

NTTG 2016-2017 Draft Final Regional Transmission Plan Stakeholder Comments and NTTG Response

Commenter Contact Information			NTTG Tracking Information		
Date: July 21, 2017					
Name: Phillip Solomon/Nathan Powell			Committee Assignment: Planning Committee		
Organization: Deseret Power					
Comments			NTTG Responses		
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	2-5	What metrics are being used to determine which transmission plan is "more efficient?"	#1	7/23/17	Once the reliability analysis has determined that a change case performance is acceptable, the FERC approved metrics (the sum of Incremental Capital costs, Losses and Reserves metrics) in Section VIII were used to compare the change cases.
	34-39, 121-122, 269-272	<p>It is unclear what is meant by the 887 MW of incremental wind and it would be helpful to understand (i) what the total amount of existing resources are in Wyoming today and how much of that is wind (ii) how much wind was added to the model during Q1-Q5 studies and (iii) how much and what type of resources were added during the Quarter 6 analysis.</p> <p>Based on the reference on line 122 and other places, it is confusing whether the Q6 analysis was done with 1,100 MW or 887 MW. The report is also unclear about what resources were included in the model in Wyoming prior to Q6.</p>	#2	7/23/17	<p>NTTG Wyoming existing resources include 3580 MW of thermal and 1350 MW of wind today. In the Q3-Q4 analysis, the wind was studied at about 1300 total MW (see line 276).</p> <p>PacifiCorp submitted an additional 887 MW in Q1 and that value was updated to 1100 MW in Q5. Neither the 887 MW nor the 1100 MW incremental wind were modeled in Q3&Q4. See text added on Lines 271-272. Footnote 4 was also added to line 36.</p> <p>In Q6, there was a total of about 2450 MW of wind capacity assumed in Wyoming (1350 existing plus 1100 additional submitted by PacifiCorp). Section IID describes the selection of the 2175 MW study level.</p>
	39-41	While it is unclear what resources were added in Wyoming prior to Q6 and after (see previous comment), in addition, the reference on lines 39-41 suggests that 1,100 MW of new wind resources were added to the model during the Q6 analysis with no additional transmission beyond what had	#3	7/23/17	No studies were directly performed to assess the Wyoming system performance at either the 887 or 1100 MW level. (see response to prior comment). However, the test of the Null case on the Fq6 was

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		<p>already been included prior to Q6. This suggests the transmission additions (Energy Gateway) identified in the model prior to Q6 included at least 1,100 MW more capacity than what was needed.</p> <p>The FERC Order 1000 compliance filings of the NTTG members commits them to study non-transmission alternatives (see Section 16.2 of Idaho Power's Attachment K). Please explain what alternatives (lower voltage lines, fewer segments, variable energy resource curtailments, etc.) were analyzed in the development of the dRTP.</p>			<p>unable to be solved above 1800 MW. That indicates the system is inadequate to accommodate the 887 MW Q1 submittal (see lines 500-503). Additionally, the inspection of the several Null cases in the report (D2a-Null and F-Null with Wyoming Wind at 610 MW/1260MW respectively performed in Q1) indicates that transmission additions are necessary. The conclusion that at least 1,100 MW surplus capacity is unfounded.</p> <p>Transmission Providers typically include non-transmission alternative analysis in their IRP's, so the effect of these alternatives is included in the NTTG rollup of the TP's plans. In NTTG's Data submittal form there is a section for TP's and stakeholders to submit non-transmission alternatives to be considered.</p> <p>Lower voltage transmission lines, fewer segments would not be considered non-transmission alternatives. TWG did review whether lower voltage (345 kV) could replace several segments of the IRTP, but found that firm transfer requirement exceeded capacities of those replacement circuits. TWG also considered whether all of the segments of the IRTP were necessary for the forecasted transfers, CC23 case which had fewer segments</p>

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					<p>was ultimately selected as the preferred configuration.</p> <p>TWG did have limited discussions concerning other resource locations, however, NTTG does not have the scope or information necessary to assure the alternate resources satisfy the LSE's requirements.</p>
	49-52	<p>The High Wyoming Wind Case, studies a transmission constraint in the PacifiCorp East Balancing Authority created by the addition of significant amounts of high simultaneous wind dispatch in Wyoming, which constitutes an extreme event. PacifiCorp's OATT requires that Transmission Customers agree to re-dispatch resources during any period when the Transmission Provider determines that a transmission constraint exists on the Transmission System (see Sections 30.5 and 33.2 of PacifiCorp's OATT) typically caused by extreme events. Why was the high wind scenario not treated as an extreme event and resource re-dispatching used to mitigate transmission constraints?</p>	#4	7/23/17	<p>As discussed in section IIID, the condition studied by NTTG would not be considered an extreme event when over 10% of the year production levels exceed the 2175 MW study level. Text added to section IIID to explain this.</p> <p>NTTG does not have the information necessary to perform the resource re-dispatch suggested. In order to do so, the full capacity and energy costs to serve network customers including costs of associated with the curtailed energy is required, a subject outside NTTG's jurisdiction. In addition, NTTG assumed in its study work that the Wyoming Wind resources were to be delivered to customers on a non-interruptible basis.</p>
	56-59	<p>The simultaneous southern Idaho exports coupled with Wyoming Wind exports (likely converging in PACE) appears to reveal an over-build of resources when combining the Idaho Power and PacifiCorp IRPs. How do these studies address a resource overbuild scenario? Did NTTG study a re-optimized "capacity expansion" plan as an alternative to transmission?</p>	#5	7/23/17	<p>NTTG did not assume that this was a resource over-build condition, rather assumed that the information rolled up by the TP's were in load resource balance as provided by the LSE's.</p> <p>NTTG does not re-optimize the resource capacity expansion of its members.</p>

