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***Via Electronic Mail***

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**Re: OPUC Docket No. UM 2118**

Attention Filing Center:

Attached for filing in the above-captioned docket is Sunthurst Energy, LLC's Opening Brief.

Thank you in advance for your assistance.

Sincerely,

A handwritten signature in black ink that reads "Ken Kaufmann". The signature is written in a cursive style with a long horizontal line extending to the right.

Ken Kaufmann  
Attorney for Sunthurst Energy, LLC

Attach.

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**BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON**  
**DOCKET NO. UM 2118**

<p><b>Sunthurst Energy, LLC</b></p> <p>Complainant,</p> <p>vs.</p> <p><b>PacifiCorp dba Pacific Power</b></p> <p>Respondent.</p>	<p><b>Sunthurst Energy, LLC's Opening Brief</b></p> <p><b>(Oral Argument Requested)</b></p>
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## **I. INTRODUCTION AND STATEMENT OF THE CASE**

This case is about the reasonableness of the scope and cost of facilities deemed by Respondent PacifiCorp to be necessary for Complainant Sunthurst Energy, LLC (Sunthurst) to interconnect two small generating facilities, Pilot Rock Solar 1 (PRS1) and Pilot Rock Solar 2 (PRS2) to its electrical distribution system and sell net output to PacifiCorp under the Oregon Community Solar Program.

Sunthurst filed this complaint pursuant to ORS 756.500 on September 29, 2020. Sunthurst filed Opening Testimony and Exhibits on December 15, 2020. PacifiCorp filed Response Testimony and Exhibits on January 26, 2021. Sunthurst filed Rebuttal Testimony and Exhibits on February 22, 2021. On March 26, 2021, the ALJ granted the parties' respective motions to admit testimony and exhibits into evidence.

## **II. AGREEMENTS/CONCESSIONS SINCE SUNTHURST FILED ITS COMPLAINT**

PacifiCorp has made several significant concessions since Sunthurst filed its complaint. Those concessions were made in Direct Testimony, in response to Sunthurst's data requests, and in e-mails between the parties' attorneys, and are summarized below:

PacifiCorp made at least thirteen corrections or adjustments to its cost estimates for PRS1 (\$128,694 net reduction) and PRS2 (\$13,034 net reduction) in its opening testimony, which are summarized on pages 42-43 of Patzkowski-Taylor-Vaz's testimony.<sup>1</sup> Revised Detailed Cost Estimate Reports for PRS1 and PRS2 showing the Projects' estimated costs

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<sup>1</sup> PAC/200, Patzkowski-Taylor-Vaz/42-43

taking those changes into account are shown in PacifiCorp Exhibits 201 and 202, respectively. Sunthurst credits those changes, and relied upon them when preparing its Rebuttal Testimony and this Opening Brief, except that Sunthurst disputes PacifiCorp's \$19,556 reduction in PRS1 costs for fiber installation, for the reasons discussed in Section III(B), below.

PacifiCorp also agreed to provide Sunthurst a credit against future interconnection costs for engineering and management costs associated with the PI-111 annunciator panel design, which Sunthurst has already paid.<sup>2</sup> In response to a subsequent data request, PacifiCorp quantified that credit at \$6,097.27, and provided a detailed cost breakdown.<sup>3</sup> Sunthurst relied on this credit when preparing its Rebuttal Testimony and this Opening Brief.

PacifiCorp also agreed, in a February 25, 2021 e-mail, to remove the costs of the meter at the point of interconnection (aka change of ownership point) from the estimated costs to interconnect PRS1 and PRS2. PacifiCorp estimated the resulting overall savings to Sunthurst to be about \$39,000.<sup>4</sup> Sunthurst relied on this modification in cost when preparing this Opening Brief.

In reliance on the changes above, Sunthurst does not seek additional reductions to the cost of avian protection, junction boxes, accrued engineering discussed in its Opening Testimony. Sunthurst withdraws its objection to PacifiCorp specifying metering at three

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<sup>2</sup> PAC/200, Patzkowski-Taylor-Vaz/199, lines 7-9.

<sup>3</sup> Sunthurst/401, Beanland/95.

<sup>4</sup> Sunthurst/401, Beanland/79.

separate locations. Also, Sunthurst has dropped its challenge to PacifiCorp's requirement for Dead Line Checking. Sunthurst's remaining claims, and requested remedies, are described below.

### III. REMAINING ISSUES FOR ADJUDICATION

#### A. Cost Liability for Branch Regulators

##### 1. Summary of Evidence.

PacifiCorp is requiring, as a condition to interconnecting PRS2, that Sunthurst pay for branch regulators<sup>5</sup>, to be installed on two circuit branches beyond PRS1 and PRS2, at a cost of approximately \$180,000.<sup>6</sup>

PacifiCorp does not assert that branch regulators are necessary for system safety. PacifiCorp operated Circuit 5W406<sup>7</sup> for at least 13 days in 2019 without any voltage regulation after a regulator control unit failed, demonstrating PacifiCorp believes Circuit 5W406 can operate safely without any regulation at all.<sup>8</sup>

PacifiCorp also does not assert that branch regulators are necessary to maintain voltage levels within acceptable ranges for customer service. To the contrary, PacifiCorp testified that "Voltage analyses were completed for both PRS1 and PRS2 and it was

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<sup>5</sup> An electric distribution circuit is like a tree with multiple branches. Each branch serves customers. Because variations in transmission voltage and load cause voltage to vary on each branch, a branch regulator provides voltage regulation for just the branch it serves. Sunthurst/400, Beanland/2, lines 6-9.

<sup>6</sup> Sunthurst/400, Beanland/2, lines 6-9, 19; PAC/200, Patzkowski-Taylor-Vaz/20, line 1.

<sup>7</sup> 5W406 is the circuit to which PRS1 and PRS2 will interconnect.

<sup>8</sup> Sunthurst/400, Beanland/10, lines 11-18.

determined that ANSI C84.1 Range A voltages can be maintained without the need for the line voltage regulator banks.”<sup>9</sup>

PacifiCorp’s branch regulator requirement arises solely from its desire to maintain its current ability to regulate circuit voltage to improve energy efficiency. PacifiCorp asserts generation from PRS1 and PRS2 can degrade the ability of the existing voltage regulator on Circuit 5W406 at the substation to do its job. PacifiCorp’s response is to require new branch regulators that will regulate voltage on Circuit 5W406.<sup>10</sup>

## **2. Applicable Legal Standard:**

Both PRS1 and PRS2 are Qualifying Facilities (“QFs”) under PURPA.<sup>11</sup> The costs PacifiCorp charges a QF for interconnecting are subject to regulation by the Commission through PURPA and through Oregon’s related statutory scheme set forth in ORS 758.505 to 758.555.<sup>12</sup> FERC Rule 292.306(a) requires qualifying facilities to pay any interconnection costs which the State regulatory authority may assess on a nondiscriminatory basis with respect to other customers with similar load characteristics.<sup>13</sup> The Commission’s rule at OAR 860-029-0060 requires assessment of “reasonably incurred” interconnection costs on a “nondiscriminatory basis with respect to other customers with similar load or other cost-

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<sup>9</sup> Sunthurst/401, Beanland/101 (Response to Sunthurst DR10.2(b)).

<sup>10</sup> PAC/200, Patzkowski-Taylor-Vaz/19, lines 18-21. (“With the addition of the generation from PRS2, the generation will far exceed any load in that area of the system. As a result, there is a need to maintain power distribution system voltages within a defined range in an energy efficient manner.”)

<sup>11</sup> Public Utility Regulatory Policies Act of 1978. (PURPA) 16 U.S.C. §824a-et seq, Pub.L. 95-617, 92 Stat. 3117.

<sup>12</sup> See Order No. 10-132, slip op. at 5-6.

<sup>13</sup> 18 CFR § 292.306(a) (“(a) Obligation to pay. Each qualifying facility shall be obligated to pay any interconnection costs which the State regulatory authority (with respect to any electric utility over which it has ratemaking authority) or nonregulated electric utility may assess against the qualifying facility on a nondiscriminatory basis with respect to other customers with similar load characteristics.”).



related characteristics standard.”<sup>14</sup> OAR 860-029-0005 defines “Costs of interconnection” to mean “[t]he reasonable costs of connection, switching, dispatching, metering, transmission, distribution, equipment necessary for system protection, safety provisions, and administrative costs incurred by an electric utility directly related to installing and maintaining the physical facilities necessary to permit purchases from a qualifying facility.”

