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June 7, 2017

***VIA ELECTRONIC FILING***

Public Utility Commission of Oregon  
201 High Street SE, Suite 100  
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Attn: Filing Center

**RE: UM 1716 —PacifiCorp's Post-Hearing Reply Testimony**

PacifiCorp d/b/a Pacific Power encloses for filing in the above-referenced docket its Post-Hearing Reply Testimony.

If you have questions about this filing, please contact Natasha Siores at (503) 813-6583.

Sincerely,

Etta Lockey  
Vice President, Regulation

Enclosures

Docket No. UM 1716  
Exhibit PAC/400  
Witness: Rick Link

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

**PACIFICORP**

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**Reply Testimony of Rick Link**

**June 2017**

**REPLY TESTIMONY OF RICK LINK  
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1 **Q. Are you the same Rick Link who previously submitted testimony in this**  
2 **proceeding on behalf of PacifiCorp d/b/a Pacific Power?**

3 A. Yes.

4 **PURPOSE OF TESTIMONY**

5 **Q. What is the purpose of your testimony?**

6 A. My testimony includes a rebuttal of the parties' opening testimony regarding the  
7 resource value of solar (RVOS) and specifically new issues raised at the January 31,  
8 2017 hearing (Hearing), as well as the straw proposal attached to Order No. 17-085  
9 (Straw Proposal). I respond to the testimony presented by Mr. Mark Bassett on  
10 behalf of Public Utility Commission of Oregon Staff (Staff), Mr. Michael O'Brien on  
11 behalf of Renewable Northwest, the NW Energy Coalition, Northwest Sustainable  
12 Energy for Economic Development, and the Oregon Solar Industries Association  
13 (collectively, the Joint Parties), Mr. Bob Jenks on behalf of the Citizen's Utility  
14 Board (CUB), and Mr. Eliah Gilfenbaum on behalf of The Alliance for Solar Choice  
15 (TASC).

16 **Q. Please summarize your testimony.**

17 A. First, my testimony provides further recommendations for Phase II of this docket, the  
18 goal of which I believe should be to result in approved RVOS calculations for each  
19 utility. Second, my testimony includes specific responses to suggestions and  
20 recommendations made by other parties made for each RVOS element.

**PROCESS FOR PHASE II**

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**Q. Please summarize the recommendation made in your opening testimony.**

A. I recommended separate compliance filing dockets for each utility for the first calculation of utility-specific RVOS values using the inputs in Order No. 17-085. I recommended that, consistent with the Straw Proposal issued by the Commission in Order No. 17-085, the market price response, hedge value, and security, resiliency and reserves elements should not be included in these initial calculations. I also recommended that the environmental compliance cost only be included in the calculation to the extent there are actual or imminent environmental compliance costs avoided.

**Q. Have any of these recommendations changed?**

A. No.

**Q. In Staff's testimony, Mr. Bassett proposes a process for Phase II.<sup>1</sup> Do you agree with Mr. Bassett's recommendation?**

A. No, for a number of reasons. First, Mr. Bassett's testimony appears to envision that each utility's RVOS calculation will be filed in the same docket. As noted in my opening testimony, this is inappropriate because each utility's filing will be different based on each utility's circumstances and each filing is likely to contain confidential information that would be inappropriate to share amongst the utilities. Second, I disagree with Mr. Bassett's recommendation that a value for market price response and hedge value be included in Phase II values regardless of whether the parties agree on a methodology. It is simply premature to mandate that these values be calculated

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<sup>1</sup> Staff/500, Bassett/4-6.

1 when it is not settled that appropriate methodologies are even available or can be  
2 developed. The Public Utility Commission of Oregon (Commission) should await the  
3 outcome of the technical workshops on these elements before mandating that a value  
4 be included in the RVOS. Third, I disagree with Mr. Bassett's recommendation that  
5 at the conclusion of the evidentiary phase for each utility's RVOS calculation, the  
6 Commission will issue a Phase II order "finally determining the methods each utility  
7 should use" to determine an RVOS.<sup>2</sup> My understanding is that Phase II should result  
8 in the approval of utility-specific RVOS values. Staff's recommendation appears to  
9 result in the final determination of a methodology rather than utility-specific RVOS  
10 values.

