

–BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH–

IN THE MATTER OF APPLICATION OF ROCKY
MOUNTAIN POWER TO ESTABLISH EXPORT
CREDITS FOR CUSTOMER GENERATED
ELECTRICITY

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DOCKET No. 17-035-61
Exhibit No. DPU 1.0 R
Phase II

Redacted

FOR THE DIVISION OF PUBLIC UTILITIES
DEPARTMENT OF COMMERCE
STATE OF UTAH

Rebuttal Testimony of

ROBERT A. DAVIS

July 15, 2020

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1 **I. INTRODUCTION**

2 **Q: Please state your name and occupation.**

3 A: My name is Robert A. Davis. I am employed as a Utility Technical Consultant at the
4 Utah Department of Commerce-Division of Public Utilities (“Division”).

5 **Q: What is your business address?**

6 A: My business address is 160 East 300 South, Heber Wells Building-4th Floor, Salt Lake
7 City, Utah, 84111.

8 **Q: On whose behalf are you testifying?**

9 A: The Division.

10 **Q: Are you the same Robert A. Davis that filed direct testimony in this proceeding?**

11 A: Yes I am.

12 **Q: Do you have any exhibits that you would like to add to the record?**

13 A: Yes. Exhibits: 17-035-61_CONF DPU Exhibit 1.1_Davis REB_7-15-20; 17-035-
14 61_DPU Exhibit 1.2_Davis REB_7-15-20; and 17-035-61_DPU Exhibit 1.3_Davis
15 REB_7-15-20. These exhibits were prepared by myself or under my direction.

16 **II. PURPOSE OF REBUTTAL TESTIMONY**

17 **Q: What is the purpose of your rebuttal testimony in Phase Two of this proceeding?**

18 A: My rebuttal testimony offers the Division’s conclusions and recommendations, and
19 summarizes its opposition to: 1) Vote Solar’s proposed revised 22.22 cents per kWh rate

20 for customer generation exports; 2) Utah Solar Energy Association (“USEA”) claim of
21 detriment to Utah’s solar industry if Rocky Mountain Power’s (“RMP”) proposed rate is
22 approved; 3) Utah Clean Energy’s (“UCE”) proposed twenty-year contract term for new
23 customers installing solar after December 31, 2020; and 4) discuss the time-zone impacts
24 of RMP’s Load Research Study, and finally to offer the Division’s conclusions and
25 recommendations for a reasonable export credit rate for customer generated electricity.

26 **Q: Can you offer a brief summary of your conclusions?**

27 A: Yes. The Division has analyzed the testimony and exhibits from the other parties in this
28 proceeding and participated in numerous discussions and technical conferences. I have
29 personally been involved with this matter since 2014 when Docket No. 14-035-114 was
30 opened at the conclusion of RMP’s last general rate case.¹

31 For the reasons stated herein, the Division concludes that the current penetration levels of
32 customer generation (“CG”), based on its analysis of RMP’s load research study
33 (“LRS”), have a minimal impact on Utah and System load during morning and evening
34 peak hours but does offer limited benefits during daytime non-peak hours. Further, the
35 Division is not convinced customer generation offers avoidance of fleet generation
36 capacity in a significant manner at this time, thus, offers minimal avoidance of thermal
37 generation pollution in the main Utah attainment areas. The Division is not convinced CG

¹ See Docket Nos. 13-035-184 and 14-035-114.

38 provides any significant environmental or societal benefits at the current penetration
39 level. Finally, the Division has no discernable evidence before it that necessitates a fixed
40 contract between RMP and customer generators, or leads it to believe that the outcome of
41 this proceeding, should the Commission adopt RMP's proposal or something similar, is
42 the leading cause of detriment to the roof-top solar industry in Utah.

43 To the extent that my testimony or the testimony of other Division witnesses fails to
44 address a particular issue in this proceeding does not preclude the Division's acceptance
45 or rejection of that issue. The Division reserves its rights to provide additional comments
46 on any topic or respond to other parties' comments in future filings or at hearing.

