Exhibit No. JIF-24CT
Docket UE-152253
Witness: Jeremy I. Fisher

BEFORE THE
Washington Utilities and Transportation Commission

In the Matter of PACIFIC POWER AND LIGHT COMPANY Petition For a Rate Increase Based on a Modified Commission Basis Report, Two-Year Rate Plan, and Decoupling Mechanism.	UE-152253

Supplemental Cross-Answering Testimony of Jeremy I. Fisher, PhD

On Behalf of
Sierra Club

REDACTED

May 13, 2016

Table of Contents

Exhibit List

Exhibit No. JIF-25	Response to Sierra Club DR 3.29
Exhibit No. JIF-26	Response to Sierra Club DR 4.35, 2^{nd} Supplemental

I. INTRODUCTION

Q Are you the same Jeremy Fisher that submitted response and cross-answering testimony in these proceedings?

A Yes.

Q What is the purpose of your testimony?

A I respond to several issues raised by Staff's witness Mr. Jeremy Twitchell ("Staff") in his supplemental testimony, filed on May 6, 2016. In particular, I address some of Staff's questions about the likely costs of coal supply to Jim Bridger as of October 2013, and provide an alternative mechanism to estimate coal cash costs and capital costs knowable at that date, in the absence of any alternatives provided by the Company.

Q Please summarize the basis of your supplemental testimony.

A In my response testimony, I demonstrated that information available to PacifiCorp (d.b.a Pacific Power, or the "Company") prior to the December 2nd 2013 signing of the full notice to proceed ("FNTP") on the construction of selective catalytic reduction ("SCR") equipment at Jim Bridger units 3 & 4 should have compelled the Company to re-evaluate the project and likely cancel the construction contract. I found that at the time of the FNTP, the Company knew that gas prices were substantially lower than at the time of their earlier analysis of the construction projects; in addition, I identified that the Company was planning on a completely new coal production strategy at the co-located Bridger Mine that substantially raised the cost of coal production.

Staff's March 17, 2016 response testimony broadly mirrored my findings regarding the prudence of the Bridger retrofits, although through different mechanisms. Company witness Dana Ralston provided rebuttal testimony on April 7, 2016 addressing the testimony of both myself and Staff witness Twitchell. The Company testified that Staff had relied on a January 2013 rather than October 2013 mine plan The Company further testified that I had excluded capital cost changes at the Bridger mine from my analysis, but confirmed that the Bridger Mine plan had changed substantially prior to the FNTP date. In supplemental testimony, Staff refined its analysis, drawing on October 2013 mine plan data to demonstrate that costs of coal production at Bridger Mine had risen by the date of the FNTP.

I concur with the conclusions of Staff's revised analysis as presented in supplemental testimony; however, Staff's supplemental testimony does not go far enough because (a) it only captured one side of a changing equation at the Bridger Mine, and (b) it made an algebraic simplification that understated the impact of the correction. Overall, I agree with the approximate magnitude of Staff's correction, and independently arrive at a similar figure through a different mechanism.

My supplemental testimony uses information about capital cost availability provided by Staff in supplemental testimony to inform a revised coal price adjustment.

Q **Please summarize your findings and conclusions in this supplemental testimony.**

A In my response testimony, I found that the Company's decision to retrofit Jim Bridger units 3 & 4 with SCR was imprudent based on information that was known and knowable at the time that the Company decided to proceed with the retrofits on December 2, 2013. I determined that (1) lower gas prices, known to the Company at the time, and (2) higher coal costs from Bridger Coal Company ("BCC"), generated in October 2013, eroded the alleged benefit of the SCR retrofits as compared to a natural gas conversion scenario. Jointly, these two new pieces of information on gas and coal prices, both of which were available to the Company after the Utah and Wyoming pre-determination proceedings but before the FNTP, made the choice to proceed with the SCRs a significant net liability to ratepayers.