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	57-59, 109	<p>The statement that the high wind case resources are being scheduled to network load is misleading. This is evident when comparing the summer (and winter) peak and high wind cases.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Summer Peak</th> <th colspan="2">Winter Peak</th> <th colspan="2">High Wind Case</th> </tr> <tr> <th>Gen</th> <th>Load</th> <th>Gen</th> <th>Load</th> <th>Gen</th> <th>Load</th> </tr> </thead> <tbody> <tr> <td>PACE</td> <td>9,125</td> <td>10,645</td> <td>10,031</td> <td>9,773</td> <td>10,155</td> <td>5,321</td> </tr> <tr> <td>PACW</td> <td>1,485</td> <td>3,845</td> <td>1,993</td> <td>3,678</td> <td>290</td> <td>2,032</td> </tr> <tr> <td>ID</td> <td>3,149</td> <td>4,148</td> <td>2,529</td> <td>2,923</td> <td>1,911</td> <td>1,762</td> </tr> <tr> <td>MT</td> <td>2,691</td> <td>2,021</td> <td>2,283</td> <td>1,981</td> <td>2,226</td> <td>1,145</td> </tr> <tr> <td>PGN</td> <td>1,402</td> <td>3,442</td> <td>2,424</td> <td>4,113</td> <td>433</td> <td>1,675</td> </tr> <tr> <td colspan="2">NTTG total</td> <td>17,852</td> <td>24,101</td> <td>19,260</td> <td>22,468</td> <td>15,015</td> <td>11,935</td> </tr> <tr> <td colspan="2">NTTG export / (import)</td> <td>(6,249)</td> <td></td> <td>(3,208)</td> <td></td> <td>3,080</td> <td></td> </tr> <tr> <td colspan="2">NTTG gen to load ratio</td> <td>74.1%</td> <td></td> <td>85.7%</td> <td></td> <td>125.8%</td> <td></td> </tr> </tbody> </table> <p>Compared to the summer peak load case, the high wind case total NTTG footprint load level was reduced by 12,166 MW and the total NTTG footprint resources were only reduced by 2,837 MW while increasing the total PACE resource output by 1,030 MW. With half the NTTG load and minimal net</p>				Summer Peak		Winter Peak		High Wind Case		Gen	Load	Gen	Load	Gen	Load	PACE	9,125	10,645	10,031	9,773	10,155	5,321	PACW	1,485	3,845	1,993	3,678	290	2,032	ID	3,149	4,148	2,529	2,923	1,911	1,762	MT	2,691	2,021	2,283	1,981	2,226	1,145	PGN	1,402	3,442	2,424	4,113	433	1,675	NTTG total		17,852	24,101	19,260	22,468	15,015	11,935	NTTG export / (import)		(6,249)		(3,208)		3,080		NTTG gen to load ratio		74.1%		85.7%		125.8%		#6	7/23/17	<p>The ID-Northwest cutplane was already at its maximum export capability in both the D2 export case and the F case so no energy could be dispatched that direction.</p> <p>The additional incremental 1100 MW of Wyoming wind in the Fq6 case remained within the NTTG footprint. Additional text added to section IIID to discuss the quarter 6 dispatch of the incremental energy.</p> <p>NTTG neither tracks nor is aware of the energy balancing act taken by a company's portfolio, that tracking is accounted for in a company's IRP.</p>
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		resource change, the difference is a substantial amount of net export from the NTTG footprint or 3,080 MW. Specifically, the PACE area was modified to a net export of 4,834 MW. The high wind case scenario should be used for interregional studies only and not internal NTTG footprint needs because it is a high net export scenario with unrealistically high resource output in PACE that is being exported outside the NTTG footprint for economic gain. Because the high wind scenario is a high net export scenario, with extremely high net exports from PACE, it should not be used to identify needs for NTTG network load service.			
	63	The statement that the 2014-2015 pRTP "was not reliable" remains unsubstantiated. This statement and the addition of significant amounts of new transmission into the plan, despite the reduced load projections (highlighted in Table 1) and despite the reduced resource projections (highlighted in Figure 2), was pointed out during previous comment periods but has not been sufficiently addressed. The pRTP followed the NTTG process and was determined to be reliable but the difference appears to be that in the current study cycle there are deliberate modifications being made to the model/power flow cases to reach a very narrow or limited scenario with simultaneous dispatch of all wind resources to near maximum output across Wyoming and scheduling of those resources (along with all the other Wyoming resources) across an area of the system with known transmission limitations to PACW and locations outside of the NTTG footprint. How was the prior study determined to not be reliable? What justification was used to dispatch the PACE resources to a level that is 1000 MW higher (total of 10,155 MW) than what was used/needed during the summer peak hour while at the same time modifying the PACW dispatch to less than 300 MW? Why were other resources not backed down in the NTTG footprint, specifically in the PACE area? Why is this scenario case being treated as an NTTG footprint reliability need when it is comprised of an unrealistic	#7	7/25/17	The prior Regional Transmission Plan (pRTP) referenced in this sentence is the second change case shown in Change Case metric on page 27. The pRTP was tested in Cases D1, D2 and F. Cases failed to be reliable as shown in Figures 20, 23 and 26 (Figure 23 was added to the report). The 2014-15 planning cycle did not consider moving new renewable resources to the western portion (Oregon) of the NTTG footprint. A plan that was unable to make these transfers while maintaining adequate system performance would not be considered a reliable plan.

