November 7, 2012

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Public Utility Commission of Oregon
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Re: Docket No. UE 246: CONFIDENTIAL Post-Hearing Brief of Sierra Club

Please find enclosed the original and five (5) copies of the Post-Hearing Brief of Sierra Club in the above-referenced docket. Confidential versions of this document will be served in accordance with OAR 860-001-0070(3) upon all eligible party representatives via U.S. Mail.

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

Respectfully submitted,

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REDACTED VERSION

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UE 246

In the Matter of PACIFICORP Request for a General Rate Revision	))))))	POST-HEARING BRIEF OF SIERRA CLUB

In accordance with the Joint Prehearing Conference Memorandum issued September 20th, 2012 in the above-captioned proceeding, Sierra Club hereby submits this post-hearing brief.

I. INTRODUCTION

Throughout this proceeding, PacifiCorp has been unable to point to any specific regulatory requirements that mandated it to pursue expensive SO_2 scrubbers at each and every one of its BART-eligible coal-fired units. PacifiCorp also failed to consider any alternatives for BART compliance other than installing expensive retrofits at its coal plants. Finally, PacifiCorp's PVRR(d) analysis suffered from improper assumptions, an overly narrow scope, and outright errors in methodology. Combined, the Company's analyses lacked the level of detail and scrutiny that a prudent utility would apply prior to committing ratepayers to $297 million in expenses at the Naughton plant and $79 million at the Hunter plant. The analysis was not meant to determine whether continuing to operate the coal plant was the correct resource planning decision. Mr. Teply conceded as much during hearings: "[The PVRR(d) analysis] was completed for ***project justification***…I wouldn't say it was reviewed in [a resource planning] context at that

time."[1] The PVRR(d) analysis was simply a tool PacifiCorp used to provide economic justification for the projects that it had already decided to pursue.

Confidential Company documents confirm that PacifiCorp's primary motive in pursuing the Coal Fleet Spending Plan was to chart a path that would allow the Company to make substantial increases in rate base while "[redacted]"[2]

[redacted][3]

2005 documents show that the Company was determined to proceed with its plan to expend huge capital sums on retrofit projects independent from environmental regulators, regardless of whether existing regulations explicitly required those projects. Having failed to influence state and federal environmental regulators to broker side deals, or to craft industry-favorable environmental legislation, PacifiCorp simply proceeded with its plan to install expensive capital retrofits without any legal environmental requirements to do so.

[redacted]

[1] Tr, Teply/177, line 11-17.

[2] Confidential UE 246/Sierra Club/114, Fisher/4.

[3] Confidential UE 246/Sierra Club/114, Fisher/6.

[redacted][4]

These disclosures perfectly illustrate the Company's ultimate actions that led to the capital expense projects that are at issue in this proceeding.

By comparison, were the Company faced with the same decision today and used the Screening Analysis it provided to Oregon interveners in the 2011 IRP case, the retrofits at Naughton 1 & 2, and Hunter 1 & 2, would return negative PVRR(d) results in the base case for each unit ranging from [redacted][5]

II. SO_2 REQUIREMENTS

A. Participation in the SO_2 Backstop Trading Program in Wyoming and Utah Did Not Trigger Any Unit-Specific Pollution Control Emission Limits

Sierra Club's pre-hearing brief methodically and conclusively showed that PacifiCorp was not subject to any unit-specific emission limit for SO_2 for the years 2006 to 2009.[6] In contrast, PacifiCorp took equal pains in its application and testimony to confuse or avoid a clear explanation concerning actual unit-specific pollution control requirements.[7] It did so by first conflating the compliance deadlines for SO_2 and NO_x.[8] The Company then added a second justification concerning a violation of the SO_2 national ambient air quality standards ("NAAQS")

[4] Confidential UE 246/Sierra Club/115, Fisher/2.

[5] Confidential UE 246/Sierra Club/100, Fisher/58-59.

[6] Even now in 2012, PacifiCorp is not subject to any unit-specific emission limit for SO_2 at Naughton and Hunter. UE 246/Sierra Club Prehearing Brief, pp. 9-22.

[7] Tr, Woollums/31, line 1:33, line 4; Tr, Woollums/53, line 13:54, line15.