My supplemental testimony responds to adjustments performed by Staff witness Mr. Jeremy Twitchell in light of both (a) clarification of the date and relevance of various mine plans produced by the Company, and (b) disclosure about the presence of capital costs available in mine plans provided by the Company. In light of this new information, I re-assessed my coal cost adjustment, taking into account both cash costs and coal capital costs at BCC.

While in my response testimony, I found that the increased cost of coal at BCC as of October 2013 would have diminished the benefit of the SCRs by [redacted], I now adjust that figure to [redacted], as informed by capital spending patterns available from the October 2013 mine plan. Staff found an adjustment of [redacted] based on the October 2013 mine plan. I took a different route towards estimating the impact of the new mine plan in PacifiCorp's economic analysis, and yet arrived at a similar figure, demonstrating the robustness of the finding.

Overall, I continue to find that the SCRs were a substantial liability by the time that the Company signed the FNTP, and I recommend that this Commission disallow a portion, or all, of the cost of the retrofits from rates, using a remedy assessment with up-to-date fuel and commodity prices.

Q **Are you able to clarify which Bridger Mine plans are in evidence in this case?**

A Yes. PacifiCorp, Staff and I have in various testimony relied on <u>four</u> different Bridger Mine plans, spanning the period from January 2013 to July 2014. In addition, the Company seeks to differentiate "mine plans" from "fueling forecast."[1] The "mine plan" characterizes the monthly and annual tonnage of coal to be produced by BCC. A "fueling forecast" layers in additional coal supply from third-party (and other internal) contracts that would ultimately meet PacifiCorp's Bridger Plant share of anticipated coal requirement. The fueling forecast is typically a separate spreadsheet that compiles data from both BCC and third party providers.

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[1] *See, e.g.,* Exhibit DR-1CT, Rebuttal Testimony of Dana Ralston, page 7, lines 3-13.

I will try to clarify what was generated by the Company at various points in time.

- **January 18, 2013**. Bridger mine plans and accompanying fueling forecasts relied upon in 2013 SCR analysis, as finalized before the Wyoming and Utah utility commissions, and as presented in the Company's application in this docket. Two mine (and fueling) plans were provided on this date: a plan to fuel four units at Jim Bridger, and a plan to fuel only two units, assuming units 3 & 4 were converted to fire natural gas. The two-unit plan assumed that the surface mine would cease production by 2018, while the underground mine would continue operation through the end of the plant depreciable life in 2037.[2]
- **October 4, 2013**. Bridger mine plan (no long-term fueling forecast) used to justify new coal costs in early 2014 rate cases in Wyoming and Utah. This mine plan was designed only to support continued four-unit operation, and differed from the January plan in that it assumed the underground mine would close at the depletion of existing permitted reserves [redacted][3]
- **July 9, 2014**. Bridger mine plan (no fueling forecast) used to support internal strategic document for Jim Bridger ("Jim Bridger Plant 2014 Strategic Planning Review" [4]).[5] Mine plan maintains [redacted] underground closure date and assumes four-unit operation.
- **July 22, 2014.** Bridger mine plan and fueling forecast used to support 2015 Integrated Resource Plan ("IRP") assuming four-unit operation.[6] Mine plan maintains [redacted] underground closure date. Fueling forecast

[2] January 18, 2013 Bridger Mine Plan provided in SC 1.8-1 (incomplete) and SC 4.33 (mine plan and fueling forecast).
[3] October 4, 2013 Bridger Mine Plan provided in SC 1.6 1st Supplemental.
[4] Exhibit JIF-7C. "Strategic Planning Review of Jim Bridger Plant, provided as Confidential Attachment to Sierra Club 2.27."
[5] July 9, 2014 Bridger Mine Plan provided in SC 3.31. Notably, the documents that are ostensibly supported by these workpapers contains a chapter marked "[redacted]" despite the fact that these workpapers only contain a mine plan, and not a full fueling forecast, as differentiated by Mr. Ralston.
[6] July 22, 2014 Bridger Mine Plan provided in SC 4.35 2nd Supplemental.