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		resource mix in PACE and heavy exports (4,834 MW) from PACE to other locations mostly external to the NTTG footprint?			
	92	What are the units on Figure 1? Millions/yr?	#8	7/23/17	Levelized <u>Capital</u> related costs. This will be clarified in the report, see title to Figure 1.
	118	Are the "Resource Additions (MW)" nameplate values? What are the average MW values?	#9	7/23/17	Nameplate Values
	123-132	Why is the 2024 resource forecast stated as 3592 MW when Figure 2 suggests that it was 7592 MW? Is this an error and the reduced forecast from 2024 to 2026 should have been -4392 MW or -137.25%? How does the 3000 MW of wind resources not included in the current cycle factor in to the difference?	#10	7/23/17	In the 2014-15 study cycle, 3000 MW of resource additions were not considered resource to serve NTTG footprint load, they were used in the analysis of interregional transfers supporting an interregional project. The 3000 MW contributes the majority of the difference between 2014-15 and this cycle. Increased coal retirements are also contributing.
	185-186	When considering a "more efficient or cost effective" transmission plan, what analysis was performed or alternatives considered to compare the large transmission addition related costs identified in the plan versus non-transmission alternatives, lower voltage lines, alternate routes or segments, curtailing the variable wind resources or modifying output of other Wyoming resources to manage potential constraints? Based on the narrow heavy export scenario used to identify the transmission needs and the lack of consideration of non-submitted alternatives, the study appears to be designed around justifying the need for the submitted projects rather than seeking to determine realistic internal NTTG reliability needs and the most efficient or cost effective plan that addresses those needs.	#11	7/23/17	See response to #2.
	239-248	Please explain more about how the load forecasts were increased from a 1 in 2 load forecast to a 1 in 5 and 1 in 10 load forecast? For example, was this process uniformly applied to all WECC loads or just some NTTG members or regions? Were the grossed up loads coincided or was load diversity	#12	7/23/17	The peak load summer and winter cases for the NTTG footprint were adjusted. Loads outside the footprint remained at the co-incident 1 in 2 loads exported from the Production Cost Model.

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		preserved. To achieve the load values for PacifiCorp's BAAs, a 1.25% annually compounded load growth rate beginning in 2015 would be required to achieve the loads used in the "Summer Peak Case." PacifiCorp's 2017 IRP assumes a peak load growth rate of 0.86% (see Page 3 of PacifiCorp's 2017 IRP). This is a 45% increase in the load's compounded annual peak growth rate. This is an aggressive assumption that is not justifiable.			Depending of the area's load peaks within the NTTG footprint resulted in each area being adjusted differently. For example in the summer peak case, PacifiCorp's loads were increased 5% since it plays a large factor in determining the NTTG peak. Whereas Idaho and Northwestern were adjusted 10% because their co-incident peak that coincided with PacifiCorp's was much lower. For PacifiCorp, this resulted in studying their system at 103% of their 1 in 2 loads for the summer case.
	300, 315, 324, 333, 345, 354, 370	These figures all show flows from LADWP to PACE. Has an assumption been introduced that LADWP will begin operating the DC line in a South to North configuration? If so, what is the basis for this assumption?	#13	7/23/17	The interchange between LADWP and PACE is an AC interchange between IPP and Mona and does not represent the flow on the IPP DC which is internal to the LADWP system.
	370	Figure 10 is missing tie-line flow information or it cannot be read as well as many of the other tie line figures.	#14	7/23/17	This appears to be a PDF conversion problem as the word version is ok. This will be corrected.
	372-374	If the load remained the same between case F and Fq6 and the wind resources in Wyoming were increased, what resources were decreased and why? Why was this same method of decreasing resources in PACE not utilized in creating case F? The resource increases/decreases in the stressed condition cases appear to be arbitrary or chosen based on "creating" stress in a particular part of the system without regard to being realistic and economically dispatched. In other words, stressing a particular part of the NTTG footprint by whatever means necessary is not justified, especially when the means include unrealistically or improbably high dispatch scenarios in one single part of the system and exporting the unrealistically high output outside of NTTG to create the transmission constraint. The	#15	7/23/17	Colstrip 3, Emery/Hunter3, Huntington 2 were the principal adjustments to the Fq6 case. There were also adjustments in the existing wind in Wyoming to reflect the selected 2175 MW dispatch level. Brownlee was reduced and Coulee increased to maintain ID-Northwest within its planned rating due to loopflow caused by the dispatch of power from Wyoming to Utah. See text added at lines 388-392.

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		resulting issues and transmission needs identified from case F are more representative of an interregional issue/study based on the many, many modifications and assumptions and the level of resources being exported out of the NTTG footprint.			
	376	Why is transmission being justified to maximize the value of some resources over others?	#16	7/23/17	This is an incorrect conclusion. All incremental resources were studied on a firm transmission capacity basis and evaluated similarly.
	All	<p>The high wind case is a very narrow and unrealistic possibility that does not justify the massive transmission additions suggested in the report. Please explain how the simultaneous combination of all of the following case modifications and associated transmission additions are justified for determining reliability needs for NTTG load and transmission service within the NTTG footprint:</p> <ol style="list-style-type: none"> 1) If there is a deviation from the L&R submissions and the load level is increased to a 1 in 5 or 1 in 10 level, 2) And if all the wind resources in Wyoming are simultaneously dispatched to near maximum output, 3) And if the Wyoming wind resources are treated as non-economically dispatched or must-take generation, 4) And if the other resources in Wyoming and PACE in general are maintained at near maximum high levels (unrealistically high, more than is dispatched for summer peak), 5) And if the PACE area is modified to be the only area in the entire WECC footprint (with the exception of San Diego) with a higher resource dispatch than was dispatched for the summer peak hour, 6) And if the NTTG footprint as a whole is modified to a high net export level of 3,080 MW, 7) And if the resources in PACW are reduced to a near minimal amount, 8) And if the PACE area is modified to a net export of 4,834 MW, 	#17	7/23/17	<p>The load level adjustment was only applied to the Peak Summer and Peak Winter cases (A&B) to assure realistic peak loading conditions within the NTTG footprint. See text added at line 248.</p> <p>NTTG did not study the combination outlined in 1 through 9. NTTG selected this high wind case as a possible dispatch (a selected coincident hour) and as noted in response to ID# 35 the studied wind capacity could be exceed 10% of the time during the year.</p> <p>Resource selection by its Transmission Providers is outside the scope and jurisdiction of NTTG.</p>