[8] UE 246/PAC/1900, Woollums/6, line 21-23; Tr, Teply/108, line 13:109, line 20. Mr. Teply acknowledged during hearings that the compliance deadlines for NO_x controls were not the primary driver of the Company's resource decision making: "NO_x controls or low-NO_x burners, [are] roughly a ten million dollar investment – a ten million dollar investment would not have forced PacifiCorp to market for a 160 MW facility or 220 MW." Tr, Teply/112, line 24:113, line 4.

putatively in need of rectifying.[9] After parsing all of PacifiCorp's competing assertions, it is clear that there was no source-specific SO_2 BART requirement for Naughton or Hunter, [10] nor were there any documented NAAQS violations.[11] Wyoming DEQ unambiguously found that PacifiCorp would meet its Regional Haze SO_2 obligations for the Naughton plant by participating in the Regional SO_2 Milestone and Backstop Trading Program, and the Utah Regional Haze SIP referenced SO_2 limits only with respect to measures that PacifiCorp had already taken or had already requested permits to undertake.[12]

During the evidentiary hearing, Ms. Woollums attempted to convey the impression that the Regional SO_2 Milestone and Backstop Trading Program required Naughton and Hunter to meet source-specific SO_2 emissions limits.

> A: Is there an emission limit? The emission limits of .15 pounds per million BTU SO_2 and .12 pounds per million SO_2 in Utah have to be met to successfully comply with the Backstop Program and avoid triggering those requirements.[13]

This logic is circular. Ms. Woollums' statement claims that the emission limit must be met in order to avoid triggering an emission limit. This reasoning makes no sense, and Ms. Woollums later reversed herself on the issue:

> Q: [T]here are no source specific BART requirements [or] emission limits as part of the Backstop Trading Program?
> A: No, because the Backstop Trading Program does not kick in until you have exceeded your milestones.[14]

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[9] UE 246/PAC/1400, Woollums/17-18; UE 246/PAC/1900, Woollums/7.

[10] Tr, Woollums/30, line 22:31, line 8.

[11] Tr, Woollums/27, line 7-9; Tr, Woollums/48, line 12-16.

[12] Tr, Woollums/33, line 23:34, line 5; UE 246/Sierra Club/509, Cross Exhibit/15-16; Tr, Woollums/54, line 21:55, line 10.

[13] Tr, Woollums/41, line 16-20.

[14] Tr, Woollums/37, line 18-22.

Under the Regional SO_2 Milestone and Backstop Trading Program, there was a regional tonnage milestone limit.[15] It bears repeating that the Company's only SO_2 obligation in Utah and Wyoming was to do nothing other than report its emissions. On May 28, 2009, Wyoming DEQ issued its analysis of PacifiCorp's application for BART permit MD-6042 and found for SO_2: "in accordance with §308(e)(2), Wyoming's §309 Regional Haze SIP, and WAQSR Chapter 6, Section 9, PacifiCorp will not be required to install the company-proposed BART technology and meet the corresponding achievable emission limit. Instead, PacifiCorp is required to participate in the Regional SO_2 Milestone and Backstop Trading Program authorized under Chapter 14 of the WAQSR."[16]

Despite this unambiguous language, PacifiCorp appears to claim that the regional tonnage requirement meant that the Naughton plant was still required to meet a source-specific emissions limit of 0.15 lbs/mmBtu because the regional tonnage limit was originally determined based on a calculation that BART eligible sources would meet the presumptive BART limit of 0.15 lbs/mmBtu.[17] PacifiCorp never considered whether the flexibility inherent in the regional system combined with excess or unanticipated reductions from other sources would have allowed it to operate some of its units unscrubbed and still stay below the milestones. PacifiCorp's insistence that each and every one of its units was required to meet the presumptive emission limits of 0.15 lbs/mmBtu is incorrect and ignores the fact that the tonnage reductions within the region were met before any of its scrubber retrofits were put in service.[18]

[15] WY 309 Regional Haze SIP, UE 246/Sierra Club/504, Cross Exhibit/9; UT Regional Haze SIP, UE 246/Sierra Club/509, Cross Exhibit/8; Tr, Fisher/185, line 12-21.

