ITEM NO. 1

PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: March 17, 2014

REGULAR __X__ **CONSENT** ____ **EFFECTIVE DATE** __**Upon Commission Approval**__

DATE: March 4, 2014

TO: Public Utility Commission

FROM: Juliet Johnson

THROUGH: Jason Eisdorfer, Maury Galbraith, and Aster Adams

SUBJECT: PACIFICORP: (Docket No. LC 57) Acknowledgement of 2013 Integrated Resource Plan.

STAFF RECOMMENDATION:

Staff recommends the Commission acknowledge PacifiCorp's 2013 Integrated Resource Plan (IRP) with revised action items as reflected in Attachments B and C. In our final comments and the discussion below Staff presents the reasons underlying these recommended action item revisions.

DISCUSSION:

On August 22, 2013, Oregon Public Utility Commission Staff (Staff), Citizens Utility Board (CUB), Industrial Customers of the Northwest Utilities (ICNU), Northwest Energy Coalition (NWEC), Natural Resources Defense Council (NRDC), Oregon Department of Energy (ODOE), Renewable Northwest Project (RNP), Sierra Club filed Initial Comments regarding PacifiCorp's 2013 IRP (Docket No. LC 57). On November 26, 2013, PacifiCorp (or Company) filed reply comments. On January 10, 2014, final comments were filed by Staff, CUB, ICNU, NWEC, ODOE, RNP and Sierra Club. On January 17, 2014, CUB and Sierra Club filed supplemental comments. On February 4, 2014 PacifiCorp filed final written comments.

Staff discusses below the comments filed by the parties and the Company, organized by subject. Attachment A contains the Company's originally filed action items. Attachment B contains Staff's recommended redlined changes to the Company's action items and Attachment C contains a clean copy of Staff's proposed changes to the Company's action items reflecting Staff's proposed changes. Many of PacifiCorp's action items are not planning items but rather are activities the Company would do in the regular course of business. For those items, Staff suggests that acknowledgement is not required and Staff proposes to remove them from the list of action items.

1. SEPARATE COAL ANALYSIS DOCKET

In PacifiCorp's reply and final comments, the Company indicates that it supports a new planning and review process in Oregon for coal unit investments to allow the parties to develop parameters for coal investment analyses and allow the Company to seek acknowledgement of specific emissions control investments or alternatives. On January 6, 2014, all parties met to discuss the option of such a separate outboard coal analysis docket.

Staff Recommendation
In our final comments, Staff indicated support for a separate coal analysis docket for cases where timing does not line up with the standard IRP schedule. Staff emphasized that a new docket should not diminish the rigor of the current IRP process or result in pre-approval of investment decisions. One of the primary values of integrated resource planning is that individual resource decisions are viewed from a whole portfolio perspective. Accordingly, it is important that coal plant investments also be viewed within the larger context of PacifiCorp's portfolio of resources. Because of this, Staff contends it is ideal, if possible, for all coal plant investments to be considered within the full IRP process, rather than through separate proceedings.

Because of Staff's timing concerns regarding required pollution control investments at Cholla Unit 4, Staff continues to support an opportunity to evaluate pollution control alternatives for Cholla Unit 4, prior to the 2015 IRP. However, based on further discussions with the Company and based on the timing of pollution control requirements in the recently released Wyoming Federal Implementation Plan (FIP),[1] Staff sees little need for a separate coal analysis docket going forward, beyond Cholla. Decision points for future investments should align well with IRP cycles. As originally envisioned, the separate coal analysis docket would have included significant effort to establish the parameters and protocols for how investments would be considered in such a docket

[1] Potential pollution control investments for Wyodak (Selective Catalytic Reduction (SCR) by March 2019) and Dave Johnston 3 (SCR by March 2019 or firm commitment to retire plant in 2027) can be addressed in the 2015 IRP. Regulatory requirements for Bridger 1 and 2 (SCRs required by the end of 2022 and 2021, respectively) should also fit within the timing of the regular IRP cycle. Therefore, based on what is now known, there may be limited necessity for a separate designated coal analysis docket, beyond Cholla Unit 4.

and to define the types of analysis that would be brought forth. Staff does not believe it is justified to go through such rigorous process to establish the framework for a complete separate coal analysis docket that would only be used for Cholla Unit 4.

Staff does, however, believe a separate process is necessary to come to agreement on the types of coal plant analysis that should be provided by the Company in future IRPs. Staff's recommendations to that effect are summarized in the next section.

Instead, Staff recommends the Company bring the Cholla analysis back to the Commission through a special IRP update and parties and the Commission can review the investment at that time. See the section on Cholla Unit 4 below for a proposed update to Action Item 8d to this effect.

Other Parties' Positions
ICNU is opposed to the Commission acknowledging unit-specific coal plant investments decisions in a separate coal analysis docket because the Commission's IRP policies do not contemplate and have never been used to review individual, specific resource decisions outside of the context of a full IRP or IPR update. ICNU suggests that the Commission's final order can direct PacifiCorp to continue to provide parties with additional information regarding its coal plant investments, to conduct specific analysis, and even to seek comments from stakeholders; however, ICNU asserts the Commission should not acknowledge or pre-approve any specific investments in a follow-on proceeding.

RNP says that coal plants with required upgrades over the next five years need to be considered collectively and immediately. RNP suggests it would be ideal to extend the IRP to obtain that analysis, but if the IRP is not extended, RNP supports an additional coal investigation docket.

NWEC is skeptical about whether a separate docket will result in adequate analysis, but says it may be worth exploring.

Sierra Club conditionally agrees that an ongoing coal investment docket would be of high value if it had the following attributes:

- A schedule that would allow for discovery and additional model runs requested by interveners;
- Opportunity to provide formal comments on the modeling assumptions, results, implications, and recommended pathways;
- Commission would provide no expectation of a planning pre-approval or determination of planning prudence;

- Docket opened within a year of U.S. Environmental Protection Agencies (EPA's) final rulemaking (i.e., finalized FIP or State Implementation Plan (SIP)), but in no case later than eight months prior to the Company giving notice to proceed to contractors;
- Company agree to multi-unit analyses as applicable;
- All of the Company's units must be subject to economic analysis regardless of a given plant's ownership structure;
- The same information requirements and deadlines should apply regardless of whether the Company engages in lawsuits;
- In addition to evaluating transmission implications of the Company's decisions, the analysis should capture other reasonably attributable costs and avoidable costs of retirement.

Sierra Club said it would be important to establish minimum data requirements for the coal investment dockets. In Sierra Club's final comments, they provide a list of specific data that should be provided. With all the conditions described above, Sierra Club supports establishment of the coal investment docket.

In CUB's final comments, it does not explicitly comment on the Company's proposed separate coal analysis docket, but rather proposed a general analytical framework for coal plant investments going forward. CUB's specific suggestions are presented later in this document.

PacifiCorp Response
In response to ICNU, PacifiCorp emphasizes that it would not be seeking pre-approval of specific coal unit investments in a separate coal analysis docket. Rather the Company would use the process to seek acknowledgment of specific investment decisions that would be supported by analysis using IRP modeling tools. PacifiCorp would expect the process to proceed in a manner similar to the current IRP acknowledgement process, with parties filing comments and the Company filing reply comments that the Commission would consider before issuing an acknowledgement order.

PacifiCorp indicates that if the Commission accepts the recommendation for a separate coal investment docket PacifiCorp would propose to bring the Cholla investment decision to the Commission in that docket sometime in 2014.

Staff Recommendation
Staff recommends that a new separate coal analysis docket where the Company would seek acknowledgement of individual coal plant investments not be pursued at this time. However, Staff recommends that the Company bring its analysis of Cholla Unit 4 to the

Commission in a special IRP Update within six months of the final order in this docket and with enough time to allow for all potential reasonable pollution control alternatives for Cholla to be pursued. In the following section, Staff lays out our recommendation for a separate process to come to agreement on analyses for coal plants that should be provided in future IRPs.

2. COAL ANALYSIS

Staff Position

A significant portion of the Company's planned capital expenditures in recent and upcoming years centers around pollution control investments at the Company's coal plants. Staff appreciates the additional coal plant investment analyses the Company provided in this IRP, beyond what was provided in past IRPs. However, Staff feels strongly that more comprehensive analysis is needed prior to committing Oregon ratepayers to these large pollution control investments. In our final comments in this docket and at a technical workshop held on January 6, 2014, Staff described in detail the types of analyses Staff needs to see going forward, in order to make recommendations to the Commission on coal plant investments.[2]

Other Parties' Response

NWEC believes the Company continues to underestimate the cost and risk of continued reliance on coal generation which they fear will saddle ratepayers with high environmental upgrade costs, stranded costs, or both.[3] NWEC indicates that the Company failed to analyze several coal units that should have been evaluated in this IRP and that the Company is not adequately analyzing coal plant upgrades prior to committing to those investments. For this reason, NWEC suggests the 2013 IRP fails to comply with IRP Guidelines 4g[4] and 8a[5].

NWEC suggests that analyses requested by Staff at the technical workshop on January 6, 2014, combined with sufficiently stringent environmental compliance and carbon price

[2] LC 57 Staff final comments page 2 and Appendix B
[3] NWEC final comments LC 57 page 5.
[4] Guideline 4g requires the IRP to include an identification of key assumptions about the future (e.g., fuel prices and environmental compliance costs) and alternative scenarios considered.
[5] Guideline 8.a. states, in part, that the utility should construct a base-case scenario to reflect what it considers to be the most likely regulatory compliance future for CO2 and several compliance scenarios ranging from the present CO2 regulatory level to the upper reaches of credible proposals by governing entities.

scenarios would likely capture the range of options necessary for an adequate analysis.[6]

CUB expressed concerns that the breadth of possibilities evaluated was too narrow and that more possibilities should have been modeled. CUB refers to page 56 of PacifiCorp's Reply Comments where the Company states that because EPA's regional haze requirements have not been formalized, they have "no bearing on the environmental investments identified in the 2013 IRP Action Plan." CUB points out that notwithstanding that fact, the EPA has proposed controls outside the scope of the Company's modeling, and this suggests that there existed a broader range of possibilities that should have originally been considered by the Company.

CUB also expressed concern about the mismatch of useful lives of pollution control upgrades and the plants on which those upgrades would be installed. The Company is telling the EPA it must use the shorter useful life if the depreciable life of the plant is less than 20-years. CUB points out that the Company seems to contradict itself because on one hand PacifiCorp acknowledges EPA cannot use in its compliance calculations a shorter life than the pollution control measure unless there is a firm shutdown commitment, while on the other hand PacifiCorp argues that the EPA must consider a shorter shutdown life without a firm commitment to closure. In the final comments, the Company does not address this apparent inconsistency.

The third issue CUB raises is regarding the cost-effectiveness limit in dollars of pollution control equipment required per ton of pollution removed ($/ton) that EPA uses to evaluate the cost-effectiveness of new pollution control requirements. CUB and the Company agree that EPA has not set an exact $/ton threshold. CUB is concerned that the Company only considered scenarios that are either:

a) on the high end of the possible range of cost effectiveness tests for pollution controls, which results in choosing a high estimate of the pollution control costs associated with early plant closures, or

b) on the low end of the possible range of closure dates, which is reducing the benefit of running the plant.

Both a) and b) above have the result of reducing the cost-effectiveness of the plausible scenario. CUB instead suggests the Company should investigate whether there is a plausible scenario that is also least cost. It would do this by looking at the low end of

[6] Analysis requested by Staff at January 6, 2014 workshop is summarized in Staff's final comments in LC 57, Appendix B.

the possible range of cost-effectiveness tests and the high end of the remaining life of the plant. CUB suggests this plausible low cost scenario could be discussed with EPA.

In its final comments, CUB recommends an analytic framework going forward that includes the following three steps:

1) Analyze the cost of the potential pollution controls under a range of pollution control scenarios
    a. Include what is known
    b. What is likely
    c. Upper range of what might happen
2) Compare alternatives from item 1 above to alternative investments such as
    a. Repowering with gas
    b. Building a combined cycle combustion turbine (CCCT)
    c. Relying on front office transactions
3) Investigate whether there is a plausible scenario for an early closure that is lower cost than options above
    a. Begin by looking at the low end of the range of what EPA will consider cost effective
    b. Look at the high end of the range of years before closure that EPA might accept
    c. If a plausible cost-effective scenario is identified, further examine additional plausible scenarios to determine upper and lower ranges for a cost-effective early closure
4) Where depreciable life is less than 20 years, analyze whether committing to close at the end of the depreciable life would reduce pollution control costs because less or different pollution control investments need to be made

In CUB's supplemental comments, issued after EPA released the finalized FIP for Wyoming on January 10, 2014 CUB requests the Commission require PacifiCorp to update its original and supplemental LC 57 filings to include analysis of both Wyodak and Dave Johnston because they both require potential action by 2019.

RNP indicates that there remain considerable limitations in the coal analysis provided. RNP says it strongly supports Staff's opening comments which list the ways in which PacifiCorp's IRP coal upgrade analysis can be expanded. RNP agrees that the reasonableness of coal plant investments should not be determined through an IRP update. Further, RNP concurs with Staff that coal plants with required upgrades over the next five years need to be considered collectively and immediately. Finally, RNP points out that future IRP analysis should include trigger analysis demonstrating at what gas price and CO2 cost, investments at legacy coal units have no system costs or benefits and that if necessary, tools other than System Optimizer should be used.

Company Response
PacifiCorp states that its analysis of pollution control investments is comprehensive, covering viable compliance alternatives across a range of natural gas and CO2 price assumptions.

In PacifiCorp's final comments, it proposes that additional work is required before a specific modeling framework can be established that is acceptable to both the Company and the parties. PacifiCorp recognizes that parties want PacifiCorp to consider flexible compliance alternatives and transmission implications for specific investment decisions and that parties want improved transparency on model inputs and outputs and want to have an opportunity to define specific scenarios.

In PacifiCorp's final comments, on page 6, the Company reasserts its opinion that completing preliminary analysis of prospective environmental investments must be based on reasonably likely compliance alternatives that are consistent with current rules. The Company says that completing premature analysis does not provide meaningful information to support a specific resource action for which the Company would seek acknowledgement. PacifiCorp indicates that outcomes in EPA's final action that are new and binding will be thoroughly reviewed and analyzed in future regulatory filings.

Staff Recommendation
Staff's four main concerns with the Company's coal analysis are, a) a deficiency in the number of dates considered for adding pollution control equipment, shutting down or converting to gas (Staff refers to this as *inter-temporal analysis*), b) the Company did not look at potential tradeoffs between units or between plants (Staff calls this *fleet analysis*), c) the Company did not evaluate proposing alternative types of treatment and levels of pollutant removal in exchange for changing plant retirement dates or cross-unit tradeoffs (Staff refers to this as *technology tradeoffs*), and d) the Company did not incorporate the impact of alternatives on the need for or sizing of new transmission lines. See Staff's final comments, Appendix B for details.

The Company has expressed a willingness to work with Staff and stakeholders to develop the appropriate types of coal investment analyses for future proceedings. However, in meetings designed to discuss analyses that should be provided going forward, the Company expressed a reluctance to perform what Staff believes is a comprehensive set of scenarios. For that reason, Staff is proposing an action item that specifies a minimum set of analyses the Company should perform in the next IRP. See Section 2.1 below for details. Staff has thought through this in depth and believes this is a reasonable set of alternatives to evaluate, given the magnitude of investments being anticipated.

In the finalized Wyoming FIP released by EPA on January 10, 2014, EPA required that PacifiCorp's Wyodak coal plant install SCR equipment by March 2019. Staff looked closely at how Wyodak is situated in relation to Class 1 areas[7] and other plants in PacifiCorp's fleet and developed a set of alternatives in terms of cross plant, early retirement and technology tradeoffs that should be modeled. These are described in the tables below. Staff believes this is a good start and asks the Commission to acknowledge that this is the minimum analysis PacifiCorp should provide for Wyodak in the next IRP.

