BEFORE THE
PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of: The Voluntary Request of Rocky Mountain Power for Approval of Resource Decision to Construct Selective Catalytic Reduction Systems on Jim Bridger 3 & 4	)	**Docket No. 12-035-92** Rocky Mountain Power's Voluntary Request for Approval of Resource Decision to Construct Selective Catalytic Reduction Systems on Jim Bridger Units 3 & 4

Surrebuttal Testimony of
Jeremy Fisher, Ph.D.

On Behalf of
Sierra Club

REDACTED VERSION

February 28, 2013

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INTRODUCTION AND PURPOSE OF TESTIMONY

Q Please state your name, business address, and position.

A My name is Jeremy Fisher. I am a scientist with Synapse Energy Economics, Inc. (Synapse), which is located at 485 Massachusetts Ave, Suite 2, in Cambridge, Massachusetts.

Q Are you the same Jeremy Fisher that submitted direct testimony in this case on November 30, 2012?

A I am.

Q What is the purpose of your testimony?

A My testimony responds to the rebuttal testimony of Company witnesses Mr. Chad Teply, Mr. Rick Link, and Ms. Cindy Crane. In particular, I respond to new estimates of coal remediation costs, and associated assumptions from Ms. Crane; rebut the Company's presumption of no avoidable costs in the Gateway West transmission project with the retirement of Jim Bridger Units 3 and 4 as discussed in the rebuttal testimony of Mr. Teply, respond to Mr. Link's updated CO_2 price forecasts, and provide evidence that the Company's assumed relationship between gas and CO_2 price forecasts is unfounded. In addition, I discuss the implications of the changing federal compliance obligations for the SCR on the Company's decision and timeline. Finally, I raise concerns regarding the pending BACT analysis for the Jim Bridger SCRs currently in progress as noted by Mr. Teply in rebuttal testimony.

Q Did the Company provide a new analysis in rebuttal testimony?

A Yes. The Company's rebuttal made several important changes to the analysis, including

a) Corrections to mine capital costs,[1]

b) Corrections to the implementation of capital costs associated with the SCR,[2]

c) Corrections to the operational characteristics of several units in the Company's model,[3]

d) An update of gas prices roughly consistent with the filing date of the Company's initial application (September 2012),[4]

e) Revisions to the Company's CO_2 prices,[5]

f) Updates to the cost of coal and Bridger Coal Company(BCC) capital,[6]

g) Updates to the BCC reclamation costs and contributions,[7] and

h) Updates and corrections to the mechanism by which the Company forecasts load requirements.[8]

Q What is the impact of the Company's revised analysis on its decision to install SCR at Jim Bridger units 3 & 4?

A Overall, the Company reduced its base case net present value assessment of retrofitting Jim Bridger units 3 & 4from an initial estimate of [redacted] million to a revised estimate of [redacted] million, or a reduction of about 40%.

This shift, however, is the result of several changes that push the result in opposing directions.[9] Changes that favor the retrofit total [redacted] million,and changes that disfavor the retrofit total [redacted] million. In just six months (and numerous data requests), the cost efficacy of the units in the Company's

[1] See Response to OCS 12.1 1st Revised and Rebuttal Testimony of Rick Link, Confidential Table 1R.
[2] See Response to OCS 12.3 1st Revised.
[3] Rebuttal Testimony of Rick Link, page 12, lines 235-241.
[4] Rebuttal Testimony of Rick Link, page 4, lines 84-86.
[5] Rebuttal Testimony of Rick Link, page 6, lines 115 to 123.
[6] Rebuttal Testimony of Cindy Crane, page 4, lines 80-90.
[7] Rebuttal Testimony of Cindy Crane, page 5, lines 93-98.
[8] Rebuttal Testimony of Rick Link, page 10, lines 208-217.
[9] See Rebuttal Testimony of Rick Link, page 19, Confidential Table 1R.

estimation has dropped by 40%, and fluctuated by +70% or -140%. At any given time, if the Company were to have updated only some of these assumptions, or made corrections to only some variables, the margin could have been as wide as [redacted], or as fine as [redacted] in favor of the retrofit – in the Company's revised base case only.

Q What is your conclusion regarding the Company's revised analysis?

A As I will discuss below, I am not satisfied with the Company's lack of response on a number of important fronts, and I disagree with other important assumptions. However, even putting those concerns aside, if I rely only on the Company's stated and revised analysis, I conclude that the retrofit is an unstable solution - i.e. the Company's analysis is inconclusive.

In addition to the inconclusiveness of the Company's own testimony, the revised analysis suffers from the following failures:

- Thecoal remediation analysis introduces a bias into the choice to retire or retrofit Jim Bridger 3 & 4;
- The Companyignores the fact that retiring Jim Bridger 3 & 4 could help alleviate transmission build out requirements and avoid components of Gateway West;
- The revised analysis makesunsupported reductions in CO_2 price forecast put forth by the Company; and
- The Company failed to explore the opportunity to defer the costs of building the SCRs until a federal mandate is in place.

Overall, I still conclude that the retrofits at Jim Bridger 3 & 4 are not in the best interests of ratepayers. Should the Company choose to move ahead on these SCRs at this time, they should do so<u>without</u> the benefit of preapproved cost recovery from the State of Utah and instead shoulder the risks without a guaranteedrecovery of costs until they are approved in a rate case. Such a preapproval would indicate that the Company is truly acting in the best interests of customers – but the Company's analysis does not bear out such a conclusion.

The Company has not shown that its proposal to spend [redacted][10] on the proposed SCR is the lowest reasonable cost alternative, and therefore the Commission should deny the Company's application in this proceeding.

1. COAL COSTS AND COAL REMEDIATION COSTS

Q Can you please describe the coal cost updates presented in Ms.Crane's February 2013 rebuttal testimony?

A Yes. According to Ms. Crane, the coal cost updates reflect a new mining plan for Bridger[11] and as a result, "measured on a price related basis, cash coal costs increased by approximately [redacted] on a net present value ("NPV") basis"[12] for the 4-unit operation and "decreased by approximately [redacted] on a NPV basis" for the 2-unit operation.[13] Of the [redacted] change to the base case NPV, [redacted] was the result of "increased final reclamation contribution trust levels."[14]

Q Does Ms. Crane use the same basic assumptions to estimate costs in the 4-unit and 3-unit operation cases?

A No. In Ms. Crane's updated coal cost calculations for the 3-unit operation, accelerated withdrawals from the sinking fund that finances Bridger's reclamation begin in [redacted], five years in advance of surface mine retirement, and continue for nine years, until [redacted](seeFigure 1).[15]

[10]Exhibit RMP___(CAT-1.2)_Confidential Initial Capital Cost Estimates Binder 20120724 CONF (Attached as Exhibit 25).
[11] Rebuttal Testimony of Cindy Crane, page 4, lines 70-76.
[12] Rebuttal Testimony of Cindy Crane, page 4, lines 81-82.
[13] Rebuttal Testimony of Cindy Crane, page 4, line 88.
[14] Rebuttal Testimony of Cindy Crane, page 5, lines 110-112.
[15] Sinking Fund for 4 and 3 Unit Operation - 3 Unit CONF(Attached as Exhibit 24).

Figure 1.Confidential.Bridger Mine 3-Unit surface operation: remediation sinking fund withdrawals (-) and contributions(+)

In contrast, in the 4-unit case, withdrawals from the sinking fund resume in [redacted] after a near-hiatus of [redacted] years, just two years in advance of surface mine retirement in [redacted], and continue for 12 years until [redacted] (see Figure 2).[16]

Figure 2.Confidential. Bridger Mine 4-Unit surface operation: remediation sinking fund withdrawals (-) and contributions(+)

Q Where are the inconsistencies between these two remediation assumptions?

A It is unclear how the very low withdrawals modeled in the 4-unit operation for the period [redacted] through [redacted] – which are literally zero in seven of those years – is consistent with the state's requirement for "rough backfilling and grading shall follow coal removal as contemporaneously as possible based upon mining conditions."[17] In the reclamation plan filed by Bridger with Wyoming Department of Environmental Quality, the average topsoil placement commitment is

[16]Sinking Fund for 4 and 3 Unit Operation - 4 Unit CONF (Attached as Exhibit 26).
[17] Wyoming LQD Coal Rules Chapter 4, Section 2(b)(i).

approximately 144 acres/year for 2013 to 2017, 405 acres/year for 2018 to 2022, and 411 acres/year for 2023 to 2031.[18] Again, this does not seem consistent with Ms. Crane's modeling of the base case.

