- BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH -

PacifiCorp's 2017 Integrated Resource Plan	DOCKET NO. 17-035-16 REPORT AND ORDER

ISSUED: March 2, 2018

SHORT TITLE

PacifiCorp's 2017 Integrated Resource Plan

SYNOPSIS

We acknowledge that PacifiCorp's 2017 Integrated Resource Plan ("IRP") substantially complies with the IRP Standards and Guidelines and we provide guidance to assist in the development of future IRPs. We also recognize PacifiCorp's timing in completing and making available to parties its Energy Vision 2020 analysis deprived parties of a reasonable opportunity to evaluate that substantial element of its IRP. Accordingly, we view Energy Vision 2020, including its effects on other aspects of the plan, to be less credible for IRP purposes than the remaining IRP components. We reaffirm least-cost, least-risk planning is not a quaint concept of the past; it remains the fundamental objective of the IRP process.

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I. INTRODUCTION

On April 4, 2017, PacifiCorp, doing business as Rocky Mountain Power ("PacifiCorp"), filed its fourteenth Integrated Resource Plan ("IRP"), entitled "PacifiCorp's 2017 Integrated Resource Plan" ("2017 IRP"), pursuant to the IRP Standards and Guidelines ("Guidelines") adopted in Docket No. 90-2035-01.[1] PacifiCorp requested the Public Service Commission of Utah ("PSC") acknowledge the 2017 IRP in accordance with PSC rules and fully support the IRP conclusions, including the proposed action plan ("Action Plan"). On April 11, 2017, PacifiCorp filed a Supplemental Filing containing workpapers and supporting data for the 2017 IRP. On August 2, 2017, PacifiCorp filed an updated economic analysis supporting wind repowering, new transmission, and new wind investments (collectively, "Energy Vision 2020") identified in the 2017 IRP's Preferred Portfolio and the associated Action Plan, specifically Action Items 1a, 1b, and 2a.

The 2017 IRP consists of two volumes. Volume I provides the 2017 IRP development history and background, load forecast, modeling results, an Action Plan, and an acquisition path analysis. Volume II provides the following appendices: a load forecast report (Appendix A), fulfillment of IRP regulatory requirements (Appendix B), the public input process (Appendix C), demand-side management ("DSM") resources (Appendix D), smart grid (Appendix E), flexible reserve study (Appendix F), historical plant water consumption data (Appendix G), updated and re-estimated stochastic parameters (Appendix H), planning reserve margin study (Appendix I),

[1] *See In the Matter of Analysis of an Integrated Resource Plan for PacifiCorp*, (Report and Order on Standards and Guidelines, issued June 18, 1992), Docket No. 90-2035-01. Future references to Guidelines contained in that order will be referred to by the Guideline number. For example "Guideline 3" will refer to Guideline 3 from page 19 of that order, without referencing the 1992 order each time the Guideline is referred to in this order.

western resource adequacy evaluation (Appendix J), capacity expansion model results (Appendix K), stochastic model simulation results (Appendix L), case study fact sheets (Appendix M), wind and solar capacity contribution study (Appendix N), private generation long-term resource assessment study (Appendix O), and battery energy and bulk storage studies ("Energy Storage Studies") (Appendix P).[2]

A. Summary of the 2017 Integrated Resource Plan Results

The 2017 IRP presents PacifiCorp's plan to supply energy and capacity to provide for and manage the growing electricity demand in its six-state service territory over the next 20 years. The report identifies PacifiCorp's preferred least-cost, least-risk plan to invest in a portfolio of power plants, transmission facilities, firm power purchases, and DSM resources, including energy efficiency and direct load control. The 2017 IRP identifies the type, timing, and magnitude of resource additions and provides a short-term Action Plan.

PacifiCorp identifies a capacity deficit between existing resources and peak system requirements, plus a 13 percent planning reserve,[3] of 527 megawatts beginning in 2017, which is forecast to grow to 1,223 megawatts by 2026.[4] The identified capacity deficit is based on PacifiCorp's assumptions regarding existing generation capacity, generation plant life, duration of existing purchase power contracts, transmission transfer capability, its December 2016 load growth forecast, its Private Generation Long-Term Resource Assessment (2017–2036) prepared

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[2] PacifiCorp filed the DSM Resource Potential Assessment for 2017-2036 ("Potential Assessment") electronically on Data Disc I as part of the April 11, 2017 Supplemental Filing in this docket.
[3] Planning reserve includes operating reserve; *see* PacifiCorp's "2017 Integrated Resource Plan, Volume I," Chapter 5, at 90.
[4] *See* 2017 IRP, Volume I, Chapter 5, Table 5.14 at 91.

by Navigant Consulting, Inc., and its 2017 Demand-Side Resource Potential Assessment for 2017–2036 prepared by Applied Energy Group.

To address the forecasted capacity deficit from 2017 through 2036, PacifiCorp evaluated four Final Screening ("FS") portfolios in the 2017 IRP: FS-REP, FS-GW4, FS-RE-1c, and FS-RE-2.[5] Generally, the differences between the FS portfolios are the magnitude and timing of renewable and demand-side management resources, and the timing of natural gas resources. PacifiCorp selected the FS-GW4 portfolio as its Preferred Portfolio,[6] which it identifies as the least-cost plan, adjusting for risk and uncertainty. PacifiCorp selected its Preferred Portfolio based on its analysis of the 20-year present value of future revenue requirement ("PVRR"), variations in load growth, customer/private distributed generation ("DG") penetration, qualifying facility ("QF") contracts, fuel and market price volatility, planned transmission, and transfer capability.[7]

To serve system-wide peak hour demand over the next twenty years, the Preferred Portfolio identifies cumulative supply additions (both long- and short-term resources), and direct-control load management or energy efficiency programs ranging from 935 megawatts in 2017 to about 3,166 megawatts in 2036. The Preferred Portfolio also includes repowering 905 megawatts of existing wind resources. Through 2036, the supply additions, exclusive of the repowering of existing wind, consist of 1,313 megawatts of new gas-fired capacity (15.72

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[5] *See* 2017 IRP, Volume I, Chapter 8, at 218-224.

[6] *See id.* at 234-241.

[7] Other variables include: hydro variability, expected thermal outages, customer rate impacts, expectations of potential costs associated with meeting existing and potential environmental regulations, lead time required for plant construction or bidding, fuel source diversity, supply reliability, production cost variability, carbon dioxide emissions, ability to meet accelerated DSM targets, the cost to acquire unbundled renewable energy certificates, and public policy goals.

percent), 30 megawatts of geothermal capacity (0.36 percent), 1,959 megawatts of new wind (23.46 percent), 1,040 megawatts of utility scale photovoltaic solar (12.46 percent), 2,077 megawatts of energy efficiency programs, and 365 megawatts of direct-control load management (total DSM is 29.24 percent), and, on average through the 20-year horizon, 1,566 megawatts of unspecified annual firm power purchases, also referred to as front office transactions ("FOTs") (18.76 percent).[8] The Preferred Portfolio includes the retirement of approximately 3,100 megawatts of existing, coal- and gas-fired, generation capacity.[9]

Planned investment in the Preferred Portfolio during the first ten years differs from PacifiCorp's Fall 2016 Business Plan ("Business Plan"), due to changes in coal unit retirement and natural gas conversion assumptions, changes to load projections, updated DSM supply curve assumptions, and changes to renewable resource costs driven by the availability of federal income tax incentives.[10] The 2017 IRP Preferred Portfolio updates the following assumptions from the Business Plan: 1) Naughton Unit 3 is retired at the end of 2018 instead of being converted to natural gas conversion in the summer of 2018; 2) Cholla Unit 4 is retired at the end of 2020 instead of operating through 2024; and 3) Craig Unit 1 is retired at the end of 2025 instead of operating through the end of 2034.

The 2017 IRP results are based on an updated demand-side resource potential assessment, which, when combined with an updated load forecast, informs changes to DSM acquisition targets relative to the Business Plan (1,229 megawatts versus 1,286 megawatts).

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[8] *See* 2017 IRP, Volume I, Chapter 8.
[9] *See id.* 2,805 megawatts of coal-fired capacity is retired or converted to gas and then retired, and 358 megawatts of gas-fired capacity is retired.
[10] *See id.* at 282, Table 9.5.

Other differences between the Preferred Portfolio and Business Plan reflect changes to renewable resource acquisition levels driven by investment in new transmission infrastructure and the availability of federal income tax incentives. The 2017 IRP also relies more heavily on wind and FOTs when compared to the Business Plan, calling for an additional 650 megawatts and 165 megawatts, respectively.