[16] UE 246/Sierra Club/111, Fisher/53 (emphasis added).

[17] Tr, Woollums/49, line 9-12.

[18] Tr, Woollums/62, line 9-17; UE 246/Sierra Club/505, Cross Exhibit/2.

PacifiCorp also ignored the fact that the Company, as the major polluter in the region, had the greatest flexibility to influence the annual tonnage emissions either by scrubbing its units or by taking units off-line. By removing an underperforming unit from service, PacifiCorp could have avoided having to install expensive SO_2 scrubbers at other units if the overall regional tonnage limits could have remained the same or better. However, PacifiCorp never undertook a comprehensive planning initiative that looked at whether there was a lower-cost resource alternative to meet the fleet-wide and region-wide tonnage obligations.

Importantly, PacifiCorp missed a unique opportunity to comprehensively evaluate its entire coal fleet and assess whether removing underperforming units from service was in the best interest of ratepayers where lower-cost resources could meet the fleet-wide tonnage obligations. Instead, PacifiCorp decided that nearly all of its plants must be scrubbed, which coincidentally would result in billions of dollars in additional rate base. A prudent utility would not spend hundreds of millions of its customers' funds retrofitting coal plants before looking at alternatives to installing retrofits years before required to do so.

By 2022, PacifiCorp expects to have spent more than $2.7 billion dollars on capital projects for its coal fleet, and the Company will have installed SO_2 scrubbers at 22 of its 26 coal units.[19] At the evidentiary hearing, Ms. Woollums could not cite to any federal or state regulation that required PacifiCorp's units to meet the presumptive SO_2 BART limit of 0.15 lbs/mmBtu in Wyoming or Utah. As the Senior Vice President of Environmental Services and Chief Environmental Co-Counsel for Mid American Energy Holdings, Ms. Woollums should know chapter and verse the regulations and statutes that required her company to spend more than $2.7

[19] UE 246/Sierra Club/112, Fisher/1; UE 246/PAC/501, Teply/1.

billion dollars on capital projects at its coal fleet.[20] Instead of walking the Commission through clear regulatory requirements, Ms. Woollums used ambiguous and tentative language to describe the Company's obligations with respect to SO_2:

> Q: [D]oes Permit 6042 contain any specific technology requirements for SO_2 emissions?
> A:[There was n]ot a specific technology requirement. However there was an ***underlying obligation*** to comply with the presumptive BART permits for SO_2 …[21]
>
> …
> Q: Is there a specific requirement where the State of Wyoming required PacifiCorp to meet the .15 pounds per MMBtu at Naughton?
> A: I believe that that's ***been incorporated*** into some of the operating permits.[22]
>
> …
>
> Q: So what was the legal requirement, state or federal, that required you to comply with the presumptive BART limit?
> A: The ***underlying obligation emanates*** from the Regional Haze Requirements.[23]

When asked repeatedly where the actual legal requirement to meet the presumptive limit resided, Ms. Woollums could not point to a clear and specific statute or regulation; instead, she referred only to an "underlying obligation" that somehow came from the Regional Haze Rule, or that the regulation "doesn't say it explicitly, but effectively" the presumptive limit applies.[24] However, as discussed above, the Regional Haze Rule only obligated the Company to participate in the Regional SO_2 Milestone and Backstop Trading Program.[25] The entire purpose of the

[20] UE 246/Sierra Club/112, Fisher/1

[21] Tr, Woollums/31, line 4-8.

[22] Tr, Woollums/32, line 8-12.

[23] Tr, Woollums/32, line19-23.

[24] Tr, Woollums/54, line 11-15.

[25] Tr, Woollums/33, line 23:34, line 5.

Regional SO_2 Milestone and Backstop Trading Program was to allow flexibility in meeting the emission reduction goals, yet PacifiCorp treated the program as if it were as rigid as source specific BART-determinations.[26] The Company's refusal to take advantage of the program's intended flexibility cost ratepayers millions of dollars.

