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BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

IN THE MATTER OF PACIFICORP'S 2019 INTEGRATED RESOURCE PLAN	Docket No. 19-035-02

COMMENTS OF WESTERN RESOURCE ADVOCATES

February 4, 2020

Pursuant to the November 6, 2019, Scheduling Order and Notice of Technical Conference, Western Resource Advocates ("WRA") hereby submits these comments to the Public Service Commission of Utah ("PSC") regarding the PSC's consideration of PacifiCorp's 2019 Integrated Resource Plan ("IRP").

WRA is a non-profit conservation organization, dedicated to protecting the land, air, and water of the West. WRA's Clean Energy Program develops and implements policies to reduce environmental impacts of the electric power industry in the Interior West by advocating for a western electric system that provides affordable and reliable energy, reduces economic risks, and protects the environment through the expanded use of energy efficiency, renewable energy resources, and other clean energy technologies.

WRA supports acknowledgment of PacifiCorp's 2019 IRP. We believe it meets the PSC's standard of evaluation that the IRP substantially comply with the regulatory requirements of the planning process. WRA's comments will address two substantive issues that are significant components of the 2019 IRP: accelerated coal retirements and the construction of Gateway South.[1] Additionally, we make recommendations to improve the planning process in the next IRP cycle.

I. ACKNOWLEDGMENT OF THE 2019 IRP

Background on acknowledgement. In its order acknowledging the 2017 IRP, the PSC provided background regarding its statutory planning requirement, explained its standard for evaluating an IRP, and explained how its standard is linked to guideline three of the 1992 *Report and Order on Standards and Guidelines*, which requires PacifiCorp to "provide ample opportunity for public input and information exchange during the development of its Plan."[2]

Utah Code Ann. § 54-1-10 requires the PSC to "engage in long-range planning regarding public utility regulatory policy in order to facilitate the well-planned development and conservation of utility resources."[3] The PSC "relies in part on PacifiCorp's IRP process to fulfill its statutory planning requirement."[4] The PSC explained its view of the IRP process:

> We view the IRP process as one in which parties are able to provide input and receive information on relevant issues, inputs, models, and results affecting the current IRP. Therefore, the opportunity to examine and provide information during the IRP development, rather than after the fact, is an important aspect of the IRP.[5]

[1] Resource acquisition decisions will be addressed in other proceedings after the Company has evaluated resource responses to the All-Source RFP it intends to issue in the May timeframe.
[2] *In the Matter of PacifiCorp's 2017 Integrated Res. Plan*, No. 17-035-16 (Report and Order, March 2, 2018), page 7 (citation omitted).
[3] Utah Code Ann. § 54-1-10.
[4] *In the Matter of PacifiCorp's 2017 Integrated Res. Plan*, No. 17-035-16 (Report and Order, March 2, 2018), p.7.
[5] *Id.* at 7-8.

While the IRP process, particularly the opportunity for input and information exchange, is necessary to facilitate the "well-planned development and conservation of utility resources," completion of this process does not provide regulatory approval for utility decision-making.

> Acknowledgment of an IRP means it substantially complies with the regulatory requirements of the planning process. Acknowledgement of an IRP does not constitute regulatory approval for any specific PacifiCorp resource decision or strategy for meeting its obligation to serve. Resource approval and cost recovery are made in dockets separate from the IRP, following resource acquisition and strategy decisions by PacifiCorp management and requests for approval filed with the PSC.[6]

In this way, PSC acknowledgement of an IRP represents more of a procedural statement than a substantive determination.

WRA supports acknowledgement of the 2019 IRP. Based on our participation in the public input process, the 2019 IRP substantially complies with the regulatory requirements of the planning process. Additionally, within this process, PacifiCorp implemented some commendable planning improvements.