### **3. Argument.**

#### **a. PacifiCorp failed to consider the cost-effectiveness of requiring branch regulators solely to reduce line losses.**

To assess whether PacifiCorp’s requirement of branch regulators *solely for efficiency* is reasonable, one must consider the expected costs and expected benefits. For example, it would not be reasonable to install superconducting power lines on circuit 5W406, even if the line reduced power losses to zero. That is because the savings from reducing line losses, even to zero, is certainly much less than the cost of cryogenic cooling required for superconductivity. Even if PacifiCorp could shift all the cost on a third party, and keep all the efficiency savings to itself, it would not be a reasonable expense for PacifiCorp to require. This hypothetical, while extreme, brings into focus the substance of PacifiCorp’s position.

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<sup>14</sup> OAR 860-028-0060(1) (“Interconnection costs are the responsibility of the owner or operator of the qualifying facility. Interconnection costs that may reasonably be incurred by the public utility will be assessed against a qualifying facility on a nondiscriminatory basis with respect to other customers with similar load or other cost-related characteristics.”).

PacifiCorp, while justifying branch regulators based solely on “efficiency”, provides zero evidence that branch regulators reduce overall losses. Sunthurst’s expert witness, Mr. Beanland<sup>15</sup>, pointed out that while reducing losses during daylight periods when PRS1 and PRS2 are generating, branch regulators will also add energy losses to the system every hour of every year. He further testified that “[b]ecause of the costs of voltage regulators, the added energy losses, and the increased system maintenance, utilities typically only install branch voltage regulators to solve intractable customer voltage problems.”<sup>16</sup>

Mr. Beanland’s testimony, above, is corroborated by PacifiCorp’s own Engineering Handbook 1E.3.1-Distribution Planning Study Guide (2015)(“Handbook”)<sup>17</sup>, which PacifiCorp cites<sup>18</sup> as an authority for its engineering design standards. Section 7.8 of the Handbook, titled “Voltage Analysis”, requires a voltage analysis on all distribution studies. It further provides:

Typically the voltage analysis will be done by a computer program such as FeederAll. When the analysis is done, voltage problems are identified per company standards, *and solutions are compared on an economic basis.*

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<sup>15</sup> Mr. Michael Beanland, P.E., provided testimony to the Commission as Sunthurst’s expert witness. His qualification statement is in the record, at Sunthurst Exhibit 202.

<sup>16</sup> Sunthurst/400, Beanland/7, lines 14-16.

<sup>17</sup> A copy of the Handbook provided by PacifiCorp is included in Sunthurst Exhibit 500. (Sunthurst/500, Beanland/8-52).

<sup>18</sup> Sunthurst/401, Beanland/104 (response to Sunthurst Data Request 10.4(d))

Handbook, p. 20 (emphasis added).<sup>19</sup> The above language closely comports to Mr. Beanland's testimony that voltage regulators should be required only if economically justified:

The need for any voltage regulation requires careful study and consideration of all available options including LDC, fixed voltage regulation, reconductoring, the addition of capacitor banks, and reconfiguring of circuits. Because of the high expense involved, the *addition of voltage regulators is generally a last resort when all other less costly measures have been exhausted.*

Sunthurst/400, Beanland/8 (emphasis added).

PacifiCorp's Handbook and Sunthurst's expert witness both agree that voltage regulators should not be prescribed without an economic study comparing them to other, potentially cheaper, options. PacifiCorp, however, did not perform such modeling.

When asked whether PacifiCorp attempted to quantify the efficiencies it claims branch regulators will provide, PacifiCorp replied "[w]hile detailed studies to determine energy efficiency savings can be completed using distribution modeling software, *none were undertaken for PRS1 or PRS2.*"<sup>20</sup>

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<sup>19</sup> Sunthurst/500, Beanland/27.

<sup>20</sup> Sunthurst/401, Beanland/104 (response to Sunthurst Data Request 10.4(f))(emphasis added).

**b. PacifiCorp's application of Branch regulators is abnormal and inconsistent.**

When asked what was the specific condition at PRS2 that triggered PacifiCorp requiring regulators, PacifiCorp gave a vague response: “[t]he specific trigger for the voltage regulators in the field for PRS2 is the inability for the voltage regulator control in the substation to measure load on the feeder to enable the use of Line Drop Compensation (LDC) settings.”<sup>21</sup> This standard is not really a standard, because we don’t know how much load on the circuit is too much for the voltage regulator control.

PacifiCorp seems to interpret the above standard differently at different times. On one occasion, PacifiCorp implied that the trigger was “Q0666 and Q1045 generation being greater than the feeder peak load.”<sup>22</sup> When asked the question again, PacifiCorp stated that the trigger point, actually, could be lower than peak load: “PacifiCorp makes no assertion that the need for voltage regulation on the feeder arises only when generation is greater than load.”<sup>23</sup> When asked why it required branch regulators in the PRS2 interconnection, but not for PRS1, PacifiCorp answered “[for PRS1 only,] Line Drop Compensation (LDC) settings can be implemented with some degree of effectiveness as peak load is over three times connected generation.”<sup>24</sup> From PacifiCorp’s three statements, above, we have no idea

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<sup>21</sup> Sunthurst/401, Beanland/83 (response to Sunthurst Data Request 9.15(a)).

<sup>22</sup> Sunthurst/401, Beanland/32 (response to Sunthurst Data Request 6.2). (“*As a result of the Q0666 and Q1045 generation being greater than the feeder peak load, the voltage regulator control at the substation will have no measurement indicating the actual loading on the feeder, making LDC settings not possible and negatively impact PacifiCorp’s ability to meet ANSI standard C84.1 in temporary switching configurations.*”)(emphasis added).

<sup>23</sup> Sunthurst/401, Beanland/83 (Response to Sunthurst Data Request 9.15).

<sup>24</sup> Sunthurst/401, Beanland/84 (Response to Sunthurst Data Request 9.16(b)).

what PacifiCorp would do at PRS1/PRS2 if generation was more than 1.98 MW and less than 4.97 MW.

PacifiCorp's application of branch regulators appears even less objective when viewed broadly across PacifiCorp's system. PacifiCorp uses LDC regulation to control voltage on the vast majority of its feeders across its system.<sup>25</sup> It stands to reason, then, that it would require branch regulators across its system as well. But Sunthurst found only three instances (not counting PRS2) in 27 Oregon Community Solar System Impact Study reports where PacifiCorp specified branch regulators. All of the instances were in Umatilla County, except OCS010, which is in adjacent Wallowa County.<sup>26</sup> This result begs the question what is it about Umatilla County that causes PacifiCorp to require branch regulators there and virtually no place else?

**c. PacifiCorp failed to preserve records relevant to the need for branch regulators.**

PacifiCorp also failed to preserve records that could have provided important information on the need for branch regulators.

Complainant Mr. Hale testified that, “[a]t a teleconference held June 9, 2020 to discuss the Q1045 interconnection, PacifiCorp stated that under then-existing conditions voltages on Circuit 5W406 (the PRS1 and PRS2 circuit) were outside of ANSI Range A

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<sup>25</sup> Sunthurst/401, Beanland/103 (Response to Sunthurst Data Request 10.4).

<sup>26</sup> Sunthurst/400, Beanland/9, lines 1-7.

criteria.”<sup>27</sup> Mr. Hale’s testimony was supported by contemporaneous notes taken by himself and also by his attorney Mr. Kaufmann. PacifiCorp requested and obtained in those notes in discovery. Sunthurst requested copies of all of PacifiCorp’s notes taken at the same meeting, but PacifiCorp denies any of the seven persons representing PacifiCorp on that call kept notes of the discussion.<sup>28</sup> Mr. Hale’s testimony raises questions whether PacifiCorp was aware of an existing voltage deficiency on its system, and whether a pre-existing condition is its primary motivation for requiring voltage regulators. PacifiCorp’s inability to produce any notes from an official Facilities Study Report Q&A call lends credence to such questions.

Sunthurst repeatedly requested the detailed results from PacifiCorp’s voltage studies, and was told that they did not exist.<sup>29</sup> PacifiCorp stated in response to Data Request 6.2 that “detailed voltage drop and fault current analysis” for Q0666 and Q1045 is not available because the software used to perform the analysis was removed from Company computers.<sup>30</sup> However PacifiCorp apparently had that information in March 2020, when it summarized the results of its voltage drop and fault current analysis in the Q1045 System Impact Study Report dated March 27, 2020. Sunthurst’s expert, Michael Beanland testified why those studies might have provided evidence important to

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<sup>27</sup> Sunthurst/300, Hale/6, lines 18-20.

<sup>28</sup> Sunthurst/500, Beanland/54 (Response to Sunthurst Data Request 13.1).

<sup>29</sup> Sunthurst/400, Beanland/7, lines 1-11.

