- BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH -

In the Matter of PacifiCorp's 2013 Integrated Resource Plan	)))))	DOCKET NO. 13-2035-01 REPORT AND ORDER

ISSUED: January 2, 2014

SHORT TITLE

PacifiCorp 2013 Integrated Resource Plan

SYNOPSIS

The Commission acknowledges PacifiCorp's 2013 Integrated Resource Plan ("IRP") and provides guidance to assist in the development of the next IRP.

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I. INTRODUCTION

On April 30, 2013, PacifiCorp filed its twelfth Integrated Resource Plan ("IRP"), entitled "2013 Integrated Resource Plan" ("2013 IRP"), pursuant to the IRP Standards and Guidelines ("Guidelines") adopted in Docket No. 90-2035-01, *In the Matter of Analysis of an Integrated Resource Plan for PacifiCorp*, Report and Order issued June 18, 1992. PacifiCorp requested the Commission acknowledge the 2013 IRP in accordance with Commission rules and fully support the IRP conclusions, including the proposed action plan.

The 2013 IRP contains three volumes. Volume 1 provides the 2013 IRP development, results, and action plan. Volume 2 provides the following appendices: a load forecast report (Appendix A); fulfillment of IRP regulatory requirements (Appendix B); the public input process (Appendix C); energy efficiency modeling (Appendix D); conservation voltage reduction and voltage optimization projects update (Appendix E); flexible resource needs assessment (Appendix F); historical plant water consumption data (Appendix G); 2012 wind integration cost study (Appendix H); 2012 stochastic loss of load study (Appendix I); an assessment of resource adequacy for western power markets (Appendix J); capacity expansion tables (Appendix K); stochastic simulation results (Appendix L); case study fact sheets (Appendix M); demand side Management ("DSM") decrement studies (Appendix N); and wind, and solar peak contributions (Appendix O). Volume 3 provides confidential analysis related to environmental compliance investments.

The 2013 IRP was filed one month later than usual pursuant to the Commission's February 12, 2013, approval of PacifiCorp's request for a filing date extension. On June 3, 2013, PacifiCorp filed its 2012 Wind Integration Study Technical Review Committee Memo as a supplement to the 2013 IRP.[1]

A. Summary of the 2013 Integrated Resource Plan Results

The 2013 IRP report and associated appendices present PacifiCorp's plan to supply and manage growing demand for electricity in its six-state service territory over the next 20 years. The report identifies, as its least cost plan, investment in a portfolio of power plants, transmission facilities, and power purchases, coupled with customer energy efficiency programs and direct-control load management. The type, timing, and magnitude of resource additions are noted and an action plan is provided.

Based on its assumptions of existing generation capacity, generation plant life, length of existing purchase power contracts, transmission transfer capability, and its July 2012 load growth forecast, PacifiCorp identifies a capacity deficit between existing resources and peak system requirements, plus a 13 percent planning reserve,[2] of 824 megawatts beginning in 2013. This deficit grows to 2,308 megawatts in 2022.[3] To meet these deficits and the continuing deficits through 2032, PacifiCorp identifies a resource and transmission investment schedule based in part on the portfolio of resources selected by the computer model, System Optimizer, in Case 7,[4] as its least cost plan, adjusting for risk. PacifiCorp refers to this plan as its "Preferred

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[1] The June 3, 2013, cover memo indicates the Company was filing PacifiCorp's 2012 Wind Integration Study. However this appears to be in error as the 2012 WIS was included in Volume 1 of the 2013 IRP filed April 30, 2013. Only the Technical Review Committee memo was filed June 3, 2013.
[2] Planning reserve includes operating reserve; *See* PacifiCorp, "2013 Integrated Resource Plan, Volume 1," Chapter 5, at 95.
[3] PacifiCorp, 2013 IRP, Volume 1, Chapter 5, Table 5.12, at 99.
[4] A case is a defined set of input values, and assumptions. As noted in the 2013 IRP, Volume II, Appendix M, at 305-306, Case 7 assumes: medium load growth; no CO2 tax; high gas prices; low coal prices; state and federal RPS

Portfolio." PacifiCorp's Preferred Portfolio differs from the Case 7 resource portfolio in one respect. Namely, PacifiCorp replaces 208 megawatts of wind resources selected to meet the Washington State renewable portfolio standard ("RPS") with the purchase of unbundled renewable energy credits ("REC"). Based on its assumption regarding REC prices, PacifiCorp contends this change addresses the Washington State RPS at lower cost for customers.

PacifiCorp selects its Preferred Portfolio based on: its analysis of the 20-year present value of future revenue requirement ("PVRR"), variations in load growth, fuel and market price volatility, planned transmission transfer capability, hydro variability, 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 demand side management targets, the cost to acquire unbundled renewable energy certificates, and public policy goals.

To serve system-wide peak hour demand over the next twenty years, cumulative Preferred Portfolio supply additions and direct-control load management or energy efficiency programs range from 791 megawatts in 2013 to about 7,159 megawatts in 2032.[5] By 2032, this consists of 4,163 megawatts of additional intermittent, intermediate and base load power plant; 1,786 megawatts of direct-control load management or utility energy efficiency programs; and 650 to 1,472 megawatts of annual unspecified power purchases. The proportion of additional

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requirements; base level Regional Haze investments; renewable production and investment tax credits expire end of 2012 and 2016, respectively; and base level demand side management resources.

[5] *See* PacifiCorp, *supra* note 3, Chapter 8, Table 8.7, at 227. The total of 7,159 megawatts includes the average annual amount of 1,209.8 megawatts of unspecified power purchases rather than the cumulative amount of annual purchases over the twenty-year period, which is 24,196 megawatts.

resources are 58 percent long-term generation plant (44 percent new gas plant or gas conversion from existing coal plants, 9 percent wind resource, 4 percent solar resource, and less than 1 percent combined heat and power and coal turbine upgrades), 25 percent direct-control load management or energy efficiency utility programs, and 17 percent unspecified annual power purchases.