As part of this IRP cycle, PacifiCorp undertook the most comprehensive and transparent assessment of the economics of its coal fleet than it has to date. This analysis represents a significant improvement from past IRPs. The more comprehensive approach to evaluating existing coal resources alongside new resources, and public dissemination of results,[7] provided "the opportunity to examine and provide information during the IRP development,"[8] and is necessary for making the IRP a robust and useful tool for guiding utility decision making. Also within the 2019 IRP process, PacifiCorp changed the way it modeled transmission. The Company enabled its System Optimizer ("SO") capacity expansion model to "endogenously"

[6] *In the Matter of PacifiCorp's 2017 Integrated Res. Plan*, No. 17-035-16 (Report and Order, March 2, 2018), page 7.
[7] All previous coal retirement analyses have been treated confidentially.
[8] Footnote 5, *supra.*

link the selection of transmission upgrades and new segments to the selection of new resources on a least cost basis. Transparent economic evaluations of coal units and endogenous transmission modeling are significant improvements from past IRPs. PacifiCorp should continue to implement both of these changes as it develops future plans.

2019 IRP Action Plan is reasonable. PacifiCorp's Action Plan represents progress toward a cleaner, more cost-effective portfolio of resources and balances the political realities facing the Company and the economic realities facing employees affected by early coal retirements with customer benefits. WRA commends PacifiCorp for the sensitive and professional manner in which it conducted its IRP public input process as it developed a plan that will have significant economic and personal impacts for communities affected by early coal plant retirements within the Action Plan timeframe.

II. ACCELERATED COAL RETIREMENTS

Significant evidence within the 2019 IRP and supporting materials demonstrates that ratepayers can benefit from early coal closures. PacifiCorp found in its modeling and portfolio selection process that "[e]ach of the coal study phases show that early retirement of certain coal units has potential to reduce overall system costs."[9] PacifiCorp's results are consistent with growing economic trends demonstrating that continuing to run coal plants may be more costly for ratepayers than investing in new resources. PacifiCorp's results, within this context, warrant continued analysis of the economics of coal generation relative to replacement alternatives in order to evaluate the lowest-cost, least-risk mix of resources for the utility's ratepayers.

PacifiCorp's coal fleet. Given the size of its coal fleet, the rapidly changing economics of coal-fired generation has significant implications for PacifiCorp. PacifiCorp owns and

[9] PACIFICORP, 2019 INTEGRATED RESOURCE PLAN, VOLUME 1 211 (2019) (*hereinafter* "VOLUME I").

operates one of the largest coal fleets in the Western United States.[10] It owns or partially owns twenty-three coal-fired generating units spread across five states, which provide more than 5,500 MW of summer capacity.[11] Eleven units are located in Wyoming, five in Utah, four in Colorado, two in Montana, and one in Arizona. PacifiCorp is a minority owner in the Colorado and Montana units (389 MW); it is the sole or majority owner of the sixteen Utah and Wyoming units (4,729 MW); and it is the sole owner of Cholla Unit 4, which is located in Arizona and operated by Arizona Public Service Company (387 MW). PacifiCorp operates the Utah and Wyoming units – in total, 5,633 MW of summer capacity. As the operator and majority owner of the Wyoming and Utah units, PacifiCorp is the primary decision maker with regard to their future. It has less control over units where it owns a minority share.

PacifiCorp is heavily tethered to coal. However, as is becoming well documented, the relative economics of coal versus other resources is undergoing dramatic shifts.[12] Pressures on coal costs are increasing, the price of natural gas remains low, and the costs of renewable energy and battery storage continue to decline.[13] In addition, public attitudes toward coal are progressively less positive, individual states are taking climate action, and the ongoing operation

[10] The greenhouse gas emissions associated with PacifiCorp's coal fleet are significant. Inclusive of all PacifiCorp's resources, the utility produced 43.1 million tons of CO2 emissions in 2019. PacifiCorp projects this number to fall, assuming the retirements, resource additions, and dispatch changes from the Preferred Portfolio, to 16.7 million by the end of the 20 year planning period. VOLUME I 253 (2019).
[11] Naughton Unit 1 stopped generating in January of 2019 and will be converted to natural gas in 2020. It is not included in these figures.
[12] *See, e.g.*, Dylan Brown, *Renewables Primed to Pass Coal Power*, E&E NEWS (Jan. 15, 2020), https://www.eenews.net/greenwire/2020/01/15/stories/1062089099 (recent article on coal's diminishing role in energy markets); LAZARD'S LEVELIZED COST OF ENERGY ANALYSIS, VERSION 13.0 (Nov. 7, 2019), https://www.lazard.com/perspective/lcoe2019 (annual report on the levelized costs of various energy sources); *see also* KEM C. GARDNER POLICY INSTITUTE, UTAH ROADMAP: POSITIVE SOLUTIONS ON CLIMATE AND POLICY (Jan. 6, 2020), https://gardner.utah.edu/wp-content/uploads/Utah-Roadmap-Public-Draft.pdf (providing a graph of the Lazard levelized cost of energy numbers).
[13] *See* LAZARD, *supra* note 12.