<sup>30</sup> Sunthurst/401, Beanland/32 (Response to Sunthurst Data Request 6.2)(“When the analysis was performed for Q1045, the load flow software used was the ABB/Ventex FeederAll software package. In 2015, the vendor stopped supporting the software and due to company critical security controls to reduce threat of cyber security incidents and to maintain ISO certification for company software, FeederAll was subsequently removed from all company computers. Therefore, detailed voltage drop and fault current analysis from the FeederAll model is not available.” ).

evaluating the need for branch regulators.<sup>31</sup> PacifiCorp, again, disposed of relevant evidence under circumstances where a reasonable person would have preserved it.

**d. PacifiCorp's requirement that Sunthurst pay for branch regulators is unreasonable.**

The question presented is whether PacifiCorp demonstrated that branch regulators are reasonable and necessary to interconnect PRS2, and not unduly discriminatory. The record shows that PacifiCorp made no effort to evaluate the benefit/cost ratio of branch regulators, or consider less expensive alternatives, even though such efforts are required by its own Engineering Handbook. The record also shows that PacifiCorp does not apply uniform standards to determine when branch regulators are required for efficiency, and that PacifiCorp's use of branch regulators for community solar projects appears to be confined to the geographic vicinity of Sunthurst's projects. And finally, the record shows that PacifiCorp failed to preserve business records that might have shown PacifiCorp prescribed branch regulators for the primary purpose of mitigating an existing substandard condition on its system. On these facts, PacifiCorp's requirement that Sunthurst pay for branch regulators is unreasonable and unduly discriminatory.

**4. Requested Remedy**

Sunthurst requests an Order declaring that Sunthurst is not required to pay for branch regulators as a condition to interconnecting PRS1 or PRS2.

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<sup>31</sup> Sunthurst/400, Beanland/2, lines 20-22.

## **B. Cost Liability for fiber optic link**

### **1. Summary of evidence.**

As part of the interconnection, PacifiCorp requires a high-speed communication link between the recloser relay at PRS1/PRS2 and the Pilot Rock substation. One means of providing a high-speed communication link is a fiber optic cable, strung on PacifiCorp poles from the PRS1/PRS2 to the substation. Another means is dedicated spread spectrum, high-speed radio, which can communicate via radio signals. PacifiCorp employs both methods at various locations throughout its system.<sup>32</sup>

PacifiCorp testified that it considers fiber optic links to be a “best practice.”<sup>33</sup> By best practice, PacifiCorp intended to convey that, “when all options are reviewed and considered to be relatively equal, the best practice is the chosen implementation.”<sup>34</sup> PacifiCorp determined (for the first time) in its testimony that the cost of a fiber link to PRS1 and PRS2 is comparable to the cost of spread spectrum radio, and therefore is requiring fiber over the objection of Sunthurst, who believes the lower cost and risk associated with spread spectrum radio makes it the reasonable choice.

### **2. Applicable Legal Standard:**

Both PRS1 and PRS2 are Qualifying Facilities (“QFs”) under PURPA. The costs PacifiCorp charges a QF for interconnecting are subject to regulation by the Commission

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<sup>32</sup> Two examples of community solar projects with radio links are OCS045 (Sunthurst/403, Beanland/9) and OCS024 (posted online on PacifiCorp’s OASIS website).

<sup>33</sup> PAC/200, Patzkowski-Taylor-Vaz/22, line 21-22.

<sup>34</sup> Sunthurst/401, Beanland/85 (response to Sunthurst Data Request 9.17(c)).



through PURPA and through Oregon’s related statutory scheme set forth in ORS 758.505 to 758.555.<sup>35</sup> FERC Rule 292.306(a) requires qualifying facilities to pay any interconnection costs which the State regulatory authority may assess on a nondiscriminatory basis with respect to other customers with similar load characteristics.<sup>36</sup> The Commission’s rule at OAR 860-029-0060 requires assessment of “reasonably incurred” interconnection costs on a “nondiscriminatory basis with respect to other customers with similar load or other cost-related characteristics standard.”<sup>37</sup>

### 3. Argument.

#### a. **PacifiCorp’s claim that a fiber optic cable communication link costs the same as a radio link is not credible.**

The key evidence in this matter is PacifiCorp’s admission in Opening Testimony that the fiber optic cable costs approximately \$14,000 more than spread spectrum radio:

At the pre-existing \$60,000 per mile estimate, the fiber optic cable option was approximately **\$14,000 more than the radio.**

PAC/200, Patzkowski-Taylor-Vaz/24, lines 13-17 (emphasis added). Note the past tense “was.” PacifiCorp went on to state that, after dropping its assumed cost to install fiber

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<sup>35</sup> See Order No. 10-132, slip op. at 5-6.

<sup>36</sup> 18 CFR § 292.306(a) (“(a) Obligation to pay. Each qualifying facility shall be obligated to pay any interconnection costs which the State regulatory authority (with respect to any electric utility over which it has ratemaking authority) or nonregulated electric utility may assess against the qualifying facility on a nondiscriminatory basis with respect to other customers with similar load characteristics.”).

<sup>37</sup> OAR 860-028-0060(1) (“Interconnection costs are the responsibility of the owner or operator of the qualifying facility. Interconnection costs that may reasonably be incurred by the public utility will be assessed against a qualifying facility on a nondiscriminatory basis with respect to other customers with similar load or other cost-related characteristics.”)

under an existing distribution line (from \$60,000/mile to \$42,000/mile) it considered the cost difference between radio and fiber-optic a wash.<sup>38</sup> But *why* did PacifiCorp reduce the assumed cost of fiber-optic line by \$18,000/mile? The evidence shows that PacifiCorp changed its methodology (and resulting cost estimate) to support its position that the differences in cost between fiber optic and radio communications are insignificant.

When estimating the costs for fiber optic cable, PacifiCorp typically estimates \$42,000 per mile for new distribution lines and \$60,000 per mile for existing distribution lines. The substantial difference reflects the fact that installing fiber on existing poles typically requires pole replacements or strengthening and workarounds for existing space restrictions that installation under a new distribution line does not.<sup>39</sup>

There is no dispute that the PRS1 fiber optic option requires 0.3 miles of fiber on new distribution line and 0.6 miles of fiber underbuild on existing distribution line.<sup>40</sup> Nor is there any dispute that PacifiCorp's changed assumption did not result from further engineering, or better information about site conditions. When Sunthurst asked PacifiCorp to provide documentation supporting its reduced cost assumptions, PacifiCorp responded:

**As [the fiber optic link] has not been designed to date, it is still unknown what improvements to the existing line are required.** The revised cost assumes no

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<sup>38</sup> PAC/200, Patzkowski-Taylor-Vaz/24, lines 13-17 ("At the updated \$42,000 per mile estimate (or approximately \$38,000 for the 0.9 miles at issue for PRS1), the fiber optic cable option is comparable in cost to the radio link option").

<sup>39</sup> PAC/200, Patzkowski-Taylor-Vaz/23-24 (lines 1-3)("When estimating the costs for [fiber optic cable], PacifiCorp typically estimates \$42,000 per mile for new distribution lines and \$60,000 per mile for existing distribution lines. The latter requires more work to install fiber on an existing line, typically involving pole replacements or strengthening and workarounds for existing space restrictions.").

<sup>40</sup> See PAC/101, Bremer/19, 28; PAC/200, Patzkowski-Taylor-Vaz/34, lines 2-9; Sunthurst/400, Beanland/22, line 12.

improvements to the existing line are required to the existing line. If improvements are required, the cost could be higher.

Sunthurst/401, Beanland/86 (response to Sunthurst Data Request 9.18(a)) (emphasis added). PacifiCorp's dramatic change in assumptions, from an engineering perspective, is inexplicable.

Sunthurst's expert witness, Mr. Beanland (who has vast experience and expertise in the field of utility system design, estimating and construction, including 24 years as a utility employee and 20 more years working with utilities in a consulting capacity<sup>41</sup>) reviewed PacifiCorp's testimony and the record. In his expert opinion, PacifiCorp's reduced estimate is not based on sound methodology, but rather wishful thinking.<sup>42</sup> For that reason, he dismisses PacifiCorp's conclusion that fiber optic costs no more than a radio link and remains convinced a radio link will cost less than fiber, as well as entail less risk of cost overrun.<sup>43</sup>

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<sup>41</sup> Sunthurst/200, Beanland/2

<sup>42</sup> Sunthurst/400, Beanland/23, lines 3-16:

"Does PacifiCorp's reduction in estimated cost of fiber make 1 fiber a preferred choice?

