January 10, 2014

Via Electronic Filing and FedEx

Public Utility Commission
Attn: Filing Center
3930 Fairview Industrial Drive SE
PO Box 1088
Salem, OR 97308

Re: Docket No. LC 57 Final Comments of Sierra Club

Please find enclosed the original and five (5) copies of Sierra Club's Final Comments in the above-referenced docket.

The redacted version of this document has been e-filed with the Commission and served upon parties via email. The confidential version of this document is being filed with the Commission and served pursuant to Protective Order No. 13-095 upon all eligible party representatives via USPS.

Please let me know if you have any questions. Thank you.

Respectfully submitted,

/s/ Derek Nelson

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REDACTED

Sierra Club's Final Comments on PacifiCorp 2013 Integrated Resource Plan (Oregon Docket LC 57)

January 10, 2014

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Overview

On November 26, 2013, PacifiCorp (d.b.a Pacific Power in Oregon) submitted reply comments to Staff and intervener preliminary comments on the 2013 Integrated Resource Plan (IRP). The Company responded to comments from interveners and Staff, requested to open an ongoing docket to specifically review investments and environmental requirements associated with the Company's coal fleet, and made four specific acknowledgment requests. The Company requested acknowledgement of Action Items 8a through 8c, pertaining to environmental compliance obligations at Naughton 3, Hunter 1, and Jim Bridger units 3 & 4, as well as the acknowledgement of the planning process for the Sigurd-to-Red Butte transmission line. In our final comments, we address the Company's request to open an ongoing docket related to coal fleet planning, the acknowledgement requests put forth by the Company, and items that were not adequately addressed in the Company's response.

In general, we appreciate the Company's depth of response to both comments and discovery requests, and the apparent good-faith effort of the Company to provide appropriately detailed data. We also recognize that the IRP is not designed as an interminable process, but is meant to be used as an adaptive management document, setting forth a best short term action plan in light of long-term considerations. Components that fail or are found to be inconsistent with emerging information are altered and adjusted accordingly, and the plan is revisited on an ongoing basis by the Company, and on a periodic basis by regulators. In light of this philosophy, we recognize that it is difficult, if not impossible, to have an IRP or long-term planning document that is, at any given point in time, perfect. However, the Company is well aware that the US power sector is in a rapid state of change driven by lower gas prices, heightened pollution control requirements, flattening demand, and lower costs for renewable energy. In light of this change, it is incumbent on the Company to ensure that their planning takes into account a reasonably wide range of uncertainty. The fact that this IRP was unable to even review a sensitivity that included the proposed Federal Implementation Plan (FIP) provisions for four of eleven Wyoming coal plants[1] suggests that it is not a reasonable adaptive management tool. Further, the fact that both the Company's base and high carbon prices are well below EPA's central estimate of the social cost of carbon (SCC) shows both an inadequate range of sensitivity and a potential bias on the part of the Company. Finally, the fact that a full third of the Company's core cases call for the retirement of nearly all of the Company's coal units within seven years indicates a critical, gaping hole in this reference document. Given the available

[1] As noted in Sierra Club's preliminary comments, the 2013 IRP failed to take into account more stringent NOx provisions in Wyoming for Dave Johnston 3 (SCR in 2019), Dave Johnston 4 (SNRC in 2019), and Naughton 1 & 2 (SCR in 2019).

evidence, the Company cannot rely on its current base case to make short term decisions with long-term ramifications.

In reply comments, the Company requests acknowledgement of several projects which are currently being executed. As we understand it, acknowledgment provides the Company with an initial, implied approval of its planning process leading into next rate case. If so, we believe that acknowledgement should be withheld at this time. For projects such as the Hunter 1 Baghouse, the Jim Bridger 3 & 4 SCRs, or the Sigurd-to-Red Butte line, which are in active construction now, acknowledgement could imply a planning prudence determination that should be reserved for closer assessment in the inevitable rate case.

We appreciate the level of depth and rigor exercised by OPUC Staff in reviewing the Company's coal asset decisions for Hunter 1 and Jim Bridger. Still, despite the new data recently generated, this IRP cannot be treated as a predetermination docket or CPCN. Under those circumstances, the Company would be required to perform and present its best possible analysis tuned specifically for those assets, would be required to provide sensitivities and uncertainties for the unit under consideration, and would sponsor a witness directly responsible for the modeling assumptions and performance. In this IRP, the Company is held to none of those standards. Therefore, because there remains significant uncertainty regarding the decisions the Company has already made, we recommend that the Commission not acknowledge all of the action items pertaining to the Company's coal units. The Sierra Club takes no position on the Sigurd-to-Red Butte transmission line.

Finally, we agree with the Company that the IRP has a limited shelf life as assumptions become increasingly outdated, and we conditionally agree that an ongoing docket regarding the Company's coal assets would be of high value to this (and other) Commission(s), the Company, and interveners.

Coal Planning in a Parallel IRP Docket

At the conclusion of the October 28, 2013 Commission public meeting on the IRP, the Commission provided the Company with very clear feedback on its plan. In essence, the Commission instructed the Company that it was free to move forward and take its chances with its clearly deficient analysis in the next rate case; or, the Commission could extend the IRP docket indefinitely until the Company provided the requisite coal unit analysis; or, the Commission could open an investigation proceeding. In response, PacifiCorp has now forged a new path, "suggest[ing] that the Commission open a new, ongoing docket for PacifiCorp that would allow the Company and parties to develop parameters for coal unit investment analysis and for the Company to seek advance Commission review of unit-specific environmental investments." (Reply Comments, p21 at 6-9). According to the Company, "this docket would

then continue as a venue for the Company to seek acknowledgment of individual investments and would operate in tandem with the Company's biennial IRP filing, in which the Company would continue to conduct a broader, fleet-wide analysis of future investments in existing coal plants and other resources." (Reply Comments, p21 at 6-9). We will refer to this proposed plan as the "Coal Investment docket."

On January 6, 2014, Commission Staff held a technical workshop. At this workshop, the Company proposed that the Coal Investment docket could be utilized to vet individual incremental investments at the Company's coal units, citing the specific example of the pending investments required at Cholla 4. PacifiCorp further proposed that this docket would parallel certificate of public convenience and necessity (CPCN) and pre-approval dockets filed in other states, so that it would reflect specific investment decisions and would be filed with approximately the same lead-time used in other states. At the workshop, Staff provided three study structures that could or should appear within the Coal Investment dockets, including an "inter-temporal single unit analysis" and "fleet analysis for Class 1 Areas" that could reveal economic tradeoffs between specific unit compliance obligations and retirements to meet EPA Regional Haze requirements. Staff also proposed a "Transmission Implications" study to identify avoidable costs of transmission expansion available from specific unit retirement decisions.