of coal is viewed as increasingly risky by both the electric industry and the financial community.[14]

Coal analysis in the 2019 IRP. In this environment, and as part of this 2019 IRP, PacifiCorp took a serious and public look at the economics of certain of its coal units, and made the results of its coal retirement analysis public.[15] PacifiCorp identified the accelerated retirement of six of its coal-fired generating units with summer capacity totaling 1,300 MW.[16] The generation units with accelerated retirements identified in the 2019 IRP that were not identified in the 2017 IRP include the following:

Colorado
- Craig Unit 2: 2026 (82 MW) 19% share;

Montana
- Colstrip Unit 3: 2027 (74 MW) 10% share;
- Colstrip Unit 4: 2027 (74 MW) 10% share;

Wyoming
- Jim Bridger Unit 1: 2023 (354 MW) 67% share;
- Jim Bridger Unit 2: 2028 (359 MW) 67% share;
- Naughton Unit 1: 2025 (156 MW) 100% share;
- Naughton Unit 2: 2025 (201 MW) 100% share.

[14] *See, e.g.*, Dawn Lin & Julie Steinberg, *BlackRock to Hold Companies and Itself to Higher Standards on Climate Risk*, WALL ST. JOURNAL (Jan. 14, 2020), https://www.wsj.com/articles/blackrock-shakes-up-sustainable-investing-business-following-criticism-11579000873 (article about world's largest asset manager deciding to take a tougher stance against corporations that are not providing a full accounting of climate change risks); *see also* Benjamin Storrow, Major Ariz. utility vows to ditch coal and go carbon-free, E&E NEWS (Jan. 23, 2020), https://www.eenews.net/energywire/stories/1062153521/search?keyword=coal+cost (article about APS decision to stop burning coal in 2031).

[15] As a consequence, PacifiCorp's IRP public input process became the focus of significant media attention and became a sounding space for those who fear for their jobs and their families' livelihoods as well as for those who fear the consequences of climate change for themselves and future generations. Several of the meetings were late in starting because of the numbers of new attendees who had to clear security and find seating. PacifiCorp cordially welcomed and educated new participants. WRA commends PacifiCorp's conduct in facilitating difficult conversations and providing information throughout an often emotionally-charged process.

[16] This value does not include the capacity of Cholla Unit 4 and Craig Unit 2. The retirements of these units were accelerated in the 2017 IRP.

Attachment 1 compares the retirement dates selected as part of the 2019 IRP's Preferred Portfolio with the approved 2013 depreciation dates, the 2017 IRP selected retirement dates, and the September 2018 proposed depreciation dates.[17] The attachment shows incremental acceleration in the timing of retirements and the capacity of units retired over time. This trend, along with the economic and environmental risks facing coal generation, indicates that we may yet see additional early closures.

Hayden Units 1 and 2 and Jim Bridger Units 3 and 4 are such additional candidates for accelerated retirements. While alternative retirement timing for the Hayden units was not evaluated as part of this IRP cycle,[18] they are PacifiCorp's most costly on a real levelized basis and PacifiCorp should extract itself from these units as quickly as possible.[19]

Jim Bridger Units 3 and 4 are also costly units and merit further analysis in the next IRP cycle. The unit-by-unit coal retirement results that PacifiCorp reviewed with public input participants in December of 2018 showed customers could benefit by roughly $100 million from the early retirement of each of these units in 2022,[20] and based on real levelized costs, PacifiCorp considers Jim Bridger Units 3 and 4 as "top candidates" for early retirement.[21]

Portfolios developed to evaluate the accelerated retirement of Jim Bridger Units 3 and 4 demonstrated significant benefits to customers. When considering the SO results from the initial

