ITEM NO. 3

PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: December 6, 2011

REGULAR X **CONSENT** ____ **EFFECTIVE DATE** **Upon Commission Approval**

DATE: November 28, 2011

TO: Public Utility Commission

FROM: Erik Colville

THROUGH: Lee Sparling and Maury Galbraith MG

SUBJECT: PACIFICORP: (Docket No. LC 52) Acknowledgement of 2011 Integrated Resource Plan.

STAFF RECOMMENDATION:

Staff recommends the Commission acknowledge PacifiCorp's 2011 Integrated Resource Plan (IRP) with revised action items as reflected in Attachment A. Staff presents in its final comments and the discussion below the reasons underlying these recommended action item revisions.

DISCUSSION:

On August 25, 2011, Staff filed Initial Comments in this docket. On October 13, 2011, Staff filed a Draft Proposed Order and Staff Final Comments and Recommendations regarding PacifiCorp's 2011 IRP (Docket No. LC 52). Reply comments were filed on November 3, 2011 by PacifiCorp (or Company), the Citizens' Utility Board (CUB), the Northwest Energy Coalition (NWEC), the Oregon Department of Energy (ODOE), the Renewable Northwest Project (RNP), and the Sierra Club. Staff discusses below the party and Company reply comments, organized by subject, cross referencing the related IRP Action Item.

Before addressing reply comments, Staff wishes to highlight two central issues in PacifiCorp's 2011 IRP. First, whether continuing to utilize the Company's existing coal fired resources is part of a resource strategy with the best combination of cost and risk for PacifiCorp and its ratepayers. Second, whether acquiring a new supply-side thermal resource (the proposed 2016 combined cycle combustion turbine (CCCT)) is part of the resource portfolio with the best combination of cost and risk. On the first matter, Staff concludes that, for the present time, the Supplemental Coal Replacement Study (Study) presents sufficient evidence supporting continued use of the existing coal fired resources. This conclusion forms the basis for considering other actions in the IRP in more detail. On the second matter, Staff identified sufficient evidence to conclude that PacifiCorp's IRP and its action items do not plan for the maximum amount of cost-effective Class 1, 2 and 3 Demand Side Management (DSM), and Conservation Voltage Reduction (CVR) savings. Staff argues that the Company should pursue all cost-effective demand-side resources prior to acquiring the proposed 2016 CCCT. Without diligently pursuing the maximum amount of cost-effective demand-side resources, Staff concludes that PacifiCorp's preferred resource portfolio does not represent the best resource portfolio for the Company and its ratepayers.

Evaluation of Environmental Compliance Costs for Existing Coal-fired Plants (Action Item 8)

Reply Comments

NWEC, Sierra Club, RNP and CUB disagree with Staff's conclusion in final comments regarding PacifiCorp's Study, stating that the study provides insufficient information to comply with IRP guidelines 4(g) and 1(c). While all acknowledge the Study is an improvement on the information provided in the initial IRP filing, these parties argue it still does not contain the unit-by-unit analysis necessary to evaluate the prudency of PacifiCorp's proposed investments in upgrading the plants to meet environmental compliance regulations. Each of the parties urge the Commission to not acknowledge the 2011 IRP until PacifiCorp provides the information needed to evaluate the cost and risk of investing in coal plant upgrades as compared to investing in other resource options. CUB and NWEC particularly emphasize the urgency of the issue in not allowing more upgrade costs in aging coal plants before a thorough analysis is performed.

Sierra Club states that the Study omitted sufficient detail and explanation such that the Commission and stakeholders cannot reasonably interpret whether PacifiCorp made assumptions that favor the outcome of continuing to retrofit and operate the coal plants. Sierra Club said that the Study:

- Assumed that the most significant environmental costs are unavoidable;
- Lacked a unit-by-unit assessment of the plant;
- Correlated gas and CO_2 pricing without a basis for doing so;

- Artificially limited the role of renewable energy in providing low-cost power;
- Disregarded the important potential environmental cost of draft effluent limitation guidelines;
- Failed to allow for avoided transmission investments if eastern coal plants were to be retired.

Sierra Club requests that the Commission direct the company to immediately hold technical workshops with Staff and stakeholders in order to satisfactorily complete the coal utilization study.

ODOE's concerns about the Study include:

- The Study does not capture environmental regulatory investment costs between 2005 through 2010 as part of the system-wide investment costs;
- The Study does not capture economic trade-offs among various replacement resource alternatives.

ODOE concurs with Staff's concern regarding how the net present value assessment for pollution control investments were factored in for early-retirement of facilities but not for continued operation.

CUB states the Study only shows that it is uneconomic to invest in pollution control upgrades and then shut down the coal units. CUB asserts the analysis misses the main point of the study which should be to determine whether it is least cost/least risk to shut down coal plants earlier and rely on other resources. It notes that the computer model does not explore coal plant closure options until 2015. In doing so, the model assumes that all costs incurred to reach 2015 environmental compliance deadlines are unavoidable and are treated as sunk costs associated with closing the plant. "It would be imprudent and stupid to spend tens of millions of dollars on pollution control in 2014 for a unit that will shut down in 2015, but that is the basic assumption built into the study." CUB states that the Study makes clear that this IRP is Oregon's one chance to move away from an energy system that is reliant upon coal.

In reply comments, the Company notes Staff's proposed new action item requiring an updated Coal Replacement Study for the 2011 IRP Update that addresses emerging environmental regulatory flexibility that might allow compliance cost avoidance through early shutdown of coal units. The Company agrees with the proposed action item. The Company also states:

> "However, PacifiCorp disagrees with the assertion that its treatment of depreciation is flawed and needs correcting, and recommends that the last sentence of the proposed action item be removed. PacifiCorp's treatment of depreciation is consistent with the real levelized revenue requirements methodology that has been used by the Company for many years. The real levelized revenue requirements methodology is intended to address cost comparisons of assets with economic lives that extend past the analysis period. In calling out depreciation for pollution control investments beyond the end of the simulation period, Staff does not account for the inclusion of the operating expenses of any replacement resources in the portfolios."

<u>Staff Response</u>

Since filing its final comments, Staff received the Company's response to data request 198, which included a confidential spreadsheet. The spreadsheet presented a calculation of the on-going fixed costs for each of its coal resources (unit by unit) from 2009 through 2040. The on-going fixed costs included estimates of fixed operation and maintenance, on-going capital, and fixed environmental compliance. The fixed environmental compliance costs included: clean air capital investment operation and maintenance and capital recovery; MACT (maximum achievable control technology) operation and maintenance and capital recovery; cooling water intake capital recovery; coal combustion by-product capital recovery, and mining capital recovery. These on-going fixed costs were used in the System Optimizer model for preparation of the Study[1]. In its review of the confidential spreadsheet, Staff found that PacifiCorp had considered and analyzed the suite of environmental compliance cost elements that are known and reasonable to consider at this time. Staff notes that on-going fixed costs are only a part of the total costs necessary to accurately compare resources, but that these calculations of on-going fixed costs provide useful insight into the data used to support resource comparisons in the Study.

Treatment of Post-2030 Depreciation Expenses / Treatment of Post-2030 Costs

In reply comments the Company notes Staff's proposed new action item requiring an updated Coal Replacement Study for the 2011 IRP Update that addresses emerging environmental regulatory flexibility that might allow compliance cost avoidance through

[1] Supplemental Coal Replacement Study page 1 last paragraph

early shutdown of coal units. The Company agrees with the proposed action item. The Company also states:

> "However, PacifiCorp disagrees with the assertion that its treatment of depreciation is flawed and needs correcting, and recommends that the last sentence of the proposed action item be removed. PacifiCorp's treatment of depreciation is consistent with the real levelized revenue requirements methodology that has been used by the Company for many years. The real levelized revenue requirements methodology is intended to address cost comparisons of assets with economic lives that extend past the analysis period. In calling out depreciation for pollution control investments beyond the end of the simulation period, Staff does not account for the inclusion of the operating expenses of any replacement resources in the portfolios."

Staff considered the Company's reply comment and agrees that the revenue requirement calculations in an IRP do not include costs beyond the analysis period. Given the Company's reply comment, Staff also recognizes its comment should have been worded to address all post-2030 costs, not just depreciation. Regardless, when this treatment of post-2030 costs is used in the Study, Staff is still concerned it produces a bias (inaccuracy) because it ignores streams of costs, differing from one another, for the period after 2030. To address this concern, Staff recommends PacifiCorp provide, in the revised Study due with the Company's 2011 IRP Update, a concise explanation and transparent example of its treatment of post-2030 costs that will answer the question of whether this treatment biases the Study conclusion.

Treatment of Pre-2015 Regulatory Compliance Costs

Sierra Club and CUB identified that the Study considers pre-2015 environmental compliance investments as unavoidable, thus biasing the Study conclusion in favor of continued operation. Staff performed an evaluation of the likely impact the pre-2015 investments may have on the Study conclusion. Staff used the spreadsheet provided in response to data request 198 (as described above) to calculate the impact of the pre-2015 investments on the on-going fixed costs. While the impact of the pre-2015 investments varies by unit, the data provided by PacifiCorp shows it is in the range of two to five percent of the 20 year on-going fixed cost NPV. Based on this evaluation, Staff concludes that considering the pre-2015 investments in the Study as unavoidable likely does not significantly bias the Study conclusion. Staff concludes this because on-going fixed cost is but one, relatively small (based on IRP Table 6.3), component of total cost. Staff also notes that the Study modeling performed by PacifiCorp uses total cost to derive its results. Nevertheless, Staff recommends the Study be revised to address this analytical concern. PacifiCorp should submit the revised Study as part of its IRP Update in March 2012.

Correlation of CO_2 and Natural Gas Prices in Scenarios

Sierra Club commented that the Study includes a base case, as well as high and low scenarios, but both the gas and CO_2 prices were pushed in the same direction and thus neither scenario provided useful sensitivities for the purposes of independently evaluating the coal resources. Sierra Club bases its comment on questioning the Company's implicit assumption that CO_2 prices and gas prices are correlated, despite presenting no evidence of or theoretical foundation for such a correlation. Staff reviewed the Company's response to Sierra Club data request 8 and is convinced there is an implicit assumption by the Company of a correlation between natural gas price and CO_2 emission cost. Staff believes it is reasonable to assume that natural gas price may increase in response to an increased demand cause by imposition of a cost for CO_2 emissions. Staff concedes, however, that this conclusion is based on a theoretical foundation with no support from empirical evidence. Staff recommends the Company include, in its revised Study due with the IRP Update, natural gas and CO_2 cost assumptions pairing high-with-low, in addition to the high-with-high pairings and low-with-low pairings.