assumes Powder River Basin ("PRB") coal [redacted]

In its initial filing, the Company relied upon the January 2013 Bridger mine plan only as the basis of a claim that a two-unit scenario (i.e. the retirement of Bridger 3 & 4) would incur substantially higher near-term coal costs (on a per MMBtu basis). The Company based this claim on the logic that if the surface mine closed under a two-unit scenario, BCC would accelerate expensive remediation of the surface mine. The Company assumed that BCC would fully recover incremental remediation costs as cash payments from Bridger Plant, a penalty of [redacted] to the two-unit scenario.

In my response testimony, I showed that the coal mine plan had changed substantially from January 2013 to October 2013, raising the variable cost of coal under a four-unit scenario, and likely changing the definition for a two-unit scenario.[7] Since the Company had not provided a long-term fueling forecast with the October 2013 mine plan, I used a later fueling forecast from July 2014 as a proxy on the understanding that the fundamentals of this forecast were similar to the October 2013 plan.

In the Company's rebuttal, Mr. Ralston agreed that there was "no doubt the October 2013 mine plan reflects changes in the relationship between the surface and underground mining operations at BCC."[8] Mr. Ralston further admitted that the Company "did not prepare an updated two-unit operation option in October 2013…"[9] Mr. Ralston then proceeded to rely on the July 22, 2014 fueling forecast (while still objecting) to support the claim that costs had not substantially changed from January 2013 to the date of the FNTP. [10] Mr. Ralston correctly identified that my response testimony analysis did not take into account changes in

[7] Exhibit JIF-1CT, Response Testimony of Jeremy I. Fisher, page 13-14.
[8] Exhibit DR-1CT, Rebuttal Testimony of Dana Ralston, page 8 at 5-6.
[9] *Id.* at page 10 at 19-20.
[10] *Id.* at page 12 at 19 through page 13 at 2.

anticipated capital spending that, to some extent, mitigate the higher variable cost of coal from BCC. I discuss this issue of capital costs in more detail below.

In Staff's supplemental testimony, Mr. Twitchell re-structured his analysis in response to the Company's clarification about the presence of a separate October 2013 coal mine plan and sought to establish a rough estimate of the increase in cost for a four-unit scenario using data from October 2013. Mr. Twitchell found that, between cash costs increases, capital cost decrements and changes in third-party costs, the overall cost to supply coal for four units at the Bridger Plant would have increased by approximately [redacted]% from January 2013 to October 2013.[11]

II. STAFF'S SUPPLEMENTAL TESTIMONY

Q Do you concur with Staff's re-assessment of the four-unit costs in October 2013?

A Generally yes. I agree with the conclusion in Staff's supplemental testimony; however, Staff's analysis does not go far enough for the following reasons:

a) Staff's analysis underestimated the cost increase for a four-unit scenario, and
b) Staff did not calculate the costs of a two-unit scenario.

In my testimony below, I address both of these issues, and I provide an independent approach for arriving at October 2013 coal costs at Bridger, with roughly similar results.

Q How did Staff underestimate the cost increase for a four unit scenario in October 2013?

A Staff's supplemental analysis compiled the change in cash costs at BCC, capital costs at BCC, and Black Butte cost increases as shown in a then-concurrent rate

[11] Exhibit JBT-28HCT, Supplemental Testimony of Mr. Jeremy Twitchell, page 19 at 1-8.

case docket,[12] and compared the all-in cost of coal in October 2013 against the equivalent value in January 2013. Staff's analysis found a cost increase of [redacted]% on a net present value basis. Staff then multiplied Bridger Plant's fuel costs from the Company's System Optimizer analysis to arrive at a [redacted] increase in the base gas case.[13]

However, in multiplying only against Bridger Plant's fuel costs, Staff actually undercounted the impact of the [redacted]% increase. To remain consistent, Staff should have multiplied the [redacted]% increase against both fuel costs and BCC capital, which would have added another [redacted] to his increase,[14] bringing the total adjustment to [redacted]

Q Please explain the importance of a two-unit scenario in this case.