The Preferred Portfolio assumes Segment D of the Energy Gateway transmission project is in service by December 31, 2019. Segment D provides additional transmission facilities between Windstar, Wyoming and Populus, Idaho.[6] A notable difference in the 20-year projection of resource requirements in the 2013 IRP in comparison with the 2011 IRP is the potential retirement of approximately 1,700 megawatts of capacity from existing coal plants.

B. Request for Comments

Following a scheduling conference convened on May 30, 2013, the Commission issued a Scheduling Order and Notice of Technical Conference on June 3, 2013. The Commission requested comments from interested parties on the 2013 IRP by September 9, 2013, and reply comments by October 11, 2013. Between June 17, 2013, and August 6, 2013, the following parties petitioned for leave to intervene, which the Commission granted: Western Resource Advocates (“WRA”); Utah Association of Energy Users (“UAE”); HEAL Utah; Utah Clean Energy (“UCE”); Interwest Energy Alliance (“Interwest”); and the Renewable Energy Coalition. On August 27, 2013, the Commission convened a technical conference wherein PacifiCorp provided an overview of the 2013 IRP and responded to questions and comments.

[6] *See* PacifiCorp, *supra* note 3, at 65.

Under the Guidelines, we consider whether to acknowledge the 2013 IRP. Acknowledgment of an IRP means it substantially complies with the regulatory requirements of the planning process, but conveys no sense of regulatory approval of specific Company resource acquisition decisions; PacifiCorp management retains responsibility for its resource acquisition decisions. The integrated resource planning process is an open, public process through which all relevant supply-side and demand-side resources, and the factors influencing choice among them, are investigated in the search for the optimal set of resources to meet 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.

II. PARTIES' POSITIONS ON ACKNOWLEDGEMENT

On September 9, 2013, the following parties filed written comments and recommendations on the 2013 IRP: The Division of Public Utilities ("Division"), Office of Consumer Services ("Office"), UAE, UCE, Southwest Energy Efficiency Project ("SWEEP"),[7] WRA, and HEAL Utah. Interwest filed comments on September 10, 2013. On October 11, 2013, PacifiCorp, the Office, UCE, and WRA filed reply comments.

A. The Division

The Division recommends the Commission should not acknowledge the 2013 IRP. Although the Division "commends [PacifiCorp] on making modeling improvements"[8] and

[7] SWEEP submitted joint comments with UCE on PacifiCorp's DSM Potential Study. The joint comments were filed as an attachment to UCE's September 9, 2013, comments in this docket.
[8] Division, "Comments on PacifiCorp's 2013 IRP," Docket No. 13-2035-01, September 9, 2013, at 15.

"finds that most of the [Guidelines] have been met,"[9] it concludes the exceptions to full compliance with the Guidelines are significant.

Primarily, the Division is concerned PacifiCorp's Preferred Portfolio may not be optimal because PacifiCorp: 1) did not perform the third step of the Commission's "three-stage approach for developing its preferred portfolio"[10] or provide sufficient justification for omitting this step; 2) did not complete the stochastic analysis of all Energy Gateway segments, which would have helped validate the Preferred Portfolio; 3) rejected the lower cost/risk adjusted portfolio in Case EG2-15 without supporting analytical evidence; and 4) replaced the wind resources selected to meet the Washington State RPS with unbundled RECs without analyzing risk or vetting this change through the IRP stakeholder process. For these reasons, the Division contends PacifiCorp does not sufficiently support its conclusion the Preferred Portfolio is the optimal portfolio.

B. The Office

The Office recommends the Commission should not acknowledge the 2013 IRP as filed. Although the Office recognizes "substantial improvement in the public process for the 2013 IRP,"[11] it argues PacifiCorp inadequately demonstrates its Preferred Portfolio is a "low cost, low risk and reliable set of resources for Utah residential and small business customers."[12]

The Office questions PacifiCorp's inclusion of transmission benefits derived from the System Operational and Reliability Benefits Tool ("SBT") for segments of the Energy

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[9] Id. at 19.
[10] Id.
[11] Office, "Comments In the Matter of the Acknowledgement of PacifiCorp's 2013 Integrated Resource Plan; Docket No. 13-2035-01," September 9, 2013, at 1.
[12] Id. at 2.

Gateway projects. The Office argues "use of the SBT violates the Commission's IRP guideline that resources be evaluated 'on a consistent and comparable basis.'[13] This occurs because the SBT attempts to calculate a set of external benefits associated with certain transmission investments in a way that is not comparable to the calculation of benefits or costs associated with different resource options examined in the core IRP analysis."[14]

The Office notes that without the SBT benefits, PacifiCorp's Preferred Portfolio is not the least cost portfolio, nor does it rank as favorably as other portfolios on a variety of performance measures. The Office concludes PacifiCorp has failed to meet Guideline 1: "The [IRP] process should result in the selection of the optimal set of resources given the expected combination of costs, risk and uncertainty." Without SBT benefits, the Office states the portfolio in Case EG1-C16 performs better than the Preferred Portfolio and therefore this portfolio should be given consideration as the preferred portfolio. Case EG1-C16 is similar to the Preferred Portfolio but differs by including geothermal resources, the early retirement of a coal-fired generating unit, and excludes Energy Gateway Segment D.

The Office recommends the Commission require PacifiCorp to rerun the portfolio selection process after performing stochastic modeling of portfolios without the transmission benefits derived from the SBT. After receiving this information and providing opportunity for parties to comment on the new information, the Office recommends the Commission should then consider acknowledgement of the 2013 IRP.

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[13] "IRP Guideline 4. b. "An evaluation of all present and future resources, including future market opportunities (both demand-side and supply side), on a consistent and comparable basis." PSC Order, June 18, 1992, Docket [No.] 90-2035-01."