11 **Q. In his testimony, CUB witness Mr. Jenks states that "the proposed**  
12 **methodologies are at such a high level (conceptual methodologies), that there will**  
13 **be several additional steps required to produce actual values."**<sup>3</sup> **Do you agree?**

14 A. No. Based on the directives in the Straw Proposal, PacifiCorp has sufficient guidance  
15 from the Commission to calculate RVOS values.

16 **Q. Mr. Gilfenbaum recommends expanding the scope of this docket in Phase II to**  
17 **incorporate an accounting of the value of distributed storage.**<sup>4</sup> **Do you agree**  
18 **with this?**

19 A. No. This docket has already undergone significant process and it would be  
20 inappropriate to modify the entire scope at this time. Incorporating an accounting of  
21 the value of distributed storage raises many broad questions such as defining the

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<sup>2</sup> *Id.* at 5-6.

<sup>3</sup> CUB/100, Jenks/1.

<sup>4</sup> TASC/300, Gilfenbaum/12.

1 capacity, storage volume, efficiency/losses, and dispatch control capabilities that have  
2 not been scoped in this docket. Phase II should remain focused on calculating utility-  
3 specific RVOS values.

#### 4 **RVOS ELEMENTS**

#### 5 **Energy**

6 **Q. A number of witnesses, including Staff's expert witness Mr. Olson,<sup>5</sup> call for the**  
7 **Commission to mandate the use of hourly energy values to estimate avoided**  
8 **energy costs. Do these recommendations raise any additional issues?**

9 A. Yes. As noted in my opening testimony, using more granular data will increase the  
10 administrative burden and it is important to ensure that this burden actually results in  
11 a more precise result. Seemingly contradicted by his recent written testimony, Mr.  
12 Olson stated in hearing that the use of monthly average prices is effectively  
13 equivalent to hourly modeling.<sup>6</sup> In addition, the use of hourly data raises  
14 confidentiality concerns—if the Commission mandates the use of hourly data it is  
15 even more critical that the Phase II calculations are completed in utility-specific  
16 dockets.

17 **Q. Mr. Gilfenbaum and Mr. O'Brien both question the use of the Public Utility**  
18 **Regulatory Policies Act (PURPA) avoided cost framework as a basis for**  
19 **establishing the RVOS. How do you respond?**

20 A. The RVOS is fundamentally setting a rate for the production of third-party energy  
21 delivered to the utility. As a threshold matter, though legal issues will be addressed

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<sup>5</sup> Staff/502, Bassett/1.

<sup>6</sup> UM 1716 Hearing Transcript (TR) 14, lines 12-17 (Olson).

1 elsewhere, my understanding is that depending on the use of the RVOS—for  
2 example, if the utility is required to purchase the output of the third-party  
3 generation—there may be legal constraints preventing the Commission from setting  
4 wholesale energy prices under anything other than a PURPA avoided cost or net  
5 metering framework. As I stated in my opening testimony, PacifiCorp’s method for  
6 non-standard avoided costs currently estimates the marginal avoided cost of energy  
7 on an hourly basis and accounts for the specific characteristics of the proposed  
8 resources and PacifiCorp’s system. This method is thus reasonable and appropriate  
9 for determining the energy value under consideration in this docket.

10 **Q. Do you agree with Mr. Gilfenbaum’s argument that the more appropriate**  
11 **framework for the RVOS is one similar to how utilities evaluate the cost-**  
12 **effectiveness of demand side resources?<sup>7</sup>**

13 A. No, as noted in my opening testimony, the RVOS is a valuation of the output of third-  
14 party generation to the utility system. Energy efficiency and demand response  
15 represent reductions in energy use. While energy efficiency always reduces a  
16 customer’s usage of the system, distributed generation is simply the substitution of  
17 generation by customers for generation by the utility. With distributed generation, the  
18 same amount of electricity is required to meet customer needs. The electricity is  
19 simply supplied by different resources. Thus, the use of avoided cost pricing is a  
20 better and more efficient benchmark of RVOS than using cost-effectiveness analysis  
21 traditionally used for energy efficiency programs.

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<sup>7</sup> TASC/300, Gilfenbaum/5-8.



1 **Q. Due to regulatory uncertainty associated with PURPA, Mr. O'Brien**  
2 **recommends that the RVOS should be specific, separate and distinct from**  
3 **PURPA and its associated dockets.<sup>8</sup> Do you agree?**

4 A. No. There is ongoing activity at the Commission around PURPA avoided costs,  
5 however many issues and elements that the Commission addresses in the PURPA  
6 context also need to be addressed in the RVOS context. Fundamentally, RVOS and  
7 avoided costs are both valuing energy generated by a third party and delivered to the  
8 utility. To avoid inconsistencies and potential gaming among solar developers, to the  
9 extent the Commission adopts policies for the RVOS that deviate from settled  
10 avoided cost doctrine, there should be a stated rationale for doing so.

