

Rocky Mountain Power  
Docket No. 20-035-04  
Witness: David G. Webb

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Rebuttal Testimony of David G. Webb

October 2020

1 **Q. Are you the same David G. Webb who previously submitted direct testimony in**  
2 **this proceeding on behalf of PacifiCorp d/b/a Rocky Mountain Power**  
3 **(“PacifiCorp” or the “Company”)?**

4 A. Yes.

5 **I. PURPOSE AND SUMMARY OF TESTIMONY**

6 **Q. What is the purpose of your rebuttal testimony?**

7 A. My rebuttal testimony discusses the changes to net power costs in this case to align  
8 with the adjustments included by other Company witnesses and responds to various  
9 issues and adjustments raised in the direct testimony of the Division of Public Utilities  
10 (“DPU”) witnesses Mr. Robert A. Davis and Mr. Gary L. Smith, the Office of  
11 Consumer Services (“OCS”) witness Mr. Philip Hayet, and the Utah Association of  
12 Energy Users (“UAE”) witness Mr. Kevin C. Higgins relating to net power costs  
13 (“NPC”).

14 **Q. Please summarize your rebuttal testimony.**

15 A. I discuss the Company’s response to the various proposals that affect the NPC in this  
16 general rate case (“GRC”). I specifically address the following points:

- 17 • NPC changes to align with rebuttal adjustments for wind project updates;
- 18 • OCS’ proposed adjustment to remove market depth constraints;
- 19 • OCS’ concern about the Day-Ahead/Real-Time adjustment;
- 20 • Parties concerns about including production tax credits (“PTCs”) in the  
21 Energy Balancing Account (“EBA”);
- 22 • Impacts to the EBA from the Subscriber Solar II proposal; and,
- 23 • DPU’s concern about the EBA base revenue update proposal.

24 **II. NPC ALIGNMENT WITH WIND PROJECT IN-SERVICE DATES**

25 **Q. Please explain the changes reflected in your revised NPC request.**

26 A. The Company made one change to NPC to reflect the updated timing of the in-service  
27 dates of the Pryor Mountain and TB Flats II wind projects as discussed by Company  
28 witnesses Mr. Robert Van Engelenhoven and Mr. Timothy J. Hemstreet.

29 The results of the Company's revised NPC study to align with the wind project  
30 changes are provided in Exhibit RMP\_\_(DGW-1R). This NPC revision excludes any  
31 of the standard price and contract updates associated with a typical full NPC update.  
32 The only revision made was to adjust the Pryor Mountain and TB Flats II wind project  
33 in-service dates as model inputs.

34 **Q. How has your NPC recommendation changed from the initial filing?**

35 A. On a total-Company basis, NPC increased by \$9.2 million, from \$1.421 billion to  
36 \$1.431 billion. On a Utah-allocated basis, NPC increased from \$619.2 million to  
37 \$622.6 million, a \$3.4 million increase from the initial filing but still a reduction of  
38 \$5.4 million from base NPC of \$628.0 million in the last general rate case Docket No.  
39 13-035-184 ("2014 GRC").

40 **Q. Why did the Company forego a full NPC update in its rebuttal filing?**

41 A. The Settlement Stipulation in the 2014 GRC specified that all updates to NPC in future  
42 Utah GRCs would be filed at least six weeks prior to the intervenor direct testimony  
43 due date.<sup>1</sup> As such, the Company is not updating its NPC at this time.

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<sup>1</sup> *In the Matter of the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Service Rates in Utah and for Approval of its Proposed Electric Service Schedules and Electric Service Regulations*, Docket No. 13-035-184, Settlement Stipulation at ¶41 p. 12 (June 25, 2014).

44 **III. REBUTTAL TESTIMONY**

45 **Modeled Market Depth Constraints**

46 **Q. Please summarize OCS’ position on the modeled market depth constraints.**

47 A. OCS recommends the Company be required to remove market depth constraints from  
48 the High Load Hours (“HLH”) in the GRID model. This adjustment reduces NPC by  
49 \$26.5 million on a total-Company basis or approximately \$11.5 million on a Utah-  
50 allocated basis.

51 **Q. How does the Company respond to OCS’ recommendation?**

52 A. Removing the existing market depth constraint limits—or caps—on market sales will  
53 distort the model results in unrealistic ways. As the market caps are derived from actual  
54 transactions, they best reflect the actual conditions under which the Company will be  
55 hedging and balancing. In actual operations, the Company faces limited counterparty  
56 activity and market liquidity at several locations in both the Light Load Hours (“LLH”)  
57 and the HLH. Those factors are both real and limiting, and they continue to have an  
58 effect on optimization efforts and actual NPC. If the caps on market sales are removed,  
59 as OCS proposes, none of these current real-world market-limiting characteristics  
60 would be represented in the GRID model, which would make the model less accurate.

61 **Q. What market capacity methodology was used in the Company’s GRID study in  
62 this proceeding?**

63 A. The market capacity in the Company’s GRID study reflects a four-year average of  
64 historical short term firm transactions, by market, month, and hour class (HLH and  
65 LLH). However, no market capacity limits are applied to the Mid-Columbia or the Palo  
66 Verde markets because they are the most liquid market points to which the Company

67 has access.

68 **Q. Mr. Hayet argues in favor of removing HLH market caps in GRID because the**  
69 **Public Service Commission of Utah (“Commission”) justified its initial 2005**  
70 **approval of market caps to limit off-peak or LLH sales from coal plants. Has the**  
71 **Commission reviewed market caps at any other point?**

72 A. Yes. While the subject of market caps was initially reviewed before the Commission  
73 in the avoided cost docket referenced by Mr. Hayet,<sup>2</sup> the updated methodology, and the  
74 basis for adopting it, was originally presented in the direct testimony of  
75 Mr. Gregory N. Duvall in the Company’s 2010 general rate case,<sup>3</sup> and was also  
76 discussed in the direct testimony of Mr. Duvall in the Company’s 2014 GRC.<sup>4</sup> The  
77 Commission approved market caps in both dockets.