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		<p>9) And if the combined net import/export of PACE and PACW is modified to a net export 3,092 MW (disregarding network load service needs)</p> <p>This list of modifications to craft a very narrow scenario for the high wind case is not justified for the NTTG footprint. The wind case should be utilized in an interregional study forum due to the resource export nature of the case and the unrealistically high resource output from one particular area (Wyoming) of the NTTG footprint.</p> <p>The "Stress Conditioned Cases" selected for analysis appear to attempt to answer the question, "what combination of scenarios could necessitate the transmission projects identified in each member's local transmission plan?" A more important and difficult question for NTTG to answer is, "are there coordinated, regional actions that could be adopted which would mitigate the cost for layered transmission projects while maintaining reliability?"</p>			

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		The Utah Office of Consumer Services (Utah OCS) appreciates the opportunity to provide comments on NTTG's 2016-2017 Draft Final Regional Transmission Plan (DFRTP). The Utah OCS understands that NTTG does not determine local cost allocation of transmission assets. However, the Utah OCS asserts that the DFRTP may play a role in local regulatory and policy decisions regarding the prudence and cost recovery of transmission assets. That being said, the true value of the DFRTP would be to provide adequate information in order for local policy and regulatory decision makers to fully understand the plan and its implications. The DFRTP identifies potential future reliability issues without providing sufficient information and detail for decision makers to determine if these issues could actually impact their constituents or to determine the underlying drivers of the issues.	#18	7/23/17	The DFRTP is the result of the assumptions outlined in the report. The consumers of the report must recognize this and factor it into its deliberations. NTTG modified the report to further clarify this aspect of the analysis. Paragraph inserted at line 16.
		Furthermore, in its reliability conclusions, the plan boldly states: "...the NTTG area is not reliably served in the year 2026 without including the following non-committed regional projects: [Boardman to Hemingway, Gateway West, Gateway South, Antelope]". This statement communicates to DFRTP readers that these projects are a "must have". The Utah OCS challenges this statement based on the inherent uncertainty of modeling the system 10 years in the future, the possibility that other combinations of transmission projects could be more cost effective and the lack of non-transmission solutions being considered to solve perceived reliability problems.	#19	7/23/17	See response to #18. Future uncertainty is always a risk in long term planning (especially 7 to 15 years into the future to complete transmission facilities), but it somewhat mitigated by reevaluating updated load and resource assumptions in the next planning cycle. As long as the project(s) are non-committed the proposed future transmission or non-transmission may change.
		The Utah OCS has identified the following additional concerns with the DFRTP:	#20	7/23/17	These "highly unlikely or unrealistic scenarios" (Utah OCS words) do occur. The purpose of the null cases is to test whether the existing system accommodate future

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		The plan indicates that the Null Case (existing transmission) is sufficient for the High Winter Load Case; while for the High Summer Load Case, the Null Case has the least reliability issues. Therefore, the other stress Cases are driving the reliability conclusions. This raises questions of whether the Plan's reliability conclusions are based on highly unlikely or unrealistic scenarios.			transmission requirements. Focusing on just the two peak hours (summer and winter) will ignore the fact that there are other hours than can stress the system and those conditions should also be planned for. Each case (A through F) was selected for a specific purpose. For example, the Heavy Southern Idaho Import case (D1) was selected to coincide with an import condition of the Idaho Power system. Each of these cases are just as likely as another to occur during a year.
		PacifiCorp's 2017 IRP shows very little load growth after the inclusion of energy efficiency. Therefore, it is very counter-intuitive that the transmission system actually requires the massive investment called out in the NTTG DFRTP or that the NTTG system needs the increased level of resources studied in the DFRTP to serve load.	#21	7/23/17	NTTG studies the commitments and obligations submitted by its data providers and stakeholders.
		The reliability issues identified in the DFRTP occur when massive amounts of energy flow across the NTTG system – whether imports of energy from other areas or exports of wind energy from Wyoming. The DFRTP should be clear to explain when flows are of an inter-regional nature and not of a local nature to better inform local policy and regulatory decision makers.	#22	7/25/17	No. The Performance of the B2H Export case (see heatmap D2a-pRTP, added to the report) using the existing wind capacity of 2017, indicates the transmission would be incapable of reliably transferring the incremental RPS resources to the Oregon jurisdictions.
		The High Wyoming Wind case occurs on September 17, 2026 at 2:00 a.m. (see Table 8). System loads on this day and time would be very low. The Plan should clearly explain what load this energy would be serving and whether the energy could even be effectively utilized at that output level or whether this is a highly unrealistic scenario.	#23	7/23/17	High wind production in Wyoming is not a highly unrealistic scenario and is described fully in section IIID.

