

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

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In the Matter of the Application of Rocky Mountain Power to Implement Programs Authorized by the Sustainable Transportation and Energy Plan Act	)	Docket No. 16-035-36
	)	
	)	Solar and Energy Storage Program
	)	

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DIRECT TESTIMONY OF

BELA VASTAG

FOR THE

OFFICE OF CONSUMER SERVICES

NOVEMBER 9, 2016

1 **Q. WHAT IS YOUR NAME, BUSINESS ADDRESS AND OCCUPATION?**

2 A. My name is Béla Vastag. My business address is 160 East 300 South Salt  
3 Lake City, Utah 84111. I am a Utility Analyst for the Utah Office of  
4 Consumer Services (Office). The Office is Utah's utility consumer advocate  
5 that by statute represents Utah's residential, small commercial and  
6 agricultural customers of Rocky Mountain Power (Company) in proceedings  
7 before the Utah Public Service Commission (Commission).

8 **Q. THIS PROCEEDING INVOLVES SEVERAL PROGRAMS AUTHORIZED**  
9 **BY THE SUSTAINABLE TRANSPORTATION AND ENERGY PLAN**  
10 **(STEP) ACT OF 2016. WHICH OF THE STEP PROGRAMS DOES YOUR**  
11 **TESTIMONY ADDRESS?**

12 A. My testimony addresses the Solar and Energy Storage Project. This project  
13 falls under Section 54-20-105 of the STEP Act, specifically an Innovative  
14 Utility Program implementing a battery storage or electric grid related  
15 project.<sup>1</sup>

16 **Q. WHAT GUIDANCE DOES THIS SECTION OF THE STATUTE PROVIDE**  
17 **TO THE COMMISSION ON WHETHER OR NOT IT SHOULD AUTHORIZE**  
18 **THE IMPLEMENTATION OF A PARTICULAR INNOVATIVE UTILITY**  
19 **PROGRAM?**

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<sup>1</sup> U.C.A. § 54-20-105(1)(c).

20 A. The statute states that the Commission *may* authorize such a program if it  
21 determines that it is “in the interest of large-scale utility [i.e. Rocky Mountain  
22 Power] customers”.<sup>2</sup>

23 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

24 A. I will provide the Office’s analysis of whether or not the proposed solar and  
25 energy storage project is in the interest of the Company’s customers – in  
26 particular, in the interest of Rocky Mountain Power’s Utah ratepayers.

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28 **BACKGROUND**

29 **Q. PLEASE BRIEFLY EXPLAIN THE COMPANY’S PROPOSED SOLAR**  
30 **AND ENERGY STORAGE PROJECT.**

31 A. The Company is proposing this project in order to solve a transmission line  
32 low voltage problem which is expected to occur by the summer of 2019. As  
33 load in this service area continues to grow, voltage on this transmission line  
34 is expected to drop below national standards for American electric power  
35 systems.

36 The Company’s proposed solution for this transmission line problem  
37 involves the distribution system, that is, to install equipment on the  
38 distribution side of the system to reduce the load on the transmission line.  
39 The proposed project is a combination of two batteries (a 2 MWh unit and  
40 a 3 MWh unit) and a 650 kW photovoltaic solar generating facility – all  
41 installed on distribution circuits. This combination of batteries and a solar

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<sup>2</sup> U.C.A. § 54-20-105(1).

42 facility will be used to shave load during summer peak load hours which will  
43 maintain the transmission line within acceptable voltage limits.

44 The Company also evaluated two alternative projects for solving the  
45 transmission line voltage problem: 1) rebuilding the transmission line with a  
46 larger conductor (i.e. rewiring the line with a bigger wire) and 2) building a  
47 new transmission substation that would allow the transmission line with the  
48 voltage problem to be connected to another high voltage transmission line  
49 in the area.

50 **Q. WHY DID THE COMPANY CHOOSE THE PROPOSED**  
51 **SOLAR/BATTERY PROJECT OVER THE TWO ALTERNATIVES**  
52 **DESCRIBED ABOVE?**

53 A. The Company claims that the project will allow the Company to gain hands-  
54 on experience with an innovative technology, i.e. storage combined with  
55 solar, which would enable the Company to utilize this technology in the  
56 future on a larger scale for the benefit of customers. In addition, the results  
57 of the Company's Net Present Value (NPV) analysis as presented on page  
58 12 of Exhibit D of their filing shows the proposed solar/battery project to be  
59 cheaper for ratepayers than the two alternative transmission system  
60 projects.

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65 **COSTS AND COST ALLOCATION**

66 **Q. AS SHOWN IN THE COMPANY'S FILING, WHAT WERE THE COSTS OF**  
67 **THE SOLAR/BATTERY PROJECT AND THE TWO ALTERNATIVE**  
68 **PROJECTS?**

69 A. Page 12 of Exhibit D of the Company's filing presents the relative costs of  
70 the projects in terms of the net present value of their revenue requirement.