78 **Q. Have the circumstances necessitating market caps in GRID changed dramatically**  
79 **since the Company’s 2014 GRC?**

80 A. No. In fact, actual operations provide evidence that the current market caps are sound  
81 modeling.

82 **Q. Can you provide an example of some operational data that indicates that the**  
83 **market caps are needed?**

84 A. Figure 1 below compares actual wholesale sales over the period from 2015 through  
85 2019 to the sales forecasted by GRID in the last two GRC proceedings. The approach

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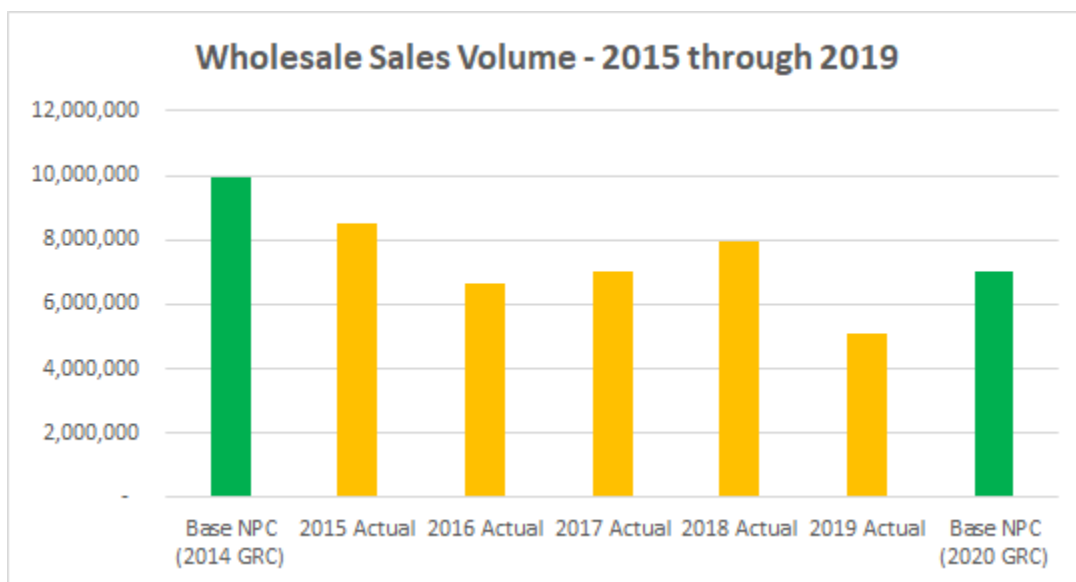
<sup>2</sup> Direct Testimony of Philip Hayet at line 140.

<sup>3</sup> *In the Matter of: the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Service Rates in Utah and for Approval of its Proposed Electric Service Schedules and Electric Service Regulations*, Docket No. 10-035-124, Direct Testimony of Gregory N. Duvall, lines 209-263 (Jan. 24, 2011).

<sup>4</sup> *In the Matter of: the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Service Rates in Utah and for Approval of its Proposed Electric Service Schedules and Electric Service Regulations*, Docket No. 13-035-184, Direct Testimony of Gregory N. Duvall, lines 359-419 (Jan. 3, 2014).

86 to modeling market caps is identical between the two rate case studies. An examination  
87 of the figure will illustrate that GRID tends to estimate the Company’s ability to sell  
88 power into the market with reasonable accuracy—if anything GRID forecasts slightly  
89 higher. Without the market caps in place, the model output would be less reflective of  
90 actual constraints, which would make the net power cost forecast less accurate as a  
91 result.

92 **Figure 1**



93 **Q. Mr. Hayet suggests that the removal of HLH market capacity limits represents a**  
94 **reasonable modeling change.<sup>5</sup> Do you agree?**

95 A. No. Mr. Hayet has presented no evidence indicating that the removal of the HLH  
96 market capacity limit results in the GRID model producing a more accurate net power  
97 cost forecast. In contrast, the history of forecasted sales versus actual sales makes it  
98 clear that GRID already projects sales volumes within a reasonable range of actual  
99 results. Therefore, I urge the commission to reject the proposed change to market cap

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<sup>5</sup> Direct Testimony of Philip Hayet at line 163.

100 modeling.

101 **Day-Ahead/Real-Time Adjustment**

102 **Q. OCS has raised concerns that the Company’s “system balancing transaction**  
103 **adjustments” are “complex” and “over-reaching.”<sup>6</sup> How do you respond?**

104 A. What OCS refers to as “system balancing transaction adjustments” is in fact the Day-  
105 Ahead/Real-Time (“DA/RT”) adjustment. The Company incurs system balancing costs  
106 that are not reflected in the Company’s forward price curve or modeled in GRID. To  
107 address this deficiency, the Company uses the DA/RT adjustment to more accurately  
108 model system balancing transaction prices and volumes. The Company has been using  
109 this adjustment in Oregon, Wyoming, Washington, and California to increase the  
110 accuracy of its power cost forecasts.

111 **Q. Please describe how system balancing transactions are included in GRID.**

112 A. System balancing transactions are required to balance the hourly load and resources in  
113 the GRID model for the GRC test period. The GRID model calculates the least-cost  
114 solution to balance the Company’s load and resources each hour. The model makes  
115 purchases in the wholesale market (labeled as “system balancing purchases” in the NPC  
116 report) in the hours for which the Company does not have enough owned or contracted  
117 resources to meet its load. The model also makes wholesale market sales (labeled as  
118 “system balancing sales” in the NPC report) when it has excess resources for a given  
119 hour.

120 **Q. Please describe the price component of the DA/RT adjustment.**

121 A. To better reflect the market prices available to the Company when it transacts in the

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<sup>6</sup> Direct Testimony of Philip Hayet at line 189.