If, however, the final remediation schedule presented by the company for the 4-unit operation – beginning two years before the end of surface mining and continuing for a full nine years after the end of surface mining – is lawful under the Wyoming Land Quality Coal Rules, Chapter 4, Section 2 and the Wyoming Environmental Quality Act Section 35-11-401(e)(viii), then it seems appropriate to apply this same timing to the 3-unit operation. Accelerating the remediation process faster than regulatory requirements dictate for the base case would clearly disadvantage ratepayers.

As presented by the Company, the 2012 net present value impact of the 3-unit operation's sinking fund withdrawals is [redacted] (seeFigure 2). If, instead, the 3-unit operation's reclamation withdrawals, and associated activities, were adjusted to conform with the schedule presented in the 4-unit case – beginning two years before surface mine retirement in [redacted] and continuing for 12 years – their 2012 net present value[19]would be [redacted].Similarly, if contributions are allowed to accrue interest over the twelve year remediation period, the ratepayer contribution will ultimately be lower.

Q Have you performed any additional calculations to assess the impact of the schedule of reclamation on the net present value of sinking fund contributions in the 3-unit case?

A Yes. Using Ms. Crane's spreadsheet for sinking fund calculations, I estimated the fund contributions required under this revised reclamation schedule.[20] A near-zero end-of-reclamation ([redacted] in the revised schedule) sinking fund balance is

[18]Communication with Amy Boyle, Land Quality Division at Wyoming Department of Environmental Quality.Reference to State of Wyoming, Land Quality Division Permit 338 - T6 (Term 6), Section RP4 Topsoil and Subsoil Replacement, Table RP4-1.
[19]Assuming a 7.15% discount rate.
[20]Shifting Reclamation Forward for 3 Unit Operation CONF (Attached as Exhibit 27).

maintained when [redacted] through [redacted] fund contributions are reduced from [redacted] to [redacted] per year, lowering the 2012 net present value of the contribution stream from [redacted] to [redacted] (see Figure 3and Table 1, below).[21]

Figure 3.Confidential.Adjustments to Bridger Mine 3-Unit surface operation: remediation sinking fund withdrawals (-) and contributions (+)

By changing the reclamation schedule – such that it begins three years later in [redacted] and lasts for 12 years instead of nine years – the net present value of fund contributions is reduced by [redacted] million while maintaining the same schedule of fund contribution payments (ending in [redacted]).

Table 1. 2012 Net Present Value of Contributions to the Surface Remediation Sinking Fund for 3-unit Operation (Millions 2012$)

Company's estimate	[redacted]
Synapse's adjusted estimate	[redacted]
Difference	[redacted]

Q Do Ms. Crane's coal cost calculations include both surface and underground remediation costs?

A Not in every scenario. The contributions and withdrawals to and from Bridger's remediation sinking fund shown above in Figures 1, 2, and 3 and Table 1 reflect costs related to the surface mine only. For the 3-unit and 2-unit cases, Ms. Crane presents additional estimates of contributions and withdrawals for remediation of

[21]Shifting Reclamation Forward for 3 Unit Operation CONF (Attached as Exhibit 27).

the underground mine (seeFigure 4). The 2012 net present value of contributions to the sinking fund for underground remediation in the 3-unit operation is [redacted].[22] Strangely, contributions and withdrawals for underground remediation do not appear in Ms. Crane's calculation of costs associated with the 4-unit operation. Omitting these costs for the 4-unit operation introduces a [redacted] bias against the 3-unit and 2-unit operations.

[redacted]

Figure 4.Confidential.Bridger Mine 3-Unit underground operation: remediation sinking fund withdrawals (-) and contributions (+)

Q What is your conclusion regarding the remediation schedule of the Bridger Coal Company surface mine?

A By accelerating and compressing the remediation of the surface mine, even assuming a 2018 closure, the Company has introduced a [redacted] bias against the 2- and 3-unit Jim Bridger scenarios. By failing to include the costs of underground coal remediation in the 4-unit scenario, or inadvertently including this cost in the 2- and 3-unit scenarios, the Company further introduces a [redacted] bias against the 2- and 3-unit scenarios, for a total of an [redacted] discrepancy.

Q Do you have additional concerns regarding the Company's coal pricing?

A Yes. I am concerned that the Company is uncertain of both its closure costs and procedures, and the incumbent long costs of obtaining coal (or not) from the Bridger Coal Company. Ms. Crane's testimony explains that in the six month

[22] Sinking Fund for 4 and 3 Unit Operation - 3 Unit CONF(Attached as Exhibit 24).

period between the initial filing and this rebuttal filing, the Company discovered [redacted] (net present value) of "variances" in their coal costs, effectively increasing the nominal levelized cost of coal in the 4-unit case by 7% (from [redacted] /MMBtu[23] to [redacted]/MMBtu[24]).

The Company has not tested the net present value of the Bridger retrofits under a range of coal prices, and has implied in response to discovery that because much of the coal is not provided by a third party, there is no uncertainty in its pricing.[25] It is clear that third party pricing, however, is not the only source of uncertainty in the Company's coal price forecast.

The assumption that the Company will have to close the Bridger Coal Company (BCC) surface mine is predicated on the assumed inability to sell coal from the surface mine to other parties past 2018 if Bridger 3 and/or 4 are closed. However, the Company provides scant evidence that such an action would be absolutely required. Asked for due diligence reports or analyses regarding the ability to sell BCC coal, the Company simply responded that it had "discussed the likelihood of shuttering another coal mine in Southwest Wyoming,"[26]and noted that "the quality of [Bridger Coal Mine and Black Butte Coal Mine] coal is substantially different from other coal supplies in the Western U.S.,"[27]but the Company did not provide support for the contention that this coal could not be sold. The Company has not issued solicitations to sell BCC coal to other parties,[28] and despite a discussion by Ms. Crane of the relatively poor quality of this coal,[29] the Company

[23] See Direct Testimony Workpapers of Rick Link, PVRR_Tables_Final_JB3+4, "Coal Adjustments," cell D111.
[24] Similar NPV calculation performed on Rebuttal Testimony Workpapers of Rick Link, Exhibit 5R and Sensitivities_PVRR, CONF, "9 - Coal Fuel Cost No Refuel", cells G23:T23.
[25] Response to Sierra Club Data Request 6.6 in Utah docket 12-035-92 (Attached as Exhibit 38).
[26] Response to Sierra Club Data Request 6.7(b) in Utah docket 12-035-92 (Attached as Exhibit 38), also Rebuttal Testimony of Cindy Crane, page 10, lines 209-211
[27] Response to DPU Data Request 17.3 (Attached as Exhibit 40).
[28] Response to Sierra Club Data Request 6.7(e) in Utah docket 12-035-92 (Attached as Exhibit 38).
[29]Rebuttal Testimony of Cindy Crane, page 10, lines 212-214.

has not determined if there is a domestic market for this coal.[30] The Company has not reviewed the outcome of their retrofit analysis assuming that excesses Bridger coal could be sold to a third party at cost.[31]

2. AVOIDED TRANSMISSION COSTS FOR GATEWAY WEST

Q Did you raise questions regarding the ability of the Company to avoid impending transmission investments if units at Jim Bridger were retired?

A Yes. I showed that

> The Bridger 3 & 4 units currently have a combined capacity of about 700 MW. If the [proposed Gateway West] transmission line from Bridger to Populus no longer had to carry this load, the existing infrastructure could carry an additional 700 MW of capacity from other locations (i.e. wind further upstream, as suggested by the Company).[32]

Simply stated, if one or more units at Jim Bridger are retired in the next few years, this would open several hundred MW of capacity on the existing lines connecting Jim Bridger and Populus, potentially allowing the Company to defer any immediate or impending expenditures on the segment connecting those two substations, and to points beyond as well. If replacement generation and capacity is sited closer to the Utah or Oregon load centers, the Company may be able to further relieve other constraints.

