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**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
Units 3 and 4

Docket No. 12-035-92

PREFILED

DIRECT TESTIMONY OF NANCY L. KELLY

ON BEHALF OF

WESTERN RESOURCE ADVOCATES

NON-CONFIDENTIAL Redacted Version

November 30, 2012

1 **I INTRODUCTION AND SUMMARY**

2 **Q: Please state your name, employer, position and business address.**

3 A: My name is Nancy L. Kelly. I am employed by Western Resource Advocates (WRA) in
4 its Energy and Lands Programs as a Senior Policy Advisor. My business address is 9463
5 N. Swallow Rd., Pocatello, ID 83201.

6 **Q: Please describe WRA.**

7 A: WRA is a non-profit policy and law organization whose mission is to protect and restore
8 the natural environment of the Interior West. WRA's Water Program promotes urban
9 water conservation and works to protect or improve flows in critical rivers throughout the
10 region. The Lands Program seeks to protect the integrity of public lands and preserve
11 special places while meeting the infrastructure needs of a clean energy future. WRA's
12 Energy Program works to reduce the environmental impact of electricity production in
13 the Interior West and advance the region's transition to renewable energy, energy
14 efficiency, and other clean-energy technologies. WRA has offices in Boulder, Colorado,
15 Carson City, Nevada, Santa Fe, New Mexico, and Salt Lake City, Utah.

16 **Q: Please describe your current work duties, work experience, and educational**
17 **background.**

18 A: I provide policy analysis and regulatory support to WRA in electricity-related matters. I
19 have participated in regulatory dockets in Colorado, Nevada, New Mexico, and Utah. I
20 worked with the Utah Office of Consumer Services for more than ten years before joining
21 WRA in 2008. I began my professional career as an academic economist at Idaho State

22 University. I spent three years as a faculty member in the economics department and
23 close to five years as the economist in the Center for Business Research and Services
24 before becoming associated with the Office of Consumer Services. I received a B.S. in
25 economics from Idaho State University in 1983, and completed my fieldwork toward a
26 PhD in economics from the University of Utah in 1991. My professional qualifications
27 are included in Attachment A.

28 **Q: On whose behalf are you testifying?**

29 A: I'm testifying on behalf of WRA.

30 **Q: What is the purpose of your testimony?**

31 A: The purpose of my testimony is to provide the Public Service Commission of Utah
32 (Commission) with WRA's overall evaluation of PacifiCorp's voluntary application for
33 approval of a Significant Energy Resource Decision to construct Selective Catalytic
34 Reduction (SCR) Systems on Jim Bridger Units 3 and 4.¹ In particular, my testimony
35 addresses the economic analyses and evaluation of risk and uncertainty that the Company
36 provided in support of its application. In so doing, my testimony addresses both the
37 testimony of Mr. Chad A. Teply and Mr. Rick T. Link. My testimony is supplemented
38 by testimony from Ms. Stacy Tellinghuisen of WRA who addresses the issues and
39 opportunities associated with water usage arising from the Jim Bridger SCR retrofit
40 decision.

¹ PacifiCorp does business in Utah under the name Rocky Mountain Power. Because this application is for approval of expenditures for a PacifiCorp system resource, I will refer to PacifiCorp or to the Company rather than to Rocky Mountain Power.

41 **Q: Please describe the Company’s application and its purpose in applying for**
42 **preapproval under the provisions of Utah Code Ann. § 54-17-402.**

43 A: Pursuant to Utah Code Ann. § 54-17-402, PacifiCorp is seeking preapproval for
44 expenditures it intends to make at its Jim Bridger plant located in Sweetwater County,
45 Wyoming. PacifiCorp proposes to install SCR equipment on Units 3 and 4 to limit NOx
46 emissions to permissible levels allowing the units to operate beyond 2015 and 2016 in
47 compliance with the Regional Haze Rule.

48 PacifiCorp claims that installing SCR on Bridger Units 3 and 4 is the least-cost, risk-
49 adjusted method of complying with the requirements of the Regional Haze Rule. In
50 support of its application, PacifiCorp submitted the 2011 Integrated Resource Plan
51 Supplemental Coal Replacement Study and the Coal Replacement Study Update attached
52 as Appendix A to the 2011 Integrated Resource Plan Update filed with the Commission
53 on March 31, 2012. The studies were submitted as confidential Exhibits to the testimony
54 of Mr. Teply in this proceeding. Confidential workpapers were also filed with the
55 application and supporting testimony in this proceeding. Mr. Link’s testimony includes a
56 summary of the study results and addresses the economic analysis.

