1 **Q. Please state your name, business address and present position with Rocky**
2 **Mountain Power, a division of PacifiCorp (the "Company" or "RMP").**
3 A. My name is Gregory N. Duvall, my business address is 825 NE Multnomah St.,
4 Suite 600, Portland, Oregon 97232, and my present title is Director, Net Power
5 Costs.
6 **Q. Have you previously filed testimony in this case?**
7 A. Yes. I filed several pieces of testimony in Phase I and Phase II of this proceeding.
8 **Q. What is the purpose of your testimony?**
9 A. I will respond to the Commission's order in this proceeding, in which it granted
10 limited rehearing on the issue of whether swap transactions should be included in
11 the Energy Balancing Account ("EBA").
12 **Q. Will you please summarize the topics you will cover in your direct testimony**
13 **on rehearing?**
14 A. In my testimony I discuss the following:
15 - The definition of hedging for purposes of these discussions, and how it is
16 recorded in net power costs ("NPC");
17 - The potential adverse and unintended consequences to our customers
18 related to NPC if swap transactions are excluded from the EBA;
19 - The Company's hedging program, of which swaps are an integral part,
20 reduces NPC volatility caused by changes in market prices and protects
21 against high NPC outcomes; and

22 • Our customers have benefitted from the Company's hedging program, including swaps, through lower NPC; benefits that they would not have had with less hedging or no hedging.

25 **Q. What is hedging?**

26 A. Hedging is a form of insurance, and put simply, is used to protect against unforeseen circumstances. There are many forms of hedging. For example, adding a new combined cycle resource is as much a form of hedging as entering into a purchased power contract or a swap.[1] For purposes of this testimony, hedging refers to purchases and sales of natural-gas and electricity, and involves both physical and financial transactions. For example, selling power forward (financial and physical hedge combined) at $50/MWh is identical to selling an electric swap forward for $50/MWh (financial hedge), and separately selling power forward at a market index (physical hedge). The outcome is the same. The testimony of Mr. John A. Apperson and Mr. Frank C. Graves discusses why it is often preferable to hedge using a combination of index price physical and financial transactions rather than just using fixed price physical transactions.

38 **Q. Does the Company report its natural gas and electricity financial swaps in the Federal Energy Regulatory Commission's ("FERC") accounts 501 Fuel, and FERC account 555 Purchased Power, respectively, in the same way that it is proposing to account for those costs in the EBA mechanism?**

42 A. Yes. For example, in the FERC Form 1, the Company provides a schedule of all

[1] For example, parties in this proceeding have recommended that the Company lessen its reliance on front office transactions in the electricity market and instead build physical resources. This type of strategy, to build a physical resource, is a hedge against the volatility, and potential prices increases of the electricity market.

43 electric transactions by counterparty (Account 555). Within that schedule, the
44 Company shows the settled dollar amount of financial swaps by counterparty.

45 **Q. Do other regulated utilities in the electric industry record their electric**
46 **financial transactions on the FERC Form 1 in Account 555, Purchased**
47 **Power?**

48 A. Yes.

49 **Q. In its opposition to the Company's Petition for Clarification and**
50 **Reconsideration (the "Company's Petition"), the Utah Industrial Energy**
51 **Consumers ("UIEC"), contend that the definition of EBA in the Utah Code**
52 **including both fuel and purchased power should be read to include only**
53 **physical transactions. In your experience, is this consistent with the**
54 **interpretation of these categories by the FERC and the state jurisdictions in**
55 **which the Company operates?**

56 A. No. UIEC's interpretation of the nomenclature for the accounts fuel and
57 purchased power to only include physical transactions is not consistent with the
58 manner in which the Company records its settled financial swaps at FERC, or
59 how it is interpreted in any of the states in which the Company operates.

60 **Q. In the states in which the Company has an annual true-up mechanism for its**
61 **NPC, are financial swaps excluded from these mechanisms?**

62 A. No. The Company has an annual true-up mechanism in the states of Wyoming,
63 Idaho and California. The commission's in those states include financial swaps as
64 a component of fuel and purchased power, not differentiable from the physical
65 transactions, in the true-up of NPC.