71 Table 1 below shows the Company's initial calculation of the costs:

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TABLE 1

NPV

Solar/Battery Project	(\$4,014,907)
Rebuild Transmission Line	(\$4,664,422)
New Transmission Substation	(\$8,162,738)

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76 **Q. DOES THE OFFICE SEE A PROBLEM WITH THE WAY THE COMPANY**  
77 **COMPARED THE COSTS FOR THESE REVENUE REQUIREMENT**  
78 **ANALYSES?**

79 A. Yes. Page 11 of Exhibit D states that one of the assumptions used for  
80 calculating the NPVs used in Table 1 above is that the costs associated with  
81 all assets for the three options are allocated to Utah. Using this assumption,  
82 the Company then claims that one of the benefits of the solar/battery project  
83 is that it also is the lowest cost solution to the transmission line voltage  
84 issue.

85           However, the problem with that assumption is that it does not reflect  
86           the way costs would actually be allocated. In reality, the costs for the  
87           transmission line rebuild and the transmission substation would be  
88           allocated differently than the costs for the solar/battery project. The solar  
89           facility and batteries will be interconnected to the distribution system and;  
90           therefore, the Company states that they would be situs assigned to the state  
91           of Utah per the 2017 Multi-State Protocol whether funded by STEP dollars  
92           or not.<sup>3</sup> The transmission line and transmission substation would be  
93           classified as transmission assets on PacifiCorp's books<sup>4</sup> and would actually  
94           be treated as system costs to be allocated among all the states PacifiCorp  
95           operates in. Furthermore, some of the costs of these transmission facilities  
96           would be paid for by PacifiCorp's wholesale transmission customers who  
97           pay for the use of the Company's transmission system through Open  
98           Access Transmission Tariff (OATT) rates.<sup>5</sup>

99           Therefore, the costs above as presented in PacifiCorp's Application  
100           are not an "apples to apples" comparison. If the transmission line was  
101           rebuilt or a new transmission substation constructed, the share of costs  
102           borne by Utah ratepayers for these projects would be much less than what  
103           is shown in Table 1 above.

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<sup>3</sup> The Company stated that this would be the cost allocation for the solar/battery project in its responses to discovery requests (DRs) DPU 4.1 & 4.2.

<sup>4</sup> This classification was confirmed by the Company in its response to DPU DR 4.3.

<sup>5</sup> The classification of the alternative projects as facilities that would be included in PacifiCorp's OATT formula rate was confirmed by the Company's response to OCS DR 4.1. Wholesale transmission revenue is credited back to PacifiCorp's retail customers which reduces their rates.

104 **Q. IF THE PRESENT VALUES OF ALL THE PROJECTS WERE**  
 105 **CALCULATED BASED ON UTAH'S SHARE OF THE COSTS, WHAT**  
 106 **WOULD THE RELATIVE COSTS BE?**

107 A. Table 2 below shows costs that are more comparable, i.e. from the  
 108 perspective of Utah ratepayers.

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TABLE 2

Utah NPV<sup>6</sup>

Solar/Battery Project	(\$4,014,907)
Rebuild Transmission Line	(\$1,981,000)
New Transmission Substation	(\$3,468,000)

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113 **Q. WHAT DO YOU CONCLUDE FROM THE COSTS IN TABLE 2?**

114 A. From the perspective of Utah ratepayers, the transmission line rebuild and  
 115 the transmission substation are actually both lower cost options than the  
 116 Company's proposed solar/battery project.

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118 **BENEFITS AND RISKS**

119 **Q. BEYOND SOLVING THE TRANSMISSION LINE VOLTAGE PROBLEM,**  
 120 **WHAT DOES THE COMPANY CLAIM IS AN ADDITIONAL BENEFIT OF**  
 121 **THE SOLAR/BATTERY PROJECT?**

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<sup>6</sup> Approximate NPVs on a Utah basis for the alternative projects were provided by the Company in response to OCS DR 4.2 & 4.3.

122 A. Page 3 of Exhibit D discusses the project benefits and appears to conclude  
123 that the primary additional benefit, in addition to solving the voltage problem,  
124 is that the Company will gain experience in implementing a new technology  
125 to solve power quality issues and then be able to leverage this experience  
126 in future larger scale implementations of this technology – i.e. creating  
127 future benefits for customers from this research and development (R&D)  
128 effort.

