Witness OCS - 2D

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of Rocky Mountain Power for Approval of a Significant Energy Resource Decision and Voluntary Request for Approval of Resource Decision	)))))	Docket No. 17-035-40

REDACTED DIRECT TESTIMONY OF

PHILIP HAYET

FOR THE

OFFICE OF CONSUMER SERVICES

DECEMBER 5, 2017

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Philip Hayet. My business address is 570 Colonial Park Drive, Suite 305, Roswell, Georgia, 30075.

Q. PLEASE STATE YOUR OCCUPATION, EMPLOYMENT, AND ON WHOSE BEHALF YOU ARE TESTIFYING.

A. I am a utility regulatory consultant and Vice President of J. Kennedy and Associates, Inc. (Kennedy and Associates). I am appearing on behalf of the Office of Consumer Services ("Office").

Q. WHAT CONSULTING SERVICES ARE PROVIDED BY KENNEDY AND ASSOCIATES?

A. Kennedy and Associates provides consulting services related to electric utility system planning, energy cost recovery, revenue requirements, regulatory policy, and other regulatory matters.

Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS AND APPEARANCES.

A. My qualifications and appearances are provided in Hayet Direct - Exhibit OCS-2.1. I have participated in numerous PacifiCorp and Rocky Mountain Power (or the "Company") cases involving net power costs, resource acquisitions, and avoided costs over the past 15 years.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I discuss my review of the Company's request for approval of its significant energy resource decision to construct or procure new wind capacity pursuant to Utah Code Section 54-17-302, and for approval of its resource decision to construct new and upgrade existing transmission facilities pursuant to Utah Code Section 54-17-402 (collectively referred to as the "Projects"). My review included examining the Company's economic evaluation studies, and evaluating the risk factors that could ultimately impact the benefits of the Projects.

Q. WHAT ARE YOUR FINDINGS AND RECOMMENDATIONS?

A. Based on my review, I am concerned that the potential benefits of the new wind/new transmission projects could be greatly affected by significant risks, including the possibility of a relatively low to medium gas and CO_2 cost future, federal tax code changes currently under consideration,[1] project delays that could result in the loss of Production Tax Credit ("PTC") benefits particularly given PacifiCorp's dependence on third party wind developers, cost overruns that would reduce any potential economic benefits or lead to economic harm, questionable modeling assumptions, that other more economic resource plans may exist that have not been duly considered, and that these Projects may greatly complicate the on-going Multi-State Process, whose outcome is highly uncertain at the present time. If the proposed Projects go forward, and the negative consequences of these risks occur, the Projects may not provide any benefits, and ratepayers could be harmed. It would be one matter to consider these Projects if resource adequacy was a concern, but that is not the case as these Projects are primarily justified based on economics, and the benefits that PacifiCorp has identified are not substantial or assured, and simply do not outweigh the risks for ratepayers.

I also continue to be concerned, as I was in the Repowering docket (Docket No. 17-035-39), that PacifiCorp's decisions to proceed with these Projects were not fully vetted through an open and public process, in which stakeholders were afforded the opportunity

[1] Office witness Donna Ramas addresses the potential tax code changes in greater detail in her direct testimony.

to request additional information and studies based on alternative modeling assumptions. Based on these concerns, I do not believe that PacifiCorp has proven in accordance with Utah Code Sections 54-17-302 and 54-17-402, that the new wind and transmission projects will most likely result in the acquisition, production, and delivery of electricity to its customers at the lowest reasonable cost and least risk possible. In conclusion, I recommend that the Commission deny the Company's request.

II. BACKGROUND

Q. PLEASE SUMMARIZE WHAT LED TO PACIFICORP PROPOSING ITS REPOWERING AND NEW WIND/NEW TRANSMISSION PROJECTS?

A. PacifiCorp conducted a series of IRP General Public Meetings with stakeholders between June 2016 and March 2017, and these Projects were first discussed with stakeholders at the last meeting on March 2, 2017. At that meeting, PacifiCorp presented results of sensitivity analyses that it had considered, including repowering 905 MW of existing wind resources, and adding an additional 900 MW of Wyoming wind and constructing the D2 segment of the Energy Gateway project (Aeolus to Anticline). The Company's March 2, 2017 power point presentation concludes that the Gateway Sensitivity (GW4) would only be beneficial to ratepayers under a high natural gas price scenario. Nevertheless, PacifiCorp explained that it intended to continue examining the Gateway Sensitivity as it worked to prepare its 2017 IRP Report, which it released one month later in April 2017. The Company explained it believed that the Gateway Sensitivity represented a time limited opportunity due to the expiration of PTCs, set to expire at the end of 2020.[2]

Q. SINCE THE IRP REPORT WAS RELEASED IN APRIL, WHAT ADDITIONAL INFORMATION HAS PACIFICORP REVEALED ABOUT COMMITMENTS IT ALREADY MADE TO THE NEW WIND PROJECTS?

A. PacifiCorp witness Chad Teply revealed in his June 30, 2017 direct testimony that a competitive procurement process "was held in 2016 to procure the Company's "safe harbor" wind turbine generator equipment."[3] In response to OCS 1.60, the Company also indicated that [redacted] in time to meet the PTC deadline.

PacifiCorp's initial results that were discussed at the March 2017 IRP General Public Meeting were not promising, since the only case that indicated positive benefits was the high gas case.[4] However, PacifiCorp indicated that it would further examine the Projects, including identifying additional benefits such as reliability improvements, line loss savings, and energy imbalance market benefits, and performing power flow analyses to refine its transmission assumptions.[5]

Q. BEFORE DECIDING ON THE NEW WIND/NEW TRANSMISSION DID PACIFICORP PRESENT A SUITABLE PREFERRED PORTFOLIO?

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[2] Pages 41 to 43, Public Input Meeting 8, http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2017_IRP/PacifiCorp_2017_IRP_PIM08_03-01-17_Final_Presentation.pdf.

[3] Chad Teply Direct Testimony, line 255.

[4] http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2017_IRP/PacifiCorp_2017_IRP_PIM08_03-01-17_Final_Presentation.pdf, at page 41.

[5] Id. at 43.

A. Yes, at its March General Public Meeting, PacifiCorp presented a Draft Preferred Portfolio without the new wind/new transmission projects, that included additions of 905 MW of wind repowering, 1,030 MW of new wind, including 428 MW in 2021 and another 602 MW by 2036, and 1,157 MW of new solar installed between 2031 and 2035.[6] It also included incremental energy efficiency resources and added 832 average MWs of summer front office transactions over the first 10 years of the study period. The Company stated the following regarding the Draft Preferred Portfolio:[7]

- The resource mix reflects a cost-conscious transition that is increasingly less reliant on coal generation without major incremental emission control retrofits; focused on alternative compliance outcomes.
- Assumed coal unit retirements total 749 MW by 2025 and 3,649 MW by the end of 2036.
- The first new natural gas resource (436 MW CCCT) is added in 2029, one year later than in the 2015 IRP; 1,789 MW of new natural gas capacity is added by 2036 (1,389 of CCCT and 400 of SCCT).

