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Submitted by Electronic Mail to records@utc.wa.gov

RE: Comments of Orion Renewable Energy Group LLC
Docket No. UE-160918 – Puget Sound Energy 2017 Integrated Resource Plan

Introduction

Orion Renewable Energy Group LLC (Orion) is developing the Clearwater Wind Project (Clearwater), a large wind farm located northeast of Colstrip, Montana. NorthWestern Energy (NWE) has completed a System Impact Study and is nearing the completion of a Facilities Study to interconnect Clearwater to the Colstrip 500 kV switchyard. Clearwater presents an opportunity for Washington customers to access Montana's economical and robust wind resource to help meet Washington's future energy needs and advance the state's carbon free energy goals, all while taking advantage of existing investments in the Colstrip Transmission System (CTS).

Orion has participated in the meetings of the Puget Sound Energy (PSE) IRP Advisory Group (IRPAG) during the development of the 2017 Integrated Resource Plan (IRP). Through the IRPAG process, Orion was able to learn about PSE's energy supply situation and its planning processes. Orion was also able to offer its comments and suggestions as the 2017 IRP was being developed. Orion appreciates the opportunity to participate in the process and to contribute toward the exchange of ideas on how best to meet the future energy supply needs of PSE's customers.

In developing the 2017 IRP, PSE considered large amounts of information and conducted extensive analysis. In this process, many significant issues were considered. PSE's efforts to

assess and address these issues certainly leads to an improved understanding of these topics. However, as will be discussed further below, PSE's analysis falls short in some areas.

Montana Wind vs. Washington Solar

The 2017 IRP selects Washington solar over Montana wind as PSE's preferred resource to meet the next level of the Washington Renewable Portfolio Standard (RPS). A comparison of the levelized cost of renewable resources considered in this IRP is provided in Figure 2-5 (IRP, page 2-10). The same chart is reproduced as Figure 6-24 [IRP, page 6-50] and Figure 6-47 [IRP, page 6-78]. This figure clearly shows the importance of transmission costs in comparing Montana wind to Washington solar.

In preparing the IRP analysis PSE made two critical assumptions regarding transmission costs that favor Washington solar over Montana wind. First, PSE assumed that all Washington solar would be located in PSE's service territory and would not incur any third-party transmission costs. This is at odds with the solar costs and other characteristics relied upon in the analysis which are based on a site in eastern Washington. [Appendix M. Washington Wind and Solar Costs, page 4]. Nowhere in the IRP does PSE present cost and other parameters (in particular, capacity factor) for solar resources located in the Puget Sound area. Second, PSE assumed that Montana wind using PSE's existing rights to the Colstrip Transmission System (CTS) and the BPA Montana Intertie (MI) should be burdened with costs of the CTS and MI which, as explained in the following section, will continue to be incurred whether or not this capacity is used by PSE to access Montana wind resources.

Figure 2-5, at first glance, can be read to show a significant levelized cost advantage for Washington solar compared to Montana wind¹. However, if either of the critical transmission

¹ In addition to the transmission costs discussed in the body of these comments, it should be noted that the solar capital costs in Figure 2-5 are assumed to decline significantly in real terms between 2018 and 2023. [IRP, Figure 4-20] Using 2023 nominal capital cost figures provided by PSE and capacity factors from the IRP [Figure 4-18 and Figure D-25] capital costs per average kilowatt (akw) of energy produced are, as follows. For solar, $\$1,951/\text{kw} \div 0.26 \text{ CF} = \$7,500/\text{akw}$. For Montana wind, $\$2,247/\text{kw} \div 0.4264 \text{ CF} = \$5,270/\text{akw}$. Using these figures, capital costs for solar are approximately 40% higher than for Montana wind on an equivalent energy basis. (This cost difference would be about 65% if the assumed solar cost reductions do not occur.) However, in Figure 2-5, capital-related costs (EPC and Owners costs) for solar are only about 20% higher than for Montana wind. No explanation has been provided for the smaller cost advantage attributed to Montana wind in Figure 2-5. In addition, Orion would like to note that PSE's installed costs for wind are considerably higher than today's market costs.

assumptions discussed above is not correct, Washington solar and Montana wind levelized costs are similar. And if both transmission assumptions prove to be incorrect, Montana wind enjoys a significant cost advantage.