129 **Q. DO YOU SEE ANY POTENTIAL BARRIERS TO ACHIEVING THE**  
130 **BENEFITS OF LARGER SCALE IMPLEMENTATION OF THIS**  
131 **SOLAR/BATTERY TECHNOLOGY ON THE COMPANY’S SYSTEM?**

132 A. Yes. The proposed solar/battery project implements new technology on the  
133 distribution side of the system. Therefore, future implementation of this  
134 technology in this manner would raise the same jurisdictional cost allocation  
135 issues discussed above. It is very unlikely that a state jurisdiction would  
136 approve such a project and accept all of the costs when the project’s  
137 benefits accrue to the entire system and an alternative transmission based  
138 solution would be a lower cost option (to that state) because costs would be  
139 shared among all the states.<sup>7</sup> The Office sees this problem of cost  
140 allocation as a barrier to larger scale implementation of this project,  
141 eliminating a primary potential benefit of pursuing this project.

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<sup>7</sup> In addition, some of the costs of a transmission based solution would also be paid for by PacifiCorp’s wholesale transmission customers who utilize the Company’s system via its OATT.



142 **Q. ARE THERE OTHER RISKS THAT IMPACT WHETHER THESE**  
143 **POTENTIAL R&D BENEFITS CAN BE ACHIEVED?**

144 A. Yes, this is a pilot project and it is uncertain whether the new technology will  
145 perform as predicted. The Company admits that there are many  
146 uncertainties about this project. For example, in its response to OCS DR  
147 1.4, the Company states:

148 *Realizing that not all required data is available at the onset of the*  
149 *pilot program, the company has made determinations based on the*  
150 *best data available. Through the pilot, the company will begin the*  
151 *collection of data that will be used to develop common practices for*  
152 *these technologies and to maintain a safe and reliable electric grid.*  
153

154 Since not all required data is available, there is risk that the outcomes of  
155 this project will not be satisfactory. If the project is not successful and/or not  
156 suitable for larger scale implementation, then the value of any potential R&D  
157 benefit is questionable.

158

159 **CONCLUSIONS AND RECOMMENDATION**

160 **Q. WHAT IS THE OFFICE'S CONCLUSION REGARDING THE POTENTIAL**  
161 **BENEFITS OF THIS SOLAR/BATTERY PROJECT?**

162 A. This project has the potential of being an overall lower-cost solution, even  
163 considering the number of uncertainties that have been identified. In the  
164 Office's view, if the problem of mismatched cost and benefit allocation could  
165 be solved, the potential knowledge to be gained from an R&D perspective  
166 would likely outweigh the concerns regarding the other risks described  
167 above.

168 **Q. GIVEN THAT THIS PROJECT WOULD BE FUNDED BY STEP, DOES**  
169 **THE OFFICE'S ANALYSIS INDICATE THAT THIS PROJECT COULD BE**  
170 **IN THE INTEREST OF UTAH CUSTOMERS?**

171 A. Possibly. The evaluation of costs in Table 2 reveals that from the  
172 perspective of Utah ratepayers this project is a higher cost option for Utah  
173 ratepayers than other solutions. Thus, the primary benefit is the knowledge  
174 gained so that this type of project could be implemented again in the future  
175 as a potentially lower-cost option to a necessary transmission project.  
176 However, this knowledge would only be valuable if there is a reasonable  
177 expectation that this kind of project would again be implemented in the  
178 future. Unfortunately, the cost allocation problem identified earlier in my  
179 testimony calls into question whether this type of project could or would ever  
180 be used again, which then calls into question whether there is any benefit  
181 to the potential R&D knowledge gained by pursuing this project. Only if the  
182 knowledge could be put to future use would it be of any value. Therefore,  
183 in order for this project to be in the interest of customers, a solution needs  
184 to be found to the cost allocation problem.

185 **Q. WHAT DOES THE OFFICE RECOMMEND REGARDING POTENTIAL**  
186 **COMMISSION AUTHORIZATION OF THIS PROJECT?**

187 A. The Office does not recommend that the Commission authorize this project  
188 unless the Company can propose a solution to the cost allocation issue that  
189 has been raised. The Company should propose a method by which the  
190 costs of future projects can be allocated more equitably, better matching the

191 allocation of benefits. Otherwise, the Company should propose a method  
192 that will allocate all of the benefits for the proposed solar/battery project to  
193 Utah, to match the fact that all of the costs are allocated to the state.

194 **Q. DOES THE OFFICE HAVE ANY ADDITIONAL RECOMMENDATIONS?**

195 A. Yes. If the Commission approves this solar and energy storage project, the  
196 Office recommends that the Commission also order specific reporting  
197 requirements. At a minimum, these requirements should include:

- 198 1. A reporting of actual, final costs of the project including detailed  
199 explanations of any unforeseen or over-budget cost elements.
- 200 2. A qualitative assessment of the overall project, including what  
201 went well, any challenges encountered and lessons learned, as  
202 well as an assessment of potential future applications for similar  
203 projects.
- 204 3. A proposal of realistic allocation methods that would result in an  
205 equitable matching of costs and benefits to facilitate future use of  
206 this type of project.

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208 **Q. DOES THAT CONCLUDE YOUR TESTIMONY?**

209 A. Yes it does.