

Docket No. 20000-520-EA-17
Witness: Rick T. Link

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Rebuttal Testimony of Rick T. Link

December 2017

1 **Q. Are you the same Rick T. Link who previously provided direct testimony in this**
2 **case on behalf of Rocky Mountain Power (“Company”), a division of PacifiCorp?**

3 A. Yes.

4 **PURPOSE AND SUMMARY OF REBUTTAL TESTIMONY**

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

6 A. My rebuttal testimony supports the Company’s request for conditional certificates of
7 public convenience and necessity and nontraditional ratemaking treatment for the
8 Company’s proposal to construct or procure new wind resources (“Wind Projects”) and
9 construct the Aeolus-to-Bridger/Anticline transmission line and 230 kV Network
10 Upgrades (“Transmission Projects”) (collectively, the “Combined Projects”). I
11 summarize the status of the Company’s 2017R Request for Proposals (“RFP”) for the
12 Wind Projects, the results of which will be included in my supplemental testimony on
13 January 16, 2018, and outline the information and updated economic analysis which
14 the Company will include in that filing. I also rebut challenges on resource need and
15 the Company’s economic analysis raised by the Wyoming Industrial Energy Consumers
16 (“WIEC”) witness Mr. Nicholas L. Phillips, and the Wyoming Office of Consumer
17 Advocate (“OCA”) witness Mr. Bryce J. Freeman.

18 **Q. Please summarize your rebuttal testimony.**

19 A. I update the status of 2017R RFP and describe what will be included in the Company’s
20 updated economic analysis which will accompany the January 16, 2018 supplemental
21 filing. I also address criticisms of the Company’s modeling assumptions and
22 methodologies used to develop the economic analysis supporting the Combined
23 Projects. My rebuttal testimony demonstrates that:

- 1 • PacifiCorp has a near-term and long-term resource need that will be
2 partially met with the proposed Wind Projects.
- 3 • The heavily discounted cost of the Wind Projects are lower cost than all
4 other near-term and long-term resource alternatives.
- 5 • Contrary to claims made by certain parties, there is nothing novel or unique
6 about the Combined Projects that justifies unprecedented cost-recovery
7 treatment to assign all risk to the Company.
- 8 • The Company’s long-standing methodology to develop its official forward
9 price curve (“OFPC”) produces the best representation of future market
10 prices and is appropriately used for the central forecast in the Company’s
11 economic analysis; the alternative price-policy scenarios provide a
12 reasonable foundation for judging risk.
- 13 • The Company’s economic analysis appropriately addresses key project risks
14 that support inclusion of the Combined Projects as an important element in
15 PacifiCorp’s least-cost, least-risk resource plan.

16 **STATUS OF 2017R RFP**

17 **Q. When did the Company issue the 2017R RFP?**

18 A. The Company issued the 2017R RFP on September 27, 2017. The 2017R RFP was
19 approved by the Public Service Commission of Utah (“Utah Commission”) on
20 September 22, 2017, and the Public Utility Commission of Oregon (“Oregon
21 Commission”) on September 27, 2017.

22 **Q. Has the schedule for completion of the 2017R RFP changed?**

23 A. No.

1 **Q. Was the scope of the 2017R RFP modified before it was issued to include non-**
2 **Wyoming wind projects?**

3 A. Yes. The Company's original proposal limited the RFP to wind resources capable of
4 interconnecting to or delivering on a firm basis to the Company's transmission system
5 in Wyoming. In response to issues raised in the RFP approval process, and consistent
6 with the recommendations of the Utah independent evaluator ("IE"), the Company
7 expanded the 2017R RFP to allow bids from non-Wyoming wind projects capable of
8 interconnecting to or delivering on a firm basis to anywhere on PacifiCorp's
9 transmission system.

10 **Q. In response to the Utah Commission's approval order, did the Company decide to**
11 **issue a solar RFP to run concurrently with the 2017R RFP?**

12 A. Yes. In its order approving the 2017R RFP, the Utah Commission suggested, but did
13 not require, a modification to expand the 2017R RFP to solicit solar resource bids. To
14 maintain the 2017R RFP schedule while addressing the Utah Commission's suggestion,
15 the Company issued a separate solicitation process for solar resources, the 2017S RFP,
16 on November 15, 2017. The 2017S RFP is seeking bids for solar resources up to
17 300 megawatts ("MW") per individual project that can deliver energy and capacity to
18 the Company's transmission system.

19 Similar to the 2017R RFP, the Company retained an IE to oversee the solar RFP
20 process. The 2017S RFP schedule allows the Company to: (1) evaluate how solar
21 resource bids might impact the economic analysis of bids selected to the final shortlist
22 in the 2017R RFP without delaying the schedule for the 2017R RFP; and (2) explore
23 whether new solar resource opportunities might provide all-in economic benefits for

1 customers.

2 **Q. Does the Company anticipate that non-Wyoming wind and solar resources will**
3 **replace the Wyoming wind targeted by the 2017R RFP?**

4 A. No. The Company anticipates that the Wyoming wind resources targeted by the 2017R
5 RFP will deliver customer benefits regardless of whether proposals for non-Wyoming
6 wind and solar resources can deliver incremental value for customers. The Company
7 will consider procuring renewable resources that deliver customer benefits, including
8 Wyoming wind resources and non-Wyoming wind resources targeted by the 2017R
9 RFP and solar resources targeted by the 2017S RFP.