[14] Office, *supra* note 11, at 3.

C. UAE

UAE concludes the 2013 IRP is generally consistent with the Guidelines and therefore does not oppose Commission acknowledgment of the 2013 IRP. However, UAE opposes use of the SBT and advises the Commission to expressly state that acknowledgment of the 2013 IRP in no uncertain terms approves or acknowledges the benefits derived from the SBT.

D. UCE

UCE does not recommend the Commission acknowledge the 2013 IRP as filed. Prior to acknowledgement, UCE recommends the Commission direct PacifiCorp to: ". . . change its action plan as follows: a) model updated cost and capacity values for solar and wind to inform the IRP update; b) issue a request for information immediately (rather than in 180 days as indicated in action item 1d.) to obtain updated solar market information; c) work with the wind industry to get updated wind cost data; d) utilize that information in sensitivity analysis using System Optimizer to see if more accurate solar costs and capacity values change portfolio results (these sensitivity runs should utilize the recently approved interim solar capacity values from Docket No. 12-035-100); and e) if solar cost data from the RFI will take too long to be incorporated into the IRP update alternative data could be utilized, such as first or second quarter GTM Research cost data."[15]

E. WRA

WRA concludes the 2013 IRP ". . . Preferred Portfolio and Action Plan are consistent with PacifiCorp's business strategy; however, they do not reflect the current planning

[15] UCE "Initial Comments of Utah Clean Energy," In the Matter of PacifiCorp's 2013 Integrated Resource Plan, September 9, 2013, at 5-6.

environment and are not in best interest of customers."[16] WRA contends PacifiCorp insufficiently models risks associated with future emissions costs, and wholesale power and natural gas prices. Further, WRA disagrees with the prices for carbon dioxide ("CO_2") emissions that PacifiCorp assumes in the 2013 IRP. WRA argues PacifiCorp's CO_2 assumptions are too low and commence too late in comparison to past IRP values and with the President's intent to address climate change before leaving office. WRA argues this results in "reduced planned expenditures for renewables and clean energy while maintaining budgets for transmission and retrofits of existing coal plants."[17]

F. HEAL Utah

Heal Utah does not recommend the Commission acknowledge the 2013 IRP. Heal Utah concludes the 2013 IRP is ". . . fundamentally flawed and cannot be used as a basis for sound and rational utility planning in the coming decades."[18] Heal Utah identifies, in part, the following objections to the 2013 IRP: 1) it does not account for near-term coal unit retirements; 2) it significantly undervalues wind and solar energy resources; 3) it significantly overstates utility-scale solar photovoltaic cost; 4) it includes no planned wind resource acquisitions until 2024, thus missing the opportunity to take advantage of the federal production tax credit and acquire emissions-free resources for customers; 5) the use of unbundled RECs to meet the Washington State RPS is not sound or prudent; and 6) the action plan should include the exploration of significant revisions to the Blue Sky customer program.

[16] WRA "Comments of Western Resource Advocates," In the Matter of PacifiCorp's 2013 Integrated Resource Plan, Docket No. 13-2035-01, September 9, 2013, at 7.
[17] Id. at 6.
[18] Heal Utah "Comments of Heal Utah Regarding PacifiCorp's 2013 IRP," In the Matter of PacifiCorp's Integrated Resource Plan, Docket No. 13-2035-01, September 9, 2013, at 1.

G. Interwest

Interwest does not recommend the Commission acknowledge the 2013 IRP. Although Interwest observes the 2013 IRP "... contains some marked improvement over the 2011 IRP, including improved renewable integration study and operations,"[19] Interwest concludes the Commission should not acknowledge the 2013 IRP and action plan "... due to the excessive, high-risk coal plant investments and renewable energy capacity contribution analysis."[20] Interwest also "urges the Commission to require PacifiCorp to improve its effective wind load carrying capacity analysis prior to acknowledgement of the IRP."[21]

H. PacifiCorp

PacifiCorp replies to the parties' comments offering "clarification to support its portfolio modeling assumptions and resource strategy conclusions."[22] Although PacifiCorp states its appreciation for the comments received and for an active and engaged stakeholder group, and urges "stakeholder participation throughout the IRP development process to foster constructive debate throughout it,"[23] PacifiCorp disagrees with parties that the 2013 IRP does not meet the Commission's Guidelines. PacifiCorp requests "the Commission and the parties view the IRP as a planning document that lays out the resource road map, that considers long-term risk and planning uncertainties, and that continuously evolves in step with regulatory events and market

[19] Interwest, "Comments on PacifiCorp 2013 Integrated Resource Plan Interwest Energy Alliance," In the Matter of the Filing of PacifiCorp's 2013 Integrated Resource Plan, Docket No. 13-2035-01, September 10, 2013, at 1-2.
[20] Id. at 15.
[21] Id. at 11.
[22] PacifiCorp "Response to the Utah Party Comments on PacifiCorp's 2013 Integrated Resource Plan," Docket No. 13-2035-01, October 11, 2013, at 1.
[23] Id. at 29.

trends."[24] PacifiCorp argues that, "With the responses and clarifications contained in this filing, PacifiCorp believes that its 2013 IRP meets the Commission's Standards and Guidelines and that the 2013 IRP Preferred Portfolio is least cost."[25] PacifiCorp concludes its 2013 IRP "reasonably adheres to the Commission's Standards and Guidelines, and should therefore, be acknowledged. PacifiCorp further believes its IRP reflects a balanced consideration of customer interests, and is well-supported by portfolio modeling and prudent planning assumptions leading to selection of a least cost Preferred Portfolio consistent with the long-run public interest."[26] Therefore, PacifiCorp requests the Commission acknowledge the 2013 IRP.

