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June 28, 2016

Via Electronic Filing & Federal Express

Public Utility Commission of Oregon
Attn: Filing Center
201 High St. SE, Suite 100
Salem OR 97301

Re: In the Matter of PORTLAND GENERAL ELECTRIC CO.
Petition for Partial Waiver of Competitive
Bidding Guidelines and Approval of Request for Proposals (RFP) Schedule
Docket No. UM 1773

Dear Filing Center:

Enclosed for filing in the above-referenced docket, please find the Supplemental Comments of the Industrial Customers of Northwest Utilities, along with the Affidavit of Bradley G. Mullins and Attachments A and B.

The confidential portions of the Affidavit of Bradley Mullins are being handled in accordance with the protective order issued in this proceeding and will follow to the Commission via Federal Express.

Thank you for your assistance. If you have any questions, please do not hesitate to call.

Sincerely,

<u>/s/ Jesse O. Gorsuch</u>
Jesse O. Gorsuch

Enclosures

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that I have this day served the confidential pages of the **Affidavit of Bradley G. Mullins** upon the parties shown below by mailing copies via First Class U.S. Mail, postage prepaid.

Dated at Portland, Oregon, this 28th day of June, 2016.

Sincerely,

/s/ Jesse O. Gorsuch
Jesse O. Gorsuch

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BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UM 1773

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY, Petition for Partial Waiver of Competitive Bidding Guidelines and Approval of Request for Proposals (RFP) Schedule.	))))))))	SUPPLEMENTAL COMMENTS OF THE INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

I. INTRODUCTION

Pursuant to the Oregon Public Utility Commission's ("Commission") Order No. 16-221 in the above-referenced docket, the Industrial Customers of Northwest Utilities ("ICNU") files these supplemental comments on Portland General Electric Company's ("PGE" or the "Company") Petition for Partial Waiver of Competitive Bidding Guidelines ("Petition"). These comments and the attached affidavit are intended to supplement the record in the event PGE procures new generation through the request for proposals it has filed in this docket.

As the attached Affidavit of Bradley Mullins demonstrates, PGE's proposal to acquire 175 average megawatts ("aMWs") of new generation that is eligible for Oregon's renewable portfolio standard ("RPS") and can capture the full value of the production tax credit ("PTC") will <u>cost customers between $256.6 and $797.1 million</u> on a present value revenue requirement basis ("PVRR"). Contrary to the Company's assertions, therefore, customers will be harmed if PGE goes forward with its request for proposals ("RFP"). Consequently, ICNU continues to consider the Company's proposal to acquire renewable generation in the near term,

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well before it is needed to meet RPS requirements, to be an imprudent resource procurement strategy.

II. BACKGROUND

On December 18, 2015, Congress passed the Consolidated Appropriations Act of 2016, which, among other things, extended the availability of the PTC until 2020, subject to a phase-down provision. To capture the full value of the PTC, PGE has issued a draft RFP for 175 aMW of new RPS-compliant resources that it states must begin construction by the end of this year.[1/] PGE's integrated resource plan ("IRP") and its Petition both indicate that it does not need new resources to comply with the RPS until 2025.[2/] The Company, however, claimed that by capturing the full value of the PTC, it could save customers between $185 and $235 million on a PVRR basis relative to delaying physical compliance until new resources are needed to meet the RPS.[3/] The Company's Petition, therefore, sought a waiver of certain of the Commission's competitive bidding guidelines to provide it with enough time to select resources that could commence construction before 2017.[4/] The Company requested Commission approval of its RFP, however, despite the fact that the RFP does not meet the requirements for approval under the competitive bidding guidelines.[5/]

In comments addressing the Company's Petition, ICNU disputed the Company's claim of customer savings, noting that it was based on speculative predictions of inherently unknowable future events and argued that the least-risk strategy was to delay physical

1/ PGE Petition at 1.
2/ *Id.* at 5; Docket No. LC 56, PGE 2013 IRP Update at 47 (Dec. 2, 2015).
3/ PGE Petition at 5.
4/ *Id.* at 8.
5/ *Id*. at 7; Docket No. UM 1182, Order No. 06-446 at 9 (Aug. 10, 2006) (requiring that RFP align with utility's acknowledged IRP for approval).

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compliance until the Company had a need for a new resource.[6] ICNU also objected to the Company's request for approval of the RFP, arguing that approval would be inconsistent with the competitive bidding guidelines.[7]

At the June 7, 2016 open meeting, the Commission took no action on the Company's request for approval of its RFP, but extended the public comment period on the RFP to June 28, 2016.[8] The Commission "encourage[d] PGE and other stakeholders to engage in timely dialogue with respect to any issues or concerns regarding the proposed RFP."[9] It also allowed the parties to "recommend future proceedings following the filing of public comments and informal discussions."[10]

Following the Commission's order, ICNU requested the workpapers supporting the Company's claim of a PVRR benefit to customers from its early build strategy to capture the full value of the PTC. Mr. Mullins' Affidavit discusses ICNU's review and analysis of these workpapers.