This approach diverges from the Commission's October 28, 2013 guidance. However, a parallel process in Oregon corresponding with the CPCN and/or preapproval processes that occur in Wyoming and Utah could benefit Oregon ratepayers and the regulatory process within Oregon. To work, such a process would need the following attributes:

- The Commission would need to establish a schedule that would allow for base case assumptions, model runs, intervener requests, reply data, and discovery responses;
- Staff, interveners and the Company would be afforded the opportunity to provide formal comments on the modeling assumptions, results, implications, and recommended pathway; and
- The Commission would provide no expectation of a planning pre-approval or determination of planning prudence, and would not supersede traditional ratemaking;

Importantly, there are specific barriers on timing and scope to this process. Thus, should this Commission elect to try this approach, we would request clear guidance as follows:

Timing

During the January 6 workshop, the Company proposed a 120 day review period prior to their finalization of an investment decision. Emphatically, 120 days is too short. In reality, when these dockets are compressed to six months (180 days) in other states, the processes are rushed, and the ability to prepare substantive reply comments is too limited. In most circumstances, however, the Company takes a reasonable period to develop their internal analyses and strategy, apply for construction permits, develop engineering estimates, and put the project out to bid. For example, in UE 246, Sierra Club showed that the Company applied for air permits to modify Naughton 1 & 2 in January 2007 a full twenty-eight months prior to signing a notice to proceed in April 2009. The Company begins environmental compliance modeling and analysis shortly after the receipt of final rulemakings (or likely before). Under most circumstances, utilities are afforded a number of years to reach compliance with capital retrofits after a final rulemaking. Therefore, the Coal Investment docket should preferentially be opened within a year of a final rulemaking, but in no case later than eight months prior to the Company giving notice to proceed to contractors.

In planning for the Regional Haze requirements, we recommend that the Coal Investment docket be opened four years in advance of EPA final compliance deadlines. This would ensure that the Company has sufficient time to execute the resulting action plan from the Coal Investment docket after its closure and prior to the EPA deadlines. This period of time is necessary for the evaluation of both capital expenditures at existing units as well as replacement capacity for retiring units as required. For example, in PacifiCorp's territory, EPA has identified 2018 and 2019 as BART compliance dates. Therefore, we would expect dockets examining 2018 expenditures or requirements to be opened in 2014 and 2015.

Scope

The Company has requested that the Coal Investment dockets be restricted to the specific unit under consideration. While it is true that there are Company decisions aside from capital investments that must be reviewed in the IRP or parallel dockets (such as long-term clean energy planning), we recognize that this docket structure would be limited to review specific coal investments prior to capital expenditures. As the Company and this Commission recognize, the electric system is complex and highly interconnected. Decisions at single units have repercussions beyond their fence lines, and investments seen in concert, or in quick succession, have different implications. For example, one of the major issues identified by Sierra Club in a recent Wyoming CPCN docket concerning SCR retrofits at Jim Bridger was that the Company had only considered the implications of SCR retrofits at Bridger 3 & 4, but had excluded the soon-to-follow SCR requirements at Bridger 1 & 2. A full-plant retirement analysis might have triggered a different set of outcomes. Similarly, as proposed by Staff, there may be economic

solutions for meeting EPA regional haze requirements that include tradeoffs between units at different plants. In order for this process to meet the Commission's objectives the Company must agree to multi-unit analyses as applicable, and the ability of interveners to request multi-unit analyses that are not considered by the Company.

Throughout the 2013 IRP process, the Company has refused to provide analysis for Cholla 4, on the grounds that the Company has sued EPA over its **final** regional haze rule for Arizona, and therefore the final rule cannot be considered final. Similarly, the Company has refused to release information on retrofits for the Craig, Hayden, and Colstrip coal plants, all of which are subject to final EPA action. For Craig and Hayden, the Company has argued that these units are operated by other entities, and that PacifiCorp's ability to influence decisions as a minority owner is limited. Regardless of PacifiCorp's perception of its position for these plants, the Company has an obligation to ratepayers who will be funding the final disposition of these units to both conduct rigorous analyses and demonstrate that their decisions remain in the best interest of consumers. We believe that all of the Company's units must be subject to economic analysis, regardless of a given plant's ownership structure or the Company's choice to engage in legal proceedings outside of the scope of this Commission.

Next, Staff proposed a "transmission implications" study in which the Company would "incorporate the savings of downsizing or avoiding transmission investments due to retirement of coal units." In discussion, Staff clarified that "savings" would mean "net savings," after taking into account the cost of mitigating transmission issues due to the retirement of a unit. This assessment should be expanded to include the full range of reasonably assessable incurred and avoided costs. In the Wyoming CPCN for the two SCRs at Jim Bridger, the Company thoroughly assessed the cost implications of closing portions of the Bridger Coal Mine and starting an early remediation process if the surface mine was closed. Similarly, the Company has indicated that there may be liquidated coal contract damages for the cessation of operations at Cholla. In the 2011 Screening Model, the Company assessed plant closure costs, and has discussed the need to assess other costs (such as transmission mitigation at the Carbon coal plant) in order to correctly characterize the cost of retirement. We recognize that there are legitimate costs incurred in the closure of existing facilities, many of which may be fully recoverable, and thus should be analyzed in the Coal Investment docket. There are, however, numerous avoidable costs, which should be rigorously analyzed as well.

In Oregon docket UE 246, we presented evidence that the Company had failed to account for numerous avoided costs in their simple 2008-2009 spreadsheets supporting investments in Hunter and Naughton 1 & 2. These included avoided transmission investments in Utah, avoided chimney infrastructure at Naughton, and avoided capital expenditures in the last two years of the unit's life. In the Jim Bridger CPCN in Wyoming, Sierra Club provided evidence that the

retirement of Jim Bridger units could alleviate or defer the requirement for additional transmission investment between Bridger and Populus terminals. Rather than provide an analysis verifying or rebutting Sierra Club's position, the Company simply dismissed these concerns.[2] There are other avoidable costs that the we have not even attempted to quantify in previous cases, but are on par with the costs that the Company sees fit to assess, including the value of avoided major overhauls and life extension projects in the last years of life, avoided costs of mitigation for future impoundments or landfills, the value of freed firm transmission rights, resale or market value, and/or salvage value.

