

Rocky Mountain Power  
Docket No. 17-035-39  
Witness: Cindy A. Crane

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Direct Testimony of Cindy A. Crane

June 2017

1 **Q. Please state your name, business address, and present position.**

2 A. My name is Cindy A. Crane. My business address is 1407 West North Temple, Suite  
3 310, Salt Lake City, Utah 84116. I am the President and Chief Executive Officer of  
4 Rocky Mountain Power (“Company”), a division of PacifiCorp.

5 **Q. Briefly describe your professional experience.**

6 A. I joined PacifiCorp in 1990. Since then I have served as Director of Business Systems  
7 Integration, Managing Director of Business Planning and Strategic Analysis, Vice  
8 President of Strategy and Division Services, and Vice President of Interwest Mining  
9 Company and Fuel Resources. My responsibilities in these positions included the  
10 management and development of the Company’s 10-year business plan, directing  
11 operations of the Energy West Mining and Bridger Coal companies, and coal supply  
12 acquisition and fuel management for the Company’s coal-fired generating plants. In  
13 October 2014, I was appointed to my present position as President and Chief Executive  
14 Officer of Rocky Mountain Power.

15 **Q. Have you testified in previous regulatory proceedings?**

16 A. Yes. I have filed testimony in proceedings before public service commissions in all  
17 states in which the Company serves customers, including before the Public Service  
18 Commission of Utah (“Commission”).

19 **PURPOSE AND SUMMARY OF TESTIMONY**

20 **Q. What is the purpose of your testimony?**

21 A. My testimony explains the significant benefits to customers from repowering the  
22 Company’s existing wind resources and outlines why wind repowering is a time-  
23 limited resource opportunity for customers that is both prudent and in the public

24 interest. I describe the Company’s proposal for the ratemaking treatment of the wind  
25 repowering project, and request continued cost recovery of equipment replaced by  
26 repowering. I also briefly describe the financial ability of the Company to make the  
27 wind repowering investment.

28 **Q. Please summarize your testimony.**

29 A. The Company plans to upgrade or “repower” 999.1 megawatts (“MW”) of Company-  
30 owned, installed wind capacity (594 MW in Wyoming, 304.6 MW in Washington, and  
31 100.5 MW in Oregon) with longer blades and new technology to generate more energy  
32 in a wider range of wind conditions. The upgrades are expected to increase output of  
33 the wind facilities by 19 percent on average, extend the operating life of the facilities,  
34 and allow the facilities to requalify for federal production tax credits (“PTCs”) for an  
35 additional 10 years. To receive the full PTC benefits for customers, the repowered  
36 facilities must be commercially operational by the end of 2020.

37 Although wind repowering will cost an estimated \$1.13 billion, the benefits  
38 generated by the repowering will produce net savings for customers over the life of the  
39 repowered facilities.

40 Because of the magnitude of this capital investment and the overall scope of the  
41 project, the Company requests that the Commission find that wind repowering is  
42 prudent now, before the Company commits to the costs of major equipment orders and  
43 equipment installation contracts, in accordance with Utah Code Ann. § 54-17-402. The  
44 Company also requests that the Commission approve its proposed ratemaking  
45 treatment, under Utah Code Ann. § 54-4-23, for the repowering investment, and its  
46 proposed continued recovery of the equipment replaced at the time of repowering. As

47 described here and in the testimony of the Company's other witnesses, wind repowering  
48 provides substantial customer benefits and furthers the public interest. The Company's  
49 request for approval at this time gives the Commission a meaningful opportunity to  
50 evaluate the wind repowering project to ensure that the project is reasonable, prudent,  
51 and in the public interest.

52 Repowering is a time-limited resource opportunity for customers because of the  
53 challenges of meeting the 2020 PTC-qualification deadline. Therefore, the Company  
54 requests that the Commission issue its order approving the wind repowering project by  
55 December 29, 2017, to provide the Company sufficient time to execute the necessary  
56 contracts and complete the undertaking.

57 **Q. What other witnesses will be testifying on behalf of the Company?**

58 A. The Company's filing is supported by testimony from the following witnesses:

59 **Mr. Timothy J. Hemstreet**, Director of Renewable Energy Development,  
60 provides a detailed scope of the Company's wind repowering project, including  
61 technical details, qualification for PTC benefits, increased energy production, reduced  
62 operating costs, and continued system reliability. Mr. Hemstreet also addresses the  
63 status and timing of wind-turbine-generator ("WTG") equipment purchases,  
64 construction requirements, anticipated construction timelines, and the disposition of  
65 removed equipment.

66 **Mr. Rick T. Link**, Vice President of Resource and Commercial Strategy,  
67 testifies on the economic analysis that supports the prudence of the Company's wind  
68 repowering project and quantifies customer benefits resulting from repowering.