A. No. PacifiCorp's reduced estimate is not based on sound methodology. According to PacifiCorp, underbuild on existing distribution line "typically involv[es] pole replacements or strengthening and workarounds for existing space restrictions". For that reason, it budgets \$60,000/mile versus \$42,000 per mile for new buildout. *To lower the cost, PacifiCorp assumed, without evidence and contrary to its prior estimates, that it will encounter no such complications in the 0.6 mile underbuild portion of fiber for PRS1 and PRS2. PacifiCorp admitted in subsequent discovery that it has not yet designed the fiber link, and that if improvements are required the cost could go higher. So the \$19,556 reduction in estimated costs is based upon wishful thinking. I would continue to rely on the original estimate for cost comparisons between fiber and radio. On that basis, spread-spectrum radio is the preferred choice because it is substantially cheaper. It also has less likelihood of cost overruns because the cost of spread spectrum radio is not dependent upon unknown site conditions to the same extent as fiber.*" (citations in original omitted; emphasis added).

<sup>43</sup> *Id.* Installing 0.6 miles of new fiber on existing line touches approximately 24 existing poles with potential latent deficiencies requiring correction at Sunthurst's cost.

One does not need to be an engineering expert to recognize PacifiCorp's testimony, if credited, would take the parties and the Commission down a path that shouldn't be taken. Discounting estimating standards, without justification, to get a final number that fits a pre-conceived conclusion is a slippery slope that would lead to profound negative results. While it is true PacifiCorp bears no immediate financial risk from its unrealistically optimistic estimate of fiber optic costs (since Sunthurst remains liable for the actual cost regardless PacifiCorp's estimate), the lasting damage to its reputation would be severe.

**b. PacifiCorp derives quantifiable system benefits from installing fiber that should not be charged to Sunthurst.**

PacifiCorp's strong preference for fiber optic communication link (as evidenced by its result-driven cost estimating described above) can be explained by that fact that fiber optic provides system benefits that radio communications does not. For one, if any of the twenty or so existing poles the PRS1 fiber will attach to require replacement, PacifiCorp will realize a system benefit whose cost can be determined actuarially after the fact. For another, PacifiCorp insists on installing 48-pair fiber-optic cable, which is beyond any conceivable future need for PRS1 or PRS2. Sunthurst requires two fibers<sup>44</sup> to link the transfer trip relay at Pilot Rock Solar 1 and 2 to the Pilot Rock substation; the other 46 fibers will be owned and controlled by PacifiCorp for its own use. PacifiCorp has a program for leasing out surplus fiber, and hopes to monetize the excess capacity in the fiber optic

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<sup>44</sup> Sunthurst/200, Beanland 29.

cable Sunthurst must pay for.<sup>45</sup> PacifiCorp also plans to utilize fiber optic fibers to transmit real-time project data from its telemetry equipment installed at PRS1 and PRS2.

**c. PacifiCorp's insistence on fiber optic cable is not reasonable.**

A fiber optic cable communications link is not necessary to safely interconnect and operate the PRS1 or PRS2 project; high speed radio link via spread spectrum radio is a reliable alternative utilized by PacifiCorp and throughout the west coast.<sup>46</sup> PacifiCorp's own calculation (the real one) concluded that fiber is likely to cost \$14,000 more than radio. If an above-normal number of poles touched by the fiber underbuild have latent issues, the cost spread could be much more. Rather than designing a safe, reliable interconnection for PRS1 at the lowest reasonable cost, PacifiCorp chose a more risky and expensive option because fiber-optic line provides benefits to PacifiCorp, including potential refurbishment of existing poles touched by the fiber, a fiber link for its telemetry system, and surplus fiber to lease to third parties. PacifiCorp cannot demand tribute, even a small one, as a condition of interconnection. Under the facts above, PacifiCorp's requirement that Sunthurst pay \$14,000 extra for fiber optic (and bear the uncertainty inherent in attaching to existing poles) than for a radio link is unreasonable and therefore violates OAR 860-029-0060.

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<sup>45</sup> Sunthurst/401, Beanland/110 (Response to Sunthurst Data Request 10.8).

<sup>46</sup> Sunthurst/400, Beanland/21, lines 18-20.

#### **4. Remedy Requested**

##### **a. Sunthurst's costs should be capped at the cost of a radio link.**

Because radio is fully satisfactory to serve the high-speed transfer trip scheme at PRS1 and PRS2 at lower cost than fiber, Sunthurst requests that the Commission order PacifiCorp to allow a radio link or, in the alternative, cap Sunthurst's cost for fiber-optic link at the estimated cost of radio.

##### **b. Alternatively, PacifiCorp and Sunthurst should share equally in the cost of fiber optic link.**

Alternatively, it would be reasonable for PacifiCorp to share equally in the reasonable cost of fiber optic. It would be inequitable for PacifiCorp to increase Sunthurst's costs solely for PacifiCorp's benefit; however by splitting the cost of a fiber link, the parties would each get what they need at a lower cost than if they had to pay for it alone.

#### **C. Liability for Telemetry-Related Costs**

##### **1. Summary of evidence.**

PacifiCorp uses telemetry to monitor the status of various components of its electrical system in real time. Where telemetry is installed at a distributed energy resource (DER), a remote terminal unit (RTU) gathers project data (MW, MVAR, etc.) and communicates it back to a central location, typically via fiber optic communication link.<sup>47</sup> PacifiCorp did not specify telemetry for PRS1 (Q0666), but did require telemetry for PRS2

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<sup>47</sup> Sunthurst/200, Beanland/13.

(Q1045). Telemetry was a principal driver of estimated total cost of PRS2 interconnection provided in the June 30, 2020 Facilities Study Report for Q1045.<sup>48</sup>

In a July 23, 2020 letter, Sunthurst asked PacifiCorp to eliminate the telemetry requirement from Q1045 (PRS2) because neither PRS1 nor PRS2 exceeds the 3 MW threshold for requiring telemetry enshrined in OAR 860-082-0070.<sup>49</sup> In its August 7 response, PacifiCorp agreed unconditionally to Sunthurst's request.<sup>50</sup> As promised in its August 7 letter, PacifiCorp issued a revised Facilities Study Report for Pilot Rock Solar 2 (Q1045), on September 4, 2020.<sup>51</sup> The revised report removed the estimated cost of all PacifiCorp-owned telemetry equipment, but (surprisingly) left unchanged Sunthurst's obligations to install and pay for instrumentation, sending units, cables, AC power, and a fenced area PacifiCorp required to support its telemetering.<sup>52</sup>

Sunthurst must purchase additional equipment to provide PacifiCorp with analog signals, as PacifiCorp requires. All of these costs are unnecessary if PacifiCorp does not

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<sup>48</sup> See June 30, 2020 Q1045 Facilities Study Report at Sunthurst/207, Beanland/18-32.

<sup>49</sup> Sunthurst/201, Beanland/9 (July 23, 2020 letter from Sunthurst's attorney to PacifiCorp's attorney).

<sup>50</sup> The August 7 letter from PacifiCorp to Sunthurst's attorney states:

First, **regarding the Q1045 Pilot Rock Solar 2 interconnection request, PacifiCorp agrees to a modification for telemetry.** However, PacifiCorp views the strategy by Sunthurst of siting two projects totaling 4.97 megawatts ("MW") at the same point of interconnection ("POI") as gaming the Oregon Division 82 Small Generator Interconnection Rules. **OAR 860-082-0070(2) states that a small generator facility with a nameplate capacity of less than three MW cannot be required to provide or pay for data acquisition or telemetry.** However, together the Pilot Rock Solar 1 and 2 projects far exceed the three MW threshold. To be clear, PacifiCorp views a lack of telemetry for generation of Pilot Rock Solar 1 and 2's sizes to be an irresponsible way to run a distribution system and, absent telemetry, will result in degradation of service to other customers in this area. **Therefore, PacifiCorp, at its ratepayers' expense, will install the necessary telemetry equipment to monitor the two Pilot Rock solar projects, should they proceed.**

Sunthurst/211, Beanland/16 (emphasis added).

<sup>51</sup> See September 4, 2020 Q1045 Facilities Study Report at Sunthurst/207, Beanland/33-47.

<sup>52</sup> PacifiCorp's requirements are listed at Sunthurst/207, Beanland/39-40.

install its telemetry system.<sup>53</sup> PacifiCorp admitted that the cost just to provide the data signals PacifiCorp requires could be \$20,000.<sup>54</sup> Sunthurst estimates the actual costs to provide analog data could exceed \$50,000, and the graded area with fence, gate, and driveway could add another \$25,000.<sup>55</sup>

Sunthurst never agreed to pay for items required solely to support PacifiCorp's telemetry. Sunthurst asked PacifiCorp to keep its promise made in the August 7 letter and excuse Sunthurst from those obligations, or else to reimburse it for its actual costs to provide them. PacifiCorp has refused.

## **2. Applicable Legal Standard.**

OAR 860-082-0070, Metering and Monitoring, governs small generator interconnection requirements for telemetering, and, in relevant part says:

(2) Except as provided in subsection 3(b), a public utility may not require an applicant or interconnection customer with a small generator facility with a nameplate capacity of less than three megawatts to provide or pay for the data acquisition or telemetry equipment necessary to allow the public utility to remotely monitor the small generator facility's electric output.