10 **Q. Has the Company received initial bids in the 2017R RFP?**

11 A. Yes. The Company received initial bids for Wyoming wind projects on October 17,
12 2017, and initial bids for non-Wyoming wind projects on October 24, 2017. The 2017R
13 RFP was well received by the market, as indicated by the fact the Company received
14 Wyoming wind proposals from nine bidders offering 49 bid alternatives for 13 wind
15 projects. The Company also received non-Wyoming wind proposals from five bidders
16 offering 15 bid alternatives for six wind projects. In aggregate, 5,219 MW of new wind
17 resource capacity was bid into the 2017R RFP (4,624 MW of Wyoming wind and 595
18 MW of non-Wyoming wind).

19 **Q. Is the review and evaluation of these bids now underway?**

20 A. Yes. On November 12, 2017, the Company completed its initial shortlist evaluation and
21 scoring and began the third-party capacity factor evaluation process. The Utah and
22 Oregon IEs completed their review of the initial shortlist on November 17, 2017. Once
23 the IEs completed their review of the initial shortlist, the Company notified bidders

1 whether their proposed projects were selected to the initial shortlist and provided an
2 opportunity for bidders selected to the initial shortlist to update pricing. On
3 November 22, 2017, the Company received best-and-final pricing for bids selected to
4 the initial shortlist. The Company is now conducting portfolio analysis of each bid to
5 determine which bids it will include on the final shortlist in January 2018.

6 **Q. Do you have any general observations about the 2017R RFP?**

7 A. At this time, I can state only that the Company's preliminary analysis indicates that the
8 winning bids from the 2017R RFP may be lower cost than estimated in our initial filing
9 in this case. To protect the integrity of the bidding process while the review and scoring
10 is ongoing, however, I cannot disclose any details or studies related to specific bids or
11 the on-going portfolio analysis until the shortlist is finalized in January 2018.

12 **Q. What is the status of the 2017S RFP?**

13 A. The Company received initial bids for new solar resources on December 11, 2017. In
14 coordination with the IE, PacifiCorp is currently reviewing the eligibility of proposals
15 and has initiated the initial shortlist price and non-price scoring process. As was the
16 case with the 2017R RFP, the market response to the 2017S RFP was robust.
17 Considering that the bid eligibility review process is ongoing, on a preliminary basis,
18 the Company received solar resource proposals from 31 bidders offering 109 bid
19 alternatives for 46 solar projects. In aggregate, 6,496 MW of new solar resource
20 capacity was bid into the 2017S RFP.

21 The Company is on track to be able to evaluate how solar resource bids received
22 through the 2017S RFP might influence the economic analysis of bids submitted into
23 the 2017R RFP, which will be considered when selecting the 2017R RFP final shortlist.

1 **Q. What specific information and analysis on the 2017R RFP will the Company**
2 **provide in its supplemental filing on January 16, 2018?**

3 A. The Company's supplemental testimony will describe the winning bids from the 2017R
4 RFP, and provide updated project cost-and-performance estimates specific to winning
5 bids. The Company will provide the analysis supporting its selection of the winning
6 bids, including the third-party capacity factor review report, and an assessment of how
7 solar bids received in the 2017S RFP might affect the economic analysis of winning
8 bids from the 2017R RFP.

9 Using the updated project cost-and-performance information from the 2017R
10 RFP, the Company's supplemental filing will include an updated economic analysis of
11 the Combined Projects. This analysis will reflect an updated load forecast and updated
12 price-policy scenarios that reflect the most current forward price curves. If Congress
13 passes tax-reform legislation in the coming weeks, this updated economic analysis will
14 also reflect updated income tax assumptions. Bidders with proposals selected to the
15 2017R RFP initial shortlist have been notified that if Congress passes tax-reform
16 legislation, those bidders will be asked to update pricing to account for changes in the
17 final tax bill. If Congress has not yet passed tax-reform legislation, the updated
18 economic analysis will include sensitivities consistent with income tax proposals being
19 considered by Congress.

1 **Q. Based on the fact that the Company will soon confirm winning bids in the 2017R**
2 **RFP and refresh its economic analysis, is the Company proposing to address**
3 **certain economic arguments raised by intervenors in more detail in its**
4 **supplemental testimony?**

5 A. Yes. The Company believes that its updated economic analysis will address a number
6 of the specific issues raised around the size and certainty of the economic benefits of
7 the Combined Projects, including the impact of changes to federal tax law, as discussed
8 above.

9 **RESOURCE NEED**

10 **Q. WIEC argues that the Combined Projects are an opportunity investment, not tied**
11 **to a specific resource need. (Phillips Direct, page 7, lines 18–21.) Do you agree?**