57 The Application states that the Company desires “Commission review and approval in
58 advance of construction” to permit “meaningful public and regulatory input” given the
59 size of the SCR expenditures and the likelihood that opinions may differ regarding

60 whether the SCR retrofit is the “least-cost-adjusted-for-risk option in the face of
61 regulatory uncertainty (both environmental and economic regulation).”²

62 **Q: Is PacifiCorp seeking preapproval for its SCR project in other jurisdictions?**

63 A: Yes. PacifiCorp filed a request for a Certificate of Public Convenience and Necessity
64 (CPCN) with the Wyoming Public Service Commission prior to filing the application for
65 approval in Utah. As far as I know, Wyoming is the only other jurisdiction in which the
66 merits of the Company’s decision to proceed with the SCR project will be evaluated prior
67 to a rate proceeding.

68 **Q: Please summarize your testimony**

69 A: My testimony makes the following points.

- 70 • The economic case for installing the SCR systems is not clear-cut. The modeling
71 outcomes are sensitive to the modeling assumptions and inputs. In some modeling
72 scenarios, SCR is least-cost. In other scenarios conversion to natural gas is least-cost.
- 73 • PacifiCorp’s modeling appears to overstate the economic case for SCR. Issues
74 include size and availability of unit capacity and available capacity, and extent and
75 timing of mining reclamation costs.
- 76 • The Company has not adequately captured the uncertainty associated with the costs of
77 future environmental upgrades.

² Rocky Mountain Power’s Voluntary Request for Approval of Resource Decision to Construct Selective Catalytic Reductions Systems on Jim Bridger Units 3 and 4, Docket No. 12-035-92, p. 2.

78 • PacifiCorp has not evaluated the possible benefits of avoided transmission and water
79 use.

80 • Given the above, the Commission does not have the information needed to determine
81 that SCR is the least-cost outcome, adjusted for risk and uncertainty.

82 **Q: Please provide your recommendation**

83 A: I recommend the Commission deny the Company's Request for Approval of a Resource
84 Decision to construct SCR Systems on Jim Bridger Units 3 and 4. If PacifiCorp
85 nevertheless proceeds with the project, it should be at risk for cost recovery in the
86 appropriate rate proceeding.

87 **II DISCUSSION**

88 *Economic Case for SCR Project is Deficient*

89 **Q: Please briefly summarize the Company's modeling approach and results identifying**
90 **SCR as the least-cost risk-adjusted method of complying with the Regional Haze**
91 **Rule.**

92 A: Mr. Link's testimony discusses the economic analysis identifying SCR for Bridger Units
93 3 & 4 as the least-cost, risk-adjusted method of complying with the Regional Haze Rule.

94 Confidential Exhibit RMP__(RTL-3) (hereafter referred to as (RTL-3)) summarizes the
95 study results for the seven pricing scenarios evaluated. The seven scenarios include a
96 base case using the December 2011 Official Forward Price Curves (OFPC) and six price
97 variations. In addition to the base case, high and low gas prices were paired with

98 medium CO2 prices, and high and low CO2 prices were paired with medium natural gas
99 prices.

100 For each pricing scenario, results reflect the difference in two sets of costs resulting from
101 two modeling simulations.³ One set of costs reflects the continued operation of Bridger
102 Units 3 & 4 as coal-fired facilities, inclusive of the costs of the SCR retrofit as well as
103 proxy costs associated with some, but not all, of the impending EPA regulations. The
104 second set of costs reflects the operation of Bridger Units 3 & 4 fueled by natural gas.
105 The difference in the costs between the two simulations, expressed as the difference in
106 the Present Value of Revenue Requirement (PVRR), and denoted PVRR (d), measures
107 how favorable or unfavorable the planned environmental retrofit investments are in
108 relation to natural gas conversion, given the scenario prices.

109 The results reported by the Company are mixed, but tend to favor SCR investment over
110 natural gas conversion. In five of the seven scenarios, environmental retrofit is least-cost.
111 In two of the seven scenarios; conversion to natural gas is least-cost. As one would
112 expect, natural gas prices and CO2 costs are important drivers of the outcome. In the
113 case of either low natural gas prices or high CO2 costs, natural gas conversion was the
114 least expensive option. The modeling outcomes are of course sensitive to the modeling
115 inputs.

116 **Q: You indicated that the model results were based on the December 2011 OFPC which**
117 **is now nearly a year old. Are updates to the OFPC available?**

³ Includes hardwired adjustments.