(3) At its discretion, a public utility may require an applicant or interconnection customer to pay for the purchase, installation, operation, and maintenance of the

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<sup>53</sup> Sunthurst/200, Beanland/26 (opening testimony of Mr. Beanland).

<sup>54</sup> Sunthurst/401, Beanland/109 (response to Sunthurst Data Request 10.7).

<sup>55</sup> Sunthurst/400, Beanland/24



data acquisition or telemetry equipment necessary to allow the public utility to remotely monitor the small generator facility's electric output if:

\* \* \*

(b) The small generator facility meets the criteria in OAR 860-082-0055(1) for Tier 3 interconnection review and the aggregated nameplate generation on the circuit exceeds 50 percent of the line section annual peak load.

**3. Argument:**

**a. OAR 860-082-0070 determined the balance of interests between utilities and developers regarding telemetry equipment.**

The Commission adopted rule -0070 as part of its Small Generator Interconnection rulemaking in 2009 (Docket AR 521). In adopting the rule, the Commission said:

Throughout these rulemaking proceedings, the participants have disagreed about metering and monitoring requirements. The public utilities generally want greater ability to require telephonic meter interrogation and remote data acquisition. The small generators want to limit a public utility's ability to require expensive metering and monitoring equipment when less expensive equipment is sufficient.

We find that Staff's proposed rule OAR 860-082-0070 appropriately balances the [\*5] interests of the public utilities and the small generators. The proposed rule allows public utilities to maintain efficiency, safety, and reliability, while also keeping the costs of metering and monitoring reasonable for small generators.

Order No. 09-196; 2009 Ore. PUC LEXIS 170, \*4-5 (Or. P.U.C. June 8, 2009). The Commission's statement recognized that unless the Commission set limits, the utilities' ever-growing desire for remote system data would unreasonably burden small generators, and that small generators under 3 MW can, in most circumstances, safely and reliably operate without any telemetering. Hence, rule -0070 sets firm boundaries on what utilities can and cannot require from small generators.

**b. OAR 860-082-0070 prohibits PacifiCorp from imposing telemetry related charges on PRS1 and PRS2.**

Rule -0070 prohibits PacifiCorp from imposing telemetry related charges on PRS1 and PRS2. The circuitous but definitive application of Rule -0070 to PRS1 and PRS2 is explained below.

OAR 860-082-0070(2) provides that a public utility cannot require a small generator under 3 MW to *provide or pay for the data acquisition or telemetry equipment*, unless the exception in OAR 860-082-0070(3)(b) applies. Section 3(b) applies only if: (a) The small generator meets the criteria in OAR 860-082-0055(1) for Tier 3 interconnection review; and (b) aggregated nameplate generation on the circuit exceeds 50 percent of the line section annual peak load.

Both PRS1 and PRS2 are small generating facilities<sup>56</sup> under 3 MW nameplate capacity.<sup>57</sup> Therefore, PRS1 and PRS2 are not required to pay for data acquisition or telemetry equipment unless the exception in -0070(3)(b) applies.

The first requirement for the -0070(3)(b) exception to apply is that PRS1 and PRS2 meet each criterion (a) through (e) in OAR 860-082-0055(1)<sup>58</sup>. PRS1 and PRS2 satisfy criteria (a)-(c), but do not satisfy criterion (d) or (e). Criterion (d) requires that the small generator facility must not export power beyond the point of interconnection. PRS1 and PRS2 fail this criterion because they will at times export power through the 230kV bus at BPA Roundup.<sup>59</sup> Criterion (e) requires that that the small generator facility use low forward power relays or other protection functions that prevent power flow onto the area network. PRS1 and PRS2 also fail this criterion. Because neither PRS1 nor PRS2 satisfy each criteria (a) through (e) in OAR 860-082-0055(1), the exception in -0070(3)(b) does not apply.

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<sup>56</sup> OAR 860-082-0015(32) (“‘Small generator facility’ means a facility for the production of electrical energy that has a nameplate capacity of 10 megawatts or less. A small generator facility does not include interconnection equipment, interconnection facilities, or system upgrades.”).

<sup>57</sup> PRS1 has a nameplate capacity of 1.98 MW (Sunthurst/207, Beanland/17) . PRS2 has a nameplate capacity of 2.99 MW. (Sunthurst/207, Beanland/35).

<sup>58</sup> [OAR 860-082-0055](1) A public utility must use the Tier 3 interconnection review procedures for an application to interconnect a small generator facility that meets the following requirements:

(a) The small generator facility does not qualify for or failed to meet the Tier 1 or Tier 2 interconnection review requirements;

(b) The small generator facility must have a nameplate capacity of 10 megawatts or less;

(c) The small generator facility must not be connected to a transmission line;

(d) The small generator facility must not export power beyond the point of interconnection; and

(e) The small generator facility must use low forward power relays or other protection functions that prevent power flow onto the area network.

<sup>59</sup> PAC/103, Bremer/16 (“Minimum daytime loads in the Pendleton area are less than the sum of all generation year-round. Thus, Q1045 generation at any level is likely to result in export through the 230 kV bus at BPA Roundup.”)

With no (3)(b) exception, section (2) controls, and prohibits PacifiCorp from charging Sunthurst for telemetry expenses. Specifically, the rule prohibits requiring PRS1 or PRS2 to “*provide or pay for the data acquisition or telemetry equipment*”. The italicized language is comprehensive. Accordingly, the following requirements in the Q1045 Facilities Study Report violate OAR 860-082-0070(2):

“a. Provide a separate graded and fenced area along the perimeter of the share Q0666/Q1045 collector substation for the Public Utility to install an enclosure. The enclosure shall have unencumbered access for the Transmission Provider. Fencing, gates and road access shall meet Transmission Provider standards.<sup>60</sup>

b. Provide permanent AC power to the Transmission Provider’s enclosure.<sup>61</sup>

c. Design, procure and install conduit and Public Utility provided control cabling and hard wire all Q0666 and Q1045 source devices to the Public Utility’s remote terminal unit (“RTU”). Provide sufficient control cable for the Public Utility to terminate inside the Public Utility enclosure.<sup>62</sup>

d. Interconnection Customer shall provide the following data points:<sup>63</sup>

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<sup>60</sup> Sunthurst/207, Beanland/39 (September 4, 2020 Q1045 Facilities Study Report, page 5).

<sup>61</sup> *Id.*

<sup>62</sup> *Id.*

<sup>63</sup> *Id.*

Analogs:

- Net Generation real power MW
- Net Generator reactive power MVAR
- Energy Register KWH
- Q0666 real power MW
- Q0666 reactive power MVAR
- Q0666 Energy Register KWH
- Q1045 real power MW
- Q1045 reactive power MVAR
- Q1045 Energy Register KWH
- A phase 12.5 kV voltage
- B phase 12.5 kV voltage
- C phase 12.5 kV voltage
- Global Horizontal Irradiance (GHI)
- Average Plant Atmospheric Pressure (Bar)
- Average Plant Temperature (Celsius)

Status:

- 12 kV Circuit Recloser
- Max Gen MW
- Max Gen MW FB

e. Arrange for and provide permanent retail service for power that will flow from the Public Utility's system when the Q0666 and Q1045 Small Generator Facilities are

not generating. This arrangement must be in place prior to approval for backfeed.<sup>64</sup>

#### **4. Remedy Requested.**

Sunthurst requests that the Commission declare that PacifiCorp does not have authority to require Sunthurst to provide or pay for any item described in (a)-(e), above. Alternatively, Sunthurst requests that the Commission order PacifiCorp to reimburse Sunthurst's reasonable costs in the event it requires Sunthurst to provide any item described in (a)-(e), above. OAR 860-082-0070(4) allows a public utility and an interconnection applicant to modify by agreement the requirements in rule -0070, and Sunthurst does not object to installing or providing the items (a)-(e) in the previous section, *provided that* PacifiCorp agree to reimburse Sunthurst's reasonable costs.