Overall, a reasonable Coal Investment analysis includes both the reasonable costs that the Company expects to incur (that are reasonably passed through to ratepayers) and the full suite of avoidable costs, both in the immediate term as well as those that are part of the Company's overall investment strategy. We support the concept extended by Staff in the "transmission implications" document, widened to capture both reasonably attributable costs and avoidable costs of retirement.

Specific Analyses and Creative Solutions for Regional Haze Requirements

In the January 6 workshop, Staff proposed two conceptual studies that should be performed by the Company in each Coal Investment analysis. The first, termed the "inter-temporal single unit analysis", is designed to seek a favorable economic scenario in which the unit under analysis is retired at a date prior to the end of its useful life with less stringent environmental controls; ultimately the outcome of such an analysis would look for a more favorable economic outcome and an emissions profile acceptable to EPA. The second analysis, termed the "fleet analysis for Class 1 Areas" is designed to seek potential tradeoffs by exchanging early retirements with less stringent environmental controls across the Company's coal fleet for plants that contribute to visibility impairment at Class 1 areas. Since PacifiCorp owns and operates a large number of units that all contribute to the same Class 1 air quality problems, the Company should engage in discussions exploring favorable tradeoffs.

The Sierra Club agrees that the Company should seek the cost effective mechanisms of meeting EPA requirements, including commitments to early retirements, to the benefit of other units. We further agree that the Company has not made such assessments, and they are long overdue. However, the Company expressed a reticence to second-guess specific "cost effective" emissions reductions targets from EPA, and an inability to repeatedly show model outcomes to

[2] See Rebuttal Testimony of Chad Teply in Wyoming Docket 20000 418 EA 12, p22. "Q. Are the Company's current plans for future Energy Gateway transmission project segments at issue in this case? A. No. Q. Is the Jim Bridger Units 3 and 4 SCR Project decision-making process under review in this docket dictated by the future segments of the Energy Gateway transmission project? A. No."

the EPA and then back to the PUC on an iterative basis (i.e. seeking simultaneous approval from both EPA and this PUC); we agree that this would be burdensome. In addition, Staff's proposed mechanisms may effectively put stakeholders or this Commission, rather than the Company, in the position of negotiating with EPA or other state agencies; also, this proposal will generate significant amounts of data and model runs, potentially diluting our ability to thoroughly vet and review assumptions and inconsistencies.[3]

We recommend a potential middle ground. It is the Company's responsibility to find effective solutions to meet regulatory compliance obligations and provide a cleaner electric generating fleet. Rather than relieve the Company of this burden, we propose that the Company be charged with thoroughly documenting their efforts to seek creative solution sets, including flexible retirement dates in exchange for reduced controls, and tradeoffs between units contributing to visibility impairment. If the Company opens the Coal Investment docket, the Company would sponsor, provide, and explain this documentation. Such documentation should include model runs, air quality model runs as applicable, communications with EPA, and the factual basis for eliminating scenarios considered and rejected, or not considered. Interveners and Staff would be equipped to ask for model runs not provided by the Company that could reasonably lead to a lower cost reasonable solution set. Ultimately, the responsibility to act on a lower cost solution set would be that of the Company.

Intervener Requests for Model Runs and Availability of Model Output

For the 2013 IRP, Staff has asked the Company to prepare a limited number of model runs to test various scenarios. Other interveners, including Sierra Club, did not explicitly request specific model runs with the understanding that this type of request is typically outside of the scope of normal discovery. However, the Company holds the only current copy of the model; it is not readily accessible to interveners without either the agreement of the Company to run specific scenarios or the acquisition of the model by interveners. Therefore, unless the Company is to required to operate every feasible scenario conceivably requested or required by interveners or Staff, there must be either a mechanism to request a reasonable number of scenarios from the Company, or Staff and interveners must be able to manipulate the model outside of the Company's direction.

[3] To some extent, the request put forth by Staff assumes a perfect, or near perfect modeling structure. Previous cases in front of this Commission and others have demonstrated that the Company's modeling contains flaws or shortcomings. By demanding that the Company provide a very large number of runs prior to opening the docket, we diminish reasonable opportunities to vet Company assumptions and refine or hone the analysis. Simply providing large quantities of data does not necessarily improve the product, and in fact may establish a false sense of confidence in the product due to the number of repetitions. Finally, combing through a large number of model runs is simply expensive and time consuming.

As noted earlier, Sierra Club recognizes the time and labor required to set up, execute, and extract data from complex industry models, and does not believe that it is reasonable to ask the Company to run every conceivable combination of scenarios that could be requested by interveners.

In the January 6 workshop, the Company noted that it had made arrangements with the System Optimizer model vendor, Ventyx, to allow interveners to hire Ventyx consultants at their standard rates to run the System Optimizer model at Ventyx. Sierra Club examined this offer at the time, and rejected it on several grounds. The scope of the agreement allowing interveners to work with Ventyx was ambiguous, and the degree to which Ventyx would be responsive to specific requests was also ambiguous. Sierra Club's experts have worked with Ventyx's model platforms numerous times, have received training and direction from Ventyx consulting staff, and have provided testimony in cases where Ventyx consulting staff represent utilities. Despite this level of familiarity, it is not clear the degree to which Ventyx consulting staff would be working on behalf of interveners paying their bills (i.e. to investigate weaknesses in modeling assumptions or constructs) or on behalf of the Company using their licensed product. Second, it was not clear the degree to which Ventyx would be willing to supply detailed input and/or output data, and at which point Ventyx would draw the line at releasing high priced market intelligence products that are core to their baseline datasets. Finally, Ventyx consulting fees are very expensive, and the proposed contract was open-ended with no commitment to produce information on a timely or efficient manner. Due to these restrictions, Sierra Cub rejected the Company's offer to have Ventyx consultants interface with the Company's model.

Sierra Club's experts are capable and familiar with the System Optimizer model structure and interface, and are able to use and query the model as set up by the Company. However, acquiring the model and its associated infrastructure are highly cost restrictive for the budgets of members of the public entities and non-profit organizations. Having examined the potential of running the model in-house, Sierra Club's experts determined that it would require approximately $20,000 of computing infrastructure and an additional $20,000 in licensure fees to Ventyx to obtain and operate the model for three months. As the Company has noted, labor costs for manipulating the model, extracting and examining outputs, and error checking are high as well, rendering the examination and operation of a model such as System Optimizer close to a $100,000 task. As a nonprofit organization, Sierra Club cannot carry those types of costs.