118 A: Yes. The Company produces a new OFPC on the last day of each quarter. Since
119 December 2011 the Company has updated the OFPC three times, with the most recent
120 update released on September 30, 2012.

121 **Q: Have you reviewed the Company's OFCP for December 2011, March 2012, June,**
122 **2012 and September 2012?**

123 A: Yes. The Company provided these documents in data responses subject to Utah PSC Rule
124 746-100-16.

125 **Q: Please describe the trend in natural gas price.**

126 A: As discussed in Mr. Link's testimony, the natural gas price trend is clearly downward.
127 Confidential WRA Exhibit (NLK-1) contains information for Henry Hub extracted from
128 PacifiCorp's past four OFPC reports. The first four pages show the downward shift in
129 PacifiCorp's outlook. The final three pages show the downward shift in third party
130 outlooks. One party in particular is forecasting s lower natural gas prices.

131 **Q: Are you in receipt of any non-confidential natural-gas price trend information?**

132 A: Yes. In response to DPU Data Request 4.1, PacifiCorp provided its levelized natural gas
133 prices for Opal.⁴

- 134
- December 2011 OFPC: \$5.62
 - 135 • March 2012 OFPC: \$5.47
 - 136 • June 2012 OFPC: \$5.15
 - 137 • September 2012 OFPC \$5.27

⁴ The December 2011 figure was taken from workpapers included with the filing.

138 **Q: How would the updated natural gas prices affect the modeling results?**

139 A: The results would be less favorable to the SCR retrofit and more favorable to natural gas
140 conversion.

141 **Q: You earlier stated that modeling outcomes are highly dependent on, and sensitive to,**
142 **the modeling inputs. Would you provide an example?**

143 A: Yes. A comparison of the modeled outcomes for the low and medium natural gas price
144 scenarios assuming the base CO2 forecast provides an example.

- 145 • With a levelized low natural gas price of \$4.51 the outcome is favorable to natural
146 gas conversion by [REDACTED]
- 147 • With a levelized medium natural gas price of \$6.18 the outcome is favorable to
148 SCR retrofit by [REDACTED]

149 Exhibit (RTL-3) provides the results for all 7 scenarios. Outcomes range from a total of
150 [REDACTED] in support of natural gas conversion to [REDACTED] in support of SCR
151 retrofit resulting in a spread in outcomes of approximately \$1.6 billion.

152 **Q: Do the results contain more detailed cost information?**

153 A: Yes. (RTL-3) displays a breakdown of the cost totals into eleven cost components.⁵ Of
154 the eleven, only five significantly influence the outcome: fixed costs, emissions costs,
155 fuel costs, net system purchases and variable O&M costs.

156 **Q: Is a pattern apparent across the seven scenarios for each cost component?**

⁵ Fuel, Variable O&M, Emissions, Fixed Costs, Decommissioning, Remaining CAI Recovery, New Resource Capital Costs, Transmission, DSM, Contracts, Net System Purchases.

157 A: Yes. Across all seven scenarios, fixed costs and emissions costs favor natural gas
158 conversion. Across all seven scenarios, fuel costs, variable O&M costs and net system
159 purchases favor environmental retrofit. The final outcome depends on the relative
160 magnitudes of these offsetting costs. Emissions costs and fuel costs display the greatest
161 variability across the scenarios; the variation is nearly identical at close to a billion
162 dollars.⁶

163 Fixed costs are largely comprised of planned capital investments.⁷ The relative capital
164 costs of SCR retrofit versus natural gas conversion strongly favor natural gas conversion.
165 Fixed cost differences range from [REDACTED] to [REDACTED] across the scenarios.

166 Emissions costs include only the forecast cost of CO2 compliance. Burning coal emits
167 roughly twice the CO2 of burning natural gas, thus the inclusion of emissions cost
168 estimates favors natural gas conversion. The spread in the outcomes across the scenarios
169 is close to a billion dollars. The actual range is from \$0 to [REDACTED].

170 The fuel cost component reveals relative differences in the cost of coal and the forecast
171 price of natural gas and varies widely across the scenarios, ranging from [REDACTED] to
172 over [REDACTED]. The spread in the fuel cost outcomes is close to a billion dollars and
173 nearly identical to the spread in emissions costs.

174 Across all scenarios, net system purchases favor SCR retrofit and the continued operation
175 of the units as coal-fired facilities. Continued coal operation increases sales and reduces

⁶ The spread in fuel cost estimates and emissions cost estimates are nearly identical: \$958 million versus \$960 million.