A The two-unit scenario describes a fueling plan in which a lesser amount of coal is procured for Bridger Plant after 2018 because only two units are in operation (Bridger 1 & 2) rather than all four units. In the Company's initial January 2013 analysis, it was assumed that in a two-unit scenario, the Company would procure coal exclusively from the underground mine after the closure of units 3 & 4. This choice had a radical impact on the cost of coal procured for the remaining two units because the Company assumed that it would have to pay for BCC's accelerated remediation of a closed surface mine. This assumption penalized the two unit scenario (i.e. the choice to convert Bridger 3 & 4 to gas) by [redacted] In other words, nearly a quarter of the supposed benefit of maintaining all four units of Bridger plant was attributable to the asserted need to collect reclamation dollars and ensure that the [redacted] [redacted][15] surface reclamation project could be deferred until 2037.[16]

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[12] *Id.* at page 18 at 17-22.
[13] *Id.* at page 19 at 17-21.
[14] Net present value of 4-unit capital in January 2013 = [redacted] (see Exhibit RTL-5C, NPV 2016-2030), at [redacted]% discount rate = [redacted].
[15] Attachment SC 1.8-1, "BCC Production-Operating Cost Schedules (4 unit).xlsx", [redacted]
Also discussed in Supplemental Testimony of Mr. Jeremy Twitchell, page 22 at 15 through page 23 at 7.

In my response testimony, I showed that the Company's new plan in October 2013 to shutter the underground mine in [redacted] amounted to a clear repudiation of the January 2013 two-unit scenario.[17] The Company could not both seek to close the underground mine in [redacted] and continue to assume that the surface mine would close in 2018 without either assuming that nearly all coal would be procured from third-party sources (a relatively expensive option) or assuming that the whole plant would close, an option never examined by PacifiCorp. As such, any reasonable two-unit scenario incorporating the change in the mine's outlook would likely maintain the surface mine for an extended period, thus nullifying the [redacted] accelerated reclamation penalty.

In rebuttal testimony, Mr. Ralston ignored this logical incongruity, and simply asserted that "it is more reasonable to use a comparative ratio."[18] Mr. Ralston therefore ignored any capital cost changes specific to the two-unit scenario. He instead inflated the cost of the January 2013 two-unit scenario cost by [redacted]%, the same fractional increase he calculated for the four-unit scenario.

Q Is it reasonable to have used a comparative ratio to inflate the cost of the January 2013 two-unit scenario as performed by Mr. Ralston?

A No, not at all. Mr. Ralston's simplifying assumption completely ignores the change in the underground mine's outlook. It assumes, without merit, that the underground mine would somehow extend [redacted] under a two unit scenario, but opt to acquire third-party coal under a more intensive four-unit fueling plan. This is a case in which a simplifying assumption is distinctly misleading and erroneous.

Q How did Staff treat the costs of a two unit scenario?

A Staff did not attempt to prepare an October 2013 two-unit scenario in supplemental testimony,[19] indicating that "Pacific Power is the only party to this

[17] Exhibit JIF-1CT, Response Testimony of Jeremy I. Fisher, page 20 line 22 through page 21 line 19.
[18] Exhibit DR-1CT, Rebuttal Testimony of Dana Ralston, page 12 line 10-11.
[19] Exhibit JBT-28HCT, Supplemental Testimony of Mr. Jeremy Twitchell, page 20 at 21-23.

case with sufficient information to prepare such a plan."[20] However, Mr. Twitchell argued that "costs for a two-unit scenario would likely decrease from January 2013 to October 2013," largely on the logic that the significant [redacted] would be absent from a new two-unit scenario. [21]

Q Do you agree with Staff that costs for a two-unit scenario would likely decrease from January 2013 to October 2013?

A Yes, but for somewhat different reasons that are explained in more detail below.