The Preferred Portfolio includes the Aeolus to Bridger/Anticline transmission segment (Energy Gateway West, Sub-Segment D2). PacifiCorp requests the PSC acknowledge this segment of Energy Gateway asserting it is a component of the least-cost, least-risk strategy for existing and future capacity delivery.[11] In addition, and as in the 2015 IRP, PacifiCorp requests the PSC acknowledge the Wallula to McNary portion of segment A of Energy Gateway. PacifiCorp claims this project is required to meet its existing obligation for network transmission customers under its Open Access Transmission Tariff.[12] The Wallula to McNary segment is estimated to be in service in 2018.

Expanding on scenarios defined in the 2013 and 2015 IRP cycles, PacifiCorp evaluates four Energy Gateway scenarios in the 2017 IRP. Gateway 1 examines the impact of Energy Gateway segment D (Windstar to Anticline), with an in-service date of 2022; Gateway 2 examines the impact of Energy Gateway segment F (Windstar to Mona/Clover), with an in-service date of 2023; Gateway 3 examines the impact of Energy Gateway segments D & F (Windstar to Anticline and Aeolus to Mona/Clover), with in-service dates of 2022 and 2023, respectively; and Gateway 4 examines the impact of Energy Gateway segment D2 (Aeolus to

[11] *See* 2017 IRP, Volume I at 61-63.
[12] *See id.* at 59-61.

Anticline) with an in-service date of 2020.[13] With the exception of segment D2, these projects are not a part of the Preferred Portfolio; PacifiCorp states it will continue to conduct permitting activities and consider the economics of these segments of Energy Gateway in future IRP studies.

PacifiCorp notes the U.S. Supreme Court stayed the U.S. Environmental Protection Agency's ("EPA") final rule to regulate greenhouse gas emissions from existing sources under § 111(d) of the Clean Air Act, also referred to as the Clean Power Plan ("CPP"), ("Final CPP Rule"), pending outcome of litigation before the D.C. Circuit Court of Appeals. PacifiCorp also notes the EPA's final Regional Haze Federal Implementation Plan ("FIP") for Utah is currently under appeal by the state of Utah and other parties in the U.S. Tenth Circuit Court of Appeals. The 2017 IRP includes approaches for addressing the Final CPP Rule[14] as well as alternative approaches for addressing regional haze requirements.

B. Procedural History

Pursuant to the April 25, 2017 Scheduling Order and Notice of Technical Conference, the PSC set deadlines for comments and reply comments from interested parties. The PSC conducted a technical conference on June 19, 2017, during which PacifiCorp provided an overview of the 2017 IRP and responded to questions and comments.

The Division of Public Utilities ("DPU") and the Office of Consumer Services ("OCS") participated in the docket and the following parties intervened: Utah Association of Energy

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[13] *See id.* at 177-178.

[14] The EPA issued the Final CPP Rule on August 3, 2015 and published it in the Federal Register on October 23, 2015.

Users (“UAE”), HEAL Utah, Utah Clean Energy (“UCE”), Western Resource Advocates, Renewable Energy Coalition (“Coalition”), Interwest Energy Alliance (“Interwest”), Sierra Club, and National Parks Conservation Association (“NPCA”).

By October 25, 2017, the following parties filed comments: the DPU, OCS, UAE, Interwest, Sierra Club, NPCA, UCE, UCE/Southwest Energy Efficiency Project (“SWEEP”), and the Coalition. On December 15, 2017, PacifiCorp, Sierra Club, and Interwest filed reply comments.

C. Purpose of the IRP Process and Standard of Evaluation

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.” The PSC relies in part on PacifiCorp’s IRP process to fulfill this planning requirement to meet the electrical needs of PacifiCorp’s Utah service territory. To this end, in 1992, the PSC developed and approved the Guidelines to govern the IRP process and has since issued various orders on IRP filings after the establishment of the Guidelines.[15]

The Guidelines require that IRPs will be developed in consultation with various regulatory and interested parties and that “PacifiCorp will provide ample opportunity for public involvement and the exchange of information during the development of its Plan.”[16] 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

[15] Information on historic PacifiCorp Integrated Resource Plans can be found at the following link: https://psc.utah.gov/electric/historic-integrated-resource-plans/.
[16] Guideline 3.

for all parties to examine and provide information during the IRP development, rather than after the fact, is an important aspect of the IRP process.

Under the Guidelines, we consider whether to acknowledge the 2017 IRP. Acknowledgment of an IRP means it substantially complies with the regulatory requirements of the planning process. Acknowledgment of an IRP does not constitute regulatory approval for any specific PacifiCorp resource acquisition decision or strategy for meeting its obligation to serve. Resource approval and cost recovery are addressed in dockets separate from the IRP, following resource acquisition and strategy decisions by PacifiCorp management and requests for approval filed with the PSC.

The IRP process must be an open, public process through which all relevant supply-side and demand-side resources are investigated in the search for the optimal set of resources to meet the net current and future electric service needs at the lowest total cost to the utility and its customers, in a manner consistent with the long-run public interest, given the expected combination of costs, risks and uncertainty. We evaluate acknowledgment of the 2017 IRP in context of those objectives.

II. RANGE OF ISSUES ADDRESSED IN COMMENTS

The parties' concerns with the 2017 IRP include: 1) the IRP process (IRP schedule, meeting content, significant changes to the analysis and resource options considered at a late date in the process, and opportunities for party engagement and information exchange); 2) modeling inputs and assumptions (disagreements about inputs pertaining to prices, forecasts, studies, etc.; options considered or allowed to be optimized by the models; and model functionality); and 3) the final Preferred Portfolio (disagreements regarding modeling results or how they are evaluated to construct the preferred portfolio). Parties also addressed perceived problems with the 2017 IRP results related to PacifiCorp's Energy Vision 2020. We first address comments related to Energy Vision 2020 and then provide discussion and guidance regarding many of the remaining issues raised by the parties.

III. ENERGY VISION 2020

Parties' Comments

Parties provide many comments on various elements of PacifiCorp's Energy Vision 2020 plan represented in the 2017 IRP Action Plan (Action Items 1a – Wind Repowering, 1b – Wind Request for Proposals, and 2a – Aeolus to Bridger/Anticline). Parties also provide comments on earlier acquisition of resources other than Wyoming wind.

The DPU asserts wind repowering and new wind and transmission resources are economic opportunities inconsistent with need-based IRP planning and therefore should not be acknowledged. In addition, the DPU argues PacifiCorp's justifications for the wind repowering and new wind projects have not been consistent and there are significant customer risks associated with Energy Vision 2020 that do not represent the long-run interest of Utah ratepayers, such as: the actual production tax credits ("PTC") generated, and their value, may not be realized as expected, the projects may experience cost overruns or project delays, and energy prices may be lower than anticipated. The OCS asserts the lack of information exchange and modeling deficiencies during the IRP development process did not allow for the proper evaluation of the Energy Vision 2020 projects or other potential tax credit-eligible projects.

UAE asserts PacifiCorp's evaluation and selection of the proposed new resources was done in secret and in a vacuum. In addition, UAE maintains PacifiCorp did not follow the transmission planning requirements of Attachment K of its Federal Energy Regulatory Commission Open Access Transmission Tariff (“OATT”) or OATT Standards of Conduct in proposing the new transmission lines, and no new transmission sub segments other than D2 were evaluated in the 2017 IRP. UAE recognizes that the prudence of the proposed new resources will be addressed in other dockets and submits that these resources should be evaluated on their own merits in those other dockets.

UCE suggests the solar price assumptions used in the development of the 2017 IRP are well above the price of recently signed power purchase agreements. Therefore, UCE recommends revision of the 2017 Action Plan to include a solar request for proposal.

The Coalition asserts PacifiCorp has refused to provide a transparent financial analysis supporting its proposed repowering project and, therefore, the PSC should not acknowledge the repowering portion of the 2017 IRP. In addition, the Coalition maintains the 2017 IRP is not a least-cost, least-risk plan because it is inaccurate. Specifically, the Coalition asserts the plan to not acquire a major capacity resource until 2029 is vague, suspect, and does not account for the actual capacity additions PacifiCorp is likely to need. According to the Coalition, although PacifiCorp concedes that it will lose significant amounts of capacity in the near future, it does not address how those reductions are accounted for.

Interwest recommends the PSC require additional time for review of PacifiCorp’s modeling of the grid-scale solar bids received in its 2017S Request for Proposals (“RFP”) so that cost-effective resources can be acquired consistent with the eligibility requirements for the Investment Tax Credit (“ITC”) that expires at the end of 2021.