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		In the stressed condition cases that call for additional transmission to be built, the Plan should clearly indicate who the beneficiaries of the new transmission would be. It is important to understand who is driving the need in order to inform local policy and regulatory decision makers.	#24	7/23/17	NTTG focus is to determine if there is a "more efficient or cost effective" regional plan than is provided by Transmission Provider's. This determination is made using the FERC approved metric (see ID# 1) which do not include a beneficiary analysis.
		PacifiCorp's 2017 IRP calls for the addition of 1,100 MW of new wind resources in Wyoming while only building one small segment of the Gateway Project, the 140-mile segment D2 of Gateway West. The Utah OCS is uncertain if the DFRTTP provides enough detail in order for stakeholders to reconcile the assumptions and modeling between the wind scenarios in the PacifiCorp IRP and the NTTG DFRTTP.	#25	7/23/17	NTTG can only assess the information provided to it. NTTG is not going to speculate as to why PacifiCorp only included one segment in its IRP. If ultimately the other dfRTP segments are dropped from consideration by PacifiCorp, NTTG assumes that those changes will be captured in the 2018-2019 study cycle.
		The "heat maps" appear to over simplify and over dramatize the transmission contingencies resulting from power flow modeling of the stress Cases. They do not help in understanding what the contingencies are, where exactly they are occurring and what the options are (besides building massive transmission lines) to mitigate them.	#26	7/23/17	NTTG performed over 100 reliability studies with over 400 contingencies. It would very difficult to present those results to a typical stakeholder and also maintain CEII confidentiality. The heat maps are scaled such that performance issues that can be easily mitigated are downplayed, and the more significant thermal overloads are identified. NTTG feels that these maps provide the best compromise between detail and understandability. This information is available to stakeholders as long as they have necessary clearance.
		Page 15 of the DFRTTP indicates that BA loads were adjusted to get peak loads that were 1 in 5 to 1 in 10 peak load conditions. The Utah OCS is concerned that this adjustment when coupled with other conditions in the stress Cases could result in very unrealistic scenarios.	#27	7/23/17	Please see the response to #12

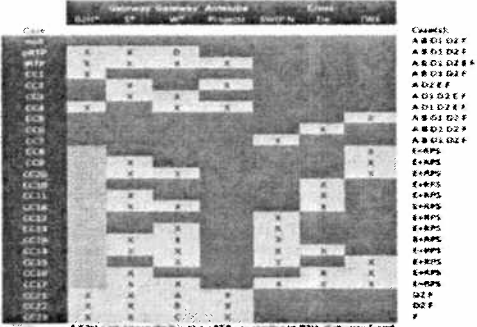
DRAFT

Committer Contact Information			NTTG Tracking Information		
Date: July 21, 2017					
Name: Gary Dodge & Robert Pomeroy			Committee Assignment: Planning Committee		
Organization: Utah Associate of energy Users (UAE) & Wyoming Industrial Energy Consumers (WIEC)					
Comments			NTTG Responses		
DFRTP Section	Page/Line #	Comment	ID#	Response Date	Response & Incorporated Changes (if any) (Section, Page, Table, etc.)
		The Utah Association of Energy Users (UAE) is an organization representing dozens of large Utah energy users, including industries, commercial entities, universities and hospitals, most of which are served by Rocky Mountain Power, a division of PacifiCorp. The Wyoming Industrial Energy Consumers (WIEC) is an unincorporated, non-profit association whose members are large electric consumers in Wyoming that operate facilities within the service territory of Rocky Mountain Power, from whom they purchase electricity and energy services. UAE and WIEC submit the following comments on the NTTG 2016-2017 Draft Final Regional Transmission Plan (dRTP) issued on June 30, 2017.	#28	7/23/17	Thank you for your comment, no response required.
		The dRTP selected Change Case 23 as the most economical combination of transmission projects that also meets the reliability needs of the system. This is the same combination of transmission investments that was selected in the first phase of NTTG's biennial planning process in the Draft Regional Transmission Plan (dRTP). Change Case 23 includes the addition of the Antelope Transmission Projects, Boardman to Hemingway, and the Energy Gateway (EG) projects without Midpoint to Hemingway #2, Midpoint to Cedar Hill or Populus to Borah.	#29	7/23/17	You are correct that the configuration modeled in Change Case 23 was selected.
		UAE and WIEC have concerns with the results and conclusions of the NTTG dRTP, specifically with regard to its conclusion that the majority of the Energy Gateway (EG) projects are needed to maintain reliability across the region. UAE and WIEC have concerns with the robustness of the reliability analysis that provides the justification for these projects being selected in the plan, as well as the granularity in which the drivers of project need are defined in the plan. UAE and WIEC understand that the	#30	7/23/17	See the response to #18, #24 and #26.

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		dfRTP does not address regional cost allocation for EG because PacifiCorp did not submit EG to be considered for regional cost allocation. UAE and WIEC also understand that NTTG does not engage in local cost allocation activities within a service territory such as PacifiCorp's. However, the results of the NTTG Final Regional Transmission Plan (FRTP) may be utilized and might impact the assumptions and results of other related planning processes, including those involving potential local and regional cost allocations. Therefore, the justification of the reliability need for transmission projects, as well as the drivers and beneficiaries of that need, are critical components to be included in the transmission plan.			
		<p>The Change Case Scenarios do not provide for robust testing of reliability driven transmission projects</p> <p>NTTG's transmission planning process is an iterative process that involves testing multiple Change Cases, each of which consists of a different combination of Alternative Projects to determine an "optimal" combination of transmission projects to be selected in the plan. There is a null case which consists of only committed transmission projects; projects that are already in-service or already under construction. The null case effectively represents the present transmission system.</p> <p>Various combinations of alternative non-committed projects are modelled on top of the null case to produce the Change Cases. It would not be feasible to create a change case for every possible combination of Alternative Projects, so NTTG uses its</p>	#31	7/23/17	<p>The structure of the change cases studied was to analyze conditions focused on understanding reliability impacts of adding or not adding non-committed projects that relied on the combined planning experience of the Technical Working Group to make the change case selection. NTTG has presented the rationale for the change case matrix a number of times, including Planning Committee and Stakeholder meetings. (For example see NTTG's website for stakeholder meeting on December 13, 2016 and planning meetings on October 12, 2016 and November 9, 2016) With or without the Antelope Projects was considered, but not including them would not have met the requirement of certain network customers.</p> <p>There would have been over 100 heat maps to shift through, so only a select subset were included to document the</p>

