, Table 2	What is the total capacity of thermal resources in WY today?	8	1/31/19	The total thermal capacity in Wyoming is 3155 MW.
II. B.	Pg. 7, Table 2	What is the assumed capacity of thermal resources in WY in 2028?	9	1/31/19	The expected thermal capacity in Wyoming at the beginning of 2028 is 2113 MW.
III. A	Pg. 13	NTTG uses a production cost dataset to develop the stressed conditions that are used to test the reliability of the system. The data set includes all of the proposed projects in the Initial Regional Transmission Plan (iRTP).  The joint parties are concerned that NTTG's process, which includes all of the planned projects in the production cost data set, predetermines, to some extent, that those projects will be required in the transmission plan.  Including the planned projects in the production cost model (PCM) simulation results in conditions where	10	1/31/19	NTTG uses a PCM case with the IRTP projects included in the case to establish dispatch conditions that would be expected to be transferred under the PCM data 1 in 2 conditions. The PCM data set establishes certain hours for power-flow study and its results doesn't predetermine transmission capacity needs.  In prior responses to comments NTTG has responded by noting that "Using the Null case PCM run to extract the stressed conditions would not be consistent with regional Attachment K obligations and the Null case would plan for a system (with curtailments "baked-in") that does not satisfy the 10 year out Firm Transmission Requirements of the Transmission Providers."

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		<p>there are power flows across those planned transmission lines. In other words, the Stressed Conditions are designed to simulate conditions that utilize the planned projects.</p> <p>Therefore, it is unsurprising that the system would not perform adequately when those projects are subsequently removed. However, if only existing projects were included in the dataset used to develop the Stressed Conditions, this issue could be mitigated.</p>			TWG had run a PCM Null case and it resulted in more than 720,000 MWh of wind energy curtailment.
III. A.	Page 14, Table 9	<p>The joint parties are concerned that the Stressed Conditions used to test for reliability are overly conservative and represent conditions that are very infrequent or unlikely to occur. Some of these scenarios represent conditions where planned transmission projects enable interregional benefits to accrue to other regions and network resources are dispatched to meet load needs outside of the NTTG region.</p> <p>Previously, the Transmission Working Group (TWG) has responded to these concerns stating that "fully compliant analysis calls on identifying all violations no matter how small the impacts might be."<sup>1</sup></p>	11	1/19/19	<p>These study conditions are generally accepted transmission planning practices.</p> <p>Redispatch is generally considered a short-term tool to mitigate transmission constraints not for fulfilling long term transmission service requirements.</p> <p>The NTTG Data Submittal instructions requested that only Network Resources and Firm resource should be submitted. Interruptible or non-firm resources should not be included in their submissions. Consequently the DRTP studies have not included</p>

<sup>1</sup> NTTG 2018-2019 Stressed Conditions and Change Case Matrix Stakeholder Comments and NTTG Responses, September 19, 2018, pg. 1

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		<p>The joint parties understand that NTTG's planning process is designed to plan for the worst-case scenario, regardless of the likelihood of occurrence. The NTTG regional planning process does not consider operational solutions, such as redispatch, which could mitigate certain issues without major new transmission investments.</p> <p>However, this aspect of NTTG regional transmission planning is inconsistent with the transmission planning processes for NTTG Transmission Owners. For example, in its 2017 Integrate Resource Plan (IRP), NTTG member PacifiCorp explains that it will utilize redispatch in addition to a new transmission sub-segment to allow the addition of wind resources in Wyoming. Specifically, PacifiCorp's 2017 IRP supports the Energy Gateway West sub-segment D2 transmission project because "the new transmission segment will allow the addition of up to 1,270 MWs of additional wind resources (<i>depending on re-dispatch</i>) added to the system..." (<i>emphasis added</i>).<sup>2</sup></p>			redispatchable resources. The goal of firm transmission planning is to limit any resource redispatch that would occur during operation to be the result of conditions not considered during planning studies.
III. A.	Page 14, Table 9	In the spirit of transparency, the joint parties request that NTTG provide information regarding the frequency	12	1/31/19	TWG had included the requested frequencies in the report with the exception of the peak hour cases (Cases A, B and H) would

<sup>2</sup> PacifiCorp – 2017 Integrated Resource Plan, Volume 1, April 4, 2017, pg. 62

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		of each of the stressed conditions, including the number of hours in the production cost model simulation, which was used to develop the stressed conditions, in which conditions occurred that were at least as extreme as the conditions utilized in the stressed conditions listed in Table 9.			<p>have a frequency less than ten hours per year based on the criterion to select them.</p> <p>For Case C, see reference to 128 hours on line 269.            For Case E, see reference to 1432 hours on line 294.            For Case F, see reference to 1020 hours on line 306.            For Case G, see reference to 11 hours for the flows above 2557 MW on Borah west on line 313 and the reference to 2530 hours for the Wyoming wind level on line 340.            For Case I, see reference to 513 hours on line 366.</p>
III.B.	Page 14-15, Table 10, And Table 11	The load adjustments also appear to result in overly conservative load conditions. The Target/2028 Peak loads for the Summer Peak Hour Adjustment and Winter Peak Hour Adjustment result in loads that exceed the sum of the non-coincident peaks for the five sub-regions. It is highly unlikely that each sub-region would experiences its non-coincident peak simultaneously. It is even more unlikely that each sub-region would exceed its non-coincident peak simultaneously. Further, while this adjustment primarily impacts the Summer Peak and Winter Peak Stressed Conditions, the parties are concerned that when hours are adjusted to meet these peak hour adjustments, it actually impacts the loads for the entire year.	13	1/31/19	<p>Only the summer peak hour and the winter peak hour cases were adjusted in the powerflow cases as described in Table 10 &amp; 11. These adjustments were not made to any other hour. The PCM run remained a 1 in 2 expected condition.</p> <p>Text was added to the report to clarify that the adjustments were only to the two powerflow cases.</p>
All	All	Some stressed condition cases represent scenarios with substantial power flows across NTTG's various	14	1/31/19	Flows occur in the transmission system when there is a mismatch between the loads and the resources on a nodal basis.