[30] Response to Sierra Club Data Request 6.7(d) in Utah docket 12-035-92 (Attached as Exhibit 38).
[31] Response to DPU Data Request 17.5 (Attached as Exhibit 40).
[32] Direct Testimony of Jeremy Fisher, page 21, lines 15-18. Note that the 700 MW represents PacifiCorp's 2/3 share of Jim Bridger 3 & 4.

Q Did the Company respond to this point?

A No. The Company simply refused to acknowledge any relationship between transmission planning and generation planning, stating that they would occur independently and on separate schedules.

Mr. Teply simply dismissed the question, stating:

> The Company included the Energy Gateway transmission project as an underlying modeling assumption in its System Optimizer models supporting the application in this docket. However, the Jim Bridger Units 3 and 4 SCR Project decision-making process at hand is not dictated by the future configuration possibilities of the Energy Gateway transmission project, nor is the Energy Gateway project decision-making dictated by the outcome of the Jim Bridger Units 3 and 4 SCR Project.[33]

Mr. Link similarlyskirted the issue:

> The decision to install SCR equipment at the Jim Bridger plant is not influential to the decision-making process for Energy Gateway transmission investments. Independent of the decision to install SCRs at the Jim Bridger facility, the Gateway West segment will provide reliability benefits, increase access to low cost generation resources, and allow for a more efficient use of system resources.[34]

Q Do you agree with Mr. Teply and Mr. Link?

A Not at all. The Gateway West project will largely parallel the existing transmission infrastructure which is designed and maintained to carry the Company's thermal resources to load centers. If those thermal resources no longer exist, then some of the parallel infrastructure may be overbuilt or redundant. The

[33] Rebuttal Testimony of Chad Teply, page 4, line 15 through page 5 line 5.
[34] Rebuttal Testimony of Rick Link, page 36, lines 709-716.

fate of the Company's thermal resources should be highly influential in the decision-making process for Energy Gateway transmission expenditures.

Q Is it common for transmission planning to occur independently of generation planning?

A No. Logically, there is a good reason that PacifiCorp reviewed transmission planning options in the 2011 IRP,[35] and that transmission expenditures will form such an integral backbone of the current 2013 IRP process. These processes are intrinsically linked: improvements in transmission ease congestion and allow for new generation resources, and changing loads and resources require different transmission utilization and build-out. This is not a one-way street, however. The Company should be actively and aggressively pursuing opportunities to reduce costs to ratepayers by avoiding unnecessary transmission expenditures.

Q Did the Company examine the economics of removing the Gateway Transmission project?

A Yes. But rather than simply removing or deferring the segment connecting Jim Bridger to PacifiCorp load, the Company instead reviewed a case in which all of the Gateway segments are removed and the anticipated wind resource in Wyoming, and both components are removed for both the Jim Bridger SCR retrofit and replace scenarios.[36] The results of this scenario was that the replacement of Jim Bridger 3 & 4 with a new combined cycle unit in Utah was favorable towards the SCR investment by [redacted].[37]

Q Did this scenario address your concerns?

A Not at all. This scenario completely fails to examine the opportunity to avoid incremental transmission investments in the segment of Gateway connecting Jim Bridger to Utah and Oregon load centers. Such a scenario would remove, reduce,

[35] See Chapter 4 of the 2011 IRP, March 31, 2011.
[36] Rebuttal Testimony of Rick Link, page 37, lines 737-740.
[37] Rebuttal Testimony of Rick Link, page 39, line 767.

or defer the Gateway West segment between Anticline and Populus with the retirement of Jim Bridger 3 & 4. In such a scenario, I would expect to see avoided or deferred capital costs of transmission investment of around [redacted] (see Table 2 on page 18),[38] and avoided fixed O&M on the order of [redacted],[39] reflecting the avoided segment from Anticline to Populus. In addition, it is feasible that other Gateway segments, such as the sections connecting Populus to Utah load centers, might also be avoidable or deferrable. This magnitude of avoidable costs would warrant serious inquiry into this option. However, the Company declined to perform this sensitivity, simply declaring it "not reasonable."[40]

Q Has the Company considered how early retirement of the Jim Bridger 3 & 4units could impact Gateway transmission planning or costs?

A No. According to the Company "the impact of Bridger 3 and 4 retirements at any point in the (2015-2020) timeframe and associated impacts to Company's proposed Gateway expansion west of Bridger have not been analyzed or studied,"[41] and "there have not been any specific studies performed regarding impact of the retirement or gas conversions of Bridger Units 3 and 4 on the need for the Company's Energy Gateway projects."[42]

Q Why has the Company not considered how early retirement of Jim Bridger 3 & 4 could impact Gateway planning transmission or costs?

A According to the Company, "it is not practical to determine with any certainty the change in need, modifications or delays in various Energy Gateway segments due

[38] Confidential Attachment to Response to Sierra Club 5.14 in Utah docket 12-035-92 (Attached as Exhibit 38).
[39] Confidential Attachment to Response to Sierra Club 3.7 in Utah docket 12-035-92 (Attached as Exhibit 38).
[40] Response to Sierra Club Data Request 5.10 in Utah docket 12-035-92 (Attached as Exhibit 38).
[41] Response to WIEC Data Request 22.15 in concurrent Wyoming docket 20000-418-EA-12 (Attached as Exhibit 28).
[42] Response to WIEC Data Request 23.13in concurrent Wyoming docket 20000-418-EA-12 (Attached as Exhibit 29).

to Bridger Unit 3 and 4 retirements, until the timing, location, type and size of the resources that replace the units has been determined."[43]

Q Is there an appropriate forum in which the Company could have evaluated the "timing, location, type and size of resources that replace" Jim Bridger 3 & 4?

A Yes. The analysis for this docket or the preceding 2011 IRP would have been the correct forum for this analysis. However, having failed to examine this scenario in the 2011 IRP, this docket becomes the correct venue. By neglecting to review the "change in need" for Gateway due to Bridger Unit 3 and 4 retirements in this docket, which is ostensibly about the economics of retrofitting versus retiring these same units, the Company denies ratepayers the opportunity to avoid unnecessary and non-useful infrastructure and costs, and biases this analysis against a retirement decision.

Q Do the materials provided by the Company as justifications for any planned transmission capacity expansions west of Jim Bridger clearly demonstrate the need for this new transmission for reliability purposes or to relieve current constraints?

A No. The company provided two study reports, namely, (a) '2011 Loads & Resource Study for PacifiCorp's Eastern Control Area (PACE)' ("2011 Loads and Resources Study") and (b) '2011 PacifiCorp East TPL Summary Assessment' ("2011 TPL Assessment") in response to WIEC Data Request 22.16-2 ,to serve as justifications for planned transmission capacity expansion west of Jim Bridger.

For the 2011 Loads and Resources Study, the entire PACE area was divided into 11 'load bubbles' as regional demarcations that share similar geography or other characteristics such as transmission (see map in Figure 5). Each of the 11 bubbles

[43] Response to WIEC Data Request 8.28in concurrent Wyoming docket 20000-418-EA-12 (Attached as Exhibit 30) and Response to Sierra Club Data Request 5.12 in Utah docket 12-035-92 (Attached as Exhibit 38).

was examined with respect to existing and planned generation for determining required transmission capability into each of the bubble (area).

The study refers to the Energy Gateway transmission improvements as projects that will eliminate transmission constraints in the region to the east of Bridger,[44]and will enhance the ability to move generation resources, including new wind resources to other areas to serve network load. The document indicates, however, that none of the 11 load bubbles are expected to be deficient in meeting projected load due to any transmission constraints and specifically, are not dependent on any transmission expansion west of Bridger to meet projected load.

One segment of the Energy Gateway West project would connect Jim Bridger Generating Station to the Populus substation.However, neither the Bridger Generating Station nor the Populussubstation appear to be considered as a generation resource and load in any of the 11 load bubbles. Therefore, there is no justification for the need of this project in the aforementioned report.

[44]Specifically, relieving a "nomogram" of two paths of transmission leading from eastern Wyoming to the center of the state.