Sierra Club offers two potential remedies in this case:

- First, the Commission could require that in the Coal Investment docket (and possibly similar dockets), the Company be required to execute a limited number of model runs for interveners within the discovery process. We would

recommend three model run requests per intervening party, with the potential for parties to request clarifications or re-runs if parameterizations are misunderstood or mischaracterized by the Company, or if model errors are discovered and corrected by interveners or the Company. This option would allow interveners to interact with the model, would still hold the Company responsible for the content of the model (if not the examined scenario), and would reduce the burden of the Company attempting to second-guess solutions envisioned by interveners or Staff.

- As a second option, the Company could be required to obtain limited model licensures on behalf of interested and capable intervening parties. Capable parties would sign necessary confidentiality agreements with the model vendor, obtain a limited project-specific licensure of the model for the duration of the docket (paid for by the Company), obtain data and model run input files from PacifiCorp, and provide their own labor and materials costs to run the model. This option would allow interveners to directly interact with the model, would reduce labor requirements for the Company during the docketed period, and shift the burden of altering and supporting model content from the Company to interveners.

Sharing of Information

The Company has proposed that the Coal Investment docket would be filed in Oregon contemporaneously with pre-approval dockets in Wyoming and/or Utah. PacifiCorp is an interstate entity and issues examined in one state are highly relevant to the examination of the same in other states. In the past, interveners have been unable to share information across state lines with other involved Commissions or parties involved in the same cases under a different Commission. The only mechanism available for parties working across state lines has been to explicitly request discovery filed in other states. Unless dockets are open in multiple states simultaneously on the same issue, it has been nearly impossible to abide by confidentiality agreements and ensure that PacifiCorp's states are on the same page for specific high interest issues. Sierra Club recommends that the Commission either:

(a) Require that confidentiality agreements with the Company explicitly allow Oregon interveners to share information with Commissions and appropriately subscribed interveners in other states: or,

(b) Require that the Company agree to make available all discovery requests and responses from parallel state processes in Oregon, and make Oregon requests and responses available in other parallel state processes. One mechanism that might be explored to accomplish this

efficiently and effectively would be to ask the Company to establish an online discovery clearinghouse accessible to parties in multiple states.

Finally, and importantly, if the purpose of the Coal Investment scenarios is to inform the Company's capital investment decisions, then the data, model runs, and intervener workpapers need to persist from the time of the Coal Investment docket through the closure of the rate case in which these investments are ultimately approved or disapproved. Typical confidentiality agreements with PacifiCorp have required the destruction of confidential data within a short time period after the closure of a case, which renders the value of information and workpapers developed in an IRP nearly meaningless in evaluating ultimate Company decisions. Usually, the workpapers developed in the evaluation of an IRP are unavailable at the time the decision is actually evaluated in either a pre-approval docket or rate case. Sierra Club recommends that the Commission require that the terms of the confidentiality agreements around materials developed in the Coal Investment docket allow for the persistence of workpapers through the closure of the relevant rate case following the execution of decisions modeled in the Coal Investment docket (i.e. years rather than months).

Sierra Club Standard Data Request

Sierra Club believes that it is valuable to establish minimum data requirements for the Coal Investment dockets. Effectively we would like to see the following information provided by default in the Coal Investment docket:

- A supply-side Resource Table (similar to Table 6.1 in the 2013 IRP);
- Official forward price curve used for the study, including gas prices at Henry Hub and relevant PacifiCorp hubs, and monthly on-peak and off-peak market energy prices at relevant PacifiCorp hubs,
- For each scenario examined, a load and resource balance table (similar to those provided in OPUC 105);
- For each scenario examined, annual information for each unit modeled (regardless of PacifiCorp ownership or affiliation): name, location, resource type, primary fuel type, nameplate capacity (MW), effective carrying capacity (MW), generation (GWh), capacity factor(%), heat input (MMBtu), forced outage rate (%), fuel cost ($), variable O&M cost ($), emissions costs by emission ($), total variable operating costs ($/MWh), fixed O&M cost ($), capital expense incurred ($);
- On a per-state basis, annual first-year cost of energy efficiency ($), energy saved (MWh), and capacity saved (MW);

- Annual on-peak and off-peak energy transfers between PacifiCorp zones and to/from PacifiCorp zones to other hubs;
- Annual binding constraints (i.e. annual wind build per zone reaches maximum, emissions caps, transfer limits and/or market caps);
- Source and basis documentation for commodity price forecasts including coal, gas, CO_2 and other emissions, renewable energy credits (RECs); and
- Identification of capital expenditures greater than $10 million at any given existing unit or within the system (i.e. transmission) in any given year.

With these conditions in place, Sierra Club supports the establishment of the Coal Investment docket. We believe that this forum could provide a productive opportunity to explore creative mechanisms of meeting regulatory and economic challenges across the Company's entire coal fleet in a cost-effective manner.

Use of the Screening Model as an Investigatory Tool

In the 2013 IRP, the Company presented results from the Screening Model as the "Cumulative Investment Analysis" in Confidential Volume III (pages 15-22), and in part used the results to justify investments at Hunter 1 and Jim Bridger 3 & 4.[4] In preliminary comments, Sierra Club pointed out the value of the Screening Tool in the 2011 IRP. We noted specific coal asset risks that were not drawn out by the System Optimizer tool, or discussed in the IRP or in stakeholder meetings, but were available for evaluation in the Screening Tool. In particular, we reviewed investment risks at Naughton 1 & 2, as well as Cholla 4. In response, the Company emphasized that the Screening Model is not an appropriate mechanism for the review of coal investments, but did not respond to the substantive points and areas of concern raised by the Sierra Club.

In reply comments, the Company stated that "PacifiCorp is committed to working with parties to improve the transparency of the System Optimizer model by providing model inputs and more detailed model outputs; however, the Company does not view the screening model as an alternative tool for use in evaluating environmental investments at existing coal units." (p16-17)

[4] PacifiCorp 2013 IRP, Vol III, p18. "Table V3.15 shows the Cumulative Investment Analysis results for the 2012 scrubber upgrade investment at Hunter Unit 1…. the differential in costs between Hunter Unit 1 and the proxy CCCT is [redacted] in favor of the 2012 scrubber upgrade investment." Also pages 20 and 22 for Jim Bridger 3 & 4, respectively. Finally, on page 22, the Company states "near-term environmental compliance investments required at Hunter Unit 1, Jim Bridger Unit 3 and Jim Bridger Unit 4 are favorable to environmental compliance alternatives, and the analysis summarized herein supports Action Items 8b and 8c in the 2013 IRP Action Plan." This conclusion is supported by the Company using the Screening Model.