⁷ The approximately \$50 million spread in the range appears to be caused by inclusion of fixed O&M and run rate capital for all resources in this category. Footnote 2 to (RTL-3) indicates "Fixed cost include levelized costs for incremental environmental upgrade investments, total O&M for coal resources, and fixed O&M and run-rate capital for all resources."

176 purchases as compared to natural gas conversion. Estimates of net purchases differences
177 range from [REDACTED] to [REDACTED]. The spread in the range approaches half a
178 billion dollars.

179 Finally, the variable O&M cost component supports continued coal-fired operation across
180 all scenarios. Estimates range from [REDACTED] to [REDACTED] with a spread of
181 approximately \$80 million.

182 **Q: Given the patterns you've observed in the results, can you identify the primary**
183 **economic determinates of whether SCR retrofit or natural gas conversion is the**
184 **least-cost alternative?**

185 A: The economic case for or against SCR retrofit is primarily driven by the size of the
186 needed capital investments necessary to comply with environmental regulations (either
187 retrofit or conversion) and expected emissions costs, offset by factors influencing fuel
188 costs and net system purchases.

189 **Q: Do you have reason to believe that needed capital investments, expected emissions**
190 **costs, relative fuel costs, or net system purchases may overstate the case in favor of**
191 **the SCR project?**

192 A: Yes. I believe the estimation of each of those cost components contributes to an
193 overstatement of the case for the SCR project.

194 **Q: Please explain the issue with respect to capital investment.**

195 A: As I discuss further below when I address risk and uncertainty, the capital cost estimates
196 for SCR used by PacifiCorp may not capture the full cost of environmental compliance.

197 The analysis does not include estimates of retrofits needed to comply with tightening
198 National Ambient Air Quality Standards (NAAQS), Effluent Guideline rulemaking, and
199 regulations related to Coal Combustion Residual (CCR) under Subtitle C of the Resource
200 Conservation and Recovery Act (RCRA).

201 **Q: What would be the effect of including all the expected environmental compliance**
202 **costs?**

203 A: Adding the additional costs needed to comply with environmental regulations should
204 Bridger Units 3 & 4 continue to be operated as coal-fired facilities would weaken the
205 case for the SCR retrofit and strengthen the case for natural gas conversion.

206 **Q: Please explain the issue with CO2 estimates.**

207 A: Estimates of the cost to comply with potential regulation of carbon dioxide are lower than
208 estimates used previously by PacifiCorp in past IRP proceedings.

209 **Q: What would be the effect of using CO2 price estimates from previous IRPs?**

210 Using those estimates would increase the cost of emissions, thus weakening the case for
211 the SCR retrofit and strengthen the case for natural gas conversion.

212 **Q: Please explain why you think estimates of net system purchases overstate the case**
213 **for the SCR retrofit.**

214 A: Model estimates for continued operation of Jim Bridger Units 3 & 4 as coal-fired
215 facilities overstate the net capacity rating and the hourly availability and therefore
216 overstate the energy produced by those facilities. By overstating generation capacity,

217 modeled purchases are reduced and modeled sales are increased, thus improving the
218 economic case for continuing operation as coal-fired units.

219 **Q: Please explain why you believe the net capacity rating is too high.**

220 A: Both units were modeled with net capacity ratings of 530 MW for a total net capacity of
221 1,060 MW. However, PacifiCorp has recently developed a new methodology for
222 determining net capacity.⁸ Using the new methodology, Unit 3's capacity rating was
223 reduced to 523 MW. However, Unit 4 has not yet been evaluated under the new
224 methodology. Presumably, a reevaluation of Unit 4 will show a similar reduction in its
225 net capacity rating down to 523 MW. In addition, Company testimony indicates that the
226 installation of the SCR systems will further lower the net capacity of each unit by an
227 additional 3.5 MW per unit. And, according to the Company's response to OCS Data
228 Request 7.5, pumping cooling water from the Green River uses 3.4 MW that is not
229 reflected in the net capacity ratings. Thus, the net capacity of the two units is
230 approximately 23 MW lower than was modeled. This amounts to approximately
231 5,000,000 MWh of overstated generation from the two units over a 30 year planning
232 period.

233 **Q: What is the impact of this overstated capacity on the modeling outcome?**

234 A: If the capacity is overstated, the case for SCR is erroneously strengthened and the case
235 for natural gas conversion erroneously weakened.