[17] The November 2013 approved depreciation dates represent the base. Changes made through the 2017 IRP are shown in blue and carried forward in blue. Changes made in the September 2018 depreciation filing are made in purple and carried forward in purple. And changes to retirement dates selected through the 2019 IRP are shown in red.
[18] Other than the initial unit-by-unit coal retirement analysis which assumed a 2022 retirement date for each unit (on a unit-by-unit basis), a 2030 retirement assumption for Hayden units 1 and 2 is common to all portfolios PacifiCorp developed.
[19] PACIFICORP, 2019 INTEGRATED RESOURCE PLAN, VOLUME II 607, *Table R.16 – Real Levelized Cost Rankings of Coal Units* (2019) (table showing the Hayden units as ranking first and second in terms of cost) (*hereinafter* "VOLUME II").
[20] *Id.* at 98 (Table R).
[21] *Id.* at 607.

series, the top performing portfolio retired Bridger Units 3 and 4 in 2025.[22] When considering the SO results from the C series,[23] the top performing portfolio accelerated the retirement of Bridger Units 3 and 4 to 2023 and reduced SO costs by an additional $34 million.

Notably, Utah coal units were not evaluated in this IRP cycle, even though the early unit-by-unit results demonstrated potential ratepayer benefits from accelerated retirement of Huntington Units1 and 2.[24] Given the rapidly changing energy landscape, it seems unreasonable to expect that Huntington will operate until 2036 and Hunter until 2042. It is necessary to evaluate the economics of earlier retirements in IRPs going forward in order to provide ratepayers with least-cost, least-risk portfolios, and in order to provide timely notice to those impacted by early coal closures.

Coal retirements in the 2019 IRP Action Plan. WRA supports the coal retirements selected as part of the Preferred Portfolio's Action Plan. The coal retirements identified in this IRP are an appropriate initial response to the results of PacifiCorp's analyses. Retiring coal units early presents significant challenges to affected individuals and communities, and PacifiCorp appears to be attempting to balance the interests of ratepayers with the complicated political and economic realities facing the Company and its employees. However, given the analyses and the results we have reviewed throughout the 2019 IRP process, it seems likely that PacifiCorp will continue to identify additional early retirements in the future. In the interest of fairness and

[22] Case P-46 retired Cholla Unit 4 in 2020, Naughton Units 1 and 2 in 2025, and Bridger Units 3 and 4 in 2025 (Bridger Units 1 and 2 retired in 2028 and 2032 respectively).
[23] In the "C Series," PacifiCorp examined top performing portfolios with a more granular assessment of reliability requirements through the production of hourly deterministic Planning and Risk ("PaR") Model studies for the years 2023-2030 and 2038. The top performing portfolios from the C Series were further examined in the "CP Series," which added additional deterministic PaR analysis to cover all years from 2023-2038. VOLUME I 211.
[24] *See* VOLUME II 597-99. In the unit-by-unit evaluation, the SO model found benefits from early retirement of the Huntington units, while the Base PaR results indicate that the plant was economically on the margins.

certainty for affected workers and communities, we encourage PacifiCorp to continue transparent and timely analysis of its remaining coal units on an individual basis and in combination, against alternative resources.

III. CONSTRUCTION OF GATEWAY SOUTH

Based on the information provided in the IRP, WRA supports the inclusion of Gateway South as a component of the Preferred Portfolio and Action Plan. As modeled, Gateway South will benefit customers by accessing lower-cost wind generation, providing additional flexibility in serving Utah load, and strengthening the transmission system. We recognize the difficulty in modeling the benefits (economic and other) of transmission additions, and expect PacifiCorp to provide additional detail and justification for this line in subsequent PSC proceedings.

The Gateway South segment of the Energy Gateway Transmission Project is a 416-mile, 500 kilovolt (kV) transmission line planned to connect the Aeolus substation in eastern Wyoming with the Clover substation located near Mona, Utah. According to PacifiCorp, completion of the line would realize the full 1,700 MW rating of Gateway South and would allow up to 1,920 MW of new wind to be added in eastern Wyoming.[25] Significantly, the Preferred Portfolio includes the full 1,920 MW of eastern Wyoming wind made accessible by the line in 2024.