While the Company may commit to improving the transparency of the System Optimizer model, it has historically only provided piecemeal data from the model – at least until the scrutiny of this particular Commission's staff. While we recognize 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, the Screening Model provides a highly transparent mechanism of reviewing particular investment strategies and flagging concerns. Whether these concerns are ultimately resolved within the System Optimizer model, the Company's GRID model, or the Screening Model itself are of secondary consideration. Until the time that the Company is able to be transparent, self critical, and seek creative solutions independently of intervener critique, the Screening Model or models of its nature are critical regulatory tools.

Sierra Club supports the use of the Screening Model or other similar mechanisms to allow PacifiCorp's regulators and other stakeholders to review PacifiCorp decisions.

Company Request for Acknowledgement of Hunter 1 LNB & Baghouse

Sierra Club does not support the acknowledgement of Action Item 8b, the installation of the baghouse and low-NOx burner (LNB) at Hunter 1 on grounds that:

1. The baghouse and LNB are not required at this time, because EPA has not made a final BART determination for the state of Utah;
2. The Company's investment decision in May 2012 was premature and did not take into account further likely expenses, including that of a selective catalytic converter (SCR); and
3. The Company's 2013 IRP modeling results show that the System Optimizer model does not return robust results supportive of this level of detail.

To the extent that an acknowledgement is akin to a finding of prudent planning, the Company has not made such a showing in this IRP docket. Simply put, this docket cannot be a substitute for a full prudence review at the correct time.

Hunter baghouse and LNB not required at this time

According to the PacifiCorp 2013 IRP, "Hunter Unit 1 requires a baghouse and LNB by December 31, 2014 to comply with Regional Haze rules. The baghouse will also allow the facility to achieve compliance with Mercury and Air Toxics Standards (MATS) as required by April 16, 2015." In reply comments, the Company discussed this requirement in more detail, describing both the Regional Haze SO_2 Milestones and Backstop Trading Program as well as the specific BART determinations made by the State of Utah. The Company recognized that EPA has accepted the Regional Haze SO_2 Trading Program, which governs total SO2 emissions from numerous sources

over a multi-state region, and has rejected the state's BART findings for NOx and particulate matter (PM). While the baghouse has SO_2 benefits, it cannot be a meaningful contributor to the SO_2 trading program, because the region is already well below its final 2018 emissions targets.[5] Instead, the Company proposed the baghouse and LNB to meet the State of Utah's BART SIP for NOx and PM, components EPA rejected. The Clean Air Act requires that affected facilities must comply with the BART determinations as expeditiously as practicable but no later than five years from the date EPA approves the state plan or adopts a federal plan. In this case, it is entirely possible that Hunter 1 may end up complying with a BART determination **before** EPA has made a final BART determination on specific emission limits and control technology.

PacifiCorp has erroneously stated that state law requires the installation of the baghouse and LNB equipment.[6] The Company states that the Utah Regional Haze plan requires installation of low NOx burners and a baghouse retrofit at Hunter Unit 1 by the spring of 2014.[7] However, the Utah Regional Haze plan adopted by the state of Utah on April 6, 2011 does not specify a firm deadline for installation of these controls. The April 2011 Utah Regional Haze State Implementation Plan only identifies the "PacifiCorp schedule" with an "Estimated in Service Date" for the low NOx burners, overfire air and baghouse of "Spring 2014." More significantly, as the Utah regional haze plan and PacifiCorp make clear, the requirements of the Utah regional haze plan do not become federally enforceable and enforceable by citizens until EPA has approved the regional haze plan as part of the State Implementation Plan at 40 C.F.R. Part 52, Subpart TT.[8]

On December 14, 2012, EPA disapproved the Utah Regional Haze Plan with respect to the NOx and PM BART requirements for Hunter Units 1 and 2 and Huntington Units 1 and 2.[9] EPA disapproved Utah's NOx and PM BART plan for these sources because Utah failed to comply with federal requirements[10] and because the Utah Regional Haze plan "does not contain the provisions necessary to make BART limits practically enforceable as required by section

[5] As this Commission has vetted in the last PacifiCorp Oregon rate case (UE 246), there are no unit-specific emissions limits under the Western Backstop Trading Program. A unit-specific emissions limit was used to calculate the "BART benchmark" emissions level for the three states in the trading region, but the purpose of establishing the BART benchmark was to show that the emission reductions under the Trading Program caps would be better than BART in aggregate. States are participating in the Trading Program so that BART-subject sources, such as Hunter Unit 1, can avoid unit-specific SO_2 BART determinations and emission limits.

[6] See PacifiCorp Reply at 6-7.

[7] See PacifiCorp Reply at 6-7. See also PacifiCorp's Response to OPUC Data Request 260.

[8] Attachment A to PacifiCorp's November 26, 2013 Reply, at 8.

[9] 77 Fed. Reg. 74355 (December 14, 2012).

[10] As stated in 40 C.F.R. §51.308(e)(1)

110(a)(2) of the [Clean Air Act] and Appendix V to part 51."[11] At the same time, EPA approved other portions of the Utah Regional Haze plan including the Utah rules to implement the Western Backstop SO2 Trading Program.[12]

As a result of EPA's partial disapproval of the Utah Regional Haze State Implementation Plan and, in particular, of the state's PM and NOx BART determinations for Hunter Unit 1, those requirements in the April 2011 Utah Regional Haze plan are not part of the EPA-approved SIP and are not enforceable by EPA or citizens.[13]

Further, because Utah is required to have a federally approved regional haze program under the Clean Air Act, EPA's partial disapproval has triggered a 2-year clock for Utah to remedy the previous flaws or EPA will promulgate a FIP to address the deficiencies in Utah's BART determinations.[14] In other words, Utah is required to revise its Regional Haze Plan and the BART determinations for Hunter Units 1 and 2 and Huntington Units 1 and 2 and submit those revisions to EPA for approval in order for EPA to fully approve the plan by January 14, 2015 or, in the alternative, EPA must adopt a federal implementation plan by January 14, 2015. Under either scenario, given that EPA has found the BART determinations for Hunter 1 and other BART-subject units to be unacceptable to meet regional haze requirements, it is clear that the NOx and PM BART requirements for Hunter Unit 1 will be changing in the near future. Given EPA's disapproval and the looming changes in the BART requirements for Hunter Unit 1, it is clear Utah would be effectively estopped from pursuing enforcement actions against the Company for failure to install low NOx burners, overfire air or a baghouse by 2014, years before the BART process is conclusively resolved.