Staff also recommends that in the final commission order in this docket the Commission direct Staff to initiate a series of workshops with the Company and interveners, and at least one workshop with the Commissioners to discuss the specific analyses that will be provided in the 2015 IRP and modify the specific runs listed below. Staff recommends that the final results of the workshops be summarized by Staff in a public meeting memo along with Staff recommendations and brought before the Commission at a public meeting. The Company and parties could respond to Staff's memo in advance and/or at the public meeting and the Commission would make the final determination of which fleet analysis PacifiCorp will conduct in its next IRP. PacifiCorp is free to elaborate and expand on this analysis, but it would serve as a baseline fleet analysis.

Staff recommends the Commission acknowledge the following new action item for Wyodak.

New Action Item 8f. - Wyodak

- *For the 2015 IRP the following inter-temporal and fleet trade-off analysis related to the SCR requirement on Wyodak by 2019 will be used as a frame of reference:*

	Inter-temporal Scenarios			
	EPA requirement	Time 1	Time 2	Time 3
Wyodak Plant Action	*SCR Retrofit*	*SNCR Retrofit / early retirement*	*Gas Conversion*	*Retirement*
Timeline	*2019*	*2019 / 2030*	*2022*	*2027*

[7] The EPA has identified Class 1 areas as nationally significant scenic areas that are targeted for improved visibility through the reduction of regional haze.

	Fleet Trade-Off Scenarios				
	EPA requirement	Fleet 1	Fleet 2	Fleet 3	Fleet 4
Wyodak	*SCR Retrofit in 2019*	*No Action*	*No Action*	*No Action*	*No Action*
Dave Johnston Units 1 & 2	*No Action*	*Retirement in 2027*	*No Action*	*Gas Conversion in 2022*	*No Action*
Dave Johnston Unit 4	*No Action*	*No Action*	*Retirement in 2027*	*No Action*	*Gas Conversion in 2022*

- *The timing and options will be finalized with stakeholders at the workshops for the 2015 IRP.*[8]
- *This analysis will include considerations for the necessity of Gateway West with reduced capacity in eastern Wyoming*
- *Workshops will be held, including at least one with the Commissioners, to refine the list of specific fleet analyses to be performed in the IRP. Staff will bring final recommendations to the Commission at a Public Meeting and the Company and parties will have an opportunity to respond.*

2.1 Carbon Risk

Parties' Positions

Many parties voiced concerns that PacifiCorp's analysis does not adequately account for the risks associated with carbon. RNP points out that PacifCorp's base case CO2 cost assumptions do not contemplate the federal CO2 regulation articulated in the Obama Administration's June 2013 Presidential Memorandum. RNP suggests that because of this, the Commission should review the reasonableness of PacifCorp's proposed action plan under the high CO2 cost assumptions rather than the base case assumptions used to justify the proposed resource strategy. RNP suggests that Section 111(d) rulemaking process[9] resulting from the President's Memorandum merits a change in PacifiCorp's forecast of CO2 regulation.

[8] Staff recognizes that running numerous futures scenarios in System Optimizer (SO) for each of the Scenarios shown in the tables above is untenable and looks forward to working with PacifiCorp and parties to limit the number of SO model runs.

[9] Clean Air Act section 111(d) requires EPA to establish regulations under which States will regulate existing sources of carbon emissions.

RNP believes that the range of carbon forecasts used in the IRP is reasonable, however the specific base case forecast used to justify action items 8b (compliance actions at Hunter) and 8c (compliance actions at Bridger) is no longer a reasonable assumption because of the Presidential declaration and therefore, high CO2 scenarios should be used instead.

ODOE recommends the Commission find that this IRP does not comply with IRP Guideline 8a or Order No. 08-339 which says, in part, that the utility should construct a base-case scenario to reflect what it considers to be the most likely regulatory compliance future for CO2 and several compliance scenarios ranging from the present CO2 regulatory level to the upper reaches of credible proposals by governing entities. ODOE suggests the Commission should instruct PacifiCorp in its next IRP to analyze the Oregon 2050 CO2 reduction goal applied to the U.S. or the Cancun agreement signed by the U.S., whichever is more restrictive. ODOE also suggests the Commission should carefully scrutinize all action items in the action plan that might have been subject to additional risk had a higher range of possible carbon policies been used in the risk analysis. Lastly, ODOE recommends that the Commission should instruct PacifCorp that "credible proposals by governing entities" includes adopted plans and actions by other democratically-elected sovereign states.[10]

NRDC also notes that PacifiCorp does not appear to have revised its expectations of federal CO2 regulation despite the President's direction and the EPA Director's stated resolve to comply. Because of this, NRDC indicates that PacifiCorp's analysis and conclusions are flawed and investment decisions being proposed may result in significant future stranded costs.

Sierra Club expressed concern that the Company's base carbon price forecast used in this IRP was insufficient to capture the risk associated with impending federal regulations.

Company Response
In PacifiCorp's reply comments, submitted on November 8, 2013, the Company says that despite issuance of the 2013 Presidential Memorandum, there is tremendous uncertainty about the regulatory mechanisms that might be used in EPA's pending rule-making process and the cost of future regulations on CO2 emissions. PacifiCorp indicates that absent information on how EPA intends to proceed and without information on how individual states will propose to implement regulations through a state implementation plan (SIP), there is currently no means to develop a specific CO2 price assumption that accurately reflect potential CO2 regulation. For this reason, PacifCorp states it believes the CO2 assumptions used in the 2013 IRP remain

[10] ODOE LC 57 final comments, page 4.

reasonable. PacifiCorp also states it will re-evaluate CO2 price assumptions in the development of the 2015 IRP.

Staff Recommendation
Staff recognizes that PacifiCorp's IRP was submitted prior to the 2013 Presidential Memorandum regarding carbon pollution. In Staff's initial comments, we said that we were not convinced that an across-the-board carbon price was an appropriate way to estimate cost and risk for potential carbon pollution standards as described in the President's action plan. Although Staff finds that the carbon prices used in PacifiCorp's IRP begin later and are lower than some estimates, Staff does not find that the Company's analysis or results are fundamentally flawed due to the range of carbon prices used or how the prices were applied in the Company's analysis.

In light of potential Section 111(d) regulations, in future analyses and IRPs, the Company needs to consider scenarios where an across the board carbon tax may not be the best simulation. Staff has identified three potential forms 111(d) carbon regulation could take:

1) State by state compliance requirements where PacfiCorp must demonstrate reasonable progress – the use of an across-the-board carbon price doesn't simulate this scenario well
2) State by state regulation with regional cooperation – An across the board carbon price may partially simulate this future
3) Regional or national targets with allowance for Regional Greenhouse Gas Initiative (REGGI), etc - An across the board carbon price simulates this potential future reasonably well

Once EPA's proposed requirements are released in June 2014, the Company should work with Staff and stakeholders to review how the Company plans to perform analysis and make plans given the proposed 111(d) regulations. To that effect, Staff recommends the following additional action item:

<u>*New Action Item 8g – Carbon Analysis*</u>

> <u>*Prior to the end of 2014, the Company will work with Staff and stakeholders to explore options for how the Company plans to model and perform analysis in the 2015 IRP related to what is known about the requirements of Section 111(d).*</u>

2.2 Screening Tool

Staff continues to have concerns about the lack of transparency and accessibility of the Company's modeling program System Optimizer. Staff appreciates the Company's commitment in its reply comments that it will work to improve the transparency of the data that is going into and coming out of System Optimizer. Staff agrees that this will be a big improvement. In Staff's initial comments, comments provided at the workshop held on October 28, 2013, and in Staff's final comments, we emphasized that we would like to receive updated copies of the screening tool spreadsheet model the Company developed for the 2011 IRP Update in LC 52. Staff is proposing to add an action item to that effect.

NWEC suggests the Company provide Staff and interveners with tools to improve the basic understanding of the coal resource investments. These tools include:

1) an updated screening tool
2) documentation of timelines and key decision points for expected pollution control options.

From here, NWEC believes Staff and interveners could attempt to reach agreement on a sufficient scope for an updated coal study.

NWEC voiced frustration about the ability of interveners to evaluate inputs and outputs from the System Optimizer model, which NWEC refers to as a "giant black box". NWEC states that this leads to seemingly never-ending assertions that the Company failed to perform the correct analysis. In contrast, the screening tool provided in conjunction with the 2011 IRP coal analysis process allowed interveners to more clearly understand the relationship between inputs and outputs in the coal analysis and to look for combinations that might provide insight into least cost/least risk strategies for coal unit decisions.

Sierra Club stated that while it recognizes the screening tool is not a perfect representation of the Company's dispatch, and does not capture least-cost alternatives or tradeoffs between existing coal units, it is a transparent mechanism of reviewing particular investment strategies and identifying concerns. Sierra Club said that it supports the use of the screening model or other similar mechanisms to allow PacifiCorp's regulators and other stakeholders to review PacifiCorp decisions.

Company Response
PacifiCorp asserts that the screening model was developed as part of the 2011 IRP process as a way to prioritize more detailed analysis using System Optimizer and was not used to evaluate economic benefits for any given pollution control investment decision. PacifiCorp points out multiple "limitations" of the screening tool including a)

compliance alternatives are limited to early retirement; b) replacement resources are limited to natural gas combined cycle combustion turbines; c) replacement CCCTs are scaled to precisely match the size of the coal unit being retired; d) replacement resource comes on-line concurrent with coal unit retirement; e) resource portfolio implications of early retirement are not captured; f) it cannot capture system constraints including transmission and system balancing sales and purchases; and g) it relies on a simplified representation of unit dispatch.[11]

In short, PacifiCorp argues that the screening tool cannot capture the system implications or alternatives.

Staff Recommendation

Staff understands the limitations of the screening tool described by the Company. Staff does not view the screening tool as perfect, by any means, nor as a replacement for the System Optimizer. Staff, however, contends it is still a very useful tool that Staff and interveners can use in conjunction with the System Optimizer and PaR analysis. Staff is not suggesting the screening tool replace the System Optimizer, but rather that it be used only as it was intended, as a screening tool. The screening tool would be useful to Staff and other parties in that it will facilitate their understanding of the Company's case and will facilitate and support their analysis.

Staff is concerned that there is a serious lack of transparency in the Company's current analysis. Model inputs, outputs and overall System Optimizer model parameters are not reasonably accessible to Staff and interveners and results are not reproducible. Providing an updated version of the screening tool with each IRP should not take a substantial effort by the Company and would be an important step toward providing some transparency of PacifiCorp's analysis. Staff is confident that interveners would respect the limitations of the screening tool while using it as it should be used – as a screening tool.

Staff recommends addition of the following action item:

<u>*New Action Item 8h. – Screening Tool*</u>

> <u>*As part of the 2015, 2017 and 2019 IRP, the Company shall provide an updated version of the screening tool spreadsheet model that was provided to Staff and parties as part of the LC 52 2011 IRP Update.*</u>

[11] See LC 57 PacifiCorp Reply Comments at 16.

2.3 Timing of resources and more information

The Sierra Club argues that projects that are in active construction should be considered in a rate recovery proceeding not in a planning resource proceeding. In ICNU's comments on Sigurd to Red Butte, it points out that the goal of an IRP is to seek acknowledgement of the Company's plans to meet expected loads based on its expected costs, risks and uncertainties and not what the Company is already building. On that basis ICNU recommends the Commission not acknowledge Sigurd to Red Butte.

Staff Recommendation
Staff maintains that timing is important and robust analysis needs to be provided to the Commission, Staff, and parties with sufficient time for parties to see and evaluate the results prior to key investment decisions being made that might limit viable options going forward. Staff prefers that the Company does not bring items before the Commission in an IRP that are currently under construction. However, under limited circumstances when the timing of the investment was at odds with the IRP filing but justified, the Company should include in its IRP filing explanation regarding the timing, the reasons such construction was started without the proper regulatory review, and the analysis conducted before starting construction. This analysis must include consideration of alternatives.

In Staff's final comments on PacifiCorp's Action Item 8b related to pollution control investments at Hunter Unit 1, Staff explained that the function of the IRP is to evaluate planned investment decisions, not historic investment decisions and that historic investment decisions should be evaluated in a general rate case. Staff will only recommend the Commission acknowledge investments that have been presented to the Commission on a timely planning basis. An investment is not timely if, at the time the Commission is developing its acknowledgement order, the Commission's options have been substantially limited due to timing. It is Staff's position that when a decision is brought before the Commission in an IRP, all reasonable options need to be available to the Commission, including delaying an investment or forgoing an investment.

Staff needs to clearly understand projected timing of compliance alternatives, including key milestones, procurement times and decision points. As part of future IRPs, the Company should provide documentation of timelines and key decision points for expected pollution control options and any major investments. Additionally, as Staff spelled out in our opening and final comments, tables should be provided in the next IRPs detailing major planned expenditures with estimated cost in each year for each generating facility under different scenarios. These tables should be similar to PacifiCorp's 2013 IRP Volume I, Table 8.7.

In addition, Staff proposes an additional action item whereby the Company will come before the Commission quarterly to provide updates on the status of environmental compliance requirements, lawsuits, investments and major capital expenditures at the Company's coal plants. Staff recommends the addition of the following action items:

Proposed New Action Item 8i – Timelines

> *As part of future IRPs, the Company shall provide documentation of timelines and key decision points for expected pollution control options.*

Proposed New Action Item 8j – Planned expenditures

> *As part of future IRPs, the Company shall provide tables detailing major planned expenditures with estimated cost in each year for each generating facility, under different modeled scenarios.*

Proposed New Action Item 8k – Quarterly updates

> *Following the issuance of the final Commission order in this IRP, starting in the third quarter of 2014, the Company shall come before the Commission at a public meeting and make quarterly updates on coal plant compliance requirements, legal proceedings, pollution control investments, and other major capital expenditures at the Company's coal plants.*

2.4 Water Issues

Other Parties' Positions

NRDC in comments submitted August 9, 2013, identified that a July 2013 U.S. Department of Energy Report identified power system vulnerabilities to climate change phenomenon including water availability, heat and drought, particularly in the Southwestern United States with which NRDC indicates the PacifiCorp system is interconnected. NRDC suggests these climate change factors were not considered in PacifiCorp's analysis and "should raise questions, for purposes of OPUC's acknowledgement of the draft IRP, whether PacifiCorp customers should be at risk for company investment decisions that may result in significant future stranded costs."[12]

ODOE points out that in this IRP, PacifiCorp included costs associated with one significant federal rulemaking (cooling water intakes under Clean Water Act Section 316(b)) but not for another (new industry toxic discharge guidelines) that is scheduled to conclude in 2014. ODOE makes the following recommendations related to water in its final comments:

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[12] NRDC Comments on PacifiCorp's 2013 IRP, page 3.

1. The Commission should require PacifiCorp in future IRPs to report on significant water issues associated with plant operations and ways to mitigate water risks. The report should include upgrades that are required for reasons other than direct federal requirements.
2. The Commission should direct PacifiCorp to incorporate costs of anticipated water compliance and management upgrades expected within the next ten years into its model.

ODOE also supports PacifiCorp's decision to incorporate dry cooling as a standard measure for new gas units. ODOE points out that in this IRP, PacifiCorp included costs associated with cooling water intake guidelines but not for effluent guidelines that are likely to be put into effect in 2014.

Company Response
In response, the Company indicates that securing reliable sources of water has been part of the Company's long-term historical development of power generations resources and the Company has adopted a strategy of acquiring senior water rights and long-term storage rights. PacifiCorp notes that as thermal resources are retired (such as the Carbon Plant) or converted to gas (such as Naughton 3) there will be considerable reduction in the need for water. The Company proposes that further discussion be held with parties in the 2015 IRP public process to determine the form of any water supply risk assessments that should be performed. PacifiCorp indicates in the future IRPs it will include costs for effluent guidelines.

Staff Recommendation
Staff appreciates parties' comments on water issues and supports the Company's proposal that further discussions be held with parties in the 2015 IRP public process to determine the form of water supply risk assessments that should be performed.

3. COAL PLANT ACTION ITEMS

3.1 Selective Catalytic Reduction at Jim Bridger Units 3 and 4

Action Item 8c calls for installing SCR pollution control equipment at Bridger Units 3 and 4 by the end of 2015 and 2016, respectively as required by the State of Wyoming and the U.S. Environmental Protection Agency.