PacifiCorp supports its decision to include Gateway South as part of the Preferred Portfolio on pages 74 and 75 of Volume I. It explains that if completed by 2023, Gateway South can access new wind generation that qualifies for a 40% Production Tax Credit. PacifiCorp points to the endogenous selection of Gateway South by the System Optimizer capacity expansion model in 34 out of the 35 portfolios developed for this IRP as evidence of its

[25] VOLUME I 75.

economic benefit.[26] This is because new transmission (whether an upgrade or a new line) is only selected if the benefit of the access to lower-cost resources made possible by the transmission more than offsets the capital cost of the additional transmission.

PacifiCorp also identifies non-economic benefits associated with the transmission line, which include reliability benefits, the benefit of greater operational flexibility, and the ability to meet its FERC obligations. PacifiCorp identifies six ways in which the line enhances reliability. It explains that by connecting into the Mona/Clover market hub, the construction of Gateway South provides additional operational flexibility in the use of least-cost resources from eastern Wyoming or southern Utah to serve customer load. Finally, PacifiCorp notes that constructing Gateway South assists it in meeting its Open Access Transmission Tariff ("OATT") obligations to interconnect new generation.[27]

PacifiCorp's IRP represents a step in the direction of a cleaner grid. PacifiCorp's Action Plan will facilitate a transition to cleaner resources, including renewable resources and batteries. As we transition to a cleaner mix of generation resources, transmission links renewables to load, enhances reliability and supports improved operability. WRA considers these non-economic benefits to be important considerations in support of the line, although not easily quantifiable. WRA further recognizes that transmission is critical within the context of decarbonizing the electricity sector. While WRA supports PacifiCorp's Action Plan with respect to the transmission action items, we recognize that PacifiCorp will need to provide additional information in order to justify cost recovery from Utah ratepayers. [28]

[26] The exception is Case P-16. VOLUME II 309 (Appendix M).
[27] VOLUME I 75.
[28] Based on recent discovery responses (see Attachment 2 for these responses), whether the economic benefits corresponding with access to the 1,920 MW of low-cost wind as assumed in the modeling results would be fully realized by PacifiCorp's retail customers is not clear. In response to Office of Consumer Services ("OCS") Data Request ("DR") 2.1, PacifiCorp said that its interconnection and transmission

IV. RECOMMENDATIONS FOR IMPROVEMENT IN THE NEXT IRP CYCLE

a. Reliability Analysis

As part of the coal retirement analysis, PacifiCorp took a close look at whether the unprecedented levels of renewable resources and battery storage selected by the capacity expansion model were providing the needed operating characteristics required to maintain system reliability as large thermal generators retired. Although the SO model has built into it a 13% planning reserve margin to ensure there are adequate resources to meet forecasted load over time, PacifiCorp became aware that its initial round of coal retirement portfolios were short on spinning, non-spinning, and regulating reserves when simulated in the Planning and Risk

service queues currently contain requests for service that are contingent upon Gateway South being constructed. In particular, PacifiCorp has in its queue a request for 500 MW of FERC-jurisdictional OATT firm point-to-point ("PTP") transmission service from the Aeolus substation to the Clover substation. PacifiCorp said that without Gateway South it would need to construct a 230 kV line (instead of the 500 kV Gateway South option) following the same 416-mile route as Gateway South to satisfy the transmission service request. In response to OCS 3.1.(e), PacifiCorp further stated that it "has no existing means to meet the contemplated [transmission service request] … without the construction of Energy Gateway South."

While the purpose of PacifiCorp's responses was to demonstrate that it is more cost effective to build Gateway South than to build a 230 kV line along the same route, this new information suggests that if PacifiCorp constructs Gateway South and grants the 500 MW OATT firm PTP transmission service request, something less than 1,920 MW of new wind will be available to retail customers. How much less cannot be known until the generation interconnection study related to the 500 MW OATT PTP transmission service request has been completed. *See* PacifiCorp response to OCS DR 3.1(f).

The modeling results that demonstrated economic benefits from constructing Gateway South assumed the line provided access to 1,920 MW of low-cost wind. Given the new information, whether the construction of Gateway South would in fact access the full 1,920 MW for the benefit of PacifiCorp's retail customers and whether a lesser amount of wind would still justify the cost of constructing the line appears to be an open question. More information is needed before PacifiCorp seeks preapproval or cost recovery.