III. COMMENTS

Pursuant to the Commission's order, ICNU discussed with the Company its concerns with the RFP. ICNU wishes to emphasize that it strives to work with the Company at every opportunity and to look for consensus and compromise where possible. In this instance, however, ICNU's objections to the RFP are fundamental. Simply put, ICNU does not consider the Company's proposal to invest over $1 billion in RPS-eligible generation well before that

6/ ICNU Comments at 10 (May 12, 2016).
7/ *Id.* at 5.
8/ Order 16-221 at 1 (June 8, 2016).
9/ *Id.*
10/ *Id.*

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generation is needed to be a least-risk strategy. Moreover, as Mr. Mullins' Affidavit shows, it is also not the least-cost strategy. Consequently, ICNU and the Company were unable to reach agreement with respect to PGE's decision to pursue the RFP.

As Mr. Mullins discusses, the Company's analysis failed to consider the fact that it likely will not be able to use the PTCs generated from resources acquired through the RFP.[11/] PGE has insufficient taxable income to use the PTCs it generates today and is carrying them forward to future years.[12/] Consequently, the Company has established a rate base asset to recognize these PTC carryforwards.[13/] Mr. Mullins shows that, by acquiring new RPS resources eligible for the PTC in the near term, this rate base asset will balloon from the $42.4 million amount included in its last rate case to $423 million in 2027.[14/] The PVRR associated with the return on this asset is $233 million.[15/] Thus, the cost to customers of PTC carryforwards generated by RPS generation acquired through the RFP alone is sufficient to <u>eliminate</u> any benefit customers could potentially realize from capturing the full value of the PTC.

Mr. Mullins also shows that PGE did not consider the cost of replacing or refurbishing RPS generation at the end of its depreciable life, essentially assuming that these resources can continue to run in perpetuity without additional capital upgrades.[16/] The Company has also presented insufficient analysis with respect to other factors that could materially impact the cost of resources it proposes to acquire through the RFP. The Company, for instance, assumes that the resources it selects will be Gorge wind, but does not identify whether the

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11/ Mullins Affidavit ¶¶ 15-16.
12/ *Id.* ¶ 16.
13/ *Id.*
14/ *Id.* ¶¶ 16, 18.
15/ *Id.* ¶ 15.
16/ *Id.* ¶¶ 20-21.

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amount of generation it is seeking could realistically be sited in this area.[17] There is also no indication that the Company considered transmission costs in its analysis.[18] In short, the Company's analysis is insufficiently robust to justify its hasty pursuit of new RPS-eligible generation.

Indeed, rather than pursuing an early build strategy to capture the PTC, Mr. Mullins shows that the least-cost and least-risk RPS compliance strategy for customers is for the Company to delay physical compliance and purchase unbundled RECs to meet 20% of its RPS obligation, the maximum amount allowed by law.[19] Doing so allows the Company to delay physical compliance with the RPS until 2030 and saves customers approximately $540 million relative to PGE's proposal to capture the PTC before considering the additional costs of PTC carryforwards and replacement or refurbishment.[20] When these other costs are included, the total savings to customers relative to PGE's strategy is nearly $800 million.[21]

Notably, Mr. Mullins' observation of the value to customers of unbundled RECs is not unique. The purchase of unbundled RECs is a strategy Commission Staff has recognized would result in substantial cost savings for customers.[22] It is also a strategy PGE itself appears to recognize is the least-cost method of RPS compliance, as it is the strategy the Company is

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[17] *Id.* ¶ 23.
[18] *Id.* ¶ 25.
[19] ORS 469A.145(1).
[20] Mullins Affidavit ¶ 11.
[21] *Id.* ¶ 2.
[22] *Re PGE 2016 Renewable Portfolio Standard Implementation Plan*, Docket No. UM 1755, Staff's Initial Comments at 2-3 (Feb. 17, 2016).

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pursuing in practice.[23/] In 2015, PGE recognized the "good value" unbundled RECs provided and purchased enough to meet the full 20% of its compliance obligation.[24/]

Despite this, PGE has resisted including the use of unbundled RECs in its long-term RPS compliance strategy, citing the lack of an organized market and changing market dynamics.[25/] However, in calculating the PVRR savings to customers of an unbundled REC strategy, Mr. Mullins assumed a nominal levelized cost of $10 per notional MWh.[26/] This is well above current prices for unbundled RECs, which are trading at less than $1.[27/] Thus, even if prices for unbundled RECs increased substantially, PGE would still be better off purchasing these RECs than pursuing an early build strategy. Conversely, if unbundled RECs remain at current prices, then their PVRR benefit to customers is even higher than Mr. Mullins estimates. Furthermore, it is important to reiterate that, even if PGE were reasonable in not incorporating unbundled REC purchases into its long-term RPS compliance strategy, the costs associated with PTC carryforward balances from resources selected through the RFP are alone sufficient to eliminate any alleged economic benefit of early compliance.