Replacement Resource Alternatives

Staff considered the Sierra Club comment that the Study excludes intermittent renewable resource alternatives from replacing the existing coal resources, implying that PacifiCorp is a capacity limited, rather than energy limited system. Staff's initial comments reported confirming a capacity deficit beginning in 2011. As a result, Staff concludes intermittent resources, on their own, would be an inappropriate resource selection for replacement of coal resources. However, Sierra Club's comment brings to light an interesting question; whether an intermittent resource coupled with a peaking resource, such as a simple cycle combustion turbine (SCCT), might be a cost-effective resource alternative. In Staff's judgment, this resource alternative is not likely to be cost-effective, but it is, none-the-less, an alternative. Barring a show of cost-effectiveness, Staff agrees with the Company that intermittent resources would be an inappropriate resource selection for replacement of coal resources.

Future EPA Effluent Limitations

Sierra Club notes in its reply comments that the Study disregards effluent limitation guidelines EPA is expected to issue as draft in the summer of 2012, and to finalize by

2014. Staff concludes it is reasonable to ask PacifiCorp to include modeling of these costs in the revised Study to be submitted with its 2011 IRP Update.

Impact of Coal Unit Shutdown on the Need for Transmission

Sierra Club comments that the Study does not consider how much of the Energy Gateway transmission project could be avoided if the Company were able to retire east-side coal resources and build new generation on the west-side of its system, closer to load centers. Staff notes that NWEC and RNP expressed a similar line of reasoning in their final comments. Staff finds merit to this line of reasoning. In considering this reasoning, Staff recognizes that if certain coal resources were to be retired early, and the vicinity of the retired coal resources was favorable for location of new resources anticipated to be served by segments of the Energy Gateway transmission project, it may be possible to serve the new resources with the existing transmission segments that once served the coal resources. While Staff recognizes merit in this line of reasoning, the three segments of Energy Gateway for which the Company has requested acknowledgement do not serve the vicinity of existing east-side coal resources, and therefore do not offer the potential to be displaced by freed-up transmission capacity. Staff therefore does not recommend directing PacifiCorp to add evaluation of the Energy Gateway transmission project into the Study. Staff does recommend PacifiCorp continue to re-evaluate each segment of the Energy Gateway project during annual business planning and IRP cycles to ensure optimal benefits and timing before moving forward with permitting and construction.[2]

Company Compliance with Study Request / Value of Filed Study

In reply comments, CUB and Sierra Club presented a general comment that the Study did not comply with the request by the Commission, Staff, and parties for a unit by unit investigation into whether there is flexibility in the emerging environmental regulations that would allow the Company to avoid early compliance costs by offering to shut down individual units prior to the end of their useful lives. Staff agrees that the Study did not comply with this request, and continues to recommend the Company be required to provide the requested investigation with its 2011 IRP Update. CUB proceeded in its comments to state that the Study does not provide a reasonable basis upon which to evaluate PacifiCorp's coal investment. Staff disagrees with this conclusion. In its review of the Study and responses to related data requests, Staff concludes the Study provides useful insight into how the existing coal resources, after being brought into full compliance with emerging environmental regulations, as they are currently understood, compare to replacement resources. In addition, Staff observes that the Study and evaluation of responses to data requests identifies sufficient evidence supporting

[2] PacifiCorp's Response to Comments, dated September 21, 2011, at page 18.

continued use of the existing coal resources. It is this conclusion and observation by Staff that drive its response to reply comments. Staff re-affirms its final comment that the Study sufficiently solidifies the basis of the IRP.

As suggested by Sierra Club, Staff recommends the Commission direct the Company to hold a technical workshop with Staff and stakeholders in order to satisfactorily complete a revised Study. Staff recommends the workshop be scheduled for the month of January, on a day and at a time fitting for the majority of stakeholders. Staff further recommends that representatives from each of PacifiCorp's regulatory jurisdictions be invited to attend this workshop.

Staff Recommendation

Staff concludes that, for the present time, the Study presents sufficient evidence supporting continued use of the Company's existing coal fired resources as part of a resource strategy with the best combination of cost and risk for PacifiCorp and its ratepayers. This conclusion forms the basis for considering other action items in PacifiCorp's 2011IRP in more detail. However, Staff identified several potential biases and gaps in the Study and recommends that the Commission add the following requirement to its acknowledgment of PacifiCorp's Action Item 8:

- PacifiCorp will file its next IRP Update in March 2012. The IRP Update will include a revised Supplemental Coal Replacement Study. The revised Study will investigate whether there is flexibility in the emerging environmental regulations that would allow the Company to avoid early compliance costs by offering to shut down individual units prior to the end of their useful lives. The Company will also conduct further plant specific analysis to determine whether this tradeoff would be in the ratepayers' interest. In these additional analyses, the Company will provide a concise explanation and transparent example of its treatment of post-2030 costs, will provide an analysis that shows the results of treatment of environmental investments made prior to 2015 both avoidable and unavoidable, and provide additional natural gas and CO_2 cost scenarios that pair high CO_2 and low natural gas prices and low CO_2 and high natural gas prices. To guide and inform the revised Study, the Company will schedule a workshop with stakeholders to occur in January 2012. PacifiCorp will invite to this workshop representatives from each of its regulatory jurisdictions. The Company will develop and seek Commission acknowledgement of specific action items related to coal plant investments.

Energy Efficiency (Class 2 DSM) Resource Analysis (Action Item 6)

In its final comments, and response to reply comments below, Staff presents its case for concluding PacifiCorp's 2011 IRP and its action items do not plan for the maximum amount of cost-effective Class 2 DSM. In reply comments, the Company states:

> "The Company disagrees with Staff's assertions regarding the amount and speed of energy efficiency that can be achieved in states other than Oregon, and opposes the revised action item."

and

> "Staff is inappropriately replacing its own judgment for the Company's role of system resource planner, which is inconsistent with the Commission's IRP Guidelines."

Staff did not find convincing the case PacifiCorp presented, in its reply comments, for the Company's on-going disagreement with Staff's analysis conclusion. To avoid the appearance of replacing the Company's judgment with Staff's, instead of recommending specific action item revisions, Staff recommends that the Commission not acknowledge the first bullet item in Action Item 6 – Class 2 DSM. Staff continues to conclude that PacifiCorp's 2011 IRP and its action items do not plan for the maximum amount of cost-effective Class 2 DSM, and Staff continues to recommend that PacifiCorp diligently pursue the maximum amount of cost-effective Class 2 DSM prior to acquiring supply-side thermal resources to fulfill any remaining need. Staff's response to reply comments is presented below, so that the record of its analysis is complete.

<u>Reply Comments</u>

In reply comments, NWEC, Sierra Club, RNP, and CUB agree with Staff's recommendations that the Commission require the Company to include higher, firm commitments to achieving DSM in 2011 IRP, and that it be required to substitute DSM resources in lieu of a 2016 CCCT (combined cycle combustion turbine) acquisition.

NWEC notes that the results of a thorough coal analysis may impact Demand Side Management in this IRP. However, absent this information, NWEC agrees with Staff's recommendations.

Sierra Club reiterates its position that the IRP does not adequately address the achievable energy efficiency potential in PacifiCorp's service territory. Sierra Club believes DSM analysis in the IRP is deficient and notes that:

- The plan allows for significantly lower annual maximum energy savings that were achieved in other jurisdictions;

- Energy efficiency ramp rates appeared to be "deeply conservative";

- The analysis overestimated the cost of energy efficiency in non-Oregon states.

Regarding Class 2 DSM, according to Sierra Club, the data provided by the Company was inadequate for peer reviewers to validate the legitimacy of the analysis conducted for the plan.

The Company disagrees with Staff's assertions regarding the amount and speed of energy efficiency that can be achieved in states other than Oregon, and opposes the revised action item. In regard to Staff's observation that Oregon has a much higher capacity contribution than Washington as a percent of load, the Company's response is that this comparison is inaccurate. With respect to Staff's last point—that the System Optimizer model selected all of the energy efficiency resources available in Oregon but not in PacifiCorp's other states—the Company concurs with Staff's observation but not its explanation. The Company disagrees with Staff's assertion about the use of ramp rates and their effect on resource acquisitions, and opposes this new action item. PacifiCorp believes the proposed bundling action item is unnecessary. Finally, the Company objects to a requirement to produce a staffing sufficiency study as part of the resource planning process, and requests that this action item be removed from the draft acknowledgment order.

Staff, along with NWEC, CUB and Sierra Club, believe the Company is underestimating the amount and speed of energy efficiency that can be achieved in states other than Oregon, and as a result supply-side resources are being chosen which customers will pay more for and be subject to greater risks. Additionally, Staff concurs with a point made by Sierra Club that PacifiCorp "did not provide adequate data for peer reviewers to validate the legitimacy of the [DSM] analyses conducted".[3]

[3] Page 8 of Sierra Club's Reply Comments to in the matter of PacifiCorp 2011 Integrated Resource Plan (LC 52) recorded 11/3/2011

Staff Response

Total Savings Compared to Load

Oregon represents 22 percent of total load in MWh and 21 percent of the forecasted coincident peak load, and 48 percent of the total DSM capacity in the preferred portfolio (for details refer to the related discussion in Staff's final comments). Staff believes there should not be such a discrepancy between how much cost effective energy efficiency is possible in Oregon versus other states. Oregon has been weatherizing electric homes since 1978, so there should be even more savings per unit load available in states with newer programs where lots of "low hanging energy efficiency fruit" still remains. The Company indicates that Oregon's DSM potential numbers are too high based on incorrect data provided by the Energy Trust of Oregon (ETO). The Company indicates it became aware of this incorrect data in July of 2011, but no attempt was made to provide corrected numbers or analysis to Staff and other parties, so it is unknown if and to what extent the changed data affects results.