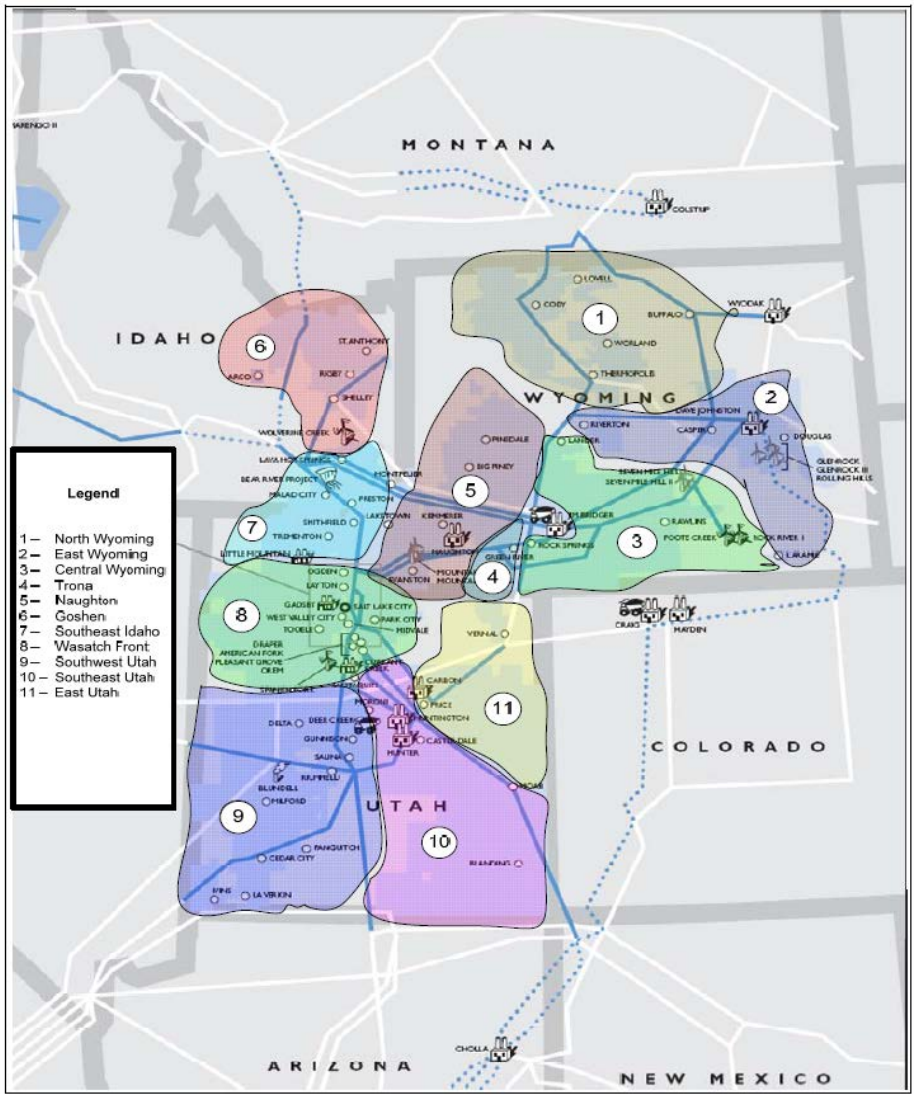

Figure 5. Resource bubbles in 2011 Loads and Resource Study.[45]

The 2011 TPL assessment is essentially a transmission reliability study that studies the Company's transmission system for North American Electric Reliability Corporation (NERC) Transmission Planning Standards. The study involves evaluating the transmission system for reliability under normal and contingency events such as outage of one or more transmission lines. In case of this study, the company developed 2012 heavy summer, 2012-2013 light winter

[45]SeeAttachment to WIEC 22.16 -2 in concurrent Wyoming docket 20000-418-EA-12, Excerpt pp. 10(Attached as Exhibit 31).

and 2016 heavy summer base cases to study near term and a 2021 heavy summer base case to study long term load periods.However, it is not clear as to which base cases specifically contain the Gateway West Transmission Projects (new transmission lines west of Bridger). In this assessment, the company has formulated a list of required facilities for mitigation of reliabilityconcerns to meet applicable NERC standards. However,none of the required facilities are associated directly with the Gateway West Transmission project, and specifically, none are associated with the links west of Bridger.

Q How will the enhanced Bridger West Path be utilized in the future?

A From a forward looking congestion analysis based on production cost model runs of 2019 and 2020 data sets, the Bridger West Path would not be heavily utilized or congested in 2020. In this expected future case, the Bridger West Path operated above 75% utilization for only 2.71% of the year.[46] This study assumed that only Phase 1 of the Gateway West transmission project was in service with a 3,700 MW rating for the Bridger West Path.

Q Please summarize why these planning and reliability studies matter in the context of avoiding transmission expenses with the retirement of Bridger 3 and 4.

A Very simply, the Company has not demonstrated that the links in the Gateway West project westward of Jim Bridger are unavoidable. The proposed links do not relieve current constraints and do not address specific reliability concerns. It is my opinion that many of the links to the west side of Jim Bridger could be avoided, deferred, or reduced if Jim Bridger 3 and 4 are retired.

[46]WECC Path Reports, 10-Year Regional Transmission Plan, Western Electricity Coordinating Council, September 2011.Available online at http://www.wecc.biz/library/StudyReport/Documents/Plan_Summary.pdf.

Q Has the Company provided additional detail on the cost of the Gateway West project?

A Yes. The Company had previously indicated a total cost of [redacted] for the Windstar to Populus line, with about [redacted] allocated to the Bridger to Populus segment.[47]

Subsequently, the Company provided additional files with cost information. According to Sierra Club 5.14 (also Feb 20, 2013), the Company estimates about [redacted], with an approximate [redacted] price tag for the Bridger to Populus segment (see Table 2, below).

Table 2.Costs for Gateway West (Segment D): Windstar to Populus(Confidential)[48][49]

[redacted]

[47]Confidential Attachment OCS 11.2 (Exhibit 15 to Sierra Club Direct Testimony of Jeremy Fisher).
[48]Attachment to Sierra Club 3.5(c) in Utah docket 12-035-92, Table1: Gateway West – Stage 1 Facilities and In-Service Dates (Attached as Exhibit 38).
[49]Attachment to Sierra Club 5.14 Windstar to Populus 230/500 kV Line Cost Breakdown 2013-2022 Capital Plan CONF (Attached as Exhibit 39).

However, according to Sierra Club 3.7 (Feb 20, 2013), the capital cost for the Windstar to Populus segment as modeled in the SO Model was [redacted]. The Company states that these "updated values are based on most recent information available."[50]

Q How much will the segment from Jim Bridger (Anticline) to Populus cost, according to the Company's model?

A As filed, the Company models the costs of each link explicitly in System Optimizer. A [redacted] MW west-bound link in [redacted] from Jim Bridger to "Path C(N)" is modeled at [redacted] million, while an [redacted] MW link in [redacted] (at the same location) is modeled at [redacted] million.[51]

Q Do these costs include the costs of operations and maintenance (O&M)?

A No. In addition, O&M costs for the transmission line are not included in the SO model.[52] O&M costs for the entire Windstar to Populus segment are estimated at about [redacted] per year in 2019, for a net present value in 2013 of [redacted].[53]

Q Mr. Teply states that "the Company included the Energy Gateway transmission project as an underlying modeling assumption in its System Optimizer models supporting the application in this docket."[54] Is the Energy Gateway West project just a modeling assumption?

A No. The Energy Gateway West project is not simply a convenient assumption for this model. The Company indicates that thus far they have spent $51 million on studies, scoping, permitting, and applications for the Gateway West project.[55] The

[50] See Response to Sierra Club 3.7(e) in Utah docket 12-035-92.
[51] See Confidential Attachment CapEx_TransmissionOptions CONF(Attached as Exhibit 32), Tie Option-I Bridger E-PathCS and Tie Option I Bridger E-PathCS2.
[52] See Response to Sierra Club 3.7(e) in Utah docket 12-035-92 (Attached as Exhibit 38).
[53] Attachment to Sierra Club 3.7 in Utah docket 12-035-92 CONF (Attached as Exhibit 39).
[54] Rebuttal Testimony of Chad Teply, page 4, lines 19-21.
[55] Response to Sierra Club Data Request 5.13(a) in Utah docket 12-035-92 (Attached as Exhibit 38). Confidential response to Sierra Club Data Request 5.14(a) in Utah docket 12-035-92 indicates spending through 2012 of [redacted] on the Windstar to Populus segment alone.