Moreover, while the Company appears to see risk in participating in the unbundled REC market, it entirely ignores the substantial risks its early-build strategy pursuant to the RFP would place on customers. As ICNU has argued previously, the Company's claim of cost savings for customers from early action to capture the PTC depends entirely on its ability to

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23/ Docket No. UM 1783, PGE Renewable Portfolio Standard Oregon Compliance Report 2015 at 5 (June 1, 2016) (showing the Company purchased unbundled RECs to meet 20% of its 2015 RPS compliance).

24/ *Id.*

25/ Docket No. LC 56, PGE 2013 IRP Update at 50.

26/ Mullins Affidavit ¶ 11.

27/ Docket No. UM 1783, PGE Renewable Portfolio Standard Oregon Compliance Report 2015 at 2.

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predict the future.[28/] By pursuing early compliance, the Company places all of the risk of inherently uncertain future events on customers (assuming the Company is granted cost recovery). If the PTC is reauthorized, if a new technology arrives that materially impacts the economics of existing RPS resources, if state laws change, if regional electric market dynamics and governance are altered, or if any number of other unanticipated events occur, customers will bear the risk of the impact these events have on the costs of existing RPS resources. In a period of great uncertainty and rapid technological change in the electric generation industry, the prudent strategy is to delay physical compliance for as long as possible in order to minimize the risk that customers will end up supporting uneconomic investments, not to rush to comply with an RPS obligation that is nearly a decade or more into the future.

Although PGE has not demonstrated that the pursuit of its RFP is the least-cost or least-risk path to RPS compliance – or perhaps precisely because of this – the Company has indicated that it will once again seek Commission approval of the RFP following the extended public comment period despite the fact that it cannot meet the requirements for RFP approval under the competitive bidding guidelines.[29/] Should the Company seek approval nevertheless, ICNU reserves the right to provide additional comments addressing such a request.

IV. CONCLUSION

For the foregoing reasons, as well as others articulated in comments filed previously in this docket, ICNU continues to consider the Company's proposal to issue an RFP

28/ ICNU Comments at 10.

29/ Docket No. UM 1182, Order No. 06-446 at 9. PGE does not dispute that its RFP is inconsistent with its most recently acknowledged IRP. Docket No. UM 1773, PGE's Reply to Comments of ICNU at 2-3 (June 1, 2016).

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for 175 aMW of new RPS-eligible resources in the near-term not to be in the best interest of customers. While the Company ultimately is the arbiter of its own resource procurement strategy, these comments are intended to supplement the record with respect to what is known today regarding the prudence of this strategy should the Company acquire new resources through the RFP and seek to include them in customer rates.

Dated this 28th day of June, 2016.

Respectfully submitted,

DAVISON VAN CLEVE, P.C.

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BEFORE THE PUBLIC UTILITY COMMISSION

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I, Bradley G. Mullins, do hereby attest:

1. My name is Bradley G. Mullins. I am the Principal Consultant for Utility Consultants West, where I represent large energy and utility customers throughout the western United States. I am providing this affidavit on behalf of the Industrial Customers of Northwest Utilities ("ICNU"). ICNU is a non-profit trade association whose members are large industrial customers served by electric utilities throughout the Pacific Northwest, including customers of Portland General Electric Company ("PGE" or the "Company").

2. The purpose of this affidavit is to respond to the economic analyses underlying the Company's Request for Proposals ("RFP") in this docket. Specifically, I respond to the Company's claims that construction of an approximately 500 MW (175 aMW) wind resource in 2018 will save ratepayers $185-$235 million on a present value revenue requirement ("PVRR") basis. My analysis demonstrates that, after accounting for three issues identified below, the proposed near-term resource will actually cost ratepayers approximately $256.6-$797.1 million on a PVRR basis. The three primary issues I have identified with the Company's analysis are as follows, and I will discuss each issue in detail, following a brief introduction:

1) *The analysis did not reflect the Company's ability to meet 20% of its RPS requirement with unbundled renewable energy certificates ("RECs"), which will defer an RPS resource need until 2030;*

2) *The analysis did not account for the fact that the Company lacks taxable income to be able to utilize production tax credits; and,*

3) *The analysis did not consider the cost of replacing or refurbishing retired wind facilities.*

I. BACKGROUND

3. To determine the costs and benefits to ratepayers of the Company's proposal to pursue new resources that are eligible to meet Oregon's renewable portfolio standard ("RPS") in the near-term in order to capture the production tax credit, I reviewed the workpapers the Company provided that underlie its analysis. According to the Affidavit of James Lindsay, attached to the Company's petition in this docket, these workpapers support the Company's decision to pursue approximately 500 MW of new RPS resources by providing a PVRR savings of $185-$235 million.