Staff Position
Staff believes there are deficiencies in the Company's analysis for Bridger, and expects to see more comprehensive analysis for coal plant investments going forward. Staff

conducted an analysis of information provided by the Company for Bridger, which included portfolio analysis results from the Company's System Optimizer model and PaR. The Company provided results for early shutdown under two different sets of retirement dates in exchange for not installing SCR equipment at Bridger 3 and 4. Staff also performed our own analysis of the economics of Bridger units 3 and 4 using a spreadsheet model developed by Staff.

Staff recognizes the importance of the Bridger facility to PacifiCorp's system in that it provides a number of ancillary services to PacifiCorp's system, including voltage regulation, frequency regulation and response, energy imbalance correction and operating reserves to PacifiCorp's balancing authorities. Based on the data provided by the Company in this IRP, Staff believes additional alternative analysis for Bridger would not have likely changed the outcome for Bridger because there are other coal plants in PacifiCorp's fleet that are better candidates for shutdown or gas conversion.

Other Parties' Positions
CUB suggests that PacifiCorp's early shutdown analysis is flawed and that without better analysis, it is not clear whether phasing out the plants would be cost effective or not.[13] CUB's position is that PacifiCorp is failing to meet its burden to prove Hunter 1, Bridger 3 and Bridger 4 environmental compliance investments are least-cost/least risk and therefore there is not sufficient evidence on which to base acknowledgement of these investments.

RNP recommends the Commission not acknowledge pollution control investments at Jim Bridger 3 and 4, because generally investing in coal units is not reasonable under scenarios with low natural gas costs and/or stringent CO2 regulation and lack of analysis regarding alternative compliance proposals.

NWEC recommends the Commission not acknowledge any action item related to coal resource investments in this IRP because a) the Company continues to underestimate the cost and risk of continued reliance on coal generation, b) the Company failed to analyze several coal units that should have been evaluated in this IRP, and c) generally the 2013 IRP fails to comply with IRP guidelines 4.g. and 8.a.[14]

Sierra Club points out that Bridger 3 and 4 are in active construction now. Sierra Club recommends the Commission not acknowledge Bridger 3 and 4 because acknowledgement of IRP items is for planning purposes and the IRP cannot be treated

[13] LC 57 CUB Opening comments filed August 22, 2013.
[14] Because NWEC's argument applies to all coal resource action items, NWEC's argument and PacifiCorp's response are only documented in this section and not repeated for each coal-related action item.

as a predetermination docket or Certificate of Public Convenience & Necessity (CPCN) because the Company is not being held to the same standards of a rate case or CPCN.

Sierra Club participated in two dockets in other states that looked at the Bridger 3 and 4 investments[15] and did not find analysis produced by the Company satisfactory or reasonable. Sierra Club points out that retirement of Bridger 3 and 4 would free up significant transmission capacity, potentially allowing the Company to defer near-term planned investments.[16]

Sierra Club is concerned that the Company's decision to maintain Bridger 3 and 4 is largely traceable to the Company's requirement to collect sufficient remediation funds to close the Bridger Surface Mine. Sierra Club supports this assertion by saying that the Company's analysis of the retirement of Bridger 3 and 4 assumes that the Company would close the Bridger Surface Mine immediately, thus shifting coal mine remediation costs into the near future instead of well after the assumed plant closure decades away, whereby the Company realizes a higher net present value.

Company Response
PacifiCorp states that its analysis of the proposed Bridger 3 and 4 pollution control investments is comprehensive, covering viable compliance alternatives across a range of natural gas and CO2 price assumptions. PacifiCorp also points out that it performed an analysis of phase-out scenarios assuming Bridger 3 and 4 continue to operate without the SCR investment through 2020 and 2021, respectively and also at Staff's request, through 2022 and 2023, respectively. PacifiCorp maintains that these analyses show that SCR installations at Bridger 3 and 4 are the lowest cost alternative.

PacifiCorp responds to NWEC's general complaint about PacifiCorp's overall coal analysis (that the Company underestimates the risk of continued reliance on coal generation, does not adequately address the full range of future regulations, and did not analyze several coal units that should have been analyzed) by pointing out that it analyzed a wide range of CO2 price scenarios in the portfolio development process, included costs to comply with prospective future regulations on coal combustion residuals and cooling water intake structures, and analyzed potential future Regional Haze compliance requirements. The Company further says that it included financial analysis of coal unit investments requiring near term actions and evaluated longer-term compliance requirements among all owned coal units in the portfolio development process and therefore fully complied with Oregon IRP Guidelines.

[15] Wyoming docket 20000-418-EA-12 and Utah docket 12-035-92.
[16] LC 57 Sierra Club final comments, page 17.

In response to RNP, PacifiCorp points out that its analysis supports the SCR investments as the lowest cost alternative even when high CO2 prices are paired with either base case or high natural gas prices.

In response to Sierra Club's assertions that PacifiCorp failed to take into consideration transmission cost savings that would result from early retirement at Bridger, PacifiCorp asserts the Windstar to Populus Energy Gateway transmission project investment decision is independent of the decision to install SCR equipment at Bridger 3 and 4 and that there are other substantial benefits of this project, including reliability benefits, increase access to wind and other resources and more efficient use of the transmission system.
Relative to Sierra Club's assertions that PacifiCorp's Bridger investments are motivated by accelerated Bridger mine reclamation cost recovery, PacifiCorp states that for each potential compliance alternative, assumptions, including mine reclamation cost assumptions, are uniquely developed. The Company claims that assumed reclamation costs are consistent with expected changes in the mine plan if the SCRs are not installed.

Staff Recommendation
Staff performed analysis as described above related to the proposed SCR investments at Bridger Units 3 and 4. Staff sent a data request to the Company and confirmed that Bridger 3 and 4 are currently under construction and that as of February 7, 2014, nine percent of the total project cost has been spent. In the future, Staff expects the Company to bring action items before the Commission well in advance of beginning of construction. Notwithstanding, Staff recommends the Commission acknowledge Action Item 8c for the SCR investments at Bridger 3 and 4 in 2015 and 2016, respectively.

3.2 Low NOx burner and Baghouse at Hunter Unit 1

Action Item 8b is to complete the installation of a baghouse and low NOx burner (LNB) at Hunter Unit 1 by the end of 2014.

Staff Position
According to PacifiCorp's response to staff data request OPUC 280, as of December 21, 2013, the baghouse project at Hunter Unit 1 is approximately 50 percent complete and the LNB is approximately 20 percent complete. Staff asked the Company about the cost and feasibility to delay existing construction commitments at Hunter for six or twelve months.[17] The Company responded that delaying would result in Engineering, Procurement and Construction (EPC) contract cost claims and all other planned major maintenance contracts and work scope currently in place to support the

[17] OPUC DR 280, part (e)

outage planned to install the equipment. The Company indicated the delay would also trigger significant concern, expenditure of resources, loss of project execution focus and productivity, loss of competitive market credibility and significantly increase contractor performance risk and cost.

PacifiCorp did not reference any pollution controls at Hunter 1 in its 2011 IRP, which would have been the appropriate avenue to raise awareness about the Hunter 1 pollution control requirements. At this point, it is clear that the Company would have significant trouble reversing its decision to move forward with the Hunter investments and therefore the Commission is being put in a difficult situation by being asked to rule on something that is already substantially complete. Staff recommended the Commission not acknowledge the Hunter 1 pollution control investments.

Other Parties' Positions
RNP recommends the Commission not acknowledge pollution control investments at Hunter 1, for the same reasons it does not recommend acknowledgement of investments at Bridger 3 and 4; because a) generally investing in coal units is not reasonable under scenarios with low natural gas costs and/or stringent CO2 regulation and b) there is a lack of analysis regarding alternative compliance proposals.

Sierra Club does not support the acknowledgement of Action Item 8b because it contends that a) the baghouse and LNB are not required at this time because the EPA has not made a final best available retrofit technology (BART) determination for the state of Utah, b) the Company's investment decision in May 2012 was premature and did not take into account further likely expenses, including an SCR, and c) the Company's modeling results in this IRP did not return robust results in support of this level of detail. Additionally, Sierra Club asserts that to the extent that an acknowledgement is akin to finding of prudent planning, the Company has not made such a showing in this IRP docket.

Sierra Club points out limitations and inconsistencies in PacifiCorp's financial analysis related to Hunter Unit 1. Namely, when the Company looked at the analysis based on what was known in May 2012, it did not look at the case of a 2018 SCR, even though in June 2012, Sierra Club argued before the Commission that the Company should have at least considered the risk the SCR would be required by 2017. In this way, Sierra Club contends that PacifiCorp missed a critical review. Sierra Club also faults the Company for only performing analysis under base assumptions and becuase it did not conduct reasonable sensitivities on gas and CO2 prices.

Lastly, Sierra Club provides confidential details as to why the analysis supporting the investment at Hunter 1 is, as they define it "erroneous and misleading, or shows that the

System Optimizer model is extremely unstable and unsuited for these types of decisions."[18]

Company Response
PacifiCorp disagrees with Staff that action item 8b is not appropriate because construction has already begun, because:

1) Hunter 1 baghouse and LNB are not yet in service
2) The Planned in-service date for the baghouse and LNB equipment falls within the twenty-year planning period of the IRP
3) Nothing in the IRP Guidelines prohibits the Commission from acknowledging action items that are expected to be completed within the planning period, even if work has already begun.

PacifiCorp responds to RNP's assertion that base case CO2 prices are no longer reasonable given the current policy environment and states that the Commission should review the environmental investment analysis under a high CO2 price scenario, by pointing out that the Hunter Unit 1 financial analysis included in Confidential Volume III of the 2013 IRP shows that the baghouse and LNB investments are the lowest cost alternative when high CO2 prices, beginning in 2018, are assumed.

PacifiCorp responds to Sierra Club's assertions that the baghouse and LNB are not required at this time because EPA has not approved the Utah SIP for NOx and particulate matter (PM) by pointing out that Utah Department of Environmental Quality (DEQ) confirmed in a letter that the requirements are enforceable under state law, irrespective of EPA's action.

PacifiCorp responds to Sierra Club's assertions that the Company's modeling is erroneous and unstable by stating that PacifiCorp's modeling is not erroneous and unstable but rather that changes in system costs between scenarios can influence the resource mix and cause changes to system energy and system costs.

PacifiCorp responds to RNP's position by pointing out that its analysis supports the baghouse and LNB investments as the lowest cost alternative; even when high CO2 prices are assumed and even when prospective future SCR costs are accelerated to 2018. PacifiCorp asserts that the 2013 IRP was filed consistent with Oregon IRP Guidelines, and PacifiCorp requests that the Commission acknowledge Action Item 8b.

PacifiCorp maintains that it modeled compliance alternatives for Hunter Unit 1 consistent with current regulatory requirements enforceable in the state of Utah and that

[18] LC 57 Sierra Club final comments, page 17.

the 2013 IRP was filed consistent with Oregon IRP Guidelines and therefore Action Item 8b should be acknowledged by the Commission.

Staff Recommendation
Staff is not persuaded by the Company's response. Staff continues to recommend the Commission not acknowledge Action Item 8b because the project is under construction and substantially complete and the Company failed to provide evidence explaining the circumstances that prevented its inclusion in previous IRPs. In the future, the Company should bring investments decisions to the Commission in IRPs prior to beginning construction to the extent possible.

3.3 Gas Conversion at Naughton Unit 3

Action Item 8a is to continue permitting in support of natural gas conversion at Naughton Unit 3, issue an RFP to pursue gas transportation to the plant, and issue an RFP for engineering, procurement and construction.

Staff Position
In Staff's final comments, we point out that in Action Item 8a, the Company is currently asking for acknowledgment of seeking a permit and issuing and RFP for converting Naughton 3 to gas by 2018. Staff is recommending acknowledging Action Item 8a, the permitting and RFP for gas conversion at Naughton Unit 3, but at this time would not support actual gas conversion because of the Company's current resource position and because insufficient analysis has been provided, particularly related to the option of shutting down Naughton Unit 3 rather than converting it to gas and how that would impact the projected load resource balance.

Other Parties' Positions
Sierra Club does not object to acknowledgement of the Naughton 3 gas conversion on the grounds that this particular issue seems to have been vetted thoroughly by interveners in Wyoming docket 11-035-200.

RNP recommends the commission acknowledge action item 8a pertaining to natural gas conversion at Naughton 3 but does cite specific reasons for its recommendation.

Company Response
In response to Staff's position that although the 2013 IRP indicated gas conversion was lower cost than installing and SCR and baghouse in 2015, there is insufficient analysis to support natural gas conversion in 2018, PacifiCorp claims that deferring the gas conversion to 2018 only improves the economics of gas conversion. PacifiCorp does not support Staff's proposed addition to Action Item 8a that would require the Company

to seek acknowledgement of the 2018 gas conversion in the 2015 IRP, but says it will update the Commission and parties on the status of the Naughton Unit 3 gas conversion project in the 2015 IRP.

Staff's Recommendation
Staff agrees with the Company that gas conversion in 2018 would likely be more cost effective than gas conversion in 2015, but contends that a) gas conversion is not the only viable option for Naughton 3 and b) the Company should take a second look at the option of shutting down Naughton 3, and c) before starting construction, the options for Naughton 3 should be revisited with updated gas, load, carbon and energy price expectations. Staff pointed out in our final comments, that PacifiCorp's models show Naughton 3 is minimally dispatched in the cases where it is assumed to convert to gas in 2015 and therefore, changes to load forecasts and gas prices between the time loads were developed for the 2013 IRP models and what will be used for the 2015 IRP, could impact the economics of alternatives at Naughton 3 including gas conversion or shutdown.

Also, Staff feels it is important to point out that the planned gas conversion of Naughton 3 is an example of regulatory flexibility which allows the Company to trade current emissions for long run emissions savings. The relevant portion of the initial Wyoming Regional Haze SIP which was approved by the EPA required SCR and baghouse on Naughton 3 by the *beginning of 2015*. All of PacifiCorp's modeling in the 2013 IRP is based upon the required retrofit being installed or the unit being converted or retired *along this 2015 timeframe*. However, Action Item 8a asks the Commission to acknowledge a permit application to its Wyoming regulators to operate Naughton 3 as a coal unit *without an SCR and baghouse through 2017 in violation of the initial EPA approved SIP for three years.* The Company is trading three additional years of coal operations and higher emissions for gas conversion afterwards that achieves long run emissions savings. PacifiCorp obviously felt its Wyoming regulators and EPA would be amenable to this plan and the recently finalized EPA FIP for Wyoming is validation this type of inter-temporal trade-off is possible as the 2018 conversion was part of the finalized EPA requirements. Staff agrees with this Boardman-like approach and agrees wholeheartedly with the Company that deferring the gas conversion improves the economics of the conversion. This is exactly the reason Staff insists this type of inter-temporal trade-off needs to be considered for all substantial coal fleet investments.

Staff recommends Action Item 8a be acknowledged as modified below:

Action Item 8a. - Naughton Unit 3

- *Continue permitting and development efforts in support of the Naughton Unit 3 natural gas conversion project. The permit application requesting operation on* *coal through year-end 2017 is currently under review by the Wyoming Department of Environmental Quality, Air Quality Division.*

- *Issue a request for proposal to procure gas transportation for the Naughton plant as required to support compliance with the conversion date that will be established during the permitting process.*
- *Issue an RFP for engineering, procurement, and construction of the Naughton Unit 3 natural gas retrofit as required to support compliance with the conversion date that will be established during the permitting process.*
- *<u>Evaluate the Naughton Unit 3 investment decision in the 2015 IRP with updated analysis including the shutdown versus conversion options</u>.*

3.4 Cholla Unit 4 Regulatory Compliance

Action Item 8d is for the Company to continue to evaluate compliance strategies for Cholla Unit 4 and provide analysis regarding compliance alternatives in the 2013 IRP Update.