122 real-time market, PacifiCorp includes in GRID separate prices for forecasted system  
123 balancing sales and purchases. These prices account for the historical price differences  
124 between the Company's purchases and sales compared to the monthly average market  
125 prices.

126 **Q. Why is the DA/RT adjustment needed to differentiate the market prices for**  
127 **purchases and sales?**

128 A. In prior NPC forecasts, before including a DA/RT adjustment, the GRID model only  
129 used an hourly price curve developed from monthly HLH and LLH forward market  
130 prices. Hourly prices were simply the product of applying a scalar, or shape, to the  
131 monthly average prices. These scalars were identical within a given month for each  
132 weekday of that month. In addition, the prices were input into the model and did not  
133 change regardless of the volume of the system balancing transactions or other system  
134 conditions in the model. In reality, however, prices vary within each month and the  
135 Company has historically bought more during higher-than-average price periods and  
136 sold more during lower-than-average price periods. While there are exceptions to this  
137 rule, the average cost of the Company's daily and hourly short-term firm purchases  
138 tends to be higher than the average actual monthly market price, while the average  
139 revenues from its daily and hourly short-term firm sales tends to be lower than the  
140 average actual monthly market price.

141 **Q. Please describe the volume component of the DA/RT adjustment.**

142 A. The Company reflects additional volumes to account for the use of monthly, daily, and  
143 hourly products. In actual operations, the Company continually balances its market  
144 position—first with monthly products, then with daily products, and finally with hourly



145 products. The products used to balance the Company's forward position in the  
146 wholesale market are available in flat 25 megawatt ("MW") blocks. The Company's  
147 load and resource balance, however, varies continuously each hour in quantities that  
148 may vary widely from a flat 25 MW block. Thus, in real world operations, the Company  
149 must continuously purchase or sell additional volumes to keep the system in balance.

150 In contrast, GRID has perfect foresight and can model wholesale market  
151 transactions at whatever volume is necessary to balance the system. Because of GRID's  
152 perfect foresight, it can balance the system with far fewer transactions. The DA/RT  
153 adjustment adds additional volumes to NPC to more accurately model the transactions  
154 necessary to balance the Company's system.

155 **Q. Can you explain why both a Market Cap adjustment and the DA/RT are necessary**  
156 **even when base NPC is trued-up to actual NPC every year in the EBA?**

157 A. These two adjustments serve different purposes and impact the NPC forecast in  
158 different ways. The market cap adjustment exists to account for real operational  
159 constraints that limit the amount of sales activity the Company can engage in over time.  
160 As noted above, a comparison of forecasted and actual sales indicates that the inclusion  
161 of this constraint has made the model more accurate. The DA/RT adjustment applies  
162 to both purchases and sales and is in place to reflect a different operational reality faced  
163 by the company; specifically, it addresses the fact that the Company cannot balance the  
164 system with perfect foresight in a single transaction, at precisely the market average  
165 price. The DA/RT adjustment also makes the NPC forecast more accurate when  
166 compared to actual operations and both adjustments serve to mitigate changes in the  
167 EBA.

168 **Q. Can you explain why it would be inappropriate to include a line item adjustment**  
169 **based on historical data instead of using the DA/RT?**

170 A. A line item adjustment would make this adjustment less accurate. Historical volumes  
171 and prices make up the inputs to the DA/RT calculation, but they need to be applied on  
172 an average basis to the forecasted purchase and sale volumes in order to match the  
173 Company's expectations regarding the expected system balancing costs over time. In  
174 addition, the line item approach misses the opportunity to have GRID optimize using a  
175 set of expected prices that more closely match the reality that the Company expects to  
176 face when executing balancing transactions. As a result of both of those factors, a line  
177 item adjustment would reduce forecast accuracy.

178 **Production Tax Credits**

179 **Q. Please explain the Company's proposal to include PTCs in the EBA.**

180 A. PTCs are currently included as a fixed revenue credit in base rates, but since actual  
181 PTC recovery is tied to actual generation that is captured in NPC, it is logical to treat  
182 PTCs similarly for ratemaking purposes. The PTCs associated with the Energy Vision  
183 2020 projects represent a significant source of additional value for customers.  
184 PacifiCorp's proposal to track and true-up PTCs through the EBA is designed to pass  
185 back to customers the full and actual value of PTCs.

186 **Q. Please summarize the arguments of the parties against a PTC true-up in the EBA.**

187 A. The DPU recommends that PTCs continue to be included in base rates and excluded  
188 from the EBA, claiming that including PTCs in the EBA is not expressly considered  
189 by Utah law.<sup>7</sup> DPU further contends that including the PTCs in the EBA

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<sup>7</sup> Direct Testimony of Gary L. Smith at lines 185-199.

190 inappropriately transfers risk from the Company to customers.<sup>8</sup> OCS argues that  
191 including PTCs in the EBA insulates the Company from regulatory lag and the risks of  
192 construction delays and incentivizes the Company to defer maintenance.<sup>9</sup> UAE  
193 recommends the PTCs remain in base rates stating PTC values do not change from year  
194 to year in an unpredictable manner and would make the potential benefits to customers  
195 from the new large wind investments even more variable than they already are.<sup>10</sup>

196 **Q. Please explain how PTCs are calculated for inclusion in the rate case and why it**  
197 **makes sense to include PTCs in the EBA.**

198 A. The PTCs in this case are derived from the annual wind generation forecast as part of  
199 the base NPC. In other words, the annual wind generation forecast in the base NPC is  
200 then multiplied by the PTC rate and grossed up for taxes to arrive at the total-Company  
201 PTC amount that is then allocated to Utah. All other components of base NPC are trued-  
202 up in the EBA, and therefore it makes sense that PTCs, which are also derived from the  
203 same forecast, should also be included in the EBA.