Sierra Club, in its reply comments, pointed out, and Staff agrees, that PacifiCorp's energy efficiency savings as a percent of retail load is lower than other utilities in the region. In PacifiCorp's reply comments it states that the forecasted acquisitions average 0.8 percent of the Company's forecasted retail sales over each of the next 10-years.[4] Sierra Club, in its reply comments points out some leading states and utilities have already achieved energy efficiency savings of 1.5 percent to 2 percent (e.g., Vermont, Hawaii, Minnesota, Massachusetts), and the ETO recently achieved over 1.3 percent savings.[5] In terms of planning, according to Sierra Club's reply comments, at least 11 states established goals of annual energy savings at or above two percent of retail sales in the near future, compared to PacifiCorp's plan of 0.8 percent.[6]

Resource Potential Study and Savings versus Capacity

The Company reported a total achievable potential of 4,253 MW of forecasted DSM 2 capacity contributions by 2030 in all states based on the resource potential study completed by CADMUS, and projections developed with the ETO. Of this, only 2,557 MW (60 percent) made it into the preferred portfolio for 2030. For 2020 the Company reported a total achievable potential of 1,887 MW of DSM 2 by 2020. Of this, only 1,186 MW was selected for the preferred portfolio (62 percent). Of the 1,186 MW that was

[4] Page 12 of LC 52 - PacifiCorp's reply to Staff's final comments, November 3, 2011
[5] Page 12 of Sierra Club's Reply Comments to in the matter of PacifiCorp 2011 Integrated Resource Plan (LC 52) recorded 11/3/2011
[6] Page 8 of Sierra Club's Reply Comments to in the matter of PacifiCorp 2011 Integrated Resource Plan (LC 52) recorded 11/3/2011

selected for the preferred portfolio, only 566 MW (or 48 percent) is assumed to be available at the time of annual system coincident peak in 2020.

In its reply comments, the Company discusses how its consultant, CADMUS, developed the achievable savings potential from the total technical savings potential; with that, Staff has no concern. Staff's concern is that the Company does not address why so little of the achievable potential identified by CADMUS was included in the preferred portfolio.

NWEC summarized in its reply comments (refer to the table below) how the amount of energy efficiency selected by PacifiCorp for states other than Oregon is surprisingly lower than the energy efficiency that CADMUS reported as technically available and achievable in those states, and that the Company did not adequately explain the basis for including such a low percentage of the technically achievable DSM.

STATE	CADMUS Technical and achievable savings (MW) by 2030[7]	Class 2 DSM selected in Preferred Portfolio (MW) by 2030[8]
Idaho	104	11
Utah	2,013	976
Wyoming	267	267
California	41	30
Washington	226	170
TOTAL	2,651	1,454

Staff believes that the Company can achieve more than the projected total savings, and therefore more capacity savings. Staff also questions the capacity factors used for efficiency measures in each state, and the basis for those capacity factors. For instance, in Oregon, the capacity planning factor for the lowest price bundle is 0.22 but for the next two bundles, the capacity planning factor was set at zero.

Bundles

The Company bundles DSM 2 measures together for input to its model. Staff is concerned that the current bundling methodology and selection of endpoints for each bundle is arbitrary, confusing, and causing less DSM 2 to be selected than other resources.

[7] Assessment of Long-Term, System-Wide Potential for Demand-Side and Other Supplemental Resources Volume I, CADMUS, Table 53, p. 49.
[8] PacifiCorp IRP, Vol. 1, Table 8.16, p.230

The lowest price bundle includes measures costing between 0-$70/MWh. In Utah, this bundle represents 65 percent of total achievable savings and has an overall bundle price of $57/MWh. The next most expensive bundle in Utah has a price of $74/MWh. For comparison purposes, a CCCT costs approximately $65/MWh with no cost for CO_2 emissions, or roughly $70/MWh with a $19 CO_2 tax. In contrast, all of the Oregon measures are fit into three bundles with average prices of $47, $59 and $54/MWh.

The Company confirms that judgment is involved in defining the bundles and comments that bundles were selected based on "experience in modeling the supply curves, and were designed to account for the likelihood of uneconomic measures being selected by the model as well as economic measures being excluded by the model".[9] The Company suggests that in the future it will ask the ETO to provide supply curve data at graduating points beyond what is likely to be cost effective, thereby allowing System Optimizer to perform the economic screen for all states. Staff questions this approach and the ability of System Optimizer to transparently select what measures are cost effective. Instead, Staff recommends a more effective and transparent method for evaluating which measures are cost effective be established. Additionally, Staff agrees with NWEC in its reply comments that as part of an analysis of alternatives to current bundling methodologies, a thorough examination should be made of how the approaches for Oregon and other states differ, and the affect on DSM selection of these differing approaches. Ultimately, a methodology should be used for all states whereby all cost effective DSM is selected.

Staff recommends that for the 2011 IRP Update, the Company work with interested parties to evaluate alternatives to the current supply curve methodology for bundling, modeling and selecting cost effective DSM resources.

Ramp Rates

Ramp rates refer to how quickly DSM 2 measures can be achieved. Ramp rates are based on:

a) Adoption rates of energy efficiency - a function of the market

b) Ramp rates of specific programs - a function of programs and how they are implemented by the company

CADMUS proposed market ramp rates in its resource potential study. PacifiCorp modified those ramp rates based on the "company's specific implementation constraints

[9] Page 12 of LC 52 - PacifiCorp's reply to Staff's final comments, November 3, 2011

not accounted for in the potential assessment".[10] The Company does not indicate specifically how ramp rates were modified, and what the basis was for those modifications. In addition, it has not clearly presented the ramp rates used.

Staff is not opposed to the use of ramp rates, as the Company suggests in its reply comments. Rather, Staff is opposed to the Company modifying its consultant's ramp rates without providing a basis or clearly disclosing what ramp rates were used. Staff agrees with NWEC's statement that "we do not feel that the company has provided enough information to provide an accurate analysis of how these ramp rates were determined in order to fully examine the accuracy of those rates in determining DSM achievement potential."[11]

Sierra Club points out in its reply comments that "ramp rates" apparently modeled in PacifiCorp's IRP show that savings in Utah drop by nearly a half in 2014. This strongly calls the Company's ramp rate methodology into question.

In the model, supply-side resources are planned and "ramped up" well in advance of their need. The Company in its reply comments suggests that ramping DSM resources cannot be compared to ramping supply-side resources because the Company cannot control customer participation in utility energy programs as it can with the building of a supply-side resource. Staff contends that, like supply-side resources, the Company must plan and ramp up DSM activities in advance of their need so the resources are available to augment other resources. Staff further contends that waiting to begin programs until the year the demand-side resource is needed is not in the best interest of rate payers.

Staff recommends that in the next IRP the Company work with interested parties to present and evaluate alternatives for ramping up class DSM 2 such that Class 2 DSM resources are treated equally with supply-side resources in terms of development and procurement.

Staffing Levels

Staffing levels, while not typically addressed in an IRP, are relevant to the extent they interfere with the ability to deliver the best cost and best risk alternative to rate payers. As mentioned in earlier comments, Staff is concerned that PacifiCorp's staffing levels are limiting the program implementation rates, and therefore ramp rates and savings.

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[10] From page 9 of the Company's reply comments

[11] Page 6 Response Of The NW Energy Coalition To Staff Comments And Recommendations in the matter of PacifiCorp 2011 Integrated Resource Plan

The Company suggests in its reply comments that staffing sufficiency is a delivery issue not a planning issue and contends that it has consistently met resource acquisition targets as identified in prior IRPs "except where economic changes between planning periods have resulted in a delayed need for the resources planned".[12] Staff suggests that, although targets may have been met in the past, the targets themselves may have been appropriately more aggressive if the Company's DSM staffing levels were more robust. For example, the Company admits that they modified CADMUS's recommended ramp rates to reflect "Company's specific implementation constraints not accounted for in the potential assessment." If staffing levels were more robust, presumably the need to rachet down ramp rate potentials established by third party consultants would be reduced or eliminated, and customers would get the benefit of more cost effective conservation as the lowest cost resource.

Staff recommends that as part of the Company's 2011 IRP Update it include a third-party assessment of how staffing levels at the Company are supporting or limiting delivery of Class 2 DSM as compared to programs at other utilities. The Company contends that such a study would require extensive benchmarking and relationship mapping work to compare different utility delivery models, etc. Staff is confident that such a study could reasonably be completed by a specialized consultant.

<u>Staff Recommendation</u>

Staff continues to conclude that PacifiCorp's 2011 IRP and its action items do not plan for the maximum amount of cost-effective Class 2 DSM, and Staff continues to recommend that PacifiCorp diligently pursue the maximum amount of cost-effective Class 2 DSM before acquiring new supply-side thermal resources. As discussed above:

> Staff recommends that for the 2011 IRP Update, the Company work with interested parties to evaluate alternatives to the current supply curve methodology for bundling, modeling and selecting cost effective DSM resources.
>
> Staff recommends that in the next IRP the Company work with interested parties to present and evaluate alternatives for ramping up class DSM 2 such that Class 2 DSM resources are treated equally with supply-side resources in terms of development and procurement.
>
> Staff recommends that as part of the Company's 2011 IRP Update it include a third-party assessment of how staffing levels at the Company are supporting or limiting delivery of Class 2 DSM as compared to programs at other utilities. The Company contends that such a study would require extensive benchmarking and

[12] Page 12 of LC 52 - PacifiCorp's reply to Staff's final comments, November 3, 2011

relationship mapping work to compare different utility delivery models, etc. Staff is confident that such a study could reasonably be completed by a specialized consultant.

Load Control (Class 1 DSM) and Price Response (Class 3 DSM) Resource Analysis (Action Items 5 and 7)

In reply comments, the Company states:

> "The Company disagrees with: 1) Staff's characterization that not implementing Class 3 DSM unnecessarily raises cost and/or risk for Oregon customers; 2) the assertion that the Company is reluctant to implement Class 3 DSM; 3) Staff's use of the Company's Class 3 DSM sensitivity analysis as the basis for substituting preferred portfolio resources; 4) imposition of mandatory Class 3 DSM resource targets because they are not realistic or supported with Staff's own analysis; and 5) Staff's proposed modification of Action Item 7."

and

> "The Company objects to Staff setting resource targets for time-varying rate programs in other states that depend on approval and policies by the respective utility commission in each state."