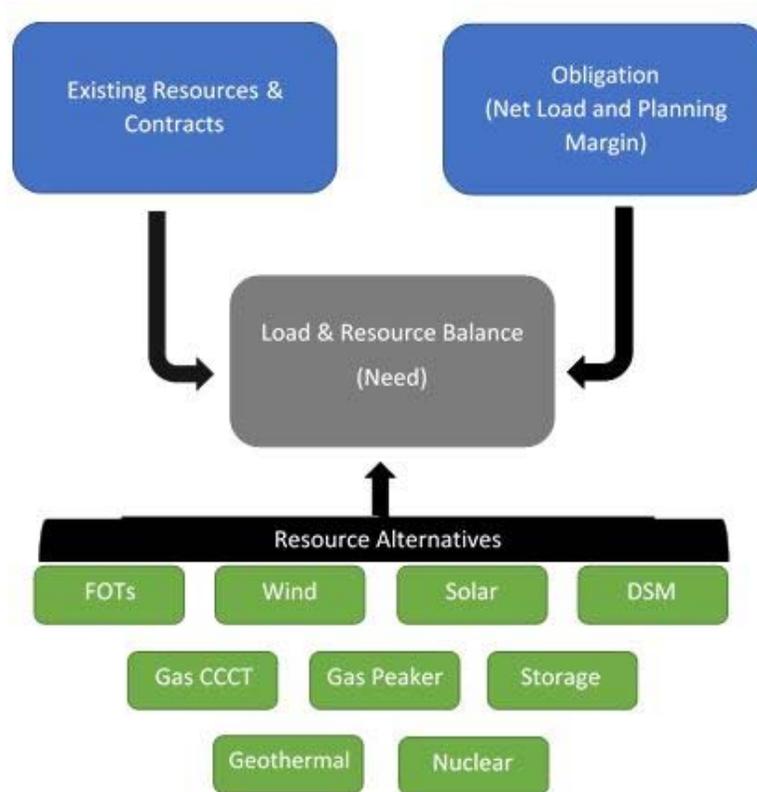
12 A. No. The Combined Projects meet both a near-term and long-term resource need
13 identified in the Company’s 2017 Integrated Resource Plan (“IRP”). The Combined
14 Projects leverage federal production tax credits (“PTCs”) to provide least-cost
15 resources that meet this need, and does so with substantial savings to customers.

16 **Q. How does the Company develop its forecast of resource need?**

17 A. Resource need is the product of a load-and-resource balance, which is reported in the
18 IRP. Figure 1 summarizes the elements of the load and resource balance that are used
19 to establish resource need, and once identified, how that need can be met.

1

Figure 1. Elements of the Load and Resource Balance



2

There are two basic elements to the load and resource balance: (1) existing resources and committed contracts and (2) obligations. Existing resources and committed contracts account for any planned or assumed resource retirements and contract terminations over time. Obligations include load, net of customer-sited generation and interruptible contracts, over time. Obligations also include a planning margin, which represents an incremental planning requirement, applied as an increase to the projected obligation, to ensure that there will be sufficient capacity on the system to manage uncertain events (*i.e.*, weather and outages) and known requirements (*i.e.*, operating reserves). In recent IRPs, including the 2017 IRP, the Company assumes a 13 percent planning margin.

12

The load-and-resource balance reflects the difference between these two basic

1 elements. When existing resources and contracts exceed obligations, the Company has
2 sufficient resources to reliably meet customer needs. When existing resources and
3 contracts are less than its obligations, the Company has a resource need. This balance
4 between existing resources, including committed contracts, and obligations can change
5 over time. When the Company is faced with a resource need, the IRP is used to evaluate
6 a wide range of supply-side resources (*i.e.*, renewable resources, gas-fired resources,
7 uncommitted front-office transactions or “FOTs”, *etc.*) and demand-side resources (*i.e.*,
8 demand-side management resources or “DSM”) that can be used to meet that need over
9 time. Different types of resource portfolios that can be used to meet a resource need are
10 evaluated in the IRP to determine which portfolio is least cost, accounting for risk.

11 **Q. Does the load-and-resource balance presented in the 2017 IRP show a near-term**
12 **resource need?**

13 A. Yes. Accounting for assumed resource retirements, contract terminations, and
14 incremental DSM savings from the preferred portfolio, the 2017 IRP shows a near-term
15 resource need of 527 MW in 2017 rising to 1,023 MW in 2021, the first full year the
16 Combined Projects will be placed in service.¹ The resource need grows over time with
17 load growth, existing resource retirements, and committed contract terminations.

18 **Q. Do the Combined Projects fully satisfy the near-term resource need identified in**
19 **the 2017 IRP load-and-resource balance?**

20 A. No. In the 2017 IRP, the Company updated its capacity contribution values for wind
21 and solar resources. Based on these values, 15.8 percent of Wyoming wind resource
22 capacity can be relied upon at times when the system is most likely to experience

¹ Table 5.15, PacifiCorp’s 2017 IRP, Volume I.

1 conditions where load exceeds available resources. Consequently, the 1,100 MW of
2 new Wyoming wind in the 2017 IRP preferred portfolio meets approximately 174 MW
3 (17 percent) of the 1,023 MW resource need in 2021. The remaining resource need in
4 2021 (83 percent) is met with uncommitted FOTs.

5 **Q. If the Combined Projects were not included in the resource portfolio, how would**
6 **the 2021 resource need be met?**

7 A. Resource portfolios that do not include the Combined Projects include more
8 uncommitted FOTs. The resource portfolios with more uncommitted FOTs are higher
9 cost than resource portfolios that include the Combined Projects under a wide range of
10 price-policy scenarios. Simply stated, resource portfolios with the Combined Projects
11 displace FOTs in the near term because the Combined Projects, accounting for PTC
12 savings, are lower cost and lower risk than FOT resource alternatives. Forgoing the
13 Combined Projects would increase the amount of FOTs and exacerbate market-reliance
14 concerns raised by the OCA. (Freeman Direct, page 36, lines 3–24.)