Sierra Club supports the new wind projects but opposes the repowering of existing wind resources. Sierra Club contends the repowered wind projects are less cost effective than the new wind projects. Sierra Club claims the new transmission resources are not needed if PacifiCorp would simply retire uneconomic coal plants.

PacifiCorp's Reply

PacifiCorp maintains the Preferred Portfolio, including the Energy Vision 2020 projects: 1) is the least-cost, least-risk portfolio to meet the resource needs identified in the 2017 IRP; 2) is robust among a wide range of policy and market conditions; 3) avoids more expensive alternatives and facilitates construction of a key transmission segment; and 4) will meet state renewable energy targets in Oregon, Washington, California, and Utah, as well as the growing desire for renewable energy resources in local jurisdictions. PacifiCorp argues not selecting lower cost resources would contradict the Guidelines' requirement to evaluate all known resources on a consistent and comparable basis. PacifiCorp maintains its selection of the least-cost mix of supply-side resources is conceptually identical to the 2017 IRP's treatment of demand-side resources.

Regarding risks associated with the Energy Vision 2020 projects, PacifiCorp argues there are greater risks in not moving forward with the investments. For example, PacifiCorp cites the risk of forgoing the opportunity to acquire heavily-discounted resources in the near-term when compared to greater reliance on near-term market transactions, or waiting until after the expiration of PTCs to acquire zero fuel-cost resources to meet growing energy and capacity needs. PacifiCorp asserts these risks would be borne by customers. PacifiCorp agrees the Energy

Vision 2020 projects have risks but maintains that fact alone does not demonstrate that the projects are higher risk than the next best alternative.

PacifiCorp notes the only scenario in the 2017 IRP where the new wind and transmission resources are non-economic is the low gas price scenario. In every other scenario, PacifiCorp's analysis shows that the new resources provide customer benefits, and PacifiCorp claims the benefits that occur in the higher natural gas price scenarios far exceed any potential downside if natural gas prices remain low throughout the life of the assets.

Discussion and Conclusions

Utah Code Ann. § 54-17-301 requires PacifiCorp to file any Action Plan developed as part of its IRP to enable the PSC to review and provide guidance to PacifiCorp. In addition, Utah Code Ann. § 54-17-302 requires PacifiCorp to obtain PSC approval of any significant energy resource decision before it constructs or enters into a binding agreement to acquire the resource, unless PacifiCorp requests, and the PSC grants, a waiver. Accordingly, IRP acknowledgment and resource solicitation/acquisition decision approval processes are separate.

In the case of the 2017 IRP Action Plan, several dockets are already underway to evaluate the reasonableness of proceeding with the generation and transmission investments identified in the 2017 IRP Action Plan as Energy Vision 2020, *i.e.*, Docket Nos. 17-035-23,[17] 17-035-39,[18] and 17-035-40.[19] So, while PacifiCorp requests the PSC "acknowledge the 2017 IRP in

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[17] *See Application of Rocky Mountain Power for Approval of Solicitation Process for Wind Resources*, Docket No. 17-035-23.
[18] *See Voluntary Request of Rocky Mountain Power for Approval of Resource Decision to Repower Wind Facilities*, Docket No. 17-035-39.
[19] *See Application of Rocky Mountain Power for Approval of a Significant Energy Resource Decision and Request to Construct Wind Resource and Transmission Facilities*, Docket No. 17-035-40.

accordance with its rules and fully support the 2017 IRP conclusions, including the proposed action plan,"[20] the reasonableness and prudence of specific proposed Action Plan items are being considered in other dockets.

We will address in this order whether PacifiCorp's IRP presentation of the Energy Vision 2020 projects satisfied the Guidelines. However, because PacifiCorp is seeking regulatory approval of these projects in other currently pending dockets, we will not address in this order the merits of any issue related to ultimate approval of Energy Vision 2020.

IV. PARTIES' POSITIONS ON ACKNOWLEDGMENT OF THE 2017 IRP

Parties' Comments

The DPU opposes acknowledgment and believes PacifiCorp essentially shut out the parties during crucial periods of the IRP development process, failed to adequately explain the inputs and analyses used in the IRP development process, failed to share information as agreed, and incorrectly accounted for the potential ratepayer risks involved with the selected portfolio. Further, the DPU argues PacifiCorp has inappropriately expanded the IRP's purpose to include the objective of attaining a clean energy future at the expense of least-cost planning.

The OCS recommends the PSC not acknowledge the 2017 IRP because of modeling deficiencies that may have biased the selection of the Preferred Portfolio. The OCS also identifies instances where it asserts PacifiCorp did not follow the Guidelines (for example, not keeping participants informed, not allowing participants ample opportunity to review the IRP as it unfolded, and withholding relevant information).

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[20] Cover letter to the April 4, 2017 IRP filing.

UAE recommends the PSC not acknowledge the 2017 IRP and states PacifiCorp has failed to satisfy various Guidelines during the preparation phases of the process. Further, UAE claims the coal resource analysis is insufficient, and PacifiCorp has not adequately addressed increased ratepayer risk associated with the Preferred Portfolio. UAE recommends the PSC instruct PacifiCorp to: 1) select future resources consistent with approved IRP evaluation methods and stakeholder input; 2) incorporate a meaningful analysis of ratepayer risks in IRP resource selection; 3) properly vet new transmission segments through the OATT and IRP processes; and 4) conduct comprehensive and complete IRP analyses of all available generation and transmission resource alternatives. Finally, for avoided cost calculation purposes, UAE recommends that the timing of resource additions be based on when new resources would have been added, without consideration of the Proposed New Resources, at least unless and until such time as the Proposed New Resources are approved in other pending dockets.

UCE recommends the PSC not acknowledge the 2017 IRP or the Preferred Portfolio because the analysis did not include an "evaluation of all present and future resources . . . on a consistent and comparable basis."[21] UCE asserts PacifiCorp's analysis failed to compare coal resources consistently with and comparable to any other present or future supply- or demand-side resources. In addition, UCE maintains the wind repowering project was not introduced as a resource option until late in the modeling process. UCE suggests that if the PSC acknowledges the 2017 IRP, it require PacifiCorp to revise the 2017 IRP Action Plan to include a solar resource RFP.

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[21] UCE October 24, 2017 Initial Comments at 2.

Sierra Club requests the PSC not acknowledge the 2017 IRP Action Plan Action Item 1a (wind repowering) and all of Action Item 5 (coal resource actions). Sierra Club also requests the PSC require that PacifiCorp immediately provide an economic assessment of maintaining the Dave Johnston power plant versus building new transmission before acknowledging Action Item 2a (Aeolus to Bridger/Anticline Transmission).

The NPCA urges the PSC to decline to acknowledge the IRP and asserts PacifiCorp's 2017 IRP is inadequate because it assumes, rather than evaluates, the economics of continued long-term operation of its coal-fired units. In addition, the NPCA claims PacifiCorp unreasonably assumes in the 2017 IRP that it will not be required to install modern pollution controls for nitrogen oxide ("NOx") or other emissions from its Hunter, Huntington, and other coal units. As a result, NPCA maintains a realistic lowest-cost resource plan has not been identified in the 2017 IRP.

The Coalition recommends the PSC acknowledge PacifiCorp's need for renewable resources beginning January 1, 2021 rather than acknowledge a specific resource, *i.e.*, Wyoming wind. The Coalition also recommends the PSC not acknowledge both PacifiCorp's proposed wind repowering project or the 2029 date for PacifiCorp's first planned major thermal resource acquisition. The Coalition raises issues concerning the 2017 IRP coal resource analysis, the continued operation of uneconomic coal resources, gas price forecasts, and the inability of IRP participants to access and use the models involved in the analysis.

Interwest supports acknowledgment of the 2017 IRP and Action Plan with minor revisions relating to additional public meeting requirements and updates to the Action Plan, the solar RFP bid results, modeling, and storage. Interwest also provides comments on the competitive bidding process and recommends the acquisition of solar resources identified in the Preferred Portfolio should be acquired earlier to obtain ITCs. Interwest agrees the concerns of other parties pertaining to IRP activities and modeling, including coal modeling, should be addressed by the PSC. Interwest supports updated modeling of battery storage in the 2019 IRP and suggests a stakeholder process be developed to ensure accurate information is used in future studies.

PacifiCorp's Reply

PacifiCorp asserts its 2017 IRP and Action Plan comply with the Guidelines. PacifiCorp claims the economic benefits of the near-term, time-limited Energy Vision 2020 projects included in the 2017 IRP Preferred Portfolio are bolstered by the extension of federal wind PTCs. According to PacifiCorp, these heavily discounted resources can be acquired at a lower cost than near- and long-term resource alternatives, will provide significant savings to customers, and are in the long-run public interest.