Company expects to bring a case in front of this Commission in one year (August 2014) to approve of costs incurred in the Gateway West project. This is very clearly an ongoing project with avoidable components.

Q Please summarize your concerns on the relationship between the Gateway West transmission line and this case.

A According to Company documents, the Gateway West line is currently slated to add about 1,700 MW of capacity to the transmission path between Bridger/Anticline and the Populus terminal, nearly doubling the capacity of this path. However, the planning for this line assumes that Jim Bridger will remain a 2,300 MW facility (joint ownership), rather than a 1,200 MW facility. Removing Jim Bridger units 3 & 4 opens up a sizable transmission space between Bridger/Anticline and Populus – over 60% of the planned transmission between those two nodes. The Company should either (a) decisively demonstrate that the planned expenditures for Gateway West are completely independent of the decision to retire or retrofit Jim Bridger and justify the prudence of this assumption, or (b) rigorously review and model opportunities to avoid or defer transmission investments if the Jim Bridger units are retired rather than retrofit.

3. CO_2 PRICE FORECASTS

Q Has the Company adjusted their CO_2 price forecasts from the original filing?

A Yes. The Company effectively lowered its base CO_2 price since the 2011 "Official Forward Price Curve" (OFPC). The assumption begins one year later,[56] at the same nominal level (i.e. lower in real dollars), and thus has a lower impact on the Company's choices in this docket.[57]The effective nominal levelized cost

[56] See Rebuttal Testimony of Rick Link, page 22, line 432.
[57] See workpapersExhibit RMP__(RTL-4R)-Gas & CO2.xlsx in rebuttal testimony against Exhibit RMP__(RTL-2)-Gas & CO2 in direct testimony.

from 2016 to 2030 (as performed by Mr. Link in direct and rebuttal testimony)[58]is lower by about 15% than in the original filing.[59]The Company's high CO_2 price forecast has also been pushed back by two years (from 2018 to 2020) and lowered, reduced on a nominal levelized basis by nearly 40%.[60] The low CO_2 price forecast remains at zero.

Q Did the Company provide an explanation for their CO_2 price adjustments?

A Yes. Mr. Link states that "the fundamental approach of reviewing the range of third party price forecasts in relation to the base case price projections is identical to the approach used to develop natural gas and CO_2 price scenarios in the Company's original analysis. We simply included in our review more recent third party forecast data."[61]

While this explanation sounds innocuous and objective, the Company's mechanism for choosing a base forecast is completely opaque. Of the four "third-party" forecasts reviewed from three organizations, two declined, one increased and one stayed almost precisely the same.[62] The federal proposals reviewed by the Company have not changed.

Q How does the Company justify its new CO_2 price forecasts?

A Mr. Link explains that the Company "focus[es] on recent [CO_2 price] projections from reputable forecast services." Presumably, the reference to a "reputable forecast service" is meant to draw a contrast with the forecast produced by my firm, Synapse Energy Economics, referenced in the next paragraph. Mr. Link

[58] See Rebuttal Testimony of Rick Link, pages 31 to 32, lines 617 to 630.
[59]15% reduction, from [redacted]/tCO2 to [redacted]/tCO2.
[60]38% reduction, from [redacted]/tCO2 to [redacted]/tCO2.
[61] Rebuttal Testimony of Rick Link page 21, lines 414 through 417.
[62] The nominal levelized cost from 2016 through 2030 for [redacted] dropped by 17%, the base [redacted] forecast remained the same, the high [redacted] forecast decreased by 29%,and [redacted] increased by 29%.

disparages the Synapse forecast from October 2012 by suggesting that it relies on outdated data.[63]

Q Does the Synapse CO_2 forecast rely on outdated data?

A No. Of the utility Integrated Resource Plans (IRP) reviewed in the 2012 forecast, one was from late 2009. All other IRP were from 2010-2012. Since the forecast was developed, we have collected additional public IRP, all filed in 2012, from another twenty utilities. Our forecast remains consistent with findings from the more recent IRP.

To develop carbon price forecasts, Synapse reviews recent state, regional, federal and agency proposals for greenhouse gas legislation and regulation, tracks integrated model results from federal agencies and other modeling groups, tracks the cost of realized and potential mitigation technologies, methods and costs, and reviews utility and other stakeholder plans for greenhouse gas regulation. Synapse does not employ a curve fit or weighting to particular utility plans; rather, as one of the forecast mechanisms employed, we review the cohort of utility plans filed and type of policies they represent, and estimate a range of prices that are likely high enough to impact planning procedures yet are politically viable, and that are informed by likely mitigation costs and a trajectory of falling emissions. Nonetheless, in a *post-hoc* review of 91 forecastsfrom public IRP between 2011 and 2012, the Synapse price forecast is just higher than the median estimate on a real-levelized basis (55^{th} percentile), while the new PacifiCorp base case is substantially lower – down at the 22^{nd}percentile. In other words, of all of the public IRP forecast that we have been able to obtain to date, including zero price forecasts, planning documents that do not include CO_2 prices or mention CO_2 considerations (considered a zero price), the 2012 Synapse CO_2 price forecast represents a cost impact right in the middle of the pack, while nearly 78% of the forecasts are above the PacifiCorp base case.

[63] Rebuttal testimony of Rick Link, page 28, lines 538 through 542.

Regardless of the size of the utility or client base of the forecast firm, it is clear that many other utilities (with forecasts in the public domain) have used higher CO_2 price forecasts than PacifiCorp in the last two years.

To be clear, there is little useful market data on CO_2 price forecasts in the US domestic market. The only historically operational market, the Regional Greenhouse Gas Initiative (RGGI) served as a testbed with a very high cap (i.e. far more allowances than emissions), and thus very low emissions prices. RGGI is preparing to tighten emissions limits, and the California market, while operational, does not have a cap until next year. Aside from national-scale models, there is little market data to draw on – either at Synapse or at the three "reputable forecast services" drawn on by the Company. To a large extent, reviewing the range of CO_2 prices used by other entities in planning is an effective mechanism of "taking the temperature" of the climate debate – all else being equal, it measures the extent to which utilities, Commissions, and other stakeholders are willing to hedge against the risk of climate regulations or legislation. PacifiCorp's choice of a very low base CO_2 forecast means that the Company is casting particularly long odds on any form of climate regulation or legislation relative to its counterparts. It is my opinion that the Company's outlier position is neither prudent nor safe, and exposes ratepayers to significant risk.

Q Is Synapse a "reputable forecast service"?

A Synapse does not charge for the use of our CO_2 price forecast, and as such we are not a "forecast service". We provide the CO_2 price forecast for use by any party in an open access document with clearly stated assumptions. However, we do meet the Company's definition of "reputable," where our "offerings" are "widely used and respected."[64] We do not regularly track the use of our forecast – users are not required to register or request permission, and we do not seek payment – however, a simple search reveals at least twenty-six entities, unaffiliated with our

[64] See Response to Sierra Club Data Request 5.9(a) (Attached as Exhibit 38).

consultancy, that have used our forecast for planning purposes, including six utilities and five state regulatory commissions. Of particular note, Idaho Power, the other co-owner of the Jim Bridger station, draws on the Synapse 2012 CO_2 price forecast as one of the basis for their 2013 IRP assumptions.[65]

Q The Company lowered their CO_2 price forecast from the December 2011 OFPC to an update filed in February 2013. Have events between December 2011 and February 2013 suggested a lower risk for carbon emissions?