Q. WHAT DID PACIFICORP DO TO FURTHER EVALUATE THE NEW WIND/NEW TRANSMISSION PROJECTS?

A. Between its final IRP meeting and filing its 2017 IRP Report, PacifiCorp refined the following assumptions:

- Increased the D2 segment transmission transfer capacity from 650 MW to 750 MW.
- Reduced the cost of wind capital costs from $1,834/kW to $1,637/kW.
- Reduced the transmission line capital costs by $113 million.
- Lowered the eastern Wyoming wind capacity factors from 43% to 41.2%.

[6] The Office clarifies that it does not support the Repowering projects, and notes that PacifiCorp also identified another portfolio (OP-NT3) that would have been suitable as well, that did not include the Repowering projects.
[7] Id. at 5.

- Accounted for a 12 aMW line loss benefit associated with the D2 segment.
- Accounted for a 146 MW reduction in transmission line outages associated with the D2 segment.
- Accounted for an incremental EIM benefit, in which intra-hour EIM sales could increase due to the availability of the additional transfer capacity.

Based on these modeling changes, PacifiCorp reported it had identified an additional $185 million in benefits attributable to the new wind/new transmission projects.[8]

Q. WHAT WERE THE RESULTS OF PACIFICORP'S FINAL IRP SCREENING STEP?

A. In its final IRP screening step, PacifiCorp compared the case with the new wind/new transmission alternative to its next best portfolio from the prior screening step. In that analysis, PacifiCorp reported that the total present value revenue requirement of the new wind/new transmission case was $22,730 million, and resulted in a small savings of approximately $52.2 million, or about .23%, compared to the case without the new wind/new transmission projects.[9]

Q. WHAT NEAR TERM MAJOR RESOURCES DID PACIFICORP ULTIMATELY DECIDE TO INCLUDE IN ITS PREFERRED PORTFOLIO?

A. By the beginning of 2021, PacifiCorp's 2017 IRP Preferred Portfolio includes repowering 905 MW of existing wind capacity, adding 1,100 MW of new wind resources, and building a new 140-mile, 500 kV transmission line running from the new Aeolus substation near Medicine Bow, Wyoming, to a new Bridger/Anticline substation near the Jim Bridger

[8] PacifiCorp 2017 IRP Report, Table 8.14, page 221.
[9] Id., Figures 8.52 and 8.53, pages 224 – 225.

power plant.[10] As part of the power flow analyses it performed when it conducted its final IRP evaluations, it determined that the transfer capacity could increase from 650 MW to 750 MW, and that the amount of near-term new wind that could be added could increase from 1,100 MW to 1,270 MW.[11]

Q. DO YOU BELIEVE PACIFICORP'S PREFERRED PORTFOLIO WAS SUBSTANTIALLY BETTER THAN ITS DRAFT PREFERRED PORTFOLIO?

A. While I was not a participant in the IRP, it does not appear that any participant had an opportunity to provide much input to PacifiCorp on the development of its IRP given the expedited process PacifiCorp has been following, in which information has only been shared at the last minute. Nevertheless, I am unconvinced that the selected Preferred Portfolio that was discussed in the 2017 IRP Report was significantly better than the Draft Preferred Portfolio or some of the other non-selected portfolios. Furthermore, the addition of the new wind/new transmission projects in the preferred portfolio was not necessary in order to satisfy either the Company's 13% planning reserve margin requirement, or the Company's transmission reliability requirements. The Draft Preferred Portfolio already met those requirements, including relying on its long-standing practice of allowing Front Office Transactions ("FOTs"), to meet a portion of its capacity needs. PacifiCorp even indicated that the amount of FOTs in the Draft Preferred Portfolio was "down 5% from the 2015 IRP."[12]

The new wind/new transmission projects should be strictly viewed as an economic opportunity to take advantage of PTCs. While there is no question there would be PTC

[10] Id. at page 2.
[11] Rick Link Direct Testimony, line 156.
[12] PacifiCorp's March 2017 IRP General Public Meeting presentation, at page 5.

and associated wind energy benefits, these benefits simply do not offset all of the risks ratepayers would have to assume to construct and operate these Projects. Because there is no need for capacity, this represents a disproportionate assignment of risk to ratepayers. Furthermore, PacifiCorp has acknowledged that while there may be potential downside risks, there could also be potential upside benefits, which PacifiCorp believes should also be considered.[13] I disagree. Given that these projects are not needed to satisfy the Company's reliability needs, ratepayers should not be asked to take a gamble on a $2 billion-dollar investment for the possibility of such modest benefits, even if the benefits may be somewhat more than the Company has identified.

III. THE COMPANY'S ECONOMIC EVALUATION IN THIS PROCEEDING

Q. DID PACIFICORP PERFORM ADDITIONAL MODELING ANALYSES TO FURTHER SUPPORT ITS REQUEST IN THIS PROCEEDING?

A. Yes, PacifiCorp witness Rick Link describes the system analysis of the new wind/new transmission projects, and he explained that PacifiCorp relied on the same methodology used to develop and analyze resource portfolios as in its 2017 IRP. Least cost resource portfolios were developed using its System Optimizer ("SO") model, and its Planning and Risk ("PaR") model was used to assess stochastic system-cost risks associated with the Projects. The Company developed optimal expansion plans under a range of assumptions, with and without the Projects to determine which one would lead to lower net present value revenue requirements. PacifiCorp developed low, medium and high natural gas and market

[13] PacifiCorp Witness Rick Link made this argument in his October 19, 2017 rebuttal testimony in the Wind Repowering Docket (Docket No. 17-035-39), at lines 807-816.

price scenarios, and zero, medium and high CO2 price scenarios, which collectively PacifiCorp referred to as "price-policy" assumptions. Additional sensitivity cases were analyzed to consider the additional benefits of repowering, and the additional benefits if the new wind resources operated for 40 years, rather than 30 years.

Q. DID PACIFICORP FURTHER REVISE ITS ASSUMPTIONS REGARDING THE TRANSMISSION PROJECTS IT WOULD CONSTRUCT WHEN IT FILED TESTIMONY IN THIS PROCEEDING?

A. Yes, PacifiCorp witness Rick Vail discussed that there would be two sets of "Transmission Projects," not just the one discussed in the IRP. He referred to the first set as the "Aeolus-to-Bridger/Anticline Line", and the second set as the "230kV Network Upgrades."[14] Mr. Vail identified the cost of the Aeolus-to-Bridger/Anticline Line as [redacted] million, which would be paid for by the Company, and the cost of the "230kV Network Upgrades" as [redacted] million, which would be assigned to the wind resource facilities ultimately selected via the Company's 2017 Renewable Resources Request for Proposal ("2017R RFP").

Q. WHAT OTHER MODELING ASSUMPTIONS DID PACIFICORP UPDATE SINCE ITS IRP WAS FILED IN APRIL FOR PURPOSES OF THE ANALYSES CONDUCTED IN THIS PROCEEDING?