Finally, the Company claims that "installation of the Hunter Unit 1 baghouse will also allow the unit to comply with the mercury component of MATS by April 16, 2015." It is by no means clear that in the absence of the BART requirement that the Company would pursue a baghouse for MATS compliance alone. With the use of continuous particulate monitoring systems, it appears that PacifiCorp could meet the filterable PM MATS limit of 0.03 lb/MMBtu limit on a plantwide average basis.[15] Given that two out of three units at Hunter currently have baghouses and are

[11] 77 Fed. Reg. 74357 (December 14, 2012).

[12] 77 Fed. Reg. 74357 (December 14, 2012).

[13] See generally General Motors Corp. v. United States, 496 U.S. 530, 540 (1990) "Both this Court and the Courts of Appeals have recognized that the approved SIP is the applicable implementation plan during the time a SIP revision proposal is pending."

[14] See Clean Air Act, §110(c)(1) (42 U.S.C. §7410(c)(1)). See also Clean Air Act, §110(k)(3) (42 U.S.C. §7410(k)(3)) ("the plan shall not be treated as meeting the requirements of [the Clean Air Act] until the Administrator approves the entire plan revision as complying with the applicable requirements of [the Clean Air Act].")

[15] 40 C.F.R. §§63.9991 and Table 4, 63.10009(a).

achieving filterable PM rates less than 0.01 lb/MMBtu, it is highly questionable that the Company would pursue an expensive baghouse when lower cost compliance opportunities are available.

Hunter 1 analysis in 2012 did not take into account further likely investments

In the confidential volume of the 2013 IRP, the Company presented two separate analyses of the Hunter 1 investments. The Company first presents a "present day" analysis using the September 2012 commodity prices consistent with the remainder of the IRP, and including assumptions about the requirement for an SCR in 2018 or 2026 (two possible outcomes from EPA's revised BART determinations). Next, the Company presents a PVRR analysis conducted with December 2011 commodity price assumptions (i.e. as if the analysis had occurred in May of 2012, prior to the commitment of the Company to the baghouse project), and only reviews the potential for an SCR in 2026.

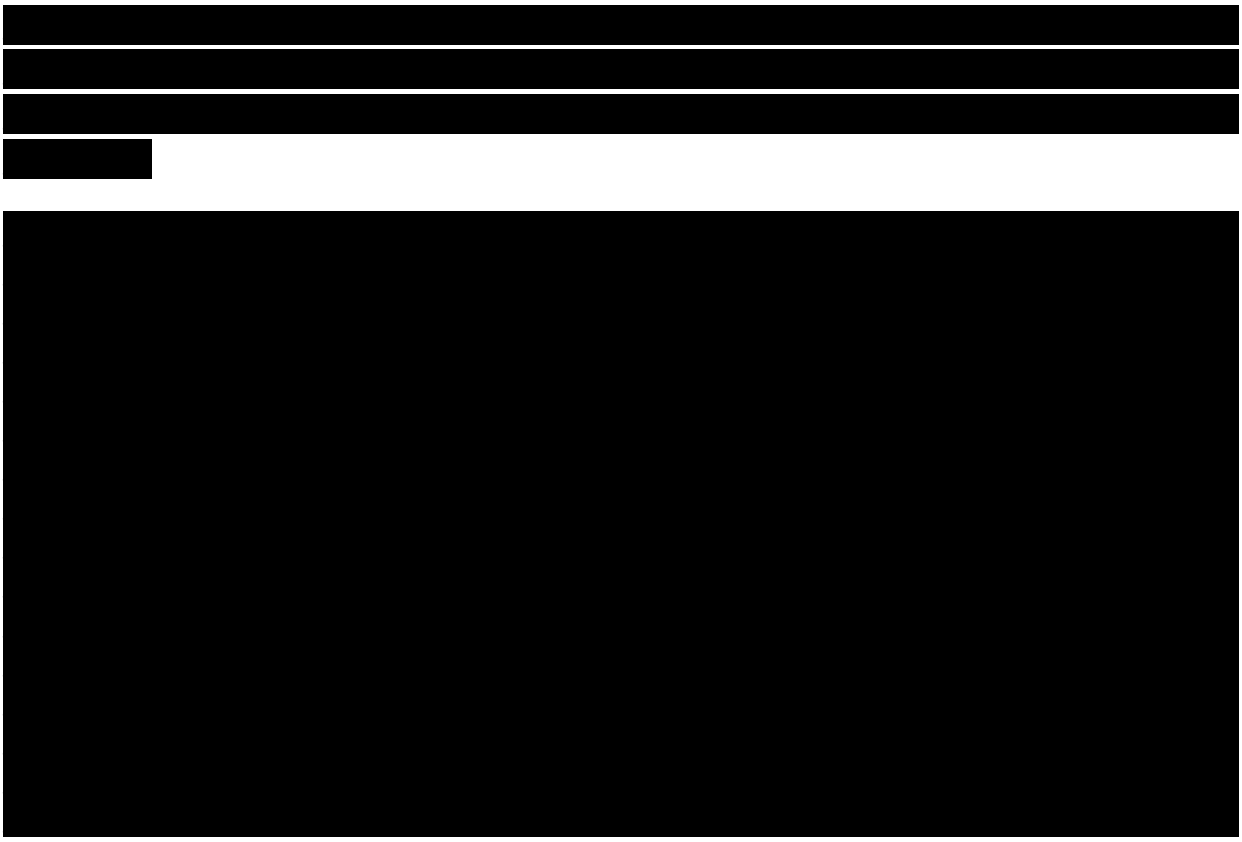
In June 2012, just one month after the Company had given a green light to the baghouse contractors, Sierra Club argued before this Commission that "the Company should have at least considered the risk the SCR would be required by 2017."[16] A reasonable analysis, presuming that the Company believed it had to move forward with the baghouse in 2013, would have reviewed a more expedient requirement for SCRs. The Company's analysis in light of what would have been known in 2012 missed this critical review. Finally, this analysis was conducted using only the Company's base assumptions and did not review reasonable sensitivities on gas and CO_2 prices. In this way, the Hunter 1 analysis is fatally deficient.

System Optimizer results for Hunter 1 analysis are unstable or erroneous

The primary difference between the analysis of a Hunter 1 SCR in 2018 or 2026 is the expenditure of $[redacted] for an SCR in 2018 or 2026 (see Table V3.1). As such, these two scenarios may differ only moderately. In fact, from a system operations perspective, the only major differences should be a slight de-rating in Hunter 1 from 2018 through 2026, and possibly a shift in the major maintenance cycles. Indeed, reviewing analysis results in OPUC 287-2, there is a moderate change in the output of Hunter 1, a change that is generally taken up by existing NGCCs in the PacifiCorp system. However, in 2024, these scenarios diverge dramatically.