15 Notably, this is the exact process described by WIEC. Mr. Phillips testifies that,
16 “If there is a need for a new resource, the economics of alternatives can be compared
17 to determine the best way to meet the need.” (Phillips Direct, page 8, lines 9–11.) Here,
18 the 2017 IRP identified a resource need and determined the least-cost, least-risk
19 combination of resources to meet that need. That combination of resources in the
20 preferred portfolio includes the Combined Projects.

21 **Q. Has the Company previously acquired renewable resources that displace FOTs?**

22 A. Yes. This is not the first time that the Company has implemented a least-cost, least-risk
23 plan to procure renewable resources that displace uncommitted FOTs. In fact, all

1 1,698 MW of PacifiCorp's existing contracted and owned renewable resources
2 included in rates today, not including qualifying facilities, were acquired and approved
3 by the Commission because they were demonstrated to be least-cost, least-risk,
4 displaced FOTs, and were acquired well before any thermal capacity or state renewable
5 portfolio standard need.

6 **Q. What factors influence the type of resources used to meet the Company's resource
7 need over the long term?**

8 A. Uncommitted FOTs are traditionally one of the lowest cost resources that can be used
9 to meet a resource need. This is because the cost of these FOT resources reflect only
10 the marginal, variable operating cost of existing resources selling excess firm energy
11 to market participants on a forward basis. While the availability of PTCs changes this
12 dynamic for the Combined Projects, supporting their inclusion in the Company's
13 resource portfolio by the end of 2020, uncommitted FOTs are still generally lower cost
14 than *other* resource alternatives. Consequently, as the resource need grows over time,
15 the level of uncommitted FOTs in the preferred portfolio generally grows, approaching
16 maximum limits.² The timing in which the resource need exceeds maximum
17 uncommitted FOT limits, after accounting for other lower cost alternative such as the
18 Combined Projects, is a strong indicator of when the Company will require incremental
19 generating resources to meet its long-term resource need.

20 **Q. How do the Combined Projects meet a long-term resource need?**

21 A. The Company's 2017 IRP forecasts that maximum levels of uncommitted FOTs begin
22 to exceed resource needs by just under 400 MW beginning in 2028. As stated earlier in

² These maximum limits are based on the Company's active participation in the wholesale power markets, physical delivery constraints, market liquidity and market depth, and with consideration of regional resource supply.

1 my rebuttal testimony, the 1,100 MW of Wyoming wind resources included in the 2017
2 IRP preferred portfolio in 2021 contributes 174 MW of system capacity. Consequently,
3 the 2017 IRP analysis shows that the Combined Projects will meet approximately
4 44 percent of the resource need that is incremental to the resource need that can be met
5 with FOTs. Therefore, beginning in the 2028 timeframe, the Combined Projects begin
6 deferring the need for other, high-cost resource alternatives. In this sense, the
7 Combined Projects can be viewed as displacing higher-cost uncommitted FOT
8 resources in the near term and deferring other higher-cost resource alternatives over the
9 long term.

10 **Q. The OCA states that “since proposed new wind generation is not needed to serve**
11 **existing or projected native loads it can be argued that the proposed transmission**
12 **upgrades are also not needed for load service.” (Freeman Direct, page 13, lines**
13 **22–25.) How do you respond?**

14 A. As discussed above, the Company’s load-and-resource balance demonstrates it has a
15 near-term and long-term resource need. The least-cost, least-risk mix of resources that
16 can be used to meet this need includes the Combined Projects. The proposed Wind
17 Projects that are a key component of this resource portfolio are enabled by the Aeolus-
18 to-Bridger/Anticline transmission line. In short, the Combined Projects are part of the
19 Company’s least-cost, least-risk plan to meet near-term and long-term resource needs.

1 **Q. WIEC points to the fact the Company recently revised its load forecast down as**
2 **further evidence that the resources are not needed. (Phillips Direct, page 7, lines**
3 **16–17.) Does this downward revision materially impact the need for the Combined**
4 **Projects?**

5 A. No. The Company’s most recent load forecast shows that the summer coincident peak
6 demand in 2021 is down by approximately 428 MW relative to the load forecast used
7 in the economic analysis summarized in my direct testimony, which is the same load
8 forecast used in the 2017 IRP. As I described earlier in my rebuttal testimony, prior to
9 updating the load forecast, the projected resource need in 2021 is 1,023 MW. With the
10 updated load forecast, the 2021 resource need is reduced by 428 MW to 595 MW. The
11 capacity contribution of 1,100 MW of new Wyoming wind is 174 MW, which is just
12 under 30 percent of the projected resource need in 2021 after accounting for the
13 Company’s updated load forecast.

14 **Q. WIEC claims that the “Company’s proposal is based solely on projected future**
15 **savings for customers.” (Phillips Direct, page 8, line 17–18.) Is this a fair**
16 **characterization of the Combined Projects?**

17 A. No. WIEC effectively argues that the projects represent purely an economic
18 opportunity. But PacifiCorp’s analysis demonstrates that acquiring the new wind
19 resources now, when they are PTC-eligible, will displace higher-cost resources in both
20 the near and long term. The PTCs affect the timing and economics of the new resource,
21 not the need for the resource. The fact that the Combined Projects are a time-limited
22 opportunity based on PTCs does not inherently indicate that they are disconnected from
23 a resource need.