236 **Q: Please explain why you believe the hourly availability is overstated.**

⁸ See the Company's response to OCS 7.7 dated October 4, 2012.

237 A: OCS Data Request 1.61 asked “Does the Company agree that the EFOR data used in its
238 GRID and SO Models supplied in this case for Bridger 3 and 4 are lower than the levels
239 assumed **in any General Rate Case in Utah since 2001?**” (Emphasis in Original) The
240 Company responded, “Yes.”

241 **Q: What is the impact on the modeling outcome if hourly availability is overstated?**

242 A: Again, the case for SCR is erroneously strengthened and the case for natural gas
243 conversion weakened.

244 **Q: Please explain why you believe the treatment of fuel costs overstates the case for the**
245 **SCR retrofit.**

246 A: PacifiCorp has assumed that if Bridger Units 3 and 4 were converted to natural gas, the
247 Company would close the Bridger Surface mine and begin reclamation immediately. In
248 the confidential worksheets filed with the Request, mining reclamation costs are included
249 beginning in 2012. PacifiCorp assumes that, as a result, fuel costs for Bridger 1 and 2
250 increase and burdened the natural gas conversion case with the higher coal fuel costs of
251 Bridger 1 & 2 beginning in 2012.

252 **Q: Do you have an estimate of the significance of this assumption?**

253 A: Yes. DPU Data Request 8.3 CONFIDENTIAL asks, “How much of the [REDACTED] million
254 benefit of the Company’s chosen scenario is related to the accelerated reclamation
255 costs?” The Company responded, “The contribution of mine reclamation costs to the
256 [REDACTED] million ...benefit shown in ...(RTL-3) is [REDACTED] million.” Thus 30% of the total

257 measured benefit of the base case scenario is a result of assuming mine closure and early
258 reclamation.

259 **Q: How reasonable do you believe the assumption to be that the mine will close early?**

260 A: I can't directly answer that question based on information provided by the Company.
261 However, it appears to me from information contained within the confidential
262 workpapers that the mine would remain competitive from a cost perspective. WRA
263 Confidential Exhibit (NLK-2) displays the comparative coal costs and coal cost forecasts
264 from 2007 to 2021 measured in \$/ton for the Bridger surface mine, the underground
265 mine, and the current third party provider. The exhibit demonstrates that the surface
266 mine will remain cost competitive.

267 **Q: How reasonable do you believe the timing of the reclamation costs are, assuming the**
268 **Company in fact closes the mine and does not pursue some other option?**

269 A: Beginning reclamation in 2012, even prior to beginning installation of the SCR retrofit,
270 does not seem reasonable. I question the timing and purpose of the timing of the
271 reclamation costs, particularly given that Units 1 and 2 would continue to operate as a
272 coal-fired facility until the end of 2015 and 2016 respectively.

273 **Q: What is the impact of this reclamation assumption on the modeling outcome?**

274 A: Once again, the case for the SCR retrofit is significantly strengthened and the case for
275 natural gas conversion weakened.

276 **Q: What is your opinion regarding the results presented in (RTL-3)?**

277 A: The results summarized in (RTL-3) overstate the case in favor of SCR retrofit for Bridger
278 Units 3 and 4.

279 **Q: What is your opinion regarding the natural gas price and CO2 price breakeven**
280 **prices (tipping points) included in Confidential Exhibit RMP__(RTL-6) and**
281 **Confidential Exhibit RMP__(RTL-7)?**

282 A: Given the discussion above, the breakeven prices are unlikely to be accurate.

283 *Evaluation of Risk and Uncertainty*

284 **Q: PacifiCorp’s witnesses testify that the SCR Project is the least-cost, risk-adjusted**
285 **option for complying with the requirements of the Regional Haze Rule. Mr. Teply**
286 **states that the Company analyses demonstrate the application of least-cost, risk-**
287 **adjusted principles.⁹ Do you have an opinion regarding what the Company intends**
288 **by using the term “risk-adjusted?”**

289 A: It appears to me that use of the term “risk-adjusted” is intended to indicate that the
290 method used to identify the chosen outcome is consistent with this Commission’s 1992
291 Order on Standards and Guidelines for Integrated Resource Planning.

292 **Q: Do you agree that the analyses undertaken in support of the Company’s Request are**
293 **consistent with the Standards and Guidelines for conducting integrated, long-run,**
294 **resource planning?**

⁹ Direct Testimony of Chad A. Teply at 352-356.

295 A: No. The analyses are not consistent with the requirements of the Standards and
296 Guidelines. The Standards and Guidelines require an analysis of risk and uncertainty that
297 has not been incorporated.