However, more important than the simple metric of levelized costs portrayed in Figure 2-5 is how the Montana wind and Washington solar perform in PSE’s overall resource portfolio. This question is addressed in the RPS-Eligible Montana Wind Sensitivity [IRP, pages 6-76 to 6-79]. In this analysis, 266 MW of Washington solar needed for RPS compliance in 2022 is replaced by 175 MW of Montana wind which produces an equivalent amount of RPS-eligible energy². PSE concludes that this substitution adds \$42 million of NPV cost to the portfolio. However, if either or both of the critical transmission assumptions discussed above is not correct, including Montana wind in the portfolio results in significant savings as shown in the table below.

| BPA Tx Costs Included for WA Solar ³ | CTS Tx Costs Treated as Sunk ⁴ | NPV Cost or (Savings) for Replacing WA Solar with MT Wind |
|---|---|---|
| No | No | \$42 million |
| No | Yes | (\$45 million) |
| Yes | No | (\$48 million) |
| Yes | Yes | (\$135 million) |

Colstrip Transmission System & BPA Montana Intertie Costs

Although rates have been established for PSE’s CTS capacity under PSE’s FERC Open Access Transmission Tariff (OATT), PSE’s costs for the CTS and MI have historically been recovered in retail rates. The Colstrip Transmission Agreement does not provide an opportunity for PSE to reduce its CTS ownership percentage and associated costs when Colstrip 1&2 are

² PSE also studied sensitivities adding 300 MW of Montana wind in 2022 which resulted in substantial RPS overcompliance and 150 MW of Montana wind in 2022 which resulted in slight RPS undercompliance.

³ 175 MW * \$31.83/kw-year CTS rate with biennial escalation of 6.26% over 54 years at 7.77% discount rate with costs beginning in Year 5 = \$87 million NPV. NPV increases to \$108 million if Montana Intertie costs are also treated as sunk.

⁴ 266 MW * \$21.12/kw-year BPA main grid rate with biennial escalation of 6.26% over 54 years at 7.77% discount rate with costs beginning in Year 5 = \$90 million NPV.

retired. Similarly, the Montana Intertie Agreement allows BPA to continue to charge PSE for its full contracted MI capacity following the retirement of Colstrip 1&2.

Based on these contractual provisions, Orion and other stakeholders⁵ argued during the IRPAG process that costs for CTS and MI transmission capacity freed up by the retirement of PSE's share of Colstrip 1&2 should be treated as sunk costs rather than being included as added costs for accessing Montana wind resources. PSE disagreed and declined to run any scenarios or sensitivities that treated the CTS and MI costs as sunk.

In defending its treatment of these costs, PSE argued that if it did not use this transmission capacity to import power from Montana, the capacity could be resold to others under the OATT. This assertion should be viewed with skepticism for two reasons. First, PSE has historically had excess CTS transmission capacity that has been available under the OATT but not purchased by third parties. The costs of this excess "stranded" capacity have historically been recovered in retail rates. Second, if PSE's analysis in the IRP is correct that Pacific Northwest solar is more cost effective than Montana wind burdened with CTS and MI costs, other Pacific Northwest utilities may reach a similar conclusion, resulting in no market for PSE's Colstrip 1&2 CTS and MI capacity.

In its comments on the IRP and future resource procurement processes, the Commission should direct PSE to treat CTS and MI costs as sunk in the evaluation of Montana resources that would be accessed using this transmission capacity. In the alternative, the Commission should advise PSE that PSE shareholders may be at risk for any stranded costs associated with this capacity if PSE declines to acquire otherwise cost-effective resources from Montana (assuming CTS and MI costs are treated as sunk) and the freed-up CTS and MI capacity is not purchased by third parties.