11 **Q. Mr. O'Brien goes on to argue that if the PURPA framework is adopted, utilities**  
12 **should be required to use their standard avoided cost pricing methodologies**  
13 **rather than their non-standard methodologies.<sup>9</sup> He notes that PacifiCorp is**  
14 **proposing to use a non-standard avoided cost methodology. Why do you think**  
15 **that the use of the non-standard avoided cost methodology is appropriate?**

16 A. PacifiCorp's standard avoided cost pricing methodology uses simplified assumptions  
17 to produce a generic estimate of avoided costs for a given resource type while the  
18 non-standard methodology uses specific characteristics of the proposed project. To  
19 the extent the two values differ, the non-standard methodology is a more accurate  
20 estimate of energy value at any given point in time. While PacifiCorp is obligated to  
21 publish standard avoided cost pricing for small qualifying facilities (QFs), it is not  
22 obligated to do so for resources that are not QFs. Therefore, use of the non-standard

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<sup>8</sup> RNW, OSEIA, NWECA, NW SEED/300, O'Brien/3.

<sup>9</sup> *Id.* at 3-5.

1 avoided cost methodology is warranted to ensure that the RVOS methodology applied  
2 is the one that will generate the most accurate result.

3 **Generation Capacity**

4 **Q. Both Staff expert witness Mr. Olson and Mr. O'Brien recommend that for**  
5 **purposes of the RVOS, incremental solar should NOT be included in the load**  
6 **forecast when calculating the resource sufficiency/deficiency demarcation.<sup>10</sup> Do**  
7 **you agree?**

8 A. PacifiCorp's load and resource planning should account for all contractual  
9 obligations. To the extent incremental solar resources are being paid for capacity,  
10 their capacity should be included in PacifiCorp's planning, either as an offset to load,  
11 or as a resource. This capacity should be included through the end of the solar  
12 contract period. To the extent a capacity payment extends into the future,  
13 PacifiCorp's planning should continue to incorporate the resource to avoid over-  
14 procuring capacity.

15 **Q. Mr. O'Brien suggests that the generation capacity element should be equal to**  
16 **fixed O&M in years where a utility is capacity sufficient and should not be**  
17 **zero.<sup>11</sup> Do you agree?**

18 A. No. By definition, fixed O&M is not affected by the PacifiCorp's resource position.  
19 Even if dispatchable resources are used less, the fixed (as opposed to variable) cost of  
20 maintaining those resources is unchanged.

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<sup>10</sup> Staff/502, Bassett/2; RNW, OSEIA, NWECA, NW SEED/300, O'Brien/6.

<sup>11</sup> RNW, OSEIA, NWECA, NW SEED/300, O'Brien/7.

1 **Transmission & Distribution (T&D) Capacity**

2 **Q. Mr. O'Brien suggests that PacifiCorp's 2016 Annual Smart Grid Report**  
3 **indicates that location-specific data may already be available for use in**  
4 **calculating location-specific T&D capacity values.<sup>12</sup> Do you agree with this**  
5 **assessment?**

6 A. For the initial calculation of the RVOS in Phase II, I continue to recommend the use  
7 of a system-wide average value to estimate the avoided or deferred costs of  
8 expanding, replacing or upgrading T&D infrastructure attributable to incremental  
9 solar penetration. Though they may be useful for this purpose, the tools referenced in  
10 the 2016 Annual Smart Grid Report were not developed specifically for the purpose  
11 of valuing T&D deferral value. Therefore, while I agree with Mr. O'Brien that these  
12 tools could be helpful in determining more granular location-specific values,  
13 additional discussion and workshops are warranted before PacifiCorp would be able  
14 to apply these tools for this purpose. The Commission should decline to impose a  
15 locational value requirement at this time and instead maintain the approach in the  
16 straw proposal to use system wide average values initially while exploring ways to  
17 generate more location-specific values over time.

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<sup>12</sup> RNW, OSEIA, NWEA, NW SEED/300, O'Brien/8.