4. Potentially representing over $1 billion in capital, the facility at question in this docket is an enormous investment decision. The proposed 500 MW wind resource would represent the second largest wind facility in the Northwest, behind the 845 MW Shepherds Flat Wind Farm. It would also be approximately twice the size of the Company's recently completed 267 MW Tucannon River Wind Farm. I estimate that a wind facility of this size could result in an approximate 7% rate increase,[1/] which the Company may be allowed to pass on to ratepayers outside of a general rate case.[2/] The prospect of a 7% rate increase is troubling, particularly as it is being justified to satisfy an RPS need that may not materialize until 2030. Not only does this

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1/ Based on the Company's workpapers, a 500 MW wind facility [redacted] which is approximately 7% of the Company's $[redacted] revenue requirement.

2/ ORS 469A.120(2).

create an extreme case of inter-generational equity, but on its face, a 7% rate increase would appear to violate the 4% cost cap detailed in ORS §469A.100(1), though no analysis has been presented by the Company to demonstrate that the cap will not be exceeded.

5. In addition to these general concerns, after correcting for the three issues identified above, I do not believe that the Company is justified on an economic basis in pursuing its proposed course of action. At a minimum, these issues, which will be discussed below, demonstrate the high degree of uncertainty surrounding the Company's proposed strategy, and that the Company's proposed $1 billion investment could result in the imposition of substantial and unnecessary costs on ratepayers.

A. THE ANALYSIS DID NOT CONSIDER UNBUNDLED RECS

6. Pursuant to ORS § 469A.135(2) and § 469A.145(1), the Company can use unbundled RECs to meet up to 20% of its RPS requirement. Even considering the availability of production tax credits, the cost of unbundled RECs is substantially lower than the cost of building a new renewable resource. Accordingly, the prudent strategy is to maximize the amount of unbundled RECs used for compliance prior to building a new renewable resource.

7. The Company's economic analysis supporting the 500 MW wind resource in 2028, however, did not consider the implications of using unbundled RECs to meet future RPS requirements, despite the fact that it has purchased unbundled RECs to the statutory limit in the past.[3/]

8. The schedules presented in Attachment A show that the continued use of unbundled RECs defers the need for a new RPS resource from 2025 to 2030. During this time, the Company continues to maintain an adequate REC bank balance. Thus, these dates take into

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[3/] Docket No. UM 1783, PGE 2015 RPS Compliance Report at 5.

consideration the uncertainty surrounding the year-to-year variances associated with the Company's REC balances discussed in Chapter 3 of the Company's December 2015 update to its 2013 Integrated Resource Plan.

9. Page 1 of Attachment A provides a forecast of the Company's REC bank balance over the period 2016 through 2031, assuming Company continues its practice of relying on unbundled RECs. It shows an RPS resource need in 2030, with a deficit year—the year in which the REC bank declined to zero and the Company would otherwise be unable to satisfy its RPS requirement—of 2031.

10. Page 2 of Attachment A provides a forecast of the Company's REC bank over the period 2016 through 2031, assuming that no unbundled RECs are used for RPS compliance. It shows an RPS resource need in 2025, or potentially 2026, depending on how low the REC bank balance is allowed to decline. The deficit year, however, does not occur until 2027.

11. My analysis, detailed in Table 1, below, shows that the impact of the deferred resource need driven by unbundled RECs is substantial. Relative to the Company's proposed compliance strategy, I calculate that relying on unbundled RECs will produce a PVRR that is approximately $538.8 million less than the Company's proposal for a 500 MW RPS resource in 2018. This amount does not consider the additional ratepayer costs associated with the other issues I have identified in this affidavit, such as production tax credit carryforwards, meaning the total savings for ratepayers relative to the Company's 2018 build strategy is even greater than this amount. This analysis assumed a nominal levelized cost of $10.00 per notional MWh for unbundled RECs, and the results are detailed in Table 1, below. This assumption compares to current prices for unbundled RECs, which have been less than $1.00 per notional MWh.

TABLE 1

PVRR Benefit / (Cost) of Near-term Addition vs Use of Unbundled RECs ($millions)

Near-Team Addition	Reduction / (Increase) in NPVRR		
Year↓ Size→	70 MWa	175 MWa	253 MWa
2018 vs 2030 w/ Unbundled RECs	$ (650)	**$ (540)**	$ (465)
2019 vs 2030 w/ Unbundled RECs	$ (675)	$ (600)	$ (545)
2020 vs 2030 w/ Unbundled RECs	$ (700)	$ (655)	$ (625)

12. Table 1, above, is from the same model relied upon by Mr. Lindsay to forecast the benefits detailed in his affidavit. Instead of comparing the near-term resource addition to a 2025 build scenario, however, the model was modified to use unbundled RECs to meet 20% of the Company's RPS requirement. Compared to the Company's proposal, the use of unbundled RECs, and the corresponding deferral of the new resource addition to 2030, reduced the PVRR by $538.8 million, as highlighted in the Table 1. Thus, ratepayers will be better off if the Company does not proceed with its proposed resource addition and, instead, uses unbundled RECs to meet 20% of its RPS requirement.

