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BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

<p>In the Matter of PacifiCorp’s 2019 Integrated Resource Plan</p>	<p>Docket No. 19-035-02 Comments from Utah Clean Energy</p>
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Utah Clean Energy appreciates the opportunity to provide comments on PacifiCorp’s 2019 Integrated Resource Plan (“2019 IRP”), filed on October 18, 2019. Utah Clean Energy recommends that the Public Service Commission (“Commission”) acknowledge the non-DSM components of PacifiCorp’s 2019 IRP, and issue guidance on a limited number of issues to assist in developing future IRPs. Utah Clean Energy notes that these comments do not address the Demand Side Management components of the 2019 IRP. Utah Clean Energy is filing separate joint comments with the Southwest Energy Efficiency Project in this docket to address concerns related to Demand Side Management in the 2019 IRP.

I. STAKEHOLDER MEETINGS

The IRP guidelines identified in the 1992 Commission decision (the “IRP Guidelines”) state that “[i]nformation exchange is the most reasonable method for developing and

implementing integrated resource planning in Utah."¹ Further, the IRP Guidelines require PacifiCorp to "provide ample opportunity for public involvement and the exchange of information during the development of its Plan."²

The stakeholder meetings that PacifiCorp held during the development phase of the 2019 IRP were helpful, well-designed meetings that aided Utah Clean Energy's understanding of the different components of the 2019 IRP study. One issue commonly arose, however. PacifiCorp continually released the meeting materials the night before the meeting, and in some cases, the morning of the meeting. The stakeholder process would have been more fruitful if PacifiCorp had been able to release the meeting materials at least a week in advance, preferably more.

We understand that each of these stakeholder meetings covered a large amount of information, and that putting together the slide decks to be presented at the meeting is time consuming. To do this on top of the actual 2019 IRP analysis is not a simple task. However, receiving the slide deck the afternoon before or the day of the meeting precluded any kind of meaningful pre-meeting review of the information. Without enough time to review and begin digesting the information beforehand, much of the stakeholder meeting time was spent simply trying to understand PacifiCorp's proposed analysis. Ultimately, this fact often meant that parties could not fully participate in the process because we spent so much time trying to grasp the proposals instead of actively contributing to the development of the analysis. The dates for each stakeholder meeting are determined months in advance, and PacifiCorp is largely responsible for determining the agenda and topics covered at each meeting. This schedule should allow

¹ Docket No. 90-2035-01, IRP guidelines, Order on June 18, 1992, page 4.

² *Id.* at 21.

PacifiCorp enough time to plan for upcoming stakeholder meetings and prepare meeting materials in advance of each meeting.

UCE recommends that the Commission direct PacifiCorp to publish any materials for future IRP stakeholder meetings at least three workdays in advance to avoid this issue in future processes.

II. COAL ANALYSIS

PacifiCorp's 2019 IRP included a first-of-its-kind analysis of the utility's existing coal fleet. The results of this analysis corroborated the findings of numerous utilities across the country—existing coal plants are struggling to compete with the falling cost of equivalent clean energy resources.

A. There Is A Need for Ongoing Analysis in Future IRP's Related to The Cost Effectiveness of PacifiCorp's Coal Fleet

PacifiCorp's coal studies were conducted in three phases. The first phase was a unit-by-unit analysis using the System Optimizer model ("SO Model"). In this phase, all 22 coal units were assumed to retire on an individual basis in 2022 to see whether retiring each unit would increase or decrease the present value revenue requirement ("PVRR").³ The second phase built on the results of the first phase by evaluating the results within the Planning and Risk model ("PaR Model"), and conducted stacked retirement runs using portfolios of the plants determined to be the least economic, on an individual basis, from phase one. In this phase, PacifiCorp assumed multiple options for retirement dates in addition to 2022.⁴ Finally, during phase 3

³ PacifiCorp's 2019 IRP, Volume 2, Appendix R, page 593.

⁴ *Id.* at 591.

PacifiCorp performed additional reliability analysis on the results from phase 2 to address capacity shortfalls.⁵ The results of this analysis concluded that ratepayers would save money if PacifiCorp accelerated the retirement of the Naughton coal units 1 and 2 to 2025 from 2029, Jim Bridger unit 1 to 2023 from 2028, and Jim Bridger unit 2 to 2028 from 2032.⁶

The reliability study methodology used in the coal studies could likely be improved in future IRPs, which we discuss in greater detail below, but generally these findings represent a clear need to continue analyzing PacifiCorp's coal fleet to ensure PacifiCorp customers are served by the lowest-cost, lowest-risk resources. Coal generation resources are currently facing a wide range of economic and environmental challenges. In 2019, electric generation from coal nationally dropped 18% despite numerous policy and regulatory changes intended to sustain the coal industry.⁷ This economic shift is largely driven by falling clean energy resource prices, which are projected to continue decreasing in the coming years.⁸ The combination of falling clean energy prices, pressure to decrease greenhouse gas emissions, and volatility in the coal industry itself will only increase the uncertainty related to coal resources in the future.⁹

⁵ *Id.*

⁶ *Id.* at 612; PacifiCorp's 2019 IRP, Volume 1, page 252.