69 Mr. Link also explains the wind repowering planning and analysis included in the  
70 Company's 2017 Integrated Resource Plan ("2017 IRP").

71 **Mr. Jeffrey K. Larsen**, Vice President of Regulation, explains the Company's  
72 proposal for the ratemaking treatment of the costs and benefits of the wind repowering  
73 project in rates, the accounting treatment of the replaced wind plant equipment, and the  
74 inter-jurisdictional allocation of costs.

75 **Q. Is the Company requesting approval of the wind repowering project in any other**  
76 **states?**

77 A. Yes. The Company is requesting approval of wind repowering from the Wyoming  
78 Public Service Commission and the Idaho Public Utilities Commission. In Oregon and  
79 Washington, the Company has special rate-recovery mechanisms for investments in  
80 renewable resources that provide a path to recovery of the costs and benefits of wind  
81 repowering—the Renewable Adjustment Clause in Oregon and a generation deferral  
82 mechanism allowed by Washington law. In California, the Company is required to file  
83 a general rate case in 2019, which will include the costs and benefits of wind  
84 repowering.

#### 85 **OVERVIEW OF REPOWERING**

86 **Q. Please describe the Company's plans to repower its wind facilities.**

87 A. Wind repowering takes advantage of technological advancements that allow greater  
88 generation from existing wind resources. Wind repowering involves installation of new  
89 rotors with longer blades and new nacelles with higher-capacity generators. These plant  
90 upgrades significantly increase energy output without changing the footprint, towers,  
91 foundations and energy collector systems of the wind facilities. Longer blades allow

92 wind turbines to produce more energy over a wider range of wind speeds. The nacelle  
93 is the housing that sits atop the tower and contains the gear box, low- and high-speed  
94 shafts, generator, controller, and brake. The new nacelles will include sophisticated  
95 control systems and more robust components necessary to handle the greater loads that  
96 come with longer blades.

97 Together, the new rotors and nacelles are estimated to increase generation from  
98 the repowered turbines by 13 to 35 percent, resulting in an overall average generation  
99 increase of 19 percent (or 21 percent after new interconnection agreements are  
100 executed). Mr. Hemstreet's testimony provides greater detail on the technical aspects  
101 of the wind repowering project.

102 **Q. Which wind resources will be repowered?**

103 A. The Company proposes to repower most of its Wyoming wind fleet (Glenrock I,  
104 Glenrock III, Rolling Hills, Seven Mile Hill I, Seven Mile Hill II, High Plains,  
105 McFadden Ridge, and Dunlap); the Marengo I, Marengo II and Goodnoe Hills facilities  
106 in Washington; and the Leaning Juniper facility in Oregon. This represents a total of  
107 999.1 MW of installed wind capacity, with 594 MW in Wyoming, 304.6 MW in  
108 Washington, and 100.5 MW in Oregon.

109 **Q. What is the expected cost of wind repowering?**

110 A. The Company estimates that wind repowering will cost approximately \$1.13 billion.

111 **Q. Why are you proposing to repower the Company's wind fleet now?**

112 A. On December 18, 2015, Congress enacted changes to the federal Internal Revenue  
113 Code that extended the full value of the PTC for wind energy facilities that began  
114 construction in 2015 and 2016. The Internal Revenue Service ("IRS") has issued

115 guidance that establishes a “safe harbor” for taxpayers to demonstrate the year a facility  
116 will be deemed to “begin construction,” thereby setting the value of the PTC.

117 Repowering the Company’s wind fleet now will allow the resources to requalify  
118 for PTCs, which will expire 10 years from the original commercial operation date of  
119 the resource (expiration dates range from 2016 through 2020). To maximize the PTC  
120 benefit, in December 2016, the Company contracted with General Electric, Inc., and  
121 Vestas-American Wind Technology, Inc., for the purchase of new WTG equipment.  
122 These safe-harbor equipment purchases allow the repowered facilities to qualify for  
123 100 percent of available PTC benefits if they are commercially operational within four  
124 calendar years—or by the end of 2020. The Company’s purchases last year were  
125 important because wind facilities that begin construction after 2016 and come online  
126 after 2020 will receive a 20 percent decrease in the tax benefits that can be passed on  
127 to customers each year. Thus, a delay in acquiring the safe-harbor equipment would  
128 have made the economics of repowering less attractive and deprived customers of the  
129 substantial benefits that can be achieved if repowering is completed by the end of 2020.

130 To meet the 2020 deadline, the Company plans to order the necessary  
131 equipment and execute the necessary contracts in early 2018 and complete much of the  
132 construction in 2019. The renewal of the PTC has dramatically increased the demand  
133 for materials, equipment, and labor for wind facilities. By completing construction in  
134 2019, the Company will mitigate the risk of construction delays, or delays associated  
135 with the procurement of equipment, and allow sufficient time to meet the 2020  
136 deadline.