#### **D. Cost Liability for High-side Project Meters**

##### **1. Summary of evidence.**

Sunthurst's expert witness, Mr. Beanland, testified that "low side" refers to the lower voltage on the generator-side of the power transformer that interconnects with the PacifiCorp distribution system. PRS1 and PRS2 have a low side voltage of 480V and a "high side" of 12,470V on the PacifiCorp distribution side.<sup>65</sup> PacifiCorp testified it requires revenue metering be performed on the high side of the transformer, except for Community Solar Projects less than 360 kilowatts. PacifiCorp claims metering on the high side is better

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<sup>64</sup> *Id.*

<sup>65</sup> Sunthurst/400, Beanland/18, lines 13-16. (Whereas Mr. Beanland refers to 12.5 kV as "medium" voltage, Sunthurst also uses "high side" to refer to the 12.5kV voltage level, in order to match PacifiCorp's convention.)

at accounting for losses.<sup>66</sup> Sunthurst's expert testified that low side metering is *more* accurate overall because, unlike high side metering, it does not require potential transformers.<sup>67</sup>

Low-side metering is generally less expensive than high side metering. According to Mr. Beanland, electric meters used by utilities can generally accept 480V input voltages directly at the meter, eliminating the need for the voltage transformers used to step down and isolate the medium voltage from the meter. Further, the current transformers required for low voltage metering are rated for 600V use, which makes them simpler and less expensive than current transformers required for 12,470V. In addition, because of the low voltage, the meter and current transformers are typically installed on the ground, avoiding the need for a power pole to keep the 12,470V safely up in the air away from people.<sup>68</sup> The savings from eliminating voltage transformers and a pole, and using low voltage current transformers more than offsets any resulting increase in costs to provide an additional low side enclosure.<sup>69</sup> In Mr. Beanland's opinion, low-side metering at PRS1 and PRS2 would reduce overall cost up to \$20,000.<sup>70</sup>

According to Mr. Beanland, the 2016 edition of the PacifiCorp Electric Service Requirements manual states that low side metering can be used for 480V services up to

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<sup>66</sup> PAC/200, Patzkowski-Taylor-Vaz/19, lines 3-9.

<sup>67</sup> Sunthurst/400, Beanland/20 (lines 14-20), 21 (lines 1-10).

<sup>68</sup> *Id.*

<sup>69</sup> Sunthurst/400, Beanland/20, lines 3-5.

<sup>70</sup> Sunthurst/400, Beanland/1, line 20.

4000 amps, which is about 3300kW/kVA in capacity.<sup>71</sup> PRS1 (1,980kW) and PRS2 (2,990 kW) both meet PacifiCorp's Engineering Handbook criteria for low side metering.

PacifiCorp declares it does not allow low-side metering in generation interconnections.<sup>72</sup> However, PacifiCorp declined to provide a comprehensive census of low-side metered generators on its system.<sup>73</sup> By chance, Sunthurst found two instances where PacifiCorp permitted solar generators similar in size to PRS1 and PRS2 to use low-side metering in 2018. Mr. Beanland was the responsible engineer for an interconnection customer who interconnected two adjacent 898 kW net metering installations to PacifiCorp's Dorris substation in Dorris, California, in 2018.<sup>74</sup> PacifiCorp called them NMQ0032 and NMQ0033.<sup>75</sup> And Sunthurst located two small, adjacent energy facilities in Utah, that interconnected in 2018 with low side metering.<sup>76</sup> Those facilities are owned by PacifiCorp.

**2. Applicable Legal Standard: Metering requirements must be reasonable and nondiscriminatory.**

Both PRS1 and PRS2 are Qualifying Facilities ("QFs") under PURPA. The costs PacifiCorp charges a QF for interconnecting are subject to regulation by the Commission

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<sup>71</sup> Sunthurst/400, Beanland/18, lines 16-19.

<sup>72</sup> Sunthurst/401, Beanland/29

<sup>73</sup> Sunthurst/401, Beanland/77 (Response to Sunthurst Data Request 9.10(c)).

<sup>74</sup> Sunthurst/400, Beanland/16, lines 3-7.

<sup>75</sup> Sunthurst/402, Beanland/10, 23 (single line diagrams in System Impact Study Reports for NMQ0032 and NMQ0033).

<sup>76</sup> Sunthurst/404, Beanland/4, 16 (single line diagrams in System Impact Study Reports for Q0918 and Q0919).



through PURPA and through Oregon’s related statutory scheme set forth in ORS 758.505 to 758.555.<sup>77</sup> FERC Rule 292.306(a) requires qualifying facilities to pay any interconnection costs which the State regulatory authority may assess on a nondiscriminatory basis with respect to other customers with similar load characteristics.<sup>78</sup> The Commission’s rule at OAR 860-029-0060 requires assessment of “reasonably incurred” interconnection costs on a “nondiscriminatory basis with respect to other customers with similar load or other cost-related characteristics standard.”<sup>79</sup>

### **3. Argument.**

#### **a. Low-side metering of adjacent small generators is reasonable where combined generation on the high side is also metered.**

PacifiCorp recently permitted two under-3 MW generating facilities it owns to meter on the low side.<sup>80</sup> The 0.65 MW Panguitch Solar Project (Q0918) and 1.00 MW Panguitch Storage Project (Q0919) are like PRS1 and PRS2, in that they are located adjacent to each other, and interconnect to a 12.5 kV distribution line at a common point of interconnection.

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<sup>77</sup> See Order No. 10-132, slip op. at 5-6.

<sup>78</sup> 18 CFR § 292.306(a) (“(a) Obligation to pay. Each qualifying facility shall be obligated to pay any interconnection costs which the State regulatory authority (with respect to any electric utility over which it has ratemaking authority) or nonregulated electric utility may assess against the qualifying facility on a nondiscriminatory basis with respect to other customers with similar load characteristics.”).

<sup>79</sup> OAR 860-028-0060(1) (“Interconnection costs are the responsibility of the owner or operator of the qualifying facility. Interconnection costs that may reasonably be incurred by the public utility will be assessed against a qualifying facility on a nondiscriminatory basis with respect to other customers with similar load or other cost-related characteristics.”)

<sup>80</sup> The System Impact Study Reports for Q0918 and Q0919 are Sunthurst Exhibit 404.

PacifiCorp, in its testimony, described the Panguitch Solar/Storage Project as having “essentially the same configuration as PRS1 and PRS2.”<sup>81</sup>

For Panguitch Solar and Panguitch Storage, PacifiCorp specified a meter at the low side for each Project, and a third meter on the high side measuring combined output at the change of ownership point (COP). This is similar to PRS1 and PRS2, where PacifiCorp is also requiring a third meter at the COP, except that PacifiCorp requires PRS1 and PRS2 to meter on the high side. *Compare* Sunthurst/404, Beanland/16 (Panguitch Storage 1-line diagram) to Sunthurst/207, Beanland/36 (PRS2 1-line diagram).

PacifiCorp apparently was not worried enough about meter inaccuracies to require Panguitch Solar and Panguitch Storage to meter on the high side. In fact, there is no need to worry because, with the third meter at the COP, PacifiCorp can measure delivered energy on the high side at the COP, and apportion it between Panguitch Solar and Panguitch Storage according to the relative output measured at each low-side meter. Had PacifiCorp required high side metering, Panguitch Solar and Panguitch Storage likely would have had to install separate step-up transformers in order to have separate high-side terminals for each project, *plus* an additional pole and current transformers for the high side meters. Rather than require all of this added expense for no resulting economic benefit, PacifiCorp allowed low-side metering. Panguitch Solar and Panguitch Storage illustrate that low-side

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<sup>81</sup> PAC/200, Patzkowski-Taylor-Vaz/7, lines 17-19 (“PacifiCorp’s merchant function submitted and ultimately constructed two small generating facilities (Q0918 and Q0919) in Utah with essentially the same configuration as PRS1 and PRS2.”).

metering of adjacent under-3 MW generating facilities is safe and reasonable, where combined output is also measured on the high side at the COP.

- b. Prohibiting low-side metering at PRS1 and PRS2, where PacifiCorp used low side metering at its own facility with “essentially the same configuration as PRS1 and PRS2” is unduly discriminatory.**

PRS1/PRS2 have similar load and other cost-related characteristics to Panguitch Solar and Panguitch Storage. PRS1/PRS2 on the one hand, and Panguitch Solar/Panguitch Storage on the other both share interconnection facilities to deliver output to a common COP. Both are small generating projects, with limited ability to absorb high interconnection costs. Both have similar nameplate capacity and both interconnect to PacifiCorp’s distribution system. It is therefore easy to understand why PacifiCorp described them as “essentially the same.”

Because they are essentially the same (with ownership being perhaps the major difference), they both should be afforded comparable treatment. However PacifiCorp is not treating PRS1/PRS2 in a comparable fashion, by insisting that it meter on the high side. PacifiCorp has not articulated any reason why adjacent small projects sharing a common COP are entitled to meter on the low side when owned by PacifiCorp, whereas small projects sharing a common COP, not owned by PacifiCorp, are not. Such a distinction is therefore unduly discriminatory.

#### **4. Remedy Requested**

For the reasons above, Sunthurst asks that the Commission either (a) order PacifiCorp to allow PRS1 and PRS2 to meter on the low side or else (b) order PacifiCorp to pay (or reimburse) Sunthurst any incremental difference in cost between low- and high-side metering.