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		<p>engineering judgment and incorporates stakeholder feedback to come up with a set of change cases intended to provide a robust analysis. The optimal change case selected must meet the reliability needs of the system and should be more economical than the other change cases that also meet the region's reliability needs. Therefore, the results of NTTG's transmission planning analysis are highly sensitive to the scope and structure of the change case scenarios developed for testing.</p> <p>The EG projects are divided into Gateway South (EG South) and Gateway West (EG West). Each of these projects consists of hundreds of miles of transmission, and in the case of EG West, multiple large segments. When multiple large transmission segments are grouped together in the different combinations of Change Cases, the need for a single segment can cause the entire grouping of transmission segments to be selected to meet reliability needs. Given the lack of granularity in results provided by NTTG, there is no way for stakeholders to discern if all of the segments in a Change Case are needed for reliability, or if only a subset of one or more of those segments is needed. Furthermore, there is no means for a stakeholder to identify where and how a particular Change Case is deficient. UAE and WIEC recognize that NTTG did test four different combinations of EG West transmission segments. However, for a project the size and magnitude of EG West, UAE and WIEC believe that a more robust testing of EG West segment combinations would be appropriate, and that those combinations should be tested more robustly with other combinations of Alternative projects and granular results of</p>			<p>pertinent findings of the analysis (see response to ID# 26). CC1 for example excluded the Antelope projects, the addition of those projects would not have resolved the performance issues east of Populus. Similar engineering judgement was used to combine segments of projects to enable the transfer of the resources provided in the Q1 and Q5 submittals.</p>

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		<p>those studies should be made available for review by stakeholders.</p> <p>The Antelope Projects were conceived to meet the needs of a nuclear generation project proposed by UAMPS to be located in Idaho. Given that this generation resource was included in the modeling performed by NTTG, one would expect those projects to be needed to accommodate that resource, especially since the projects are more akin to a generator interconnection versus a regional network expansion. In that case, we would anticipate that any Change Case without the Antelope Projects would fail to meet reliability needs. Indeed, per NTTG's analysis, the only Change Cases found to meet the reliability needs of the entire region do include the Antelope Projects. Therefore, it is unclear whether certain other Change Cases would have met the reliability needs of the system if those Change Cases had included the Antelope Projects. None of the Change Cases 5 through 17 that tested the need for the Interregional Transmission Projects (ITP) included the Antelope Projects. Change Cases that may have otherwise met the reliability needs of the system, perhaps more efficiently than Change Case 23, may have been excluded because they did not include the Antelope Projects. NTTG should adjust its Change Cases to isolate the impact of the Antelope Projects from the impacts of the other Alternative Projects. The Change Case matrix diagram helps to illustrate the patterns discussed above.</p>			

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		 <p>The change case does not include the non-scheduled Project. The change case includes the non-scheduled Project. Highway West without Midpoint-Highway #2 and Cedar Hill Midpoint. Highway West without Borah-Midpoint-Lyons and Pomona-Borah. Highway West without Midpoint-Highway #2, Cedar Hill-Midpoint and Pomona-Borah. Highway West without Midpoint-Highway #2, Cedar Hill-Midpoint, Pomona-Borah, Highway West, and Midpoint-Borah-Lyons. The change case was run with and without B2N.</p> <p>Table 9 - Change Case results used in the development of the report</p>			
		<p>The specific drivers of reliability needs should be more clearly explained.</p> <p>PacifiCorp load forecasts have continued to decline since the EG projects were first proposed. In PacifiCorp's IRP process, it has recently indicated that 89% of forecasted load growth in the next 10 years (NTTG planning horizon) will be met with incremental energy efficiency resources¹. Per the dfrTP, the demand forecast for the entire NTTG region is forecast to grow 284 MW by 2026,</p>	#32	7/23/17	<p>Good observation. The totals for 2015 and 2026 Q5 do not add up correctly. The Totals in table 1 will be updated to reflect the correct amounts:</p> <ul style="list-style-type: none"> • 2015 – 22112 MW • 2026 Q5 – 23620 MW

¹ PacifiCorp 2017 IRP Public Input Meeting 8, pg. 5.