⁷ Utility Dive, Catherine Morehouse, Reduced coal generation drove power sector greenhouse emissions down 10% in 2019, report says, *found at* <https://www.utilitydive.com/news/reduced-coal-generation-decrease-ghg-power-sector-greenhouse-carbon-emissions/569984/>.

⁸ EIA short-Term Energy Outlook January 2020, page 13, *found at* https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf; Lazard Levelized Cost of Energy Analysis – Version 13.0, page 7, *found at* <https://www.lazard.com/media/451086/lazards-levelized-cost-of-energy-version-130-vf.pdf>.

⁹ EIA short-Term Energy Outlook January 2020, page 13, *found at* https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf (stating that the “EIA expects the largest declines in coal production in 2020 will occur in the Western production region. The coal market has undergone significant restructuring in the past year . . . The decrease in power sector coal consumption in 2020 reflects expected coal plant retirements and increasing shares of electricity generation from low priced natural gas and new renewables generating capacity”).

The IRP Guidelines require PacifiCorp to conduct “an evaluation of all present and future resources . . . (both demand-side and supply side), on a consistent and comparable basis”¹⁰ with the overall goal of identifying the “optimal set of resources given the expected combination of costs, risk and uncertainty.”¹¹ The coal studies in the 2019 IRP, which PAC itself describes as “a robust and comprehensive analysis of its coal fleet,”¹² confirm that PacifiCorp’s coal fleet is, at least in part, not cost competitive with alternate clean energy resources. The trends that are driving this fact are not static and will continue to shift as the cost of clean energy continues to decline and the volatility within the coal industry increases. As a result, the economics of PacifiCorp’s coal fleet will continue to change, creating a clear need to continue studying the economics of PacifiCorp’s coal fleet.

Utah Clean Energy recommends that the Commission direct PacifiCorp to include an economic analysis of its coal fleet, looking at each unit individually and in stacked combinations, to gauge the cost effectiveness of each coal unit relative to alternate resources.

B. The Reliability Study Methodology in The Coal Studies Was Overly Conservative and Likely Added Unnecessary Resources, Skewing the Cost-Benefit Analysis

In phase 3 of the coal studies PacifiCorp altered the way it used the SO and PaR models, in part, by adding additional SO and PaR runs, as well as requiring an additional 500 MW resource requirement to account for “hourly shortfalls” and “intrinsic uncertainties,” such as

¹⁰ Docket No. 90-2035-01, IRP guidelines, Order on June 18, 1992, page 24.

¹¹ *Id.* at 41.

¹² PacifiCorp’s 2019 IRP, Volume 1, page 18; *see also* CNBC, Murray Energy joins growing list of coal companies to declare bankruptcy, *found at* <https://www.cnbc.com/2019/10/29/murray-energy-joins-list-of-coal-companies-to-declare-bankruptcy.html>.

unknowns in market supply in the modeling results.¹³ However, these hourly shortfalls and intrinsic uncertainties are already accounted for in other modeling inputs. PacifiCorp states that a 13 percent planning reserve margin is appropriate for purposes of its resources planning, which is specifically intended to “account[] for variability and uncertainty in load and generation resources.”¹⁴ PacifiCorp says that the 500 MW resource was added in phase 3 of the coal studies because operational experiences have, at times, required PacifiCorp to hold additional capacity in reserve, totaling approximately 16 percent of peak load.¹⁵ As a result, the additional resource is necessary to ensure that the system has enough reserves to reliably serve customers. However, PacifiCorp’s own Planning Reserve Margin study (“PRM”) looks at whether the utility needs to hold reserve margins anywhere from 11 to 18 percent of peak load, and they concluded that 13 percent was enough.¹⁶ Further, PacifiCorp already accounts for variations in load and supply resulting from variable energy resources in the Flexible Reserve Study (“FRS”).¹⁷ Including the additional 500 MW resource to supplement the PRM and FRS studies is at best overly conservative and at worst it potentially undercuts the usefulness of PacifiCorp’s PRM and FRS studies by implying that they do not account for enough risk.

¹³ PacifiCorp’s 2019 IRP, Volume 2, Appendix R, page 610.