Q Do you agree that PaciCorp is the only party with sufficient information to prepare a two-unit equivalent plan?

A No. While I do agree that PacifiCorp would have far better information about the cash flow and capital requirements for BCC and certainly should have prepared its own two-unit analysis based on the revised October 2013 mine plan, I think that for the purposes of long-term forward planning, there is enough information in this case to prepare both an approximate four-unit and two-unit fueling plan from data that was available in October 2013. Any two-unit scenario, with October 2013 data, prepared post-hoc by the Company would be subject to significant selection bias as the Company seeks to protect a potentially stranded investment. There is sufficient information in the record to pull together reasonable and transparent, albeit approximate, alternatives.

Q Have you prepared October 2013 two and four-unit fueling forecasts?

A Yes. I have prepared approximate versions of two and four-unit fueling forecasts based on information provided by the Company, primarily from the October 2013 timeframe, with one exception for Powder River Basin contract coal prices. These fueling forecasts include both cash costs (i.e. variable costs) for coal, as well as capital spending estimates.

[20] *Id.* at page 21 at 19-20.
[21] *Id.* at page 23 at 10-18.

Q In your response testimony, you provided cash cost forecasts based on July 2014 data. Why are you now turning to October 2013 forecasts?

A There are two substantial reasons, both having to do with new Company disclosures about where expected capital costs can be found in PacifiCorp's mine plans.

As the Company pointed out in rebuttal testimony, my initial analyses assumed that capital spending patterns had not changed markedly from January to October 2013. Indeed, at the time I had submitted response testimony, there was no evident capital spending <u>at all</u> from 2014-2024 in any of the mine plans provided by the Company after January 2013. I had therefore assumed no change. The Company only provided evidence of capital spending on rebuttal, and provided previously undisclosed workbooks to support that claim. Mr. Twitchell's supplemental testimony revealed where the Company characterizes expected capital spending in the BCC mine plans.

Q Did you request that the Company clarify how capital costs are characterized in the Bridger mine plans?

A Yes. In Sierra Club 3.29, I requested that the Company demonstrate how capital costs in Mr. Link's testimony are calculated from BCC mine plans.

Mine plans are comprised of approximately [redacted] different workbooks, which ultimately flow to a master worksheet, wherein the Company reserves a line for capital expenditures. In response to Sierra Club 3.29 the Company asserted the capital spending schedules could be found on this reserved line labeled "Adjusted Cash Flow – CAPEX."[22]

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[22] Response to Sierra Club 3.29 (March 9, 2016). "The capital costs shown in Exhibit RTL-5C represent the PacifiCorp two-thirds share of the amounts shown in the file BCC Production-Operating Cost Schedules (4 unit), and BCC Production-Operating Cost Schedules (2 unit), which were provided as Confidential Attachment SC 1.8 -1 in Sierra Club Data Request 1.8. See the tab, "OPEX" in each of these files and multiply row 222 or 254 (Adjusted Cash Flow- CAPEX), respectively, times two-thirds to arrive at the numbers shown in Exhibit RTL-5C." Attached as Exhibit JIF-25.

In Sierra Club 1.6, I requested the October 2013 mine plan.[23] The space reserved for capital spending schedules on this workbook are blank for all years [redacted][24]

In Sierra Club 3.31, I requested the work papers supporting the Company's strategic plan (including fueling plan) from the July 9, 2014 mine plan. Again, the space reserved for capital spending schedules was left blank for all years [redacted]

In Sierra Club 4.35, I requested the work papers supporting Bridger's fuel costs in the 2015 IRP (July 22, 2014 mine plan). The Company provided an incomplete response on March 15, 2016, providing a "fueling forecast" with, again, no capital spending schedule for BCC.

In none of these cases did the Company state that capital costs could be found in any other work paper.