III. DISCUSSION AND GUIDANCE

We have fully considered the 2013 IRP and parties' comments and find PacifiCorp has implemented significant improvements in comparison with past IRPs. The chief result of these changes is improved transparency. This is evident as PacifiCorp and parties navigate the three-volume IRP and clearly articulate viewpoints utilizing the information contained in the IRP. The discussion is now raised to a higher level and we appreciate the engaged and knowledgeable comments provided on the 2013 IRP. We also appreciate PacifiCorp's improved responsiveness and interaction with state agencies and other interested parties.

Based on our review of the comments and PacifiCorp's responses, we find that PacifiCorp has substantially complied with the Guidelines and, therefore, we acknowledge the 2013 IRP. We understand parties are not in agreement that PacifiCorp's Preferred Portfolio is the

[24] Id. at 2.
[25] Id. at 2.
[26] Id. at 28-29.

optimal portfolio for customers. Our acknowledgment of the 2013 IRP imparts no regulatory approval of any element of the Preferred Portfolio or of the action plan. PacifiCorp's investment decisions and actions will be evaluated for prudence in appropriate rate proceedings. Because of our role in that evaluation, it would be inappropriate to use this IRP proceeding as an opportunity to substitute our planning judgment for that of PacifiCorp. The 2013 IRP is PacifiCorp's plan, which we find was reasonably supported at the time it was filed. Clearly, the factors driving the 2013 IRP results and action plan can change and PacifiCorp will need to make planning adjustments accordingly or face cost recovery challenges.

While the IRP is a comprehensive snapshot of a long-term plan at a point in time, we suggest its ongoing usefulness could be improved through the greater use of a wider range of assumptions for sensitivity analysis, and greater use of path analysis, as we will discuss in more detail below. Such changes could provide flexibility and transparency in investment decisions when significant political or market changes occur between IRPs.

We also note parties raise important issues which merit attention in future IRP's and to that end we provide the following guidance to PacifiCorp to ensure these issues are addressed going forward.

A. Coal Plant Investment Analysis

Several parties argue PacifiCorp's 2013 IRP analysis should have evaluated a more stringent regional haze case. UCE recommends the Commission require PacifiCorp to "evaluate all future potential environmental compliance obligations for coal plants simultaneously, including more stringent environmental controls and carbon costs that start earlier"[27] in the IRP update. Further, UCE recommends PacifiCorp include "social costs of carbon as part of its preferred portfolio selection strategy" and consider "benefits of reduced emissions (all emissions, including carbon) in its coal investment calculus."[28] Interwest recommends the Commission require PacifiCorp to "update its modeling prior to the update required in the Spring of 2014, when there will be additional confirmation of the revised EPA rules applicable to coal plants providing electricity to ratepayers in Utah."[29] Heal Utah recommends the Commission "require a unit-by-unit retirement and/or conversion analysis for each coal power plant. For each unit, the monetary value at which continued operation of the coal unit becomes uneconomic should be identified."[30] Heal Utah recommends the results of this analysis be made public rather than confidential.

PacifiCorp notes the Environmental Protection Agency ("EPA") issued a re-proposed federal implementation plan ("FIP") for Wyoming on May 23, 2013, which was after the 2013 IRP was filed. In response to stakeholder requests during the 2013 IRP public input process, PacifiCorp argues it applied more stringent regional haze assumptions in core cases C-8 through C-13 "patterned after then current proposed EPA FIP outcomes."[31] PacifiCorp recognizes EPA's re-proposed FIP includes requirements for SCR investments at certain plants that were not evaluated in the 2013 IRP. PacifiCorp states it "will continue to evaluate, pending

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[27] UCE, *supra* note 15, at 19.
[28] Id.
[29] Interwest, *supra* note 19, at 2.
[30] Heal Utah, *supra* note 18, at 2.
[31] PacifiCorp, *supra* note 22, at 22.

future actions by EPA, how it will meet its compliance obligations in the best interest of its customers during the 2015 IRP planning cycle and in future IRPs."[32]

In response to Interwest's recommendation, PacifiCorp "notes that it developed numerous portfolios where a large portion of PacifiCorp's coal fleet retires or is converted to burn natural gas by the end of the 20-year planning horizon. In the 2013 IRP, 94 different core resource portfolios were developed among five different Energy Gateway transmission scenarios. Of these 94 resource portfolios, 25 showed more than 4,000 megawatts of coal either retiring or converting to burn natural gas by 2032. Ultimately, PacifiCorp did not select these resource portfolios as its preferred portfolio. [Interwest] states that these portfolios were eliminated but fails to mention that they were not chosen as the preferred portfolio in the 2013 IRP because the modeling showed these portfolios to have higher costs and higher risk as compared to the alternatives."[33]

Because EPA's proposed and final implementation plans and challenges to those implementation plans continue to fluctuate, we encourage PacifiCorp to continue to monitor and prudently respond to the constantly changing landscape in its IRP update to be filed in 2014 ("2013 IRP Update") and in the 2015 IRP.

B. Energy Gateway Transmission Analysis

Both the Office and UAE oppose PacifiCorp's inclusion of SBT benefits as an offset to the cost of Energy Gateway Segment D in the Planning and Risk ("PaR") modeling of expected PVRR. The Office argues use of the SBT constitutes inconsistent and incomparable

[32] Id. at 22.
[33] Id. at 24.

analysis of alternative resources, thus violating Guideline 4b. Without the SBT offset, the Office concludes Energy Gateway Segment D is not part of the better performing portfolios and therefore PacifiCorp's selection of Case 7 as the Preferred Portfolio violates Guideline 1.