204 **Q. How do you respond to DPU's statement the PTCs are not expressly included in**  
205 **Utah's Energy Balancing Account statute?**

206 A. It is my understanding that Utah's Energy Balancing Account statute allows for the  
207 recovery of incurred actual power costs.<sup>11</sup> Not all components currently included in the  
208 EBA mechanism are described in the statute, such as wheeling revenues. My  
209 understanding is that the statute language is not necessarily all-inclusive and does not

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<sup>8</sup> Direct Testimony of Gary L. Smith at lines 247-249.

<sup>9</sup> Direct Testimony of Philip Hayet at lines 714-718.

<sup>10</sup> Direct Testimony of Kevin C. Higgins at lines 1185-1187.

<sup>11</sup> Utah Code § 54-7-13.5.

210 limit other expenses from being included. PTCs vary based on the amount of generation  
211 produced by the Company’s wind facilities, and so they are intrinsically tied to power  
212 costs. Furthermore, they are included in many of the NPC mechanisms that PacifiCorp  
213 has in other states including Oregon, California and Idaho.<sup>12</sup> In fact, the Commission  
214 has previously contemplated in past orders that it was appropriate to consider the  
215 treatment of PTCs in a general rate case.<sup>13</sup>

216 **Q. Do you agree with DPU’s characterization that the inclusion of PTCs in the EBA**  
217 **would transfer risk to customers?**

218 A. No. The inclusion of PTCs is not about transferring risk to customers, but rather about  
219 ensuring that customers’ rates reflect the full costs and benefits of these wind resources.  
220 As I discussed above, PTCs are intrinsically tied to the generation output of wind  
221 facilities. In fact, all other variable benefits and costs that are tied to the actual  
222 generation of the Company’s wind facilities are included in NPC. Including PTCs is  
223 not shifting risk or harming customers; rather, it ensures that the Company’s actual  
224 operations are aligned with customer rates.

225 **Q. How do you respond to UAE’s assertion that including PTCs in the EBA adds to**  
226 **customer’s risk exposure?<sup>14</sup>**

227 A. As I stated above, the inclusion of PTCs is not about increasing variability for  
228 customers but about ensuring that customers’ rates reflect the full costs and benefits of  
229 these wind resources

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<sup>12</sup> PacifiCorp has proposed this treatment in Washington and Wyoming in currently ongoing general rate proceedings.

<sup>13</sup> In 2017, the Commission declined to include PTCs in the EBA but determined they “remain open to reconsider the issue either at the conclusion of the EBA pilot period or during the next GRC.” *In the Matter of: the Application of Rocky Mountain Power for Approval of its Proposed Energy Cost Adjustment Mechanism*, Docket No. 09-035-15, Order at 9 (Feb. 16, 2017).

<sup>14</sup> Direct Testimony of Kevin C. Higgins at lines 1176-1177.

230 **Q. Do you agree with UAE that PTC values are not variable enough to justify**  
231 **inclusion in the EBA?**<sup>15</sup>

232 A. No. While the value per kilowatt-hour (“kWh”) produced is set in the Internal Revenue  
233 Code, the amount of the kWh produced by the PacifiCorp’s wind facilities is variable,  
234 and it is exactly this type of generation variability that net power cost mechanisms are  
235 intended to track. Additionally, inclusion of PTCs in the EBA will allow for a timely  
236 update of the PTC rate in the event it is updated for inflation. UAE also ignores similar  
237 items like renewable energy credits that have a generation-based benefit.

238 **Q. How do you respond to OCS’s assertion that including PTCs in the EBA would**  
239 **insulate the Company from construction delays and incentivize the deferral of**  
240 **maintenance?**<sup>16</sup>

241 A. The Company’s EBA is audited on an annual basis in order to determine the prudence  
242 of its actions. That review includes the ability to review the outages and comment upon  
243 decisions regarding the execution or deferral of maintenance activities. Any argument  
244 that the Company is insulated from construction delays or could defer maintenance is  
245 unjustified because parties and the Commission have a full opportunity to review the  
246 prudence of any outages that occur in the EBA.

247 Additionally, there has been no evidence that the structure of the EBA affects  
248 the Company’s operations. When the DPU evaluated PacifiCorp’s wind generation  
249 before and after the EBA, it was determined that there was no evidence to conclude

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<sup>15</sup> UAE contends that because the value of PTCs are set that “[t]here is no PTC price volatility to justify recovery through an adjustor mechanism.” Direct Testimony of Kevin C. Higgins at lines 1173-1174.

<sup>16</sup> Direct Testimony of Philip Hayet at lines 714-718.

250 that any deterioration in wind reliability was a result of the EBA.<sup>17</sup> Similarly it is  
251 inappropriate to conclude that the inclusion of PTCs in the EBA will have an effect on  
252 the Company's operations.

253 **Subscriber Solar**

254 **Q. Please summarize your rebuttal testimony with regards to the Company's**  
255 **proposed Subscriber Solar program.**

256 A. The Company proposes a redesign of the existing Subscriber Solar program to allow  
257 for new subscribers, which was described in detail by Company witness  
258 Mr. William Comeau in direct testimony. The DPU, OCS and Utah Clean Energy  
259 ("UCE") filed testimony with various recommendations regarding the redesigned  
260 program, the majority of which are addressed in the rebuttal testimony of  
261 Mr. Kyle T. Moore, who has adopted Mr. Comeau's testimony. My rebuttal testimony  
262 addresses the parties' questions regarding the implications of the redesigned program  
263 on NPC and the EBA.

264 **Q. What concern did the parties raise with respect to NPC?**

265 A. DPU witness Mr. Robert A. Davis recommends that the Company confirm the impacts  
266 the migration might have on the EBA.

267 **Q. How do you respond?**

268 A. Any unrecovered costs or unsubscribed portion of the proposed updated Subscriber  
269 Solar Program will impact the EBA and be allocated to all Utah customers.

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<sup>17</sup> See *In the Matter of: the Application of Rocky Mountain Power for Approval of its Proposed Energy Cost Adjustment Mechanism*, Docket No. 09-035-15, DPU Final Evaluation of PacifiCorp's EBA at page 34 (May 20, 2016).