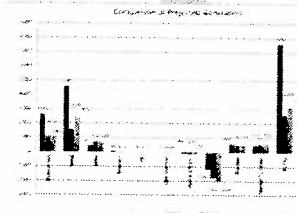
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		<p>based on the totals in Table 1 of the dFRTP report, shown below². However, the values in Table 1 for the 2015 Actual Peak Demand and 2026 Summer Load Data Submitted in Q5 2017 for each utility do not actually add up to the total value shown in the chart. So, NTTG needs to clarify what the correct load values should be for each utility and the region as a whole.</p> <table border="1" data-bbox="394 722 955 1023"> <thead> <tr> <th>SUBMITTED BY:</th> <th>2015 Actual Peak Demand (MW)</th> <th>2024 Summer Load Data Submitted in 2016-15 (MW)</th> <th>2026 Summer Load Data Submitted in Q1 2016 (MW)</th> <th>2026 Summer Load Data Submitted in Q5 2017 (MW)</th> <th>Difference (MW) 2024-2026</th> </tr> </thead> <tbody> <tr> <td>Idaho Power</td> <td>3,730</td> <td>4,193</td> <td>4,346</td> <td>4,340</td> <td>147</td> </tr> <tr> <td>NorthWestern</td> <td>1,790</td> <td>1,774</td> <td>1,992</td> <td>1,992</td> <td>218</td> </tr> <tr> <td>PacifiCorp</td> <td>12,634</td> <td>14,002</td> <td>13,414</td> <td>13,414</td> <td>-588</td> </tr> <tr> <td>Portland General</td> <td>3,958</td> <td>3,933</td> <td>3,885</td> <td>3,674</td> <td>-59</td> </tr> <tr> <td>TOTAL*</td> <td>22,947</td> <td>23,902</td> <td>23,637</td> <td>23,231</td> <td>-282</td> </tr> </tbody> </table> <p>* Loads for Discret G&T and USMPS are included in PacifiCorp East</p> <p>Table 1: January 2016-2017 Data Submittal – Load Comparison</p>	SUBMITTED BY:	2015 Actual Peak Demand (MW)	2024 Summer Load Data Submitted in 2016-15 (MW)	2026 Summer Load Data Submitted in Q1 2016 (MW)	2026 Summer Load Data Submitted in Q5 2017 (MW)	Difference (MW) 2024-2026	Idaho Power	3,730	4,193	4,346	4,340	147	NorthWestern	1,790	1,774	1,992	1,992	218	PacifiCorp	12,634	14,002	13,414	13,414	-588	Portland General	3,958	3,933	3,885	3,674	-59	TOTAL*	22,947	23,902	23,637	23,231	-282			
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		<p>In the most recent data submittal update, the dFRTP resource forecasts were increased to include 550 MW of new Montana wind and 1100 MW of incremental Wyoming Wind³. According to the dFRTP Figure 2, shown below, there are 3200 MW of incremental resources forecast by 2026. Table</p>	#33	7/23/17	<p>Un-designated network purchases by Idaho Power and one of PacifiCorp's network customers were excluded from table since the source state could not be identified (525 MW). Footnote 14 was added to explain this difference.</p>																																				

² NTTG dFRTP Table 1, pg. 8. Difference between Total 2015 Actual Peak Demand (22,947 MW) and 2026 Summer Load Data Submitted in Q5 2017 (23,231 MW).

³ NTTG dFRTP, pg. 9. Note 887 MW of the 1100 MW were inadvertently not included in dRTP.

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		<p>2 of the dFRTP appears to provide a breakdown of the forecasted incremental resources in 2026 by state. However, there is another discrepancy here between the total incremental resources in Table 2, which sum to 2673 MW, compare to the 3200 MW of incremental resources shown in Figure 2. Again, NTTG needs to clarify the correct incremental resource values for stakeholders.</p> <p>Assuming one of these two incremental resource forecasts is correct, the 10---year planning horizon incremental resource forecast is significantly decreased compared to the forecast in the NTTG 2014--- 25 study cycle by either 4392 MW or 4919 MW⁴.</p>			

⁴ NTTG dFRTP, pg. 9, Figure 2. Note NTTG DFRTP, Table 2, pg. 8, shows 777 MW of incremental resources in Wyoming compared to the 1100 MW of incremental resources submitted by PacifiCorp in Q5. Sum total of incremental generation in Table 2 is 2673 MW which does not match total projected generation in Figure 2, pg. 9 of 3200 MW.

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		<p>2026 Forecasted Resources</p> <table border="1"> <thead> <tr> <th>State</th> <th>Resource Additions (MW)</th> </tr> </thead> <tbody> <tr> <td>Arizona¹²</td> <td>-414</td> </tr> <tr> <td>California</td> <td>-59</td> </tr> <tr> <td>Idaho</td> <td>860</td> </tr> <tr> <td>Montana</td> <td>874</td> </tr> <tr> <td>Nevada</td> <td>-262</td> </tr> <tr> <td>Oregon</td> <td>22</td> </tr> <tr> <td>Utah</td> <td>872</td> </tr> <tr> <td>Washington</td> <td>3</td> </tr> <tr> <td>Wyoming¹²</td> <td>777</td> </tr> </tbody> </table> <p>Comparison of Forecasted Resources</p> 	State	Resource Additions (MW)	Arizona ¹²	-414	California	-59	Idaho	860	Montana	874	Nevada	-262	Oregon	22	Utah	872	Washington	3	Wyoming ¹²	777			
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		NTTG should provide more granular detail about the reliability drivers that justify the selection of large and costly transmission investments, such as EG South and EG West, in its F RTP. Assuming	#34	7/23/17	Reviewing the resource mix change provided by the TP's, retirements of large high load factor coal units and replacing																				

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		the data in the table is somewhat accurate, albeit inconsistent, the incremental NTTG forecasted resources are significantly larger than the incremental forecasted load. It is clear that if the forecasted resources are built there will be more generation capacity additions than load additions within the NTTG region.			that energy with lower capacity factor renewables are the principle reliability drivers.
		NTTG should provide more detail about the conditions that purportedly cause the need for specific transmission projects. For example, the dFRTP states that the four non-committed projects in Change Case 23 are needed when considering all the modeled existing Wyoming wind is simultaneously dispatched to 95% or more and scheduled to the west to meet NTTG's loads ⁵ . NTTG should provide more information about the assumed dispatch of other resources and exports during this scenario. This kind of information will help stakeholders understand the likelihood and frequency of this type of scenario occurring, as well as the operating conditions and mitigations, like re-dispatch of resources, that could be employed when considering the significant costs of these transmission projects.	#35	7/23/17	The Q4 dRTP used 95% of the existing wind capacity. The Q6 studies updated the wind representation to include about 90% of existing and incremental wind. The dispatch of other resources in Wyoming did not change between Q4 and Q6.
		NTTG should also consider separate but ongoing planning proceedings that relate to its transmission plan. For example, in PacifiCorp's ongoing IRP process and recent application for approval to construct wind resource and transmission facilities ⁶ , it has presented a plan to add up to 1270 MW of new Wyoming Wind resources, plus segment D2 of EG West from Aeolus to Anticline. The plan calls for the wind projects to be operable by	#36	7/23/17	NTTG relies on its TP's to inform NTTG through the Q1 and Q5 data submittals. PacifiCorp will have an opportunity in Q1 of 2018 to provide updates to their planned additions. The NTTG scope does not include all the information nor jurisdiction necessary to critique an individual IRP analysis.