("PaR") production cost model.[29] To evaluate the reliability implications and account for the additional cost, PacifiCorp analyzed deterministic PaR simulations[30] for representative years.[31]

To rectify the insufficiencies identified, PacifiCorp added additional capacity in two steps. First, PacifiCorp required the capacity expansion model to add sufficient flexible capacity to cover the maximum hourly shortfalls identified in the deterministic PaR simulations.[32] Second, PacifiCorp required an additional 500 MW capacity addition to cover other potential volatility that is not present in deterministic studies.[33]

In justifying the inclusion of this additional 500 MW capacity requirement, PacifiCorp explained:

> In operations, capacity held in reserve for contingency, forecast error and intra-hour variability is approximately 16% of peak load. In the summer months, additional capacity is held in reserve to mitigate risks associated with high volatility in load and resource availability. In 2018, capacity held in reserve that is incremental to the 13 percent planning margin for contingency, forecast error, and intra-hour volatility totaled 295 MW. In 2018, capacity held in reserve to mitigate risk during peak load conditions in the summer months was approximately 241 MW. Combined, these sum to 536 MW.[34]

It appears to us that capacity may be being double counted. "Volatility in load and resource availability" in the summer months does not appear meaningfully different from "forecast error" and "intra-hour variability" as a percentage of peak load. This is because peak load occurs in the summer months; forecast error captures volatility in loads and resources; and

[29] Volume II 605.
[30] PacifiCorp analyzed deterministic PaR simulations for representative years using the portfolios developed by SO. In the deterministic PaR analysis, the stochastic function was turned off. The hourly PaR model simulated the PacifiCorp system using the same forecasts as the SO model. The differences in simulation outcomes stem from the granularity of the PaR model versus the SO model.
[31] In the initial reliability cases, three years of deterministic PaR analysis were evaluated; in the C-series, nine years; and in the CP series, sixteen years.
[32] VOLUME II 610.
[33] *Id.*
[34] *Id.* at 610-11.

PacifiCorp participates in the EIM whose purpose is to provide a least-cost intra-hour balancing service.

Overbuilding resource portfolios unnecessarily is costly and can distort important retirement and resource acquisition timing decisions. To address methods to determine the appropriate level of reliability resources, WRA recommends the PSC direct the Company to conduct a workshop to discuss the appropriate approach for accounting for reliability needs.

b. Family Tree Development

WRA views the "family tree" method of portfolio development that PacifiCorp used for this IRP as conceptually sound. However, the way PacifiCorp employed this method did not clearly lead to an optimal solution and potentially distorted results. To consistently provide comparability across resource portfolios, the family tree must have a common portfolio as its root and examine one set of factors at a time, all else held constant.

The trouble with the family tree development as it was practiced arose from using several portfolios as starting points[35] and testing multiple alternative retirement decisions in one portfolio.[36] Portfolios, which were not comparable in their development, were compared on the metric of cost. This lack of comparability obscured reasons for the cost differences. As a result, portfolios with potentially beneficial retirements may have been removed from consideration

[35] Benchmark Portfolio (P-01), Regional Haze Reference (P-02), Regional Haze Intertemporal (P-03), Coal Study (P- 04) and Gadsby Alternative (P-06) were each used as a beginning portfolio for examination. These were not comparable, and the portfolios developed from them were not comparable.
[36] For example, in developing the family tree, case P-11 was compared with case P-14. Case P-11 was selected as least cost and became the ancestor for further decisions. However, P-11 and P-14 are not comparable. While they share case P-9 as a common ancestor and both retire Cholla Unit 4 in 2020, the commonalities end there. In case P-11, the only change made to case P-9 was in the retirement date of Cholla Unit 4 from 2025 to 2020. VOLUME II 298. In case P-14, in addition to the change in the retirement date of Cholla 4 from 2025 to 2020, the four Jim Bridger units *and* Naughton Units 1 and 2 were retired in 2022. *Id.* at 304.

because they also included elements that were higher-cost. The use of multiple starting points and the assessment of multiple changes in a single portfolio potentially distorted results.