47 **III. RECOMMENDATION**

48 **Q: Please offer the Division's recommendation for this proceeding.**

49 A: The Division is tasked with advocating for the public interest and the Division supports
50 distributed generation when it facilitates the public interest. The Division generally finds
51 RMP's proposal reasonable as it applies a Commission approved method.² The proposal
52 better aligns an export credit for customer generation to the utility's avoided costs during
53 peak hours while allowing RMP the opportunity to recover fixed system costs that
54 mitigate cost shifts to other rate payers.

² See Commission's Order, Docket No. 08-035-78, February 12, 2009, Section V, Issue 2.b,
<https://pscdocs.utah.gov/electric/08docs/0803578/0803578ROdtm.pdf>.

55 The Division notes that the pricing assumptions for Schedule 37 remain under review at
56 the present time. However, the Division concludes that the Schedule No. 37 pricing
57 method is a reasonable proxy for the value of customer generation export energy plus
58 avoided line losses at the primary level and is reviewed regularly.

59 The Division also notes that RMP's general rate case is currently under review and
60 contains a proposal to unbundle rates.³ The Division is reviewing RMP's proposal and
61 potential implications to the export credit rate. The Division reserves its rights to
62 comment on those implications in RMP's general rate case proceeding.

63 The Division recommends that the Commission deny Vote Solar's proposed revised
64 export credit rate of 22.22 cents per kWh, and Utah Clean Energy's proposal for twenty-
65 year fixed contracts.

66 **IV. VOTE SOLAR'S EXPORT CREDIT RATE PROPOSAL**

67 **Q: Do you consider Vote Solar's proposed export credit rate reasonable?**

68 A: No. Vote Solar's revised proposed export credit rate of 22.22 cents per kWh is
69 unreasonable and not in the public interest. Vote Solar's proposed rate is approximately
70 two-times greater than the current average retail residential rate and nearly three-times
71 greater than other non-residential energy rates for electric energy delivered in Utah.⁴ It is

³ See Docket No. 20-035-04, 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, <https://psc.utah.gov/2020/01/21/docket-no-20-035-04/>.

⁴ See RMP's witness, Gary W. Hoogeveen's Direct Testimony, Docket No. 20-035-04, Exhibit RMP_(GWH-1).

72 approximately ten-times the market rate for solar electricity generation at the wholesale
73 level.⁵

74 **Q: Please explain why Vote Solar’s proposed rate is unreasonable.**

75 A: Vote Solar’s proposed export credit rate uses a stacked avoided cost method often used
76 for proceedings in other states. However, the Division concludes Vote Solar’s witnesses’
77 assumptions use dated national averages, non-approved PacifiCorp 2019 IRP
78 assumptions,⁶ and fail to include such offsetting assumptions as tax credits and other
79 environmental attributes. The stacked avoided cost method leads to high rates from over-
80 valued components outside the utility’s control. The stacked method inherently double
81 counts benefits and takes credit for benefits attributed to other programs.

82 At its face value, Vote Solar’s 22.22 cents per kWh proposal (\$222.20 per MWh) for
83 intermittent generation is not within the realm of reasonableness. The proposal is so high
84 that the Division has concerns with the economic implications to RMP, its customers, and
85 Utah’s general economy. Even the current residential rate of 9.2 cents per kWh,⁷ per
86 stipulation, is not sustainable for the reasons stated herein.

87 **Q: Please explain the Division’s concerns with Vote Solar’s assumptions.**

⁵ See Division, Direct Testimony of Robert A. Davis, Illustration 18, line 509, pg. 36.

⁶ Commission Order, Docket No. 19-035-02, May 13, 2020, PacifiCorp’s 2019 Integrated Resource Plan, SYNOPSIS, <https://pscdocs.utah.gov/electric/19docs/1903502/3137781903502o5-13-2020.pdf>.

⁷ See RMP Settlement Stipulation, Docket No. 14-035-114, ¶ 19, Transition Export Credit, <https://pscdocs.utah.gov/electric/14docs/14035114/296270RMPSettleStip8-28-2017.pdf>.