The Company only supplemented the response to Sierra Club 4.35 on May 3, 2016 (the initial date of hearings), because the initial response was incomplete.[25] Therefore, until a very late date, there was no way for me to assess any changes in capital spending schedules at BCC based on a good faith assessment of the Company's work papers.

In rebuttal, the Company provided a work paper with capital spending schedules from July 22, 2014 that had not been provided in discovery, and still failed to disclose that mine capital was tracked in yet another workbook. PacifiCorp disclosed to Staff, privately, that capital could also be tracked through a separate depreciation expense workbook. In that depreciation expense workbook, there is no indication that the values referenced are in-service capital dollars. I learned of

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[23] As a note, and relevant to Staff's concern about the non-transparency of the Company's discovery response process, I asked for the October 2013 mine plan by requesting mine cost workpapers from a 2014 Utah Rate Case docket.
[24] SC 1.6 1st Supp. Workbook "01 OpsCostSchedules.xlsx," tab "OPEX" line 222.
[25] Response to Sierra Club 4.35, 2nd Supplemental. Attached as Exhibit JIF-26.

this alternative source for capital spending schedules only through Staff's supplemental testimony.[26]

But for the submission of Staff's supplemental testimony one week ago, I would have been unable to assess capital costs in the October 2013 BCC mine plan. In my testimony below, I show the outcome of a re-assessment with those capital costs included for a vintage October 2013 fueling plan.

Unlike Staff's supplemental testimony, I assessed both a four-unit scenario and a two-unit scenario based on October 2013 vintage data.

III. ANALYSIS OF FOUR-UNIT AND TWO-UNIT SCENARIOS

Q Please describe your analysis of the October 2013 four-unit fueling scenario.

A I assumed that both the surface and underground mines would continue their full production (PacifiCorp share), as anticipated in the October 2013 mine plan. I also assumed that Black Butte would continue providing make-up coal through [redacted].[27] I derived the cash cost of surface and underground coal and assigned those costs to coal provided from BCC. For Black Butte prices in [redacted] I simply interpolated

[26] Exhibit JBT-1CT, Response Testimony of Mr. Jeremy Twitchell, page 17 at footnote 21. I also discussed this issue directly with Mr. Twitchell.

[27] [redacted].

from those provided in the October 2013 plan.[28] For PRB prices, I used the Company's July 22, 2014 PRB fuel price forecast as a proxy.[29]

[redacted]

For capital costs, I assumed that all capital costs incurred in the October 2013 mine plan were actually incurred.[30]

Q Please describe your analysis of the October 2013 two-unit fueling scenario.

A I examined two different potential two-unit scenarios.

In the first option ("Option A"), I assumed that the underground mine is used at its currently scheduled rate through depletion [redacted], and

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[28] [redacted]

Mr. Ralston's assertion notwithstanding that "because third-party coal was not sourced from the PRB, the ability to forecast PRB prices was not relevant to the October 2013 business plan," PacifiCorp assuredly had (or should have had) full access to Powder River Basin spot price forecasts in mid-2013, and transport costs and assumptions. Powder River Basin coal is consumed at Dave Johnston and Wyodak (Source: EIA Form 923). Wyodak minemouth contract prices are, in fact, indexed to spot prices of Powder River Basin coal (see public Direct Testimony of Cindy Crane in Utah Docket 13-035-184, January 2014, lines 169-174).

[30] 2013-2023 capital costs from file "14 Depr Exp 10YP", tab "SUM" starting in cell S60. Source: Attach Sierra Club 1.6 1st SUPP CONF\C.8.f Conf\BCC Budget 10-4-2013\OPEX-CAPEX\14 Depr Exp 10YP.xlsx
2024-2035 capital costs from file "01 OpsCostSchedule, tab "OPEX," line 222. Source: Attach Sierra Club 1.6 1st SUPP CONF\C.8.f Conf\BCC Budget 10-4-2013\OPEX-CAPEX\01 OpsCostSchedules.xlsx

surface mining is effectively suspended for [redacted]; Black Butte is used through [redacted] as anticipated in October 2013. Surface mining resumes in [redacted] at a rate commensurate with the expected long-term average,[31] and makeup coal is provided by PRB coal through the end of the analysis period. I retained the underground capital spending schedule from October 2013. For surface coal capital costs, I took the constant dollar average of all capital spending from 2014 to 2037 and assigned the average (escalated with inflation) to all years. The coal fueling plan for Option A is shown in Confidential Figure 2, below.