66 **Q. What do you conclude regarding the definition of fuel and purchased power**
67 **from the perspective of a person who is familiar with how power costs are**
68 **treated in utility regulation?**
69 A. It is my opinion that swaps used in conjunction with physical natural gas and
70 power transactions are part of the cost of fuel and purchased power and are
71 therefore included in the definition of an EBA in the Utah Code. I note that I am
72 not an attorney and am not offering this as a legal opinion.
73 **Q. Do you have any other information regarding the Company's intention in**
74 **connection with the legislation that has resulted in section 54-7-13.5 of the**
75 **Utah Code?**
76 A. Yes. I have been informed by the Company personnel that assisted directly in
77 drafting the legislation that the Company understood that all of its NPC, including
78 swaps, would be eligible for inclusion in the EBA. This is consistent with my
79 understanding of what the Company was trying to accomplish and with the fact
80 that the Company has always included swaps in NPC.
81 **Adverse and Unintended Consequences on NPC**
82 **Q. Please summarize the Company's position that excluding financial swaps will**
83 **result in unintended consequences.**
84 A. As stated in the Company's Petition, the exclusion of swaps in the EBA may
85 result in an outcome where Utah customers are left nearly completely unhedged
86 and exposed to volatile market prices.

87 **Q. Have other parties agreed with the Company's position that swaps should be**
88 **included in the EBA?**
89 A. Yes. In its response to the Company's Petition, the Division of Public Utilities
90 ("DPU") stated that "…excluding swaps could result in perverse incentives for
91 the Company concerning its decisions to pursue swaps or lead to unintended
92 consequences with the EBA balances and amortizations."
93 **Q. Has any party contested the volatile nature of natural gas and electricity**
94 **markets?**
95 A. No. The Utah Office of Consumer Services ("OCS") recognized in its response to
96 the Company's Petition, that "[p]rices have the potential to rise much higher than
97 they have the potential to fall. Thus, if market conditions change, the exclusion of
98 swaps from the EBA could be to the detriment of customers."
99 **Q. Using historical information, please provide an example where excluding**
100 **swaps from the EBA may cause customers to be exposed to market volatility.**
101 A. This is illustrated by applying the Commission's ordered EBA structure to
102 historical data for 2010. In 2010, the NPC component of base rates was $996
103 million, consisting of $2 million in forecast swap revenue and $998 million in
104 other forecast NPC. Among other NPC impacts, settlement market prices were
105 unfavorable to the forward price curve used to set rates, and actual NPC were
106 $1.150 billion, consisting of $86 million in actual swap revenue and $1.236
107 billion in other actual NPC. Without the EBA, customers would have paid $996

108 million in base rates, while the Company incurred actual NPC of $1.150 billion.[2]
109 If the EBA had been in place during this period excluding swaps but including
110 other elements of NPC, customers would have paid an additional $167 million, or
111 total NPC of $1.162 billion, even though actual NPC was $1.150 billion. If
112 instead, swaps were included in the determination of base and actual NPC for
113 purposes of determining the EBA, customers would have been credited $59
114 million (70 percent of the $84 million gain in swap revenue) and would have paid
115 $1.104 billion total NPC. These results are summarized in the table below.

$m			2010
Base NPC In-Rates ($)	a		**996**
- including net swaps	b		(2)
Base NPC excluding Swaps ($)	c	=a-b	998
Actual NPC ($)	d		**1,150**
- including net swaps	e		(86)
Actual NPC excluding Swaps ($)	f	=d-e	1,236
NPC subject to EBA			
Including net swaps	g	=d-a	154
Excluding net swaps	h	=f-c	238
Costomer share at 70%			
Including net swaps	i	=g*70%	108
Excluding net swaps	j	=h*70%	167
Impact on Customers	k	=j-i	59
Total Payment for NPC			
Including net swaps	l	=a+i	1,104
Excluding net swaps	m	=a+j	1,162

[2] For simplicity in this example, actual NPC was not adjusted for changes in actual load, which was lower than the load forecast in rates by approximately 574,000 MWh. The load forecast in rates was 58,344,264 MWh. Incorporating the change in load in the calculation, however, would not change the conclusion that customers would have been harmed with an EBA that excluded swaps.

116 **Q. In its opposition to the Company's Petition, did UIEC suggest that market**
117 **risk or volatility in NPC did not exist?**
118 A. On the contrary, UIEC acknowledges market risk, and suggests that the Company
119 can continue to hedge its price risk using other types of financial derivatives, such
120 as exchange traded futures and options, including puts, calls, caps and collars.
121 However, in its acknowledgement of risk, and the available financial tools UIEC
122 believes that the Company should employ, it stresses several times that the costs
123 and risks associated with these financial tools should be borne solely by the
124 Company and not customers. In making these arguments, UIEC ignores the fact,
125 as discussed more fully by Mr. Apperson, that there is just as much risk associated
126 with use of fixed price physical forward contracts as with swaps.
127 **Q. Did any other party address the issue of removing swaps from the EBA in**
128 **response to the Company's Petition?**
129 A. Yes. The Utah Association of Energy Users ("UAE") did not oppose the
130 Company's Petition and also recognized that unreasonable consequences might
131 result from exclusion of swaps from the EBA. UAE provided a suggestion for
132 consideration, however, from the EBA Workgroup, "that unreasonable
133 consequences might be avoided by removing from the EBA not only the cost of
134 financial swaps, but also the corresponding physical commodity volumes hedged
135 by such swaps." Put simply, UAE suggests that to mitigate any potential adverse
136 consequences of removing swaps you would need to also remove from the EBA
137 natural gas fuel expenses used to power the Company's natural gas facilities in
138 serving load and providing wholesale sales.