B. Because There Has Never Been Any Unit-Specific SO_2 Requirement, the Company Is Not At Risk of Exceeding Any SO_2 Emission Limit

The Regional SO_2 Milestone and Backstop Trading program includes region-wide SO_2 emission caps or "milestones" that decline over time through the year 2018. The program is not triggered unless a milestone is not met. Sources such as PacifiCorp only need to monitor and report their emissions.[27] In May 2009 when PacifiCorp signed the contracts for the SO_2 scrubbers at Naughton, the trading program had not been triggered because the states were ***well below*** the regional milestones.[28] Wyoming DEQ explained this in its analysis of PacifiCorp's BART permit MD-6042: "Each year states have been able to demonstrate that actual SO_2 emissions are well below the milestones."[29] To this day, the states participating in the program have not exceeded the SO_2 emissions milestones, and in 2011, SO_2 emissions for the three states were in fact "significantly" below the 2018 SO_2 Milestone.[30] There has never been any indication that the regional SO_2 milestones would not be met. The Naughton SO_2 scrubbers went into service in November 2011 and May 2012, long after the regional SO_2 milestones for 2018 had already been met.[31] If the scrubbers were installed to meet this target, they were truly an excessive expense.

[26] Tr, Woollums/55, line 15-22.

[27] Wyoming 2011 309 SIP, ¶A3.1 (emphasis added). UE 246/Sierra Club/504, Cross Exhibit/11.

[28] UE 246/Sierra Club/100, Fisher/18; Tr, Woollums/62, line 9-17; UE 246/Sierra Club/505, Cross Exhibit/2.

[29] UE 246/Sierra Club/111, Fisher/52.

[30] UE 246/Sierra Club/505, Cross Exhibit/2.

[31] UE 246/PAC/1102, Dalley/8.6.5; UE 246/Sierra Club/100, Fisher/18.

Should the regional SO_2 emissions eventually trigger the trading program, PacifiCorp will have at least six years to meet any compliance obligations. "For each source that is a [Western Backstop] source on or before the program trigger date, the first control period is the calendar year that is six (6) years following the calendar year for which sulfur dioxide emissions exceeded the milestone…"[32] According to the Utah and Wyoming SIPs, if the Western Backstop Trading Program is triggered because SO_2 emissions from sources in the region exceeded an SO_2 milestone, the states will allocate emissions allowances to all of the sources in the three states. At that point, sources may buy allowances if needed to meet their emission allocation, or sell allowances if they do not need all of their allocation. If sources do nothing and do not have enough emission allowances because they cannot emit within their allocation or have failed to purchase enough allowances to meet their allocation, then, and only then, could the state issue the source a notice of violation and then impose a penalty of $5,000 per ton of SO_2 for each ton emitted over the emission allowances.[33]

There is no evidence anywhere in the record that the Company would be subject to fines or penalties should the entire three-state region exceed the tonnage caps. What the record does show is that PacifiCorp would have six years to analyze various compliance options, including utilizing cleaner energy sources in the event of a regional exceedance. This six-year compliance schedule from the date of a regional exceedance unambiguously answers the Commission's November 1, 2012 question regarding the date by which "PacifiCorp would have to demonstrate compliance with any requirement from the exceedance."

[32] Wyoming 2011 309 SIP, Appendix B, WYDEQ Chapter 14, Section 2(k)(i)(A)(I) (emphasis added). UE 246/Sierra Club/504, Cross Exhibit/113.

[33] Wyoming SIP, Chapter 14, Section 2(l); Utah Air Quality Rules R307-250-13.

In short, to address the Commission's request directly, there are no documents in the record that specify an effective date for SO_2 emission limits or specific SO_2 controls.

III. PVRR(d) ANALYSIS

PacifiCorp's planning process was stuck in a feedback loop that prevented it from making the least-cost resource decision for its rate payers. The PVRR(d) analysis assumed that the plant in question would install retrofits and continue to operate, while the IRP analysis assumed that compliance costs were sunk and unavoidable once the decision to install the retrofit was made. There was no mechanism for PacifiCorp to more carefully scrutinize units that were economically marginal. PacifiCorp included a 20% +/- market price "toggle" in its PVRR(d), but it did not include the results of this sensitivity in its application testimony. The Company also apparently never revisited its decision to install the capital retrofits, even when market prices changed significantly. This omission was surprising given that the Company's own analysis showed that the PVRR(d) value (or benefit of maintaining the coal plant) for each Naughton unit dropped to [redacted] with low market prices.[34] In other words, a change in market prices of 20% would dramatically alter the perceived economic benefit of the proposal and create a huge liability for customers. In fact, market price forecasts did drop dramatically from December 2008 to December 2011. Mr. Teply testified that price projections have declined approximately [redacted][35]