A. PacifiCorp updated its price-policy assumptions (natural gas prices, CO2 costs, and market price forecasts), up-front capital costs, run-rate operating costs, and energy output

[14] Rick Vail Direct Testimony, beginning at line 19. Mr. Vail identified the Aeolus-to-Bridger/Anticline Line as including the 140-mile 500 kV segment between Aeolus and Anticline, a 5-mile 345 kV segment to Jim Bridger, and a voltage control device at the Latham substation. He described the 230kV Network Upgades as including a 16-mile 230 kV transmission line parallel to an existing 230 kV line from the Shirley Basin substation to the Aeolus substation, reconstruction of 4-miles of an existing 230 kV line between the Aeolus and Freezeout substations, and reconstruction of 14 miles of an existing 230 kV line between the Freezeout and Standpipe substations.

associated with the wind resources. The additional benefits that it had identified through analyses performed outside of the IRP production cost modeling, were directly incorporated in the production cost input assumptions in this proceeding.[15]

Q. IN THIS PROCEEDING, WHEN IT UPDATED CERTAIN MODELING ASSUMPTIONS, DID PACIFICORP ALSO ATTEMPT TO UPDATE ASSUMPTIONS ASSOCIATED WITH ANY OTHER POTENTIAL RESOURCES SUCH AS SOLAR RESOURCES?

A. No, it did not. PacifiCorp's efforts to update its modeling assumptions were biased in that all of the changes to resource assumptions that the Company made were focused on updates to the new wind/new transmission projects. For the most part, the changes the Company made improved the economics of those projects, yet the evaluation the Company was attempting to make compared the new wind/new transmission projects to other potential resource alternatives whose modeling assumptions were not reviewed nor adjusted in any way. For it to have obtained an accurate assessment of the economics of the Projects, PacifiCorp should have updated all resource modeling assumptions, not just those that affected the new wind/new transmission projects.

Q. WHAT ARE PACIFICORP'S PLANS FOR ACQUIRING NEW WIND RESOURCES?

A. PacifiCorp has issued an RFP seeking up to 1,270 MW of new wind resources, which would have to be fully constructed by December 31, 2020, to be eligible for all available PTC benefits. As part of the RFP, PacifiCorp proposed a set of site-specific, self-build options that it referred to as Benchmark Resources. The Company's RFP application

[15] OCS 1.27.

indicated that the Benchmark Resources would ensure there is enough PTC-eligible new wind resource capacity available to deliver the customer benefits that were identified in the 2017 IRP.[16] PacifiCorp's expectation is that either its Benchmark Resources would be found to be least cost, and would be selected as the winning bids, or wind projects submitted by independent developers would be selected as lower cost winning bids.

Q. ARE THE BENCHMARK RESOURCES TRULY SELF-BUILD OPTIONS?

A. No. It appears the only Benchmark Resource that PacifiCorp proposes to build itself is a 110 MW project, known as McFadden Ridge II, which PacifiCorp would develop on a site it controls, and which would connect to PacifiCorp's Foote Creek Rim substation. There are three other Benchmark Resources it identified, amounting to 250 MW each, which are currently under the control of a third-party developer. Two of these, known as TB Flats I and TB Flats II, would connect to the Shirley Basin substation, and the other, Ekola Flats, would connect to the new Aeolus substation. Together these four projects would provide 860 MW of nameplate capacity.

Q. HOW DID THE COMPANY MODEL WIND RESOURCES IN ITS ANALYSES IN THIS PROCEEDING SINCE THE RFP IS ONGOING?

A. Even though the RFP is on-going, the Company modeled the four specific Benchmark Resources that it identified, amounting to 860 MW, in its economic evaluation. In addition, PacifiCorp identified and modeled [redacted] MW QF projects that have been proposed for development that it found in its transmission interconnection queue, known [redacted], amounting to 320 MWs total. PacifiCorp stated these projects would

[16] PacifiCorp Docket No. 17-035-23, June 16, 2017, Application for Approval of Solicitation Process for Wind Resources, page 10.

be added to its System in the Aeolus area, have executed power purchase agreements ("PPAs"), and occupy a preferential position in the transmission interconnection queue. PacifiCorp also stated that it included these QF projects because it believes they are expected to be in service by the end of 2021.[17] Together, these 1,180 MWs of resources equal about the amount of new wind capacity that the Company identified in its Preferred Portfolio in the IRP.

<u>RISKS ASSOCIATED WITH THE PROJECTS</u>

Q. HAVE YOU IDENTIFIED RISKS THAT ARE BEING DISPROPORTIONATELY ASSIGNED TO RATEPAYERS?

A. Yes, these risks include:

1. The risk that ratepayers would be harmed or would only receive modest benefits if fuel costs and CO2 costs remain in the low to medium range.
2. The risk that changes in proposed tax laws could eliminate a considerable portion of the benefits from the PTCs, which could make the Projects uneconomic depending on the outcome of the tax code changes.
3. The risk that the Projects might not be completed on time, which would jeopardize PacifiCorp's opportunity to receive all available PTC benefits. In addition, the Company would also be at risk of losing Bonus Depreciation benefits if project completion occurs after the end of 2020.
4. The risk that the Projects might not be completed within the budget, which would decrease the economic benefits of the Projects.
5. The risk that PacifiCorp's reliance on third party wind developers might lead to problems in completing all of the wind projects, or in completing all of them on time in order to receive all of the PTC and energy benefits.
6. The risk of questionable modeling assumptions, which overstate the benefits of the Projects.

[17] Chad Teply direct testimony, at line 101.

7. The risk that PacifiCorp has not fully evaluated all opportunities that could lead to a lower cost resource plan with less risk compared to the Company's Preferred Portfolio with the new wind/new transmission projects. There are still unanswered questions related to the Dave Johnson Retirement and potential for other renewable resources such as solar to be a part of an optimal resource plan.

8. The risk that the current level of uncertainty in the Multi State Process (MSP) could complicate a fair allocation of costs to Utah ratepayers. This issue is discussed by Office Witness Bela Vastag.

1. Price-Policy Forecast Risk

Q. PLEASE DISCUSS THE RISK THAT RATEPAYERS WOULD BE HARMED OR WOULD RECEIVE MODEST BENEFITS IF FUEL COSTS AND CO2 COSTS REMAIN IN THE LOW TO MEDIUM RANGE.

A. In my testimony in the Repowering docket (17-035-39), I stated, and I continue to believe, that the Company's low to medium natural gas/CO2 price range is the most likely projection of future fuel and CO2 costs. According to the Company's economic evaluation results of the new wind/new transmission projects that are presented in Mr. Link's Table 2 (to-2036 study) and Table 3 (to-2050 study), if a low gas and either a low or medium CO2 future occurs, then ratepayers would be harmed from the over $2 billion investment that PacifiCorp is planning to make. The harm for these price-policy cases, based on the Company's PaR Stochastic Mean results, range from a negative benefit of $32 million in the low gas, medium CO2 to-2036 case, to a negative benefit of $174 million in the low gas, zero CO2 to-2050 case.[18]

[18] Rick Link Direct Testimony, Tables 2 and 3.

But even if medium gas, medium CO2 prices prevail, which is the outcome that PacifiCorp mostly focused on in many of the analyses it performed,[19] PacifiCorp's economic evaluation results of the new wind/new transmission projects are not compelling. In that price-policy scenario, the results range from $85 million to $137 million on a net present value basis. These are modest benefits, especially considering that on a net present value basis, PacifiCorp's total System revenue requirement, including the revenue requirements associated with its entire expansion plan and all net power costs is expected to be $33,732 million over the 2017 to 2050-time period. A revenue requirement savings of just $137 million compared to a total System revenue requirement of $33,732 million, results in an insignificant total savings of just .4% (or 0.004 times the revenue requirement). Given there is a high probability that natural gas and CO2 prices would be in the low to medium price forecast range, it is simply not worth the risk of investing over $2 billion on these projects, especially since these Projects are not needed to maintain resource adequacy.