88 A: Vote Solar's proposed export credit rate is calculated based on Dr. Lee's load research
89 study included in his direct testimony.⁸ The Division cannot support or reject Dr. Lee's
90 load research conclusions at this time based on its limited analysis and the Division's
91 difficulties opening Dr. Lee's exhibits.⁹ The Division continues to work on finding an
92 application to open Dr. Lee's exhibits without having to spend money on licensing fees.¹⁰
93 The information provided in Dr. Lee's testimony is aggregated such that the variability
94 that is integral to the valuation is not readily identifiable. The Division continues to
95 analyze Dr. Lee's exhibits in greater detail at the time of this filing.

96 **Q: Please offer a brief overview of Dr. Lee's conclusions.**

97 A: Without the necessary STATA software, other useful programs, and hardware
98 functionality to open Dr. Lee's exhibits, the Division has been unable to fully review Dr.
99 Lee's statistical diagnostics¹¹ and forecasts used by Vote Solar's other witnesses. The
100 Division has also been unable to review derivations of the stacked value components,
101 (i.e., avoided energy, transmission, and distribution capacity, avoided pollution,
102 environmental, and societal values). The only statistical related components the Division

⁸See Vote Solar witness Dr. Albert J. Lee, Revised Direct Testimony, May 8, 2020, at lines 334-335.

⁹Vote Solar's witness Dr. Albert J. Lee, Direct Testimony, Exhibits, Vote Solar Exhibit 3-AJL 3-6-2020, and Vote Solar Exhibit 4-AJL 3-6-2020.

¹⁰The State of Utah has policies for purchasing software packages for use on State owned computers. The software purchase is requested through the State's Department of Technology Services. If another department or Division already has a license, then the State may not purchase another license. The Division is researching whether or not the State has a license to the STATA software prescribed in Dr. Lee's testimony and exhibits.

¹¹Vote Solar's response to Division Data Request DPU 2.1, April 16, 2020.

103 has reviewed from Dr. Lee's testimony are the R-Squared values from his revised LRS
104 regression analysis of 0.74 and 0.60 for production and export models, respectively.¹²

105 Statistical textbooks suggest that an R-Squared value of 0.6 to 0.7 is a low indicator of
106 the model's ability to explain the dependent variable.¹³ The Division cannot verify or
107 reject Dr. Lee's conclusions with such limited information.

108 The Division's review of Dr. Lee's Exhibit, Vote Solar Exhibit 1-AJL 3-6-2020, found
109 171 instances where export equaled production. Votes Solar's response to Division data
110 request, DPU Data Request 2.2,¹⁴ confirms the Division's concerns:

111 DPU Data Request Set 2

112 2.2 In reference to Vote Solar Exhibit 1-AJL 3-6-2020, Production and Exports exactly
113 equal each other on 171 occurrences over the study period.

114 (1) Are the estimated production and export values that equal each other the result of
115 a calculation for each hour as described in Dr. Lee's testimony without
116 adjustments to the results such as a limit that exports could not exceed production
117 values or otherwise?

118 (2) If not, please identify all values in Vote Solar Exhibit 1-AJL 3-6-2020 that vary
119 from the calculation described by Dr. Lee, explain why the values vary from the
120 calculation as described by Dr. Lee, and provide the original calculated values.

121 Vote Solar Response

122 2.2 Below is Vote Solar's response to DPU Data Request 2.2:

¹² Vote Solar witness Dr. Albert J. Lee, PhD, Revised Direct Testimony, May 8, 2020, pg. 25 at line 317.

¹³ For example, Ramanathan, R. (2002). Introductory Econometrics with Applications. South-Western. USA. Page 95. "The general advice is not to rely too much on the value of R^2 . It is simply one measure of the adequacy of a model. It is more important to judge a model by whether the signs of the regression coefficients agree with economic theory, intuition, and the past experience of the investigator."

¹⁴ Vote Solar's response to DPU Data Request 2.2, May 14, 2020.

- 123 (1) For hourly intervals where the estimated export values exceeded the production
124 amount, the export values were adjusted downward to equal the production value.
- 125 (2) The 276 estimated export values that were capped not to exceed their
126 corresponding production estimates are provided and highlighted in Attach DPU-
127 VS 2.2(2).

