

Rocky Mountain Power  
Docket No. 18-035-36  
Witness: Timothy J. Hemstreet

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Direct Testimony of Timothy J. Hemstreet

September 11, 2018

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

2 A. My name is Timothy J. Hemstreet. My business address is 825 NE Multnomah Street,  
3 Suite 1500, Portland, Oregon 97232. My present position is Director of Renewable  
4 Energy Development. I am testifying on behalf of Rocky Mountain Power (the  
5 “Company”), a division of PacifiCorp.

6 **QUALIFICATIONS**

7 **Q. Briefly describe your education and professional experience.**

8 A. I hold a Bachelor of Science degree in Civil Engineering from the University of Notre  
9 Dame in Indiana and a Master of Science degree in Civil Engineering from the  
10 University of Texas at Austin. I am also a Registered Professional Engineer in the state  
11 of Oregon. Before joining the Company in 2004, I held positions in engineering  
12 consulting and environmental compliance. Since joining the Company, I have held  
13 positions in environmental policy, engineering, project management, and hydroelectric  
14 project licensing and program management. In 2016, I assumed the role of Director of  
15 Renewable Energy Development, in which I oversee the development of renewable  
16 energy resources.

17 **Q. Please explain your responsibilities as Director of Renewable Energy**  
18 **Development.**

19 A. The renewable energy development group is responsible for identifying and developing  
20 Company-owned renewable generation resource options and efficiency  
21 improvements—including wind, solar, and hydroelectric resources—to enhance or  
22 improve the efficiency of the Company’s renewable resources portfolio.

23 **PURPOSE OF TESTIMONY**

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

25 A. My testimony:

- 26 • Provides an overview of the Company’s recommended depreciable lives for its  
27 renewable generating resources. The Company reviewed its hydro and wind  
28 resource generating assets and performed an evaluation of depreciable lives in  
29 support of this filing. Based on this assessment, the Company proposes certain  
30 changes to the depreciable lives established in the previous depreciation study filed  
31 in Docket No. 13-035-02 ("2013 depreciation study").<sup>1</sup>
- 32 • Describes how the Company developed estimated plant economic lives for its wind  
33 and hydro generation resources included in the Company’s new depreciation study  
34 submitted with Company witness Mr. John J. Spanos’s testimony as Exhibit  
35 RMP\_\_\_(JJS-2) (the “Depreciation Study”) in this filing. My testimony also  
36 summarizes the proposed changes in the depreciable plant lives of the renewable  
37 resources and the basis therefore including updated information regarding new and  
38 anticipated hydroelectric operating licenses, the repowering of the Company’s  
39 existing wind fleet, as well as the assumed depreciation lives for new wind  
40 resources that will be brought online in 2020.

41 **Q. Have you provided the Company’s estimated plant economic lives for its**  
42 **renewable generation assets?**

43 A. Yes. Exhibit RMP\_\_\_(TJH-1) attached to my testimony contains a complete list of the  
44 Company’s renewable generation plants and their recommended depreciable lives.

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<sup>1</sup> In the Matter of the Application of Rocky Mountain Power, a Division of PacifiCorp, for Authority to Change its Depreciation Rates Effective January 1, 2014, Docket 13-035-02.

45        **DEPRECIABLE LIVES FOR HYDROELECTRIC GENERATION RESOURCES**

46    **Q.     What is the Company’s general approach for developing the depreciable lives of**  
47        **its hydroelectric generating facilities?**

48    A.     The Company’s approach as reflected in the Depreciation Study is primarily based on  
49        Federal Energy Regulatory Commission (“FERC”) hydroelectric plant license  
50        expiration dates. The vast majority of the facilities (comprising 99 percent of the  
51        Company’s installed hydroelectric generating capacity) require a FERC license to  
52        operate. The terms of the FERC license requirements largely determine the capital  
53        expenditures required to make necessary improvements to the hydroelectric plant  
54        during the license period to implement protection, mitigation and enhancement  
55        measures. It is therefore appropriate for the term of the FERC license to set the  
56        depreciable life of the hydroelectric generation resource.