270 **Update to EBA Base Revenues**

271 **Q. Why does DPU witness Mr. Smith recommend the Commission not approve the**  
272 **Company’s proposal to update the base EBA in each annual EBA filing?**

273 A. Mr. Smith’s only rationale for this recommendation is his belief that it is inconsistent  
274 with the statute enabling the EBA. He argues that Utah Code § 54-7-13.5(2)(f)(ii)  
275 allows the EBA collection to “be incorporated into base rates in an appropriate  
276 commission proceeding” and that the only appropriate commission proceeding is a  
277 general rate case. He then reasons that the Company’s proposed change is inconsistent  
278 with the law, because it would change base EBA rates outside of a general rate case.<sup>18</sup>

279 **Q. Do you agree with Mr. Smith’s conclusion concerning the Company’s proposed**  
280 **change to the EBA?**

281 A. No. Mr. Smith may misunderstand the Company’s proposed change. The Company  
282 does not propose updating base EBA rates in each annual EBA filing, and the Company  
283 agrees that base EBA rates should not be changed outside of a general rate case. The  
284 Company’s proposal is to use the actual revenue collected from base EBA rates  
285 established in a rate case instead of the forecast revenue collection from the test period  
286 in the rate case in its annual EBA filings. The Company is not recommending that base  
287 EBA rates themselves would change outside of rate cases; therefore, the proposed  
288 change is not inconsistent with the law. Company witness Mr. Robert M. Meredith will  
289 respond to Mr. Smith’s recommendation in more detail in his rebuttal testimony in the  
290 cost of service/pricing phase of this docket.

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<sup>18</sup> Direct Testimony of Gary L. Smith at lines 173-184.

291 **IV. CONCLUSION**

292 **Q. Please summarize your testimony.**

293 A. The Company’s NPC as modeled in the test period in this case are reasonable and have  
294 been aligned with the changes to the wind projects using the most recent data available.  
295 NPC have increased slightly from the initial filing but have decreased by \$5.4 million  
296 on a Utah-allocated basis, since the 2014 GRC. Additionally, I recommend that the  
297 Commission approve and adopt the proposed base NPC for the test period of  
298 \$1.431 billion on a total-Company basis and \$622.6 million on a Utah-allocated basis.

299 **Q. Does this conclude your rebuttal testimony?**

300 A. Yes.



Rocky Mountain Power  
Exhibit RMP\_\_ (DGW-1R)  
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OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Exhibit Accompanying Rebuttal Testimony of David G. Webb

Pryor Mountain and TB Flats II In-service NPC Revision

October 2020

PacifiCorp

12 months ended December 2021

Net Power Cost Analysis

10/21-12/21

Jan-21

Feb-21

Mar-21

Apr-21

May-21

Jun-21

Jul-21

Aug-21

Sep-21

Oct-21

Nov-21

Dec-21

\$

Special Sales For Resale

Long Term Firm Sales

Black Hills	7,505,785	737,196	563,577	510,677	345,626	371,342	595,055	746,190	736,430	730,562	717,386	703,085	748,658
BPA Wind	-	-	-	-	-	-	-	-	-	-	-	-	-
East Area Sales (WCA Sale)	8,780	732	732	732	732	732	732	732	732	732	732	732	732
Hurricane Sale	-	-	-	-	-	-	-	-	-	-	-	-	-
LADWP (IPP Layoff)	110,091	6,811	7,295	10,304	5,026	5,690	5,945	16,774	16,065	12,717	8,713	6,709	8,041
Leaning Juniper Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-
SMUD	-	-	-	-	-	-	-	-	-	-	-	-	-
UMPA II s45631	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Long Term Firm Sales</b>	<b>7,624,656</b>	<b>744,739</b>	<b>571,604</b>	<b>521,713</b>	<b>351,384</b>	<b>377,763</b>	<b>601,732</b>	<b>763,696</b>	<b>753,226</b>	<b>744,011</b>	<b>726,831</b>	<b>710,526</b>	<b>757,431</b>

Short Term Firm Sales

COB	-	-	-	-	-	-	-	-	-	-	-	-	-
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-
Four Corners	1,127,840	371,000	356,160	400,680	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-
Mead	-	-	-	-	-	-	-	-	-	-	-	-	-
Mid Columbia	-	-	-	-	-	-	-	-	-	-	-	-	-
Mona	-	-	-	-	-	-	-	-	-	-	-	-	-
NOB	-	-	-	-	-	-	-	-	-	-	-	-	-
Palo Verde	4,870,100	1,646,150	1,524,600	1,699,350	-	-	-	-	-	-	-	-	-
SP15	-	-	-	-	-	-	-	-	-	-	-	-	-
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-
West Main	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-
Electric Swaps Sales	-	-	-	-	-	-	-	-	-	-	-	-	-
STF Trading Margin	-	-	-	-	-	-	-	-	-	-	-	-	-
STF Index Trades	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Short Term Firm Sales</b>	<b>5,997,940</b>	<b>2,017,150</b>	<b>1,880,760</b>	<b>2,100,030</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