PacifiCorp further states the selection of the Preferred Portfolio was: 1) supported by more than 200 Planning and Risk (PaR) studies equating to over 10,000 simulations of potential 20-year system dispatch outcomes; 2) selected after evaluating 39 different cases; and 3) developed from 88 different supply-side resource options, including thermal generation resources, a broad spectrum of renewable resources (wind, solar, and geothermal), and several different types of storage resources.

PacifiCorp maintains it also analyzed its ability to meet system load with firm market transactions, and included robust transmission analysis when producing and evaluating resource portfolios that can reliably and cost-effectively meet customer demand with manageable risk.

PacifiCorp asserts it retained a reputable third party to assess demand-side resource potential over the 2017 through 2036 time frame and claims DSM resources continue to play a key role in PacifiCorp's resource mix over the first 10 years of the planning horizon. According to PacifiCorp, the proposed acquisition of new energy efficiency resources in the 2017 IRP meets 88 percent of forecasted load growth from 2017 through 2026.

V. DISCUSSION AND GUIDANCE

After fully considering the 2017 IRP and the parties' comments and reply comments, we find PacifiCorp has implemented notable improvements to the IRP process. These enhancements include improvements or updates to the Flexible Reserve Study, Planning Reserve Margin Study, and Energy Storage Studies. In addition, the PSC recognizes the abundance of supporting data provided in this docket for inspection by interested stakeholders. This information enhances parties' understanding of the process, logic, modeling assumptions, and calculations underlying the selection of the 2017 IRP Preferred Portfolio. As a result, parties have provided the PSC with informed and useful comments.

Many of the parties' concerns focus on individual resource selections resulting from the IRP process. We reiterate that IRP acknowledgment does not constitute any level of resource approval, and therefore we do not analyze every individual concern related to resource selection that resulted from the IRP modeling. Instead, we will address the ways in which the 2017 IRP process either followed or deviated from the Guidelines.

We agree with the DPU that the IRP processes must remain focused on least-cost, least-risk planning. PacifiCorp's regulatory obligations that relate to a clean energy future will factor into least-cost, least-risk planning, but those obligations cannot replace the least-cost, least-risk planning as an objective in and of themselves. Least-cost, least-risk planning is not a quaint concept of the past; it remains the fundamental objective of the IRP process.

A. Scheduling and Process Impediments – Information Exchange and Participation

Parties' Comments

The DPU, OCS, and UAE voice various objections to acknowledgment of the 2017 IRP based on problems created by PacifiCorp's management of the schedule and the late introduction of the Energy Vision 2020 projects into the IRP analysis. These parties claim this late introduction affected parties' ability to conduct a meaningful evaluation during the IRP development process.

The DPU provides detailed information on the meeting schedule and meeting cancellations that resulted in participants receiving no information on scenario analyses for approximately 160 days. Due to PacifiCorp's inconsistencies in providing materials in advance of the stakeholder meetings, very compressed meeting agendas, and rushed presentations during the meetings, the DPU asserts the meetings were not an effective forum for parties to discuss inputs, assumptions, and models. The DPU concludes: 1) the number and timing of cancelled meetings damaged the 2017 IRP process and effectively excluded participants from any meaningful engagement during the period when PacifiCorp was adding the Energy Vision 2020 projects to the IRP analysis; and 2) as a result of compressed agendas and rushed meetings, parties did not have a reasonable opportunity to evaluate and reach an understanding on various IRP issues. The DPU claims parties were surprised when PacifiCorp notified them that it had decided to pursue a new wind and transmission portfolio and had already purchased the qualifying wind turbine equipment.

To address these issues going forward, the DPU provides many recommendations to improve the IRP process addressing, among other things, the IRP process schedule; meeting content, information content and distribution; supporting studies presentation, circulation, and review; access to the stakeholder feedback information; and filing requirements and deadlines.[22]

The OCS asserts the 2017 IRP development process violated a key requirement of the Guidelines, specifically, PacifiCorp did not provide ample opportunity for public input and information exchange during the development of the 2017 IRP. PacifiCorp failed to meet this requirement because it provided essentially no opportunity for public input and information exchange regarding the decision to pursue its Energy Vision 2020 projects. The OCS also asserts the lack of information exchange related to PacifiCorp's modeling methods and assumptions did not allow for the proper evaluation of the Energy Vision 2020 projects or other potential tax credit-eligible projects.

According to the OCS, PacifiCorp's actions regarding Energy Vision 2020 limited information exchange and public input during the 2017 IRP process. The OCS asserts that Guidelines are meant to prevent this from occurring during the IRP process. In addition, the OCS states essential information from PacifiCorp's corporate decisions in early 2016 relating to the wind projects was withheld during the 2017 IRP public process. According to the OCS, the PSC has previously stated that PacifiCorp's business planning process or corporate decisions must not compromise the IRP process.[23]

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[22] DPU October 25, 2017 Comments at 23-27 and 33-35.
[23] OCS October 24, 2017 Initial Comments at 6.

UAE claims the proposed new resources were selected and evaluated in secret by PacifiCorp, and that the process used to determine the Preferred Portfolio as least-cost, least-risk was flawed and incomplete. UAE contends the time-sensitive nature of the PTCs should not compromise the IRP process.

PacifiCorp's Reply

PacifiCorp responds by providing a history of its wind repowering, new wind, and Aeolus-to-Bridger/Anticline transmission projects. PacifiCorp maintains that while the pre-filing stakeholder review process of Energy Vision 2020 projects was necessarily limited by the timing of PacifiCorp's analysis, it was in customers' interest to consider these resources in the 2017 IRP. Recognizing the need for transparency, PacifiCorp chose to share the results of its analysis with stakeholders as they were being produced. Further, PacifiCorp maintains that, given the time sensitivity of these resource opportunities, delaying the IRP to allow additional pre-filing review was not a viable option.

In response to the DPU's process recommendations, PacifiCorp suggests the DPU misunderstands the nature of the IRP in which detailed modeling and results are not available until closer to its filing date. PacifiCorp asserts that as studies are completed and information is updated over the year-long preparation process, it reasonably addresses items as needed to ensure the most up-to-date information is analyzed. PacifiCorp states it plans for and strives to hold monthly two-day meetings during the public input process but must also be permitted flexibility to ensure the meetings are meaningful.

PacifiCorp asserts the DPU's recommendation regarding executive meeting attendance is overly burdensome as executive leadership is directly involved in the public input process and participation in the public input meetings is facilitated by video conferencing. Finally, responding to the DPU's recommendation regarding circulation of meeting materials and formatting of charts and figures, PacifiCorp asserts it strives to provide materials in advance of the meetings. However, due to the short duration between public input meetings and the volume of material prepared, it is not possible to always provide the material one week in advance. PacifiCorp states it has made charts and figures from public input meeting presentations in native format and is willing to continue to do so as part of the public input meeting process on an as-needed basis.

PSC - Discussion and Guidance

Guideline 3 requires "ample opportunity for public involvement and the exchange of information during the development" of the IRP. We conclude that with respect to Energy Vision 2020, PacifiCorp did not comply with Guideline 3. We understand the time-limited nature of the PTC opportunities. However, nothing about those time limitations prevented PacifiCorp from completing its analysis earlier (or from informing the parties when it began the analysis), and making that analysis available to parties during the development of the IRP. In other words, while the PTC opportunities are time limited, they were not new or unknown earlier in the IRP development process. The deadlines for the PTC opportunities were extended by Congress in December 2015, well in advance of the filing of the 2017 IRP.

PacifiCorp has represented that it made its analysis with respect to Energy Vision 2020 available to parties when it was completed. PacifiCorp has not indicated why it did not perform that analysis sooner, since the PTC opportunities and the associated expiration dates have been public information since December 2015. Consequently, we find that PacifiCorp's late introduction of Energy Vision 2020 information and analysis during the 2017 IRP process prevented parties from having ample opportunity to evaluate the relevant material, and did not meet the requirements of Guideline 3.

Regarding scheduling problems and meeting management, the DPU provided recommendations to improve future IRP processes. We do not find it necessary to micromanage the IRP process beyond the language contained in Guideline 3. While we find some merit to PacifiCorp's explanations with respect to executive leadership attendance at meetings and the timing of distribution of meeting materials, we also find that PacifiCorp could improve the transparency of its process prior to the filing of the IRP. We find it unnecessary to decide whether those issues alone would constitute a violation of Guideline 3, since we have elsewhere determined that PacifiCorp did not comply with Guideline 3.