In Staff's final comments, we point out that Cholla is one of the most expensive of PacfiCorp's coal plants at that in four of the core cases modeled in this IRP and in one sensitivity case, PacifiCorp's models demonstrate that it is economical for Cholla 4 to shut down in 2017. Staff also expressed concerns about the timing of the Cholla 4 investments (SCR equipment required by the end of 2017) and the fact that no analysis on Cholla 4 was included in this IRP.

Sierra Club states that its primary concern with Cholla Unit 4 was that the Company's analysis showed it was non-economic by 2025 in the base scenario and non-economic by 2017 in a low gas/high CO2 price scenario. Sierra Club contends the unit would be unlikely to pay off its SCR investment over a reasonable amortization period and therefore, recommends the Company explore closing the unit. Sierra Club believes that a rigorous analysis of Cholla 4's economics would not support an SCR retrofit. Sierra Club recommends that the Commission should set a date certain, preferably within the next four months, by which the Company should file a Coal Investment docket for Cholla 4.

Company Response
PacifiCorp indicates it will provide an update on Cholla in the 2013 IRP Update and therefore, recommends the Commission acknowledge Action Item 8d as filed.

Staff Recommendation
Staff recommends the Company bring the Cholla 4 analysis back to the Commission through a special IRP update. Parties and the Commission can consider the investment

at that time. Staff recommends Action Item 8d for Cholla Unit 4 be acknowledged as modified below:

Action Item 8d. - Cholla Unit 4

Continue to evaluate alternative compliance strategies that will meet Regional Haze compliance obligations, related to the U.S. Environmental Protection Agency's Federal Implementation Plan requirements to install SCR equipment at Cholla Unit 4. Provide an ~~update of the~~ analysis of Cholla Unit 4 ~~analysis regarding~~ compliance alternatives ~~in the 2013 IRP Update~~ in a special designated IRP Update within six months of the final order in LC 57 and well enough in advance to allow for all potential reasonable pollution control alternatives for Cholla to be adequately pursued.

3.5 Craig and Hayden Coal Plant Investments

SCR technology is planned to be installed at the jointly owned coal plants, Craig and Hayden, between 2015 and 2017. PacifiCorp is a minority owner of both plants. There are no action items in this IRP related to Craig and Hayden.

In Staff's final comments, we recommended a new action item 8e that would commit PacifiCorp to request acknowledgement of the environmental investments at Craig and Hayden within six months of Commission's determination in this IRP. Staff pointed out that in the past the Commission has ruled that even when a company has minority ownership in a plant, the Company needs to analyze the possible costs and consequences of environmental regulations associated with the joint ownership plant.

Sierra Club alleges that simply because these units are operated by other parties does not alleviate PacifiCorp of its responsibility to ensure that they are economically useful. Sierra Club recommends that the Commission require PacifiCorp to produce an economic analysis of Craig and Hayden immediately.

Company Response
In the Company's final comments, PacifiCorp indicated a willingness to review with the Commission and parties, through a confidential technical workshop existing analysis on the planned Craig and Hayden environmental investments. The Company states that assuming the appropriate protections are put in place that restrict the use of information presented at the technical workshop, the Company will schedule that workshop within three months of the Commission order in this docket.

Staff Recommendation

Staff is amenable to the approach proposed by PacifiCorp in lieu of the specific action item related to Craig and Hayden that Staff proposed in our final comments which would have required the Company to bring forth an analysis of Craig and Hayden as part of a separate coal analysis docket. Staff recommends the addition of the following action item:

Proposed new action item 8e.

> *Within three months of the Commission order in this docket PacifiCorp shall schedule a confidential technical workshop to review existing analysis on the planned Craig and Hayden environmental investments.*

4. TRANSMISSION

4.1 System Operational and Reliability Benefits Tool (SBT)

Background

PacifiCorp engaged in extensive efforts to address the scenario definition of its 2013 IRP with stakeholders through a public process. The Company developed, in consultation with stakeholders, the System Operational and Reliability Tool (SBT) which was designed by PacifiCorp for identifying and quantifying transmission benefits not captured using traditional IRP analysis tools. In PacifiCorp's reply comments, PacifiCorp notes that it will change how the SBT is applied based on comments received at a public input meeting on the SBT.

Parties Position

CUB acknowledges that although it continues to be concerned about the SBT, the Company has agreed to separate Customer and Regulatory benefits so that those categories will not be included in the cost-benefit ratio calculations. This resolves CUB's primary concern.   CUB says they expect the Company to continue to work with stakeholders on how it intends to calculate system benefits going forward.

In our final comments, Staff indicates that we are appreciative that the SBT will continue to improve and evolve over time, with stakeholder input.[19]

Proposed Action Item 9a describes how within 60 days of filing the 2013 IRP, the Company will establish a stakeholder group and schedule workshops to further review the SBT as well as for the 2013 IRP Update. The Company did this. The Action Item also says that for the 2013 IRP Update, the Company will complete additional analysis

[19] LC 57 Staff final comments, page 17.

of the Energy Gateway West Segment D that evaluates the staging implementation of Segment D by sub-segment. Finally, Action Item 9a states that in preparation for the 2015 IRP, the Company will continue to refine the SBT for Energy Gateway Segment D and develop SBT analyses for additional Energy Gateway Segments.

Staff Recommendation
Staff is appreciative that the Company is engaging with stakeholders and that the SBT will continue to be reviewed and modified. However, Action Item 9a is not a specific resource action and therefore does not require acknowledgement by the Commission.

4.2 Energy Gateway Permitting – Action Item 9b

Background and Staff Position
The Company's proposed Action Item 9b relates to permitting actions for Poplulus to Windstar (Segment D), Populus to Hemingway (Segment E), Aeolus to Mona (Segment F), and West of Hemingway (Segment H). The Company provided a preliminary SBT analysis to quantify the benefits of Segment D, however, as stated above, the Company will be making changes to how the SBT is applied. Regarding Segments E, F, and H, Staff recognizes that there is uncertainty in developing these segments until their anticipated in-service dates. However, uncertainty should not hinder the Company's efforts to continue exploring the projects in light of the preliminary benefits of these segments.

Other Parties' Positions
Sierra Club states that it has been involved in two CPCN dockets that questioned transmission planning and it remains unclear to Sierra Club why the Company intends to permit and construct additional transmission in Wyoming. Sierra Club points out that in the 2011 IRP, the Company determined it was cost effective to build 2,100 MW of new wind projects from 2018-2029. Consequently, PacifiCorp planned new transmission to carry wind energy from eastern Wyoming to load centers. Sierra club points to the 2011 IRP that said "the Company's planned transmission additions reflect its belief that state and federal energy policies will continue to push toward renewable and low-carbon resources"[20] and that renewable energy underlies the transmission footprint assumed in the preferred portfolio. Sierra Club points out that in the 2013 IRP, these expected wind resources were decreased from 2,100 MW to 650 MW, with no new wind coming on until 2024. Despite this, the Sierra Club points out the Company continues to move forward with permitting.

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[20] LC 57 Sierra Club's final comments, page 22, referencing the PacifiCorp's 2011 IRP, page 48.

Sierra Club also argues that neither the 2011 or 2013 IRP set out a compelling reason why ratepayers should be funding billions of dollars in transmission between existing resources. Sierra Club points out that in the Bridger CPCNs, the Company identified only one transmission constraint between eastern Wyoming and the Company's load centers that binds occasionally but does not seem to merit a new interstate transmission line. Two other Companies are seeking to build transmission from eastern Wyoming to load centers, both drawing wind from north of Cheyenne to Las Vegas via Utah. Sierra Club says it is unclear if PacifiCorp wants to build transmission in hopes it can justify wind in a future IRP, or if it hopes to use ratepayers and existing infrastructure to outpace two competitors to market.[21]

In general Sierra Club says it opposes the Company's efforts to build new transmission into eastern Wyoming until the Company backs its investments with a commitment to acquire renewable resources in the region.

Company Response

In its final comments, the Company does not oppose Staff's recommendations on Action Item 9b. PacifiCorp will continue to refine the SBT in preparation for the 2015 IRP but notes that there may be limitations to the analysis that can be performed at the time of the 2015 IRP. The Company further notes that the in-service dates for Segments D, E, F and H are several years in the future. PacifiCorp notes, in response to Sierra Club's comments, that the Company is not asking for acknowledgment of the Energy Gateway projects, but rather identifies near-term permitting activities required to maintain the options to move forward with Energy Gateway projects as supported in future planning activities.

Staff's Recommendation

Staff recommends acknowledging the Company's Action Item 9b with the modifications shown below:

Proposed modified Action Item 9b.

> *Continue permitting Segments D, E, F, and H until PacifiCorp files its 2015 IRP, when SBT analyses for these segments will be performed.*
>
> *~~Continue permitting for the Energy Gateway transmission plan, with near term targets as follows:~~*
> *~~– Segment D, E, and F, continue funding of the required federal agency permitting environmental consultant as actions to achieve final federal permits.~~*

[21] LC 57 Sierra Club final comments, page 22.

> ~~– Segment D, E, and F, continue to support the federal permitting process by providing information and participating in public outreach projected through the next 2 to 4 years.~~
> ~~– Segment H Cascade Crossing, complete benefits analysis in 2013.~~
> ~~– Segment H Boardman to Hemingway, continue to support the project under the conditions of the Boardman to Hemingway Transmission. Project Joint Permit Funding Agreement, projected through 2015.~~

4.2 Sigurd-to-Red Butte (S2RB)

Background
In action item 9c the Company is seeking acknowledgment of completing construction of the Sigurd-to-Red Butte (S2RB) 345 kilovolt Transmission Line per plan. The Company sought acknowledgement of the line in the 2011 IRP. Instead of the Commission acknowledging the line in the 2011 IRP, a new action item number 10 was developed as follows:

> *In the scenario definition phase of the IRP process, the Company will address with stakeholders the inclusion of any transmission projects on a case-by-case basis.*
> - *Develop an evaluation process and criteria for evaluating transmission additions.*
> - *Review with stakeholders which transmission projects should be included and why.*
> - *Based on the outcome of these steps, PacifiCorp will provide appropriate transmission segment analysis for which the Company requests acknowledgment (including Wallula to McNary and Sigurd to Red Butte).*

Other Parties' Positions
ICNU points out that the Company has already begun construction on the Sigurd-to-Red Butte transmission line.[22] ICNU asserts that the goal of an IRP is to seek acknowledgement of the Company's plans to meet expected loads based on its expected costs, risks and uncertainties. ICNU also points out that concerns have been raised in Oregon about whether PacifiCorp's transmission plans adequately account for expected future conditions and in Washington regarding whether the Company is inappropriately focusing on building transmission rather than alternatives, including smart grid technology.[23] ICNU suggests the Commission can avoid any disputes regarding transmission issues by declining to acknowledge Sigurd-to-Red Butte on the

[22] LC 57 ICNU final comments, page 7.
[23] LC 57 ICNU final comments, page 7.

grounds that the Company has already decided to build and began construction without the required input and consideration.

Sierra Club mentions that it takes no position on the Sigurd-to-Red Butte transmission line and adds that "At this time, Sierra Club does not specifically contest the acknowledgement of the Sigurd-to-Red Butte transmission line."[24]

RNP recommends acknowledgement of the Sigurd-to-Red Butte transmission line. In it's opening comments filed on August 23, 2013, RNP commends PacifiCorp for the ingenuity of its expanded transmission analysis in this IRP, particularly related to the fact that multiple transmission topologies were modeled for each scenario. RNP also commends the Company on its System Benefits Tool.[25]

Company Response
PacifiCorp says that the S2RB transmission line is necessary to provide safe and reliable service to customers and to meet expected and forecasted customer energy demand and that it improves compliance with regulatory requirements and reliability standards. The Company indicates that it disagrees with ICNU's interpretation that Action Item 9c does not comply with Oregon IRP Guidelines. The Company states:

> *"The Sigurd-to-Red Butte transmission line has not yet been placed in service, falls within the twenty year planning period of the IRP, and nothing in the Oregon IRP Guidelines prohibits the Commission from acknowledging action items that are expected to be completed within the planning period, even if work on the action item has already begun."*

In response to ICNU's assertion that the Company decided to build and began construction on the S2RB transmission line without the required input and consideration, the Company points out that the transmission line in question has been included in numerous public proceedings including the permitting process and IRP processes. PacifCorp points out that the Sigurd-to-Red Butte line was included as a segment of the Energy Gateway project as early at the 2008 IRP, filed in March 2009 and that the project was also included in the 2011 IRP and 2011 IRP Update. In each of these IRPs, opportunities for public input were provided. The Company states that the project is necessary to "provide safe and reliable service to customers and to meet expected and forecasted customer energy demand."[26] The Company claims in its final comments that the project benefits the local areas where it is constructed and the wider interconnected transmission system. PacifiCorp asserts that the line allows the

[24] LC 57 Sierra Club final comments, page 18.
[25] RNP opening comments in LC 57, page 10-11.
[26] LC 57 PacifiCorp's final comments, page 23.

Company to comply with mandatory Federal Energy Regulatory Commission (FERC), North American Electric Reliability Corporation (NERC), and Western Electricity Coordinating Council (WECC) reliability obligations.

Staff Recommendation
For the reasons stated in Staff's final comments, we continue to recommend acknowledgement of the S2RB transmission line. Staff recognizes that S2RB is currently under construction and based on the Company's response to Staff data request 296, is 53% complete as of January 31, 2014.[27] PacifiCorp requested acknowledgment of S2RB in the 2011 IRP. Rather than acknowledge the investment in that IRP, modified action item number ten was developed and included in the final Commission Order. Action Item 10 requires that PacifiCorp provide appropriate transmission segment analysis for segments the Company is requesting acknowledgement for, including S2RB. Therefore, in summary, even though S2RB is currently under construction, in the 2011 IRP the Company was asked to bring the investment back with appropriate transmission segment analysis.

Staff reiterates that because the primary beneficiaries are the Company's network transmission customers (i.e., PacifiCorp Energy, Utah Associated Municipal Power Systems (UAMPS), and Deseret Generation and Transmission Cooperative (DG&T)), and specifically their loads in southwest Utah, the allocation of costs should be commensurate with the benefits received by each network transmission customer or state. This may be addressed in the appropriate venue, such as multistate allocation processes and general rate proceedings.

5. Demand Side Management (DSM)

5.1 Class 2 DSM

Background
Action Item 7a is to acquire 1,425 – 1,876 GWh of cost-effective Class 2 energy efficiency resources by the end of 2015 and 2,034 – 3,180 GWh by the end of 2017. Action Item 7a also contains multiple specific actions the Company plans to implement to achieve those targets. Class 2 DSM includes energy efficiency measures such as efficient lighting, motors, air conditions, insulation, windows, etc.

[27] OPUC Staff Data Request 296

PacifiCorp's Action Item 7a contains a range of conservation to achieve by the end of 2015 and 2017.[28]

Staff's Position

As Staff understands, the low end of that range relates to the amount of conservation selected by PacifiCorp's model in the preferred portfolio EG2-C07 and the high end corresponds to the amount of conservation selected by PacifiCorp's model in a case designed to test the effects of accelerating DSM, case EG2-C15. Because the detailed 7a action item elements have purportedly been accelerated over what the Company otherwise would have done, Staff expects the Company to achieve conservation higher than the low end of the range and potentially up to the high end of the range. Staff expects the Company to aggressively pursue accelerated DSM in all states.

Staff is concerned that PacifiCorp exhibited a pattern of serially delaying or cancelling DSM programs that were part of acknowledged action items in past IRPs without evaluating the long run revenue requirement impacts. Staff notes four specific cases that are outlined in the following table. Staff includes a summary of the current status of each program and the impact to ratepayers of the delay or cancellation.

Program	**Status**	**Impact**
Small Commercial DSM program	Delayed, now happening	Forgone benefits of accelerated DSM
Residential instantaneous efficiency measures	Delayed, now happening	Forgone benefits of accelerated DSM
Special Contract Customers EE[29]	Delayed - To be reconsidered in the future contract negotiations company by company	Forgone benefits of accelerated DSM and uncertainty whether energy savings will be achieved
120 MW Demand Response	Cancelled	PAC's model shows cheaper to purchase power at peak; impact is lower cost to customers

[28] Action Item 7a says the Company will acquire between 1,425 – 1,876 gigawatt hours (GWh) of cost effective Class 2 energy efficiency resources by the end of 2015 and 2,034 to 3,180 GWh by the end of 2017.