Transmission Capacity from Montana to PSE is Available

The retirement of Colstrip 1&2 frees up 300 MW of transmission capacity on the CTS, MI and BPA Main Grid providing a firm transmission path from eastern Montana to PSE's

⁵ Absaroka Energy, Renewable Northwest, Sierra Club and Climate Solutions

system⁶. This path would become available with the retirement of Colstrip 1&2 no later than 2022 which lines up with PSE's need for more RPS-eligible renewables in 2023. Additionally, there are strong economic justifications for earlier procurement. For example, the Oregon Public Utilities Commission has recently approved plans by PacifiCorp and Portland General Electric to accelerate renewables acquisitions to take advantage of the benefits provided by federal Production Tax Credits (PTCs) that will be phased out over the next few years.

Should PSE decide to acquire renewables before the retirement of Colstrip 1&2, a short-term "bridge" transmission strategy could be implemented to access Montana wind energy.

Dynamic Transfer Capability

At several points in the IRP, PSE notes that eastern Montana wind resources must be dynamically transferred into the Pacific Northwest to be eligible resources under the current Washington RPS. [IRP, pages 1-8, 1-9, 2-8, 2-20, 4-41, 6-49 and 6-76] PSE then goes on to describe technical and process challenges to arranging for dynamic transfers from Montana. [IRP, pages 2-9 and 2-10] Orion acknowledges that there are technical questions about the level of dynamic transfers that can be accommodated out of Montana that have not yet been fully answered. Preliminary analysis performed by regional transmission entities in 2011 indicates that approximately 150 MW (or more) could be dynamically transferred out of Montana with existing transmission facilities and operating practices⁷. This 150 MW of dynamic transfer capability (DTC) can be expected to support considerably more than 150 MW of installed wind capacity in Montana for export.

Additional study of the DTC issue is necessary to provide more certain answers. Recently, BPA Administrator Elliot Mainzer and Montana Governor Steve Bullock convened a forum (BPA/Montana Forum) to study barriers to exporting Montana clean energy resources to

⁶ On pages 2-9 and 2-10 of the IRP, PSE suggests that its existing BPA main grid rights for Colstrip 1& 2 from Garrison to PSE's system may not be transferable to other resources. There is no support for this assertion provided in the IRP. It is Orion's understanding that these BPA Main Grid transmission rights are not specifically tied to Colstrip generation and can, in fact, be used for other resources.

⁷ Dynamic Transfer Capability Task Force Phase 3 Report, December 21, 2011, prepared by Wind Integration Study Team sponsored by Northern Tier Transmission Group, Columbia Grid and British Columbia Coordinated Planning Group.

the Pacific Northwest and identify potential solutions in an action plan to be delivered by June 2018. Among the issues to be addressed by the BPA/Montana Forum is DTC. This process can be expected to: 1) provide a more robust assessment of DTC out of Montana with existing transmission facilities and operating practices, 2) identify improvements to transmission facilities and/or changes in operating practices that would provide additional DTC, and 3) explore the relationship between DTC and installed wind capacity for export from Montana.

PSE has also committed to participate in a CTS operational study⁸ and CTS workshops to be convened by the Commission⁹ (GRC Settlement Process) that will likely consider dynamic transfers among other issues. These activities are also scheduled to be complete by June 2018.

PSE claims there is no defined process for determining how much DTC is available for exports from Montana. [IRP, page 6-76] On the contrary, BPA has a Business Practice¹⁰ that lays out the process by which a transmission customer, such as PSE, can request that a portion of the capacity of an existing transmission reservation can be converted to DTC. This process and its predecessors have been successfully used by BPA to provide DTC on various elements of BPA's transmission system including BPA's interties to California and British Columbia.

PSE also suggests that it might be imprudent for PSE to pay for a DTC study. [IRP, page 2-8] The cost of a DTC study is likely to be *de minimus* compared to savings that could be afforded PSE ratepayers by accessing Montana wind resources. Orion suggests that it would be imprudent for PSE not to pay for a DTC study if the results of its 2018 Request for Proposals (RFP) indicates that dynamically-transferred Montana wind is a cost-effective resource addition.