2. Tax Law Revision Risk

Q. PLEASE DISCUSS THE RISK THAT PROPOSED TAX LAW CHANGES COULD ELIMINATE A CONSIDERABLE PORTION OF THE PTC BENEFITS, WHICH COULD MAKE THE PROJECTS UNECONOMIC.

[19] PacifiCorp witness Link stated at line 769 of his rebuttal testimony in the Repowering docket (17-035-39), "medium natural gas, medium CO2 prices represents the central forecast, around which the impact of the lower or higher price assumptions can be evaluated." Also, in a report supplied in OCS 1.42 by [redacted], one of PacifiCorp's suppliers of natural gas forecasts, indicated that there is [redacted] Finally, for most sensitivity cases that the Company evaluated in both the repowering and new wind/new transmission proceedings, it focused on the medium gas/medium CO2 case.

A. This relates to the fact that both chambers of the U.S. Congress are currently debating potential federal tax code changes that could have a significant impact on the PTC benefits, which could ultimately render the new wind/new transmission projects uneconomic. This received considerable attention in the Repowering Docket (17-035-39), and in fact parties agreed to delay the remaining testimony and hearing in that docket until April 2018 in part to allow more time to see whether Congress will pass legislation that would impact the benefits of the repowering projects. So far, PacifiCorp has not provided any indication of what it might do regarding the wind projects at issue in this docket if tax code changes are passed, nor has it provided any sensitivity analyses to investigate the impacts of tax code changes on the projects in this proceeding.

Q. HAVE YOU CONDUCTED ANY ANALYSES TO DETERMINE THE IMPACT OF THE POTENTIAL TAX LAW CHANGES?

A. Yes, I have conducted analyses in which I modeled the changes to the tax laws that have been proposed by both the House Ways and Means Committee ("House") in its Tax Cut and Jobs Act that was recently issued on November 2, 2017, and the tax bill that passed through the Senate Finance Committee on November 16, 2017. The House's version included three changes and the Senate's version included one change that would affect PTCs. Ultimately, the House and Senate versions will have to be reconciled and compromises will have to be reached for a tax bill to pass. Since nobody yet knows what will pass, I evaluated both the House and Senate proposed tax code changes as the proposals existed at the end of November 2017.

Q. PLEASE DESCRIBE THE PROPOSED HOUSE AND SENATE TAX CODE CHANGES THAT WOULD AFFECT PTCS.

A. Both the House and Senate have proposed to lower the corporate federal tax rate from 35% to 20%, which would significantly reduce the value of PTCs. In addition, the House has proposed eliminating the inflation adjustment that currently increases the PTC rate on an annual basis. Initially, the PTC rate was set to $15/MWH, and increased based on the rate of inflation. Based on the inflation adjustment, PTCs are currently worth $24/MWH in 2017.[20] But, if the House proposal to eliminate the inflation adjustment is enacted, PTCs would be worth just $15/MWH throughout the 10 years period that PTCs are available.

The third change proposed by the House affects the assumed construction start date. To be eligible to receive 100% of the PTC credit, wind projects must have started construction prior to the end of 2016, and must be completed no more than four years after construction begins. A safe harbor provision exists that allows a project to prove that construction began prior to the end of 2016 if 5% of the total project cost was spent by the end of 2016, and if construction is completed by the end of 2020. PacifiCorp has been planning to make use of this safe harbor provision, however, the House has proposed to eliminate this provision. If it is eliminated, construction on PacifiCorp's projects would be assumed to start in 2018 (see Company Exhibit RAV-10), and based on that start date, the wind projects would be eligible for just 60% of the full PTC value.

Q. DID YOU EVALUATE THE IMPACT OF THESE PROPOSED TAX CODE CHANGES ON THE COMPANY'S PROPOSED NEW WIND/NEW TRANSMISSION PROJECTS?

[20] The PTC benefit to ratepayers is actually higher because PTC benefits are grossed up for income taxes. Based on PacifiCorp's current federal and state effective tax rate of 37.95%, the PTC benefit is actually worth $38.86/MWH. (24 / (1 - .3795))

A. Yes. The following table provides a comparison of the Company's Stochastic Mean PaR results to 2036 under its base case assumptions in which the underlying federal corporate tax rate is assumed to be 35% (Case A), and compares it to two sensitivity cases. Case B is a sensitivity case that assumes the corporate tax rate is reduced to 20% (Senate tax code changes), and Case C reflects all of the House's currently proposed tax code changes. In other words, Case C includes a 20% corporate tax rate assumption, removes the PTC inflation adjustment, and assumes the construction continuity safe harbor provision is eliminated, which would reduce the PTC value to 60% of the full amount available.

Table 1[21]
Comparison of Tax Sensitivity Cases
PaR to 2036 Analyses
(Millions of Dollars)
Negative Means Beneficial

	A	B	C
Price-Policy Scenario (2036 Study)	**Company 35%**	**OCS 20%**	**OCS 20% (No Infl, 60% PTC)**
Low Gas, Zero CO_2	$77	$169	$466
Low Gas, Medium CO_2	$32	$126	$423
Low Gas, High CO_2	($133)	($30)	$266
Medium Gas, Zero CO_2	($57)	$41	$338
Medium Gas, Medium CO_2	($111)	($11)	$286
Medium Gas, High CO_2	($224)	($118)	$179
High Gas, Zero CO_2	($260)	($153)	$143
High Gas, Medium CO_2	($272)	($165)	$132
High Gas, High CO_2	$(409)	($295)	$2
Average Reduction in Benefit from 35% Case		$102	$399

[21] Since the Office did not have access to the Company's SO or PaR production cost models, the Office used the Company's results to estimate its results. It is likely that these results would be somewhat different had production cost modeling been performed, though the differences would not likely be significant. If desired, the Company could run these cases using its production cost models.

The results of the 20% corporate tax rate case (Case B) indicate that the net benefit for each natural gas/CO2 case is reduced by approximately $102 million when the corporate tax rate is lowered to 20%. In this case, five of the price-policy cases either have negative or minimal benefits (all three Low Gas cases, the Medium Gas/Zero CO2 case, and the Medium Gas/Medium CO2 case), and four cases have positive benefits of any significance (the Medium Gas/High CO2 case, and all three High Gas cases). None of these cases provide significant enough benefits to warrant the Company investing over $2 billion on these projects under a 20% federal corporate tax rate.

The results of the House case (Case C) indicate that the net benefit for each natural gas/CO2 case is reduced by approximately $399 million when all three of the proposed House tax changes are implemented. In this Sensitivity, the new wind/new transmission projects would appear to be uneconomic in all of the price-policy cases.