[29] PacifiCorp didn't follow through on an action item from the last IRP to pursuing energy efficiency with special contract interruptible customers. One reason for this is that PAC focuses on capacity planning rather than energy planning, and interruptible customers are already a capacity resource. PacifiCorp is planning to explore energy efficiency opportunities in the next round of contract renegotiations with these customers.

Staff recommends the Company provide twice yearly updates to the Commission on DSM activities outside Oregon. Updates will keep the Company accountable to DSM IRP targets and provide an opportunity for the Commission, Staff and stakeholders to provide feedback when they deviate. Staff is also specifically asking to be kept up to date on negotiations related to energy efficiency opportunities as negotiated with special contract customers.

Included in action item 7a is the following statement:

> *Include in the 2014 conservation potential study an analysis testing assumptions in support of accelerating acquisition of cost-effective Class 2 DSM resources, and apply findings from this analysis into the development of candidate portfolios in the 2015 IRP.*

In discussions with the Company it appears that this study is intended to be a generic study of accelerating DSM and costs of doing so, but to the extent it is generic and not specific to PacifiCorp's service area and customers, the results will not be meaningful. Therefore, Staff recommends that rather than conducting a generic investigation the Company have an implementation study performed that looks specifically at the ability and cost to accelerate DSM programs in the Company's service territory outside Oregon. The resulting information should be used as the basis for the next IRP.

Finally, it has been difficult to ascertain how DSM targets in each IRP compare to one another. In the past the Company has expressed DSM cumulative targets for certain years and not others. Sometimes DSM numbers are expressed in GWh while other times they are expressed as MW. This has led to confusion and difficulty in comparing across IRPs. Staff recommends that going forward, yearly DSM acquisition targets be provided in a consistent basis, in both GWh and MW for each year in the planning period, by state.

Other Parties' Positions

CUB maintains that Oregon's DSM targets are more aggressive than the other states, because Energy Trust operates programs in Oregon. CUB provided a table that shows that in terms of DSM as a percentage of total forecasted load, Oregon's DSM is higher than other states' through at least 2018. CUB points out that the primary difference between the Oregon forecast and the forecast for other states relates to who did the assessment. In Oregon it was Energy Trust and for other states it was CADMUS. CUB says that the Company has room to consider more Energy Trust-comparable programs in other states in order to improve its DSM.

In CUB's initial comments, it makes that point that even though the Company is proposing action items that may potentially accelerate DSM, it is not clear what kind of effects the accelerated DSM would have on the chosen scenario. Because accelerated DSM is not included in the Company's preferred portfolio (case EG2-CO7a) it is unknown what kind of impact accelerated DSM would have on front office transactions and other resources.

In its initial comments CUB also points out that the Company admits that cases EC1-C15 and EG2-C15 "yield the highest ranking risk adjusted net PVRR."[30] Notwithstanding this high ranking, the Company did not prioritize these portfolios because it felt that it did not have either strong evidence to demonstrate the true acquisition costs for DSM or that the revised ramp rate assumptions would be achievable.[31]

CUB expressed concern about the implications of the Company rejecting a least-cost scenario because of the uncertainties associated with DSM and points out that PacifiCorp, in its 2013 IRP, explains that it is capable of exceeding its Class 2 DSM acquisition goals by at least 29% or 242,438 MWh. CUB questions why the Company is not pursuing accelerated DSM in this case if it has historically demonstrated that it possesses the ability to achieve more energy efficiency than forecasted. CUB is disappointed that PacifiCorp "apparently failed to consider its own historical energy efficiency results when deciding not to pursue an accelerated DSM scenario."

CUB is asking that the Commission not acknowledge the DSM section of PacifiCorp's IRP.

NWEC makes the point that the Company's 2013 analysis showed that accelerating DSM leads to a lower cost and lower risk portfolio for customers regardless of slow load growth and lack of near-term new resource need as demonstrated by the accelerated DSM case EG2-C15 ranking as the least cost, least risk portfolio. NWEC proposes that the DSM targets in this action item should be set at the levels selected in the accelerated DSM portfolio EG2-C15. NWEC maintains a position that PacifiCorp's targets for energy efficiency programs in states other than Oregon are too low and that Class 2 DSM targets in the 5-year action plan should not be acknowledged or should be increased prior to acknowledgment in the 2013 IRP.

NWEC, Staff and CUB expressed concern that Oregon ratepayers are funding higher levels of cost effective conservation relative to energy efficiency achieved in other states and therefore, Oregon rate payers are subsidizing ratepayers in other states, by paying

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[30] Integrated Resource Plan IRPModeling and Results Update Draft Preferred Portfolio at page 17 (March 21, 2013). Accessed at: http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2013IRP/2013IRP_PIM18_PrefPort_3-21-13.pdf
[31] LC 57 – 2013 Integrated Resource Plan, Volume I at pg 222.

for supply-side system costs in equal measure. NWEC specifically recommends the Commission require:

1. DSM target should be 1,113,250 MWh of Class 2 DSM (as selected in the accelerated DSM case) for the five-year action plan.
2. The Company should regularly report to the Oregon Commission regarding DSM through the Company's territory and should provide quantitative analysis supporting any reductions in targets.
   The Company should file with the Commission any significant deviation from the DSM action plan targets or items and should include an analysis showing why these changes are least cost/least risk.

NWEC voiced concern that methodologies used in the company's resource potential conducted by a third-party company, Cadmus, led to an underestimation of the achievable technical potential in all states except Oregon. Of particular concern were market ramp rate and measure ramp rate calculations.

ICNU recommends the Commission not acknowledge PacifiCorp's planned conservation investments in its eastern states because they do not fully account for the additional conservation that the Company can reasonably obtain. ICNU suggests that instead of simply not acknowledging the numbers currently being proposed by PacifiCorp, the Commission could acknowledge the accelerated Case EG-C15 as part of an overall least cost and least risk portfolio and require the Company to regularly report its achieved conservation, including any discrepancies between its target and actual conservation.

Sierra Club, in its preliminary comments filed on August 22, 2013 points out that PacifiCorp's methodology for modeling DSM in its IRP is innovative and has some advantages, yet it yields questionable results. Specifically, Sierra Club notes that the Company's model selects a declining amount of incremental DSM each year from 2013 to 2032. Sierra Club questions this result, noting that few states would claim that they are currently at the peak of their energy efficiency potential and that it will only decline from here.[32]

Company Response
PacifiCorp explains the reasons it did not select accelerated DSM case C15 as the preferred portfolio are a) cost assumptions associated with accelerated DSM are uncertain, b) ramp rates used were untested, c) CCCTs were not allowed to be selected in this portfolio.[33] PacifiCorp does not support NWEC's recommendation that the

[32] LC 57 Seirra Club preliminary comments, page 16.
[33] PacifiCorp 2013 IRP Volume I, page 222.

Commission acknowledge DSM targets from case C15 as the preferred portfolio. The Company also disagrees with NWEC, ICNU, CUB and Staff's assertion that Oregon customers are funding higher levels of conservation compared to energy efficiency achieved in other states. PacifiCorp suggests that NWEC and others are a) ignoring the contributions of load management investments, b) not considering market transformation savings, and c) failing to recognize differences in factors such as average energy use per customer, age of homes, etc.

PacifiCorp replied to Sierra Club's comments by pointing out that there are many factors that contribute to declining DSM potentials over time and that Energy Trust's potential assessments also show declining DSM over time. PacifiCorp explains that new potential assessments will be conducted every two years, so parties should not be overly concerned with declining numbers beyond the action plan period.

PacifiCorp indicates the contract for the next conservation potential study was finalized in June 2013 so it is not feasible to incorporate input from Staff on the scope of the study. PacifiCorp indicated they will schedule a date to review the scope of the study with Staff. The Company indicates the conservation potential study will be used to develop an implementation plan to deliver the Class 2 DSM resources selected in the 2015 IRP, recognizing that implementation plans in each state must be approved by that state.

PacifiCorp agreed to provide twice yearly updates on the status of DSM IRP acquisition goals in 2014 and 2015.

Staff Recommendation
Staff is not persuaded by PacifiCorp's arguments that it is achieving the same amount or more conservation in its other states as it is in Oregon through Energy Trust. Nonetheless, Staff recommends the Commission acknowledge proposed action item 7a related to DSM with Staff's four additions described below.

Recommended additions to Action Item 7a

1) *Provide twice yearly updates on the status of DSM IRP acquisition goals to the Oregon Commission in 2014 and 2015 at regular public meetings. Summarize where efforts have deviated from previously agreed upon action items and report on progress toward specific DSM targets for all states other than Oregon. As part of these updates, provide information on progress in exploring energy efficiency opportunities with special contract customers in next round of contract negotiations.*

2) *Include in the 2014 conservation potential study an Implementation Plan specific to PacifiCorp service territory for all states other than Oregon which quantifies*

how much Class 2 DSM programs can be accelerated and how much it will cost to accelerate acquisition.

3) *In the 2015 IRP and in quarterly updates, report back on the status of negotiating energy efficiency projects with special contract customers.*

4) *Going forward, in future IRPs, the Company will provide yearly Class 1 and Class 2 DSM acquisition targets in both GWh and MW for each year in the planning period, by state.*

5.2 Class 1 DSM

Background

The Company does not have any action items related to Class 1 DSM. PacifiCorp defines Class 1 DSM as programs for which capacity savings occur as a result of active Company control or advanced scheduling. Examples include dispatchable demand response and dispatchable irrigation programs. The preferred portfolio in this IRP does not include any Class 1 DSM until 2027, by which time 400+ MW of a new gas plant has been added along with 650 MW of new wind.

In its initial comments, NWEC points out that in the 2013 IRP Volume 1 states that the Company completed an analysis of the feasibility and costs of west-side Class 1 irrigation control but that "it was not selected as an economic resource in the first ten years of the 2013 IRP preferred portfolio."[34] NWEC suggests that lack of information in the 2013 IRP and its appendices make it difficult to understand what assumptions led to this surprising result and suggests that closer Commission scrutiny of this decision is warranted give the expected value of summer peak load reduction to the company's system give the estimated summer peak resource deficit of 824 MW beginning in 2013 and reaching 2308 MW by 2022. NWEC goes on to recommend close Commission scrutiny of the underlying model assumptions in the 2013 IRP that seem to have led to what they call an undervaluing of Class 1 DSM. Additionally, NWEC thinks the capacity oriented selections in case EG2-C15, and the potential contribution to this case's least risk/least cost ranking should be analyzed more fully in the IRP.

NWEC notes that load control and demand response resources, similar to Class 2 DSM resources, need to be building incrementally over time. NWEC asserts that PacifiCorp's 2013 IRP analysis and strategies undervalue these resources. NWEC does not object to any specific 2013 Action Item related to load control or demand response, however, they recommend that the Company consider whether demand side resources should be

[34] IRP, Volume 1, page 257

assessed in a manner that more clearly reflects the incremental nature of these resources, as well as the lost opportunity when loads increase, in the 2015 IRP. ODOE supports NWEC's request from its Initial Comments that "the Commission encourage the Company to increase the amount and sophistication of its overall analysis regarding demand response and other load control tools in the next IRP."[35] ODOE agrees with NWEC that utilization of load control capabilities should be evaluated for their potential to reduce customer energy costs over the long-term.

ODOE suggests that PacifiCorp's 2013 Action Plan should include a Class 1 DSM pilot in Oregon and the Commission should direct PacifiCorp to conduct a more detailed analysis of demand response opportunities in future IRPs consistent with IRP Guideline 7 of Order No. 07-002, which states, "Plans should evaluate demand response resources, including voluntary rate programs, on par with other options for meeting energy, capacity, and transmission needs…" ODOE notes how PacifiCorp's 2011 IRP included a commitment to acquire at least 140 MW of Class 1 DSM resources by 2013 and a commitment to implement a commercial curtailment project that includes customer-owned standby generation opportunities, if cost effective, by 2012. However, the preferred portfolio in the 2013 IRP does not contain any Class 1 DSM until 2027 and PacifiCorp cancelled the commercial curtailment project due to a revised load forecast that the Company said suggests the direct load control if not cost-effective.

ODOE suggests that even if not all Class 1 DSM options are cost-effective in the short-term, ODOE supports a staged approach to advance PacifiCorp's technical capabilities to use demand response technologies. ODOE suggests PacifiCorp can then best discern the most cost-effective approaches and report on those findings in the next IRP.

ODOE recommends that PacifiCorp pursue a Class 1 DSM pilot in Oregon and at least one other state before filing its next IRP. Although ODOE doesn't have a specific recommendation on a capacity target for the pilot at this time, ODOE suggests that PacifiCorp's current proposal to have zero Class 1 DSM resources for over a decade, with no plan to evaluate these resources further, is insufficient.

PacifiCorp Response
PacifiCorp, in its Reply Comments, disagrees with NWEC's rational in asserting the absence of Class 1 DSM resources in the preferred portfolio indicates that Class 1 DSM programs are undervalued in the 2013 IRP. The Company claims that with reduced loads, the need for new resources is greatly reduced as compared to the 2011 IRP and load control and demand response are not needed.

[35] NW Energy Coalition LC 57 Initial Comments at 7-8.

PacifiCorp laments that ODOE does not identify how it views PacifiCorp's current consideration of Class 1 DSM resources to be deficient. The Company points out that a range of different Class 1 DSM products are developed in resource potential studies and used as inputs for portfolio modeling. PacifiCorp does not support ODOE's recommendation to implement a Class 1 DSM pilot in Oregon.

Staff Recommendation
Staff appreciates NWEC's and ODOE's comments and the Company's response related to Class 1 DSM. Staff recommends that during the public involvement process for the next IRP, the Company clarify its assumptions associated with Class 1 DSM and how it is being valued in PacifiCorp's production cost model. Staff does not agree with ODOE that a Class 1 DSM pilot should be required by the Company before it's next IRP filing. Staff would be amenable to the Company proposing a pilot, but does not think this is something that should be required by the Commission at this time.

6. RENEWABLES

PacifiCorp proposes five action items related to renewable energy plus two action items specifically related to distributed generation as shown in Attachment A. Action Item 1a, 1e, 2a and 2b are business as usual type activities that do not require commission acknowledgment.

6.1 Renewable Portfolio Standard (RPS) Compliance – Action Item 1b

Action Item 1b is related to RPS compliance and asks for acknowledgement to use unbundled renewable energy credits (RECs) to meet Renewable Portfolio Standard (RPS) compliance through an annual request for proposal (RFP) process. The Company proposes that it is cheaper to meet RPS standards with RECs than to build new renewable resources.

In Staff's final comments, we recognized the Company's efforts to meet RPS requirements in the lowest cost manner using RECs, where possible. However, PacifiCorp didn't project costs associated with those RECs which Staff saw as a gap in the analysis. Thus, Staff recommended that Action Item 1b be acknowledged with the conditions that REC prices be explicitly incorporated into portfolio analysis in the future and a forecasted range of REC prices be included in the IRP update and the 2015 IRP.

Company Response
The Company did not agree with Staff's proposed additions to Action Item 1b. The Company expressed concerns that publishing a REC price projection in the IRP could

influence prices when the Company sells or purchases RECs in the market, which would harm customers. The Company instead proposes to continue to monitor REC prices and consider the upper limits of future REC prices in the context of state-specific RPS rules when evaluating compliance alternatives for a given state RPS program.

Staff's Recommendation
Staff understands the difficulty and potential risks of developing and publishing forward market price curves for RECs. For that reason, Staff recommends acknowledging action item 1b as proposed.