[redacted]

[16] Oregon PUC, UE 246. Direct Testimony of Jeremy Fisher, page 54 at 11-12



Confidential Figure 1. Energy difference between Hunter 1 SCR in 2026 vs. Hunter 1 SCR in 2018

These massive changes between the two scenarios have little to do with the investment decision at Hunter 1, and reflect either a very unstable model or erroneous inputs.

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Given these outcomes, it is clear that the analysis supporting the investment at Hunter 1 is erroneous and misleading, or shows that the System Optimizer model is extremely unstable and unsuited for these types of decisions.

Company Request for Acknowledgement of Naughton 3 Gas Conversion

Sierra Club does not object to the acknowledgement of the Naughton 3 gas conversion, as this particular issue appears to have been vetted thoroughly by interveners in Wyoming docket 11-035-200. Sierra Club tracked, but did not participate in that docket.

Company Request for Acknowledgement of Jim Bridger SCR

Sierra Club does not recommend the acknowledgement of the Jim Bridger 3 & 4 SCRs. The Company presented the analysis of this investment decision in Wyoming docket 20000-418-EA-12 and Utah docket 12-035-92. Sierra Club participated in both dockets, and did not find the analysis produced by the Company satisfactory or reasonable at this time. In both dockets, we raised specific concerns that were unanswered by the Company, except to dismiss those concerns as irrelevant.

Specifically, Sierra Club pointed out, and Oregon Staff has recognized here,) that the retirement of the Bridger units frees up significant transmission capacity from the Company's Wyoming production centers to PacifiCorp's load hubs in Utah and Oregon, thus potentially allowing the Company to defer near-term planned investments in transmission between the Bridger hub and load centers. The Company responded that the two issues were fully separable, and refused to examine such a scenario.

In addition, we continue to be very concerned that the decision to maintain Bridger 3 & 4 is largely traceable to the Company's requirement to collect sufficient remediation funds to close the Bridger Surface Mine. The Company's analysis of the retirement of Bridger 3 & 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. By shifting those high remediation costs into the near future, the Company realizes a higher net present value, and thus chooses to maintain the units (and thus the mine) instead of closing both. From our perspective, this is truly a "tail wagging the dog." It is simply absurd that the closure of a non-economic plant should be deferred simply to defer the costs of closing its mine.

Finally, Sierra Club expressed concern that the Company's base carbon price forecast was insufficient to capture the risk associated with impending federal regulations. In answer, the

Company's updated CO_2 price forecast was deferred and lowered, rather than advanced and raised to reflect the greater degree of certainty in impending regulation.

The analysis presented in the 2013 IRP is not substantively different then the analysis presented in the Wyoming and Utah dockets, and thus the analytic flaws persist. We recommend that the Commission not acknowledge the Jim Bridger 3 & 4 SCR investment analysis at this time, and reserve such detailed analysis for the rate case following the installation of controls at Bridger.

Company Request for Acknowledgement of Sigurd-to-Red Butte

At this time, Sierra Club does not specifically contest the acknowledgement of the Sigurd-to-Red Butte transmission line.

Remaining Concerns with Cholla 4

In our preliminary comments, we noted that the Company's analysis found that Cholla 4 was non-economic by 2025 in the base scenario, and non-economic by 2017 in a low gas/high CO_2 price scenario. We further showed that results available from an updated version of the 2011 Screening Model indicated that the unit would likely start losing profitability [redacted] In fact, the unit would be unlikely to pay off its SCR over a reasonable amortization period. Sierra Club has recommended that the Company explore closure of the unit.

The Company responded that "PacifiCorp has not finalized its analysis of Cholla 4, and consequently, has not made a decision to either invest in the necessary environmental controls required for this facility to continue operating as a coal-fueled plant or to pursue alternatives such as natural gas conversion or early retirement." (PacifiCorp Reply Comments, p89). In response to Staff's concerns with a lack of analysis for Cholla 4, the Company simply stated that it "continues to engage in discussions with Arizona Public Service Company, the operator of the Cholla facility, and to analyze potential alternatives that might settle ongoing litigation filed with the Ninth Circuit Court of Appeals." (PacifiCorp Reply Comments, p20).

The Company's treatment of Cholla 4 is inconsistent with the way it has dealt with Bridger, Hunter 1 and other coal units in its fleet. According to the Company, under the current Federal Implementation Plan for Arizona, Cholla 4 requires an SCR four years from now - by January 4, 2018.[20] Notably, a year and a half ago (August 2012), the Company submitted an application for CPCN in Wyoming and Utah for SCRs on Jim Bridger 3 & 4 explaining that it required a rapid

[20] PacifiCorp 2013 IRP, Volume III. Page 13.

turnaround in that case in order to meet its State Implementation Plan target dates in December 2015 and December 2016 (Jim Bridger 3 & 4, respectively). In its Utah application, PacifiCorp stated "the Company believes that spring of 2013 is the latest date to commence the project in order to effectively meet the required deadlines." (Utah docket 12-035-92, Application p22) Further, in that docket, the Company unequally stated that it was rushed to gain regulatory approval for the construction of the SCR:

> *Commission approval within the next six months is critical for a variety of logistical and practical reasons. For example, the approval process will be complete before construction commences, which will allow the Company to potentially make modifications to the Project more economically. Moreover, given the Project's size and complication, and the reality of multistate operations and planning process for a utility the size of Rocky Mountain Power, delayed approval increases the risk of missing the compliance window and running up costs.* (Utah docket 12-035-92, Application p23)

The Company's application to immediately begin installing SCR at Bridger 3 & 4 was filed 3½ years and 4½ years prior to the compliance deadline. Given the Company's apparent rush at that time with a similarly closing deadline, it is inconsistent that although the Company has had a full year since EPA finalized its requirement of installing SCR at Cholla 4, the Company has still "not finalized its analysis of Cholla 4."

The Company's analysis shows that SCR on this unit would be dubious at best, and we believe that a rigorous analysis of Cholla 4's economics would not support the retrofit. In our comments on Hunter 1, above, we noted that Cholla 4 behaved as a marginally economic unit in that analysis as well. We recommend that the Company begin exploring alternatives to replace the capacity and energy otherwise served by Cholla 4. Delaying this analysis puts the Company in a rushed position in which it may need to make a decision between two poor outcomes –continuing to use a non-economic unit or building yet another fossil resource. Conducting this analysis and sharing it with Staff and interveners in the near term allows for a more considered approach.