A No. In fact, quite the opposite. In late March 2012, the EPA proposed New Source Performance Standards (NSPS) for greenhouse gasses for electric utility generating plants, effectively restricting emissions for new utility plants to the equivalent of natural-gas fired units. Further, Section 111(d) of the Clean Air Act requires that once a performance standard is set for new sources, the EPA is required to develop a standard of performance for existing sources as well. The last electoral cycle in November 2012 kept an Administration with a stated policy goal of enacting significant climate regulation, if not legislation, and the President reiterated that goal at the forefront of his energy policy in the 2013 State of the Union address. Following that address, Senators Sanders and Boxer proposed two new climate bills that, respectively, reduce subsidies to fossil-fuel producers and impose a carbon fee at fossil-fuel sources.

Q What is Mr. Link's opinion on the relationship between CO_2 and gas prices?

A According to Mr. Link, the Company assumes a connection between a CO_2 price and the demand for natural gas, and thus the price for natural gas. As CO_2 prices increase, the Company assumes that utilities will increasingly rely on natural gas, increasing demand and raising prices.[66]

[65] See Idaho Power 2013 Advisory Council Materials. Online at: http://www.idahopower.com/AboutUs/PlanningForFuture/irp/2013/IRPAC_Materials.cfm.
[66] See Rebuttal Testimony of Rick Link, page 23, lines 451-456.

I would expect, based on Mr. Link's description that gas prices should remain essentially identical across cases up until the date that a CO_2 price is introduced, at which point the cases would diverge.

Q Do the gas prices across CO_2 price scenarios remain the same up until the date that the CO_2 price is introduced?

A No. The gas prices in the different CO_2 price scenarios actually start to diverge in 2016, five years ahead of the CO_2 price.

Q What is the implication of the Company'sassumed correlation?

A The assertion that "natural gas prices would likely be positively correlated with CO_2 prices" means that it would be his underlying assumption that in the presence of CO_2 prices, natural gas prices must rise. Such a restriction prevents the Company from reviewing any scenario in which CO_2 prices are implemented and natural gas prices remain at their normally projected prices.

Q Why would natural gas prices feasibly remain at their normally projected prices in the presence of a carbon price?

A The assumption that natural gas prices would rise in the presence of a carbon price is predicated on the assumption that natural gas would replace coal as the sole, or dominant form of greenhouse gas reductions. From an immediate operational standpoint, this is not an unreasonable outcome – given low gas prices and a carbon price, we might expect to see some coal/gas switching in the short term as such capacity already exists.[67] However, as a long-term planning assumption, this isn't necessarily a reasonable assumption. On a forward-looking basis under pressure of continuously rising CO_2 prices, power providers may choose to not build a plethora of gas generators that would also pay carbon prices, instead opting for other low-emissions options such as renewable energy, or even nuclear energy. At higher CO_2 prices, the same dynamic that could compel a

[67] Gas has about half of the stack emissions of CO_2 as coal. Therefore, providing the same quantity energy from gas produces about half of the stack emissions as coal.

short-term switch from coal to gas would also compel a switch from gas to zero-emissions sources. Overall, the net interaction between gas prices and CO_2 prices will be a complex interplay of factors, including the cost to switch fuels, the availability of infrastructure to allow a fuel switch, the costs and long-term benefits of building low or zero emissions generation, and even the structure of the carbon market.

Q Does the Company provide supporting evidence for theassumption that gas prices will rise in the presence of a carbon price?

A Mr. Link shows trends put forward by the US Energy Information Administration (EIA) and one of the forecast services relied upon by the Company. Both organizations show increasing gas consumption and moderately increasing gas prices with rising CO_2 prices.[68]

Q Is there information available about the potential linkage between gas prices and CO_2 prices?

A There is very little, if any, independent research on the connection between gas and CO_2 prices, and while others have asserted such a connection, the evidence for such a correlation is thin.

The Energy Modeling Forum (EMF) is a collaborative independent research group that draws together a large number of expert "individuals represent[ing] a mix of corporate, academic, and government perspectives."[69] Leading institutions at EMF include such entities as the Edison Electric Institute (EEI), the Electric Power Research Institute (EPRI), Brattle, the Energy Information Administration (EIA), the American Petroleum Institute, a number of U.S. national laboratories, international academic programs, and energy companies. EMF working groups design, run and evaluate integrated energy economic models designed to explore integrated market fundamentals.

[68] Rebuttal Testimony of Rick Link, pages 24 to 28, lines 473 to 513.
[69] http://emf.stanford.edu/docs/about_emf.

The latest released EMF working group report from March 2011 included long-run models from ten independent organizations, including (amongst others) EIA, Massachusetts Institute of Technology (MIT), the Pacific Northwest National Laboratory, Charles River Associates, and Resources for the Future. Among the scenarios modeled were base-case and carbon-tax scenarios.[70]

In Figure 6, below, I have plotted the percentage change in natural gas prices in relation to a range of carbon prices as output by each model in this study.

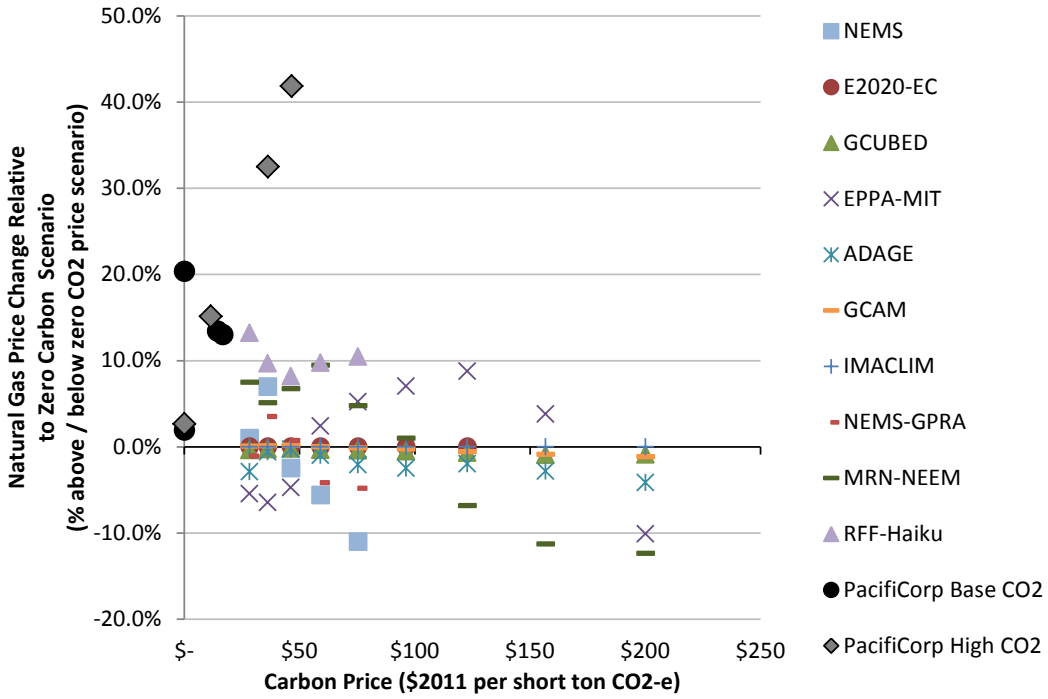

Figure 6. Model results from EMF indicating natural gas changes with rising CO_2 prices,[71] PacifiCorp prices plotted in black circles and outlined grey diamonds.

Figure 6 clearly shows that some of the most advanced integrated energy economics models disagree with one another regarding the extent of gas price

[70] In these scenarios, the carbon tax is imposed on all fossil energy users.
[71]Data available at http://emf.stanford.edu/docs/263. NEMS (US Energy Information Administration), E2020-EC (Environment Canada), GCUBED (Brookings Institution), EPPA-MIT (Massachusetts Institute of Technology), ADAGE (Research Triangle Institute), GCAM (Joint Global Change Research Institute, Pacific Northwest National Laboratory), IMACLIM (Centre International de Recherchesurl'Environnement et le Développement), NEMS-GPRA (US Department of Energy &Onlocation, Inc.) MRN-NEEM (Charles River Associates), and RFF-Haiku (Resources for the Future).

sensitivity to carbon prices. Of the ten models portrayed here, four predict lower gas prices, four predict higher gas prices, and two are unchanged compared to the baseline at any carbon price below \$60/ton CO_2.[72] At carbon prices above \$60/ton the majority of models consistently predict lower gas prices than the baseline.