1 **Q. Are there risks associated with not pursuing the Combined Projects?**

2 A. Yes. If the Company does not pursue the Combined Projects, it will be forgoing the
3 opportunity for customers to acquire heavily-discounted resources in the near term, in
4 exchange for greater reliance on near-term market transactions and waiting until after
5 the expiration of PTCs to acquire zero-fuel-cost resources to meet growing energy and
6 capacity needs. Contrary to the parties' implication that there are no customer risks
7 associated with forgoing the opportunity to procure PTC-eligible resources, there are
8 risks associated with greater reliance on higher-cost FOT resources over the near term
9 and greater reliance on other higher-cost resources over the long term—and those risks
10 will be borne by customers.

11 Although parties point out the risks of the Combined Projects, they do not
12 demonstrate that they are higher risk than the next best alternative. In contrast, the 2017
13 IRP and the economic analysis summarized in my direct testimony clearly
14 demonstrates that the Combined Projects are least-cost, least-risk compared to all other
15 alternatives, including the status quo alternative, which will result in increased reliance
16 on FOTs.

17 **Q. Has WIEC or OCA provided meaningful analysis demonstrating that the status**
18 **quo is less risky than pursuing the Combined Projects?**

19 A. No. In asserting, without analysis, that the status quo yields superior outcomes, WIEC
20 and OCA discount the availability of a lower-cost, lower-risk alternative. To the extent
21 they assume inaction is less risky than action, this assumption lacks either logical or
22 factual support. There is nothing about inaction that makes it preferable to action when
23 objectively considering relative risk. For the Combined Projects, the vast majority of

1 modeling scenarios result in customer benefits. Declining to pursue the Combined
2 Projects results in a likely opportunity cost—that is, a likely customer loss.

3 The parties’ recommendation against the Combined Projects is substantially
4 more likely to achieve a less favorable outcome for customers in the form of increased
5 costs and increased risk—a result inadequately justified by the preference for inaction
6 over action. The Company seeks to develop the Combined Projects now because the
7 PTCs make this the least-cost, least-risk option to serve current capacity and energy
8 needs. Inaction will forgo a valuable opportunity, delaying the acquisition of least-cost
9 resources in favor of higher cost alternatives is not in the best interest of customers.

10 **Q. Both WIEC and OCA also argue that the Company has an incentive to invest in**
11 **the Combined Projects and suggests that this incentive is improperly driving the**
12 **investment decision (Phillips Direct, page 10, lines 5–12; Freeman Direct, page 20,**
13 **lines 1–8.) How do you respond?**

14 A. These claims ignore the resource need discussed above, and the fact that the Combined
15 Projects are more cost effective than FOTs, even when including capital and run-rate
16 operating costs. A higher-cost resource should not be selected merely to forgo
17 providing an opportunity for shareholders to earn a rate of return.

18 **Q. WIEC presents a series of proposed conditions that it recommends the**
19 **Commission impose if it approves the Combined Projects. (Phillips Direct, page 4,**
20 **lines 8–28.) Please describe the proposed conditions.**

21 A. WIEC’s proposed conditions would: (1) disallow recovery of turbines that are not PTC-
22 eligible; (2) automatically disallow a portion of the estimated capital costs through a
23 cost recovery cap; (3) cap future costs associated with the Combined Projects;

1 (4) impute an assumed capacity factor and PTC value; (5) impute full PTC value even
2 if the Company cannot immediately monetize the value of the PTC; and (6) disallow
3 cost recovery if construction ceases, for whatever reason.

4 **Q. Is there any basis for imposing such conditions on the Combined Projects?**

5 A. No. The purpose of the proposed conditions appears to be the elimination of any
6 customer risk associated with the projects, based on the claim that the projects are
7 discretionary and not tied to an actual resource need. (Phillips Direct, page 3, lines 12–
8 14.) But there is nothing novel or unique about the Combined Projects that require this
9 unprecedented treatment. Indeed, these recommendations appear premised on the
10 Company not demonstrating a need for the Combined Projects, despite the fact that
11 WIEC does not challenge the fact that the Company has an energy and capacity need
12 in 2028. At the very least, the Combined Projects are an early acquisition in advance
13 of need. Even in the hypothetical scenario where there was a proposal to acquire a
14 resource in advance of need, WIEC provides no support for its position that customers
15 should bear no risk when a utility prudently acquires a resource ahead of need.

16 **Q. Do WIEC's proposed conditions relate to risks associated with early acquisitions?**

17 A. No. WIEC's proposal to eliminate all customer risk is also unwarranted because the
18 Combined Project do not present risks different than typical utility investments. Indeed,
19 even assuming that the Combined Projects are being acquired early, the only
20 incremental risk associated uniquely with the Combined Projects is a timing risk. WIEC
21 never explains why this timing risk outweighs the risk of forgoing PTC-eligible
22 resources. Again, PacifiCorp disagrees with the assertion that the resources are being
23 procured before they are needed because they are displacing higher-cost FOTs in the

1 near term while also meeting a long-term energy and capacity need. But even if the
2 Commission accepts this view, the Company's analysis demonstrates that benefits from
3 the Combined Projects accrue to customers in the near term, well in advance of the
4 alleged 2028 capacity deficiency.