⁵ NTTG dFRTP, pg. 5.

⁶ Utah PSC Docket: 17-035-40

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		the end of 2020 in order to take full advantage of the federal production tax credits. PacifiCorp's plan to add significant additional Wyoming wind resources by building EG West segment D2 by 2020 seems to imply an expectation that the existing transmission system, with the addition of EG West segment D2, can operate reliably with significant additional Wyoming wind generation. NTTG should test a similar scenario to the one that its member PacifiCorp is considering. Stakeholders would benefit from an understanding of the different conditions in which the system might operate reliably with 1270 MW of Wyoming Wind and EG West segment D2 from Aeolus to Anticline versus the high Wyoming wind scenario modelled by NTTG that requires the 4 non-committed projects in Change Case 23, with estimated capital costs of \$4.21 billion ⁷ , in order to maintain reliability.			NTTG lacks the negotiated energy costs/generator Capacity costs, allocations of such between its jurisdictions, etc..
		Conclusion UAE and WIEC submit that the dfrTP lacks sufficient justification for the inclusion of the EG projects. First, accurate and consistent data about the loads and resources needs to be provided for stakeholders. Further, more detail should be provided so that stakeholders can understand which loads and which resources are being modelled in the various scenarios, like the High Wyoming Wind Scenario, so that stakeholders can understand how likely that scenario is to occur.	#37	7/23/17	See NTTG's response to the above comments/questions. NTTG believes, based on the assumptions outlined in the report as modified, that dfrTP meets the needs of the NTTG Footprint. The Table 1 totals have been corrected.

⁷ NTTG dfrTP, pg. 41, Table 10 Validated Cost Estimates

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		<p>Stakeholders should also be able to understand the resources that are being exported in the scenarios being tested. Based on the data provided in the dfRTP, both the load and resource forecasts appear to have declined significantly since the last planning cycle which could alleviate the conditions that were driving the need for previously selected transmission projects. These changing conditions and needs should be explained.</p> <p>The planned incremental resources far exceed the planned incremental loads in the region and there has been significant interest throughout the western interconnection in developing Wyoming wind resources to serve loads in other regions, like California. If the scenarios that drive transmission needs don't occur frequently, perhaps there are operational mitigations, like re--- dispatching other resources, that could be more cost effective than new transmission, especially if there is an oversupply of capacity in the region. It is also important to understand the extent that exporting wind resources is driving the need for new transmission. If Wyoming wind is not being used to serve loads within NTTG, that is important information to include in the transmission plan, and to inform stakeholders.</p> <p>The lack of granularity and robustness surrounding the Change Case evaluation and the drivers of the regional reliability needs cause us to question the analytical findings of the NTTG regional plan. NTTG should improve its analysis to provide more information to its stakeholders and deliver a more robust reliability analysis to support its transmission plan.</p>			

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IV.F and VII	24/358-374 and 40/561-577	<p>For the High Wyoming Wind Case, the load and generation shows 11,935 MW and 15,015 MW respectively. This load/resource scenario is primarily caused by PacifiCorp Energy Supply Management (ESM) proposing to increase their Wyoming wind resources significantly through repowering existing wind generators and adding new wind generators. Because of this, the Study needed to add "a number of Gateway West segments not included in the pRTP". Figure 10, although it is missing some information, appear to show that there are significant exports from the NTTG footprint to accommodate this new generation.</p> <p>Since it appears from reviewing their IRP that PacifiCorp ESM is adding this resource as a network resource for their retail loads, which are showing negative load growth, and are not showing a similar amount of existing resource retirements, the conclusion that we have reached is that these resources are being proposed for loads outside the NTTG footprint.</p> <p>PacifiCorp or Idaho Power did not propose any of the Gateway West segments that are needed for this scenario for cost allocation, so it is confusing that the preferred plan includes transmission facilities to handle resources that are significantly surplus to the load needs of the footprint.</p> <p>So UAMPS questions why would the NTTG plan include transmission facilities for resources that are deemed to serve</p>	#38	7/26/17	<p>The Fq6 case correctly modeled the resource retirements and wind resources submitted in Q1 and updated in Q5 and NTTG understands that these resource were submitted to meet local load on a firm transmission basis. See response to #15.</p> <p>NTTG does not have sufficient information to make a determination whether the submitted resources are subject to curtailment provisions or must be curtailed on a prorata firm basis and the commensurate cost responsibility.</p>

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		local load in the local area plan that are significantly over the needs of the loads. We realize that the new resources are variable and so will not replace the existing capacity MW for MW, but the transmission additions, if any, should be for serving load within the NTTG footprint and not to facilitate exports unless cost allocation to the beneficiaries is requested. We also feel that with the addition of wind generation, that redispatch of the new and existing generation to the extent possible to serve the load as provided for in the PacifiCorp Open Access Transmission Tariff should be evaluated before building new transmission. Was redispatch of existing generation looked at in the development of the plan?			