In its final comments, and response to reply comments below, Staff presents its case for concluding PacifiCorp's 2011 IRP and its action items do not plan for the maximum amount of cost-effective Class 1 and 3 DSM. The case presented by the Company, in reply comments, for its on-going disagreement with the conclusion from Staff's analysis offered no new information that would cause Staff to modify its conclusion. Due to Staff's desire to avoid the appearance of replacing the Company's judgment with its own, instead of recommending specific action item revisions, Staff recommends IRP Action Item 5, except the first bullet, not be acknowledged. Staff also recommends IRP Action Item 7 not be acknowledged. Staff continues to conclude that PacifiCorp's 2011 IRP and its action items do not plan for the maximum amount of cost-effective Class 1 and 3 DSM, and Staff continues to recommend that PacifiCorp diligently pursue the maximum amount of cost-effective Class 1 and 3 DSM prior to acquiring supply-side resources to fulfill any remaining need. What follows is Staff's response to reply comments, so that the record of its analysis is complete.

Reply Comments

CUB supports Staff's position that the Company should acquire additional DSM from outside of Oregon

RNP commends Staff's thorough and determined analysis of DSM and market alternatives to the 2016 CCCT addition, and strongly supports its recommendation that PacifiCorp be required to exhaust those alternatives before pursuing another CCCT.

NWEC commends Staff for its excellent analysis of the DSM sections of the IRP. Staff's analysis clearly illustrates that the Company is underestimating the amount and pace with which DSM can be achieved in states other than Oregon. NWEC recommends that the Commission strongly encourage PacifiCorp to actively acquire all economic Class 1 resources.

PacifiCorp's rebuttal of Staff's proposed Action Item 7 for Class 3 DSM raises six separate points:

> "The Company disagrees with: 1) Staff's characterization that not implementing Class 3 DSM unnecessarily raises cost and/or risk for Oregon customers; 2) the assertion that the Company is reluctant to implement Class 3 DSM; 3) Staff's use of the Company's Class 3 DSM sensitivity analysis as the basis for substituting preferred portfolio resources; 4) imposition of mandatory Class 3 DSM resource targets because they are not realistic or supported with Staff's own analysis; 5) Staff's proposed modification of Action Item 7; and 6) the Company objects to Staff setting resource targets for time-varying rate programs in other states that depend on approval and policies by the respective utility commission in each state."

Staff Response

In response to PacifiCorp's first point regarding whether or not the lack of implementing Class 3 DSM unnecessarily raises costs and/or risks for Oregon customers, the Company fails to note in its reply comments that Staff relies upon the Company's own analysis, Case Study 31, which demonstrates that more Class 1 and Class 3 DSM is economically viable and more cost-effective than its proposed supply-side resource (2016 CCCT). Staff quotes from the Company's own analysis:

> "This additional DSM capacity is sufficient to defer the second and third CCCT resources by one year. The portfolio PVRR decreased by about

> $236 million due to the relatively low cost of administering 3 DSM programs"[13]

Related to point two, the Company comments it is not "reluctant to implement Class 3 DSM"...yet, as seen in Staff's final comments, PacifiCorp fails to model "any" Class 3 DSM in its 2011 IRP preferred portfolio. Further, the Company proposes to change Staff's revised action item, which includes specific acquisition goals, to a general action item equivalent to "continue to evaluate Class 3 DSM resource opportunities." Refer to the specific action item wording presentation below.

> <u>Staff Action Item 7</u>: By 2020 PacifiCorp will implement 262 MW of Class 1 and Class 3 DSM on the East side and 131MW of Class 1 and Class 3 DSM on the West side using a combination of programs (Time of Use (TOU) irrigation, Direct Load Control (DLC) Residential, Real-time pricing-Commercial & Industrial, Demand buy back, Critical Peak Pricing, etc.) as demonstrated in its sensitivity analysis, Case Study 31.

> <u>Company Revised Action Item 7</u>: For the next IRP cycle, PacifiCorp will coordinate IRP preparation with ongoing activities under Docket UM 1415 if applicable.

Staff believes the Company's proposed action item revision is equal to, or more, passive than the Company's original IRP Action Item 7, and further evidence of its reluctance to actively pursue these resource opportunities.

In its third point, PacifiCorp states that it disagrees with "Staff's use of the Company's Class 3 DSM sensitivity analysis as the basis for substituting preferred portfolio resources." However, the Company does not offer any justification for its disagreement. It is worth noting, Staff finds no evidence of PacifiCorp setting a target for the implementation of Class 3 DSM in any of its prior Oregon IRPs. Staff's alternative portfolio indicates that, with other additions, only 126 MW of Class 3 in the West is necessary to offset the 2016 CCCT. Staff's action item relies on Case Study 31, which allows PacifiCorp to select from a suite of various DSM programs to accumulate the 126 MW.

Fourth, the PacifiCorp rebuttal of Staff's comments states that imposing mandatory Class 3 DSM resource targets for time-varying rate programs depend on approval and policies in each jurisdiction. As stated in Staff's final comments,

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[13] 2011 IRP, Chapter 8, p. 246.

> "the model adopting Case Study 31 offers an assortment of DSM programs to choose from, in addition to TOU for irrigators the model chooses from DLC Residential, Real-time pricing-Commercial & Industrial, Demand buy back, Critical Peak Pricing and TOU for irrigators. The fact that the Staff alternative portfolio caused the model to choose mandatory TOU should not distract from the fact that the Company has an assortment of DSM programs to choose from, in addition to TOU for irrigators."[14]

Staff objects to what it sees as the Company's avoidance of pursuing best cost, best risk options in favor of a continual evaluation of Class 3 DSM programs, or waiting to see the final outcome of specific dockets currently before the Commission. Staff believes PacifiCorp's reluctance to implement Class 3 DSM is demonstrated by its lack of modeling any Class 3 DSM in its portfolio, as well as by PacifiCorp's revised recommendation to coordinate its IRP process with the outcome of Docket No. UM 1415, if applicable.

Fifth, Staff proposed revision of Action Item 7. PacifiCorp believes that Staff's action item modification is unnecessary and that the IRP is not the appropriate venue for discussing cost-effectiveness of implemented programs. The Company proposed that this can be implemented through separate reporting requirements. Staff recognizes the choice of words in its proposed action item has created confusion. Staff's intent was not to require a new level of reporting within the IRP but rather to clarify that progress in implementing the specified amounts of cost-effective Class 1 and 3 DSM is necessary. To allow parties to track progress in implementing cost-effective Class 1 and 3 DSM, Staff recommends the Company include in its next three IRP Updates a description of progress toward implementing the action item. In its reply comments, the Company stated "PacifiCorp already summarizes individual action item status in the Action Plan chapter of each IRP." Since PacifiCorp already summarizes action item progress in its IRPs, Staff finds no need to mention a recommendation for the Company to describe progress in those documents.

Sixth, the Company objects to Staff setting resource targets for time-varying rate programs in other states that depend on approval and policies by the respective utility commission in each state. First, Staff wishes to respond to the Company's focus on time-varying rate programs. As presented in Staff's response to the Company's fourth point above, Staff did not set resource targets for time-varying rate programs in other states, but rather recommended setting resource targets to be met using a combination of DSM programs, which could include time-varying rate programs. Second, Staff wishes to address the "other state" matter. Staff analyzed the Company's multi-state

[14] Staff's Final Comments and Recommendations, pg. 15.

IRP and multi-state DSM study, and concluded that the Company is not and has not delineated a plan to pursue all cost-effective Class 1 and 3 DSM. Regardless of jurisdictional boundaries, Staff cannot ignore its charge to "Ensure that safe and reliable utility services are provided to consumers at just and reasonable rates while fostering the use of competitive markets to achieve these objectives."[15] It is in this context that Staff identified specific resource targets, irrespective of whether those targets cross jurisdictional boundaries. Staff finds that it is PacifiCorp's responsibility to coordinate the regulatory decision making differences between its various jurisdictions.

Staff Recommendation

Staff continues to conclude that PacifiCorp's 2011 IRP and its action items do not plan for the maximum amount of cost-effective Class 1 and 3 DSM, and Staff continues to recommend that PacifiCorp diligently pursue the maximum amount of cost-effective Class 1 and 3 DSM before acquiring new supply-side thermal resources. As discussed above, Staff also recommends the Company include in its next three IRP Updates a description of progress toward implementing its action item.

Distribution Energy Efficiency (Action Item 6 continued)

In its final comments, and response to reply comments below, Staff presents its case for concluding PacifiCorp's 2011 IRP and its action items do not plan for the maximum amount of cost-effective CVR (also known as distribution energy efficiency). In reply comments, the Company states:

> "The Company objects to Staff's revisions to this action item."

and

> "The Company also objects to Staff's proposed requirement to include an action plan item in the next IRP to acquire all of the available cost-effective CVR throughout its service area by 2022 based primarily on the Washington feeder study."

In reply comments, PacifiCorp did not offer a convincing argument to support its on-going objection to Staff's analysis conclusion. Staff desires to avoid the appearance of replacing the Company's judgment with its own, so in lieu of recommending specific action item revisions, Staff recommends that the Commission not acknowledge the third

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[15] Mission statement of the Public Utility Commission of Oregon. It is based on the Commission's statutory responsibilities. It was modified in 2000 to reflect an increased emphasis on competition in the statutes and Commission proceedings.

bullet of Action Item 2 – Class 2 DSM. Staff continues to conclude that PacifiCorp's 2011 IRP and its action items do not plan for the maximum amount of cost-effective CVR savings, and Staff continues to recommend that PacifiCorp diligently pursue the maximum amount of cost-effective CVR savings prior to acquiring supply-side thermal resources to fulfill any remaining need. What follows is Staff's response to reply comments so that the record of its analysis is complete.

Reply Comments

In its reply comments "CUB also supports Staff's position that the Company should acquire additional CVR efficiency throughout its territory."[16] Staff is not proposing that the Company acquire CVR without respect to its costs, but that where this is a cost-effective resource, it should be acquired. This seems like a sensible approach to CUB, as it could reduce the Company's costs.

RNP commends Staff's thorough and determined analysis of DSM and market alternatives to the 2016 CCCT addition, and strongly supports its recommendation that PacifiCorp be required to exhaust those alternatives before pursuing another CCCT.