Q. DID YOU CONDUCT A SIMILAR ANALYSIS USING THE COMPANY'S STOCHASTIC MEAN PAR TO 2050 RESULTS?

A. Yes. However, I should point out that while I relied on the Company's results, I do have concerns about the way in which the Company extended its production cost results from 2036 to 2050 without developing either an optimal expansion plan or performing production cost modeling. These tools were not used because PacifiCorp neither wanted to develop the data, nor set aside the time that would have been necessary in order to run the modeling analyses through 2050. Instead, PacifiCorp relied on a method that essentially escalated system benefit results from the 2028 to 2036-time period to use as a proxy for results during the 2037 to 2050-time period. While the Company may attempt to explain the reasonableness of its approach, such as by comparing to market prices, I believe the Company's extension methodology necessarily overstates the net power costs that otherwise would have been produced had optimal expansion planning and production cost modeling been used. Nevertheless, for the sake of completeness, I relied on the Company's results through 2050 based on its modeling methodology. The results are provided in Table 2 below.

Table 2[22]
Comparison of Tax Sensitivity Cases
PaR to 2050 Analyses
(Millions of Dollars)
Negative Means Beneficial

	A	B	C
Price-Policy Scenario (2050 Study)	**Company 35%**	**OCS 20%**	**OCS 20% (No Infl, 60% PTC)**
Low Gas, Zero CO_2	$174	$290	$715
Low Gas, Medium CO_2	$93	$215	$640
Low Gas, High CO_2	($194)	($54)	$371
Medium Gas, Zero CO_2	($53)	$77	$502
Medium Gas, Medium CO_2	($137)	($2)	$423
Medium Gas, High CO_2	($317)	($171)	$254
High Gas, Zero CO_2	($341)	($195)	$230
High Gas, Medium CO_2	($351)	($205)	$220
High Gas, High CO_2	$(595)	($432)	($7)
Average Reduction in Benefit from 35% Case		$138	$563

The results based on the to-2050 analysis follow a similar pattern as the to-2036 analysis. The 20% corporate tax rate case (Case B) indicate that the net benefit for each natural gas/CO2 case is reduced by approximately $138 million when the corporate tax rate is lowered to 20%. In this case, only four of the nine cases have positive benefits of

[22] See footnote 17.

any significance. Again, none of these cases provide benefits that warrant the Company investing over $2 billion on these projects.

The results of the House case (Case C) indicate that the net benefit for each natural gas/CO2 case is reduced by approximately $563 million when all three of the proposed House tax changes are implemented. In this Sensitivity, the new wind/new transmission projects would appear to be uneconomic in eight out of nine cases, and the positive benefit in the High Gas, High CO2 case is negligible.

3. Project Delay Risk

Q. PLEASE DISCUSS THE RISK THAT THE PROJECTS MIGHT NOT BE COMPLETED ON TIME, WHICH WOULD JEOPARDIZE PACIFICORP'S OPPORTUNITY TO RECEIVE ALL AVAILABLE PTC BENEFITS.

A. PacifiCorp is attempting to move this project forward as quickly as possible, in order to reach completion by December 2020 so that it could obtain 100% of the PTC benefits. But PacifiCorp's confidence that it can successfully complete all of the steps along the way on-time is placing ratepayers at too much risk. There are many steps that have to be completed include all permitting, regulatory approvals, right of way acquisitions, equipment procurement, negotiation of contracts, design and engineering, transmission analysis, wind project development, and all construction activities. Ultimately if PacifiCorp is late, it could lose some or all of the tax benefits it is hoping to obtain. Some of the activities that normally would be performed sequentially, are being performed concurrently such as conducting the 2017R RFP while the Company is seeking approval of its new wind/new transmission projects. This is unusual, but the Company has indicated that it needs to proceed this way if it has a hope of completing the project on time. In order for the Company to meet its proposed expedited timeline, it has indicated it would need to receive approval of the new wind/new transmission projects by March 30, 2018, and then to execute contracts with the winning bidders in the 2017R RFP by April 2018.

Q. DOES THIS MEAN THE WIND PROJECTS ARE ON THE CRITICAL PATH?

A. No, the transmission projects will take longer to construct and are on the critical path, however, until the wind resources are decided upon, PacifiCorp cannot proceed with construction of the transmission projects. PacifiCorp witness Chad Teply explains the relationship of the projects as follows:

> On a stand-alone basis, the critical path schedule for the Wind Projects could accommodate a resource approval process that follows the 2017R RFP. As noted before, however, the economics of the Wind Projects are only viable with the Transmission Projects and vice versa; the Transmission Projects are critical path.

Q. ASSUMING PACIFICORP WERE TO EXECUTE CONTRACTS IN APRIL 2018, WHEN DOES IT ANTICIPATE CONSTRUCTION WOULD BEGIN AND BE COMPLETED?

A. According to the Project Schedule attached to Mr. Vail's testimony as Exhibit RAV-10, the Company anticipates that engineering and procurement on the 500 kV transmission lines would be mostly complete, and transmission construction would begin by November 2018. The Company assumes that "substantial completion, under normal construction circumstances, weather conditions, labor availability and materials delivery, will be achieved by November 15, 2020."[23] In other words, assuming normal construction

[23] Chad Teply direct testimony, at line 333.

circumstances prevail, the Company is confident that it would be able to complete the transmission project a mere 45 days prior to the deadline for full PTC eligibility. There is simply no guarantee that normal weather conditions, labor availability or material delivery will occur, and if the Project is ultimately delayed, the PTCs would be in jeopardy.

Q. ARE THERE OTHER BENEFITS THAT THE COMPANY WOULD HAVE TO FOREGO IF THE PROJECTS ARE DELAYED BEYOND 2020?

A. Yes, Bonus Depreciation is another benefit that PacifiCorp would lose if the in-service date of the 500 kV transmission project is delayed beyond December 31, 2020. OCS Witness Donna Ramas discusses this tax depreciation treatment further in her testimony, however, if the Project were to lose bonus depreciation, the economic benefit in the PaR to-2050 medium gas, medium CO2 case would be reduced by about $12 million. While this reduction in benefit may not be significant, it would increase the harm to ratepayers if they were to also lose the PTC benefits.

4. Risk of Project Being Completed Overbudget

Q. PLEASE DISCUSS THE RISK THAT THE PROJECTS MIGHT BE COMPLETED OVER-BUDGET, WHICH WOULD FURTHER ERODE THE ECONOMIC BENEFITS OF THE PROJECT.

A. The economic benefits of these projects depend on the reasonableness of the cost estimates that PacifiCorp has determined. For example, in discovery, PacifiCorp indicated that its confidence in its transmission cost estimate was within an accuracy band of +/- 15%, "given the early nature of the estimate and pending finalization of the scope and approach."[24] Based on a break-even analysis that I performed, an increase in the overall cost of the entire new wind/new transmission project of an amount less than 15% would cause the Project to be uneconomic. I determined that a [redacted] increase in the total new wind/new transmission capital cost would result in the Project being uneconomic based on the Company's medium gas, medium CO2 price-policy PaR to-2050 analysis. In other words, the Company has estimated the capital cost of the new wind/new transmission project would be over $2 billion, and the Company determined that the economic benefit of its medium gas, medium CO2 price-policy PaR to-2050 analysis is $137 million on a net present value basis. If the capital cost of its new wind/new transmission projects increase by [redacted] million from [redacted] million to [redacted] million, then the Project would be uneconomic. This is a slim margin of error, even recognizing that the Company has built in a contingency in its estimates, given that the new wind/new transmission projects are being pursued strictly for economic benefits. Further, considering that there are already three other price-policy cases less economic than the medium gas, medium CO2 scenario, if total project capital costs increase by this amount ($146 million), ratepayers would be harmed under four of the Company's price-policy scenarios.