The Company has omitted Cholla 4 from its action plan, and thus there is no specific acknowledgement (or lack of acknowledgement) required. Sierra Club's position, however, is 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.

More information required for Hayden and Craig

In Confidential Volume III of the 2013 IRP, the Company discusses its jointly owned units at Craig and Hayden, but provides no analysis of these units on their economic status. These units were not presented in the 2011 IRP Screening Model, and have minimal appearances in the Company's IRP. Nonetheless, PacifiCorp's ratepayers fund these units, and presuming they continue to operate and PacifiCorp maintains ownership, ratepayers will also fund the expensive SCRs that the Company intends to install there.

The following summarizes what is known about these two black boxes:

a) In Confidential Volume III of the 2013 IRP, the Company states that "as a minority owner, [it] carefully reviewed its legal options under the respective Participation Agreements," but it did not disclose whether the Company actually reviewed the economics and confirmed with the unit's co-owners that SCR would be favorable to ratepayers.

b) In response to OPUC 86, seeking an economic analysis for these two units, the Company states that a PVRR(d)[21] has not been used to evaluate the environmental assets required at the Craig and Hayden units", and that "the decision making process that the Company has and is following for Hayden and Craig environmental investments is consistent with applicable law and the Participation Agreements."

c) In response to OPUC 90, the Company provided documentation confirming that it had the right to sell Craig and Hayden units.

d) In response to OPUC 133, the Company provided technical documentation discussing the requirement, purpose and engineering considerations for building SCRs at Craig and Hayden. Staff had asked for "copies of all information provided to PacifiCorp from the majority owners or other joint owners of Hayden and Craig relative to the economics of making SCR or SNCR investments." The documents the Company provided fail to actually evaluate the economics of installing SCR relative to a retirement option, and thus are incomplete. PacifiCorp bore the responsibility of either requesting such documentation from the other co-owners or creating such documentation itself.

e) In response to OPUC 132, the Company indicated that it [redacted][22]

[21] PVRR(d): Present Value of Revenue Requirements, delta (i.e. an economic analysis of retirement/retrofit)

[22] OPUC 132: [redacted]

[redacted]

Simply because these units are operated by other parties does not alleviate PacifiCorp of its responsibility to ensure that they are economically useful.

The SCRs at Craig and Hayden must be installed between 2015 and 2017. According to the Company's schedule at Jim Bridger, the Company should have already examined the economics of continuing to operate those units, and the Company's partners may be well into the contracting phase of building these SCRs. Therefore, it is of utmost urgency that PacifiCorp's ratepayers be able to evaluate the economics of continuing to own these units.

Sierra Club recommends that the Commission require PacifiCorp to produce an economic analysis of Craig and Hayden immediately. The Company's ownership, or not, of these units may have significant bearing on its other resource choices – therefore, much of the 2013 IRP is in limbo while the future of these units is outstanding.

Transmission Planning

Action items 9a and 9b of the 2013 IRP establish a working group to update and expand on the Company's system benefits tool (SBT) for transmission planning, and continue Energy Gateway planning and permitting. Despite Sierra Club's involvement in two CPCN dockets that questioned transmission planning, and involvement in this IRP, it remains unclear to Sierra Club why the Company intends to permit and construct additional transmission in Wyoming.

In the 2011 IRP, the Company determined that it was cost effective to build the maximum amount of wind available in each and every year from 2018 to 2029 – a total of 2,100 MW of new wind projects, outpacing the growth of natural gas turbines. (see Table ES.3 in 2011 IRP) Indeed, action item 1 of the 2011 IRP read, in part, "Acquire up to 800 MW of wind resources by 2020, dictated by regulatory and market developments... the 800-megawatt level is supported by consideration of regulatory compliance risks and public policy interest in clean energy resources." Consequently, the Company planned new transmission to carry this new wind energy from eastern Wyoming to the Company's load centers in Utah and Oregon.

[redacted]

According to the introduction to the Transmission Planning chapter of the 2011 IRP, "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." (2011 IRP, p48) PacifiCorp was explicit: "The Company's assumption of a renewable and low-carbon future which underlies the transmission footprint assumed in the preferred portfolio." (2011 IRP, p48) Finally, the Company was clear that the Gateway projects were designed to move energy from the Company's planned resources to load centers, and even indicated a map showing the 2,100 MW of wind in Wyoming connecting directly to load centers via the planned transmission segments. (2011 IRP, Figure 4.4, p61)

In the 2013 IRP, these expected wind resources disappeared. The Company has no plans to build new wind capacity until 2024 and 2025, when 650 MW are proposed – less than 1/3 the amount estimated in the 2011 IRP. (see Table ES.3 in the 2013 IRP) Instead, the Company plans to build about twice as much gas-fired power. Nonetheless, the transmission projects remain intact, and the Company marches forward on permitting and constructing this transmission as rapidly as possible.

While the Company recognized in the 2011 and 2013 IRPs that it was obligated to ensure that transmission in the West is needed, neither plan set out a compelling reason why ratepayers should be funding billions of dollars in transmission between existing resources with existing transmission. In the Bridger CPCNs, the Company identified exactly one transmission constraint between eastern Wyoming and the Company's load centers (West of Bridger, the TOT 4A/4B nomogram) – a constraint that binds occasionally and does not seem to merit the massive cost of a new interstate transmission line. So the question remains why PacifiCorp is so intent on constructing new transmission.

Two other Companies are seeking to build transmission from eastern Wyoming to load centers – the Zephyr project by Duke-American Transmission, and the TransWest Express project – both drawing wind from north of Cheyenne to Las Vegas via Utah. Clearly other parties believe that Wyoming wind is high value. It remains unclear if PacifiCorp wants to build transmission in hopes that it can again justify wind in a future IRP, or if it hopes to simply use ratepayers and existing infrastructure to outpace two competitors to market.

Sierra Club opposes the Company's efforts to build new transmission into eastern Wyoming until the Company is willing to back its investments with a commitment to acquire or self-build new renewable resources in this resource rich region.

CERTIFICATE OF SERVICE

I hereby certify that on this 10th day of January, 2014, I caused to be served the foregoing FINAL COMMENTS OF SIERRA CLUB upon all party representatives on the official service list for this proceeding. The redacted version of this document was served upon parties via email, and the confidential version of this document was served pursuant to Protective Order No. 13-095 upon all eligible party representatives via USPS.

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Dated this 10th day of January, 2014 at San Francisco, CA.

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