NWEC states in its reply comments "We agree with staff's recommendation that the Company should move more aggressively to implement their conservation voltage reduction measures." Staff's analysis clearly illustrates that the Company is underestimating the amount and pace with which DSM can be achieved in states other than Oregon. NWEC also states "We agree with staff's conclusion that reporting that the study looks promising does not amount to including the results of the study for planning purposes."[17]

The Company objects to Staff's revisions to its CVR action item. The Company also objects to Staff's proposed requirement to include an action plan item in the next IRP to acquire all of the available cost-effective CVR throughout its service area by 2022 based primarily on the Washington feeder study. The Company also objects regarding the applicability of other organization's CVR potential analysis to PacifiCorp's service territory, the Northwest Energy Efficiency Alliance (NEEA), Electric Power Research Institute, and the Pacific Northwest National Laboratory, which make several pivotal assumptions in their analyses that yield conclusions appropriate for systems with existing high voltage.

[16] At page 13 of CUB reply comments.
[17] At page 7 of NWEC reply comments.

Staff Response

PacifiCorp's rebuttal of Staff's proposed action item on conservation voltage reduction revolves around its contention that "PacifiCorp will learn more about CVR applications in the coming years."[18] PacifiCorp does not specify how this information might refute the existence of what current studies and experience identify as a substantial cost-effective, commercially ready CVR resource available for acquisition now. For example, PacifiCorp admits there is an active program by the Electric Power Research Institute.

PacifiCorp claims Staff's proposal is solely based on PacifiCorp's Commonwealth study. Staff disagrees. The Staff proposal is also based on work by the Northwest Power and Conservation Council, and on successful efforts at Avista Utilities, Idaho Power Company and other utilities. Also, Staff's proposed action item does not prejudge the amount of cost-effective savings from CVR in PacifiCorp's service area. PacifiCorp's comments provide no evidence that the proposed time frames in the Staff action item are unreasonable.

The Company also asserts that:

> By the Oregon Commission dictating new timelines and requirements, it circumvents the regulatory process in another state and arguably inappropriately expands this Commission's jurisdiction. [19]

Drawing from the same reasoning presented above in Staff's response to the Company's sixth Class 1 and 3 DSM point, Staff does not agree its recommendation expands the Commission's jurisdiction. Within the existing jurisdiction of the Commission, Company plans and actions are evaluated, and acquisition of a more expensive resource than CVR may be considered in rate recovery proceedings. It is in this context that Staff presented recommended revisions to the Company's CVR action item.

The Company's proposed alternative action item is:

> At a public meeting for the next IRP cycle, the Company will report progress on its Washington CVR implementation plan and findings regarding expected scalability of Washington CVR projects to other parts of the Company's service territory. **The next filed IRP** will include an action plan item specifying **a CVR resource evaluation plan** that considers implementation prospects on a system-wide basis. **[emphasis added]**[20]

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[18] "Reply to the Oregon Staff Final Comments" of Nov. 3, 2011 at 14.
[19] Ibid at 14
[20] Ibid at 15.

Staff disagrees the alternative action proposed by PacifiCorp is adequate. First, Staff sees the Company's proposed alternative to the Staff CVR action item as vague and inadequate. Secondly, Staff notes the lack of a mandate by other state to address CVR in the manner proposed by the Company. Thirdly, from Staff's perspective, a "resource evaluation plan" is not an action plan to acquire a resource over a specified time frame. Lastly, PacifiCorp's action item does not commit to acquire all the cost-effective CVR over any time frame.

It is important to note that the Company reply comments do not challenge Staff's assertion that the Company's 2011 IRP and clarifications (in response to Staff data requests) did not comply with additional Action Item 9 in Order No. 10-066. Staff reasserts the 2011 IRP does not provide an "assessment of [CVR] potential" and the IRP did not incorporate any specific actions related to plans for CVR acquisition. In addition, PacifiCorp did not adjust is load-resource balance for potential CVR actions. As a result, the 2011 IRP does not comply with the related requirements in Order No. 10-066.

Staff concludes PacifiCorp's alternative action item would be a step back from what the Commission acknowledged in 2010.

<u>Staff Recommendation</u>

Staff continues to conclude that PacifiCorp's 2011 IRP and its action items do not plan for the maximum amount of cost-effective CVR savings, and Staff continues to recommend that PacifiCorp diligently pursue the maximum amount of cost-effective CVR savings before acquiring new supply-side thermal resources.

Capacity Planning Reserve Margin Determination (Action Item 8 continued)

<u>Reply Comments</u>

In reply comments, PacifiCorp does not agree with the addition of the PRM action item. While the Company does not object to performing economic analysis of different PRM levels for the next IRP, it points out that such studies yield indeterminate conclusions because the value that is assigned to avoiding capacity shortages is subjective and depends on parties' risk aversion.

<u>Staff Response and Recommendation</u>

Staff notes PacifiCorp's disagreement. Due to the convincing points made in ICNU's final comments, Staff continues to recommend the Company develop its 2011 IRP Update based on a 12 percent planning reserve margin, unless a different PRM is justified by a marginal cost study comparing costs of portfolios that are optimized for achieving the various PRMs, and including estimates of the marginal benefits from a greater PRM.

Need for a 2016 Combined-Cycle Combustion Turbine Resource (Action Item 2)

PacifiCorp states in reply comments:

> "However, the Company objects to Staff's recommendation to replace the preferred portfolio with its own alternate preferred portfolio and cancel the Company's All Source RFP.
>
> The Commission has made it clear in the past that it does not intend to usurp the role of the utility decision-maker. Staff's proposals to change the preferred portfolio and cancel the All Source RFP do just that."

and

> "Staff's proposed approach to have the Company file an IRP Update to justify acquiring supply-side resources after demonstrating diligent pursuit of Staff's alternate portfolio fails to take into consideration the lead time to acquire supply-side resources as well as the acquisition and implementation risks of the demand-side resources envisioned by Staff. Accordingly, the Company recommends that the Commission acknowledge the Company's preferred portfolio and action plan."

In its final comments, Staff presented its case for concluding a portfolio likely exists that could be implemented, at a similar cost and risk as the Company's preferred portfolio, but without the irreversible cost commitment to a new supply-side thermal resource that could prove burdensome in the event that the forecasts are not accurate. In presenting its case, Staff was guided by preference for a portfolio that offers planning flexibility to accommodate the three proposed CCCTs if circumstances warrant, but with the primary intention of meeting the energy and capacity need with a more flexible approach. As documented in its final comment discussions of Energy Efficiency (Class 2 DSM) Resource Analysis, Load Control (Class 1 DSM) and Price Response (Class 3 DSM) Resource Analysis, Distribution Energy Efficiency, and Capacity Planning Reserve Margin Determination. Staff's analysis identified significant uncaptured resources that, Staff concludes, could indefinitely postpone construction of the proposed 2016 CCCT resource. The case presented by the Company, in its reply comments, for on-going disagreement with the conclusion from Staff's analysis offered no new information that would cause Staff to modify its conclusion.

Due to Staff's desire to avoid the appearance of usurping the role of the utility decision-maker, instead of recommending a specific action item revision, Staff recommends that the 597 MW 2016 CCCT proxy resource identified in Action Item 2 – Intermediate/Base-load Thermal Supply-side Resources, not be acknowledged. Staff continues to recommend that PacifiCorp diligently pursue the maximum amount of cost-effective Class 1, 2 and 3 DSM and CVR resources prior to acquiring supply-side thermal resources to fulfill any remaining need.

Reply Comments

CUB strongly supports the Staff recommendation to delay moving forward with a 2016 baseload resource and instead attempt first to rely on DSM and market purchases.

RNP appreciates and supports Staff's proposal that, in future analyses, PacifiCorp better document why a CCCT is the least cost choice to fulfill a capacity need, and also better measure and evaluate the relative flexibility benefits of various resources and operating practices.

NWEC agrees with Staff's recommendation that PacifiCorp be required to postpone the 2016 CCCT indefinitely, substituting additional demand-side resources.

The Company does not agree with Staff's recommendation to replace the preferred portfolio with Staff's alternate portfolio, and thereby eliminate the Company's All Source RFP. The Company's numerous concerns with Staff's proposed action item are described below. First, Staff's alternate portfolio strategy is based on an asymmetric perception of resource requirement and availability risk: only risk factors that support alternatives to a major gas resource, along with a smaller resource need, are considered. Second, by replacing the Company's preferred portfolio, which is based on months of Company and stakeholder analysis and review, Staff is inappropriately substituting its judgment for the Company's. Third, Staff's proposed action item puts the Company in the untenable situation of having two preferred portfolios acknowledged by different state commissions. Fourth, the IRP is the product of an extensive, multi-state public process where numerous portfolio development scenarios had the benefit of scrutiny by all stakeholders. Finally, Staff believes that its portfolio is least-cost/least-risk, but provides no risk assessment and justification of its alternate portfolio in light of the Company's significant concerns raised with Staff regarding its use of the Company's portfolio sensitivity study assumptions.

Related to whether selecting a CCCT to fulfill a capacity need is the least-cost alternative to an SCCT, the Company agrees to update resource-specific cost and performance attributes used in the IRP Update's portfolio modeling. Staff's proposed new action item wording does not specify details concerning what is meant by "tradeoffs" between resource types.

Staff Response

As noted above, due to its desire to avoid the appearance of usurping the role of the utility decision-maker, Staff has decided not to offer a specific action item revision. Based on the analysis presented in its final comments, Staff contends it identified sufficient evidence to conclude:

- A portfolio likely exists that could be implemented, at a similar cost and risk as the Company's preferred portfolio, but without the irreversible cost commitment to a new supply-side thermal resource that could prove burdensome in the event that the forecasts are not accurate.

- That PacifiCorp's IRP and its action items do not plan for the maximum amount of cost-effective Class 1, 2 and 3 DSM, and CVR savings.

Without diligently pursuing the maximum amount of demand-side resources, Staff concludes it is premature to acquire the proposed 2016 CCCT. In drawing this conclusion, Staff recognizes that a capacity deficit is forecast and, given the absence of demand-side resources that are ramped up and ready to produce results, there may be no reasonable alternative to meeting that deficit with the proposed 2016 CCCT. While this may be the case, Staff is critical of the Company putting ratepayers in this situation. Staff exhorts the Company to understand that a repeat of this situation in its next IRP will not be viewed favorably.

Lastly, the Company questions what is meant by "tradeoffs" between resource types in relation to the issue of whether selecting a CCCT to fulfill a capacity need is the least-cost alternative to a SCCT. As suggested by RNP, and Staff agrees, PacifiCorp needs to better document why a CCCT is the least cost choice to fulfill a capacity need, and also better measure and evaluate the relative flexibility benefits of various resources and operating practices. This issue stems from the Company's use of a 16 percent capital discount in preference of a CCCT over an SCCT.