#### **E. Reasonableness of the 8% Capital Surcharge**

PacifiCorp applied an 8% “Capital Surcharge” to PacifiCorp labor, materials, and purchased services included in PRS1 and PRS2 interconnection cost estimates.<sup>82</sup> This equates to about \$65,000 added to Sunthurst’s cost to interconnect. Sunthurst’s Complaint alleges that the capital surcharge is unjust and unreasonable.

##### **1. How PacifiCorp calculates its 8% Capital Surcharge.**

The purpose of the charge is to include an appropriate portion of administrative and general costs, which cannot be charged directly to a capital project.<sup>83</sup> PacifiCorp does not dispute that the Commission has never expressly approved PacifiCorp’s methodology for calculating the Capital Surcharge nor the inclusion of PacifiCorp’s 8% Capital Surcharge in its interconnection costs.<sup>84</sup> PacifiCorp claims approval is implicit, because OAR 860-027-0045 adopted FERC’s uniform system of accounts, codified at 18 CFR Part 101, and because PacifiCorp’s capital surcharge is consistent with those requirements. *Id.*

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<sup>82</sup> See PAC/201, 202.

<sup>83</sup> PAC/200, Patzkowski-Taylor-Vaz/36, lines 5-7.

<sup>84</sup> PAC/200, Patzkowski-Taylor-Vaz/37-38.

PacifiCorp testified that the Capital Surcharge is applied to all capital projects undertaken by PacifiCorp.<sup>85</sup> However the Capital Surcharge is not applied *equally* to all capital projects. PacifiCorp disclosed the following exceptions to the its rule of equal allocation:

- Exception 1: Turn-key<sup>86</sup> transmission projects are charged only ¼ the Capital Surcharge rate, and such projects over \$10 million are capped at 2.5% of total cost.<sup>87</sup>
- Exception 2: Turn-key generation facilities are charged only ¼ of the Capital Surcharge rate, capped at \$500,000.<sup>88</sup>
- Exception 3: For its 2019 repowering jobs, PacifiCorp aggregated multiple projects subject to the \$500,000 Capital Surcharge cap so that one \$500,000 cap applied to multiple repowering projects.

Other exceptions may apply, but are not known to Sunthurst, as a comprehensive statement of PacifiCorp’s Capital Surcharge algorithm was not provided.

## **2. QFs pay 8% Capital Surcharge; PacifiCorp pays less.**

Through discovery Sunthurst obtained data regarding all Projects over \$10 million subject to PacifiCorp’s Capital Surcharge that were completed in 2019. According to PacifiCorp’s responses, 16 projects over \$10 million were completed in 2019, at a total cost of \$873.6 million. Nine of those were windmill repowering jobs that, in aggregate, totaled

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<sup>85</sup> PAC/200, Patzkowski-Taylor-Vaz/36 line 12.

<sup>86</sup> [According to PacifiCorp, “typically for turnkey project, engineering, procurement, and construction are conducted by contractors(s) and not done by internal PacifiCorp personnel.” Sunthurst/500, Beanland/57.]

<sup>87</sup> Sunthurst/500, Beanland 4, ¶(i).

<sup>88</sup> Sunthurst/500, Beanland 4, ¶(i).

\$707.2 million<sup>89</sup>, or 81% of the total cost of all 16 projects. It is possible to make several deductions based on the data PacifiCorp provided:

**a. In 2019, PacifiCorp counted multiple PacifiCorp projects against a single cost cap.**

The largest Surcharge for a wind repowering project placed in service in 2019 was only \$133,680.05, even though the average cost per repower project was \$78.6 million.<sup>90</sup> (Sunthurst/500, Beanland/58). According to PacifiCorp, the 9 projects were lumped together such that the \$500,000 was divided up over multiple projects. Although several of the nine projects were located adjacent to each other, the nine repowering projects were located in at least five different locations in three different states.

**b. In 2019, one of the repowerings PacifiCorp treated as a turn-key project was not a turn-key project.**

PacifiCorp stated in discovery that its turn-key projects pay a much-lower Surcharge rate ( $\frac{1}{4}$  of the non-turn-key rate) because engineering, procurement, and construction are done by contractors rather than by PacifiCorp personnel.<sup>91</sup> In a separate matter before the Commission<sup>92</sup>, PacifiCorp testified that the Goodnoe Hills repowering project utilized engineering by Black and Veatch, fixed-price turbine supply agreements with Vestas, and

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<sup>89</sup> Sunthurst/500; Beanland/58. The nine wind repowering projects entering service in 2019 are: Glenrock 1 and Glenrock 3 (Wyoming); Goodnoe Hills (Washington); High Plains (Wyoming); Leaning Juniper (Oregon); McFadden Ridge (Wyoming); Rolling Hills (Wyoming); Seven Mile 1 and Seven Mile 2 (Wyoming). Id.

<sup>90</sup> (\$873.6 M/9 projects)..

<sup>91</sup> Sunthurst/500, Beanland/4 (paragraph (j)).

<sup>92</sup> The Commission may take official notice of, among other things, documents and records in the file of the Commission. OAR 860-001-0460(1)(d).

separately negotiated contracts with wind energy construction companies for installation of the Vestas equipment.<sup>93</sup> According to that same PacifiCorp testimony: “the scope, language, and risk profile of the agreements” for the Goodnoe Hills project are different from turn-key EPC contracts with General Electric Company for the other repowering projects.<sup>94</sup> One would expect it takes more effort and expense to manage separate contracts for engineering, material, and construction than to manage a single EPC agreement. However when applying the Capital Surcharge, PacifiCorp appears to have treated them the same.

**c. In 2019, only projects paid for by PacifiCorp benefitted from PacifiCorp’s Capital Surcharge rate and cost caps.**

According to PacifiCorp’s response to Sunthurst Data Request 13.4, none of the 16 projects over \$10 Million subject to PacifiCorp’s Capital Surcharge that were completed in 2019 belonged to third parties. Likewise no project paid for by anyone other than PacifiCorp hit the \$500,000 cost cap.

**d. In 2019, the average Capital Surcharge rate on PacifiCorp generation projects was only 0.109%.**

PacifiCorp repowered nine PacifiCorp-owned generation projects in 2019 at a total cost of \$707 Million with total Surcharge of \$773,945.<sup>95</sup> Dividing the total Surcharge by the total cost reveals that the average Capital Surcharge rate for PacifiCorp’s nine 2019 repowering projects is only 0.109%.

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<sup>93</sup> Docket No, UE 352, Exhibit PAC/200, Hemstreet/22-24.

<sup>94</sup> Docket No. UE 369, Exhibit PAC/200, Hemstreet/23, lines 1-2

<sup>95</sup> Sunthurst/500, Beanland/58

**3. Legal Standard: Overhead charged to QFs must be reasonable and nondiscriminatory.**

Both PRS1 and PRS2 are Qualifying Facilities (“QFs”) under PURPA. The costs PacifiCorp charges a QF for interconnecting are subject to regulation by the Commission through PURPA and through Oregon’s related statutory scheme set forth in ORS 758.505 to 758.555.<sup>96</sup> FERC Rule 292.306(a) requires qualifying facilities to pay any interconnection costs which the State regulatory authority may assess on a nondiscriminatory basis with respect to other customers with similar load characteristics.<sup>97</sup> The Commission’s rule at OAR 860-029-0060 requires assessment of “reasonably incurred” interconnection costs on a “nondiscriminatory basis with respect to other customers with similar load or other cost-related characteristics standard.”<sup>98</sup>

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<sup>96</sup> See Order No. 10-132, slip op. at 5-6.

<sup>97</sup> 18 CFR § 292.306(a) (“(a) Obligation to pay. Each qualifying facility shall be obligated to pay any interconnection costs which the State regulatory authority (with respect to any electric utility over which it has ratemaking authority) or nonregulated electric utility may assess against the qualifying facility on a nondiscriminatory basis with respect to other customers with similar load characteristics.”).

<sup>98</sup> OAR 860-028-0060(1) (“Interconnection costs are the responsibility of the owner or operator of the qualifying facility. Interconnection costs that may reasonably be incurred by the public utility will be assessed against a qualifying facility on a nondiscriminatory basis with respect to other customers with similar load or other cost-related characteristics.”)



**a. PacifiCorp’s Capital Surcharge allocation rules do not meet FERC USOA requirements.**

PacifiCorp’s contention that its Capital Surcharge allocation formulae conform to FERC’s Uniform System of Accounts (“USOA”), set forth in Code of Federal Regulations 18, Part 101, Electric Plant Instructions 4 (A-C)<sup>99</sup>, is incorrect, for the reasons set forth below:

- i. PacifiCorp’s Exceptions to uniform application of its Capital Surcharge violate the FERC rule against using arbitrary percentages or amounts.*

Paragraph B of the USOA Electric Plant Instructions provides: “The addition to direct construction costs of arbitrary percentages or amounts to cover assumed overhead costs is not permitted.” PacifiCorp’s \$500,000 Capital Surcharge cap on turn-key generation projects is arbitrary and produces arbitrary results, as illustrated by the hypothetical Cases, below:

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<sup>99</sup> 18 CFR Part 101, Electric Plant Instructions 4 (A-C). Overhead Construction Costs.