System Balancing Sales

COB	31,881,523	3,020,200	2,579,436	2,474,810	1,162,453	1,739,822	1,877,226	2,197,159	2,677,109	2,715,413	3,861,799	3,685,397	3,890,698
Four Corners	48,545,245	6,210,978	3,680,010	2,826,755	2,276,103	1,883,355	3,186,455	4,518,645	4,327,539	4,528,690	4,812,456	4,650,612	5,643,646
Mead	29,361,275	3,592,938	3,678,098	1,720,957	973,216	1,054,497	1,519,723	1,957,983	3,157,818	2,577,326	3,095,418	2,858,626	3,174,673
Mid Columbia	29,813,703	1,884,558	1,099,010	542,032	1,638,076	2,266,821	1,113,520	6,059,592	5,195,629	3,185,940	3,150,704	1,965,722	1,709,098
Mona	21,569,797	2,757,569	1,406,112	422,603	721,905	946,669	1,619,485	1,743,951	1,810,503	4,141,864	2,098,885	1,561,602	2,338,650
NOB	6,524,288	440,983	444,265	438,899	617,873	145,307	312,102	1,103,234	1,118,879	582,109	75,206	411,762	833,670
Palo Verde	41,859,367	1,715,707	574,779	1,367,312	2,427,272	2,713,993	4,520,088	7,031,232	8,045,662	5,096,377	2,708,516	2,593,441	3,065,009
Trapped Energy	631	-	-	-	-	-	-	-	-	-	-	531	-
<b>Total System Balancing Sales</b>	<b>209,555,829</b>	<b>19,622,832</b>	<b>13,461,709</b>	<b>9,793,368</b>	<b>9,816,898</b>	<b>10,750,465</b>	<b>14,148,580</b>	<b>24,611,799</b>	<b>26,333,138</b>	<b>22,830,718</b>	<b>19,802,984</b>	<b>17,727,793</b>	<b>20,655,444</b>

Total Special Sales For Resale

	223,178,425	22,384,821	15,914,073	12,415,111	10,168,283	11,128,228	14,750,313	25,375,494	27,086,365	23,574,730	20,529,815	18,438,319	21,412,876
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**Purchased Power & Net Interchange**

Long Term Firm Purchases	APS Supplemental	Avoided Cost Resource	1,348,849	1,095,201	1,032,244	1,016,035	830,825	743,881	742,782	585,990	827,498	1,090,534	1,068,343	1,341,093
Cedar Springs Wind	11,723,273	1,025,294	832,067	772,110	631,271	565,348	445,200	372,201	456,360	288,668	811,823	1,018,881	566,954	
Cedar Springs Wind III	5,369,068	372,723	451,621	547,613	465,612	400,323	378,748	419,763	208,202	289,769	357,771	456,360	171,150	
Combine Hills Wind	3,863,906	185,318	194,698	369,488	425,244	28,701	28,624	28,624	28,624	28,609	28,609	28,624	28,624	
Cove Mountain Solar	343,571	28,534	28,534	28,713	28,534	28,701	28,624	28,624	28,624	28,609	28,609	28,624	28,624	
Cove Mountain Solar II	32,990,071	2,832,069	2,635,138	2,359,940	2,344,792	2,741,178	2,948,207	2,948,207	2,948,207	2,948,207	2,917,910	2,519,000	2,910,336	
Deseret Purchase														
Douglas PUD Settlement														
Eagle Mountain - UAMPS/UMPA	2,615,653	156,892	141,048	125,873	154,170	284,603	407,435	407,435	436,745	407,435	241,073	156,349	153,679	228,968
Gemstate	1,717,824	143,152	143,152	143,152	143,152	143,152	143,152	143,152	143,152	143,152	143,152	143,152	143,152	143,152
Georgia-Pacific Camas														
Hermiston Purchase														
Hunter Solar	7,122,324	374,917	425,031	647,514	770,602	797,429	758,093	712,635	664,479	567,050	664,479	567,050	402,182	326,602
Hurricane Purchase	160,742	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395
IPP Purchase														
MagCorp														
MagCorp Reserves	5,084,680	421,050	425,060	421,050	421,050	421,050	409,020	429,070	429,070	429,070	429,070	429,070	429,070	429,070
Milcan Solar	2,646,179	68,661	138,221	204,961	306,199	333,290	375,334	331,656	266,914	174,771	174,771	174,771	111,940	76,250
Milford Solar	7,081,219	358,636	412,994	609,192	796,634	839,927	747,990	671,702	541,717	394,020	541,717	394,020	310,716	
Nucor	7,129,800	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150
Old Mill Solar														
Monsanto Reserves	19,999,999	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667
Pavant III Solar														
PGE Cove	154,785	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899
Prineville Solar	1,795,505	82,013	91,830	136,171	203,430	221,430	249,362	220,343	177,331	116,113	177,331	116,113	74,370	51,717
Rock River Wind	3,949,010	647,624	502,957	528,679	284,843	262,621	181,185	193,222	262,771	490,382	262,771	490,382	158,766	
Sigurd Solar	2,905,571					23,671	660,236	605,234	565,052	458,516	565,052	458,516	322,228	270,634
Small Purchases east	14,288	1,173	1,213	1,172	1,233	1,203	1,226	1,202	1,153	1,157	1,153	1,157	1,209	1,176
Small Purchases west														
Soda Lake Geothermal														
Three Buttes Wind	20,662,796	2,790,663	1,806,921	2,135,557	1,425,615	1,202,984	807,052	950,561	1,186,424	1,734,559	1,186,424	1,734,559	2,352,376	2,651,346
Top of the World Wind	40,686,138	5,436,527	3,612,759	4,244,151	2,907,364	2,399,806	1,720,417	1,872,120	2,296,841	3,513,203	2,296,841	3,513,203	4,491,632	4,920,662
Tri-State Purchase														
West Valley Toll														
Wolverine Creek Wind	10,259,065	760,539	888,633	1,132,686	787,596	844,716	669,522	637,857	752,718	827,852	752,718	827,852	962,861	953,573
Long Term Firm Purchases Total	197,183,561	19,425,256	16,311,261	17,984,592	15,215,276	14,999,759	14,625,854	14,318,208	15,066,368	16,948,509	15,066,368	16,948,509	17,376,932	18,668,012