139 **Q. Does UAE's proposed solution further illustrate that excluding swaps from**
140 **the Company's natural gas fuel expense is complex and can create adverse**
141 **consequences?**

142 A. Yes. UAE's proposal removes natural gas expenses and hedges for natural gas
143 from the EBA; an outcome that is contrary to the intent of the EBA and
144 effectively would treat natural gas expense and associated hedges as they are
145 treated today without an EBA. As demonstrated during earlier phases of this case,
146 exclusion of natural gas from the EBA would also create perverse incentives and
147 have unintended consequences. It should be noted, however, that UAE's
148 suggestion illustrates that swaps and the underlying commodity that is hedged by
149 the swap are complementary products that are inextricably linked and must be
150 treated together in determining the Company's retail rates.

151 **Q. If customers are not able to realize a benefit from the Company's hedging**
152 **policy, as proposed by UIEC and suggested for consideration by UAE, is it**
153 **reasonable to expect that the Company would continue to hedge with**
154 **financial swaps?**

155 A. No. This is explained in the testimony of Mr. Apperson and Mr. Graves.

156 **The Company's Hedging Program Reduces Volatility**

157 **Q. Previously in this proceeding, and in the Company's currently pending**
158 **general rate case ("2011 GRC"), parties have questioned whether the**
159 **Company's hedging program benefits customers by reducing volatility in the**
160 **Company's NPC. How did you respond?**

161 A. In Phase 2 Rebuttal testimony in this docket, I demonstrated that the Company's

162 hedging program reduces NPC volatility caused by changes in market prices and
163 protects against high NPC outcomes.

164 **Q. Does this testimony remain valid?**

165 A. Yes.

166 **Q. Did OCS take the position in this docket that the Company's hedging**
167 **program was designed to reduce NPC volatility?**

168 A. Yes. Dr. Lori Schell testified that the Company had well-defined hedging targets,
169 that its hedging program complied with these targets, and the combined impact of
170 the 48 month hedging horizon and the hedging volume targets was to help the
171 Company meet its goal of reducing NPC volatility.[3] When Dr. Schell proposed to
172 reduce the Company's hedging targets in this docket, she acknowledged that this
173 would increase rate volatility experienced by customers.[4]

174 **Q. Has the Company developed additional analysis since the time of your Phase**
175 **II Rebuttal testimony on the issue of NPC volatility and hedging?**

176 A. Yes. The Company's 2011 IRP addresses this issue and demonstrates that the
177 Company's approach to hedging, which is both comprehensive and integrated
178 from a power/natural gas standpoint, reduces the volatility of NPC. First, the IRP
179 demonstrated that the "less hedged portfolio shows a wider distribution of
180 outcomes representing a higher risk to price changes. Similarly, the more hedged
181 portfolio shows a narrower distribution." Second, the analysis showed that "[t]he
182 'hedge only power' portfolio shows a much wider distribution due to the severe

[3] Direct Testimony of Lori Schell, Phase 1, November 16, 2009.
[4] Direct Testimony of Lori Schell, Phase 2, June 10, 2010.

183 reduction in the natural offset between power and natural gas in the reference
184 portfolio. The 'hedge only natural gas' has a similar distribution."[5]

185 **Historic Benefits of Hedging in Net Power Costs**

186 **Q. Have you analyzed the historic impact of the Company's hedging program**
187 **on NPC in Utah rates?**

188 A. Yes. I have prepared Exhibit RMP___(GND-1RH) which sets forth the impact of
189 the Company's hedging program on NPC in Utah rates.

190 **Q. Please summarize the results of your analysis.**

191 A. From March 1, 2005, when rates from Docket 04-035-42 went into effect through
192 end of September 2011 when rates from the current GRC will become effective,
193 customers will have received $149 million in lower system NPC as a result of the
194 Company's hedging program.