128 Dr. Lee's Exhibit 1-AJL and ensuing Production and Export Yield Factors are producing
129 results that are inconsistent with the fundamental assumption that exports cannot exceed
130 production. Predicting the occurrence of those hours calls into question the predictive
131 ability of the model or the information the model is based on. If actual exports exceed
132 actual production, it should raise a question about the validity of the study. The more
133 likely scenario is that the outlier results are a consequence of a model with limited
134 predictive value that over-predicts exports in some instances.

135 Dr. Lee testifies that RMP's load research study is flawed because it is not drawn from
136 the population of interest that Dr. Lee asserts is the total population of customer
137 generation. The population of interest that the Commission should consider is the
138 population of future CG customers that receive compensation for exports under a new
139 tariff, unless Dr. Lee believes that the proposed export credit rate will be applied to
140 existing CG customers. The Division is not aware of any evidence that suggests that
141 Schedule 135 customer exports materially differ from Schedule 136, nor does the
142 Division have a basis to form an opinion that Schedule 135 and 136 customers will differ
143 significantly from customers who may take service under a new export credit tariff.

144 These are unknown assumptions that are not testable. The basis of using existing
145 customer data to predict future customers will never result in perfect forecasts.

146 Without a better alternative to predict future behavior, a stratified random sampling of
147 existing CG customers is more likely to produce reliable results than a convenience
148 sample as performed by Vote Solar. Relying on a non-probability sampling method such
149 as the convenience sample is highly vulnerable to selection bias and other influences and
150 as a result should be given limited weight when a more robust probability-based sampling
151 study is available. In this case, RMP's load research study, while having fewer data
152 points, is more credible.

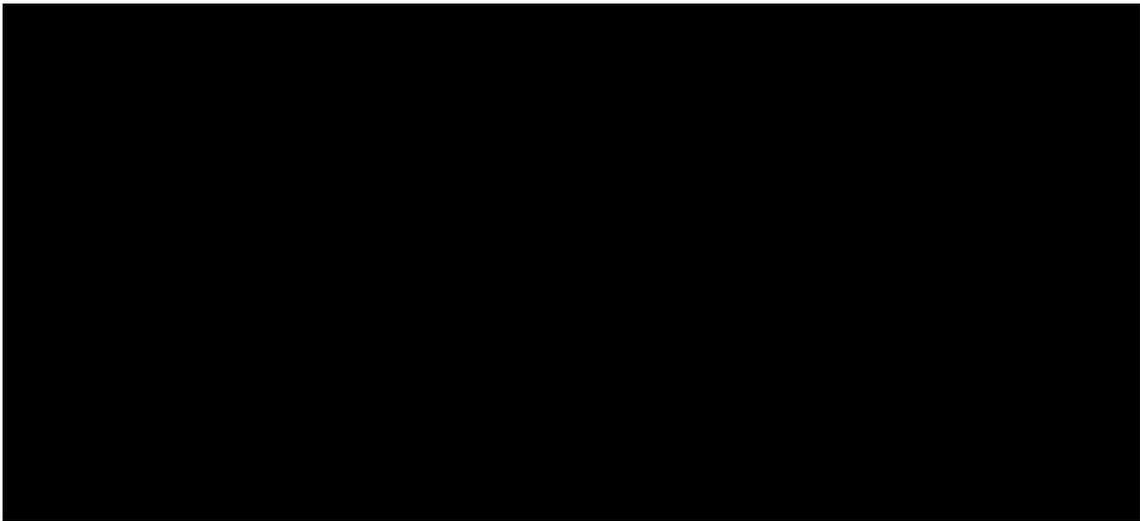
153 Regardless of the concerns the Division has with the modeling, it appears that RMP's and
154 Dr. Lee's models have similar results for the purposes of this proceeding. To the extent
155 that the Division has been able to compare the two results, Dr. Lee's model predicts
156 exports that are reasonably similar to those found in RMP's load research study. In Phase
157 One of this docket, the Commission found that the most relevant information needed for
158 Phase Two was to determine the volume of electricity that is exported to the distribution
159 system and the times when that electricity is exported.¹⁵ Dr. Lee's revised illustration of
160 production and exports, by hours for 2019,¹⁶ do not appear significantly different than the

¹⁵ See Commission Phase I Order, May 21, 2018, pg. 18, ¶ 2.
<https://pscdocs.utah.gov/electric/17docs/1703561/3022941703561pIo5-21-2018.pdf>.