PacifiCorp "notes that it has not used the SBT to specifically support action items to construct Energy Gateway Segments."[34] PacifiCorp commits to further review of the SBT to validate and refine adjustments but "requests that the Commission reject OCS' recommendation to prohibit [PacifiCorp] from using the SBT in future IRPs."[35]

While the SBT shows some promise in demonstrating non-modeled benefits and costs, we are not persuaded it adequately identifies these benefits in the 2013 IRP. We acknowledge and support PacifiCorp's action plan item to establish a stakeholder group process to review the SBT, which we understand is underway. We are not opposed to the development of metrics to quantify non-modeled benefits or costs. However, PacifiCorp should continue to discuss with state agencies and other interested parties how best to consider this information in the identification of a preferred portfolio prior to its use. A key objective should be to provide transparency when comparing the cost, risk and performance of portfolios both with and without such non-modeled costs or benefits. At a minimum, any preferred portfolio selection that includes non-modeled benefits should be subject to stochastic risk analysis for the determination of risk and other performance metrics.

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[34] PacifiCorp, *supra* note 22, at 7.
[35] Id. at 7.

C. IRP Process and Modification of Guidelines

The Division and other parties indicate the IRP process is difficult and time-consuming, in part due to its complexity. We understand the increased complexity requires a substantial investment of time and resources in order to meaningfully participate in the process and to understand the results. However, we decline at this point to implement changes to the Guidelines, as requested by the Division, or to open a docket to consider changes to the Guidelines, as suggested by some parties.

After reviewing the Division's comments and parties' replies, we do not observe a consensus for change to the Guidelines and we are not persuaded at this point the Guidelines are at the heart of the differing views on the IRP portfolios. Further, we understand process improvements are being discussed informally, which we encourage. When parties have consensus proposals for changes to the Guidelines, we will consider them going forward.

D. Renewable Resource Assumptions

1. Wind and Solar Resource Costs

Several parties argue PacifiCorp's wind and utility-scale solar resource costs are too high. PacifiCorp argues its utility-scale solar resource costs are reasonable and opposes updating these costs in the 2013 IRP Update. However, PacifiCorp commits to updating its solar and wind costs for the 2015 IRP planning cycle. Further, PacifiCorp recognizes it was unable to complete additional sensitivity scenarios to better understand the cost-point at which solar resources would be selected by the System Optimizer model in the 2013 IRP due to the time necessary for extensive model revisions. PacifiCorp states it will work with stakeholders to implement process improvements for the 2015 IRP planning cycle.

As we have stated in the past, sensitivity analysis should be an effective tool for evaluating the effect on resource selection of various assumptions regarding solar and wind resource costs. We recognize there are differences of opinion, and some uncertainties, regarding renewable resource cost assumptions. We encourage PacifiCorp and stakeholders to develop a strategy to address this issue in the 2015 IRP. Further, the results of this effort could be utilized in PacifiCorp's acquisition path analysis to inform decisions if the future unfolds differently than expected.

2. Wind Integration Cost Study

Interwest notes PacifiCorp's wind integration cost study is improved and will reduce costs to ratepayers. However, prior to accepting the wind integration study, Interwest recommends the Commission require PacifiCorp to consider adopting improved forecasting methods. Interwest also argues PacifiCorp's wind integration cost study does not reflect sub-hourly scheduling of wind reserve requirements and that this would produce additional savings to wind integration cost. Interwest suggests PacifiCorp "could be required to provide a study of the costs and benefits of increased geographic diversity brought by the [energy imbalance market] and expanded wind development in the Western Renewable Energy Zones included throughout its service territory."[36]

PacifiCorp responds to Interwest by describing its current wind forecasting service. Addressing Interwest's comments on geographic diversity, PacifiCorp argues an energy imbalance market "will enable PacifiCorp to better utilize its resources and resources in the market to more effectively manage the variability and uncertainty associated with variable

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[36] Interwest, *supra* note 19, at 15.

energy resources."[37] However, PacifiCorp argues the energy imbalance market "does not change PacifiCorp's ability to access wind resources across its service territory."[38] PacifiCorp argues it is unnecessary to perform the requested study as PacifiCorp "will incorporate into its planning process any changes in the market place that might influence its IRP and associated action plan."[39]

We note PacifiCorp's wind integration cost study received favorable support from the technical review committee and we received limited critical comment from parties in this docket, except from Interwest as noted above. We are encouraged by the improvement in PacifiCorp's wind integration cost study and support PacifiCorp's efforts to incorporate any emerging cost savings opportunities into its future wind integration cost studies.

3. Distributed Solar Resource Limits

UCE questions the annual limit of available rooftop solar resource in Utah, which is based on the March 2013 report "PacifiCorp Assessment of Long-term System-Wide Potential for Demand-Side and Other Supplemental Resources" ("2013 DSM Potentials Study") prepared for PacifiCorp by The Cadmus Group, Inc./Energy Services in collaboration with Nexant, Inc. UCE recommends updating this information in the 2013 IRP Update.

While PacifiCorp argues its values are "rational estimates of both the market potential and solar [photovoltaic] ("PV") costs based on the best information available,"[40] it "acknowledges that the environment impacting distributed solar PV is rapidly transforming."

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[37] PacifiCorp, *supra* note 22, at 26.
[38] Id.
[39] Id.
[40] Id. at 20.

Nonetheless, PacifiCorp recommends updating this information in the 2015 IRP rather than the 2013 IRP Update. PacifiCorp argues this would allow information from proceedings currently underway in Oregon and Washington and results from the Utah Solar Incentive Program to be taken into consideration, and provide more time to understand whether recent solar PV pricing trends are sustainable. We support PacifiCorp's commitment to address this issue in the 2015 IRP cycle.

4. REC Value

PacifiCorp's treatment of RECs in the 2013 IRP is questioned by several parties. First, in its replacement of 208 megawatts of wind resource in the Preferred Portfolio with unbundled RECs, PacifiCorp does not analyze the comparative risks of the two alternatives, essentially concluding that a wind resource and an unbundled REC carry the same risks for customers. Parties argue this conclusion should be tested rather than assumed. Second, parties argue the value of a REC should be included in the cost of a renewable resource as an offset. We direct PacifiCorp to further address both of these issues in the 2013 IRP Update.