298 The purpose of long-run planning is to understand the potential cost consequences of a
299 decision if the future does not unfold as expected at the time a decision is made. The
300 Company's analyses are deterministic, i.e. they are determined by the assumptions, do
301 not incorporate statistical risk, and do not fully capture the potential cost consequences of
302 a future that unfolds differently than deterministically modeled. Therefore, the methods
303 used in support of this request are not consistent with the requirements of the Standards
304 and Guidelines.

305 **Q: Please identify the uncertainties that were not evaluated.**

306 A: The Company did not model capital expenditures or operating expenses relating to future
307 environmental regulations for CCR under Subtitle C, the cost of complying with Effluent
308 Guidelines, or the costs of complying with increasingly stringent NAAQS. In addition,
309 the estimates used for the cost to comply with potential carbon dioxide regulation are
310 lower than estimates used previously by PacifiCorp in past IRP proceedings.

311 **Q: How did the Company explain its decision to assign a \$0 cost to the EPA rulemaking**
312 **uncertainties and to use lower CO2 estimates than it previously applied?**

313 A: In response to OCS Data Request 7.35 dated October 1, the Company explains that the
314 assumptions used in the modeling "represent the Company's view as to the most
315 reasonably anticipated rulemaking outcomes for the various environmental regulations
316 referenced above based on information available at the time of analysis."

317 **Q: How do you respond to the Company’s viewpoint?**

318 A: Well-informed individuals can have differing opinions on how the future will unfold.
319 The purpose of undertaking an analysis of risk and uncertainty is to understand the cost
320 consequences if the future does not unfold as expected. While the Company’s analysis
321 conforms to its presumed future, and therefore its preferred course of action, it does not
322 provide the information needed to understand the implication if the most costly potential
323 outcomes are realized. Therefore, the term “risk-adjusted” is a misnomer. The
324 methodology used is not consistent with the Utah Standards and Guidelines for long-run
325 integrated resource planning.

326 *Evaluation of Alternatives*

327 **Q: Please identify the resource alternatives that were considered as options in the Coal**
328 **Replacement Study Update.**

329 A: Page 67 of the 2011 IRP Update states that resource replacement options included wind
330 resources, brownfield gas conversion, green field natural gas resources, front office
331 transactions and DSM. According to the testimony of Mr. Link, for the seven scenarios
332 evaluated, System Optimizer selected either the Jim Bridger Units 3 and 4 retrofit or the
333 Jim Bridger gas conversion. Retirement and replacement with other alternatives was not
334 selected.

335 **Q: Was the option of unit retirement and replacement with generation located closer to**
336 **load evaluated?**

337 A: It does not appear to have been evaluated, and it should have been because I believe it has
338 the potential to release over 1000 MW of transmission capacity and avoid or delay new
339 transmission. In response to a similar question asked in DPU Data Request 9.9, the
340 Company reiterated that retirement and replacement was not selected by the capacity
341 expansion model, and then stated that “the need for transmission upgrades would remain
342 under both a gas conversion and early retirement scenario.”

343 **Q: Was documentation provided to support this contention?**

344 A: No.

345 **Q: How do you respond to the Company’s answer?**

346 A: It seems illogical to me that the retirement of more than 1000 MW of generation would
347 not release enough transmission capacity to delay or avoid the need for additional
348 transmission. New transmission is both costly and environmentally impactful.
349 Evaluation of the SCR project against the alternative of retirement, replacement, and
350 avoided transmission provides a unique opportunity to address issues of air quality,
351 climate sustainability, and land, water and aquatic life protection while at the same time
352 protecting customers’ pocketbooks. The Company cannot claim that the SCR project is
353 least-cost if it has not meaningfully evaluated all reasonable alternatives.

354 **Q: In your opinion, has PacifiCorp provided the Commission with sufficient**
355 **information to determine that the retrofit of Jim Bridger Units 3 and 4 with SCR**
356 **controls is the least-cost, risk-adjusted method of complying with the requirements**
357 **of the Regional Haze Rule?**

358 A: No.

359 **Q: What do you recommend?**

360 A: I recommend the Commission deny the Company's Request for preapproval of
361 expenditures to install SCR systems on Bridger Units 3 and 4. If PacifiCorp nevertheless
362 proceeds with the project, it should be at risk for cost recovery in the appropriate rate
363 proceeding.

364 **Q: Does this conclude your testimony?**

365 A: Yes.