Staff Recommendation

Staff recommends that the 597 MW 2016 CCCT proxy resource identified in Action Item 2 – Intermediate/Base-load Thermal Supply-side Resources, not be acknowledged. Staff continues to recommend that PacifiCorp diligently pursue the maximum amount of cost-effective Class 1, 2 and 3 DSM and CVR resources prior to acquiring supply-side thermal resources to fulfill any remaining need. In addition, Staff recommends PacifiCorp better document why a CCCT is the least cost choice to fulfill a capacity need, and also better measure and evaluate the relative flexibility benefits of various resources and operating practices.

Wind Resource Costs and Capacity Factors (Action Item 1)

Reply Comments and Staff Response

Sierra Club's reply comments objected to PacifiCorp's statement that coal provides capacity value, which wind does not. Sierra Club notes that the Company has already assigned a wind integration cost, so if the model produces wind or solar as a coal replacement, the Company should include them in its replacement portfolio. Staff's evaluation of the point noted by Sierra Club considers that the wind integration cost assigned to intermittent resources is based heavily on the existing portfolio of resources available to integrate those intermittent resources. Given this reliance on the existing resources, applying the resulting integration cost to new intermittent resources that would replace the very resources assumed to be available to integrate those new intermittent resources is circular logic Staff cannot support.

PacifiCorp agreed with Staff's assessment of its wind acquisition plans, and it agreed with the two additional Staff recommendations in Staff's final comments. PacifiCorp recommended moving the commitment to track and report capacity statistics from its existing wind resources to Action Item 8. PacifiCorp also proposed wording changes to Staff's recommendation to project wind acquisition with and without geothermal. PacifiCorp suggested these word changes to avoid interpreting Staff's recommendation as a new IRP guideline. Staff has no objection to PacifiCorp's proposed changes.

Staff Recommendation

Staff continues to recommend acknowledgement of the wind acquisition schedule in the preferred portfolio. Staff continues to recommend the two proposed action item additions regarding tracking of wind capacity, and projection of wind acquisition with and without geothermal. Staff concurs with the language changes to these two action item additions requested by PacifiCorp.

Wind Integration Study (Action Item 8 continued)

Staff wishes to highlight that, as noted by PacifiCorp in its reply comments, and affirmed by Staff in its final comments, while wind integration is important from an operational and rate-making perspective; it currently has a negligible impact on the Company's long-term wind resource acquisition strategy. Recognition of this fact is necessary for understanding the context of Staff's response to party reply comments.

<u>Reply Comments</u>

RNP has advocated for the Commission to require technical review committees (TRC), and is pleased to see that the Draft Order requires PacifiCorp to use a TRC and a study timeline that will provide sufficient time for stakeholder, and TRC review and comment. But this positive development is not a substitute for regulators evaluating actual wind integration studies. RNP is concerned Staff appears to signal that there is no regulatory forum suitable for the Commission to evaluate concerns about the content of a wind integration study. RNP believes that Staff may damage productive engagement and encourage cost inflation by signaling that comments on actual wind integration study content have no place. In stating that wind integration costs had little impact on wind acquisition, RNP notes that Staff did not assess, or even note, Sensitivity Case 29 that showed the model selecting more wind with a lower integration cost. Finally, RNP expressed concern, particularly if regulators decline to engage with study content, that utility derived wind integration cost numbers will continue to gain lives of their own. As an example, PacifiCorp's $9.70/MWh number has become a floor for uncritical benchmarking of other studies across the region.

PacifiCorp agrees with the proposed change to include a 30-day deadline to establish the TRC and schedule. While the Company intends to provide opportunity for stakeholder involvement as it did with the 2011 wind integration study, it is nevertheless concerned about the scope of that involvement in light of the technical role of the TRC and ability to accommodate an expanded public input process given a strict IRP filing deadline.

<u>Staff Response</u>

Staff appreciates PacifiCorp's agreement with its proposal to form the TRC for the Wind Integration Study within 30 days of the effective date of the Order in this docket. Again, Staff encourages the Company to quickly establish a thorough and open process wherein stakeholders have the opportunity to participate in the development of the study.

In its reply comments, RNP stated that while it appreciates Staff's emphasis on the potential for flexibility to reduce variable energy integration costs over time, and its efforts to improve PacifiCorp's integration study process, it believes that Staff may damage productive engagement and encourage cost inflation by signaling that comments on actual wind integration study content have no place in an IRP docket.

Staff recognizes the concerns expressed by RNP in this matter and wishes to address them here more thoroughly than was done in Staff's final comments. In its initial comments RNP identified the following concerns with the PacifiCorp wind integration study process:

- Substantive Errors Significantly Overstated Reserve Requirement;
    - The study relies on an incorrect mathematical formula.
    - Duplicating wind facility data eliminates diversity benefits and undermines study credibility.
    - Failure to validate synthetic data.
    - Long term planning should consider effects of certain market improvements, such as half-hour scheduling.
    - Effect on selection of wind resources.
- The Study Process Reflected Lack of Engagement With Concerns Expressed by Diverse Stakeholders;
- Improved Oversight and an Expanded Focus Are Needed.

RNP's initial comment in relation to the last bullet item above states:

> "RNP requests that the Commission attempt to prevent recurrence of this situation by providing clear direction for independent, expert oversight of future studies. In addition, the Commission should direct PacifiCorp to use the IRP to find and evaluate methods for reducing the cost of integrating variable resources."

Staff finds merit in the specific issues RNP raised and, to the extent that these issues impact resource selection, they warrant attention in this IRP docket. As noted above, however, wind integration currently has a negligible impact on the Company's long-term wind resource acquisition strategy. Given that the specific issues have no significant impact on resource selection, and RNP's request of the Commission for "independent, expert oversight" to "prevent recurrence of this situation", Staff concluded the most reasonable resolution of the specific issues would come from recommending a revision to Action Item 8 to include a TRC. As a result, Staff's recommended revision of Action

Item 8 was intended to provide "clear direction for independent, expert oversight of future studies" to "prevent recurrence of this situation."

Regarding RNP's suggestion that PacifiCorp be directed to use the IRP to find and evaluate methods for reducing the cost of integrating variable resources, Staff offers the following. As stated in IRP Guideline 1 c., the primary goal of the IRP must be the selection of a portfolio of resources with the best combination of expected costs, and associated risks and uncertainties, for the utility and its customers. Given this primary purpose, Staff concludes that the method and cost of integrating intermittent resources should remain an input to and not an outcome of the IRP. Staff recognizes that the modeling used in preparing the IRP may be appropriate for use in accomplishing what RNP suggests. Wind integration studies to date have been designed to identify the cost of using existing resources to integrate intermittent resources. Staff sees the next generation of wind integration studies as the appropriate venue to explore and develop analytical techniques for identifying and evaluating methods for reducing the cost of integrating intermittent resources. Staff suggests that the TRC proposed in revised Action Item 8, and the proposed expansion of Action Item 8 to include a study of grid flexibility, as discussed further below in "Energy Storage", are the starting points.

Staff also notes RNP's specific recognition that analytical methods used for integration studies by PacifiCorp, other companies, and agencies continue to mature and gain both accuracy and acceptance. Staff's recommendations for the going-forward process are designed to hasten that maturation.

With regard to RNP's comments about the impact of the PacifiCorp study on the resource acquisition plan, Staff considered the overall impact of integration costs on the resource portfolio selection, including the Sensitivity Cases, and re-affirms its earlier conclusion of negligible impact.

In its response comments, RNP cited Case 29, in which PacifiCorp specified a reduced wind integration cost and found that the model selected more wind for acquisition. Staff notes, however, that even at that reduced wind integration cost, the capacity expansion model did not identify new wind for acquisition until after 2016. Prior to 2016, PacifiCorp's short term need is for capacity, not energy. Wind provides energy but little capacity. Even if the wind integration cost is less than $9.70, PacifiCorp would not acquire new wind resources for the next five years. For that reason, Staff maintains its original recommendation to focus on improving the process and analytical methods used in developing wind integration cost for the next IRP cycle, stress flexible capacity, and closely follow progress in storage.

Finally, Staff takes issue with RNP's assertion in its reply comments that this wind study establishes "a [cost] floor for uncritical benchmarking of other studies across the region". The challenges of wind integration are very utility system specific. Size, existing generation and transmission systems, and proximity to a vibrant market are just a few variables that will drive integration costs. A small system (with less flexible resources or access to markets) may be seriously challenged to integrate even a smaller penetration of variable resources, and integration could entail significant capital expenditure. Another system with considerable legacy hydro (or access to a very liquid balancing/ancillary services market) could perhaps solve integration at a much lower cost. These differences will be apparent in each integration study.

Staff Recommendation

Staff continues to recommend focus on improving the process and analytical methods used in developing wind integration cost for the next IRP cycle, stressing flexible capacity, and closely following progress in storage.

Geothermal Resources (Action Item 1 continued)

Reply Comments

In reply comments, RNP continued to support a geothermal only RFP, stating that the explicit invitation to geothermal developers in the all source RFP is insufficient. RNP states that the recent Request for Information is also insufficient. RNP stated that the RFP process does not sufficiently value long term fuel diversity, renewable energy credit (REC) value and renewable portfolio standard (RPS) diversity. RNP also noted that PacifiCorp's model produced geothermal acquisition starting in 2015 in the top performing portfolios for many cases.[21]

CUB's reply comments stated that geothermal developers are unlikely to bid into an RFP that is designed for gas fired generation. CUB recognized that single source RFPs are not preferred but states that a geothermal RFP might provide useful information about the cost and availability of geothermal resources, and cost of dry hole risk.

ODOE commented in its reply that a geothermal RFP would support fuel diversity for RPS compliance and for managing long term price stability. ODOE disputed Staff's statement that dry hole risk is a rate making issue, and stated that fundamental roadblocks to geothermal are closely tied to all resource acquisition and are thus a key aspect of IRP review. ODOE requested a docket to investigate barriers facing utilities with respect to geothermal development. ODOE also recommended a workshop

[21] See case 3, for example.

highlighting industry efforts involving geothermal technology and risk liability management.

PacifiCorp raised no issues on Staff's final comments regarding geothermal resources. The Company did agree to change the language of its upcoming all source RFP to more explicitly invite geothermal bids.