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		<p>interconnections to other regions. The stressed condition cases appear to go beyond meeting the NTTG network load and firm transmission obligations and address items such as non-NTTG load service, market-based resource sales and transmission service where no firm request exists. For each of these cases involving flows to other regions, the study should specifically identify how these cases are appropriate for NTTG regional planning rather than being more appropriate for interregional planning. Specific examples and questions in the plan that need to be addressed from the perspective of regional vs. inter-regional planning include the following:</p> <p>i. Given that the PCM is representative of the entire WECC footprint and is used as a basis for the NTTG regional plan, can the PCM simulations distinguish between transmission projects that provide benefits to the NTTG region versus projects that provide benefits to other regions outside of NTTG?</p>			<p>Renewable resources for the most part are non-dispatchable and have a substantially different hourly profile than the load. As a result, there are many hours where the renewable resource dispatch exceeds the load. These are viable cases to examine. Transferring that energy to another region does not indicate that that project's energy is for the sole benefit of the other region.</p> <p>In PCM modeling, these non-dispatchable resources are first netted from the load (assuming a zero cost) and then the dispatchable resource stack is processed to balance with the remaining load. Consequently, system flows are driven by the location of the zero cost resources (hydro included) and the economically selected units displace higher cost resources outside the NTTG footprint.</p> <p>Most of the cases used in 2018-2019 had the NTTG footprint importing energy. Case G had 972 MW export and that case was tested without exports (23 MW import). That sensitivity demonstrated in that case that the DRTP was not reliant on "substantial power flows" to other regions.</p> <p>Only Case E was designed for studying a condition that might be impacted by Interregional Projects and their additional resource transfers. Case E's starting condition had the NTTG Footprint importing 191 MW. The report indicates that "The focus of this</p>

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					case is to evaluate the performance of the ITPs in supporting interregional transfers" on lines 286 and 287.  NTTG used care this cycle to select hours where the NTTG footprint was importing energy to help alleviate concerns that DRTP is driven by transfers to other regions.
All	All	ii. The Stressed Condition case "high NE-SE (Path Tot2)/COI/PDCI flows" appears to be focused on stressing transmission paths between planning regions. Please explain why this case should be used to identify transmission needs for the NTTG region rather than considered to identify transmission projects that benefit other planning regions through inter-regional planning coordination.	15	1/31/19	As explained in #14, this case had the NTTG footprint importing energy.
All	All	iii. The "high Wyoming Wind production" stressed condition case represents a PCM hour with high wind production, light load and significant net NTTG exports. Please explain why this case is appropriate to identify transmission needs within the NTTG regional plan rather than considered to identify transmission projects that benefit other planning regions through inter-regional planning coordination.	16	1/31/19	See response to #14. This case represents a low load condition where the non-dispatchable resources exceed the load and is a viable case to study.



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All	All	iv. The "high Aeolus West and South flows" stressed condition appears to be another case that represents conditions where the dispatch of resources is intended to benefit other regions outside of NTTG. Specifically, it appears to enable higher interregional flows from NTTG into LADWP. Please explain the purpose of this Stressed Condition. How do these conditions align with NTTG's network load and firm transmission requirements?	17	1/31/19	See response #14.
V.K.	Pages 59-67	What solution alternatives (transmission or non-transmission), other than submitted projects <sup>3</sup> , were considered in the development of the dRTP?  The joint parties recognize the use of various combinations and segments of submitted projects to address deficiencies, however, we are concerned that the solutions appear to be limited to submitted projects and that non-submitted alternatives that may be more efficient or cost effective were not considered.	18	1/31/19	Stakeholders have the opportunity to suggest project(s) during the data submittal windows, as well as, during any NTTG meeting. No Alternative Projects were suggested. In prior cycles, alternatives were discussed using lower voltage transmission lines in some instances, but for the level of transfers being studied, it would have required replacing one line with two or more. Given the difficulty of transmission line permitting, suggesting more lines be permitted did not appear prudent.
V	Pages 39-40	Please clarify whether the process in developing the dRTP includes consideration for non-submitted	19	1/31/19	See response to #18. Most IRTP projects are the culmination of many studies and the analysis of less preferred alternatives. TWG

<sup>3</sup> Prior Regional Transmission Plan (pRTP), Full Funder Local Transmission Plan (LTP), Sponsored Project, unsponsored Project, Merchant Transmission Developer or Interregional Transmission Projects (ITPs)

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	Lines 412-419 Table 13	alternatives. Please list any alternatives that were considered.			generally applies this engineering expertise to observe where other alternatives may need to be considered. No Alternative Projects were proposed.