57                The status of the FERC relicensing processes for the Company’s licensed  
58        hydroelectric facilities was reviewed to determine any changes required by new  
59        licensing information. These changes are due to either recent license issuances or the  
60        Company’s expectations of the term of new licenses based upon the scope of likely or  
61        proposed protection, mitigation and enhancement measures that will be required during  
62        a new license term, which FERC uses to assess the appropriate new license term in a  
63        licensing order.

64                For its unlicensed hydroelectric facilities, the Company assessed the  
65        depreciation lives based on the current operating conditions of the facilities as observed  
66        since the last depreciation study and the estimated remaining life of the physical assets  
67        as determined by the Company’s hydro resources engineering staff.

68 **Q. What major changes did the Company make regarding the depreciable lives of its**  
69 **hydroelectric generating resources?**

70 A. The major changes the Company made are driven primarily by changes in expected  
71 license terms for FERC regulated projects that have either been recently issued a new  
72 license or that the Company intends to relicense in the near future. FERC issued a new  
73 40-year license for the Wallowa Falls project in Oregon in January 2017 so the  
74 Company extended the depreciable life of that project to 2057 to match the new license  
75 term. Additionally, the Company expects FERC to issue a new 40-year license for the  
76 Prospect No. 3 project in Oregon in late 2018 so the Company proposes extending the  
77 depreciable life of the Prospect No. 3 facility to 2058. The Company also expects that  
78 FERC will issue new 40-year licenses for the Weber and Cutler facilities in Utah when  
79 their existing licenses expire in 2020 and 2024, respectively. Exhibit RMP\_\_\_(TJH-1),  
80 “PacifiCorp Estimated Plant Retirement, Lives – Renewable Resources” lists the  
81 estimated retirement dates of the Company’s hydro and wind generating resources and  
82 the proposed changes to the existing depreciable lives.

83 **Q. Why does the Company assume that the facilities it intends to relicense will be**  
84 **issued 40-year licenses?**

85 A. The Company’s recent experience with new license terms for projects with moderate  
86 changes or for which construction is required to comply with new license requirements,  
87 like the Wallowa Falls project, is that FERC will issue a 40-year license<sup>2</sup> unless unique  
88 conditions are met. This is consistent with FERC’s recent “Policy Statement on

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<sup>2</sup> The new license for Prospect No. 3 is available at <https://www.ferc.gov/industries/hydropower/gen-info/licensing/active-licenses/P-308.pdf>.

89 Establishing License Terms for Hydroelectric Projects,” issued in October 2017.<sup>3</sup> In  
90 the policy statement, FERC adopted a default 40-year license term for licensed hydro-  
91 power projects at non-federal dams. FERC also articulated that projects with limited  
92 new improvements or construction that are required under a new license could justify  
93 a shorter license term of not less than 30 years. The Company estimates that moderate  
94 infrastructure improvements will be necessary during new license terms for its  
95 hydroelectric projects; thus, a 40-year depreciable life was viewed as appropriate.

96 **Q. Did the Company extend the depreciable life of any of its other hydro facilities for**  
97 **reasons other than new or anticipated license terms?**

98 A. Yes. The Company made slight adjustments to extend the depreciable lives of several  
99 small hydro facilities with less than three megawatt capacity that are not licensed by  
100 FERC. Small extensions of between four to eight years are proposed for the Paris,  
101 Gunlock, Santa Clara, Veyo, Last Chance and Granite facilities to reflect their  
102 continuing operational status and the estimated remaining life of their physical assets.  
103 The Company also extended the depreciable lives for the Bend and Eagle Point  
104 facilities of 14 and 15 years, respectively, because these facilities will not be  
105 decommissioned in the near-term and will continue to provide service to customers for  
106 the new proposed depreciable life.