To ensure that future IRP processes satisfy Guideline 3, we encourage PacifiCorp and stakeholders to review the DPU's recommendations at the start of the next IRP process. We addressed similar issues in our order on the 2009 IRP.[24] Parties in this docket have made suggestions similar to language in our 2009 IRP order. We decline to amend Guideline 3 by imposing those additional specific requirements in this order. Considering that we have found the 2017 IRP process to have violated Guideline 3, we expect that greater attention to the specific

[24] In that order, we directed PacifiCorp to "adopt two of the Division's recommendations on improving public input meetings. First, materials should be distributed one week prior to the public input meeting. Secondly, a written report should be provided after each meeting to provide follow-up to issues or questions raised in the meeting. We will not at this time adopt the Division's recommendations to open a docket early in the process. We believe the Company has a website it can use to post all information, including inquiries and responses from all states that are not confidential. If this approach does not address the Division's concerns, we will consider the Division's recommendations at a later time." *In the Matter of the Acknowledgment of PacifiCorp's Integrated Resource Plan,* Docket No. 09-2035-01 (Report and Order, issued April 1, 2010 at 54).

suggestions from parties in this docket will have a significant impact on whether future IRP processes comply with the requirement.

B. Coal Resource Analysis

Several parties claim PacifiCorp's coal resource analysis is inadequate because: 1) it fails to evaluate all present and future demand-side, supply-side, and market resources on a consistent and comparable basis; and 2) the proposed regional haze compliance strategy may not satisfy environmental requirements. As a result, some parties assert PacifiCorp's selection of its Preferred Portfolio may not necessarily reflect the optimal resource portfolio on a least-cost, least-risk basis. Parties also provide comments on PacifiCorp's Oregon coal modeling commitment. We summarize and examine these issues in more detail below.

1. Cost-Effective or "Endogenous" Retirements and Regional Haze Case 6

Parties' Comments

Sierra Club requests the PSC not acknowledge Action Plan Action Item 5, Coal Resource Actions. Sierra Club asserts PacifiCorp has failed to identify the least-cost, least-risk planning scenarios during its portfolio selection process. In contrast to PacifiCorp's results, Sierra Club's assessment of data from the 2017 IRP concludes that over 40 percent of PacifiCorp's coal units are uneconomic on a going forward basis.[25] Moreover, Sierra Club states PacifiCorp's coal resource analysis only considers the ongoing economic viability of coal units potentially subject to significant capital investments (for example, SCR installations) under Regional Haze obligations and does not consider viability in relation to other potentially economic alternatives.

[25] Sierra Club October 24, 2017 Comments at 6.

Sierra Club maintains it is possible in today's energy markets for "coal plants to be dramatically non-economic, even with a secure fuel supply and no pending large capital requirements."[26] Sierra Club asserts the PSC must direct PacifiCorp to analyze the viability of each individual coal unit, demonstrating that continued operation is in the ratepayers' interest.

According to Sierra Club, to address a previous commitment,[27] PacifiCorp provided one Regional Haze scenario ("RH-6") that allowed for endogenous coal unit retirements. Sierra Club argues this scenario is flawed because it limited the assessment to just six coal units that PacifiCorp represented as units where major decisions on emissions compliance investment would be required as part of an ongoing federal and/or state Regional Haze implementation process.

NPCA maintains PacifiCorp's analysis of its coal units in the 2017 IRP did not evaluate whether or when it would be most economic to retire them. "Without letting its model economically select or identify retirement dates for those units, […] there is simply no basis to conclude that the lowest cost option for those units has been included in PacifiCorp's Preferred Plan."[28] Despite current laws and policies, NPCA claims PacifiCorp provides no justification for its assumption that it will not need to install SCRs or other pollution controls on coal units, prospectively.[29]

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[26] *Id.* at 13.
[27] *See id.* at 14.
[28] NPCA October 24, 2017 Comments at 9.
[29] *See id.* at 7.

Interwest advocates “a more straightforward cost/benefit analysis of PacifiCorp’s coal fleet with optimization to determine the most cost-effective strategies, incorporating reasonable carbon prices and regulatory projections.”[30]

UCE asserts PacifiCorp failed to compare existing coal resources consistently with and comparably to other present or future supply- or demand-side resources to find the least-cost, least-risk mix.[31] In addition to locking in coal resource retirement assumptions, UCE maintains the modeling process also restricted assumptions about the timing and magnitude of run-rate capital and operations and maintenance costs in PacifiCorp’s System Optimizer, so “new resources were unable to compete with and replace [coal units] on a consistent and comparable basis.”[32]

Parties are also concerned that PacifiCorp’s coal resource analysis was based on certain regulatory or legal assumptions pertaining to ongoing environmental compliance issues that commenting parties assert are unjustifiable. UAE asserts PacifiCorp used an improper sequence of regional haze case selection and transmission modeling. Sierra Club contends that even under current compliance requirements, the majority of PacifiCorp’s modeled Regional Haze scenarios—including its Preferred Portfolio—are misrepresenting the legal status under the Clean Air Act. Sierra Club concludes that PacifiCorp used an unverifiable range of assumed legal negotiation or settlement outcomes for planning purposes. Sierra Club claims these scenarios as modeled by PacifiCorp obscure the actual costs of operating its coal plants.[33]

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[30] Interwest October 24, 2017 Comments at 7, footnote 4.
[31] UCE October 24, 2017 Comments at 3.
[32] *Id*.
[33] Sierra Club October 24, 2017 Comments at 30.

Interwest also notes that “PacifiCorp bases its various Regional Haze scenarios on its litigation strategies, with alternatives based on potential settlement of the litigation in various time frames. This places [PacifiCorp], and certainly its ratepayers, at a disadvantage in numerous ways, because of the extensive cost and risks that complex environmental and regulatory litigation can entail.”[34]

According to UAE “[t]he sequence of coal plant retirement modeling done early in the [preferred portfolio selection] process did not allow coal plant retirements to be considered as an alternative to new transmission.”[35] In addition, the Coalition claims PacifiCorp’s IRP fails to demonstrate its plan is the lowest reasonable cost for replacing its coal capacity resources.

PacifiCorp’s Response

According to PacifiCorp, Sierra Club’s coal resource analysis is flawed because it employed a unit-by-unit analysis. This method fails to account for the potential cumulative economic impacts of any given coal unit’s retirement on all other coal units analyzed, individually and collectively. Additionally, PacifiCorp states that retirement of a significant portion of its coal fleet would be operationally untenable.[36]

PacifiCorp argues the PSC should not adopt Sierra Club’s request that PacifiCorp analyze the viability of each individual coal unit and demonstrate that continued operation is in the customers’ interest without additional justification, analysis, and support. PacifiCorp affirms the 2017 IRP includes the same analysis and modeling approach used in the 2015 IRP “with a

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[34] Interwest October 24, 2017 Initial Comments at 7, footnote 4.
[35] UAE October 24, 2017 Initial Comments at 5.
[36] *See* PacifiCorp December 15, 2017 Reply Comments at 17.

significant focus during the public input process [on] incorporating stakeholder feedback and increasing the number of scenarios studied."[37]

PacifiCorp disagrees with Sierra Club's assertion the RH-6 scenario is flawed. It maintains the modeled scenario meets its commitment to include a portfolio optimization process that allowed endogenous retirements for coal units faced with becoming uneconomic given regional haze compliance considerations. PacifiCorp maintains its analysis applied the same market price and greenhouse gas policy assumptions as applied to other Regional Haze modeling cases.

PacifiCorp states Sierra Club's assertions that the 2017 IRP modeling cannot meet enforceable Clean Air Act requirements, and that PacifiCorp's long-term planning assumes it will prevail in litigation against EPA, are inaccurate. According to PacifiCorp, it developed a range of compliance scenarios working with stakeholders and selected the least-cost, least-risk compliance portfolio as its benchmark for the core case and sensitivity analysis that followed in development of the Preferred Portfolio. PacifiCorp states it will continue to update its assumptions and scenarios in future IRP cycles and will work with stakeholders on these issues.

PacifiCorp also disagrees with UCE's assertion the IRP failed to achieve a coal resource analysis using a consistent and comparable basis. Nevertheless, PacifiCorp states its willingness to conduct additional unit-by-unit analysis to inform the 2019 IRP. PacifiCorp cautions that the proposed analysis may not provide a complete, portfolio-level view of the economics of

[37] *Id.* at 16.

PacifiCorp's coal portfolio or capture system cost impacts that would result from early retirements at more than one facility.