6.2 REC Optimization – Action Item 1c

Action Item 1c is to issue reverse RFPs on a quarterly basis to sell RECs not required to meet state RPS compliance obligations. In our final comments, Staff recommended the Commission not acknowledge this action item because we believe the Company's renewable resources should be made available to Oregon, with the associated compensation based on market value of the RECs. PacifiCorp has bundled RECs from other PacifiCorp states (Utah and Idaho) that could be transferred to Oregon to meet RPS rather than being sold on the market. Staff would like PacifiCorp to consider a strategy where these RECs would be acquired by Oregon rather than sold to the higest bidder. The other states would be compensated.

Oregon Staff is currently working through the Multi-State Process (MSP) to acquire bundled RECs from other PacifiCorp jurisdictions. Because Action Item 1c conflicts with this objective, Staff does not recommend acknowledgment of this Action Plan item.

Company Response
PacifiCorp states that Staff's recommendation on this item is an alternative cost allocation method better suited for the MSP. PacifiCorp believes it is not appropriate for IRP Action Items to be shelved because Oregon has been discussing acquiring RECs from other jurisdictions through the MSP process. PacifiCorp states that until a specific agreement among states is in place, that will accommodate the transfer of RECs from one jurisdiction to Oregon, PacifiCorp will continue to implement Action Item 9c.

Staff Recommendation
Staff will continue to pursue this issue through the MSP. In the meantime, how the Company sells RECs currently allocated to other states, is not technically an issue that requires Commission acknowledgement in an IRP. Therefore, instead of recommending the Commission not acknowledge this action item, Staff suggests that

this is another "business as usual" action item that does not require Commission acknowledgement.

6.2 Solar – Action Item 1d

The Company is seeking acknowledgement of Action Item 1d to issue an RFP to obtain Oregon solar photovoltaic resources to meet the Oregon small solar compliance obligation of Oregon House Bill 3039. Staff has reviewed the economics of this project and believes it is a good deal for ratepayers. Energy Trust incentive dollars are also being provided to the project. Staff recommends the Commission acknowledge this action item.

6.4 Other renewables action items

Staff contends that Action Items 1a, 1e, 2a and 2b do not require Commission acknowledgement.

6.5 Renewables Capacity Contribution - Action Item 1e

Action Item 1e is to track and report the statistics used to calculate capacity contribution from wind resources and available solar information as a means of testing the validity of the peak load carrying capability (PLCC) method.

Staff Position
In Staff's final comments, we indicated that we support PacifiCorp tracking and reporting statistics used to test the validity of the PLCC of solar and wind. Staff notes that the data collected will allow the Company to compare the capacity contribution calculated through the PLCC analysis with similar "effective load carrying capability" (ELCC) methods to fully assess solar and wind capacity contributions to the system reliability.

RNP Position
RNP says that subsequent proceedings (IRPs, IRP updates and investigative dockets) should include updated capacity factors and capacity values for renewable resources. RNP argued in their initial comments that inaccurate capacity value assumptions contributed to the decreased selection of renewable resources. RNP contends that the capacity value methodology used by the Company excluded the majority of reliability benefits provided by renewable resources. Instead, RNP proposes that the Commission direct the Company to use the ELCC methodology, consistent with best national practices. RNP strongly supports Staff's recommendation to compare the capacity contributions using PLCC and what RNP calls the more accurate metric of ELCC.

Company Response
PacifiCorp agreed to consider Staff's recommendations to compare the capacity contributions of wind and solar resources between alternative methods.

Staff Recommendation
Staff recommends RNP and other interested stakeholders participate with Staff and the Company in the pre-IRP meetings for the 2015 IRP and follow up on these metrics through that process.

6.6 Cost of PV used in modeling

NWEC Position
NWEC and other interveners expressed concerns about the costs of solar PV used in this IRP. In its initial comments, NWEC provided detail on recent developments on current costs and future projections, highlighting the robust downward cost trends and analysis suggesting those trends will continue. In its initial comments, NWEC pointed out that PAC's estimates for solar PV costs start too high and do not incorporate the likely decline in costs over both the short and long term. NWEC makes the case using data from multiple sources.. The result of these too high estimates, NWEC asserts, is thataside from the small amount of distributed generation enabled under state policies, there are no further acquisition targets or pilot programs included in PacifiCorp's 2013 Action Plan, despite PacifiCorp's territory including what NWEC calls "some of the best resources in the nation."[36]

NWEC is not swayed by the Company's response that PacifiCorp's consultant Cadmus, based PV costs on the best information available. NWEC asserts that Cadmus' analysis relied on older studies for current costs and did not properly incorporate an experience curve assessment for future costs and therefore, the assumptions used in the IRP modeling basically assumed flat costs for the next decade. NWEC mentions that PacifiCorp noted a recent leveling and uptick in solar modules pricing during 2013. NWEC provides industry data that supports the position that this uptick is likely temporary in duration.

NWEC supports the Company's proposal to reassess solar resource cost assumptions on an ongoing basis and review the most recent market data available during the preparation of the 2015 IRP.

Company Response
The Company did not respond to these assertions in their Opening or final comments.

[36] LC 57 NWEC Initial Comments page 9.

Staff Recommendation
Staff appreciates NWEC's research and comments on this issue of solar PV prices and solar resources being used by PacifiCorp in IRP modeling. Staff recommends NWEC continue to participate in IRP development meetings and submit input in writing on PV prices.

6.7 Trigger point analysis for renewables

RNP proposes that PacifiCorp perform a trigger point analysis for new renewable resources in its next IRP. The trigger point analysis would identify the levelized cost of energy for wind and solar resources required to promote their selection in System Optimizer.

Company Response
PacifiCorp states that is appreciates RNP's comments and will consider its recommendation as the Company works with stakeholders to develop scenarios and sensitivities in the 2015 IRP and looks forward to working with RNP in defining potential parameters for a trigger point analysis during the 2015 IRP public input process.

Staff Recommendation
Staff supports PacifiCorp working with RNP during the 2015 IRP public input process to develop the type of information RNP is looking for in a trigger point analysis for renewable resources. Staff recommends RNP develop specific suggestions in writing as part of that process.

7. LOAD FORECAST

7.1 Net Metering

Staff expressed concerns that the Company's modeling may not be adequately accounting for potential future load reductions due to net metering. Staff disagrees that PacifiCorp's forecast methodology accurately anticipates net metering growth.

Company Response
The Company continues to believe its forecast methodology accurately anticipates net metering growth, but says it looks forward to working through the issue with Staff in the 2015 IRP.

Staff Recommendation

Staff will engage with the Company on this issue in the 2015 IRP Public Input Process.

7.2 Direct Access Loads

Staff and ICNU agree that PacifiCorp's load forecasts could be inappropriately high due to the Company not taking into account customers that may sign-up for long-term direct access. Staff asserts that the Company's assumption of zero long-term direct access load is not reasonable.

ICNU agrees with Staff that PacifiCorp should adjust its expected loads based on customers permanently electing direct access. ICNU elaborates on this by explaining that in Docket No. UE 267, the Commission is considering a five-year opt-out program in which direct access customers can opt out from cost of service rates on a permanent or long-term basis.

Company Response
PacifiCorp responds that at this time the Company is unable to forecast which customers will choose the direct access five-year opt-out program due to the specifics of each customer's load profile, economic circumstances, risk tolerance, or pricing they may have received from a qualified electricity service supplier. PacifiCorp indicates that it will evaluate whether any of its planning assumptions will need to be modified after the final order is issued in Docket UE 267.

Staff Recommendation
The Company states that "the Company is unable to forecast which customers will choose the direct access five-year opt-out program". However, the Company has forecasted the direct access participation. Specifically, it forecasts zero participation. This position by the company is the equivalent of stating "The Company is unable to accurately forecast the level of load growth, therefore the company will assume that no load growth occurs." Like most pieces of the IRP, planning for future direct access participation involves hypothesis and speculation. PacifiCorp needs to ensure its load forecast for the 2015 IRP takes into account the outcome of UE 267 and make relevant assumptions clear in the 2015 IRP planning process and final IRP.

8. MODELING AND PROCESS SUGGESTIONS

In our final comments, Staff makes the case that PacifiCorp's modeling could use improvements in the areas of (1) the diversity of portfolios created through System Optimizer; (2) the natural gas input to the PaR model biases the analysis in favor of coal; (3) PaR is not varying coal prices, CO2 prices, or other environmental compliance costs stochastically, unlike other key variables, which mutes risk and biases the model towards coal heavy portfolios, and (4) stochastic treatment of system loads are favoring overbuilt scenarios.

Staff and the Company disagree on how the risk metric that comes out of the Company's stochastic modeling in the IRP should be applied and expressed. Staff continues to contend that the risk metric should be the upper tail mean present value revenue requirement (PVRR) alone rather than the upper tail mean PVRR minus the mean PVRR. Staff made this same case back in PacifiCorp's IRP Docket LC 42, wherein Order 08-232, the Commission said "We direct the Company to rank portfolios according to these metrics (95^{th} percentile and Upper-Tail [mean] PVRR) in the next IRP…."

NWEC makes the case that the current IRP modeling framework does not capture the full diversity of risk hedging value of clean energy resources such as energy efficiency, demand response and renewables. NWEC points out the diversity of opinions about what will happen with natural gas prices and as a result some utilities are beginning to invest in wind and other clean energy resources above any regulatory requirements in order to hedge against gas price volatility. In NWEC's view, relying less heavily on gas going forward is the prudent path, both because of continued volatility and the risk in long-term price trends. NWEC recommends the Commission urge the Company to review and improve its methodology for including natural gas prices uncertainty and risk in IRP modeling in the next IRP.

Due to the increasing complexity of PacifiCorp's system, ODOE recommends the Commission order PacifiCorp to conduct a stochastic capacity credit study using 8,760 hours of data per year to better account for the capacity contribution of variable resources, such as wind.

Company Response
The Company points out that consistent with action item 11a, it held a modeling process improvement workshop in September 2013. PacifiCorp indicates it is currently considering comments it received from parties, including Staff, following the workshop. It is looking at ways to achieve a wider range of portfolio diversity and ways to accommodate more risk analysis using the PaR model. PacifiCorp also indicates it plans to update its stochastic parameters for the 2015 IRP and plans to have a workshop to discuss stochastic modeling with stakeholders as part of the 2015 IRP public process and it is evaluating methods to develop capacity contribution assumptions for renewable resources.

Relative to the risk metric issue, the Company emphasized that the use of the Staff-proposed alternative approach would not have altered "the outcome of the initial screening process for the 2013 IRP…." The Company recommends addressing Staff's concerns by including a discussion of the risk metric as an agenda item in the 2015 IRP public process, allowing stakeholders to discuss alternatives when evaluating risk in the initial screening process.

PacifiCorp does not support ODOE's recommendation that the Commission require the Company to conduct a stochastic capacity credit study using 8,760 hours of data per year and is considering methods developed to approximate reliability-based methods such as the ELCC, which are computationally intensive, with methods that require less data. The Company suggests ODOE's recommendation may be overly prescriptive and would prevent the Company from exploring alternatives that achieve the intended result in a way that requires significantly less data and computational horsepower.

Staff Recommendation
Staff appreciates the Company's willingness to work with parties on the improvements suggested by Staff and others related to modeling and process.

Staff is not convinced by PacifiCorp's assertion that changing the risk metric would not have altered the outcome of the initial screening process for the 2013 IRP. In other words, what may have been an illogical process did not in the current case cause the Company to make a bad decision – not to say that under other circumstances the illogical process may in fact had done so. Staff is supportive of PacifiCorp's recommendation that this issue be discussed in the 2015 IRP stakeholder involvement process.

Staff encourages ODOE to work with the Company and stakeholders in the 2015 IRP public involvement process on feasible alternatives for assessing stochastic capacity credits.

9. ENERGY STORAGE

ODOE recommends that PacifiCorp's IRP Action Plan should include an energy storage pilot and the Commission should direct PacifiCorp to provide a more comprehensive treatment of energy storage in future IRPs. ODOE indicates that in PacifiCorp's 2011 IRP action plan, PacifiCorp committed to an energy storage demonstration project in

Utah, that was later cancelled.[37] This IRP does not recommend further action on energy storage.

ODOE acknowledges that PacifiCorp commissioned a study in 2011 with HDR Engineering to develop a current catalog of commercially available and emerging energy storage technologies and those results of the report were incorporated into the System Optimizer model.

ODOE suggests that future IRPs should offer a more comprehensive treatment of energy storage.

Company Response
In response, PacifiCorp indicates it does not support ODOE's recommendation to implement an energy storage pilot in Oregon. PacifiCorp indicates its model allows for energy storage to be selected and that results from the 2013 IRP do not currently support implementing an energy storage pilot in Oregon. PacifiCorp says it will continue to update cost and performance assumptions and assess energy storage resources in future IRPs.

Staff Recommendation
In the final Commission Order in LC 52, the Company's 2011 IRP, the Commission specifically stated:

> *Moreover, we support PacifiCorp's plan to proceed with development and implementation of an energy storage demonstration project in the state of Utah. We strongly encourage PacifiCorp to evaluate energy storage options capable of addressing the summer peak in Utah as a means of delaying the need for a new thermal resource on the company's eastern system.*

Staff supports PacifiCorp continuing to update cost and performance assumptions and asses energy storage resources in future IRPs. Staff encourages ODOE to participate in stakeholder meetings for the 2015 IRP and offer specific suggestions for treatment of energy storage as applicable.

[37] In the 2013 IRP Volume I, page 254 PacifiCorp indicates that the energy storage demonstration project progressed to the point of testing a five kilowatt-hour electrostatic generator. A report on the project was sent to the public in May 2012. Due to lack of supplier funding, PacifiCorp indicates that in 2013 the project is no longer being pursued by the Company.

PROPOSED COMMISSION MOTION:

PacifiCorp's 2013 Integrated Resource Plan be acknowledged with the revised action items recommended by Staff as contained in Attachment C to this report.

Attachment A

LC 57 Originally Proposed Action Items:

1. **Renewable Resource Actions**

Action Item 1a. - Wind Integration
Update the wind integration study for the 2015 IRP. The updated wind integration study will consider the implications of an energy imbalance market along with comments and feedback from the technical review committee and IRP stakeholders provided during the 2012 Wind Integration Study.

Action Item 1b. - Renewable Portfolio Standard Compliance
With renewable portfolio standard (RPS) compliance achieved with unbundled renewable energy credit (REC) purchases, the preferred portfolio does not include incremental renewable resources prior to 2024. Given that the REC market lacks liquidity and depth beyond one year forward, the Company will pursue unbundled REC requests for proposal (RFP) to meet its state RPS compliance requirements.

- Issue at least annually, RFPs seeking then current-year or forward-year vintage unbundled RECs that will qualify in meeting Washington renewable portfolio standard obligations.
- Issue at least annually, RFPs seeking historical, then current-year, or forward-year vintage unbundled RECs that will qualify for Oregon renewable portfolio standard obligations. As part of the solicitation and bid evaluation process, evaluate the tradeoffs between acquiring bankable RECs early as a means to mitigate potentially higher cost long-term compliance alternatives.
- Issue at least annually, RFPs seeking then current-year or forward-year vintage unbundled RECs that will qualify for California renewable portfolio standard obligations.

Action Item 1c. - Renewable Energy Credit Optimization
On a quarterly basis, issue reverse RFPs to sell RECs not required to meet state RPS compliance obligations.

Action Item 1d. - Solar

- Issue an RFP in the second quarter of 2013 soliciting Oregon solar photovoltaic resources to meet the Oregon small solar compliance obligation (Oregon House Bill 3039). Coordinate the selection process with the Energy Trust of Oregon to seek 2014 project funding. Complete evaluation of proposals and select potential winning bids in the fourth quarter of 2013.
- Issue a request for information 180 days after filing the 2013 IRP to solicit updated market information on utility scale solar cost

Action Item 1e. - Capacity Contribution
Track and report the statistics used to calculate capacity contribution from wind resources and available solar information as a means of testing the validity of the peak load carrying capability (PLCC) method.

2. Distributed Generation Actions

Action Item 2a. - Distributed Solar
Manage the expanded Utah Solar Incentive Program to encourage the installation of the entire approved capacity. Beginning in June 2014, as stipulated in the Order in Docket No. 11-035-104, the Company will file an Annual Report with program results, system costs, and production data. These reports will also provide an opportunity to evaluate and improve the program as the Company will use this opportunity to recommend changes. Interested parties will have an opportunity to comment on the report and any associated recommendations.