5 **ECONOMIC ANALYSIS**

6 **Q. WIEC argues that the Company has overstated the economic benefits of the**
7 **Combined Projects because natural gas prices in base case scenario are too high**
8 **(Phillips Direct, page 18, lines 1–2.) How does the Company determine the**
9 **forecasted natural gas prices used for the economic analysis?**

10 A. The medium or base case forecast is the Company's OFPC, which uses observed
11 forward market prices for the first 72 months, followed by a 12-month transition to
12 natural-gas prices based on a forecast developed by a reputable third-party expert. The
13 low- and high-natural-gas price assumptions were also based on recent forecasts
14 developed by reputable third-party experts. The Company verified the reasonableness
15 of the third-party forecasts by comparison to forecasts prepared by others, including
16 the U.S. Department of Energy's Energy Information Administration.

17 **Q. Is the OFPC used in the Company's economic analysis the same forecast the**
18 **Commission has used for ratemaking, setting avoided costs rates, and evaluating**
19 **both demand and supply side resources?**

20 A. Yes. The OFPC, which represents the medium natural-gas price case is the same
21 forecast that is used for setting net power costs in the Company's Wyoming rates. It is
22 also used when the Company calculates avoided cost prices paid to qualifying facilities,
23 and evaluates the cost-effectiveness of demand-side and supply-side resources.

1 **Q. How does the Company use each of price-policy scenarios in its analysis?**

2 A. The price-policy scenario assuming medium natural-gas prices and medium carbon
3 dioxide (“CO₂”) prices represents the central forecast, around which the impact of
4 lower or higher price assumptions can be evaluated. In the Company’s initial filing, the
5 present-value revenue requirement differential (“PVRR(d)”) net benefit of the
6 Combined Projects derived from the central price-policy scenario is \$137 million when
7 calculated off of the forecasted change in annual revenue requirement through 2050.
8 This outcome indicates that when central price-policy assumptions are used, there is a
9 reasonably sized cushion in the PVRR(d) results allowing for some erosion of the
10 favorable economics should long-term natural-gas prices and CO₂ prices end up lower
11 than what is assumed in this scenario. The other price-policy scenarios are useful in
12 quantifying how sensitive the PVRR(d) results are to these key assumptions and
13 provide a foundation for judging risk.

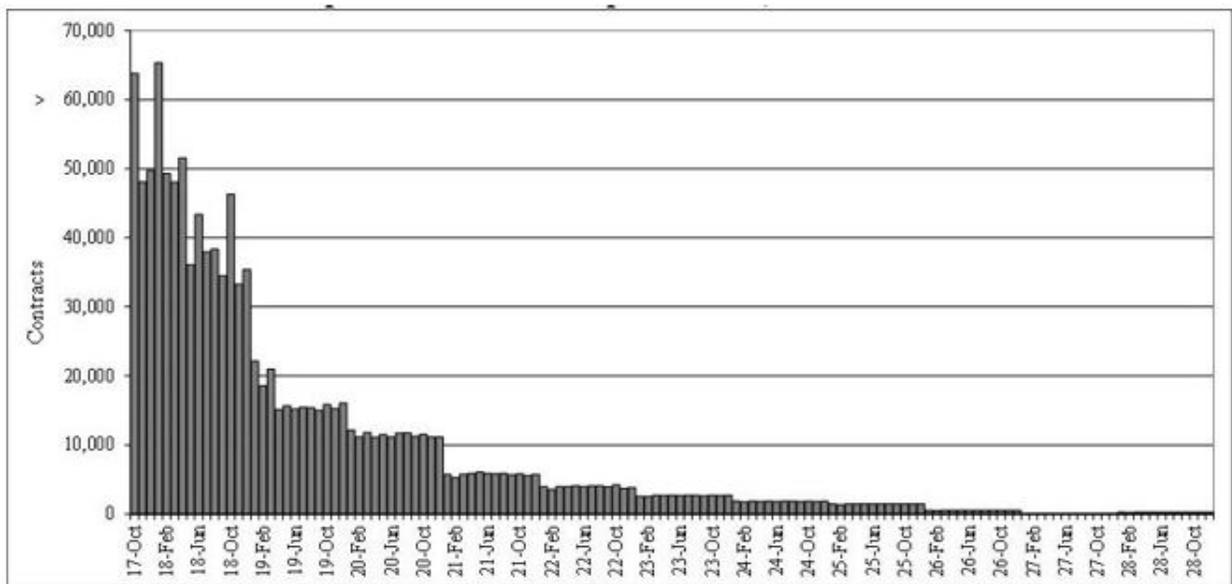
14 **Q. WIEC recommends that the low-natural-gas price case be considered the base**
15 **case for purposes of evaluating the Combined Projects. (Phillips Direct, page 19,**
16 **lines 5–6.) How do you respond to this recommendation?**

17 A. I disagree. WIEC relies on NYMEX Henry Hub natural-gas futures to conclude that
18 this comparison demonstrates current market expectations most closely align with the
19 Company’s low natural-gas forecast. But this conclusion is misguided because it relies
20 solely on NYMEX Henry Hub natural-gas futures after 2022, which do not accurately
21 capture market expectations for long-term natural-gas prices. WIEC fails to consider
22 the open interest in NYMEX Henry Hub futures contracts, which quickly falls for
23 futures contracts further out in time. The sparsity of open interest in the out period

1 makes these futures contracts an unreliable indicator of market expectations for long-
2 term natural-gas prices.