PSC - Discussion and Guidance

Coal plant modeling in the 2017 IRP is a complex and contentious issue. We recognize PacifiCorp's long term regional haze obligations are currently not final. We find PacifiCorp's approach to modeling coal resources is reasonable for the 2017 IRP for the following reasons: 1) PacifiCorp has refined its analytical approach beyond that used in the 2015 IRP; 2) PacifiCorp presented regional haze obligations and incorporated stakeholder feedback in the development of its regional haze alternatives during the 2017 IRP public input process and used reasonable legal assumptions in the modeling process related to future regional haze compliance requirements; and 3) PacifiCorp increased the number of modeled scenarios.

We are aware that some parties disagree with certain elements of PacifiCorp's coal resource modeling and desire the PSC to direct PacifiCorp to conduct unit-by-unit analyses of its coal resources. To address these issues, in its reply comments PacifiCorp commits to conduct additional analysis that will inform the 2019 IRP and will continue to update its assumptions and scenarios of coal plant modeling in future IRPs. We are mindful, though, of the cautions PacifiCorp expressed in connection with that commitment. Recognizing that PacifiCorp has agreed to conduct additional coal modeling in the 2019 IRP, we find that additional analysis will be helpful only if it supplements, rather than replaces, the type of coal plant modeling PacifiCorp utilized for its 2017 IRP.

2. Access to PacifiCorp's Coal Valuation and Transmission Analysis

Party Comments

In reply comments, Sierra Club requests the PSC require PacifiCorp to simultaneously file the coal valuation and transmission analysis required by the Oregon Public Utility Commission ("OPUC") by March 30, 2018 in this docket as well as the Energy Vision 2020 resource acquisition dockets. Sierra Club believes this analysis could be used to inform a discussion of the future of PacifiCorp's coal fleet irrespective of future environmental compliance obligations.

PSC Discussion and Guidance

We anticipate that the analysis required by the OPUC will either be a publicly available document, or will be available to parties through data requests in individual dockets. We decline to require that document to be filed in any specific Utah docket. Whether that analysis to be filed in Oregon has any relevance or evidentiary value in Utah is an issue we must allow to be adjudicated if and when it is raised by a party in a specific docket. To order the analysis to be filed in Utah would inappropriately pre-judge those issues.

C. Access to PacifiCorp's Models

Parties' Comments

The Coalition claims the capacity expansion and stochastic models PacifiCorp uses in the IRP process are opaque to interested parties[38] and suggests it seems imprudent that major resource decisions are made without requiring reasonable access to the tools that establish IRP

[38] *See* Coalition October 24, 2017 Comments at 15.

results. The Coalition and Sierra Club state they are unable to verify whether PacifiCorp's 2017 IRP represents the least-cost, least-risk mix of resources because of the lack of analytical tools and data provided by PacifiCorp. Sierra Club maintains that despite requests from multiple stakeholders, PacifiCorp continues to withhold the necessary tools and data to assess the costs and benefits of maintaining and operating its coal fleet, either on an individual unit basis or collectively.[39]

The Coalition contends that PacifiCorp's IRP modeling requires third-party auditing. According to the Coalition, toggles exist within the capacity expansion model that allow or restrict certain behaviors and only a non-PacifiCorp review of the modeling can determine how those toggles have been used. The Coalition "encourage[s] the [PSC] to authorize the necessary funding to the [PSC] staff to acquire these models and run them to verify the veracity of the inputs."[40]

PacifiCorp's Response

PacifiCorp asserts it has worked with Sierra Club and other stakeholders to allow them access to and training on the same tools and modeling used by PacifiCorp. PacifiCorp remains committed to continually improving the analytical support it provides stakeholders with limited resources, and adds that consent from third parties providing models licensed only to PacifiCorp is needed before those models can be accessed.[41]

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[39] *See* Sierra Club October 24, 2017 Comments at 6.
[40] Coalition October 24, 2017 Comments at 15.
[41] *See* PacifiCorp December 15, 2017 Reply Comments at 18.

PSC - Discussion and Guidance

In response to a similar issue raised in the 2009 IRP docket, PacifiCorp convened modeling training. We encourage all parties to communicate in advance of the 2019 IRP about whether a training session on IRP capacity expansion and stochastic models would be appropriate and helpful.[42]

There is a distinction between requiring PacifiCorp to create opportunity for public involvement as required by the Guidelines, and requiring PacifiCorp to conduct analyses on behalf of parties. We have a process to resolve discovery disputes, and no party in this docket filed an objection or a request to compel with respect to PacifiCorp's responses to any request for information. We find that the Coalition and Sierra Club have not established that their concerns related to access to PacifiCorp's models constitute a violation of the Guidelines.

D. DSM Reductions in the Preferred Portfolio

Parties' Comments

In joint comments, UCE/SWEEP commends PacifiCorp's track record of electricity savings through its DSM program but expresses concern about the reduction of DSM resources in the 2017 IRP when compared with the 2015 IRP. According to UCE/SWEEP, for the Utah jurisdiction, the 2017 IRP proposes a 32 percent reduction in electricity savings in 2018 and 28 percent through 2034, with similar reductions system-wide except for Oregon, whose DSM program is managed, and DSM potential study developed, by the Energy Trust of Oregon.

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[42] In 2012, PacifiCorp solicited input on a proposed opportunity for stakeholders to contract directly with the IRP model vendor for IRP model runs and to answer questions. Interested IRP stakeholders may contact PacifiCorp to determine if this opportunity is available.

UCE/SWEEP contends DSM continues to be highly cost-effective, yet more expensive market purchases are selected to the exclusion of DSM. UCE/SWEEP also questions PacifiCorp's explanation for the decreased selection of energy efficiency resources. UCE/SWEEP asserts that relying on market purchases, instead of DSM, increases economic risks to ratepayers because market purchases are subject to price fluctuations "while the price of DSM is expected to remain more cost-effective than market purchases every year."[43]

UCE/SWEEP states PacifiCorp recalculated its transmission and distribution ("T&D") deferral credit for the first time since 2009. According to UCE/SWEEP, the new value for this credit ($13.56/kilowatt-year) is significantly lower than the value used in both the 2013 IRP and the 2015 IRP ($54/kilowatt-year) and is among the lowest T&D deferral credits nationally. UCE/SWEEP is unclear how these changes affected the selection of DSM resources in the 2017 IRP and maintains PacifiCorp did not discuss its changes to the T&D deferral credit as part of the 2017 IRP stakeholder process.

UCE/SWEEP recommends the PSC direct PacifiCorp to develop an action plan to meet and exceed the energy savings levels specified in the IRP as long as the energy savings continue to be cost effective at the portfolio level, since these investments are a least-cost, least-risk strategy over the medium and long term. Specifically, UCE/SWEEP recommends PacifiCorp modify the language in Action Item 4a of the IRP Action Plan to require it to acquire all cost-effective Class 2 DSM resources targeting annual system energy and capacity selections at least equal to the Preferred Portfolio.

[43] UCE/SWEEP October 24, 2017 Initial Comments at 8.

Sierra Club concludes PacifiCorp's projection of energy efficiency resources in the 2017 IRP is substantially underestimated and is in sharp contrast to PacifiCorp's historic trend of expanding energy efficiency programs. According to Sierra Club, the use of potential studies in the assessment of long-term efficiency trajectories is problematic and understates the contribution of DSM to the system. Sierra Club asserts that while DSM potential studies are excellent tools for the focus and design of near-term efficiency programs, they do not adequately provide long-term projections.

According to Sierra Club, PacifiCorp's method for assessing energy efficiency raises the following issues: 1) future technological improvements or cost reductions are ignored; 2) avoided cost benefits are severely underestimated, for example, the T&D deferral credit of $13.56/ kilowatt-year; 3) energy efficiency screening methods conducted at the measure level, as opposed to the program or portfolio level, are too restrictive and are contrary to conventional practices in many parts of the region and country; 4) energy efficiency is not allowed to compete with existing coal power plants in the System Optimizer model; and 5) allowing energy efficiency to compete with supply-side resources adds substantial complication and does not illustrate the long-term value of energy efficiency investments over the span of the IRP.

Sierra Club suggests that if PacifiCorp would maintain the current level of annual energy savings of about 1.2 percent per year, PacifiCorp would avoid an incremental 590 MW of capacity by 2028. Sierra Club maintains, if nothing else, efficiency offers an effective hedge against purchasing capacity from the market. Sierra Club asserts PacifiCorp has consistently achieved more energy efficiency than it forecasted in its IRPs, implying that PacifiCorp's energy efficiency assumptions and screening methods have serious limitations.

The DPU expresses concern regarding the DSM Potential Study's circulation and review and recommends PacifiCorp file the DSM Potential Study in the next IRP in January 2019.