Other than the PVRR(d) analysis, which was fundamentally flawed and inadequate to make a resource decision, PacifiCorp never undertook an effort to evaluate whether any other compliance alternatives to installing the retrofits at issue in this proceeding would be better for

[34] Confidential UE 246/Sierra Club/100, Fisher/30; Tr, Teply/98, line 7-8 (confirming sensitivity analysis).

[35] Confidential UE 246/PAC/1500, Teply/12.

its customers. Instead, the Company committed its ratepayers to installing expensive SO_2 scrubbers on nearly all of its coal units before any source-specific requirements existed and without evaluating whether a better fleet-wide strategy could have met the applicable Regional Haze requirements.

A. PacifiCorp's Revised Least-Cost Analysis Did Not Address Sierra Club's Critiques

During hearings, Commissioner Bloom asked both Mr. Teply and Dr. Fisher whether PacifiCorp's revised PVRR(d) analysis was consistent with critiques of Sierra Club and CUB.[36] In answer Commissioner Bloom's question, PacifiCorp did not re-run its analysis in a manner that was consistent with Sierra Club's critiques. PacifiCorp's revised PVRR(d) analysis, which Mr. Teply addressed in his reply and surrebuttal testimony, shifted the assumed retirement date of the Naughton units to 2013 and revised the market price forecasts, but it did not provide an adequate economic justification for the coal plant expenses at Naughton because (1) it did not address Sierra Club's critiques, and (2) it resulted in additional fundamental errors that skewed the results in favor of PacifiCorp's desired outcome.

The direct testimony of Dr. Fisher showed that PacifiCorp's original PVRR(d) analysis was fundamentally flawed and should have revealed an estimated net liability of over [redacted] at Naughton,[37] and over [redacted] at Hunter.[38] Dr. Fisher also showed in his reply testimony that PacifiCorp's ***revised*** PVRR(d) analysis remained fundamentally flawed. If PacifiCorp had

[36] Tr, Teply/127, line 16-21; Tr, Fisher/186, line 21:187, line 3.

[37] Confidential UE 246/Sierra Club/100, Fisher/28, line 3.

[38] Confidential UE 246/Sierra Club/100, Fisher/52 (assuming a $45 cost of CO_2).

addressed the critiques identified by Sierra Club and properly conducted the revised analysis, it would have still shown an estimated net liability of over [redacted] for the Naughton units.[39]

The following table summarizes the adjustments to the Naughton PVRR(d) analysis made by Dr. Fisher and Mr. Teply through the repeated rounds of written testimony in this proceeding:

Naughton Adjustment		Teply Original	Fisher Direct	Teply Revised	Fisher Reply
Market Price Forecast		Dec 2008	June 2009	March 2009	March 2009
Replacement date		2009	Jan 2016	Jan 2014	Jan 2016
Project In-Service Date		2012	2012	2014	2012
Future Required CapEx[40]		none	SCR & ACI	none	SCR & ACI
De-Rate (parasitic load)[41]		none	Yes	Yes (surrebuttal)	Yes
Unit Degradation[42]		none	Yes	none[43]	Yes
Accelerated Depreciation[44]		No	Yes	No	Yes

Table continues on following page.

[39] Assuming March 2009 forward price curve and low carbon prices. Confidential UE 246/Sierra Club/300, Fisher/19 (*see* Tables 1 and 2).

[40] Dr. Fisher's testimony included cost estimates both with and without SCR and ACI. Confidential UE 246/Sierra Club/100, Fisher/35-38.

[41] Mr. Teply ultimately included an analysis of the unit de-rate in his surrebuttal testimony, which resulted in a significant decrease in the estimated PVRR(d) benefit. Confidential UE 246/PAC/2000, Teply/11.

[42] Confidential UE 246/Sierra Club/300, Fisher/20.