In the event the Commission decides to pre-approve these projects in this proceeding, then the Office recommends that the Commission specifically include in its Order the approved project costs, and it should specifically identify both the total amount approved and the amount approved on a Utah jurisdictional basis. Furthermore, the Office recommends that at a minimum, the Commission should not pre-approve anything more than the lesser of the amount the Company identified to construct these projects, which is

[24] Idaho PIIC 2-15, provided in response to DPU 1.1

[redacted], or the actual completion cost of the Projects. Therefore, based on a Utah SG jurisdictional factor of 42.6283%,[25] the Utah jurisdictional amount associated with the Company's capital investment projection for the project should not exceed [redacted] ([redacted] * .426283).

5. Risk of Relying on Third Party Developers

Q. PLEASE DISCUSS THE RISK OF RELYING ON THIRD PARTY DEVELOPERS TO CONSTRUCT 1,180 MW OF WIND RESOURCES.

A. As discussed earlier, PacifiCorp's justification for the new wind/new transmission projects was developed based on the assumption that about 1,180 MW of new wind resources would be added to its System. Of the 1,180 MW, PacifiCorp has identified that 860 MW of self-build options, and 320 MW of QF resources could be installed. With regards to the self-build options, the only true self-build project is the 110 MW McFadden Ridge that PacifiCorp is developing on a site that it controls. The remaining 750 MWs are being developed for PacifiCorp by [redacted], under a Development Transfer Agreement. This means that other developers are currently in control of developing 90% (1,070 / 1,180) of the total wind capacity that PacifiCorp is evaluating. If any of these projects are cancelled for any reason prior to 2020, then some of the PTC benefits and energy benefits would be lost, and the Projects could be uneconomic.

Alternatively, PacifiCorp could acquire some of the wind capacity through the 2017R RFP, but there is no guarantee there would be sufficient PTC-eligible capacity

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[25] Exhibit RMP__(JKL-4), line 15, which is the Utah SG factor from Docket No. 13-035-184.

REDACTED

available that would be capable of completing construction by 2020. Again, PacifiCorp's dependence on third party developers could ultimately result in less wind capacity being constructed than PacifiCorp had expected, even though transmission construction may be completed. Furthermore, PacifiCorp has not conducted any analysis to determine the minimum amount of capacity that would be necessary for the Projects to be economic. Possibly, had there been more opportunity for additional stakeholder input concerning the new wind/new transmission projects in the IRP process, this analysis would have been performed. Nevertheless, this information should still be provided.[26]

6. Risk that PacifiCorp Relied on Questionable Modeling Assumptions

Q. PLEASE DISCUSS THE RISK THAT THE BENEFITS HAVE BEEN OVERSTATED BECAUSE PACIFICORP RELIED ON QUESTIONABLE MODELING ASSUMPTIONS.

A. Earlier, I discussed the process PacifiCorp followed in reaching its conclusion that the new wind/new transmission projects should be added to its IRP Preferred Portfolio. Table 8.14 in the 2017 IRP Report summarizes the refinements that PacifiCorp identified that led it to conclude that the new wind/new transmission projects would be economic. PacifiCorp quantified the value of all of the additional benefits as being worth $185 million on a net present value basis. Some of these refinements included reductions in capital costs, which I addressed as part of Risk 4 above, which concerned the prospect that PacifiCorp may ultimately complete the Project over budget. One refinement, referred to as the EIM Value Adjustment, was an adjustment to the Company's base modeling assumptions that affected

[26] The Division submitted a recent discovery request, DPU 10.17, requesting similar information.

PacifiCorp's net power cost results regardless of whether the new wind/new transmission was added. PacifiCorp's other adjustments were associated with benefits that it stated had not been previously identified.

Q. PLEASE DISCUSS THE EIM VALUE ADJUSTMENT.

A. Mr. Link described the EIM value adjustment at line 584 of his direct testimony as follows:

> The more efficient use of transmission that is expected with growing participation in the EIM was captured in the economic analysis of the Combined Projects by increasing the transfer capability between the east and west sides of PacifiCorp's system by 300 MW (from the Jim Bridger plant to south central Oregon).

As Mr. Link stated, the Company increased the transmission transfer limit by 300 MW between the east and west sides of the system as a means of trying to capture the intra-hour benefits of the EIM in its production cost modeling methodology. This change was made to its base modeling assumptions, such that it was incorporated in both the cases with and the cases without the new wind/new transmission projects. PacifiCorp did not analyze the impact of this modeling change in this proceeding, however, it did analyze this when it conducted further investigation of the new wind/new transmission projects just before it issued its IRP Report in April 2017. The results of the investigation PacifiCorp performed were presented in the 2017 IRP Report Table 8.14, which indicated the benefit is worth between $20 - 39 million[27] on a net present value revenue requirement basis.

PacifiCorp's assumption of a 300 MW increase in the transmission transfer limit as a means of trying to capture the intra-hour benefit of the EIM is speculative and unsupported.[28] While there may be some justification for identifying this as an additional

[27] Table 8.14, page 221 of Volume 1 of the 2017 IRP.
[28] As an example, see DPU 4.3 in this docket, and OCS 1.12 in the Repowering Docket No. 17-035-39.

base modeling assumption, the Company has provided no analysis to be able to determine whether the intended benefit should be modeled as a 300 MW transfer limit increase, or something else such as a 30 MW increase. In effect, it is an arbitrary modeling choice used to quantify benefits that are beyond the scope of the capability of the modeling tools that PacifiCorp used in this proceeding.

Another concern is that the Company introduced this new modeling assumption as part of its base set of assumptions late in the IRP process, and it did not include this assumption in any of the original screening analyses it performed, including the Regional Haze or the Core Case analyses that it performed. It was simply not vetted in the IRP, and as mentioned, is a speculative assumption that may have overstated the benefits of the new wind/new transmission projects.

Q. DO YOU HAVE CONCERNS ABOUT ANY OF THE OTHER ADJUSTMENTS PACIFICORP HAD NOT PREVIOUSLY ACCOUNTED FOR?

A. Yes, I have a concern about the line loss adjustment that PacifiCorp identified as an additional benefit resulting from adding the new 500 kV transmission line, which it stated would reduce resistance to real power flows in the eastern Wyoming area. PacifiCorp determined there would be a 12 MW per hour reduction in line losses as a result of adding the new transmission line based on an analysis it performed using the Siemens PSS/E power flow program. Based on this energy savings, PacifiCorp determined there would be a reduction in the net present value revenue requirement of between $19 and $37 million due to the new transmission line. While I do agree there would be some line loss savings due to the addition of the new 500 kV line, I also believe there would be an offsetting increase in losses resulting from the location where the new wind resources are being sited relative to load centers, such as in Utah. Because the new wind resources are located a greater distance from the load center than existing resources, including Currant Creek, Lake Side 1 and 2, and Jim Bridger, losses would increase by some amount in transmitting power to the load centers, such as in Utah. In summary, without also considering the offsetting increase in losses due to transmitting power over a long distance, PacifiCorp's line loss savings benefit is an example of a questionable modeling change that PacifiCorp made at the end of the IRP process, which has likely overstated the benefits of the new wind/new transmission projects.