Staff Response

In response to reply comments, Staff maintains that dry hole risk is a consequence of the used-and-useful statute, and can only be solved through statute. Further, Staff is not convinced that the time has come for a geothermal only RFP. Staff simply does not see a regulatory basis for directing the Company to issue one. Staff realizes that the current all source RFP appears primarily built around gas, but the geothermal development community does have the opportunity to document what energy and capacity resource it can provide, and at what price. Any bids offered by geothermal developers will provide useful cost and availability data for the next IRP cycle.

However, RNP, CUB and ODOE reply comments made convincing arguments about fuel diversity and RPS diversity. PacifiCorp's own capacity expansion model identifies geothermal as a cost effective resource by 2015, yet none appears in the preferred portfolio. PacifiCorp may have determined that the resource cost in that model does not reflect true development costs, and is not the cost at which the Company would acquire geothermal. Therefore, in the next IRP cycle, Staff recommends PacifiCorp model geothermal at the price it considers realistic, taking into account development risk.

Finally, Staff is agreeable to the workshop suggested by ODOE. Staff is not persuaded that a docket is warranted, because it is not clear what the docket's issues and goals would be. However, the workshop could be used to determine if a docket is warranted, and to specify the scope and goals of any such investigation.

Staff Recommendation

Staff continues to decline recommending a geothermal only RFP. Staff recommends PacifiCorp model geothermal at the price it considers realistic, taking into account development risk. Also, Staff is agreeable to a workshop highlighting industry efforts involving geothermal technology and risk liability management.

Renewable Portfolio Standard Compliance Strategy (Action Item 1 continued)

Reply Comments

ODOE appreciates PacifiCorp's acknowledgment and Staff's agreement that the IRP is the appropriate place to evaluate strategies for achieving compliance with the RPS and its impact on resource selection in IRP resource modeling. ODOE reaffirms the need for a robust RPS compliance strategy discussion in the IRP proceeding, and expects that both the biennial implementation plan and the annual compliance plan will reference and clearly demonstrate consistency with the most current IRP.

The Company supports Staff's proposed new RPS action item, and recommends no additional changes to the text.

Staff Response and Recommendation

Staff re-affirms its recommendation for including RPS compliance strategies in future IRPs.

Transmission Planning and Energy Gateway (Transmission Action Item)

Reply Comments

Regarding PacifiCorp's proposed Energy Gateway transmission projects, NWEC emphasizes the importance of the Energy Gateway transmission projects in shaping the future course of development for renewable energy and demand-side resources. It states that with coherent planning, Gateway has the potential to further "hasten the phase out of aging fossil fuel resources and their pollution, fuel price volatility and greenhouse gas emissions, while opening up their released transfer capacity for new clean resources." NWEC recommends the Commission encourage PacifiCorp in its acknowledgement Order to develop a comprehensive strategy for the Energy Gateway package that is focused on maximizing non-transmission alternatives, developing renewable energy and replacing aging coal plant resources.

RNP believes that Staff's approach to evaluating transmission additions may be evolving in an overly narrow direction. While Staff lists non-economic benefits of each transmission segment, it effectively ignores those important benefits for analytical purposes. RNP believes the Commission should encourage collaboration between Staff, PacifiCorp and stakeholders to achieve full recognition of such benefits as reliability and redundancy; present and future load service needs; access to markets, and FERC rules.

PacifiCorp reply comments represent that "while the Company appreciates Staff's suggestion that reliability and other noneconomic benefits can and should be quantified, this presents a significant challenge for the Company. Even the most rigorously tested and verifiable data and modeling assumptions can be a subject of contention among stakeholders in the regulatory process."

PacifiCorp further represents that "[it] looks forward to working with Staff to develop reasonable, justifiable metrics for non-economic benefits in order to further demonstrate proposed transmission projects' long-term value to customers."

Lastly, in relation to the last two lines of the transmission action items, the Company reply comments represent that "[it] is concerned that Staff's action item recommendation effectively represents a new IRP guideline because it is proposed as a requirement for all future IRPs. PacifiCorp does not believe that is the Commission's intent. The Company therefore recommends that this action item be removed from the proposed acknowledgment order. The evaluation criteria to apply to specific transmission project acknowledge requests can be addressed on a case by case basis with Staff and other parties as part of the scenario definition phase of the IRP process."

RNP represents in reply comments that "[a]t this stage of development in new transmission efforts and in the Commission's approach to evaluating new transmission, a workshop devoted to collaborative discussion of what criteria should be used to evaluate transmission proposals and what benefits can and cannot be helpfully quantified (and how) might be helpful for all."

Additionally, RNP points out that "...RNP has one specific comment relating to the Staff recommendation on the Wallula to McNary line. Page 41 of the Draft Order states that, to obtain acknowledgment, PacifiCorp must both (1) demonstrate that additional transmission revenues will cause the cost-benefit ratio to rise from 0.82 to 1.0; <u>and</u> (2) quantify 'non-economic' benefits. Even under Staff's methodology, if one or the other of those methods causes the cost-benefit to meet the 1.0 standard, then it is not clear why the other would also be required. Replacing 'and' with 'or' may be more appropriate for the Draft Order."

In reply comments, NWEC states that "[it] support[s] the important suggestions made by RNP concerning further assessment of both quantifiable and nonquantifiable factors, and their proposal for a workshop to discuss these issues and further refine the criteria for transmission project assessment."

Staff Response and Recommendation

Staff appreciates Parties' reply comments and recommendations. Based on PacifiCorp's suggestion, and noting RNP and NWEC's comments, Staff looks forward to working with the Company and interveners to develop reasonable, justifiable metrics for noneconomic benefits in order to further demonstrate proposed transmission projects' long-term value to customers.

In response to RNP's Wallula to McNary comment, Staff offers the following revision to its final comment conclusion.

> Because the economic benefit-cost ratio of the project is less than one, Staff recommends not acknowledging the Wallula to McNary transmission project, unless and until the Company provides:
>
> > An analysis including other economic benefits (i.e., an analysis showing that another wind project will be developed in the Wallula area, resulting in additional revenues) and quantifying other noneconomic benefits (e.g., the project is necessary as a contingency for addressing abnormal operating conditions) will be conducted to achieve a benefit-cost ratio equal to or exceeding one.
> >
> > 1. ~~An analysis showing that another wind project will be developed in the Wallula area, resulting in more revenues to achieve a benefit cost ratio equal to, or at least, one; and~~
> > 2. ~~An analysis quantifying other non-economic benefits. (e.g. the project is necessary as a contingency for addressing abnormal operating conditions)~~

The Company, in relation to the last two lines of the transmission action items, is concerned that Staff's action item recommendation effectively represents a new IRP guideline. Staff considered this comment and agrees with the Company's proposal that a specific project acknowledge requests can be addressed on a case by case basis with Staff and other parties as part of the scenario definition phase of the IRP process. As a result, Staff recommends the following change in language to the fourth transmission action item.

> In the scenario definition phase of any future IRP process, the Company will address, with Staff and other parties, the inclusion of any transmission projects in its IRP on a case-by-case basis. ~~In future IRPs, the Company will include in its~~

~~portfolio scenario any transmission project for which acknowledgment is requested, regardless of its size or scope.~~

Energy Storage (Action Item 1 continued)

Reply Comments

RNP appreciates the recommendation that PacifiCorp begin to develop metrics for assessing the flexibility benefits of generating resources, storage technologies, and market operations; all of these will mitigate the operational challenges and cost of integrating larger amounts of variable generation over the long term.

ODOE believes that energy storage has a future in the Pacific Northwest. Therefore, ODOE supports an energy storage pilot that is useful in Oregon as well as Utah. ODOE supports a mechanism for making the study available to stakeholders once it is complete.

CUB supports Staff's proposal to further define the analysis that PacifiCorp will be providing on energy storage.

PacifiCorp agrees that a study on grid flexibility to support integration of variable energy resources (VER) would be useful information, and supports conducting analysis along the lines recommended by Staff. The Company proposed revised language as part of Action Item 8 to provide sufficient study design and schedule flexibility.

Staff Response and Recommendation

In its final comments, Staff proposed expanding the scope of the Company's energy storage study to include an assessment of grid flexibility requirements and opportunities to support VER integration. Given the relatively rapid introduction of VERs which gives rise to various integration issues, it is important that such integration, just like traditional resource planning, consider sources, costs and risks associated with flexible resources and integration strategies. In reply comments, PacifiCorp agreed that such a study is useful, but proposed a separate study since the study of storage technologies is "near completion". The Company proposed language to that effect to be included in Action Item 8. Staff agrees that this approach is reasonable but takes this opportunity to suggest clarification of PacifiCorp's proposed language, and to add context that makes clear the purpose of a flexibility study – that is, how best to integrate VERs. Staff's proposed language for addition to Action Item 8 is as follows:

Conduct a study of grid flexibility for accommodating variable energy resources (VERs) as part of the next regular IRP filing. The study scope and schedule will be defined after obtaining public participant input at a future IRP public meeting to be held within 60 days of the effective date of the Order in this docket. At a minimum, the study will include an assessment of flexibility, projected future needs and an assessment of the relative economic and operational merits of all potential sources of flexibility across a reasonable range of VER penetration scenarios.

Load Forecast

Reply Comments, and Staff Response and Recommendation

Sierra Club notes in its reply comments related to Class 2 DSM that the energy sales forecast and peak load data were available by state jurisdictions, not by load zones, while scenarios used energy load zones for modeling. In addition, the IRP is required to be for at least a 20 year period (IRP Guideline 1 c.), but the energy sales forecast was submitted only through 2020, less than a 20 year period. Staff agrees with Sierra Club's comment and recommends the Company exercise care in future IRPs to present data and analysis results on consistent bases, as well as ensure future forecasts cover at least a 20 year period.

Adherence of the Plan to Integrated Resource Planning Guidelines

Reply Comments and Staff Response

In reply comments, PacifiCorp disagreed with Staff's conclusion that it did not comply with IRP Guideline 4a, which requires an explanation of how the utility met each substantive and procedural requirement. The Company referred Staff to Appendix B, "IRP Regulatory Compliance" (Tables B.2 and B.3). Upon reconsideration, Staff agrees that Table B.3 explains how the Company met each substantive and procedural requirement.