107 **Q. Did the Company reduce the depreciable life of any of its hydro facilities?**

108 A. Yes. The depreciable life of the Viva Naughton hydroelectric facility – a small  
109 0.74 megawatt capacity hydroelectric facility located at the cooling water storage  
110 reservoir for the Naughton steam generating facility in Wyoming – was reduced by

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<sup>3</sup> FERC's policy statement is available at <https://www.ferc.gov/whats-new/comm-meet/2017/101917/H-1.pdf>.

111 11 years, from 2040 to 2029, to reflect the planned retirement date of the Naughton  
112 steam generating station.

113 **Q. Has the Company proposed any changes to the estimated retirement date of its**  
114 **Klamath hydroelectric assets?**

115 A. No, the Company's estimated retirement dates for the Klamath hydroelectric facilities  
116 are unchanged from the 2013 depreciation study and remain consistent with the timing  
117 of decommissioning anticipated by the Klamath Hydroelectric Settlement Agreement.

118 **Q. Could environmental issues affect the estimated plant economic life of hydro**  
119 **resources in the future?**

120 A. Yes. While no new significant environmental compliance issues have emerged since  
121 the 2013 depreciation study, the dynamic nature of evolving environmental stewardship  
122 requirements and FERC licensing requirements, coupled with asset specific attributes  
123 will continue to impact the Company's ability to economically achieve license  
124 extensions or economically operate unlicensed hydro facilities for the benefit of  
125 customers. For instance, assets that must mitigate project effects on species listed under  
126 the Endangered Species Act may be subject to unique environmental stewardship  
127 requirements, which can change based upon the status of the listed species. On the other  
128 hand, long-term investments the Company is making to comply with its current license  
129 requirements – such as the installation of fish passage measures at many of its newly  
130 relicensed hydroelectric facilities – may positively influence the ability to relicense  
131 these facilities in the future and continue economic operation. If conditions change as  
132 a result of evolving requirements or unforeseen circumstances, the depreciable lives of

133 the Company's hydroelectric assets will be adjusted accordingly in a future  
134 depreciation.

135 **DEPRECIABLE LIVES FOR NEW WIND GENERATING RESOURCES**

136 **Q. Please describe the process the Company used to assess the depreciable lives of its**  
137 **wind resources.**

138 A. In the Company's 2013 depreciation study, the Company recommended, and the  
139 Commission adopted, extending the previously assumed 25-year depreciable life for its  
140 wind-powered generation resources to 30 years. The Company has assessed this  
141 depreciable life against current industry trends for wind generation facilities and  
142 continues to believe that a 30-year depreciable life is appropriate for such facilities  
143 whose wind turbine generators are designed to meet industry standards and that are  
144 maintained consistent with manufacturer recommendations. New wind projects require  
145 a greater investment per turbine due to the larger wind turbine size as compared to  
146 earlier turbine technologies. Thus, some new utility-owned wind assets, for which  
147 ongoing generation offtake and maintenance funding is more certain, have been  
148 considered for longer asset lives of up to 40 years.

149 **Q. What asset life is the Company proposing for the new wind facilities that are**  
150 **currently being developed and expected to enter service in 2020?**

151 A. The Company is currently developing 950 megawatts of new wind facilities in  
152 Wyoming associated with its Energy Vision 2020 project that are expected to  
153 commercially operate in 2020. The Company proposes a 30-year asset life for these  
154 new facilities, consistent with the 30-year asset life for the Company's existing wind  
155 facilities that was approved in the 2013 depreciation study.



156 **Q. Is a 30-year asset life consistent with how the Company evaluated proposed new**  
157 **wind projects as part of its Energy Vision 2020 proposal?**

158 A. Yes, in the Energy Vision 2020 cases, the Company assumed a 30-year asset life for  
159 new Company-owned wind assets as part of such new wind resources' economic  
160 evaluation.