¹⁶ See Vote Solar witness Dr. Albert J. Lee, Revised Direct Testimony, Figure 3: Production by Hours (2029) at line 325, and revised testimony at line 331.

161 Division's observations from RMP's LRS data of the volume and timing of exports to the
162 distribution system. Exhibit 1 illustrates the Division's analysis from the combined study
163 samples exports for 2019 by hour.¹⁷

164 **Exhibit 1**



165

166 **Q: Please explain the Division's concerns with the other Vote Solar witnesses.**

167 A: Dr. Lee claims that he provided his Exhibit 1-AJL to Dr. Michael Milligan, Mr. Curt
168 Volkmann, Dr. Spencer Yang, and Dr. Carolyn Berry. As stated above, the Division is
169 not convinced Mr. Lee's analysis produces reliable predictions of export volumes or
170 variability. It is not completely clear to the Division how Vote Solar's other witnesses
171 applied Dr. Lee's conclusions in their analysis.

172 **Q: Please explain the specific issue the Division has with Vote Solar's testimony.**

¹⁷Division witness Davis, 17-035-61_CONF DPU Exhibit 1.1_Davis REB_7-15-20, Tab Compiled LRS Exports.

173 A: The Division has concerns with Dr. Milligan’s avoided generation capacity values, Dr.
174 Yang’s avoided transmission and distribution values, Mr. Volkmann’s avoided
175 distribution values, and Dr. Berry’s societal and environmental values. The Division does
176 not deny that Milligan, Yang, and Volkmann use acceptable methods in their respective
177 analysis. The Division concludes that at the current penetration of CG in the State of
178 Utah, there is little capacity or pollution avoidance.

179 **Q: What are the Division concerns with Dr. Milligan’s analysis?**

180 A: Avoided cost for solar generation should not, in the long-run, be higher than the market
181 cost to purchase and connect new solar generation. RMP is expected and required to
182 operate in a least cost, least risk manner. If the costs that can be avoided by additional CG
183 solar generation are higher than the cost of other available new solar generation
184 acquisition, the lowest cost system operation requirements would lead to the acquisition
185 of the lower cost new solar. As a result, the market purchase price for solar generation is
186 not only a reference point to recognize, but also represents a reference point that is near
187 the highest possible avoided cost value for solar CG. Unless the output profile of CG
188 solar is significantly better or the integration costs are significantly lower, there is no
189 scenario where CG solar should meaningfully be valued higher than the cost to acquire
190 new solar resources or purchase power via purchase agreements (“PPA”).

191 At a high level, Dr. Milligan’s calculations of avoided costs are not consistent with
192 market values for solar generation or with calculated avoided costs for solar generation in

193 Utah. Dr. Milligan calculates estimated energy, line loss, and avoided generation capacity
194 values of [REDACTED],
195 respectively.¹⁸ The cumulative total of these three calculated avoided cost categories total
196 [REDACTED]. This value is nearly double what the market currently values utility-
197 scale solar PPAs. The current calculated avoided cost rate for fixed solar under Schedule
198 No. 37, fixed solar varies between 2.02 and 4.07 cents per kWh on a levelized basis
199 depending on season and time.¹⁹ Similarly, Lawrence Berkley National Lab’s (“LBNL”)
200 2019 Utility-Scale Solar Survey of large PPAs found an average price nationwide for
201 solar PPAs in the USA of 2.82 cents per kWh.²⁰

202 Without any further analysis, a reality check is in order. If typical long-term levelized
203 PPA pricing for solar generation is less than 3 cents per kWh, it would require significant
204 barriers to markets for a long-term avoided cost to the utility to exist that is nearly twice
205 as high as the typical PPA price for the same generation type. That assumes that the two
206 energy values are equivalent, which is questionable at best given that the PPAs will
207 include long-term performance guarantees and typically be optimized to deliver peak
208 hour energy.

209 The Division is unaware of any reason why RMP could not acquire resources or PPAs at
210 comparable rates to the LBNL survey of 2019 PPA pricing. Given the location of Utah, it

¹⁸ See Vote Solar witness, Michael Milligan, Revised Direct Testimony, May 8, 2020, at pg. 6, lines 68-70.