195 **Q. What is the benefit of the Company's hedging program now reflected in Utah**
196 **rates?**

197 A. By virtue of the significant hedging benefits reflected in the Company's 2009
198 GRC, current rates (rates in effect between February 18, 2010 and the end of
199 September 2011) reflect a total benefit of $192 million in system NPC reductions.
200 These benefits were achieved under the same risk management policy and
201 hedging program applicable today, and include the effect of swaps.

202 **Q. Did the hedging program mitigate the Company's exposure to market price**
203 **fluctuations?**

204 A. Yes. Prior to the EBA, the Company was exposed to 100 percent of the risk of
205 market fluctuations between rate cases. The Company's hedging program has

[5] Docket No. 11-2035-01, PacifiCorp 2011 IRP, Appendix G at p.165 (March 31, 2011).

206 helped mitigate this position and maintain the Company's financial stability.
207 Exhibit RMP___(GND-1RH) shows that between March 1, 2005 and September
208 2011, the Company's hedging program resulted in a net savings of $406.5 million
209 over an unhedged position.

210 **Q. On a year-by-year basis, do the results of the hedging program vary?**

211 A. Yes. In the various GRID studies since the Company's 2004 GRC, the results of
212 the Company's hedging program have produced results that lower NPC by as
213 much as $119 million and increase NPC by up to $38 million over a 12-month
214 test period.

215 **Q. How do customers benefit from the Company's hedge program in years**
216 **where hedges are unfavorable, such as in the current GRC proceeding?**

217 A. The purpose of the Company's hedge program is to reduce the volatility of NPC
218 and to protect against high cost outcomes. Absent the Company's hedge program,
219 NPC would be subject to potentially large swings from year to year depending
220 upon the volatility of the spot market. In addition, it is impossible to create a
221 hedge program that only applies in years where hedges are unfavorable.

222 **Q. Now that the Commission has implemented an EBA, if it were to exclude**
223 **swaps, and the Company were in an unhedged position, are customers likely**
224 **to realize greater volatility in rates?**

225 A. Yes. As shown in the previous examples, and discussed by numerous parties in
226 this proceeding, if the Company were in an unhedged position, relative to NPC set
227 in rates, the EBA could cause rates to fluctuate dramatically depending on the
228 effective rate period electricity and natural gas spot prices. In addition to being

229 less hedged, the hedging costs would increase as described in the testimony of
230 Mr. Apperson.

231 **Q. UIEC has stated that by removing swaps from the EBA it provides an**
232 **incentive structure that would require the Company to take the risk with**
233 **"shareholder money." Is this true?**

234 A. No. In fact it is exactly the opposite. If customers are in an unhedged position and
235 subject to the volatility of electricity and natural gas spot prices, it is customers
236 who are placed primarily in the position of risk. Using the proposed structure of
237 the EBA and the 70/30 sharing mechanism, customers would bear 70 percent of
238 the risk associated with market price volatility and variations from the
239 assumptions that were used to set NPC. UIEC claims that the Company's hedging
240 strategy is essentially gambling, however, the opposite is true. Hedging less and
241 allowing power costs to fluctuate with the vagaries of the wholesale natural gas
242 and electric market price is much more of a gamble for customers that mitigating
243 these prices through hedging. From the point that rates are set, if the Commission
244 excludes swaps from the EBA, the Company would no longer have any incentive
245 to enter into swaps. If the Company discontinues its hedging strategy, it is
246 customers who will be speculating that actual NPC will be lower than forecasted
247 with no protection against high cost outcomes. As history has shown, the
248 likelihood of NPC being lower than forecast is much lower than the likelihood of
249 NPC being higher than forecast.

250 **Q. In the instance that financial swaps are included for rate recovery, but**
251 **excluded for true-up under the EBA, would the Company stop hedging?**
252 A. The question of whether or not the Company will continue to hedge if financial
253 swaps are excluded from the EBA is a question of policy that is further discussed
254 in Mr. Apperson's testimony. However, as I have shown using historical data,
255 excluding financial swaps from the EBA would create unacceptable outcomes that
256 would make it unreasonable for the Company to continue to hedge using swaps.
257 For example, as discussed in the Company's Petition, assume the Company's in-
258 rates NPC are $1 billion, consisting of $200 million in forecast swap expense and
259 $800 million in other forecast NPC, and that the combination of swaps and
260 physical wholesale contracts perfectly hedge the forecasted generation and retail
261 loads. Then assume that actual generation and retail loads during the rate-effective
262 period match the forecast and the only change is that settlement market prices
263 change. In such an example, NPC in total will remain $1 billion, but the mix of
264 NPC between swaps and physical wholesale contracts will change. Depending on
265 the direction of market price movements, the Company may be harmed. For
266 example, assume market prices move in a direction that causes swap expense to
267 increase by $200 million and other fuel, purchased power and wholesale sales to
268 decrease by $200 million. Applying the EBA excluding swaps will result in
269 customers receiving a credit of $140 million for total NPC of $860 million even
270 though actual NPC was $1 billion. Although the Company's swaps achieved their
271 intended hedge purpose to lock in NPC at $1 billion, because the Commission
272 excluded swaps from the EBA, the Company arbitrarily loses an additional $140