Action Item 2b. - Combined Heat & Power (CHP)
Pursue opportunities for acquiring CHP resources, primarily through the Public Utilities Regulatory Policies Act PURPA Qualifying Facility contracting process. For the 2013 IRP Update, complete a market analysis of CHP opportunities that will: (1) assess the existing, proposed, and potential generation sites on PacifiCorp's system; (2) assess availability of fuel based on market information; (3) review renewable resource site information (i.e. permits, water availability, and incentives) using available public information; and (4) analyze indicative project economics based on avoided cost pricing to assist in ranking probability of development.

3. Firm Market Purchase Actions

Action Item 3a. - Front Office Transactions
Acquire economic front office transactions or power purchase agreements as needed through the summer of 2017.
– Resources will be procured through multiple means, such as periodic market RFPs that seek resources less than five years in term, and bilateral negotiations.
– Include in the 2013 IRP Update a summary of the progress the Company has made to acquire front office transactions over the 2014 to 2017 forward period.

4. Flexible Resource Actions

Action Item 4a. - Energy Imbalance Market (EIM)
Continue to pursue the EIM activities with the California Independent System Operator and the Northwest Power Pool to further optimize existing resources resulting in reduced costs for customers.

5. Hedging Actions

Action Item 5a. - Natural Gas Request for Proposal
Convene a workshop for stakeholders by October 2013 to discuss potential changes to the Company's process in evaluating bids for future natural gas RFPs, if any, to secure additional long-term natural gas hedging products.

6. Plant Efficiency Improvement Actions

Action Item 6a. - Plant Efficiency Improvements

Production efficiency studies have been conducted to satisfy requirements of the Washington I-937 Production Efficiency Measure that have identified categories of cost effective production efficiency opportunity.

– By the end of the first quarter of 2014, complete an assessment of the plant efficiency opportunities identified in the Washington I-937 studies that might be applicable to other wholly owned generation facilities.

– Prior to initiating modeling efforts for the 2015 IRP, determine a multi-state "total resource cost test" evaluation methodology to address regulatory recovery among states with identified capital expenditures.

– Prior to initiating modeling efforts for the 2015 IRP, present to IRP stakeholders in a public input meeting the Company's recommended approach to analyzing cost effective production efficiency resources in the 2015 IRP.

7. Demand Side Management (DSM) Actions

Action Item 7a. - Class 2 DSM

Acquire 1,425 – 1,876 GWh of cost-effective Class 2 energy efficiency resources by the end of 2015 and 2,034 – 3,180 GWh by the end of 2017.

- Collaborate with the Energy Trust of Oregon on a pilot residential home comparison report program to be offered to Pacific Power customers in 2013 and 2014. At the conclusion of the pilot program and the associated impact evaluation, assess further expansion of the program.
- Implement an enhanced consolidated business program to increase DSM acquisition from business customers in all states excluding Oregon.
  - Utah base case schedule is 1st quarter 2014 with an accelerated target of 3rd quarter 2013.
  - Washington base case schedule is 4th quarter 2014, with an accelerated target of 1st quarter 2014.
  - Wyoming, California, and Idaho base case schedule is 4th quarter 2014, with an accelerated target of 2nd quarter 2014.
- Accelerate to the 2nd quarter of 2014, an evaluation of waste heat to power where generation is used to offset customer requirements – investigate how to integrate opportunities into the DSM portfolio.
- Increase acquisitions from business customers through prescriptive measures by expanding the "Trade Ally Network".
  - Base case target in all states is 3rd quarter 2014, with an accelerated target of 4th quarter 2013
- Accelerate small-mid market business DSM acquisitions by contracting with third party administrators to facilitate greater acquisitions by increasing marketing, outreach, and management of comprehensive custom projects by 1st quarter 2014.
- Increase the reach and effectiveness of "express" or "typical" measure offerings by increasing qualifying measures, reviewing and realigning incentives,

implementing a direct install feature for small commercial customers, and expanding the residential refrigerator and freezer recycling program to include commercial units.
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  - Evaluate and expand the residential behavioral pilot.
    - Utah base case schedule is 2nd quarter 2014, with an accelerated target of 4th quarter 2013.
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  - Expand residential programs system-wide pending evaluation results.
    - System-wide target is 3rd quarter 2015, with an accelerated target of 3rd quarter 2014.
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  - Implement cost effective direct install options by the end of 2013.
  - Expand offering of “bundled” measure incentives by the end of 2013.
  - Increase qualifying measures by the end of 2013.
  - Review and realign incentives.
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    - Washington base case schedule is 2nd quarter 2014, with accelerated target of 1st quarter 2014.
    - Wyoming, California, and Idaho base case schedule is 3rd quarter 2014, with an accelerated target of 2nd quarter 2014
  - Accelerate acquisitions by expanding refrigerator and freezer recycling to incorporate retail appliance distributors and commercial units – 3rd quarter 2013.
  - By the end of 2013, complete review of the impact of accelerated DSM on Oregon and the Energy Trust of Oregon, and re-contract in 2014 for appropriate funding as required.
  - Include in the 2013 IRP Update Class 2 DSM decrement values based upon accelerated acquisition of DSM resources.
  - Include in the 2014 conservation potential study an analysis testing assumptions in support of accelerating acquisition of cost-effective Class 2 DSM resources, and apply findings from this analysis into the development of candidate portfolios in the 2015 IRP.

Action Item 7b. - Class 3 DSM
Develop a pilot program in Oregon for a Class 3 irrigation time-of-use program as an alternative approach to a Class 1 irrigation load control program for managing irrigation loads in the west. The pilot program will be developed for the 2014 irrigation season and findings will be reported in the 2015 IRP.

8. Coal Resource Actions

Action Item 8a. - Naughton Unit 3

- Continue permitting and development efforts in support of the Naughton Unit 3 natural gas conversion project. The permit application requesting operation on coal through year-end 2017 is currently under review by the Wyoming Department of Environmental Quality, Air Quality Division.
- Issue a request for proposal to procure gas transportation for the Naughton plant as required to support compliance with the conversion date that will be established during the permitting process.
- Issue an RFP for engineering, procurement, and construction of the Naughton Unit 3 natural gas retrofit as required to support compliance with the conversion date that will be established during the permitting process.

Action Item 8b. - Hunter Unit 1

Complete installation of the baghouse conversion and low NO_X burner compliance projects at Hunter Unit 1 as required by the end of 2014.

Action Item 8c. - Jim Bridger Units 3 and 4

Complete installation of selective catalytic reduction (SCR) compliance projects at Jim Bridger Unit 3 and Jim Bridger Unit 4 as required by the end of 2015 and 2016, respectively.

Action Item 8d. - Cholla Unit 4

Continue to evaluate alternative compliance strategies that will meet Regional Haze compliance obligations, related to the U.S. Environmental Protection Agency's Federal Implementation Plan requirements to install SCR equipment at Cholla Unit 4. Provide an update of the Cholla Unit 4 analysis regarding compliance alternatives in the 2013 IRP Update.

9. Transmission Actions

Action Item 9a. - System Operational and Reliability Benefits Tool (SBT)

60 days after filing the 2013 IRP, establish a stakeholder group and schedule workshops to further review the System
Benefit Tool (SBT).

– For the 2013 IRP Update, complete additional analysis of the Energy Gateway West Segment D that evaluates staging implementation of Segment D by sub-segment.

– In preparation for the 2015 IRP, continue to refine the SBT for Energy Gateway West Segment D and develop SBT analyses for additional Energy Gateway segments.

Action Item 9b. - Energy Gateway Permitting

Continue permitting for the Energy Gateway transmission plan, with near term targets as follows:

– Segment D, E, and F, continue funding of the required federal agency permitting environmental consultant as actions to achieve final federal permits.
– Segment D, E, and F, continue to support the federal permitting process by providing information and participating in public outreach projected through the next 2 to 4 years.
– Segment H Cascade Crossing, complete benefits analysis in 2013.
– Segment H Boardman to Hemingway, continue to support the project under the conditions of the Boardman to Hemingway Transmission. Project Joint Permit Funding Agreement, projected through 2015.

Action Item 9c. - Sigurd to Red Butte 345 kilovolt Transmission Line
Complete project construction per plan.

10. Planning Reserve Margin Actions

Action Item 10a. - Planning Reserve Margin
Continue to evaluate in the 2015 IRP the results of a System Optimizer portfolio sensitivity analysis comparing a range of planning reserve margins considering both cost and reliability impacts of different levels of planning reserve margin assumptions. Complete for the 2015 IRP an updated planning reserve margin analysis that is shared with stakeholders during the public process.

11. Planning and Modeling Process Improvement Actions

Action Item 11a. - Modeling and Process
Within 90 days of filing the 2013 IRP, schedule an IRP workshop with stakeholders to discuss potential process improvements that can more efficiently achieve meaningful cost and risk analysis of resource plans in the context of the IRP and implement process improvements in the 2015 IRP.

Action Item 11b. - Cost/Benefit Analysis of DSM Resource Alternatives
Complete a cost/benefit analysis on the level of detail used to evaluate prospective DSM resources in the IRP. The analysis will consider the tradeoffs between model run-time and resulting resource selections, will be shared with stakeholders early in the 2015 IRP public process, and will inform how prospective DSM resources will be aggregated in developing resource portfolios for the 2015 IRP.

Attachment B

Staff's Recommended Redline Changes to Proposed Action Items:

1. **Renewable Resource Actions**

DOES NOT REQUIRE ACKNOWLEDGEMENT ~~*Action Item 1a. - Wind Integration*~~
~~Update the wind integration study for the 2015 IRP. The updated wind integration study will consider the implications of an energy imbalance market along with comments and feedback from the technical review committee and IRP stakeholders provided during the 2012 Wind Integration Study.~~

ACKNOWLEDGE AS PROPOSED
Action Item 1b. - Renewable Portfolio Standard Compliance
With renewable portfolio standard (RPS) compliance achieved with unbundled renewable energy credit (REC) purchases, the preferred portfolio does not include incremental renewable resources prior to 2024. Given that the REC market lacks liquidity and depth beyond one year forward, the Company will pursue unbundled REC requests for proposal (RFP) to meet its state RPS compliance requirements.

- Issue at least annually, RFPs seeking then current-year or forward-year vintage unbundled RECs that will qualify in meeting Washington renewable portfolio standard obligations.
- Issue at least annually, RFPs seeking historical, then current-year, or forward-year vintage unbundled RECs that will qualify for Oregon renewable portfolio standard obligations. As part of the solicitation and bid evaluation process, evaluate the tradeoffs between acquiring bankable RECs early as a means to mitigate potentially higher cost long-term compliance alternatives.
- Issue at least annually, RFPs seeking then current-year or forward-year vintage unbundled RECs that will qualify for California renewable portfolio standard obligations.

DOES NOT REQUIRE ACKNOWLEDGEMENT
~~*Action Item 1c. - Renewable Energy Credit Optimization*~~
~~On a quarterly basis, issue reverse RFPs to sell RECs not required to meet state RPS compliance obligations.~~

ACKNOWLEDGE AS PROPOSED
Action Item 1d. - Solar

- Issue an RFP in the second quarter of 2013 soliciting Oregon solar photovoltaic resources to meet the Oregon small solar compliance obligation (Oregon House Bill 3039). Coordinate the selection process with the Energy Trust of Oregon to seek 2014 project funding. Complete evaluation of proposals and select potential winning bids in the fourth quarter of 2013.
- Issue a request for information 180 days after filing the 2013 IRP to solicit updated market information on utility scale solar cost.

DOES NOT REQUIRE ACKNOWLEDGEMENT
~~*Action Item 1e. - Capacity Contribution*~~
~~Track and report the statistics used to calculate capacity contribution from wind resources and available solar information as a means of testing the validity of the peak load carrying capability (PLCC) method.~~

DOES NOT REQUIRE ACKNOWLEDGEMENT

~~2. Distributed Generation Actions~~

~~*Action Item 2a. - Distributed Solar*~~
~~Manage the expanded Utah Solar Incentive Program to encourage the installation of the entire approved capacity. Beginning in June 2014, as stipulated in the Order in Docket No. 11-035-104, the Company will file an Annual Report with program results, system costs, and production data. These reports will also provide an opportunity to evaluate and improve the program as the Company will use this opportunity to recommend changes. Interested parties will have an opportunity to comment on the report and any associated recommendations.~~

~~*Action Item 2b. - Combined Heat & Power (CHP)*~~
~~Pursue opportunities for acquiring CHP resources, primarily through the Public Utilities Regulatory Policies Act PURPA Qualifying Facility contracting process. For the 2013 IRP Update, complete a market analysis of CHP opportunities that will: (1) assess the existing, proposed, and potential generation sites on PacifiCorp's system; (2) assess availability of fuel based on market information; (3) review renewable resource site information (i.e. permits, water availability, and incentives) using available public information; and (4) analyze indicative project economics based on avoided cost pricing to assist in ranking probability of development.~~

DOES NOT REQUIRE ACKNOWLEDGEMENT

~~3. Firm Market Purchase Actions~~

~~*Action Item 3a. - Front Office Transactions*~~
~~Acquire economic front office transactions or power purchase agreements as needed through the summer of 2017.~~
~~– Resources will be procured through multiple means, such as periodic market RFPs that seek resources less than five years in term, and bilateral negotiations.~~
~~– Include in the 2013 IRP Update a summary of the progress the Company has made to acquire front office transactions over the 2014 to 2017 forward period.~~

DOES NOT REQUIRE ACKNOWLEDGEMENT

~~4. Flexible Resource Actions~~

~~*Action Item 4a. - Energy Imbalance Market (EIM)*~~

~~Continue to pursue the EIM activities with the California Independent System Operator and the Northwest Power Pool to further optimize existing resources resulting in reduced costs for customers.~~

DOES NOT REQUIRE ACKNOWLEDGEMENT

~~5. Hedging Actions~~

~~Action Item 5a. - Natural Gas Request for Proposal~~

~~Convene a workshop for stakeholders by October 2013 to discuss potential changes to the Company's process in evaluating bids for future natural gas RFPs, if any, to secure additional long-term natural gas hedging products.~~

DOES NOT REQUIRE ACKNOWLEDGEMENT

~~6. Plant Efficiency Improvement Actions~~

~~Action Item 6a. - Plant Efficiency Improvements~~

~~Production efficiency studies have been conducted to satisfy requirements of the Washington I-937 Production Efficiency Measure that have identified categories of cost effective production efficiency opportunity.~~

~~– By the end of the first quarter of 2014, complete an assessment of the plant efficiency opportunities identified in the Washington I-937 studies that might be applicable to other wholly owned generation facilities.~~

~~– Prior to initiating modeling efforts for the 2015 IRP, determine a multi-state "total resource cost test" evaluation methodology to address regulatory recovery among states with identified capital expenditures.~~

~~– Prior to initiating modeling efforts for the 2015 IRP, present to IRP stakeholders in a public input meeting the Company's recommended approach to analyzing cost effective production efficiency resources in the 2015 IRP.~~

7. Demand Side Management (DSM) Actions

ACKNOWLEDGE AS REVISED

Action Item 7a. - Class 2 DSM

Acquire 1,425 – 1,876 GWh of cost-effective Class 2 energy efficiency resources by the end of 2015 and 2,034 – 3,180 GWh by the end of 2017.

- Collaborate with the Energy Trust of Oregon on a pilot residential home comparison report program to be offered to Pacific Power customers in 2013 and 2014. At the conclusion of the pilot program and the associated impact evaluation, assess further expansion of the program.
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  - Expand offering of "bundled" measure incentives by the end of 2013.
  - Increase qualifying measures by the end of 2013.
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    - Washington base case schedule is 2nd quarter 2014, with accelerated target of 1st quarter 2014.
    - Wyoming, California, and Idaho base case schedule is 3rd quarter 2014, with an accelerated target of 2nd quarter 2014
  - Accelerate acquisitions by expanding refrigerator and freezer recycling to incorporate retail appliance distributors and commercial units – 3rd quarter 2013.