13. In addition to the analysis detailed in Table 1, there may be a strategy where the Company relies on unbundled RECs <u>and</u> acquires a near-term resource in 2018 to take advantage of the potential expiration of production tax credits. Before taking into consideration the other issues identified below, my analysis showed that ratepayers were largely indifferent to such a strategy on a PVRR basis. A near-term resource addition combined with the purchase of unbundled RECs produced a PVRR that is approximately $1.7 million less than the 2030 build scenario with unbundled RECs. However, after considering the problems associated with production tax credit carryforwards and the Company's treatment of retirement and refurbishment costs, this scenario ultimately cost ratepayers approximately $256.6 million on a PVRR basis. This represents the low end of my estimate of the PVRR cost associated with the Company's proposed 2018 resource addition. This strategy also would result in the Company accumulating massive balances in its REC bank, equivalent to 2,600 aMW at its peak. Such

large balances present a number of risks to customers, including the possibility that not all of these RECs will be able to be used for RPS compliance.

14. While the Company has historically argued that the market for unbundled RECs is illiquid and uncertain, I do not believe those concerns are well founded. My understanding is that there is a surplus of unbundled RECs on the market and that many utilities are unable to market all of the RECs that they generate. An overview of the current market for unbundled RECs can be found in the Direct Testimony of Mr. Bruce Griswold, Director of Short-Term Origination at PacifiCorp, in Wyoming Docket No. 20000-492-EA-16, where Mr. Griswold explains that the unstructured REC market is currently depressed as a result of reduced demand for unbundled RECs and oversupply of renewable generation.[4/] Moreover, the Company's concerns about the uncertainty of the unbundled REC market are belied by its own actions, which have been to purchase unbundled RECs up to the 20% limit.

B. THE ANALYSIS DOES NOT ACCOUNT FOR THE FACT THAT THE COMPANY LACKS TAXABLE INCOME TO BE ABLE TO UTILIZE PRODUCTION TAX CREDITS ON ITS TAX RETURN

15. In Attachment B, I present a forecast of the production tax credit carryforward balance to the Company if it were to proceed with the RFP. It shows that, if the RFP is executed, the Company's production tax credit carryforward balance could potentially grow to $423.0 million, a balance which would not be exhausted until calendar year 2040. Depending on the ultimate ratemaking, this growing balance could impose material costs onto ratepayers, yet the Company did not factor such costs into the financial analysis it performed to justify the 500 MW wind addition in 2018. Indeed, contrary to its existing situation, the Company assumed it could use all of the production tax credits generated by its proposed 500 MW resource. Attachment B

[4/] In re the 2016 ECAM and RRA Filing of Rocky Mountain Power, Wy.PSC Docket No. 2000-492-EA-16, Direct Testimony of Bruce W. Griswold at 13:19-14:19 (Mar. 15, 2016) shows that accounting for the additional cost of the carryforward balances reduces the PVRR associated with the Company's 2018 build scenario by $233.0 million, basically eliminating all of the ratepayer savings that the Company purported in its scenario analysis.

16. By way of background, due to the large number of tax benefits available to the Company—such as bonus depreciation, domestic production activities deductions, accelerated cost recovery, and others—the Company currently lacks sufficient taxable income necessary to utilize all of the production tax credits generated from the Biglow Wind and Tucannon Wind facilities. While unused production tax credits can be "carried-forward" to be used on a future tax return, the growing balances present ratemaking concerns. Specifically, the Company has historically argued that it should be allowed to earn a return on the carryforward balances at its full cost of capital. In its 2015 general rate case, for example, the Company included $42.4 million in tax credit carryforwards in rate base as a deferred tax asset. The impact of this tax asset was an approximate $4.2 million increase to revenue requirement in that case.[5/] At year-end 2016, the Company forecasted that the production tax credit carryforward balance would grow to $60.1 million, a forecast which, following the extension of several favorable tax provisions in the PATH Act of 2015, may have been understated.

17. The growth in this balance was expected to slow, and potentially reverse, when the production tax credits generated from the Biglow Wind facility begin to expire over the period 2018 through 2020. If the Company acquires a 500 MW wind resource in 2018, however, the growth in the carryforward balance will not slow, but rather, will begin to accelerate at a problematic rate.

5/ Using a 10% rule of thumb.