Q. ARE THERE ANY OTHER QUESTIONABLE MODELING ASSUMPTIONS THAT MAY HAVE OVERSTATED THE BENEFITS OF THE PROJECTS?

A. Yes, another questionable modeling assumption is the Company's extension analysis that it performed to derive Project net benefits during the 2037 to 2050-time period, which I discussed earlier. Since I have already discussed this, I will not repeat that discussion here, however, I would note that the extension methodology is especially concerning in the Company's analysis of the Repowering Sensitivity, in which it added in repowered wind resources on top of the new wind/new transmission projects.

Q. WHAT WERE THE RESULTS OF THE REPOWERING SENSITIVITY?

A. The Company only conducted its Repowering Sensitivity based on its to-2036 analysis, using both its PaR and SO models. The benefits of the to-2036 Repowering Sensitivity were small, just $29 million, based on the SO model, and were in fact negative in the same to-2036 analysis, negative $8 million, using the Company's PaR model.[29] However, without having actually performed an analysis, the Company asserted that the benefits of

[29] Rick Link Direct Testimony, Table 5, pg. 43.

the Repowering Sensitivity would increase significantly if the analysis were extended to-2050.

Q. HAD THE BENEFITS OF THE REPOWERING SENSITIVITY BEEN QUANTIFIED TO-2050, IS IT LIKELY THE COMPANY WOULD HAVE USED ITS EXTENSION METHODOLOGY AS PART OF THAT ANALYSIS?

A. Yes, for analyses that the Company performed in which it computed results to-2050 in this proceeding and in the Repowering proceeding (Docket 17-035-39), it relied on its extension methodology. Therefore, there is every reason to expect it would have relied on that technique had it conducted the Repowering Sensitivity to-2050.

Q. WHY WOULD THE COMPANY'S EXTENSION METHODOLOGY HAVE BEEN EVEN MORE OF A CONCERN IN THE REPOWERING SENSITIVITY?

A. In general, for its extension methodology, the Company relies on benefits derived during the 2027 to 2036-time period, and it adjusts those to calculate benefits during the 2037 to 2050-time period. In the case of the Repowering Projects, the Company assumes that during the 2027 to 2036-time period, the differential in wind energy between the existing wind units and the repowered wind units would be about 550 GWh per year. During the later time period, 2037 to 2050, when the existing wind resources are assumed to retire, the Company assumes the differential in wind energy would increase to about 3,300 GWh per year.

The reason the Company's extension methodology would have been even more questionable in the Repowering Sensitivity relates to this differential in wind energy. During the earlier period, PacifiCorp would have calculated replacement power cost net benefits based on an energy differential of about 550 GWh per year, and it would have used those benefits to calculate replacement cost net benefits during the later period, 2037 to 2050, when the energy differential was assumed to be about 3,300 GWh per year. The problem is there is no reason to expect that the replacement power cost benefits associated with 550 GWh of wind energy during the earlier time period, would be a reasonable proxy for use during the later time period, when extrapolated on a per MWh basis and applied to about 3,300 GWh of wind energy. Had the Company performed the to-2050 Repowering analysis and used its extension methodology, it is likely that the net benefits of the Projects would have been overstated, and therefore, there is no evidence that the benefits of the Repowering Sensitivity would necessarily increase significantly as the Company suggested.

7. Risk that PacifiCorp Has Not Fully Evaluated All Other Economic Opportunities

Q. ARE YOU CONCERNED THAT THERE MAY POTENTIALLY BE LOWER COST RESOURCE ALTERNATIVES THAT PACIFICORP DID NOT CONSIDER?

A. Yes, I have two concerns. I, along with several other parties, expressed the concern that PacifiCorp may not have determined its least cost, least risk resource plan when it performed its 2017 IRP because for example, PacifiCorp did not fairly evaluate the cost of new solar resources. I noted this concern in my testimony in the 2017R RFP proceeding (Docket No. 17-035-23). The Commission concurred with this, and stated:[30]

> We find inconclusive the evidence related to current utility scale solar prices compared against the solar prices PacifiCorp used in its analysis. PacifiCorp provided a reasonable basis for why it used costs generally in excess of $50 per MWh in its analysis, as opposed to the prices some witnesses discussed that are

[30] Commission Order issued September 22, 2017, at page 8.

> closer to $30 per MWh. We consider it reasonable that PacifiCorp's cost assumptions reflect commercially operational solar projects, rather than more recent indicative avoided cost pricing under which no resources have yet achieved commercial operation. We find the evidence from some parties with respect to lower solar prices, though, sufficiently persuasive to justify our suggested modification that the RFP be expanded to include solar resources that are able to interconnect at any point in the PacifiCorp system.

Ultimately, the Commission approved the Company's RFP, however, it suggested PacifiCorp modify its RFP to include solar resources. PacifiCorp did not adopt the Commission's recommendation; however, it committed to and has moved forward with a separate RFP for solar resources (2017S RFP).

Q. IN LIGHT OF PACIFICORP'S COMMITMENT, DO YOU STILL HAVE A CONCERN THAT PACIFICORP MAY BE PROCEEDING TO INSTALL LESS OPTIMAL RESOURCES?

A. I have already noted that my overall view is that the new wind/new transmission projects are not economic, however, on this issue, I believe we will have to wait and see the outcome of PacifiCorp's 2017S RFP. PacifiCorp has taken steps to align the Initial Shortlist deadline for the solar RFP with the Final Shortlist deadline for the wind RFP, which will both occur on January 8, 2017. Therefore, by the time PacifiCorp files Supplemental Direct Testimony on the RFP results on January 16, 2016, it will have had an opportunity to compare the results in the two RFPs. At this point, I will reserve judgement about the reasonableness of this process, however, one issue is clear; we may still not have all the information that we need to evaluate the solar projects, because PacifiCorp does not plan to complete its Final Shortlist evaluation in the solar RFP (March 16, 2018) until after the hearing in this docket has already taken place (between March 6 - March 8, 2018).

Q. WHAT IS YOUR SECOND CONCERN?

A. The second concern, is that PacifiCorp has not provided strong evidence to explain why the new transmission line is necessary, given that the Dave Johnston power plant is set to retire in 2027. Once Dave Johnston retires, presumably the energy from the new wind projects could replace the energy that had been produced by the Dave Johnston (750 MW) plant without the need for constructing the new 500 kV transmission line. However, PacifiCorp has stated that it would need the new transmission line even if it were to retire Dave Johnston early, because the new transmission line would solve voltage constraint issues associated with its 230 kV system that are also a limiting factor in adding more wind to the eastern Wyoming area. Nevertheless, PacifiCorp has not presented any economic analyses in this proceeding, in which it has considered the costs and benefits of retiring Dave Johnston early, and solving the voltage issues with some other possibly lower cost option. I do understand that PacifiCorp has committed to performing such an analysis in the Public Utility Commission of Oregon's IRP Proceeding (Docket No. LC 67). Similarly, I believe that PacifiCorp should present results of that analysis in this proceeding, however, I also think that PacifiCorp should work with stakeholders to allow them the opportunity to identify appropriate modeling scenarios to fully evaluate alternatives that could possibly lead to a more economic, lower risk outcome for ratepayers.