5. Wind and Solar Resource Capacity Contribution

UCE and Interwest argue PacifiCorp's assumed capacity contribution at the time of peak demand for wind and solar resources is understated and is inconsistent with the method and values approved by the Commission in its August 16, 2013, Order on Phase II Issues in Docket No. 12-035-100 ("August Order") on avoided costs for qualifying facilities ("QF"s).[41] In part citing the August Order, Interwest argues "the 'Exceedence Method' used by PacifiCorp in

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[41] *See* Order on Phase II Issues, dated August 16, 2013, "In the Matter of the Application of Rocky Mountain Power for Approval of Changes to Renewable Avoided Cost Methodology for Qualifying Facilities Projects Larger than Three Megawatts."

the IRP is not an industry standard approach to calculating capacity or energy contributions from renewables. It should be rejected as a basis for modeling renewable resources in the IRP, as it was in the QF Docket."[42] PacifiCorp does not oppose the Commission taking notice of the August Order but argues the inconsistency between the method approved in the August Order and the one used in the 2013 IRP can be explained and is appropriate.

We understand the method approved for determining wind and solar capacity contribution in our August Order is not the same as the method used in the 2013 IRP. The values are also very different. We note PacifiCorp argued in the avoided cost case for the use of a consistent capacity contribution method for IRP analysis and avoided cost determinations.[43] Further, we note PacifiCorp appears to have employed the method determined to be reasonable in the August Order in past IRPs.[44] We received no other comments regarding PacifiCorp's response to UCE and Interwest on this issue in this docket. In the 2013 IRP Update we direct PacifiCorp to perform a sensitivity case with stochastic analysis using the values in the August Order for wind and solar capacity contribution.

E. Range and Treatment of Externalities

Several parties argue the range of externality values to address environmental regulations is inadequate in the 2013 IRP. UCE argues it is also difficult to identify the carbon risk associated with market purchases. Although UCE understands carbon price risk is considered in the price of market purchases, emissions rates are not assigned to market

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[42] Interwest, *supra* note 19, at 11.
[43] *See* Docket No. 12-035-100, Direct Testimony of Gregory N. Duvall on Phase II Issues, at 18, ll. 368-375.
[44] *See* Docket No. 07-2035-01, PacifiCorp 2006 Integrated Resource Plan Appendix J, at 197; Docket No. 09-2035-01, PacifiCorp 2008 Integrated Resource Plan, Appendix F, at 281; and Docket No. 11-2035-01, PacifiCorp Integrated Resource Plan, Chapter 5 at 98.

purchases. UCE argues combining CO2 prices with fuel prices and providing no estimate of emissions obscures the carbon impacts of different portfolios containing different levels of market purchases. UCE recommends PacifiCorp separately analyze and report emissions and CO2 costs for market purchases. UCE also recommends PacifiCorp "apply a social cost of carbon and compare differences in PVRR among portfolios with additional social costs per emissions level so that regulators and stakeholders can get a sense of the external, social costs associated with different resource plans."[45]

PacifiCorp argues the CO_2 assumptions used in the 2013 IRP remain reasonable. Further, given the timeline in the Presidential Memorandum issued June 25, 2013, PacifiCorp contends it will have many opportunities to "update its CO_2 price assumptions prior to and after the issuance of proposed regulations in June 2014. As assumptions are developed for the 2015 IRP, [PacifiCorp] will re-evaluate current market conditions and policy developments along with current forecasts from external sources in establishing updates, if any, to CO_2 price assumptions."[46] PacifiCorp opposes UCE's recommendations to separately value CO_2 and fuel cost. PacifiCorp argues: "Removing the cost of CO_2 which can be thought of as fuel cost adder for a fossil-fired generating resource, would inappropriately distort unit dispatch, and consequently, distort both forward price curve assumptions and portfolio costs used in the portfolio selection process."[47] PacifiCorp also argues its modeling approach provides a consistent set of input assumptions for each scenario, and is consistent with industry standard and market supply and demand fundamentals.

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[45] UCE, *supra* note 15, at 12.
[46] PacifiCorp, *supra* note 22, at 18-19.
[47] Id. at 19.

We recognize there are differences of opinion on specific externality values and the timing over which potential regulations may be implemented. We accept PacifiCorp's approach and suggest continued discussion in the IRP public input process to determine a reasonable and manageable range of values and timing.

F. Market Constraints

The Office recommends the Commission require PacifiCorp "to provide a contingency plan for the IRP's heavy reliance on [front office transactions] to be used in the event that market supplies tighten and prices increase significantly. This contingency plan should be provided as part of the 2013 IRP Update and addressed more fully in the next IRP cycle."[48] PacifiCorp argues the 2013 IRP already provides scenario and risk analysis of front office transactions. Further, PacifiCorp responds it would pursue contingency plans based upon evolving market and system conditions. PacifiCorp also notes it manages price risk through hedging.

We encourage PacifiCorp to examine the Office's recommendation in the 2015 IRP cycle. Such analysis could be included in the section of the IRP devoted to acquisition path analysis.

G. Planning Reserve

The Office supports PacifiCorp's 13 percent planning reserve margin for this IRP but argues additional study is required going forward. Specifically, the Office recommends PacifiCorp analyze "how current and future wind integration requirements impact available

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[48] Office, *supra* note 11, at 12.

system and non-system (NWPP) reserves . . ."[49] The Office also questions use of a single year, 2014, for the LOLP study. PacifiCorp "requests the Commission reject OCS's recommendation. . . " but also commits to "more clearly explain in future LOLP Study updates how operating reserves required to manage variability and uncertainty are factored into its analyses."[50]

UAE argues a 13 percent planning reserve margin is too high but that it does not appear to "drive construction of a premature resource in this IRP as it has in the past . . . ."[51] Further, UAE urges meaningful cost-risk analysis to support any planning reserve margin that "may drive a premature acquisition date for new resources."[52] PacifiCorp "believes its LOLP Study is a meaningful cost-risk analysis that supports the 13 [percent] planning reserve margin used in the 2013 IRP."[53]

We accept a 13 percent planning reserve as reasonable for this IRP and recommend continued analysis of this issue, both through LOLP study and tradeoff analysis.