Seasonal Purchased Power  
 Constellation 2013-2016

Seasonal Purchased Power Total



<b>Storage &amp; Exchange</b>												
APS Exchange	-	-	-	-	-	-	-	-	-	-	-	-
Black Hills CTs	-	-	-	-	-	-	-	-	-	-	-	-
BPA Exchange	-	-	-	-	-	-	-	-	-	-	-	-
BPA FC II Wind	-	-	-	-	-	-	-	-	-	-	-	-
BPA FC IV Wind	-	-	-	-	-	-	-	-	-	-	-	-
BPA So. Idaho	-	-	-	-	-	-	-	-	-	-	-	-
Cowditz Swift	-	-	-	-	-	-	-	-	-	-	-	-
EWEB FC I	-	-	-	-	-	-	-	-	-	-	-	-
PSCo Exchange	5,400,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000
PSCO FC III	-	-	-	-	-	-	-	-	-	-	-	-
Redding Exchange	-	-	-	-	-	-	-	-	-	-	-	-
SCL State Line	-	-	-	-	-	-	-	-	-	-	-	-
Tri-State Exchange	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Storage &amp; Exchange</b>	<b>5,400,000</b>	<b>450,000</b>	<b>450,000</b>	<b>450,000</b>	<b>450,000</b>	<b>450,000</b>	<b>450,000</b>	<b>450,000</b>	<b>450,000</b>	<b>450,000</b>	<b>450,000</b>	<b>450,000</b>
<b>Short Term Firm Purchases</b>												
COB	-	-	-	-	-	-	-	-	-	-	-	-
Colorado	-	-	-	-	-	-	-	-	-	-	-	-
Four Corners	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-	-	-	-
Mead	-	-	-	-	-	-	-	-	-	-	-	-
Mid Columbia	1,094,400	360,000	345,600	388,800	-	-	-	-	-	-	-	-
Mona	-	-	-	-	-	-	-	-	-	-	-	-
NOB	-	-	-	-	-	-	-	-	-	-	-	-
Palo Verde	-	-	-	-	-	-	-	-	-	-	-	-
SP15	-	-	-	-	-	-	-	-	-	-	-	-
Utah	-	-	-	-	-	-	-	-	-	-	-	-
Washington	-	-	-	-	-	-	-	-	-	-	-	-
West Main	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-
STF Electric Swaps	-	-	-	-	-	-	-	-	-	-	-	-
STF Index Trades	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Short Term Firm Purchases</b>	<b>1,094,400</b>	<b>360,000</b>	<b>345,600</b>	<b>388,800</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>System Balancing Purchases</b>												
COB	9,434,282	281,484	816,220	1,244,702	453,644	322,282	1,425,102	1,389,787	1,208,360	673,983	114,725	1,393,529
Four Corners	16,897,467	1,200,558	2,818,880	3,528,287	1,986,636	851,095	89,282	146,158	493,879	1,320,265	1,155,108	1,937,557
Mead	5,190,983	219,078	466,364	370,617	265,777	323,420	351,704	969,326	264,126	371,135	459,020	462,410
Mid Columbia	68,268,627	4,139,075	3,242,604	1,369,052	2,313,372	10,893,444	7,183,584	15,906,931	13,285,655	3,013,219	1,280,929	3,933,201
Mona	9,992,776	1,306,811	867,955	178,944	488,856	493,672	27,494	1,078,206	946,763	949,130	1,174,806	1,315,400
NOB	13,024,374	864,832	915,796	660,012	981,779	267,714	474,495	2,228,662	2,487,994	1,142,351	242,011	1,808,933
Palo Verde	1,150,203	95,850	95,850	95,850	95,850	95,850	95,850	95,850	95,850	95,850	95,850	95,850
EIM Imports/Exports	(64,594,041)	(3,477,483)	(3,102,409)	(8,578,822)	(8,746,296)	(8,972,657)	(3,177,393)	(6,964,351)	(7,193,600)	(4,914,121)	(2,979,604)	(3,575,674)
Emergency Purchases	<u>520,874</u>	<u>424</u>	<u>750</u>	<u>251,658</u>	<u>136,693</u>	<u>45,864</u>	<u>3,987</u>	<u>56,102</u>	<u>481</u>	<u>67</u>	<u>24,137</u>	<u>711</u>
<b>Total System Balancing Purchases</b>	<b>59,885,544</b>	<b>4,630,629</b>	<b>6,122,010</b>	<b>(879,700)</b>	<b>(2,023,687)</b>	<b>4,320,685</b>	<b>6,474,106</b>	<b>14,906,762</b>	<b>11,589,507</b>	<b>2,651,880</b>	<b>1,566,982</b>	<b>7,361,207</b>
<b>Total Purchased Power &amp; Net Inter</b>	<b>600,690,780</b>	<b>48,257,104</b>	<b>47,880,391</b>	<b>46,590,902</b>	<b>44,387,315</b>	<b>50,388,330</b>	<b>53,526,043</b>	<b>64,231,462</b>	<b>59,229,151</b>	<b>47,029,906</b>	<b>45,042,258</b>	<b>48,983,634</b>

**Wheeling & U. of F. Expense**

Firm Wheeling	144,697,684	11,749,372	11,482,343	11,451,463	10,034,554	9,720,807	16,198,114	11,657,890	11,684,246	12,376,159	12,210,595	12,829,755	13,302,386
C&T EIM Admin fee	2,022,748	153,010	131,133	172,440	211,710	248,077	216,704	172,436	135,045	153,613	170,764	127,508	130,308
<b>ST Firm &amp; Non-Firm</b>	<b>30,393</b>	<b>8,032</b>	<b>2,366</b>	<b>803</b>	<b>-</b>	<b>20</b>	<b>666</b>	<b>5,204</b>	<b>4,982</b>	<b>3,613</b>	<b>1,130</b>	<b>1,818</b>	<b>1,758</b>
<b>Total Wheeling &amp; U. of F. Expense</b>	<b>146,750,824</b>	<b>11,910,414</b>	<b>11,615,842</b>	<b>11,624,706</b>	<b>10,246,264</b>	<b>9,968,904</b>	<b>16,415,485</b>	<b>11,835,530</b>	<b>11,824,272</b>	<b>12,533,385</b>	<b>12,382,488</b>	<b>12,959,081</b>	<b>13,434,452</b>