[redacted]

In the second option ("Option B"), the surface mine retains production at October 2013 scheduled rates through 2037, while production at the underground mine is ramped back to [redacted] production rate to provide the remaining coal supply. Again, Black Butte coal is utilized through [redacted] A smaller amount of PRB is obtained at intervals to keep a near zero coal balance. Again, capital costs for the surface coal are taken directly from the October 2013 plan, while underground capital costs are taken as the constant dollar average underground capital from [redacted] times [redacted] As in the four unit scenario, coal cash costs (on a per MMBtu basis

[31] Averaged from 2014 to 2037; [redacted] TBtus of surface production per year.

for surface, underground and third-party sources) are derived from the October 2013 plan.

[redacted]

Between these two plans, Option A, the plan to utilize the underground mine at full utilization through [redacted], was marginally less expensive by [redacted] (NPV), and was thus selected as a reasonable two-unit scenario.

Q How did you incorporate these new coal costs into the Bridger SCR analysis?

A I modified one of the work papers supporting Mr. Link's direct testimony (Confidential Exhibit RTL-7C) for the base gas, base CO_2 scenario only. Using information provided from the System Optimizer runs and Mr. Link's exhibits RTL-3C and RTL-5C, I removed all vintage coal cash costs and capital costs from the analysis. I then replaced these with my reformulated cash costs and capital costs from October 2013, as described above.

Q What were the results of your re-analysis?

A The October 2013 mine plan four-unit scenario resulted in an increase in coal cash costs of [redacted] (NPV 2012-2030) and a reduction of capital costs of [redacted] (NPV), or an overall **increase** of [redacted] relative to the four-unit scenario presented in the SCR Analysis (from the January 2013 mine plan).

The October 2013 mine plan two-unit scenario resulted in an increase in coal cash costs of [redacted] (NPV) and a reduction of capital costs of [redacted] (NPV), or an overall **decrease** in of [redacted] relative to the two-unit scenario presented in the SCR Analysis.

Q Why is the two-unit scenario important in this case?

A The cost of coal in the two-unit scenario is important because it is the <u>difference</u> between costs in the four-unit scenario and the two-unit scenario that informs the analysis of whether the SCRs were beneficial or not.

Taken together, the increase of [redacted] in the four-unit scenario and decrease of [redacted] in the two-unit scenario resulted in a decrement [redacted] to the Company's expected SCR benefit.

Mr. Link testified that, using a January 2013 mine plan, he had estimated a benefit for the SCR retrofits of [redacted]. My adjustment, using coal price data that was current at the time the FNTP was signed in December 2013, indicates that the net benefit of the SCRs – before any adjustments for up-to-date gas prices, or Staff's energy adjustment – would have been just [redacted], 70% lower than the Company's estimate presented in this case.

Q How does this estimate compare against your response testimony?

A In my response testimony, before I had access to the Company's capital spending expectations at BCC, I had estimated that October 2013 coal prices reduced the benefit of the SCR by [redacted]. With access to the Company's capital spending, as demonstrated by Staff witness Mr. Twitchell, my adjustment shifted to a reduction of [redacted]