18. Page 1 of Attachment B details my forecast of the production tax credit carryforward balances if the Company were to proceed with its RFP. Page 2 of Attachment B details my forecast of the production tax credit carryforward balances based on the status quo, assuming that the Company does not acquire a resource pursuant to the RFP. The forecast begins with the tax credit carry-forward forecast that the Company provided in conjunction with its 2016 General Rate Case ("GRC"), Docket No. UE 294. The forecast assumes that the same amount of credits can be utilized each year, based on the amount of credits that the Company estimated it would be capable of utilizing in 2016 in the 2016 GRC. The forecast also projects production tax credits generated in each year based on the expected generation from each facility, the in-service date of each facility, and including an assumption that the credit rate will increase at the rate of inflation that the Company used in its economic analysis. As can be seen on Page 1, based on the forecasted amount of credits that will be generated and the amounts that can be used, the production tax credit carryforward balance increases to $423.0 million in 2027 in the 2018 build scenario. This significant balance is not fully exhausted until 14 years later when, in 2040, my analysis forecasts the balance to return to zero. This, of course, assumes that the Company acquires no additional RPS resources which would be eligible for the production tax credit if it is reauthorized in the future, an assumption that is based on pure speculation. If the production tax credit is reauthorized and the Company acquires additional RPS resources that qualify for this credit in order to meet its RPS obligations in 2030 and beyond, the Company's carry-forward balance could continue to increase.

19. The final columns on Pages 1 and 2 detail the approximate revenue requirement impacts of the production tax credit carryforward balances, assuming the balance is approved to be included in rate base as a deferred tax asset. As can be seen, the significant balances in the 2018 build scenario will cost ratepayers approximately $45.0 million per year, at its height in

2027. In terms of PVRR, the significant balances associated with the 2018 build scenario result in a PVRR of $287.5 million, which exceeds the PVRR of the status quo scenario detailed on Page 2, by $233.0 million. Thus, the Company's economic analysis, by ignoring this substantial cost associated with a 2018 resource addition, has overstated the value of its proposal for a 2018 resource by a wide margin. In fact, the production tax credit carryforwards alone would more than eliminate the PVRR benefits of $187.4 million that the Company purported in its the scenario analysis.

C. THE ANALYSIS DID NOT CONSIDER THE COST OF REPLACING OR REFURBISHING RETIRED WIND FACILITIES

20. The Company's analysis assumes a 27-year useful life for a Pacific Northwest wind facility. This means that at the end of the facility's life it must be replaced or refurbished, a cost which the Company did not reflect in its analysis. The Company's analysis assumed that, once a facility has been fully depreciated, it will continue to generate electricity over the remaining portion of the 53-year study period (2018 – 2070) at no cost. This is important because if a facility is acquired today, it will be fully depreciated by 2045, after the 50% RPS kicks in. At that time, the resource will either have to be replaced or refurbished in order to avoid construction of a new resource after that date. Because these costs were not considered, the Company's analysis is skewed slightly in favor of early action.

21. Since we have yet to substantially reach the end-of-life for wind facilities, it is difficult to say what the ongoing costs will be after the facilities are fully depreciated. For analysis purposes, I prepared a sensitivity assuming that the refurbishment costs will be 1/5th of the first year revenue requirement of a facility adjusted for inflation. This sensitivity reduces the PVRR of the Company's 2018 build scenario by approximately $25.3 million on a PVRR basis.

D. OTHER CONSIDERATIONS

22. In addition to the issues identified above, there are many considerations which have not been analyzed as a part of the Company's proposal to proceed with a 500 MW wind resource addition in this Docket. These concerns include issues relating to siting, transmission access, alternative resources, the possibility of a regional independent system operator and other factors.

23. In terms of siting, the Company believes that it will be capable of acquiring a 500 MW wind facility in the Pacific Northwest. I, however, am not aware of any potential developments of that size available in the Pacific Northwest, particularly at the capital costs assumed by the Company in its analysis.

24. The capital costs are also very uncertain. The Company assumed a resource with a capital cost of approximately $[redacted]/kW. However, it may be unlikely that the Company will be capable of acquiring a facility at such a price in the Pacific Northwest, particularly considering the scarcity of transmission in the area.

25. The Company's assumptions surrounding transmission are also unclear. It is not certain that adequate transmission will be available from the Bonneville Power Administration ("BPA") to serve such a large facility in the Pacific Northwest. For example, BPA is currently experiencing transmission constraints into the Portland area on the South-of-Allston cut-plane, which may make it impossible, absent a major high voltage transmission addition, for BPA to fulfill such a large transmission request for the Company. If a major plant addition requires material transmission upgrades on the BPA network, it may be that the costs of such an inter-regional transmission line would be allocated to the Company.

26. There also may be other resource types, ineligible to bid into the RFP, which prove to be beneficial. For example, the Company's analysis does not appear to consider

structured, “bundled” REC transactions, which could potentially be acquired for substantially less than a new wind resource.