<u>Other General Concerns</u>

Q. DO YOU HAVE ANY OTHER GENERAL CONCERNS ABOUT THE NEW WIND OR NEW TRANSMISSION PROJECTS?

A. Yes, I have some concern about the Benchmark Resources and how the Company plans to meet all of the requirements of the safe harbor provisions in order to secure the full PTC benefits of the wind projects. The Company has identified the self-build projects as follows:

Table 3

Wind Project	MW	Project Cost
McFadden Ridge (Self-build)	110	[redacted]
Ekola Flats [redacted]	250	[redacted]
TB Flats I [redacted]	250	[redacted]
TB Flats II [redacted]	250	[redacted]
Total	860	[redacted]

If the Company relies on the safe harbor provisions, it would have to prove that construction began prior to December 31, 2016, and to do that, it would have to provide the IRS with proof that it had spent up to 5% of the total project cost by the end of 2016. Otherwise, the Company would have to prove that continuous construction work occurred on the project since 2016.

The Company states that the total project cost to construct 860 MWs is expected to be [redacted], and this does not include the cost that the other wind developer would have to spend to construct the [redacted] QF projects. To qualify the 860 MW of new wind projects at an estimated cost of [redacted] using the safe-harbor guidelines, the company would need to prove that [redacted] was invested prior to the end of 2016 (5% of [redacted]). Based on information the Company reported in a discovery response, it spent [redacted] prior to the end of 2016, which is not even half the necessary amount required by the safe harbor provision.[31]

Q. DOESN'T THE COMPANY "HAVE RIGHTS" TO OTHER EQUIPMENT THAT WOULD QUALIFY ADDITIONAL PROJECTS FOR THE PTC'S?

[31] OCS 1.62 in docket 17-035-39

A. As mentioned earlier, PacifiCorp has explained that it would be able to acquire wind resources (TB Flats I & II, and Ekola Flats, 250 MW each) from [redacted], with whom it has a Development Transfer Agreement. It appears that PacifiCorp is counting on [redacted] to provide the Company the ability to qualify up to [redacted] of wind turbine equipment that would satisfy the safe harbor provision.[32] Little additional information is known about the composition of these [redacted] purchases, though based on a recent discovery response it now appears that the safe harbor equipment purchase is in doubt, as PacifiCorp stated, [redacted][33] If the Company does not have rights to, or chooses not to exercise rights to this equipment, the only remaining option for securing PTC qualified projects appears to be through the RFP process. The self-build Development Transfer Agreement used as a benchmark seem purely hypothetical at this point, given PacifiCorp's statement in this discovery response. Furthermore, even less information appears to be known about the status of the [redacted] QFs (320 MW), and whether they may qualify for the PTCs.

Q. DO YOU HAVE ANY CONCERNS REGARDING THE COMPANY'S ABILITY TO INTERCONNECT NEW WIND RESOURCES UNDER THE PROPOSED TRANSMISSION CONFIGURATION?

A. Yes, I have concerns that relate to the consistency of the assumptions that were used in the interconnection studies that were performed for the Benchmark Resources by PacifiCorp Transmission. The Company provided Large Generator Interconnection Facilities Study

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[32] OCS 1.51

[33] OCS 8.12 and 8.15

Reports for Ekola Flats and TB Flats attached to Mr. Teply's testimony, as CAT-1-14 and CAT-2-14 respectively. Study assumptions that were used in the analyses were provided in Section 4.0 of these reports, and one of the assumptions in each report indicated that the [redacted] before these new wind resources would be added. Also, in the Schedule Section (Section 8.0), the Commercial Operation date for the new wind projects is listed as [redacted]. Thus, the results identified in the Facilities Study Reports were predicated on the understanding that significant transmission upgrades would be added to the PacifiCorp System prior to the new wind resources being constructed. It is simply not clear how the results that PacifiCorp Transmission produced are valid given that one of the modeling assumptions was that the [redacted] is assumed to be completed in [redacted], prior to when the new wind resources would be interconnected.

Q. DID YOU ASK DISCOVERY ABOUT THIS?

A. Yes, OCS 1.9 and 1.10 asked for more information about this, and PacifiCorp replied that studies may be revised, but it stated it was "confident that any schedule inconsistencies / updates in interconnection queue documents can be fully resolved if the … proxy project was to emerge as the best choice for the Company's customers…." The Company subsequently provided revised studies in response to OCS 8.5 for TB Flats I and II (Large Generator Interconnection System Impact Restudy Report dated September 4, 2017), yet these studies appear to have similar inconsistencies, in that they assume that the [redacted] beyond the 500 kV Aeolus-to-Bridger/Anticline Line, would be installed in [redacted], and would have to be completed prior to the new wind projects being installed. Furthermore, it appears that the TB Flats II project re-study report also still assumes that the [redacted] would be in-service before that new wind project is interconnected. In fact, there is a note that states:[34]

[redacted]

Q. WHAT ADDITIONAL STUDY ASSUMPTIONS AND RESULTS WOULD BE VALUABLE FOR THE COMPANY TO PROVIDE TO STAKEHOLDERS?

A. Despite the Company's confidence that "any schedule inconsistencies / updates in interconnection queue documents can be fully resolved", it would be helpful to stakeholders and the Commission to have a better understanding of how these inconsistencies will be resolved. For example, are the 230 kV upgrade costs that have been identified legitimate given the requirement that the [redacted] transmission projects would have to be constructed before the new wind projects would be added? PacifiCorp should clearly explain this, and also explain how this would affect the QFs that it is assuming can be built, and how this would affect any of the other resources that the Company may be evaluating in the RFP.

IV. CONCLUSIONS

Q. PLEASE STATE YOUR CONCLUSIONS.

A. As I stated earlier, I am concerned that the potential benefits of the new wind/new transmission projects could be greatly affected by significant risks that I discussed in my testimony. Given the risk of the negative consequences that could occur, and the real

[34] OCS 8.5 attachments "170904 Q0707 LGI SIS Re-Study Report Final CONF.pdf" and "170904 Q0708 LGI restudy SIS Report final CONF.pdf".

possibility that ratepayers could be harmed, I simply do not believe that PacifiCorp has proven in accordance with Utah Code Sections 54-17-302 and 54-17-402 that the new wind and new transmission projects are the optimal least cost, least risk projects available to the Company, and I recommend that the Commission deny the Company's request. This is particularly the case given that the Company simply does not have a need for capacity, and does not need these projects to satisfy its generation reliability requirements. Aside from these risks, I believe there are several unanswered questions that I have discussed in my testimony that PacifiCorp should be required to answer, such as questions about the safe harbor provision and the transmission interconnection studies that were performed.

Lastly, if the Commission were ultimately to decide to pre-approve the Company's projects, which the Office opposes, then the Office recommends that the Commission should specifically include in its Order the approved project costs, and it should specifically identify both the total amount approved and the amount approved on a Utah jurisdictional basis. Furthermore, the Office recommends that at a minimum, the Commission should not pre-approve anything more than the lesser of the amount the Company identified to construct these projects, which is [redacted], or the actual completion cost of the Projects. The Utah jurisdictional amount should not exceed [redacted].

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.