137           In addition, completing the majority of the construction in 2019 will maximize  
138           the value of the existing PTCs, while minimizing the period between the expiration of  
139           the prior PTCs and the eligibility for the new PTCs. By achieving commercial operation  
140           in 2019 for most of the facilities (Dunlap will be completed in 2020), the Company will  
141           also minimize the time during which the wind facilities are ineligible for PTCs.

142   **Q.    Is the Company requesting continued cost recovery of the equipment that will be**  
143   **replaced as part of the wind repowering project?**

144   A.    Yes. The Company is requesting to continue full cost recovery of the plant equipment  
145           that is replaced due to the wind repowering project. The existing net plant is currently  
146           in rates and has been assessed as part of the overall economic evaluation of project  
147           benefits to customers. The Company’s decision to pursue the wind repowering project  
148           is dependent on the Company continuing to recover the investments in these Company-  
149           owned wind facilities that are currently included in customer base rates.

150   **Q.    Given that wind repowering is a time-limited resource opportunity, what is the**  
151   **Company seeking in this case?**

152   A.    The Company requests that the Commission issue an order by December 29, 2017,  
153           approving the resource decision to repower the wind facilities, as authorized by Utah  
154           Code Ann. § 54-17-402, approving the continued recovery of replaced plant  
155           equipment, and approving the Company’s proposed ratemaking treatment. This will  
156           allow the Company to execute the necessary contracts and procure the equipment  
157           required to achieve commercial operation of all repowered units by December 31,  
158           2020.



159 **CUSTOMER BENEFITS**

160 **Q. What are the customer benefits resulting from wind repowering?**

161 A. The customer benefits resulting from wind repowering derive in part from the fact that  
162 repowering allows the Company's existing wind resources to requalify for federal  
163 PTCs—which are then passed through to customers. As noted above, the Company  
164 expects repowering to cost approximately \$1.13 billion. The customer benefits,  
165 however, are expected to exceed that cost—meaning that wind repowering will save  
166 customers money.

167 Wind repowering creates these benefits by:

- 168 • Increasing energy production from the wind facilities between 11 to  
169 35 percent because of longer blades and higher capacity generators;
- 170 • Reducing ongoing operating costs associated with aging wind turbines;
- 171 • Extending the useful lives of the wind facilities by at least ten years;
- 172 • Reducing customer costs by requalifying the wind facilities for PTCs for an  
173 additional 10 years; and
- 174 • Improving the ability of the wind facilities to deliver cost-effective,  
175 renewable energy into the transmission system through enhanced voltage  
176 support and power quality.

177 The repowered facilities will deliver cost-effective energy to Utah customers,  
178 while saving customers money over the life of the investment.

179 **Q. Did the Company analyze wind repowering in its most recent IRP?**

180 A. Yes. The Company's 2017 IRP, which was filed with the Commission April 4, 2017,

181 includes wind repowering as an integral component of the preferred portfolio—  
182 meaning that it was selected as a least-cost, least-risk resource option.

183 **Q. Does the Company’s economic analysis demonstrate that the wind repowering**  
184 **project will provide net benefits to customers?**

185 A. Yes. The Company’s economic analysis of the wind repowering project demonstrates  
186 that it will provide substantial customer benefits. As described in more detail in  
187 Mr. Link’s testimony, the Company analyzed nine different scenarios, each with  
188 varying natural gas and carbon dioxide (“CO<sub>2</sub>”) price assumptions, and all nine  
189 scenarios show customer benefits, ranging from \$41 million when assuming low  
190 natural gas and zero CO<sub>2</sub> prices to \$589 million when assuming high natural gas and  
191 high CO<sub>2</sub> prices. With medium natural gas price and CO<sub>2</sub> price assumptions, wind  
192 repowering results in customer benefits of \$359 million.

193 **Q. After the Company filed its IRP in April, did Company representatives meet with**  
194 **Utah stakeholders to provide an overview of this filing?**

195 A. Yes. From May 9 to 11, 2017, the Company met with various Utah stakeholders to  
196 review the details of its wind repowering proposal and discuss the scope and timing of  
197 this filing.

198 **Q. How does the Company plan to reflect the net benefits of wind repowering in Utah**  
199 **rates?**

200 A. As explained by Company witness Mr. Larsen, the Company proposes a new Resource  
201 Tracking Mechanism (“RTM”) to address the proper ratemaking treatment to match the  
202 annual costs and benefits of wind repowering until the incremental costs and benefits  
203 are fully reflected in base rates, primarily including incremental capital and operating

204 costs, net power costs savings not already captured in the Company’s Energy Balancing  
205 Account (“EBA”), and PTC benefits. This mechanism will align the costs and benefits  
206 so that customers receive the full net benefits from the repowering project while  
207 shareholders receive appropriate cost recovery of the prudent investment. Once the full  
208 costs are reflected in base rates in a general rate case, the Company proposes that the  
209 mechanism continue to track only year-to-year changes in PTCs to capture the full  
210 impact of the new PTCs.