3 Each futures trade represents the creation of a new contract and is indicative of
4 new capital being committed to the market. Figure 2 shows NYMEX Henry Hub
5 natural-gas open interest as of September 11, 2017.

6 **Figure 2. NYMEX Henry Hub Natural Gas Futures**
7 **Open Interest as of September 11, 2017**



8 This figure shows that open interest is greater in the near term and significantly
9 lower in the long term. For instance, in 2018 open contracts average over 43,200.
10 By 2023, open contracts average just over 2,600—approximately six percent of the
11 open interest observed for 2018 contracts. The concentration in the earlier futures
12 indicates the market is deeper and stronger in the near term because fewer market
13 participants are willing to commit capital required to enter and maintain long-term
14 contracts.

15 There are very few contracts supporting NYMEX Henry Hub natural-gas-

1 futures prices over the period in which WIEC claims the market outlook most closely
2 aligns with the Company's low natural-gas price forecast (*i.e.*, beyond 2024). Contracts
3 with greater open interest more accurately represent a market consensus of where spot
4 prices are likely to trade. Long-term prices are shaped by a handful of participants who
5 are lightly committed. These participants are basing their decisions on highly imperfect
6 data. Short-term prices are shaped by a large field of market participants, who commit
7 far more capital because there is more transparency around the conditions and variables
8 that can impact prices.

9 **Q. Does WIEC challenge the accuracy of the Company's OFPC?**

10 A. Yes. WIEC observes that the Company's OFPC has historically exceeded the market.
11 (Phillips Direct, page 20, lines 3–8.)

12 **Q. How do you respond?**

13 A. It is not reasonable to evaluate a forecast error for OFPCs. The Company's OFPC is
14 developed from a combination of market forwards on a given quote date and a long-
15 term, fundamentals-based forecast as a proxy for forward prices beyond the period in
16 which observed market forwards are not available. Forecast error is a measure of the
17 difference between forecasted spot prices and actual spot prices. Comparing forward
18 prices to actual spot prices is a misapplication of forecast error, because market
19 forwards, which are used in the first 84 months of the OFPC, are observed, and not
20 forecasted. Forward prices represent transaction prices occurring at the time of a future
21 delivery date.

22 Market participants cannot transact on a spot price forecast. A spot price
23 forecast merely represents a potential view of what prices will be at some point in the

1 future. Market forwards reflect pricing for contracts that reflect the price, on a given
2 quote date, at which buyers and sellers are transacting for future delivery.

3 **Q. WIEC criticizes the Combined Projects because, under most scenarios, they do**
4 **not meet a benefit-to-cost ratio of 1.15 or 1.25. (Phillips Direct, pages 11–14.)**
5 **Please respond.**

6 A. To my knowledge, the Wyoming Commission has never required that supply-side
7 investments meet a particular benefit-to-cost ratio, and demand-side resources are
8 generally expected to exceed a ratio of only 1.0—a ratio that WIEC acknowledges that
9 the Combined Projects meet under nearly all scenarios. The premise of WIEC’s
10 argument is that the Combined Projects should be subject to a new, higher standard for
11 approval because they are not needed to serve customers. As I outlined above, this
12 premise is false because the Combined Projects meet a resource need and will
13 immediately be used to economically serve customers.

14 **Q. Given the present political climate, why is the Company including a carbon tax**
15 **within its analysis?**

16 A. It is simply not reasonable to conclude that today’s policy environment is the best
17 indicator of the policy environment we can expect over the next three decades. It is
18 even more unreasonable to dismiss the results of scenarios developed to quantify the
19 economic impact of potential environmental policy outcomes that could impute a
20 financial cost on CO₂ emissions at some point over the next three decades. While it is
21 possible that no such policy will materialize, as contemplated in certain price-policy
22 scenarios, it does not mean that given the current policy environment, it is the most
23 likely scenario.

1 **Q. Does WIEC criticize the Company for how it evaluated risks related to projected**
2 **net capacity factors (“NCF”) for the proposed new Wind Projects?**

3 A. Yes. WIEC criticizes the Company for not providing sensitivity analysis around the
4 projected NCF, and asserts that even a small deviation in NCF (10 percent) could make
5 the Combined Projects uneconomic (Phillips Direct, pages 27–29.)

6 **Q. How do you respond?**

7 A. WIEC does not testify that PacifiCorp’s wind generation forecasts are invalid. They
8 simply assert that there is potential risk to the overall economics if the wind generation
9 output is reduced. This one-sided risk assessment fails to quantify the potential upside
10 benefits if wind generation exceeds the assumed forecast used in the economic analysis.
11 The Company retained an independent expert to study and confirm the reasonableness
12 of its NCF assumptions for specific projects bid into the 2017R RFP, and the findings
13 of this review are being reflected in the economic analysis of specific proposals that
14 will be included in the Company’s supplemental filing.

15 **Q. WIEC argues that moving forward with the Combined Projects now risks the loss**
16 **of more economic generation resources in the future. (Phillips Direct, page 22,**
17 **lines 3–10.) How do you respond?**

18 A. The Combined Projects do not foreclose future optionality. In fact, the 2017 IRP
19 preferred portfolio balances the benefits of near-term wind resource procurement with
20 the upside of potential future technological advancements that might lower renewable
21 resource costs. Near-term procurement of the wind resources in the Combined Projects
22 partially meet near-term and long-term resource needs and over the long term, the 2017
23 IRP preferred portfolio includes additional renewable resources to partially meet long-

1 term resource needs.