161 **DEPRECIABLE LIVES FOR REPOWERING WIND GENERATING RESOURCES**

162 **Q. Is the Company proposing changes to the depreciable lives of its existing wind**  
163 **resources?**

164 A. Yes. The Company is currently repowering the majority of its existing wind fleet,  
165 which, for its wind facilities constructed between 2006 and 2010, will result in the  
166 replacement of the existing nacelles and rotors at the facilities with more modern  
167 equipment that includes longer blades and higher capacity generators.<sup>4</sup>

168 Repowering of the Company's wind fleet will benefit customers by requalifying  
169 the repowered facilities for the full value of available production tax credits when  
170 brought online by the end of 2020, increasing zero-fuel cost generation from the  
171 existing wind fleet by an average of approximately 26 percent, and extending the asset  
172 lives of the repowered facilities. The Company plans to repower its existing wind  
173 facilities in 2019 and 2020. The Company therefore recommends extending the  
174 depreciable lives of the repowered facilities to provide for a 30-year asset life after the  
175 repowering equipment upgrades are installed. This results in an extension of the  
176 depreciable lives of the Company's existing wind facilities by 10 to 21 years,

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<sup>4</sup> The Company is also evaluating repowering its Foote Creek I facility, which would involve the replacement of the existing wind turbine generators installed in 1999 with new, modern equipment. The Company anticipates that this facility will be repowered in 2020 if satisfactory arrangements are obtained and permits are received that would allow this facility to be repowered and provide benefits to customers as compared to the status quo.

177 depending on the facility. The Company's proposed depreciable lives for its wind  
178 facilities are shown in Exhibit RMP\_\_\_(TJH-1).

179 **Q. What are the current asset lives of the wind facilities to be repowered?**

180 A. All of the existing wind facilities are currently being depreciated assuming a 30-year  
181 asset life. The facilities the Company plans to repower or is evaluating for repowering  
182 are currently scheduled to be retired between 2029 and 2040. The retired assets from  
183 repowering are treated as an interim retirement for accounting purposes and transferred  
184 to the wind plant depreciation reserve.

185 **Q. Will repowering the wind facilities extend their useful operating lives beyond the**  
186 **currently planned retirement dates?**

187 A. Yes, the Company believes that repowering the wind facilities will extend their  
188 operation 30 years from the repowering date, extending their useful lives by at least  
189 10 years.

190 **Q. How will repowering extend the useful life for 30 years from the repowering date?**

191 A. The repowering projects are being designed by the turbine equipment suppliers to meet  
192 the same design requirements that apply to complete wind turbine generators used in  
193 new wind facility construction. The wind turbine equipment suppliers will have their  
194 wind turbine designs for the repowering projects certified by an independent third party  
195 to ensure that they meet or exceed applicable International Electrotechnical  
196 Commission design standards used in the wind turbine industry. These design standards  
197 are intended to ensure that the equipment is appropriate for the site conditions and will  
198 perform satisfactorily over the standard design life.

199 **Q. What factors are independently reviewed to assess and certify the design of the**  
200 **repowered wind facilities?**

201 A. The third-party design assessment evaluates the site-specific load assumptions based  
202 upon the climactic conditions at each facility and will assess the control and protection  
203 systems for the wind turbine and their ability to meet the site design conditions. It will  
204 also assess the electric components, the rotor blades, hub, machine components  
205 (i.e., drivetrain, main bearing and gearbox), and the suitability of the existing tower  
206 upon which the new wind turbine equipment will be installed to meet the new design  
207 loads.

208 **Q. Does the Company have land rights that allow its repowered wind facilities to**  
209 **operate for 30 years after repowering?**

210 A. The Company reviewed its existing land rights for its existing wind generation facilities  
211 and determined that nearly all projects have land rights that will allow the facilities to  
212 operate for 30 years after repowering is completed. The Company will seek to prudently  
213 extend lease terms beyond the initial period, as required, to support the longer  
214 depreciable lives of its repowered wind resources.

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

216 A. Yes.