H. Load Forecasts

UCE recommends more consideration of the impact of climate change on loads, hydro availability, and thermal outages. UCE argues PacifiCorp relies only on historic temperature without considering climate and weather trends. For example, UCE notes Utah's 2013 summer temperatures were the highest on record and demand also hit an all time high. PacifiCorp contends its scenario analysis and reliance on historical information is the best information available. We direct PacifiCorp to present in the 2015 IRP an analysis of whether the

[49] Id. at 10.
[50] PacifiCorp, *supra* note 22, at 10.
[51] UAE, Comments of the Utah Association of Energy Users (UAE) Regarding PacifiCorp's 2013 IRP," In the Matter of PacifiCorp's 2013 Integrated Resource Plan, Docket No. 13-2035-01, September 9, 2013, at 4.
[52] Id. at 4.
[53] PacifiCorp, *supra* note 22, at 11.

available historical cooling degree day information is an appropriate predictor of future “normal” conditions and, if warranted, to identify and implement a superior predictor in that IRP.

UCE and WRA also dispute PacifiCorp’s decision to eliminate the long-run load volatility parameter from its stochastic analysis. PacifiCorp argues this parameter produces results that are not useful for comparing the costs and risks of portfolios and that it is more appropriate to study long-term load risk through load forecast scenario analysis. We direct PacifiCorp to facilitate a discussion of this issue in the 2015 IRP cycle.

The Division notes PacifiCorp includes historic load data in the 2013 IRP. We note the annual coincident peak load data by state in Table A.7 on page 13 of Appendix A, appears rather to provide each state’s highest monthly peak load which is coincident with the system rather than its load coincident with the time of annual system peak. PacifiCorp should correct this table and provide it in its 2013 IRP Update.

I. Resource Acquisition Paths and Decision Mechanism

The Division notes PacifiCorp includes in Table 9.2, “an excellent summary of actions [PacifiCorp] may undertake should the future start to turn out significantly different than anticipated as reflected in [PacifiCorp’s] preferred portfolio.”[54] We concur with the Division this is a very useful table and we encourage PacifiCorp to expand its use of this table in its 2013 IRP Update and 2015 IRP to address additional issues. For example, changes to resource costs, power market availability, and environmental regulations could be addressed through this table. This will allow the IRP to be more useful, flexible, and transparent between the filing of IRPs.

[54] Division, *supra* note 8, at 12.

PacifiCorp should discuss with stakeholders which issues should be studied for inclusion in this table.

J. Natural Gas Volatility Adder

Interwest recommends PacifiCorp include a volatility adder to natural gas price forecasts to reflect the risks of price volatility. We decline to support this recommendation as PacifiCorp addresses fuel price volatility in its stochastic and scenario analysis.

K. Stochastic Risk Modeling Workshop

WRA and UCE request PacifiCorp conduct a workshop on its stochastic risk modeling. We find this to be a reasonable request and suggest PacifiCorp include this topic in a separate workshop in its 2015 IRP cycle. Topics for discussion should include how forced outages and load volatility are modeled.

L. Step 3 Analysis – Robust Portfolio Identification

The Division and other parties state PacifiCorp did not perform the third stage of the three stage process outlined in the Commission's Report and Order on PacifiCorp's 2008 IRP in Docket No. 09-2035-01 ("2008 Order"). PacifiCorp responds that this step is not a required Guideline and that it chose not to perform this analysis for the 2013 IRP "based upon portfolio results specific to this IRP process."[55] PacifiCorp contends it has followed the three stage process in the past and "intends to continue to follow the Commission's guidance as applicable in future IRPs." We agree that, although not a required Guideline, the third stage identifies an optimal portfolio that is robust across different uncertain futures and we encourage PacifiCorp to utilize

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[55] Id. at 3.

the third stage in the 2015 IRP. However, as we noted previously, we decline at this time to make changes to the existing guidelines.

M. Quantitative Analysis to Support the Preferred Portfolio is Optimal

The Division argues PacifiCorp has not supported its selection of Case EG2-C7a with quantitative analysis. For example, the Division notes PacifiCorp rejected Case EG2-C15 because of the accelerated acquisition of DSM, and the constraint on selecting a CCCT, yet this case is lower cost. PacifiCorp disagrees with the Division that this decision violates any Guideline, and asserts that “this case produced, via quantitative analysis, specific cost and risk metrics that directly influenced PacifiCorp’s 2013 IRP Action Plan.”[56] Since it did not have a study to quantify data inputs for the accelerated acquisition of DSM, PacifiCorp argues it used stakeholder driven inputs so that the case could be quantitatively produced. However, PacifiCorp notes this stakeholder-defined case also prohibits a CCCT resource from being selected. Therefore, PacifiCorp argues that the portfolio developed from this case violates Guideline 4b which requires consistent and comparable consideration of resources, and this explains, in part, its rejection of the case as a preferred portfolio.

PacifiCorp provides its explanation for its decision to reject Case EG2-C15 and we find the 2013 IRP includes adequate quantification of the cost consequence to ratepayers of PacifiCorp’s decision to reject Case EG2-C15. Further, by including the accelerated DSM metrics from Case EG2-C15 into its action plan, PacifiCorp has not entirely rejected a key difference in this portfolio. We encourage PacifiCorp to work with stakeholders in the 2015 IRP

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[56] Id. at 4.

cycle to ensure cases of interest to stakeholders, including sensitivity cases, are fully evaluated against cost, risk and performance measures.