To correct this deficiency in future IRPs, PacifiCorp should begin with an agreed upon base portfolio and test one parameter at a time. As a simple illustration: if the intent is to test the timing of retiring Cholla Unit 4, then, beginning with a base portfolio, alternative retirement dates for Cholla Unit 4 could be considered (all else constant) and the retirement timing that produces the least-cost portfolio would be selected for use in further analysis. That new portfolio would become the "ancestor" portfolio used to generate additional (descendant) portfolios that test additional resource retirement decisions. PacifiCorp took this approach in testing whether Naughton Unit 3 should undergo a small or large gas conversion in 2020. A large gas conversion produced the least-cost portfolio, and this was carried forward into the development of new portfolios.

WRA recommends PacifiCorp work with public input participants to develop a "priority ordering" of sets of parameters for testing that would be informed both by the timing of the decision and by the likelihood that a unit's early retirement would benefit customers. For example, since in the 2019 IRP both the gas conversion decision at Naughton Unit 3 and the retirement of Cholla Unit 4 were actions that could occur in the near-term (2020), these evaluations needed to happen early in the family tree development (as was done), followed by evaluation of the most potentially beneficial early retirements coming out of the unit-by-unit analyses. For example, the SO unit-by-unit retirement results demonstrated that customers are most likely to benefit from the early closure of Bridger Units 1 and 2, followed by Naughton

Units 1 and 2, followed by Bridger Units 3 and 4.[37] The priority ordering would incorporate this type of information.

At each of these steps, multiple retirement timings for the parameter(s) under consideration could be examined, but all else should be held constant. This approach should combine information from unit-by-unit analysis with the evaluation of multiple retirements in a sequential fashion without distortion from multiple moving dates of multiple units.

We recommend that the PSC provide guidance to PacifiCorp to improve its portfolio development process so that results can be meaningfully compared to one another. PacifiCorp should work with public input participants to determine a baseline portfolio as the initial ancestor of the next family tree as well as work with public input participants to develop a priority ordering for parameter testing.

c. Public Input Process

As discussed above, PacifiCorp's conduct in navigating this cycle's emotionally-charged public input process was exemplary. However, the public input process did suffer from a flaw that put those of us there to "provide input and receive information" on the technical merits of the Company's plan at a disadvantage. That is, over the course of the public input process, PacifiCorp stopped distributing meeting materials in advance.

PacifiCorp's explanation was its need for the additional time. While many of us who work against deadlines are sensitive to the desire for more time, PacifiCorp's delays put the rest of us at a disadvantage. Lack of opportunity to digest the voluminous, complex, technical, and significant information ahead of the public meetings hindered our ability to ask meaningful

[37] VOLUME II 594, *Table R.2, Unit-by-Unit Coal Studies Results Ranked by Potential Customer Benefits*.

questions and have a thoughtful dialogue. The information "exchange" was more one-sided than it would have been had participants had the opportunity to view the materials ahead of real-time.

It is our view that the public participants' inability to process and immediately respond to the information provided during meetings was a factor in participants submitting an unprecedented number of feedback forms and requests for information, which in turn taxed IRP staff and did not always result in satisfactory responses. While we believe written exchanges are a necessary complement to dialogue, they are not an adequate substitute. In-person dialogue provides an opportunity for all public input participants to achieve a better understanding of the issues as well as the viability of alternative solutions. These benefits can be lost in more formalized written exchanges.

To improve the opportunity for the "exchange of information" during the development of a plan, we recommend the PSC consider requiring PacifiCorp to provide meeting materials at least forty-eight hours in advance.

V. CONCLUSION AND RECOMMENDATIONS

WRA appreciates the many advances embedded in the 2019 IRP. We recommend the PSC acknowledge PacifiCorp's IRP as substantially compliant with the IRP planning process.

To maintain the benefits of these advances, improve the planning process, and enhance the exchange of information in the next cycle, we recommend that the PSC consider providing the following guidance.

- PacifiCorp should continue to evaluate the economics of existing coal resources compared to replacement alternatives.
- PacifiCorp should conduct a reliability workshop to discuss the appropriate approach for accounting for reliability needs.

- PacifiCorp should ensure that portfolios under consideration in the IRP process are meaningfully comparable to one another.
- PacifiCorp should provide meeting materials at least forty-eight hours in advance;

Dated this 4th day of February 2020.

Respectfully submitted,

WESTERN RESOURCE ADVOCATES

/s/Nancy Kelly
Nancy Kelly
Western Resource Advocates