  - By the end of 2013, complete review of the impact of accelerated DSM on Oregon and the Energy Trust of Oregon, and re-contract in 2014 for appropriate funding as required.
  - Include in the 2013 IRP Update Class 2 DSM decrement values based upon accelerated acquisition of DSM resources.
  - Include in the 2014 conservation potential study an analysis testing assumptions in support of accelerating acquisition of cost-effective Class 2 DSM resources, and apply findings from this analysis into the development of candidate portfolios in the 2015 IRP.

- Provide twice yearly updates on the status of DSM IRP acquisition goals to the Oregon Commission in 2014 and 2015 at regular public meetings. Summarize where efforts have deviated from previously agreed upon action items and report on progress toward specific DSM targets for all states other than Oregon. As part of these updates, provide information on progress in exploring energy efficiency opportunities with special contract customers in next round of contract negotiations.

- Include in the 2014 conservation potential study an Implementation Plan specific to PacifiCorp service territory for all states other than Oregon which quantifies how much Class 2 DSM programs can be accelerated and how much it will cost to accelerate acquisition.

- In the 2015 IRP and in quarterly updates, report back on the status of negotiating energy efficiency projects with special contract customers.

- Going forward, in future IRPs, the Company will provide yearly Class 1 and Class 2 DSM acquisition targets in both GWh and MW for each year in the planning period, by state.

DOES NOT REQUIRE ACKNOWLEDGEMENT
~~*Action Item 7b. - Class 3 DSM*~~
~~Develop a pilot program in Oregon for a Class 3 irrigation time-of-use program as an alternative approach to a Class 1 irrigation load control program for managing irrigation loads in the west. The pilot program will be developed for the 2014 irrigation season and findings will be reported in the 2015 IRP.~~

8. Coal Resource Actions

ACKNOWLEDGE AS REVISED
Action Item 8a. - Naughton Unit 3
- Continue permitting and development efforts in support of the Naughton Unit 3 natural gas conversion project. The permit application requesting operation on coal through year-end 2017 is currently under review by the Wyoming Department of Environmental Quality, Air Quality Division.

- Issue a request for proposal to procure gas transportation for the Naughton plant as required to support compliance with the conversion date that will be established during the permitting process.
- Issue an RFP for engineering, procurement, and construction of the Naughton Unit 3 natural gas retrofit as required to support compliance with the conversion date that will be established during the permitting process.
- Evaluate the Naughton Unit 3 investment decision in the 2015 IRP with updated analysis including the shutdown versus conversion options.

RECOMMEND NOT ACKNOWLEDGE
~~*Action Item 8b. - Hunter Unit 1*~~
~~Complete installation of the baghouse conversion and low NO_X burner compliance projects at Hunter Unit 1 as required by the end of 2014.~~

ACKNOWLEDGE AS PROPOSED
Action Item 8c. - Jim Bridger Units 3 and 4
Complete installation of selective catalytic reduction (SCR) compliance projects at Jim Bridger Unit 3 and Jim Bridger Unit 4 as required by the end of 2015 and 2016, respectively.

ACKNOWLEDGE AS REVISED
Action Item 8d. - Cholla Unit 4
Continue to evaluate alternative compliance strategies that will meet Regional Haze compliance obligations, related to the U.S. Environmental Protection Agency's Federal Implementation Plan requirements to install SCR equipment at Cholla Unit 4. Provide an ~~update of the~~ analysis of Cholla Unit 4 ~~analysis regarding~~ compliance alternatives ~~in the 2013 IRP Update~~ in a special designated IRP Update within six months of the final order in LC 57 and well enough in advance to allow for all potential reasonable pollution control alternatives for Cholla to be adequately pursued.

NEW ACTION ITEM
Action Item 8e. – Craig and Hayden
Within three months of the Commission order in this docket PacifiCorp shall schedule a confidential technical workshop to review existing analysis on the planned Craig and Hayden environmental investments.

NEW ACTION ITEM
Action Item 8f. - Wyodak
For the 2015 IRP the following *inter-temporal* and *fleet trade-off* analysis related to the SCR requirement on Wyodak by 2019 will be used as a frame of reference:

	Inter-temporal Scenarios			
	EPA requirement	Time 1	Time 2	Time 3
Wyodak Plant Action	SCR Retrofit	SNCR Retrofit / early retirement	Gas Conversion	Retirement
Timeline	2019	2019 /2030	2022	2027

	Fleet Trade-Off Scenarios				
	EPA requirement	Fleet 1	Fleet 2	Fleet 3	Fleet 4
Wyodak	SCR Retrofit in 2019	No Action	No Action	No Action	No Action
Dave Johnston Units 1 & 2	No Action	Retirement in 2027	No Action	Gas Conversion in 2022	No Action
Dave Johnston Unit 4	No Action	No Action	Retirement in 2027	No Action	Gas Conversion in 2022

- The timing and options will be finalized with stakeholders at the workshops for the 2015 IRP.
- This analysis will include considerations for the necessity of Gateway West with reduced capacity in eastern Wyoming.
- Workshops will be held, including at least one with the Commissioners, to refine the list of specific fleet analyses to be performed in the IRP. Staff will bring final recommendations to the Commission at a Public Meeting and the Company and parties will have an opportunity to respond.

NEW ACTION ITEM

Action Item 8g. – Carbon Analysis

Prior to the end of 2014, the Company will work with Staff and stakeholders to explore options for how the Company plans to model and perform analysis in the 2015 IRP related to what is known about the requirements of Section 111(d).

NEW ACTION ITEM
Action Item 8h. – Screening Tool
As part of the 2015, 2017, and 2019 IRP, the Company shall provide an updated version of the confidential screening tool spreadsheet model that was provided to Staff and parties as part of the LC 52 2011 IRP Update

NEW ACTION ITEM
Action Item 8i. – Timelines
As part of future IRPs, the Company shall provide documentation of timelines and key decision points for expected pollution control options.

NEW ACTION ITEM
Action Item 8j. – Planned expenditures
As part of future IRPs, the Company shall provide tables detailing major planned expenditures with estimated cost in each year for each generating facility, under different modeled scenarios.

NEW ACTION ITEM
Action Item 8k. – Quarterly updates
Following the issuance of the final Commission order in this IRP, starting in the third quarter of 2014, the Company shall come before the Commission at a public meeting and make quarterly updates on coal plant compliance requirements, legal proceedings, pollution control investments, and other major capital expenditures at the Company's coal plants.

9. Transmission Actions

DOES NOT REQUIRE ACKNOWLEDGEMENT
~~*Action Item 9a. - System Operational and Reliability Benefits Tool (SBT)*~~
~~60 days after filing the 2013 IRP, establish a stakeholder group and schedule workshops to further review the System~~
~~Benefit Tool (SBT).~~

~~– For the 2013 IRP Update, complete additional analysis of the Energy Gateway West Segment D that evaluates staging implementation of Segment D by sub-segment.~~
~~– In preparation for the 2015 IRP, continue to refine the SBT for Energy Gateway West Segment D and develop SBT analyses for additional Energy Gateway segments.~~

ACKNOWLEDGE AS REVISED
Action Item 9b. - Energy Gateway Permitting

Continue permitting Segments D, E, F, and H until PacifiCorp files its 2015 IRP, when SBT analyses for these segments will be performed.

~~Continue permitting for the Energy Gateway transmission plan, with near term targets as follows:~~
~~– Segment D, E, and F, continue funding of the required federal agency permitting environmental consultant as actions to achieve final federal permits.~~
~~– Segment D, E, and F, continue to support the federal permitting process by providing information and participating in public outreach projected through the next 2 to 4 years.~~
~~– Segment H Cascade Crossing, complete benefits analysis in 2013.~~
~~– Segment H Boardman to Hemingway, continue to support the project under the conditions of the Boardman to Hemingway Transmission. Project Joint Permit Funding Agreement, projected through 2015.~~

ACKNOWLEDGE AS PROPOSED
Action Item 9c. - Sigurd to Red Butte 345 kilovolt Transmission Line
Complete project construction per plan.

DOES NOT REQUIRE ACKNOWLEDGEMENT
~~10. Planning Reserve Margin Actions~~

~~Action Item 10a. - Planning Reserve Margin~~
~~Continue to evaluate in the 2015 IRP the results of a System Optimizer portfolio sensitivity analysis comparing a range of planning reserve margins considering both cost and reliability impacts of different levels of planning reserve margin assumptions. Complete for the 2015 IRP an updated planning reserve margin analysis that is shared with stakeholders during the public process.~~

DOES NOT REQUIRE ACKNOWLEDGEMENT
11. ~~Planning and Modeling Process Improvement~~ Actions

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~~Within 90 days of filing the 2013 IRP, schedule an IRP workshop with stakeholders to discuss potential process improvements that can more efficiently achieve meaningful cost and risk analysis of resource plans in the context of the IRP and implement process improvements in the 2015 IRP.~~

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~~Complete a cost/benefit analysis on the level of detail used to evaluate prospective DSM resources in the IRP. The analysis will consider the tradeoffs between model run-time and resulting resource selections, will be shared with stakeholders early in the 2015 IRP public process, and will inform how prospective DSM resources will be aggregated in developing resource portfolios for the 2015 IRP.~~

Attachment C

LC 57 Staff's Modified Action Items – CLEAN LIST

Renewable Resource Actions

Action Item 1b. - Renewable Portfolio Standard Compliance
With renewable portfolio standard (RPS) compliance achieved with unbundled renewable energy credit (REC) purchases, the preferred portfolio does not include incremental renewable resources prior to 2024. Given that the REC market lacks liquidity and depth beyond one year forward, the Company will pursue unbundled REC requests for proposal (RFP) to meet its state RPS compliance requirements.

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- Issue at least annually, RFPs seeking then current-year or forward-year vintage unbundled RECs that will qualify for California renewable portfolio standard obligations.

Action Item 1d. - Solar

- Issue an RFP in the second quarter of 2013 soliciting Oregon solar photovoltaic resources to meet the Oregon small solar compliance obligation (Oregon House Bill 3039). Coordinate the selection process with the Energy Trust of Oregon to seek 2014 project funding. Complete evaluation of proposals and select potential winning bids in the fourth quarter of 2013.
- Issue a request for information 180 days after filing the 2013 IRP to solicit updated market information on utility scale solar cost

Demand Side Management (DSM) Actions

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  - Evaluate and expand the residential behavioral pilot.
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  - Accelerate acquisitions by expanding refrigerator and freezer recycling to incorporate retail appliance distributors and commercial units – 3rd quarter 2013.
  - By the end of 2013, complete review of the impact of accelerated DSM on Oregon and the Energy Trust of Oregon, and re-contract in 2014 for appropriate funding as required.
  - Include in the 2013 IRP Update Class 2 DSM decrement values based upon accelerated acquisition of DSM resources.
  - Include in the 2014 conservation potential study an analysis testing assumptions in support of accelerating acquisition of cost-effective Class 2 DSM resources, and apply findings from this analysis into the development of candidate portfolios in the 2015 IRP.

- Provide twice yearly updates on the status of DSM IRP acquisition goals to the Oregon Commission in 2014 and 2015 at regular public meetings. Summarize where efforts have deviated from previously agreed upon action items and report on progress toward specific DSM targets for all states other than Oregon. As part of these updates, provide information on progress in exploring energy efficiency opportunities with special contract customers in next round of contract negotiations.

- Include in the 2014 conservation potential study an Implementation Plan specific to PacifiCorp service territory for all states other than Oregon which quantifies how much Class 2 DSM programs can be accelerated and how much it will cost to accelerate acquisition.

- In the 2015 IRP and in quarterly updates, report back on the status of negotiating energy efficiency projects with special contract customers.

- Going forward, in future IRPs, the Company will provide yearly Class 1 and Class 2 DSM acquisition targets in both GWh and MW for each year in the planning period, by state.

Coal Resource Actions

Action Item 8a. - Naughton Unit 3

- Continue permitting and development efforts in support of the Naughton Unit 3 natural gas conversion project. The permit application requesting operation on coal through year-end 2017 is currently under review by the Wyoming Department of Environmental Quality, Air Quality Division.
- Issue a request for proposal to procure gas transportation for the Naughton plant as required to support compliance with the conversion date that will be established during the permitting process.

- Issue an RFP for engineering, procurement, and construction of the Naughton Unit 3 natural gas retrofit as required to support compliance with the conversion date that will be established during the permitting process.
- Evaluate the Naughton Unit 3 investment decision in the 2015 IRP with updated analysis including the shutdown versus conversion options.

Action Item 8c. - Jim Bridger Units 3 and 4
Complete installation of selective catalytic reduction (SCR) compliance projects at Jim Bridger Unit 3 and Jim Bridger Unit 4 as required by the end of 2015 and 2016, respectively.

Action Item 8d. - Cholla Unit 4
Continue to evaluate alternative compliance strategies that will meet Regional Haze compliance obligations, related to the U.S. Environmental Protection Agency's Federal Implementation Plan requirements to install SCR equipment at Cholla Unit 4. Provide an analysis of Cholla Unit 4 compliance alternatives in a special designated IRP Update within six months of the final order in LC 57 and well enough in advance to allow for all potential reasonable pollution control alternatives for Cholla to be adequately pursued.

Action Item 8e. – Craig and Hayden
Within three months of the Commission order in this docket PacifiCorp shall schedule a confidential technical workshop to review existing analysis on the planned Craig and Hayden environmental investments.

Action Item 8f. - Wyodak
For the 2015 IRP the following inter-temporal and fleet trade-off analysis related to the SCR requirement on Wyodak by 2019 will be used as a frame of reference:

	Inter-temporal Scenarios			
	EPA requirement	Time 1	Time 2	Time 3
Wyodak Plant Action	SCR Retrofit	SNCR Retrofit / early retirement	Gas Conversion	Retirement
Timeline	2019	2019 /2030	2022	2027

	Fleet Trade-Off Scenarios				
	EPA requirement	Fleet 1	Fleet 2	Fleet 3	Fleet 4
Wyodak	SCR Retrofit in 2019	No Action	No Action	No Action	No Action
Dave Johnston Units 1 & 2	No Action	Retirement in 2027	No Action	Gas Conversion in 2022	No Action
Dave Johnston Unit 4	No Action	No Action	Retirement in 2027	No Action	Gas Conversion in 2022

- The timing and options will be finalized with stakeholders at the workshops for the 2015 IRP.
- This analysis will include considerations for the necessity of Gateway West with reduced capacity in eastern Wyoming.
- Workshops will be held, including at least one with the Commissioners, to refine the list of specific fleet analyses to be performed in the IRP. Staff will bring final recommendations to the Commission at a Public Meeting and the Company and parties will have an opportunity to respond.

Action Item 8g. – Carbon Analysis
Prior to the end of 2014, the Company will work with Staff and stakeholders to explore options for how the Company plans to model and perform analysis in the 2015 IRP related to what is known about the requirements of Section 111(d).

Action Item 8h. – Screening Tool
As part of the 2015, 2017, and 2019 IRP, the Company shall provide an updated version of the confidential screening tool spreadsheet model that was provided to Staff and parties as part of the LC 52 2011 IRP Update.

Action Item 8i. – Timelines
As part of future IRPs, the Company shall provide documentation of timelines and key decision points for expected pollution control options.

Action Item 8j. – Planned expenditures
As part of future IRPs, the Company shall provide tables detailing major planned expenditures with estimated cost in each year for each generating facility, under different modeled scenarios.

Action Item 8k. – Quarterly updates
Following the issuance of the final Commission order in this IRP, starting in the third quarter of 2014, the Company shall come before the Commission at a public meeting and make quarterly updates on coal plant compliance requirements, legal proceedings,

pollution control investments, and other major capital expenditures at the Company's coal plants.

Transmission Actions

Action Item 9b. - Energy Gateway Permitting
Continue permitting Segments D,E, F, and H until PacifiCorp files its 2015 IRP, when SBT analyses for these segments will be performed.

Action Item 9c. - Sigurd to Red Butte 345 kilovolt Transmission Line
Complete project construction per plan.