This re-analysis also resolves Staff's contention in supplemental testimony that July 2014 pricing and plans would have been unavailable to the Company at the time the FNTP was signed. While I agree in principal, I was previously limited by the information available from the Company. I am confident that the broad consistency between my response testimony (as derived from July 2014 data) and this supplemental testimony (as derived from October 2013 data) both convey the same message: coal prices for a four unit scenario had risen substantially by October 2013, and a two-unit scenario would have been markedly less expensive than as indicated by the Company in the SCR Analysis supporting the Company's testimony. My assessment of capital costs confirms Mr. Ralston's assertion that capital costs for the four-unit scenario had indeed fallen with the new fueling plan. However, while Mr. Ralston was quick to criticize my previous testimony for not incorporating these capital cost savings into the four-unit scenario, his own rebuttal analysis never considered the capital cost savings for a two-unit scenario. Had the Company developed a two-unit scenario based on the changes in the October 2013 mine plan, it would have revealed that overall costs for a two-unit scenario would have fallen while costs in the four-unit scenario rose.

IV. CONCLUSIONS AND RECOMMENDATIONS

Q Do your conclusions change based on your revised analysis?

A No. My assessment remains consistent with my response testimony. Both significant gas price shifts and a new coal plan, developed between the time that the Company secured pre-approval in Utah and Wyoming and the date of the FNTP, each individually reduced the net benefit of the SCR retrofits at Bridger 3 & 4 to a marginal benefit, at best. Taken together, the falling energy prices and substantially increased coal prices should have clearly indicated to the Company that the SCR retrofits were no longer even marginally economic by the time it signed the FNTP. Both of these fuel price changes should have signaled to the Company to either delay the FNTP or cancel the project as it became increasingly apparent that ratepayers would be burdened by the retrofits, rather than see any net benefit.

Q What is your response to Staff's supplemental testimony?

A Staff witness Mr. Twitchell's supplemental testimony made two substantial changes to the coal cost assessment: (a) Staff utilized October 2013 mine plan information, and (b) Staff differentiated cash costs and capital expenditures at BCC. Mr. Twitchell's re-assessment is valuable, but it does not go far enough to assess how a two-unit scenario would have changed in October 2013, which proves to be important. Staff testified that "the fuel costs for a two-unit gas conversion scenario [would] likely decrease,"[32] but did not estimate the magnitude of the change. I've established this change as a decrease of [redacted], taking into account of both increasing cash costs and decreasing capital expenditures for a two-unit scenario.

Overall, Mr. Twitchell identified a [redacted] adjustment to the Company's assessed net benefit of the SCR retrofit based on an update to October 2013 coal prices. Using a completely different methodology that explicitly tested different realistic coal fueling scenarios, I still arrived (independently) at a very similar figure – an adjustment of [redacted]. This robust finding indicates that, contrary to Mr. Ralston's rebuttal testimony, coal costs in October 2013 were, in fact, substantially higher than in January 2013 – enough to wipe away almost all of the assessed benefit of the SCR retrofits at Bridger 3 & 4.

Q What are your recommendations in this case?

A The Company failed to re-assess the economics of the decision in light of new information available prior to the FNTP, failed to halt or delay the FNTP, failed to alert the commissions of the two states that had already granted conditional pre-approval (Utah and Wyoming), and even sought to discredit analyses by intervenors suggesting that changes in commodity prices had likely made the decision to proceed non-economic. In light of the rapidly deteriorating value of the project, the Company should have re-assessed its decision to move ahead with

[32] Exhibit JBT-28HCT, Supplemental Testimony of Mr. Jeremy Twitchell, page 23 at 9.

the SCR. Had it done so, the Company would have found a significant ratepayer benefit in canceling the project. Nonetheless, the Company persisted.

My final recommendations regarding the prudence of the SCR are identical to my response testimony. I recommend that:

- The Commission determine that the Company's decision to install SCR at Bridger 3 & 4 was imprudent based on the information that the Company knew, or should have known, at the time it committed to the projects. The installation of SCR resulted in a substantial net loss to ratepayers.

- The Commission disallow a portion of the costs of the SCRs that PacifiCorp has requested to be put in rate base. I recommend that the Commission calculate the disallowance for the SCRs by taking into account information known today, including the substantially lower gas prices today.

Q **Does this conclude your testimony?**

A It does.