PROPOSED COMMISSION MOTION:

PacifiCorp's 2011 Integrated Resource Plan be acknowledged, with the revised action items recommended by Staff, by adoption of the attached proposed order.

Attachment A

Revised Action Items:

Action Item 1 - Renewables/Distributed Generation

Wind

- Acquire up to 800 MW of wind resources by 2020, dictated by regulatory and market developments such as (1) renewable/clean energy standards, (2) carbon regulations, (3) federal tax incentives, (4) economics, (5) natural gas price forecasts, (6) regulatory support for investments necessary to integrate variable energy resources, and (7) transmission developments. The 800-megawatt level is supported by consideration of regulatory compliance risks and public policy interest in clean energy resources.

- In the next IRP, PacifiCorp will track and report the statistics used to calculate capacity contribution from its wind resources as a means of testing the validity of the PLCC method.

- Future IRP cycles will include a projection for wind acquisition with and without geothermal until a clearer picture emerges regarding geothermal dry hole risk.

Geothermal

- The Company identified over 100 MW of geothermal resources as part of a least-cost resource portfolio. Continue to refine resource potential estimates and update resource costs in 2011-2012 for further economic evaluation of resource opportunities. Continue to, explicitly, include geothermal projects as eligible resources in future all-source RFPs.

Solar

- Evaluate procurement of Oregon solar photovoltaic resources in 2011 via the Company's solar RFP.

- Acquire additional Oregon solar resource through RFPs or other means in order to meet the Company's 8.7 MW Oregon solar compliance obligation.

- Work with Utah parties to investigate solar program design and deployment issues and opportunities in late 2011 and 2012, using the Company's own analysis of Wasatch Front roof top solar potential and experience with the

Oregon solar pilot program. As recommended in the Company's response to comments under Docket No. 07-035-T14, the Company requested that the Utah Commission establish "a process in the fall of 2011 to determine whether a continued or expanded solar program in Utah is appropriate and how that program might be structured."

- Investigate, and pursue if cost-effective from an implementation standpoint, commercial/residential solar ~~hot~~ water heating programs.
  - The 2011 IRP preferred portfolio includes 30 MW of solar ~~hot~~ water heating resources by 2020 (18 MW in the east side and 12 MW in the west side).

Combined Heat & Power (CHP)

- Pursue opportunities for acquiring biomass CHP resources, primarily through the PURPA Qualifying Facility contracting process.
  - The preferred portfolio contains 52 MW of CHP resources for 2011-2020 (10 MW in the east side and 42 MW in the west side)

Energy Storage

- Proceed with an energy storage demonstration project, subject to Utah Commission approval of the Company's proposal to defer and recover expenditures through the demand-side management surcharge.
- Initiate a consultant study in 2011 or 2012 on incremental capacity value and ancillary service benefits of energy storage.

Renewable Portfolio Standard Compliance

- Develop and refine strategies for renewable portfolio standard compliance in California and Washington
- PacifiCorp will expand the next IRP to include discussion of RPS compliance strategies and the role of REC sales and purchases. The Company will be selective in its discussion to avoid conflict between the IRP, RPS Implementation Plan, and RPS Compliance Report.

Action Item 2 - Intermediate/Base-load Thermal Supply-side Resources

- Acquire a combined-cycle combustion turbine resource at the Lake Side site in Utah by the summer of 2014; the plant is proposed to be constructed by CH2M Hill E&C, Inc. (CH2M Hill) under the terms of an engineering, procurement, and construction (EPC) contract. This resource corresponds to the 2014 CCCT proxy resource included in the 2011 IRP preferred portfolio.

- NOT ACKNOWLEDGED ~~Issue an all-source RFP in late 2011 or early 2012 for acquisition of peaking/intermediate/baseload resources by the summer of 2016.~~

  - ~~This acquisition corresponds to the 597 MW 2016 CCCT proxy resource (F Class 2x1).~~

- PacifiCorp will reexamine the timing and type of post-2014 gas resources and other resource changes as part of the 2011 business planning process and preparation of the 2011 IRP Update. The reexamination will include documentation of capital cost and operating cost tradeoffs between resource types.

  - Consider siting additional gas-fired resources in locations other than Utah. Investigate resource availability issues including water availability, permitting, transmission constraints, access to natural gas, and potential impacts of elevation.

Action Item 3 - Firm Market Purchases

- Acquire up to 1,400 MW of economic front office transactions or power purchase agreements as needed until the beginning of summer 2014, unless cost-effective long-term resources are available and their acquisition is in the best interests of customers.

  - Resources will be procured through multiple means, such as periodic mini-RFPs that seek resources less than five years in term, and bilateral negotiations.

- Closely monitor the near-term and long-term need for front office transactions and adjust planned acquisitions as appropriate based on market conditions, resource costs, and load expectations.

Action Item 4 - Plant Efficiency Improvements

- Continue to pursue economic plant upgrade projects—such as turbine system improvements and retrofits— and unit availability improvements to lower operating costs and help meet the Company's future CO_2 and other environmental compliance requirements.

  - Successfully complete the dense-pack coal plant turbine upgrade projects scheduled for 2011 and 2012, totaling 31 MW

  - Complete the remaining turbine upgrade projects by 2021, totaling an incremental 34.2 MW, subject to continuing review of project economics.

  - Seek to meet the Company's updated aggregate coal plant net heat rate improvement goal of 478 Btu/kWh by 2019.

  - Continue to monitor turbine and other equipment technologies for cost-effective upgrade opportunities tied to future plant maintenance schedules.

Action Item 5 - Class 1 DSM

NOT ACKNOWLEDGED ~~Acquire up to 250 MW of cost-effective Class 1 demand-side management programs for implementation in the 2011-2020 time frame.~~

- For 2012-2013, pursue up to 80 MW of the commercial curtailment product (which includes customer-owned standby generation opportunities) being procured as an outcome of the 2008 DSM RFP.

- NOT ACKNOWLEDGED ~~Depending on final economics, pursue the remaining 170 MW for 2012-2020, consisting of additional curtailment opportunities and irrigation/residential direct load control.~~

Action Item 6 - Class 2 DSM

- NOT ACKNOWLEDGED ~~Acquire up to 1,200 MW of cost-effective Class 2 programs by 2020, equivalent to about 4,533 GWh. This includes programs in Oregon acquired through the Energy Trust of Oregon.~~

~~Procure through the currently active DSM RFP and subsequent DSM RFPs.~~

- Apply the 2011 IRP conservation analysis as the basis for the Company's next Washington I-937 conservation target setting submittal to the Washington Utilities and Transportation Commission for the 2012-2013 biennium. The Company may refine the conservation analysis and update the conservation forecast and biennial target as appropriate prior to submittal based on final avoided cost decrement analysis and other new information.

- NOT ACKNOWLEDGED ~~Leverage the distribution energy efficiency analysis of 19 distribution feeders in Washington (conducted for PacifiCorp by Commonwealth Associates, Inc.) for analysis of potential distribution energy efficiency in other areas of PacifiCorp's system. (The Washington distribution energy efficiency study final report is scheduled for completion by the end of May 2011.)~~

Action Item 7 - Class 3 DSM

NOT ACKNOWLEDGED

- ~~Continue to evaluate Class 3 DSM program opportunities.~~

  ~~Evaluate program specification and cost-effectiveness in the context of IRP portfolio modeling, and monitor market changes that may remove the voluntary nature of Class 3 pricing products.~~

Action Item 8 - Planning and Modeling Process Improvements

- Continue to refine the System Optimizer modeling approach for analyzing coal utilization strategies under various environmental regulation and market price scenarios.

- PacifiCorp will file its next IRP Update in March 2012. The IRP Update will include a revised Supplemental Coal Replacement Study. The revised Study will investigate whether there is flexibility in the emerging environmental regulations that would allow the Company to avoid early compliance costs by offering to shut down individual units prior to the end of their useful lives. The Company will also conduct further plant specific analysis to determine whether this tradeoff would be in the ratepayers' interest. In these additional analyses, the Company will provide a concise explanation and transparent example of its treatment of post-2030 costs, will provide an analysis that shows the results of treatment of environmental investments made prior to 2015 both avoidable and unavoidable, and provide additional natural gas and CO_2 cost scenarios that pair high CO_2 and low natural gas prices and low CO_2 and high natural gas prices. To guide and inform the revised Study, the Company will schedule a workshop with stakeholders to occur in January 2012. PacifiCorp will invite to this workshop representatives from each of its regulatory jurisdictions. The Company will develop and seek Commission acknowledgement of specific action items related to coal plant investments.

- Continue to coordinate with PacifiCorp's transmission planning department on improving transmission investment analysis using the IRP models.

- Incorporate plug-in electric vehicles and Smart Grid technologies as a discussion topic for the next IRP.

- Continue to refine the wind integration modeling approach; establish a technical review committee (TRC) and a schedule and project plan for the next wind integration study. The TRC will be formed and identify its members within 30 days of the effective date of the IRP Order. Within 30 days of the effective date of the IRP Order, a schedule for the study will be established, including full opportunity for stakeholder involvement and progress reviews by the TRC that will allow the final study to be submitted with the next IRP.

- PacifiCorp will develop its 2011 IRP Update based on a 12 percent planning reserve margin, unless a different PRM is justified by a marginal cost study comparing costs of portfolios that are optimized for achieving the various PRMs, and including estimates of the marginal benefits from a greater PRM. The study will use loss-of-load hours and unserved energy as the dependent variables.

- Conduct a study of grid flexibility for accommodating variable energy resources (VER) as part of the next regular IRP filing. The study scope and schedule will be defined after obtaining public participant input at a future IRP public meeting to be held within 60 days of the effective date of the Order in this docket. At a minimum, the study will include an assessment of flexibility, projected future needs and an assessment of the relative economic and operational merits of all potential sources of flexibility across a reasonable range of VER penetration scenarios.

Transmission Action Items

NOT ACKNOWLEDGED ~~PacifiCorp requests regulatory acknowledgement of the Wallula to McNary project (Energy Gateway Segment A).~~

PacifiCorp requests regulatory acknowledgement of the Mona to Terminal project (Energy Gateway Segment C).

NOT ACKNOWLEDGED ~~PacifiCorp requests regulatory acknowledgement of the Sigurd to Red Butte project (Energy Gateway Segment G).~~

In the scenario definition phase of any future IRP process, the Company will address, with Staff and other parties, the inclusion of any transmission projects in its IRP on a case-by-case basis.