A. All overhead construction costs, such as engineering, supervision, general office salaries and expenses, construction engineering and supervision by others than the accounting utility, law expenses, insurance, injuries and damages, relief and pensions, taxes and interest, shall be charged to particular jobs or units on the basis of the amounts of such overheads reasonably applicable thereto, to the end that each job or unit shall bear its equitable proportion of such costs and that the entire cost of the unit, both direct and overhead, shall be deducted from the plant accounts at the time the property is retired.

B. As far as practicable, the determination of pay roll charges includible in construction overheads shall be based on time card distributions thereof. Where this procedure is impractical, special studies shall be made periodically of the time of supervisory employees devoted to construction activities to the end that only such overhead costs as have a definite relation to construction shall be capitalized. The addition to direct construction costs of arbitrary percentages or amounts to cover assumed overhead costs is not permitted.

C. For Major utilities, the records supporting the entries for overhead construction costs shall be so kept as to show the total amount of each overhead for each year, the nature and amount of each overhead expenditure charged to each construction work order and to each electric plant account, and the bases of distribution of such costs.

**Figure 1- Application of PacifiCorp's Capital Surcharge Formulae to Hypothetical New Generation\***

	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>
Project Cost:	\$25,000,000	\$ 100,000,000	\$ 707,000,000
Capital Surcharge Rate:	8%	8%	8%
Turn-key Rate:	2%	2%	2%
Generation Cap:	\$500,000	\$500,000	\$500,000
Total Surcharge:	\$ 500,000	\$ 500,000	\$ 500,000
Effective rate:	2.00%	0.50%	0.07%
*Assumes Cases are new, PacifiCorp-owned, turn-key generation			

As shown by Figure 1, above, PacifiCorp’s cap on the Capital Surcharge for turn-key generation projects means that it will pay (arbitrarily) only \$500,000 whether its builds: (a) a \$25 million project; (b) a \$100 million project; or (c) aggregates all of its generation into a single Master Contract costing \$707 million (as it did with its wind repowering projects in 2019).

*ii. PacifiCorp’s Exceptions prevent each job from bearing an equitable proportion of PacifiCorp’s overhead costs.*

It beggars belief that a turn-key generation project’s equitable portion of PacifiCorp’s overhead costs: (a) can never be more than \$500,000; and (b) is the same, whether the Project costs \$25 Million or \$707 Million. It also inequitable that turn-key generation projects (always paid by PacifiCorp) are subject to a \$500,000 cap, whereas turn-key transmission projects (sometimes paid for by QFs) are not. And it is inequitable that transmission projects over \$10 million (nearly always belonging to PacifiCorp) are capped at 2.5% Capital Surcharge, whereas those under \$10 million (often paid for by QFs) are not.

**b. PacifiCorp's allocation of overhead costs between itself and non-PacifiCorp parties unduly discriminates with respect to other customers with similar load or other cost-related characteristics.**

If PacifiCorp's overhead costs were allocated only across projects paid by PacifiCorp, the impact of its arbitrary allocation formulae likely would be insignificant. But in reality, PacifiCorp's choices in allocating overhead costs is a zero-sum process where every dollar it shifts can lower PacifiCorp's costs and raise the costs to its competitors. PacifiCorp's methodology improperly lowers PacifiCorp's avoided cost prices paid to QFs because its proxy resources in its Integrated Resource Plan also cap surcharge payments at \$500,000.<sup>100</sup> And PacifiCorp's allocation also distorts economics against distributed generation in favor of large, PacifiCorp-owned, generation projects.

PacifiCorp invented its own rules for allocating the Capital Surcharge and implemented them without notice to the Commission or its customers. On their face the rules include arbitrary caps to rates and amounts in violation of FERC's USOA rules for allocation of overhead expenses. In application, only projects paid for by PacifiCorp received the benefit of the special rates and caps, at the expense of non-PacifiCorp projects. In at least one instance (Goodnoe Hills Wind Project repowering), PacifiCorp applied the cost formulae for a turn-key project, even though it was not a turn-key project.

The results of PacifiCorp's Capital Surcharge methodology are inequitable and discriminatory on their face. In 2019, zero non-PacifiCorp projects benefitted from the

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<sup>100</sup> Sunthurst/500, Beanland/4 (Response to Sunthurst Data Request 11.1(g)).

\$500,000 or the 2.5% Capital Surcharge caps. Whereas non-PacifiCorp projects pay a Surcharge of 8%, or more, PacifiCorp in 2019 paid an average Capital Surcharge of only 0.109% on \$707.2 million in generation repowering projects. Put another way, Sunthurst must pay the Capital Surcharge at a rate 73 times higher than PacifiCorp pays for its turn-key generation projects. PacifiCorp's methodology is unduly discriminatory, in structure and in effect, in violation of FERC Rule 292.306(a) and OAR 860-029-0060.

**4. Remedies sought for unreasonable Capital Surcharge**

**a. PacifiCorp should show cause why PacifiCorp's Exceptions to proportional allocation of overhead costs should be retained.**

PacifiCorp provided zero evidence to justify its allocation method that results in grossly disparate allocations of its overhead costs. As stated in the complaint, Sunthurst requests, unless PacifiCorp can produce existing studies supporting its chosen allocation rules (as required by the FERC USOA rules), the Commission order all Capital Surcharges to be allocated across all PacifiCorp and non-PacifiCorp projects on a strictly proportional basis pending Commission review and approval of PacifiCorp's methodology. Exception 3 (*supra*) in particular, should be rescinded without waiting for additional investigation.

**b. PacifiCorp's rules for allocating overhead charges to QFs should be filed with, and approved by, the Commission.**

Filing of the allocation formulae will inform potential interconnection customers about this currently hidden charge and give them an opportunity for review and comment. Filing also will provide a manner for the Commission to review and regulate PacifiCorp's

Capital Surcharges, as required by FERC Rule 292.306(a) and OAR 860-029-0060.<sup>101</sup> The Commission opted for a similar approach to review electric utility interconnection rules and, standardized agreements, in Docket No. UM 10-132. Sunthurst requests the Commission order PacifiCorp to file its rules for allocating overhead charges to QFs for review and approval by the Commission.

**c. PacifiCorp should not charge PRS1 and PRS2 any Capital Surcharge payment until the Commission approves a new methodology.**

Although some Capital Surcharge may be appropriate, the current methodology is so unreasonable that Sunthurst should not have to pay any Capital Surcharge until the Commission has approved a reasonable methodology. Sunthurst requests that the Commission prohibit PacifiCorp from calculating or charging Sunthurst a Capital Surcharge until its methodology is approved by the Commission.

**d. Changes to the Capital Surcharge methodology should be applied to PacifiCorp's proxy resource costs in its IRP and in its avoided costs.**

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<sup>101</sup> Order No. 10-132, at 5-6. ("We recently concluded that avoided cost rates, which must be filed with and approved by this Commission, are not tariffs subject to the filing and suspension requirements imposed by ORS 757.205, et seq. Rather, we concluded that the avoided costs rates were subject to a separate statutory scheme set forth in ORS 758.505 to 758.555, implementing PURPA. Although the Commission must review and approve the rate filings, the legislature has not mandated an investigation or hearing to determine the reasonableness of those rates.

We reach a similar conclusion here. The standardized procedures and agreements should be filed with the Commission for approval under our PURPA mandate, not as tariffs subject to suspension and investigation. We adopt the alternative language proposed by the Utilities.")(internal citations omitted).

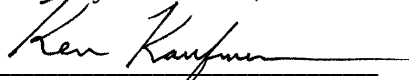
PacifiCorp's Exceptions 1 and 2 were incorporated into PacifiCorp's 2017 Integrated Resource Plan ("IRP") in the calculation of the cost of various new generation resources.<sup>102</sup> Those costs all reflected the \$500,000 cap on new turn-key generation projects, and completely disregarded any surcharge applicable to interconnection related construction necessary to install the projects. Sunthurst requests that the Commission require any change in allocation of the Capital Surcharge to be promptly included in the next IRP or IRP update and any resulting update to QF avoided cost prices.

#### IV. CONCLUSION

Sunthurst respectfully requests the Commission order the parties to comply with the actions each has pledged to take in furtherance of resolving this matter, as described in Section II, and grant Sunthurst the relief requested in Section III.

Dated this 26<sup>th</sup> day of March 2021.

Respectfully submitted,

By:   
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<sup>102</sup> See Sunthurst/401, Beanland/13-18.