27. Finally, the potential expansion of the California Independent System Operator into a regional transmission operator may ultimately change the landscape surrounding the renewables compliance market. Such a change may reduce the cost of compliance in future periods. If a resource is acquired now, however, the potential benefits associated with the expanded market will not be attained.

E. CONCLUSION

28. Based on the foregoing, the three issues that I have identified collectively indicate that the Company’s proposed RPS strategy could ultimately cost ratepayers approximately $256.6-$797.1 million on a PVRR basis. In addition, there are a large number of uncertainties surrounding the Company’s proposal that could materially impact the economics of its early-build proposal but do not appear to have been analyzed by the Company, and certainly have not been adequately analyzed by the Commission or stakeholders. Accordingly, I do not believe that it is prudent for the Company to proceed with its proposed RPS resource acquisition at this time.

29. The statements above are true and correct to the best of my knowledge, information and belief.

SIGNED this 27 day of June, 2016.

BRADLEY G. MULLINS

SUBSCRIBED AND SWORN to before me this 27 day of June, 2016.

Notary Public for Oregon
County of Multnomah
My Commission Expires: 30 July 2019

OFFICIAL STAMP
KALEESA DIANE THANASOUK
NOTARY PUBLIC-OREGON
COMMISSION NO. 941484
MY COMMISSION EXPIRES JULY 30, 2019

SCHEDULE OF FORECAST RENEWABLE ENERGY CERTIFICATE ("REC") BALANCES, NO RESOURCE ADDITIONS

Assuming unbundled RECs are used for compliance

Average-Megawatts

Year	Beg. Bank (a) = (d)[n-1]	RECs From Exist. Resrcs. (b)	Unbundled RECs (c)	RPS Req. (d)	Ending Bank (e) = (a) + (b) + (c) - (d)	
2016	894	336	62	308	984	
2017	984	336	62	310	1,072	
2018	1,072	336	62	311	1,160	
2019	1,160	336	62	312	1,247	
2020	1,247	348	84	418	1,260	
2021	1,260	348	85	424	1,269	
2022	1,269	348	86	429	1,273	
2023	1,273	348	87	435	1,274	
2024	1,274	348	88	440	1,269	
2025	1,269	348	120	601	1,136	
2026	1,136	348	122	609	997	
2027	997	348	123	616	852	
2028	852	347	125	624	700	
2029	700	340	126	632	534	
2030	*534*	*339*	*166*	*829*	*210*	*Resource Need*
2031	210	339	168	840	(122)	*Deficit Year*

SCHEDULE OF FORECAST RENEWABLE ENERGY CERTIFICATE ("REC") BALANCES, NO RESOURCE ADDITIONS

From the Company's study, assumes no unbundled RECs are used for compliance

Average-Megawatts

Year	Beg. Bank (a) = (d)[n-1]	RECs From Exist. Resrcs. (b)	RPS Req. (c)	Ending Bank (d) = (a) + (b) - (c)	
2016	894	336	308	922	
2017	922	336	310	949	
2018	949	336	311	974	
2019	974	336	312	999	
2020	999	348	418	929	
2021	929	348	424	852	
2022	852	348	429	771	
2023	771	348	435	684	
2024	684	348	440	592	
2025	592	348	601	339	*Resource Need*
2026	*339*	*348*	*609*	*78*	
2027	*78*	*348*	*616*	*(190)*	*Deficit Year*
2028	(190)	347	624	(467)	
2029	(467)	340	632	(759)	
2030	(759)	339	829	(1,249)	
2031	(1,249)	339	840	(1,749)	