2 Over the 2028 to 2036 timeframe, the 2017 IRP preferred portfolio includes
3 over 800 MW of incremental new wind resources beyond those included in the
4 Combined Projects, and over 1,000 MW of incremental new solar resources. After the
5 Combined Projects are completed, the Company will retain sufficient future flexibility
6 to respond to changing demands and marketplace opportunities.

7 WIEC also supports this claim by pointing to the Utah Commission's
8 suggestion that the Company initiate a solar RFP to test whether alternative resources
9 could be more economic than the Combined Projects. As discussed above, the
10 Company has issued the 2017S RFP and its results will be used to inform the outcome
11 of the 2017R RFP.

12 **Q. WIEC and OCA also point out the risk associated with state and federal tax**
13 **reform (Phillips Direct, page 34, lines 12–15; Freeman Direct, page 27, lines 9–24**
14 **and page 28, lines 1–12) How will the Company account for this risk?**

15 A. As noted above, the Company's supplemental testimony will account for the impact of
16 tax reform, either based on the final version of legislation enacted by that time, or based
17 on a sensitivity using reasonable assumptions about the outcome of tax reform. The
18 Company expects resolution of the current uncertainty around federal tax reform in the
19 coming weeks.

20 With respect to Wyoming state taxes, I understand that several attempts have
21 been made in recent years to raise the Wyoming wind production tax. On September 22,
22 2016, the Wyoming Joint Interim Revenue Committee voted in opposition to a
23 proposed \$3 per megawatt-hour ("MWh") tax. On January 23, 2017, as part of the

1 Wyoming general legislative session, a similar proposal was defeated that would have
2 raised taxes to \$5 per MWh. On August 3, 2017, the Wyoming Joint Interim Revenue
3 Committee voted down a proposal to draft a bill for the 2018 Wyoming general
4 legislative session that would increase the state's wind tax, and on December 5, 2017,
5 a proposal to consider raising the wind tax was once again defeated by the Wyoming
6 Joint Interim Revenue Committee. The Company anticipates that the sponsors of these
7 proposals will again introduce wind tax legislation during the 2018 Wyoming
8 legislative session, and the Company will monitor those efforts.

9 As discussed by Company witness Mr. Chad A. Teply, the schedule for the
10 Combined Projects will allow the Company to evaluate tax impacts before moving
11 forward with construction, and utilize off-ramps if tax law changes erode the economic
12 benefits of the Combined Projects.

13 **CONCLUSION**

14 **Q. Please summarize the conclusions of your rebuttal testimony.**

15 A. The updated economic analysis that will be included in the Company's January 16,
16 2018 supplemental filing will address a number of the specific issues raised around the
17 size and certainty of the economic benefits of the Combined Projects, including the
18 impact of changes to federal tax law. Despite claims made to the contrary, PacifiCorp
19 has a near-term and long-term resource need that can be partially met with heavily
20 discounted Wind Projects that are lower cost than all other near-term and long-term
21 resource alternatives. The Combined Projects are an element of PacifiCorp's least-cost,
22 least-risk resource plan and there is nothing novel or unique about these resources that
23 justifies unprecedented cost-recovery treatment to assign all risk to the Company. The

1 Company's long-standing methodology to develop its OFPC produces the best
2 representation of future market prices for the central forecast, and alternative price-
3 policy scenarios provide a reasonable foundation for judging risk.

4 **Q. Does this conclude your rebuttal testimony?**

5 A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION OF WYOMING

IN THE MATTER OF THE)	
APPLICATION OF ROCKY MOUNTAIN)	
POWER FOR CERTIFICATES OF)	DOCKET NO. 20000-520-EA-17
PUBLIC CONVENIENCE AND)	(RECORD NO. 14781)
NECESSITY AND NONTRADITIONAL)	
RATEMAKING FOR WIND AND)	
TRANSMISSION FACILITIES)	

AFFIDAVIT, OATH AND VERIFICATION

Rick T. Link (Affiant) being of lawful age and being first duly sworn, hereby deposes and says that:

Affiant is the Vice President for PacifiCorp, which is a party in this matter.

Affiant prepared and caused to be filed the foregoing testimony. Affiant has, by all necessary action, been duly authorized to file this testimony and make this Oath and Verification.

Affiant hereby verifies that, based on Affiant's knowledge, all statements and information contained within the testimony and all of its associated attachments are true and complete and constitute the recommendations of the Affiant in his official capacity as Vice President.

Further Affiant Sayeth Not.

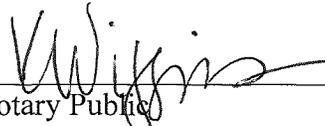
Dated this 15 day of December, 2017



Rick T. Link
Vice President
825 NE Multnomah St. Suite 600
Portland, OR 97232
503-813-7163

STATE OF OREGON)
) SS:
COUNTY OF MULTNOMAH)

The foregoing was acknowledged before me by Rick T. Link on this 15 day of DECEMBER 2017. Witness my hand and official seal.



Notary Public

My Commission Expires: 10/26/2021