Of course, it will take some time to get definitive answers to questions about DTC and related transmission issues. Fortunately, sufficient time is available to secure these answers. As stated in the IRP [pages 1-9 and 1-10]:

RENEWABLE RESOURCES. Bringing on future additional renewable resources, whether in PSE's balancing authority or in BPA's, may require transmission system upgrades that will require long lead times to study, design, permit and construct. While this IRP finds eastern Washington solar power is more cost effective than wind, the results are close. Montana wind would be a "qualifying renewable resource" if it were delivered to Washington state on a real-time

⁸ UE-170033 & UG-170034 Multiparty Settlement Stipulation and Agreement, paragraph 120

⁹ UE-170033 & UG-170034 Multiparty Settlement Stipulation and Agreement, paragraph 121

¹⁰ Dynamic Transfer Capability: Requesting and Awarding Access – Pilot, BPA Transmission Business Practice, Version 8, 12/12/2107

basis without shaping or storage. Addressing this qualification constraint will likely require a complex set of transmission studies, coordinated with Northwestern in Montana, BPA and possibly the WECC. Issuing an RFP in 2018 for delivery beginning in 2022 will provide potential respondents time to address such transmission issues. (emphasis added)

Renewables Beyond the Current Renewable Portfolio Standard

The 2017 IRP concludes that renewables beyond those needed to meet the current RPS are not cost effective. [IRP, pages 1-18, 2-17 and 2-20] This sets up an apparent competition between Washington solar, Montana wind and other renewables for a limited slice of PSE's future resource portfolio. However, given recent developments in California and Oregon (both of which have adopted 50% RPS requirements) and the current political environment and consumer attitudes in Washington, it is plausible that the Washington RPS will be increased beyond the current 15% level. In anticipation of an increased RPS obligation, PSE should give serious consideration to acquiring additional renewables now, before current federal tax incentives are phased out.

The IRP shows that additional renewables could be acquired with a relatively small cost impact. Figure 2-6 [IRP, page 2-15] shows that including an additional 300 MW of Washington solar in the portfolio adds only 0.3% to overall portfolio costs. To put this in perspective, this is less than the 0.5% cost impact shown in Figure 2-6 for replacing the first frame peaker in the Base Scenario with demand response and energy storage to meet near-term capacity needs in PSE's proposed Resource Plan. PSE argues that these additional costs to the Resource Plan are justified based on the benefits of avoiding the construction of a long-lived carbon-emitting resource. Similarly, increasing new renewables in the Resource Plan would eliminate carbon emissions associated with gas-fired generation and/or market purchases which are often ultimately sourced from carbon-emitting resources.

Increasing renewables in the Resource Plan would also allow PSE to diversify its portfolio of renewable resources. Rather than going exclusively with Washington solar or Montana wind, PSE could acquire some of each if the economics are similar.

2018 All-Source RFP

Orion supports moving ahead with an All-Source Request for Proposals (RFP) following Commission review of the 2017 IRP. An RFP will allow PSE to test the market and compare specific resource proposals to the generic resource assumptions relied upon in the IRP. And an RFP provides an opportunity for PSE to move forward with procurement before existing renewable energy tax incentives are phased out.

However, the Commission should provide specific direction to PSE regarding certain aspects of the RFP and any subsequent resource procurement:

1. PSE's costs for the CTS and MI should be treated as sunk in the evaluation of Montana resources.
2. If Montana wind appears to be a cost-effective resource assuming adequate dynamic transfer capability, PSE should not move to procure alternative resources until the BPA/Montana Forum and GRC Settlement Process activities have been completed and PSE has an improved understanding of transmission issues related to Montana exports.

Conclusions

Montana wind can be an attractive resource in PSE's future resource portfolio. However, this is not apparent from the IRP where PSE made the most favorable transmission assumption for Washington solar (direct connection to PSE's system and, therefore, no third-party transmission costs, yet utilizing an advantageous eastern Washington solar resource) and the least favorable transmission assumption for Montana wind (costs of CTS and MI treated as incremental rather than sunk).

PSE should work diligently with other stakeholders in the BPA/Montana Forum and GRC Settlement Process to better understand issues and identify solutions related to transmission for Montana exports. In particular, PSE needs to take reasonable steps to remove uncertainty related to DTC.

PSE should consider acquiring renewables sooner than needed for RPS compliance to benefit from renewable energy tax incentives that are being phased out.

PSE should consider adding more renewables to the Resource Plan to reduce carbon emissions associated with market purchases and prepare for the real possibility of a future increase to the Washington RPS.

Respectfully submitted by:

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