[43] Mr. Teply testified, "Sierra Club's unit degradation modification is a reasonable consideration…", yet he did not adjust the revised PVRR(d) analysis to account for the degradation. UE 246/PAC/1500, Teply/22. Dr. Fisher testified that the degradation at Naughton 1 and 2 accounts for [redacted], respectively. Confidential UE 246/Sierra Club/300, Fisher/20.

[44] UE 246/Sierra Club/300, Fisher/17.

Naughton Adjustment		Teply Original	Fisher Direct	Teply Revised	Fisher Reply
CAI CapEx Revisions[45]		n/a	n/a	Yes (surrebuttal)	n/a
Removal of Removal of 2011/12 CapEx		n/a	n/a	No	n/a[46]
PVRR(d) units 1&2 (millions)		[redacted]	[redacted][47]	[redacted][48] [redacted][49]	[redacted][50]

The purpose of the PVRR(d) analysis is to compare two competing scenarios to determine which option provides the lowest estimated present value revenue requirement. The analysis assumes two different situations: the course of action proposed by the Company; and the best available alternative to that course of action. In this case, those two scenarios should have included the following: (1) install the pollution control retrofits with an in-service date (2011/12)

[45] The appropriation request ("APR") documents the Mr. Teply relies on also identified additional costs for the Naughton units that Mr. Teply did not include in his surrebuttal revisions. APRs #10003745 and #10003746 were completed April 22, 2009. In addition to revising the cost estimates for the Naughton 1 and 2 FGD systems (SO_2 Scrubbers), the APRs also noted [redacted] in additional costs related to chimney construction and approximately [redacted] in waste disposal expenses. Had they been included in the revised analysis, these additional incremental expenditures would have offset the lower estimated costs for the FGD systems. Confidential UE 246/Sierra Club/109, Fisher/1 and 5; Confidential UE 246/Sierra Club/110, Fisher/1 and 5.

[46] Dr. Fisher identified this issue, but he did not include the adjustment in his final analysis because there was insufficient information available to determine the extent of capital expenses that should be removed from the analysis. UE 246/Sierra Club/300, Fisher/19-20. During hearings, Mr. Teply agreed that a major outage and capital spend planned for Naughton Units 1 and 2 in 2012 and 2011 likely would not have occurred if the units were planned to be replaced two years later. (Tr, Teply/131 lines 6-8.)

[47] Confidential UE 246/Sierra Club/100, Fisher/45 (Tables 8 and 9).

[48] Confidential UE 246/PAC/1500, Teply/18.

[49] Confidential UE 246/PAC/2000, Teply/11.

[50] Confidential UE 246/Sierra Club/300, Fisher/19 (Tables 1 and 2).

that coincides with a major outage and assures compliance with the assumed deadlines required by environmental laws;[51] and, (2) do not install the pollution control retrofits and replace any shortfall in generation with an alternative resource (i.e. market purchases) when environmental laws require the unit to cease uncontrolled operations.[52] This comparison must be considered based on the information known and available to the Company at the time that it conducted the analysis.

The first scenario is the path that PacifiCorp actually took. The Company began incurring costs for the Naughton projects in 2009, and the projects went into service during the previously scheduled outages in 2011 and 2012. The second alternative should have assessed the costs associated with running the plants uncontrolled until the compliance deadline forced PacifiCorp to stop operating and find a replacement resource. However, as outlined in the table above and discussed in more detail below, PacifiCorp never appropriately compared these two scenarios because it either missed costs associated with the first scenario, or made improper assumptions about what actions the Company would have taken in the retire/replacement scenario.

1. Replacement/Retirement Date

In the original PVRR(d) analysis, rather than allowing the plants to operate uncontrolled through the compliance period, PacifiCorp assumed that the plants would be replaced in 2009 if they did not install pollution controls.[53] During hearings, Mr. Teply acknowledged that if the Company had decided not to install the pollution controls - the second scenario – then it should have assumed that the units would operate uncontrolled through the end of the compliance

[51] Sierra Club disputes the Company's assumption that environmental laws required installation of the SO_2 Scrubbers at Naughton and Hunter; however, the flaws in the PVRR(d) analysis are not solely based on the Company's incorrect interpretation of its external environmental requirements.

[52] Tr, Teply/104, line 5-13.

[53] UE 246/Sierra Club/100, Fisher/39.