¹⁴ *Id.* at Appendix I, pages 137, 147 (“the selected 13 percent PRM level ensures PacifiCorp can reliably meet customer loads while maintaining operating reserves, with a planning criteria that meets one day in 10 year planning targets, at the lowest reasonable cost”); *id.* at Volume I, page 175 (“Planning to achieve a 13 percent planning reserve margin ensures that PacifiCorp has sufficient resources to meet its peak load, recognizing that there is a possibility for load fluctuation and extreme weather conditions, fluctuation of variable generation resources, a possibility for unplanned resource outages, and reliability requirements to carry sufficient contingency and regulating reserves”).

¹⁵ PacifiCorp’s 2019 IRP, Volume 2, Appendix R, page 610.

¹⁶ *Id.* at Appendix I, page 137 (“Upon evaluating the relationship between cost and reliability in its PRM study, PacifiCorp will continue to use a 13 percent target PRM in its resource planning”).

¹⁷ *Id.* at Appendix F, page 77 (“The FRS estimates the amount of regulation reserve required to manage variations in load, variable energy resources (VERs), and resources that are not VERs (“Non-VERs”) in each of PacifiCorp’s BAAs.”).

It is also worth noting that PacifiCorp is highly likely to realize even more reliability benefits through the Energy Imbalance Market (“EIM”) as participation in the market increases, which PacifiCorp did not account for in its PRM, FRS, or the coal studies. To date, PacifiCorp has realized substantial benefits from its participation in the EIM, most relevant to this discussion, “reduced need for flexibility reserves in all EIM balancing authority areas, also referred to as diversity benefits, which reduces cost by aggregating load, wind, and solar variability and forecast errors of the EIM footprint.”¹⁸ At least seven new utilities are planning to join the EIM within the action plan timeframe.¹⁹ As the EIM expands, the flexibility and reliability benefits are likely to increase because, as PacifiCorp says, “[t]he multi-service area footprint brings greater resource and geographical diversity allowing for increased reliability and cost savings in balancing generation with demand using 15-minute interchange scheduling and five-minute dispatch.”²⁰

Adding an additional 500 MW resource requirement, effectively supplementing the requirements of both the PRM and FRS for only part of the IRP analysis, undercuts the value of PacifiCorp’s own reserve and flexibility studies. This addition also ignores the increased reliability and flexibility benefits that PacifiCorp will realize from its participation in the EIM. Ultimately, including the additional 500 MW resource likely produced higher costs in the coal studies than are necessary, skewing the results in a way that may not have captured the full economic value from coal studies.

¹⁸ PacifiCorp’s 2019 IRP, Volume I, page 67.

¹⁹ *Id.* at 38.

²⁰ *Id.*

Utah Clean Energy recommends that the Commission direct PacifiCorp to use the regular PRM and FRS studies in future coal studies to avoid imposing unnecessary and inconsistent obligations that produced skewed cost-benefit results.

III. CAPTURING FLEXIBILITY BENEFITS FROM ALL RESOURCES

PacifiCorp's 2019 IRP represents a shift towards clean energy resources. The preferred portfolio identifies approximately 7,000 MW of solar, wind and battery storage coming online by the end of 2023,²¹ and noted that "wind and solar will dominate U.S. capacity additions for the next decade."²² As a result of adding these clean energy resources, PacifiCorp recognizes that flexible resources will become increasingly important to help integrate new resources and maintain a reliable grid.²³ Utah Clean Energy agrees that the grid is undergoing a rapid transition, and flexible resources will become increasingly important as this transition unfolds. To that end, it is more important than ever that PacifiCorp's IRP include an evaluation of flexibility benefits from all capable resources.

Several recent studies have shown the flexibility value that well-operated renewable energy resources can provide to an electricity grid. Renewable energy has traditionally been operated as a must-take variable resource, but new business and dispatch models paired with inverter-based technology can now provide "mitigating ancillary services ranging from variability smoothing to power quality."²⁴ Especially in combination with storage technologies, "ancillary services provided by renewables can enhance system flexibility and reliability and

²¹ *Id.* at 3.

²² *Id.* at 36.

²³ *Id.*

²⁴ NREL, Advanced Grid-Friendly Controls Demonstration Project for Utility-Scale PV Power Plants, page 3, *found at* <https://www.nrel.gov/docs/fy16osti/65368.pdf>.

reduce needs in spinning reserves by conventional power plants. Thus, unleashing these capabilities from renewable resources helps achieve the broader objective of a resilient, reliable, low-carbon grid.”²⁵

The 2019 IRP took an initial step in incorporating the flexibility benefits of renewable energy resources, but not fully. Utah Clean Energy submitted a stakeholder feedback form on May 20, 2019, asking whether PacifiCorp’s modeling accounts for flexibility services from renewable energy resources, such as spinning reserves. We cited three recent studies that showcase the capacity of solar plants to provide spinning reserves in support of our request. PacifiCorp’s response says “[spinning and non-spinning reserves] are modeled however, wind and solar resources do not provide these services....”²⁶ PacifiCorp only allows some wind and solar resources “to provide regulation reserve up to 50% of the nameplate capacity, subject to their modeled hourly generation potential, however, resources located in the Wyoming Northeast transmission area are not allowed to provide regulation reserve due to transmission constraints, though they can still be dispatched down.”²⁷