211 **Q. If wind repowering provides such substantial benefits, why is the Company**  
212 **seeking approval now?**

213 A. Because of the magnitude of the investment and the scope of the repowering project,  
214 the Company wants to provide the Commission and stakeholders an opportunity to  
215 review and provide meaningful input into the wind repowering decision before  
216 contracts are executed and construction begins.

217 In addition, it is important that parties understand the rate treatment of the  
218 project before the Company makes this significant investment to ensure that the costs  
219 and benefits will be properly matched and customers and shareholders will be fairly  
220 treated.

221 **Q. How does the Company intend to finance wind repowering?**

222 A. The Company intends to finance the proposed wind repowering through its normal  
223 sources of capital, both internal and external, including net cash flow from operating  
224 activities, public and private debt offerings, the issuance of commercial paper, the use  
225 of unsecured revolving credit facilities, capital contributions, and other sources.  
226 Although repowering is a significant investment on the part of the Company, the

227 financial impact will not impair the Company's ability to continue to provide safe and  
228 reliable electricity service at reasonable rates.

229 **Q. How will approval of the Company's application support the Company's current**  
230 **credit rating?**

231 A. Ratings agencies consider the Company's regulatory treatment when establishing its  
232 credit rating, and particularly focus on the treatment of capital investments. Supportive  
233 treatment through approval of an investment of this magnitude provides assurance to  
234 ratings agencies and helps maintain the Company's credit rating. A solid credit rating  
235 directly benefits customers by ensuring access to capital markets, reducing immediate  
236 and future borrowing costs related to the financing needed to support regulatory  
237 operations. Strong ratings will often help the Company avoid costly collateral  
238 requirements that are typically imposed on lower-rated companies when securing  
239 power in the market. If the Company does not have consistent access to the capital  
240 markets at reasonable costs, its debt issuances and the resulting costs of constructing  
241 the new facilities become more expensive than they otherwise would be.

242 **REQUIREMENTS FOR APPROVAL OF A RESOURCE DECISION**

243 **Q. What are the requirements for approval of a resource decision under Utah Code**  
244 **Ann. § 54-17-402?**

245 A. It is my understanding that Utah Code Ann. § 54-17-402 authorizes the Commission to  
246 approve a utility's proposed "resource decision," including a decision like repowering  
247 that relates to the management or operation of an existing generating plant. I further  
248 understand that Utah Code Ann. § 54-17-402(3)(b) states that the Commission must

249 determine whether the decision is in the public interest, taking into consideration the  
250 following factors:

- 251 • Whether the decision will most likely result in the acquisition, production,  
252 and delivery of utility services at the lowest reasonable cost to the retail  
253 customers of the utility;
- 254 • Long-term and short-term impacts;
- 255 • Risk;
- 256 • Reliability;
- 257 • Financial impacts on the utility; and
- 258 • Other factors determined by the Commission to be relevant.

259 **Q. Based on these factors, is the repowering decision in the public interest?**

260 A. As described above, and in more detail in the testimony of Mr. Link, repowering  
261 provides substantial customer benefits and is in the public interest. Repowering  
262 increases the energy generation of the Company's existing wind facilities, while saving  
263 customers money, and repowering provides these substantial customer benefits across  
264 all market price and Clean Power Plan scenarios modeled in the 2017 IRP—  
265 demonstrating that wind repowering is both least-cost and least-risk. The benefits of  
266 repowering accrue through the extended life of the existing wind resources, thus  
267 providing long-term, cost-effective, emission-free generation to serve Utah customers.

268 Moreover, as described above, the repowering project will not have an adverse  
269 financial impact on the Company and approval of the resource decision will provide  
270 further customer benefits by bolstering the Company's credit rating to better ensure  
271 continued access to low cost capital.

272

**CONCLUSION**

273 **Q. What is your recommendation to the Commission?**

274 A. I recommend that by December 29, 2017, the Commission issue an order finding that  
275 the Company's decision to repower its wind fleet is prudent and in the public interest,  
276 approving the Company's proposals for ratemaking, and for the continued recovery of  
277 the replaced equipment. Approval will provide certainty to the Company and enable it  
278 to move forward with confidence as it embarks on a project of this magnitude on behalf  
279 of its customers.

280 **Q. Does this conclude your direct testimony?**

281 A. Yes.