I have also plotted PacifiCorp's assumed increase in natural gas prices associated with particular carbon prices. These points are shown in dark black circles and gray outlined diamonds for the base and high case, respectively, relative to the zero CO_2 price case. PacifiCorp's assumed gas price adders with rising carbon prices are well out of bound with any other model shown here. First, the Company shows increasing gas prices when the CO_2 price is still zero (the points that lie on the zero carbon price vertical line). Secondly, the Company's increase in natural gas prices easily double and even triple the very highest price adders found across all of these models.

It is my opinion that the Company's assumed gas price adder in the presence of a CO_2 price is unfounded and overemphasized. By including these adders, the Company has biased their result against reasonable replacement portfolios.

4. REQUIREMENT FOR SCR IS NOT NECESSARY UNTIL 2018

Q Does the Company need to move forward with construction of SCR on Jim Bridger 3 & 4?

A No. As my testimony above shows, moving forward with construction of SCR is not in the best interests of ratepayers. However, even if you set aside all of my previous testimony regarding the lack of economic merit for the proposed construction, there is no reason for the Company to move forward with the proposed construction right now.

The Company proposes to complete the projects at Units 3 and 4 by December 31, 2015 and December 31, 2016, respectively. The Company filed its application

[72] With the exception of the \$36/ton CO_2 mark, in which 5 of 10 predict a higher gas price.

with the Commission based in part on its requirement to comply with the Environmental Protection Agency's ("EPA") final BART determination for all four of the Jim Bridger coal-fired power plant units.[73] When the Company initiated this proceeding, EPA had already issued a proposed BART determination to install SCR on Units 1 and 2, which would have accelerated the requirement from 2021 and 2022 to within five years of EPA's final rule (i.e. 2017).[74] The Company believed that EPA would issue a final BART determination for the Jim Bridger facility by mid-October of 2012, which would have allowed sufficient time to incorporate EPA's final rule into the evidentiary record of this proceeding. However, in December 2012, EPA requested and received an extension to a court-ordered deadline to issue a final BART determination for Jim Bridger and the other Wyoming facilities subject to BART (the "Consent Decree"). As a result,the Company and the Commission will not be able to make a decision in this proceeding based on a final BART determination. This prevents the Commission and the parties from considering the additional economic impacts that would result from the final rule, including but not limited to: the impact of accelerating the installation of SCR on Units 1 and 2, the increased capital and operational costs necessary to meet a potentially more aggressive NOx limit, or the impact of installing SCR on all four Jim Bridger units within a five year window.

Q Please briefly describe the recent revisions to the Consent Decree governing the schedule under which EPA is required to issue a final rulemaking with respect to BART determinations for Wyoming facilities subject to BART.

A On December 13, 2012, EPA notified the public that it was delaying its final BART determination for the Jim Bridger facility. Rather than issuing a final decision in October 2012, EPA will now issue a new proposed BART determination for Jim Bridger by March 29, 2013, with a final rule to follow by

[73] Direct Testimony of Chad A. Teply, page 41.
[74] 77 Fed.Reg. 33036. June 4, 2012.

September 27, 2013. All four of the Jim Bridger units are subject to BART; therefore, EPA's final BART determination will affect the entire plant. EPA's proposed rule, now being revised, had proposed to approve the state's submittal on timing and configuration to install SCR at Jim Bridger units 3 and 4, but rejected the state's plan for units 1 and 2 and accelerated the requirement to install SCR on those units.[75] However, EPA also solicited comments on alternative proposals for Jim Bridger that would have allowed for more flexible timing to install SCR at Units 3 and 4.[76] The fact that EPA has withdrawn its prior draft rule and will issue a new draft rule addressing facilities in Wyoming that are subject to BART makes it reasonable to assume that EPA intends to significantly revise its prior proposal.

Q What impact does the EPA delay have on the Company's timeline for compliance with the Regional Haze Rule?

A With the delay in issuing the final BART determination and the withdrawal of EPA's previous proposal to approve the timing of installation of SCRs as BART for Bridger Units 3 and 4, the Company's compliance obligations with regard to the Regional Haze Rule are uncertain. Even assuming EPA does ultimately approve the SCRs as BART, it is quite possible that the final rule could impose a more stringent emission limit, which in turn could cost more money. PacifiCorp acknowledged that it has not factored in these potential cost increases into its analysis of the proposed SCR projects.[77]

In addition, the proposed EPA deadline that the Company previously relied upon to justify installation of SCRs by the end of 2015 and 2016 will certainly not materialize. Under the Visibility Protection section of the Clean Air Act, the Company has a maximum of five years from the date of approval of a plan

[75] 77 Fed.Reg. 33053. June 4, 2012.
[76] *Id*.
[77] Rocky Mountain Power's Mem.inOpp'n to Sierra Club's Mot. for a Stay or Continuance Pending Final Action, January 10, 2013 at fn 5.

revision (or, in this case, of promulgation of a plan revision by EPA) to procure, install, and operate the best available retrofit technology.[78] If the final promulgation of EPA's BART determination for the Jim Bridger facility will take place on September 27, 2013, assuming the determination is published immediately, then the new compliance deadline for the installation and operation of BART controls in Wyoming would be no earlier than September 27, 2018. This timeframe gives the Company nearly 3 additional years before controls must be in place, or in the alternative, before replacement capacity must be procured.

Q What about the Company's claim that it must install the SCRs on units 3 and 4 by the ends of 2015 and 2016, respectively, in order to comply with the 2010 BART Settlement Agreement and the Wyoming Environmental Quality Council's subsequent order incorporating the terms of the Settlement Agreement?

A The Company refers to the 2010 BART Settlement Agreement with the Wyoming Department of Environmental Quality ("WDEQ") and the subsequent Environmental Quality Council order that included deadlines for the company to install SCRs on Bridger units 3 and 4 by December 31, 2015 and December 31, 2016, respectively. Those deadlines can and should be modified. I agree that if the Company were to take no action, those state-based deadlines would remain in place. However, given EPA's recent action to delay its final BART determination, it is very likely that PacifiCorp and WDEQ could reach an agreement to modify the applicable deadlines.

Section 7 of the Settlement Agreement states that the Agreement may be modified "if future changes in either: (i) federal or state requirements or (ii) technology would materially alter the emissions controls and rates that otherwise are required hereunder."[79] The Environmental Quality Council order further provides that it retains jurisdiction over the Settlement Agreement for purposes of Section 7

[78] 42 U.S.C. 7491(b)(2)(A).
[79] BART Settlement Agreement (Attached as Exhibit 33).

("Changed Circumstance").[80] Therefore, both the Settlement Agreement and the subsequent EQC order can be modified if there are "changed circumstances."

With the delay in EPA's issuance of its final BART determination for Bridger units 3 and 4, the actual emissions control requirements for these units have been delayed until at least September 27, 2018. With this date as the new backstop for compliance with the Federal Regional Haze Rule, the Company should, for the benefit of its ratepayers, seek to amend the Settlement Agreement and the Environmental Quality Council order to delay installation of the SCRs at Bridger units 3 and 4, in accordance with the new EPA compliance deadline.

Q Is there any indication that WDEQ and the Environmental Quality Council would be amenable to a request to modify of the BART Settlement Agreement?

A Yes. In fact, PacifiCorp is currently pursuing this exact request with respect to its Naughton 3 facility. In Docket No. 20000-400-EA-11, Rocky Mountain Power witness Mr. Chad Teply explained in rebuttal testimony that the Company was pursuing a delayed timeframe to implement the Regional Haze Rule requirements at Naughton 3: "The Company does plan to pursue an extended regional haze compliance timeframe with the state of Wyoming Department of Environmental Quality and the EPA."[81] Ms. Cathy Woollums, the senior vice president of environmental services and chief environmental counsel for PacifiCorp's parent company, MidAmerican Energy Holdings Company, later appeared before the Environmental Quality Council on January 10, 2013 to update the council on the Company's plans to modify the BART Settlement Agreement and related permits with respect to Naughton Unit 3. These actions by the Company show that it is very possible – and according to the Company, potentially beneficial for ratepayers – to approach WDEQ and request a modification to theBART

[80] Environmental Quality Council Order (Attached as Exhibit 34).
[81] Docket No. 20000-400-EA-11, Rebuttal Testimony of Chad A. Teply, April 2012, page 9.