By limiting the IRP model’s ability to see and utilize *all* potential benefits from renewable energy, such as spinning and non-spinning reserves, PacifiCorp is limiting the ability of existing and new renewable energy resources to compete with traditional resources on a consistent and comparable basis. Accounting for regulation reserves provided by renewable energy resources is an important step in ensuring that all flexible and dispatchable benefits

²⁵ NREL, Demonstration of Essential Reliability Services by a 300-MW Solar Photovoltaic Power Plant, page 2, *found at* <https://www.nrel.gov/docs/fy17osti/67799.pdf>.

²⁶ UCE stakeholder feedback form submitted on May 20, 2019, *found at* https://www.pacificorp.com/content/dam/pacorp/documents/en/pacificorp/energy/integrated-resource-plan/2019-irp/2019-irp-comments-and-responses/2019-comment-responses/2019-05-20_IRP_Feedback_UCE_Renewables.pdf.

²⁷ *Id.*; *see also* PacifiCorp’s 2019 IRP, Volume 2, Appendix R, page 607.

associated with renewable energy resources are captured in the IRP modeling. However, this step does not account for the benefits that renewable energy resources can provide above and beyond regulation reserves. Each of the three studies mentioned in Utah Clean Energy’s May stakeholder feedback form considered whether solar resources are capable of provide essential grid services that are traditionally associated with conventional generation. All three studies concluded that solar can provide a multitude of grid services, sometimes more efficiently than thermal resources, including spinning and non-spinning reserves, and frequency response.²⁸ One of the studies even discusses how flexibly dispatched renewable energy resources can help cost-effectively integrate higher penetrations of renewable energy.²⁹ Additionally, energy optimization, flexible loads and demand response are tools that have been shown to be cost-effective for integrating higher penetrations of low-cost renewable energy. A recent NARUC white paper focusing on how coal plant operations have been changing cites “the increased deployment of energy storage and demand-side management resources and curtailing wind and solar generation during times of high generation or low demand” as an effective way to minimize coal plant cycling costs, outside the control of coal plant operators.”³⁰

Until PacifiCorp fully incorporates the capabilities and benefits of demand response and renewable energy resources into the IRP, these resources will not be fairly compared to traditional thermal resources on a consistent and comparable basis. Utah Clean Energy

²⁸ NREL, Demonstration of Essential Reliability Services by a 300-MW Solar Photovoltaic Power Plant, page 44, *found at* <https://www.nrel.gov/docs/fy17osti/67799.pdf>; NREL, Advanced Grid-Friendly Controls Demonstration Project for Utility-Scale PV Power Plants, page 84, *found at* <https://www.nrel.gov/docs/fy16osti/65368.pdf>.

²⁹ Energy + Environmental Economics, Investigating the Economic Value of Flexible Solar Power Plant Operation, page 38, *found at* <https://www.ethree.com/wp-content/uploads/2018/10/Investigating-the-Economic-Value-of-Flexible-Solar-Power-Plant-Operation.pdf>.

³⁰ NARUC, Recent Changes to U.S. Coal Plant Operations and Current Compensation Practices, page 1, *found at* <https://pubs.naruc.org/pub/7B762FE1-A71B-E947-04FB-D2154DE77D45>.

understands that the SO and PaR models may not be equipped to consider these benefits today. However, as part of PacifiCorp's efforts to find alternative modeling tools, we recommend that the Commission direct PacifiCorp to consider whether alternate modeling software considers flexibility benefits from existing and new clean energy resources, including demand response, as the utility evaluates new modeling products. If PacifiCorp does not adopt new modeling software, we recommend that the Commission direct PacifiCorp to make the necessary changes to the SO and PaR models to fully integrate the capabilities and benefits of flexible loads, demand response and renewable energy resources.

IV. CONCLUSION

Utah Clean Energy appreciates the opportunity to provide comments on PacifiCorp's 2019 IRP and recommends that the Commission acknowledge the non-DSM related components of the 2019 IRP. Utah Clean Energy believes that the recommendations contained in these comments will improve the IRP process moving forward and respectfully requests the Commission to direct PacifiCorp to comply with them.

Dated this 4th day of February 2020.

Respectfully submitted,

/s/ Hunter Holman

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CERTIFICATE OF SERVICE

Docket No. 19-035-02

I hereby certify that a true and correct copy of the foregoing was served by email this 4th day of February 2020, on the following:

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