N. Hydro Risks

UCE argues climate change could decrease available hydropower generation capacity and recommends PacifiCorp address this issue in its stochastic risk analysis. PacifiCorp responds that "[a]t present, there is tremendous uncertainty around how climate change might specifically impact PacifiCorp's system and an equal level of uncertainty around how climate change scenarios might be best analyzed in the context of an IRP."[57] We suggest issues of this nature, dealing with uncertain future impacts, are best addressed through scenario analysis. We encourage PacifiCorp to engage stakeholders in developing scenarios to address and update key uncertainties.

O. DSM Potentials Study

UCE and SWEEP provide extensive comments on the 2013 DSM Potentials Study that underlies the 2013 IRP, and concludes the study reflects "business as usual" rather than "full" technical potential. UCE and SWEEP provide specific recommendations to PacifiCorp in order for the next DSM potentials study to present a more complete analysis of PacifiCorp's full technical potential. UCE and SWEEP also recommend PacifiCorp solicit stakeholder input on how the DSM potentials study could be conducted to reflect more accurately the technical potential of energy efficiency and DSM programs.

PacifiCorp responds that it believes the 2013 DSM Potentials Study is an accurate and independent assessment of DSM potential and that it is "sufficiently reliable and firm to

[57] Id. at 17.

include as inputs to the 2013 IRP."[58] Nonetheless, PacifiCorp commits to consider most of UCE and SWEEP's specific recommendations when conducting the next study.

We appreciate the extensive review of and comment on the 2013 DSM Potentials Study by UCE and SWEEP. We also support PacifiCorp's response and commitment to consider UCE and SWEEP's specific recommendations. We note PacifiCorp provided a link to access the 2013 DSM Potentials Study in the 2013 IRP but did not file it as required. We direct PacifiCorp to file the 2013 DSM Potentials Study in this docket within 45 days.

P. Demand Side Resource Acquisitions

The Division commends PacifiCorp for its approach to modeling DSM resources in the 2013 IRP. The Division notes incremental DSM resources contribute 67 percent of currently forecasted load growth through 2022. The Office also remarks on the Preferred Portfolio's heavy reliance on DSM noting it accounts for over 50 percent of resource additions in the first 10 years of the planning horizon. Both the Division and Office support the pursuit of cost effective DSM but note the uncertainty relative to actually achieving the amounts in the Preferred Portfolio or the amounts contained in the accelerated DSM acquisition goals. The Division and Office recommend close monitoring of DSM actual achievements. The Office recommends PacifiCorp be required to report the amount of capacity a class 2 DSM program will contribute to the annual DSM targets in the IRP, when a program is filed for approval or modification. The Division recommends PacifiCorp evaluate whether the additional cost granularity achieved in the 2013 IRP outweighs the effect this granularity has on model performance.

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[58] Id. at 15.

PacifiCorp "proposes that energy savings contributions from the new program be compared at the time of initial filing on an energy basis instead of a capacity basis."[59] PacifiCorp argues the actual energy and capacity savings of a program are reported in its annual Energy Efficiency and Peak Reduction Report currently filed with the Commission, and that this should be sufficient information to meet the DSM Steering Committee requirements.

We agree the significant reliance on DSM needs to be closely monitored. We concur with the Office that expected capacity contribution to IRP DSM capacity goals should be provided in any application for DSM program approval.

Q. Relationship of the 2013 IRP to Avoided Cost Determinations

UCE and Interwest note the link between the IRP results and avoided cost determinations. We accept PacifiCorp's Preferred Portfolio as the basis for avoided cost determinations for Schedule Nos. 37 and 38. The Preferred Portfolio will be considered reasonable until it is changed following review of a new action plan filed by PacifiCorp. We invite comment on the use of the Preferred Portfolio for avoided cost determinations in the 2013 IRP Update. We request parties provide comment on this subject in all IRP review cases going forward.

UCE also requests the Commission "open a docket to investigate changing the definitions of periods of resource sufficiency and deficiency to include consideration of [PacifiCorp's] and ratepayer's reliance on [front office transactions] and the market. This is timely and critical given [PacifiCorp's] heavy reliance on [front office transactions] throughout

[59] Id. at 8.

the planning horizon."[60] PacifiCorp responds that it believes this issue is best addressed in dockets on avoided cost and that the Commission recently ruled on this issue in Docket No. 12-035-100. We concur with PacifiCorp this issue is more appropriately raised in an avoided cost proceeding.

R. Link to Business Plan

We note PacifiCorp did not present the Business Plan as a sensitivity case in the 2013 IRP. We remind PacifiCorp to provide this sensitivity in the 2013 IRP Update and all future IRPs.

IV. SUMMARY AND CONCLUSIONS

We recognize the substantial body of work completed by PacifiCorp in preparing the 2013 IRP and in incorporating much of the guidance contained in our March 22, 2012, Order. We also appreciate the hard work and thoughtful comments provided by state agencies and interested 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 the document and parties participation in the process and review stages.

While we view the IRP as an evolving process, we find PacifiCorp has sufficiently complied with the Guidelines and therefore we acknowledge the 2013 IRP. We provide guidance herein to assist in achieving greater usefulness and transparency of IRP results and encourage wider ranges of sensitivity cases and greater use of resource acquisition path analysis for transparency of PacifiCorp decisions as market and regulatory changes occur. Per

[60] UCE, *supra* note15, at 21.

Utah Administrative Code Rule 746-430-1, we will provide notice of a scheduling conference each time the Company submits an action plan related to an IRP in order to set a schedule for discovery and comments.

V. ORDER

We acknowledge the 2013 IRP as filed.

DATED at Salt Lake City, Utah, this 2nd day of Januray, 2014.

/s/ Ron Allen, Chairman

/s/ David R. Clark, Commissioner

/s/ Thad LeVar, Commissioner

Attest:

/s/ Gary L. Widerberg
Commission Secretary
DW#249622

CERTIFICATE OF SERVICE

I CERTIFY that on the 2nd day of January, 2014, a true and correct copy of the foregoing REPORT AND ORDER was served upon the following as indicated below:

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