Settlement Agreement due to changed circumstances, as contemplated by Section 7 of that agreement.

It is also my understanding that at the January 10, 2013 Environmental Quality Council meeting, the Environmental Quality Council indicated that it would be amenable to considering a request to change the Jim Bridger compliance dates in the order and the Settlement Agreement to reflect EPA's revised timeframe if WDEQ or the Company asked for it. However, the Company has not made any request to either WDEQ or the Environmental Quality Council seeking an extension of the state deadlines.[82]

Q Should PacifiCorp seek a delay in the state Regional Haze compliance deadlines for Jim Bridger?

A Yes. PacifiCorp's apparent refusal to even request an extension is irrational. The Company's own revised analysis changed dramatically in the few months between the application and rebuttal testimony, and the Company concedes that its conclusions are highly dependent on natural gas and CO_2 price forecasts.[83] Further adjusting the Company's analysis to account for the issues addressed in my testimony renders the Company's conclusions even more suspect. In summary, the narrow window of economic benefit purported by the Company, the rapidly changing economic outcome, and the additional errors or biases in the Company's analysis demonstrates that the decision to install SCR is currently unsupported. Given that the Company will not face a federal requirement to install SCR controls until September 2018 at the earliest, it would be beneficial for ratepayers for the Company to take the extra time to evaluate whether changes in either the gas market or the cost of CO_2affect the reasonableness of the Company's plan. Rushing the decision now puts the risk on ratepayers that

[82] Response to Sierra Club Data Request 4.1 in Utah docket 12-035-92 (Attached as Exhibit 38).
[83] Rebuttal Testimony of Rick Link, pages 29 to 30, lines 568-579.

circumstances will change in such a way that makes the SCR expenses even more unfavorable.

Waiting for more certainty from EPA would also allow the Company to consider any potential changes in the economics of the project if EPA imposes stricter emission limits on 3 and 4, and it would allow the Company to fully consider the economic impact of SCR at all four of the Jim Bridger units instead of considering only units 3 and 4 independently in the current proceeding. EPA specifically identified this potential approach in its prior draft ruling on the Wyoming Regional Haze plan:

> EPA is also seeking comment on an alternative approach (''second proposed approach'') that differs from our first proposed approach only with regard to Units 3 and 4 at Jim Bridger. The second proposed approach would only differ from the first proposed approach by allowing PacifiCorp to install SCR at Jim Bridger Units 3 and 4 within five years from the date of our final action. This would differ from the first proposed approach that requires PacifiCorp to install SCR at Unit 3 by 2015 and Unit 4 by 2016, while we would still propose SCR on Units 1 and 2 within the five year BART installation timeframe. This second proposed approach would allow PacifiCorp flexibility on timing for the installation of SCR on all four Jim Bridger Units within the BART installation timeline allowed by the RHR. Installing SCR on all four units within the statutory five year period would provide PacifiCorp maximum flexibility to manage the implementation of controls on all the units.[84]

[84] 77 Fed.Reg. 33053-54.

EPA specifically contemplated a more flexible deadline for Jim Bridger Units 3 and 4.[85]It is entirely possible that EPA could restate a similar strategy when it issues its proposed action on March 29, 2013. The Company has not made any effort to avail itself of this proposed flexible approach.

Q Has the Company signaled that it could feasibly implement a flexible schedule and modify the Wyoming BART Settlement Agreement?

A Yes, the Company is modeling this scenario in its 2013 IRP. In a 2013 IRP Stakeholder meeting on February 27, 2013, the Company presented new portfolio sensitivities, including one titled "Sensitivity S-4 (Hypothetical Regional Haze Compliance Alternative)."[86] The sensitivity is described as follows:

> For this sensitivity, it is assumed that near-term SCR investments currently required at Jim Bridger Units 3&4 and at Cholla Unit 4 can be avoided if a commitment is made to retire those coal units early.[87]

and

> The Jim Bridger Unit 3 and Unit 4 S-4 Sensitivity will assume that if Units 3 and 4 are retired at the end of 2020 and 2021, respectively, SCR investments currently required in 2015 and 2016 can be avoided. The selection of the hypothetical retirement dates of 2020 and 2021 in this sensitivity is informed by an evaluation of the cost per ton of pollutant removed. In the case of Jim Bridger Units 3 and 4, the cost per ton of pollutant removed does not exceed a value that would likely be deemed excessive by EPA

[85] See, also, July 12, 2012 Comments of PacifiCorp, Docket ID No. EPA-R08-OAR-2012-0026, Table 1, pp. 4-5 (Attached as Exhibit 35).
[86]2013 Integration [sic] Resource Plan.Portfolio Development Cases Sensitivity Case Fact Sheets. February 27, 2013, Excerpt pp. 7-8 (Attached as Exhibit 36).
[87]*Id.* Page 7.

until the outer most years of unit operation. As such, a second criterion limiting the hypothetically negotiable compliance delay window to 5-years beyond the current compliance deadline is applied.[88]

The Company would not consider running such a sensitivity unless they understood that there was the potential to negotiate these deadlines. This proposed scenario could result in a situation similar to the Naughton 3 decision discussed above where the Company determined that a fuel conversion was more economical than meeting the requirements proposed in Wyoming Regional Haze plan.

Q Does Wyoming's proposed Regional Haze plan compel the Company to install SCR?

A. No. The Wyoming Regional Haze plan submitted to EPA for approval does not, by itself, create an enforceable obligation. It is a plan for meeting federal requirement, and it must be approved by EPA. The Jim Bridger deadlines contained in the proposed Wyoming SIP are part of Wyoming's attempt to address the reasonable progress requirement toward the 2064 visibility goal under the federal rule.[89] The provisions applicable to the installation of SCR at Jim Bridger Units 3 and 4 are not federally enforceable unless the plan is approved by EPA, and they are enforceable at the state level only through permit conditions or an order from the Environmental Quality Council. In this case, the specific provisions in Wyoming's proposed long-term strategy plan that address Jim Bridger originated from section 5(b) of the BART Settlement Agreement and the subsequent Environmental Quality Council order. However, as noted above, the applicable order from the BART Settlement Agreement and the

[88] *Id.* Page 8.
[89] Wyoming State Implementation Plan, Regional Haze Section 309(g), Excerpt (Attached as Exhibit 37).

Environmental Quality Council order can and should be modified given the changed circumstances of EPA's delay in issuing its final rule.

Q Do you have any other concerns regarding the Company's filing that you did not previously raise?

A Yes. Mr. Teply describes that the Company is currently awaiting the finalization of its permit for the SCRs with Wyoming Air Quality Division. He states that "the Company is currently in the process of responding to agency questions regarding application of Best Available Control Technology ("BACT") for particulate matter emissions 2.5 micros and smaller ("$PM_{2.5}$") control.[90]

Q Please explain.

A When the Company submits an application to an air management agency, in this case the Wyoming Air Quality Division, the agency evaluates the permit application for several important factors. One factor is whether the new construction will cause an increase in pollutants other than the one it is designed to reduce. In this case, the SCR is designed to reduce NOx, but Mr. Teply indicates that the Division has a concern that it might have an adverse impact on $PM_{2.5}$.[91]

Q What are the implications of such a finding?

A At best for the Company, they will be able to show that $PM_{2.5}$emissions will not increase beyond a significant threshold, and thus have little or no immediate requirement. At worst, the Company might be required to remediate condensable $PM_{2.5}$ through additional controls in order to be able to obtain a permit for the SCR. Those controls could change the Company's compliance costs.

[90] Rebuttal Testimony of Chad Teply, page 16, lines 17-21.
[91] Response to Sierra Club Data Request 5.11(d) (Attached as Exhibit 38).

Q Does the Company have a final finding on PM2.5?

A Not yet. The Company does not expect to submit modeling to the Division with regards to $PM_{2.5}$until the date of this testimony (February 28, 2013).[92]

Q Does this conclude your testimony?

A It does.

[92] Response to Sierra Club Data Request 5.11(d) (Attached as Exhibit 38).