1 **Line Losses**

2 **Q. Staff expert witness Mr. Olson suggests that utilities should ideally calculate**  
3 **marginal line losses on an hourly basis.<sup>13</sup> Mr. O'Brien also suggests that the use**  
4 **of an average value to estimate avoided line losses would undervalue the RVOS.**  
5 **Do you agree with the approach of using marginal line losses to estimate the**  
6 **RVOS?**

7 A. Yes. Marginal line losses can be either higher or lower than average line losses. In  
8 general, behind-the-meter solar resources will avoid all of the losses associated with  
9 that meter. However, when the solar resource exceeds the load on that meter, there  
10 will be incremental losses on the distribution system. If solar resources exceed the  
11 load on a distribution system, there will be incremental transmission losses. As a  
12 result, an hourly analysis that ignores PacifiCorp's system conditions will not provide  
13 a more accurate result.

14 **Avoided Hedge Value**

15 **Q. Staff expert witness Mr. Olson suggests using a proxy value equal to 5 percent of**  
16 **energy to capture the hedge value effect, which he describes as the risk premium**  
17 **associated with customer preference for stable prices.<sup>14</sup> Do you agree with the**  
18 **use of a 5 percent proxy value?**

19 A. No. In the Straw Proposal, the Commission directed Staff to convene technical  
20 workshops to discuss potential methodologies to determine avoided hedge value. The  
21 Commission should let this process commence before deciding on an arbitrary proxy  
22 value. As noted in my opening testimony, I conceptually agree that there is some

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<sup>13</sup> Staff/502, Bassett/3.

<sup>14</sup> Staff/502, Bassett/5.

1 long-term hedge value associated with solar resources but I believe that this value  
2 will be very close to zero and very difficult to establish.<sup>15</sup> Furthermore, due to the  
3 correlation with other solar resources, there is significant potential for declining long-  
4 term value from solar resources. Already, marginal costs in the energy imbalance  
5 market (EIM) drop significantly in response to high levels of solar output.  
6 PacifiCorp's ability to take advantage of low-cost solar resources available in the  
7 EIM is diminished as incremental solar is added to its system.

#### 8 **Integration and Ancillary Services**

9 **Q. Do you agree with Mr. O'Brien's analysis that increased solar penetration is**  
10 **unlikely to impact contingency reserve requirements but that regulation reserve**  
11 **and following reserve requirements are likely to be impacted?**<sup>16</sup>

12 A. Not necessarily. Under the current North American Electric Reliability Corporation  
13 (NERC) standards, behind-the-meter generation does not impact contingency  
14 requirements. Contingency reserve obligations are applicable to that portion of the  
15 generation which is in excess of load. Because PacifiCorp has reduced visibility of  
16 behind-the-meter loads and resources, reserve requirements can be greater than for  
17 equivalent amounts of load and solar resources metered separately.

18 **Q. How does Mr. Gilfenbaum describe the proposal from Staff's consulting firm to**  
19 **evaluate the avoided cost of ancillary services?**

20 A. Mr. Gilfenbaum points out that the consulting firm used by Staff, E3, has proposed  
21 evaluating the avoided cost value of ancillary services by "estimating the proportion  
22 of energy costs typically spent on these services, and assuming that the benefit of

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<sup>15</sup> PAC/300, Link/19-20.

<sup>16</sup> RNW, OSEIA, NWECA, NW SEED/300, O'Brien/18.

1 reducing the need to procure those services is a similar proportion of avoided energy  
2 costs” and argues against assuming a zero value for avoided ancillary services.<sup>17</sup>  
3 Staff expert witness Mr. Olson recommends measuring the reduction in ancillary  
4 service requirements by multiplying energy value by 1 percent.

5 **Q. Do you agree with this approach?**

6 A. No. PacifiCorp’s 2017 Integrated Resource Plan includes a detailed analysis of the  
7 cost associated with maintaining flexible resources to compensate for deviations in  
8 load, wind, solar and other resources. While the study found declining marginal  
9 requirements as wind and solar capacity increased, the overall obligation continued to  
10 increase. As a result, reserve requirements are anticipated to continue to increase.  
11 PacifiCorp is not aware of any ancillary services that solar resources are expected to  
12 provide which would allow the company to avoid procuring ancillary services.

13 **CONCLUSION**

14 **Q. Does this conclude your reply testimony?**

15 A. Yes.

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<sup>17</sup> TASC/300, Gilfenbaum/11.