**Coal Fuel Burn Expense**

Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-
Cholla	15,189,735	1,782,525	1,424,501	1,318,024	963,508	838,704	1,034,344	1,577,600	1,569,277	1,173,339	513,140	1,482,927	1,511,845
Colstrip	16,859,969	1,493,436	1,337,931	1,418,923	1,293,890	1,416,942	1,187,805	1,521,572	1,637,126	1,327,347	1,421,111	1,314,012	1,489,873
Craig	49,911,159	4,724,454	4,360,909	3,625,199	3,047,223	3,300,576	3,667,705	4,771,042	5,227,608	4,469,050	4,449,688	3,796,022	4,471,682
Dave Johnston	14,706,480	1,397,927	1,198,893	995,646	1,014,078	1,014,757	1,326,435	1,321,986	1,225,980	1,329,757	1,212,614	1,322,376	1,346,030
Hayden	93,768,329	11,786,622	9,348,741	6,950,045	3,715,810	4,739,883	5,828,742	8,872,928	8,010,343	6,487,735	5,887,233	10,235,310	11,904,936
Hunter	99,698,837	11,731,837	9,584,631	8,453,741	5,354,741	4,777,665	5,479,369	10,035,555	9,831,446	7,546,122	5,921,391	8,485,425	12,497,154
Huntington	209,704,601	16,250,562	16,830,219	18,961,498	13,739,064	10,461,240	15,356,324	24,350,400	23,875,296	18,714,470	18,002,871	17,337,594	15,821,064
Jim Bridger	77,018,796	7,573,959	6,782,498	6,851,646	4,927,856	4,373,120	5,842,501	6,963,124	7,115,510	7,017,292	6,229,835	6,676,167	6,665,288
Naughton	25,170,686	2,529,932	2,419,392	1,895,341	1,356,060	2,099,656	1,948,623	2,723,586	2,563,907	2,386,463	2,290,068	2,023,539	1,535,118
Wyodak	602,628,592	59,271,254	53,287,715	50,470,065	35,411,989	33,022,544	41,671,847	62,137,793	61,060,493	50,450,575	45,927,952	52,673,374	57,242,991

**Gas Fuel Burn Expense**

Chehalis	46,626,229	5,218,443	1,829,937	3,244,262	2,356,707	3,551,746	2,883,763	4,658,620	4,756,101	4,557,374	5,319,764	2,897,663	5,351,849
Current Creek	39,664,652	1,338,872	817,861	1,782,405	2,657,650	2,860,523	4,218,020	4,636,824	4,128,433	4,409,529	4,313,083	4,356,835	4,142,616
Gadsby	3,759,815	-	102,758	204,046	77,285	83,671	255,780	714,416	692,813	398,423	250,763	351,861	627,999
Gadsby CT	1,687,860	9,641	31,960	45,743	15,115	17,708	64,715	350,346	298,062	135,942	124,212	141,289	453,127
Hermiston	22,517,661	2,149,713	1,578,406	1,290,632	1,879,819	935,346	1,168,672	2,046,301	2,241,483	2,186,304	2,385,181	2,522,510	2,133,296
Lake Side 1	55,157,156	3,942,458	3,209,965	3,352,655	4,213,087	4,621,639	4,855,078	5,739,350	5,896,729	5,425,244	4,741,359	4,759,322	4,400,271
Lake Side 2	53,691,415	5,428,615	4,288,358	4,136,432	4,358,945	3,830,085	4,830,794	4,761,506	4,794,580	3,851,109	3,932,704	3,992,455	5,485,831
Little Mountain	-	-	-	-	-	-	-	-	-	-	-	-	-
Naughton - Gas	22,964,296	2,803,912	2,016,812	1,386,254	2,377,787	2,548,484	2,035,304	1,679,789	1,489,963	1,015,569	1,838,916	1,394,864	2,376,641
Not Used	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Gas Fuel Burn</b>	<b>246,069,085</b>	<b>20,891,654</b>	<b>13,876,058</b>	<b>15,442,428</b>	<b>17,936,396</b>	<b>18,449,203</b>	<b>20,312,124</b>	<b>24,589,151</b>	<b>24,298,163</b>	<b>21,979,494</b>	<b>22,905,984</b>	<b>20,416,800</b>	<b>24,971,629</b>

**Total Gas Fuel Burn Expense**

Gas Physical	16,779,163	107,958	574,350	2,058,478	1,780,200	1,935,640	1,733,700	1,348,578	1,323,855	1,392,075	2,341,585	1,468,350	714,395
Gas Swaps	(29,961)	(132,136)	(104,285)	(29,237)	52,242	52,242	52,242	52,242	52,242	52,242	52,242	(25,669)	(104,331)
Clay Basin Gas Storage	36,317,735	3,030,219	2,915,834	3,039,201	2,983,761	3,034,107	3,009,667	3,074,081	3,071,440	3,015,726	3,050,970	3,014,404	3,068,326
Pipeline Reservation Fees	299,136,021	23,897,695	17,261,957	20,510,869	22,762,599	23,471,193	25,107,733	29,064,052	28,745,701	26,439,537	28,350,781	24,873,885	28,650,019

<b>Other Generation</b>																				
Blundell	4,497,520	448,014	356,628	418,112	407,272	415,782	384,237	373,294	385,568	401,632	407,038	225,018	274,926							
Blundell Bottoming Cycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cedar Springs Wind II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dunlap I Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ekola Flats Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Footo Creek I Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glenrock Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glenrock III Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Goodhoe Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
High Plains Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Learning Juniper 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marengo I Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marengo II Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
McFadden Ridge Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pryor Mountain Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rolling Hills Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Seven Mile Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Seven Mile II Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Black Cap Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TB Flats Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TB Flats Wind II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Integration Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Other Generation</b>	4,497,520	448,014	356,628	418,112	407,272	415,782	384,237	373,294	385,568	401,632	407,038	225,018	274,926							
<b>Net Power Cost</b>	1,430,525,312	121,399,660	114,488,460	117,199,543	103,047,156	106,138,525	122,355,032	142,266,638	134,158,821	113,280,306	111,580,702	117,437,322	127,173,146							