PacifiCorp Response

PacifiCorp asserts its 2017 IRP continues to identify all energy efficiency resources that are cost effective compared to resource alternatives, noting that energy efficiency remains the primary resource used to meet incremental load growth over the next 10 years. PacifiCorp maintains the IRP process demonstrates the available technical energy efficiency potential is not static but fluctuates based on changes in the market, the emergence of new technologies, improvements to building codes and equipment efficiency standards, and updated load forecasts. PacifiCorp points out several flaws in Sierra Club's suggestion that energy efficiency resources should be held flat and maintains that UCE/SWEEP's suggested modification to the IRP Action Plan could result in additional costs to customers, which is in direct conflict with least-cost planning principles.

PSC - Discussion and Guidance

We support the procurement of cost-effective DSM; nevertheless, we decline to find that changes to the energy efficiency targets presented in the 2017 IRP are warranted. We find PacifiCorp's approach consistent with past IRPs and the explanations in its reply comments reasonable, particularly its comment relating to the fluctuating nature of technical energy efficiency potential.

We find that PacifiCorp introduced a substantive change to the T&D deferral credit in the 2017 IRP. PacifiCorp filed its DSM study on April 11, 2017, only a few days after it filed the IRP. We find that delay to be immaterial. However, we find Guideline 3 would have been better satisfied if PacifiCorp had presented the change during the IRP development process. We decline to adopt a specific deadline for circulation of the DSM Potential Study as proposed by the DPU, since that deadline would constitute an amendment to Guideline 3 that we find not yet to be warranted. We reiterate that to satisfy Guideline 3, any changes to the DSM modeling assumptions must be circulated during the IRP development process.

E. Distributed Generation Modeled as a Supply-Side Resource

Parties' Comments

The DPU and UCE recommend PacifiCorp model private distributed generation ("DG") as a separate supply-side resource rather than a reduction to load going forward. UCE recommends this should be done in consultation with stakeholders. The DPU asserts that, unlike DSM, DG supplies energy back to the grid and may have system costs that exceed system benefits or vice versa. As a result, the DPU suggests that higher penetrations of DG could change the IRP portfolio rather than simply reducing load.

UCE maintains that PacifiCorp's current IRP modeling practices do not evaluate the significant and growing portfolio of DG resources in the same manner PacifiCorp evaluates other generation resources. UCE asserts evaluation of DG as a supply-side resource will become more important as distributed technologies are installed by more of PacifiCorp's customers. UCE recommends that to quantify the impact of DG growth in the 2019 IRP process PacifiCorp should, at a minimum, include sensitivity runs that consider DG as a supply-side resource.

PacifiCorp's Response

PacifiCorp notes that in acknowledging the 2015 IRP, the PSC recognized the decision to build DG originates with the customer and, therefore, it is reasonable to model DG as a load reduction. PacifiCorp believes its methodology for modeling DG, and the PSC's direction from the 2015 IRP, are still appropriate. PacifiCorp claims the DPU and UCE have not provided any new arguments why it would be more reasonable to model DG as a supply-side resource and is concerned that modeling DG as a supply-side resource would overstate the load forecast, resulting in unnecessary resource selections by the model.

PSC - Discussion and Guidance

The DPU and UCE suggest there may be costs and benefits or other impacts associated with DG that are not captured by PacifiCorp's current methods, but we find that these parties' proposals do not include sufficient details to warrant ordering PacifiCorp to adjust its methods of modeling DG in its IRP.[44] We find PacifiCorp's method of modeling DG as a load reduction in the 2017 IRP reasonable, and we decline to modify our determination on the issue in our 2015 IRP order.

F. Battery Storage

Parties' Comments

UCE recommends PacifiCorp should: 1) track and update battery cost trends to align modeling assumptions with the most accurate and current market information; 2) model customer-sited battery storage programs and incentives; and 3) convene technical workgroups to discuss battery storage modeling challenges and needs and, based on these discussions, refine the modeling in the 2019 IRP. UCE maintains it is important to account for the rapid declines in

[44] We have an open docket evaluating export credits for DG. *Application of Rocky Mountain Power to Establish Export Credits for Customer Generated Electricity*, Docket No. 17-035-61. While it is impossible to predict whether that docket's results will have any impact on IRP processes, the existence of that docket is an additional reason why making changes at this point to IRP treatment of DG is, at least, premature.

battery technology costs and to illustrate the benefits provided by consumer-sited distributed storage. UCE contends the workgroups should provide opportunities for shared learning among utility and technical experts, and interested stakeholders.

Interwest supports UCE's comments and recommends PacifiCorp accept comments on its battery storage assumptions and modeling of energy storage resources prior to finalizing and using the studies in future IRPs. Interwest suggests the formation of a "peer-review technical advisory committee"[45] not unduly constrained by confidentiality requirements, with additional input allowed from IRP stakeholders. Interwest also recommends PacifiCorp incorporate pumped storage in the 2019 IRP modeling and issue a market research RFP to provide a regular update of storage technology price assumptions.

PacifiCorp's Response

PacifiCorp maintains it meets UCE's first recommendation and will continue to update and expand upon its battery storage studies conducted by reputable third parties in the 2019 IRP. Regarding UCE's second and third recommendations, PacifiCorp states it is willing to consider how this might be done for the 2019 IRP and to discuss these issues with stakeholders in a workshop specific to energy storage. PacifiCorp commits to conduct this workshop as part of the 2019 IRP public input process prior to finalizing the supply-side resource table inputs for battery and energy storage.

[45] Interwest October 24, 2017 Initial Comments at 19.

PSC - Discussion and Guidance

We recognize parties are communicating constructively on battery storage issues. We understand UCE and Interwest would like additional battery storage analyses to be included in the IRP process. In light of PacifiCorp's proposal we decline to impose any additional requirements.

G. Gas Forecast

Party Comments

The Coalition asserts PacifiCorp's 2017 IRP uses a natural gas price forecast developed by its own expert rather than a widely-recognized and accepted gas price forecast such as that produced by the U.S. Energy Information Administration ("EIA"). The Coalition maintains there are unresolved questions of bias and objectivity resulting from this practice. The Coalition requests PacifiCorp explain why and how it has deviated from past gas forecasts.

PacifiCorp's Response

PacifiCorp explains it has not deviated from past principles in developing its gas price outlook and clarifies that it does not pay an expert third-party forecaster to produce any customized natural gas price forecasts. Instead, PacifiCorp subscribes to two widely recognized expert third-party forecasting services and receives multi-client "off-the-shelf" base and scenario forecasts on a regular basis. PacifiCorp explains that in the development of the 2017 IRP, EIA's gas price forecasts were reviewed but not used because EIA's reference and scenario outlooks were outliers when compared to the forecasts provided by the third-party forecasting services. PacifiCorp maintains the lower natural gas price forecasts used to develop the 2017 IRP reflect changing price dynamics brought about by structural shifts in natural gas markets. PacifiCorp claims evidence suggests the forecasts it used represent a moderate long-term view.

PSC - Discussion and Guidance

We find PacifiCorp's response reasonably explains its process for developing the natural gas price forecast used in the 2017 IRP, and we conclude no further action is necessary on this issue.

H. Capacity Value for Expiring QF Contracts

Party Comments

The Coalition recommends that PacifiCorp study, review, and calculate the capacity benefits provided by QFs renewing their contracts. The Coalition maintains existing and planned QFs provide capacity value to PacifiCorp for which they should be compensated. According to the Coalition, PacifiCorp refused to perform this analysis during the 2017 IRP stakeholder process. The Coalition asserts PacifiCorp should be required to perform such a study in its next IRP.

PacifiCorp's Response

PacifiCorp responds that the 2017 IRP modeling assumes no QF contracts are renewed, and represents this approach is slightly different from previous IRPs when PacifiCorp assumed that only large QFs would not renew their contracts. Further, PacifiCorp asserts that when an existing QF renews its contract, it will receive the same capacity payment as a new QF. PacifiCorp argues its 2017 IRP complies with the PSC-approved method for compensating QFs for their capacity contributions and asserts it should not be required to conduct further analysis in the IRP process.

PSC - Discussion and Guidance

We find the Coalition's specific request is better suited for an avoided cost-related docket, where capacity benefits for QF resources are determined. We decline to amend the Guidelines or to require PacifiCorp to model QF contracts differently than it has done in its 2017 IRP.