SCHEDULE OF FORECAST PRODUCTION TAX CREDIT CARRYFORWARD BALANCES

Including a 500 MW wind addition in 2018

Year	PTC Rate	Beg. Balance	Generated: Biglow 1	Biglow 2	Biglow 3	Tucannon	500 MW	**Total**	Utilized	**End Balance**	**Approx Rev. Req.**
2016	23.00	42,427,293	8,216,663	10,400,403	9,086,819	21,446,402		**49,150,287**	31,516,720	**60,060,860**	**6,392,469**
2017	23.00	60,060,860	8,216,663	10,400,403	9,086,819	21,446,402		**49,150,287**	31,516,720	**77,694,427**	**8,269,266**
2018	23.46	77,694,427		10,400,403	9,268,556	21,875,330	35,964,180	**77,508,468**	31,516,720	**123,686,174**	**13,164,314**
2019	23.93	123,686,174			9,643,005	22,759,093	36,683,464	**69,085,562**	31,516,720	**161,255,016**	**17,162,886**
2020	24.41	161,255,016				24,152,132	37,417,133	**61,569,265**	31,516,720	**191,307,561**	**20,361,474**
2021	24.90	191,307,561				26,143,044	38,165,476	**64,308,520**	31,516,720	**224,099,360**	**23,851,610**
2022	25.39	224,099,360				28,864,033	38,928,785	**67,792,818**	31,516,720	**260,375,458**	**27,712,590**
2023	25.90	260,375,458				32,505,590	39,707,361	**72,212,950**	31,516,720	**301,071,688**	**32,044,020**
2024	26.42	301,071,688				37,338,705	40,501,508	**77,840,213**	31,516,720	**347,395,181**	**36,974,377**
2025	26.95	347,395,181				43,748,244	41,311,538	**85,059,782**	31,516,720	**400,938,243**	**42,673,136**
2026	27.49	400,938,243					42,137,769	**42,137,769**	31,516,720	**411,559,291**	**43,803,568**
2027	28.04	411,559,291					42,980,524	**42,980,524**	31,516,720	**423,023,095**	**45,023,697**
2028	28.60	423,023,095						-	31,516,720	**391,506,375**	**41,669,272**
2029	29.17	391,506,375						-	31,516,720	**359,989,655**	**38,314,847**
2030	29.75	359,989,655						-	31,516,720	**328,472,934**	**34,960,422**
2031	30.35	328,472,934						-	31,516,720	**296,956,214**	**31,605,997**
2032	30.95	296,956,214						-	31,516,720	**265,439,494**	**28,251,572**
2033	31.57	265,439,494						-	31,516,720	**233,922,773**	**24,897,147**
2034	32.21	233,922,773						-	31,516,720	**202,406,053**	**21,542,722**
2035	32.85	202,406,053						-	31,516,720	**170,889,333**	**18,188,297**
2036	33.51	170,889,333						-	31,516,720	**139,372,613**	**14,833,872**
2037	34.18	139,372,613						-	31,516,720	**107,855,892**	**11,479,447**
2038	34.86	107,855,892						-	31,516,720	**76,339,172**	**8,125,022**
2039	35.56	76,339,172						-	31,516,720	**44,822,452**	**4,770,596**
2040	36.27	44,822,452						-	31,516,720	**13,305,731**	**1,416,171**
2041	36.99	13,305,731						-	13,305,731	-	-
										2018 Present Value Rev. Req. (2015$)	287,547,318
										Incremental PVRR from 500 MW Wind	232,973,995

SCHEDULE OF FORECAST PRODUCTION TAX CREDIT CARRYFORWARD BALANCES

Without a near-term wind addition

Year	PTC Rate	Beg. Balance	Generated: Biglow 1	Biglow 2	Biglow 3	Tucannon	**Total**	Utilized	**End Balance**	**Approx Rev. Req.**
2016	23.00	42,427,293	8,216,663	10,400,403	9,086,819	21,446,402	**49,150,287**	31,516,720	**60,060,860**	**6,392,469**
2017	23.00	60,060,860	8,216,663	10,400,403	9,086,819	21,446,402	**49,150,287**	31,516,720	**77,694,427**	**8,269,266**
2018	23.46	77,694,427		10,400,403	9,268,556	21,875,330	**41,544,288**	31,516,720	**87,721,994**	**9,336,532**
2019	23.93	87,721,994			9,643,005	22,759,093	**32,402,099**	31,516,720	**88,607,373**	**9,430,765**
2020	24.41	88,607,373				24,152,132	**24,152,132**	31,516,720	**81,242,784**	**8,646,929**
2021	24.90	81,242,784				26,143,044	**26,143,044**	31,516,720	**75,869,108**	**8,074,991**
2022	25.39	75,869,108				28,864,033	**28,864,033**	31,516,720	**73,216,421**	**7,792,657**
2023	25.90	73,216,421				32,505,590	**32,505,590**	31,516,720	**74,205,291**	**7,897,906**
2024	26.42	74,205,291				37,338,705	**37,338,705**	31,516,720	**80,027,275**	**8,517,558**
2025	26.95	80,027,275				43,748,244	**43,748,244**	31,516,720	**92,258,799**	**9,819,398**
2026	27.49	92,258,799					-	31,516,720	**60,742,078**	**6,464,973**
2027	28.04	60,742,078					-	31,516,720	**29,225,358**	**3,110,548**
2028	28.60	29,225,358					-	29,225,358	-	-
2029	29.17	-					-	-	-	-
2030	29.75	-					-	-	-	-
2031	30.35	-					-	-	-	-
2032	30.95	-					-	-	-	-
2033	31.57	-					-	-	-	-
2034	32.21	-					-	-	-	-
2035	32.85	-					-	-	-	-
2036	33.51	-					-	-	-	-
2037	34.18	-					-	-	-	-
2038	34.86	-					-	-	-	-
2039	35.56	-					-	-	-	-
2040	36.27	-					-	-	-	-
									2018 Present Value Rev. Req. (2015$)	54,573,323