273 million. In these circumstances, the Company would be better off not using swaps
274 in hedging.

275 **Q. But couldn't the opposite result occur as well?**

276 A. Yes. Under the foregoing example, assume market prices move in a direction that
277 causes swap expense to decrease by $200 million and other fuel, purchased power
278 and wholesale sales to increase by $200 million. Applying the EBA as currently
279 ordered by the Commission will result in customers paying an additional $140
280 million (i.e., 70 percent of the $200 million expense) for a total NPC (excluding
281 swaps) of $1.14 billion even though actual NPC was $1 billion. The Company's
282 intent to use swaps as a hedge achieved its purpose by locking in actual NPC at $1
283 billion, but because the Commission excluded swaps from the EBA, the Company
284 instead receives an additional $140 million windfall.

285 While one might conclude that this opposite result would give the
286 Company an incentive to continue to engage in hedging using swaps, this
287 conclusion would be inconsistent with the purpose of hedging. Hedging is not
288 done to try to beat the market; it is done to avoid volatility in the market. If the
289 Company continued to hedge because it might achieve the second outcome, it
290 would be speculating on the market rather than appropriately hedging to avoid
291 volatility. Furthermore, the Company knows it cannot accurately predict the
292 market. Therefore, it would not be prudent to assume a direction for market prices
293 in deciding whether to use swaps in hedging.

294 **Q. UIEC claims that your mathematical example of excluding swaps and the**
295 **potential outcomes is a "mathematical tautology." Is this true?**
296 A. No. A mathematical tautology is making an argument that is true in every
297 interpretation, for example if A equals B and B equals C then A equals C.
298 However, the examples that the Company has provided are examples that show
299 what actual NPC would have been if swaps are excluded from the EBA. The
300 examples provided are not hypothetical situations, contrary to those provided by
301 UIEC, that the Company has created which allows one variable to change with an
302 equal and corresponding change within another variable that produces the exact
303 same result; that would be a tautology.
304 **Q. In its opposition to the Company's Petition, UIEC provides an example**
305 **where it excludes labor costs from NPC and then makes the assumption that**
306 **labor costs will vary with regard to spot natural gas prices, as an illustration**
307 **that the exclusion of any cost item would result in adverse and unintended**
308 **consequences. Is this correct?**
309 A. No. UIEC's example, that excluding labor costs would have the same impact as
310 excluding swaps is nonsensical. First, labor costs are not included in net power
311 costs. Second, labor costs have no correlation to spot natural gas prices, as
312 inferred by UIEC in their example, and cannot be used to hedge natural gas. As
313 stated above, UIEC's examples of hypothetical situations using labor costs and
314 lottery winnings have nothing to do with the issue at hand of excluding swaps
315 from the EBA.

316 **Q. Is the Company's hedging strategy akin to market speculation, as inferred by**
317 **UIEC in its Opposition to the Company's Petition?**
318 A. No. UIEC has attempted to misconstrue the Company's hedging strategy as
319 "speculation" and misunderstands the intent of the Company's hedging policy.
320 This is further illustrated by the point made by UIEC, in which it states that
321 hedging 100 percent of its exposure with swaps is "contrary to prudent investment
322 management." UIEC is correct with respect to an investment portfolio wherein
323 you would not hedge 100 percent of your portfolio because you would be taking
324 away the possibility of significant gains. However, in an investment portfolio
325 setting, you are assuming that the possibility of gains is larger than the possibility
326 of losses. This is where an investment strategy departs from the Company's
327 hedging strategy. The Company is *not* speculating that gains will be larger than
328 losses and attempting to profit. The Company is ensuring that rates are stable and
329 consistent with what is forecasted to be in rates at the time that they are set. This
330 is consistent with prudent management of the risk that actual NPC will be much
331 higher than what was forecasted at the time that rates are set. UIEC does not
332 acknowledge the difference in these approaches.
333 **Q. Does this conclude your direct testimony on rehearing?**
334 A. Yes.