I. Least-Cost, Least-Risk Issues

Parties' Comments

The DPU identifies two significant changes in the 2017 IRP relative to prior IRPs. First, the DPU claims PacifiCorp has modified the traditional and PSC-approved role of least-cost, least-risk planning. Second, PacifiCorp specifies the IRP is a plan to transition to a cleaner energy future and to decarbonize the system. The DPU asserts this runs counter to the IRP's primary purpose as stated in the Guidelines. The DPU believes PacifiCorp has replaced the traditional and PSC-approved need-based IRP objective with its asserted objective to support the near-term Energy Vision 2020 rate-base investments. As a result, the DPU asserts PacifiCorp did not meet the Guidelines because the Preferred Portfolio is not based on a traditional analysis of capacity and energy adequacy.

UAE asserts PacifiCorp's process to create and evaluate the Preferred Portfolio as least-cost, least-risk was flawed and incomplete. In addition to problems with the coal analysis, UAE maintains only assumptions relating to Wyoming Wind resources were updated in the final portfolio selection, other new resource types were not considered, and other combinations of resource types and transmission sub-segments were not modeled. Moreover, UAE asserts the

Preferred Portfolio is not the lowest cost if natural gas prices remain low, even though low natural gas prices are arguably the most likely future scenario.

According to UCE, PacifiCorp's solar cost assumptions are twice as high as current market prices and significantly more expensive than the actual price of a Utah solar project completed more than a year ago.

PacifiCorp's Reply

PacifiCorp responds that the fundamental issue presented by the DPU is whether resources that displace FOTs in the near term, and satisfy an energy and capacity need in the long term, are "needed" as that term is used in the traditional IRP framework. PacifiCorp maintains that in defining capacity need, the DPU assumes uncommitted FOTs will be procured, and by extension, that lower-cost resources cannot displace these uncommitted FOTs. PacifiCorp argues treating these resource alternatives differently than all other resource types analyzed in the IRP is a direct contradiction to the Guidelines requiring an evaluation of all known resources on a consistent and comparable basis.

Further, PacifiCorp asserts it would be inconsistent with least-cost planning principles for PacifiCorp to select a higher-cost, higher-risk portfolio. PacifiCorp claims its selection of the least-cost mix of supply-side resources is conceptually identical to the IRP's treatment of DSM resources. PacifiCorp explains that "[w]hen evaluating DSM resources, PacifiCorp's analysis is not limited by a need for additional DSM. Rather, PacifiCorp plans to acquire all cost-effective DSM resources, because DSM resources will displace higher cost FOTs in the near-term and over time, reduce the need to procure higher cost resources in the long-term—just like the Energy Vision 2020 projects."[46]

PacifiCorp states it will update its economic analyses, including changes to the tax code, market, or project costs estimates with the most up-to-date information available, before moving forward with any of the Energy Vision 2020 projects.

PSC - Discussion and Guidance

We fully support and agree with the DPU's focus on least-cost, least-risk planning. While that outcome must consider compliance obligations, it must not be overshadowed by policy-based objectives. According to the Guidelines, the IRP process should result in the selection of the optimal set of resources given the expected combination of costs, risk, and uncertainty. Parties disagree on whether the 2017 IRP adheres to this objective.

Our evaluation of whether the objective of this Guideline has been satisfied is separate and distinct from the analysis that would be necessary to approve any specific resource for cost recovery. In this instance, we find ourselves in the unusual situation of evaluating an IRP for compliance with the Guidelines while simultaneously considering multiple open dockets related to cost recovery for projects evaluated in the IRP. Because there is some overlap on the issues related to the two types of analyses, we decline to analyze or evaluate the IRP's treatment of the Energy Vision 2020 projects other than to refer to our previous determination that the timing of the introduction of the projects violated Guideline 3. Nevertheless, we reaffirm that the objective

[46] PacifiCorp December 15, 2017 Reply Comments at 8.

of least-cost, least-risk planning is central to the IRP process and may not be replaced with other policy-based objectives.

J. Transmission Modeling

Parties' Comments

The DPU recommends the PSC order PacifiCorp to develop a way, other than sensitivities, to value all future segments of Energy Gateway that takes into account the costs and benefits not modeled in the IRP. The DPU recommends PacifiCorp develop this method before continuing future Gateway segments and before acknowledgment of transmission projects in an IRP can move forward. The DPU requests PacifiCorp hold a separate workshop for all stakeholders to determine if PacifiCorp's proposed method is acceptable. In addition, the DPU recommends any transmission project subject to the Systems Benefits Tool in future IRPs must also undergo stochastic risk analysis to determine risk and other performance metrics.

UAE maintains PacifiCorp did not adhere to the Guidelines because it did not follow the transmission planning requirements of OATT's Attachment K or the OATT's Standards of Conduct in proposing the new transmission lines.

PacifiCorp's Reply

PacifiCorp does not specifically respond to the DPU's recommendation that it develop a new transmission evaluation method, or to UAE's comments.

PSC - Discussion and Guidance

We find the DPU's recommendations reasonable to ensure resources are evaluated on a consistent and comparable basis. We expect PacifiCorp and stakeholders to review the DPU's recommendations at the start of the next IRP process.

With respect to UAE's position, we decline to make conclusions of law in this docket about whether PacifiCorp's IRP analysis is consistent with its OATT. To do so would require conclusions of law interpreting the OATT, a tariff that is approved and regulated federally. We decline to engage in that analysis in the IRP.

VI. SUMMARY AND CONCLUSIONS

We recognize the substantial body of work completed by PacifiCorp in preparing the 2017 IRP and in incorporating much of the guidance contained in our previous IRP orders. We also appreciate the diligence and thoughtful comments provided by all parties. These comments will serve to ensure continued improvement and usefulness of the IRP process and foster communication and understanding between PacifiCorp and parties. We acknowledge the growing complexity involved in PacifiCorp's preparation of its IRP and parties' participation in the process.

We note PacifiCorp filed extensive documentation and workpapers with this IRP. The level of detail is useful and the information provided is well labeled. We commend PacifiCorp for making this information readily available and encourage it to continue to provide such detailed back-up data and workpapers in future IRPs.

We have made a finding that PacifiCorp did not comply with Guideline 3. Despite noting deficiencies in other areas, we have not made a finding that PacifiCorp substantially violated any other Guideline. Within that context, we must determine whether the 2017 IRP substantially complies with the regulatory requirements of the IRP process. That determination is not an obvious one. From one perspective, there are eight Guidelines, some with multiple sub-parts. Failing to comply with one Guideline does not automatically answer the question of whether the utility has achieved substantial compliance. From a different perspective, Guideline 3 is a pivotal one, and we must recognize its significance.

Considering those competing perspectives, we conclude that acknowledging the 2017 IRP, while still finding that PacifiCorp violated Guideline 3, both recognizes the totality of the IRP process and avoids compromising other pending dockets that relate to projects analyzed in the 2017 IRP. We expect PacifiCorp to fully comply with Guideline 3 in its 2019 IRP. Evaluating the totality of the issues before us, we find that the 2017 IRP complies substantially with the Guidelines. Consistent with that finding, we conclude that the 2017 IRP satisfies Utah Code Ann. § 54-1-10.

VII. ORDER

We acknowledge that the 2017 IRP substantially complies with the Guidelines. We also recognize that PacifiCorp’s timing in completing and making available to parties its Energy Vision 2020 analysis deprived parties of a reasonable opportunity to evaluate that substantial element of its IRP. Accordingly, we view Energy Vision 2020, including its effects on other aspects of the plan, to be less credible for IRP purposes than the remaining IRP components. We reiterate, however, that the reasonableness and prudence of some of the specific proposed Action Plan items included in the IRP are being considered in other dockets and will therefore be evaluated independently, based on the evidence presented in those dockets.

DATED at Salt Lake City, Utah, March 2, 2018.

/s/ Thad LeVar, Chair

/s/ David R. Clark, Commissioner

/s/ Jordan A. White, Commissioner

Attest:

/s/ Gary L. Widerburg
PSC Secretary
DW#300535

Notice of Opportunity for Agency Review or Rehearing

Pursuant to Utah Code Ann. §§ 63G-4-301 and 54-7-15, a party may seek agency review or rehearing of this order by filing a request for review or rehearing with the PSC within 30 days after the issuance of the order. Responses to a request for agency review or rehearing must be filed within 15 days of the filing of the request for review or rehearing. If the PSC fails to grant a request for review or rehearing within 20 days after the filing of a request for review or rehearing, it is deemed denied. Judicial review of the PSC's final agency action may be obtained by filing a Petition for Review with the Utah Supreme Court within 30 days after final agency action. Any Petition for Review must comply with the requirements of Utah Code Ann. §§ 63G-4-401, 63G-4-403, and the Utah Rules of Appellate Procedure.

CERTIFICATE OF SERVICE

I CERTIFY that on March 2, 2018, a true and correct copy of the foregoing was served upon the following as indicated below:

By Electronic-Mail:

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____
Administrative Assistant