¹⁹ Rocky Mountain Power Electric Service Schedule No. 37.

²⁰ See https://emp.lbl.gov/sites/default/files/lbnl_utility_scale_solar_2019_edition_final.pdf, at pg. 38.

211 is likely that the cost would be less than the LBNL survey. The results from recent RFPs
212 give a very good indication of the cost to procure such generation.

213 **Q: Can you explain the proxy resource Dr. Milligan uses in his analysis?**

214 A: Yes. Dr. Milligan uses a CCCT Dry “J/HA.01”, DF 2x1 ISO²¹ as the least cost proxy
215 resource for his analysis. The Division understands at a high-level this to mean that the
216 exported energy generated from customer generation displaces the same energy that
217 normally would have been produced by this resource at the incremental cost to operate
218 that resource including line losses. The Division is interested where this resource is
219 located on PacifiCorp’s system in relation to RMP’s major loads and concentration of
220 CG.

221 The Division assumes Dr. Milligan’s [REDACTED] percent resource capacity value (line 561) in
222 his revised testimony refers to capacity contribution. The Division concludes this value
223 seems high given the non-dispatchable nature²² of CG compared to utility-scale solar
224 with an overall capacity contribution of 29.3 percent for fixed solar.²³ Dr. Milligan’s
225 calculation does not appear consistent with other established solar capacity values.

²¹ See Vote Solar witness, Michael Milligan, Direct Testimony, March, 3, 2020, at pg. 37, lines 555-559. The Division concludes the resource referenced in Milligan’s testimony is actually a CCCT Dry “J/HA.02”, DF 2x1 ISO, PacifiCorp 2019 IRP, Volume 1, Table 6.1.

²² *Id.*, page 107. “As in the 2017 IRP, the Navigant Study identifies expected levels of customer-sited private generation, which is applied as a reduction to PacifiCorp’s forecasted load for IRP modeling.”

²³ PacifiCorp 2019 IRP, Volume II, page 139.

226 PacifiCorp hires Navigant Consulting to review the private generation for each of its IRP
227 cycles. Navigant’s most recent report, which PacifiCorp used to inform its 2019 IRP,
228 concludes that 1.3 GW_{AC} of solar will be installed in PacifiCorp’s territory from 2019-
229 2038.²⁴ Navigant’s Figure 3 illustrates the cumulative market penetration for Utah to be
230 approximately 600 MW_{AC} by 2038.²⁵ Further, using a simple pay-back method, Navigant
231 estimates a ten-year payback for residential, commercial, and industrial installations.²⁶
232 Navigant’s Figure 7 illustrates a market penetration for residential around 2028, and non-
233 residential around 2040.²⁷ Table 6, Solar Capacity Factors, illustrates a kW-DC/kWh-AC
234 capacity factor for Utah of 16.3 percent.²⁸ The difference between Navigant’s capacity
235 factor and Milligan’s [REDACTED] percent resource capacity value is questionable. It’s difficult to
236 understand how a 16.3 percent capacity factor could equate to a [REDACTED] percent contribution
237 capacity from a customer generation resource.

238 Dr. Milligan’s loose determination of capacity contribution by utilizing the top ten-
239 percent of highest load hours or any other percentage of load hours is without merit. The
240 important point, and the reason for this matter, is the probability of available CG capacity
241 exporting to the grid during actual peak hours, not some percentage of load hours.

²⁴See Navigant, Private Generation Long-Term Resource Assessment (2019-2038), pg. 2,
https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2019-irp/2019-irp-support-and-studies/PacifiCorp_IRP_DG_Resource_Assessment-2018_Final-Corrected.pdf.

²⁵*Id.*, at page 4.

²⁶*Id.*, Figure 6 at page 10.

²⁷*Id.*, at page 12.

²⁸*Id.*, at page 18.

242 **Q: Please explain the specific issue the Division has with Dr. Berry's testimony.**

243 A: Dr. Berry's ability to analyze the environmental and societal costs and benefits in respect
244 to RMP's ability to control them with any reasonableness is questionable. The Division
245 has concerns with the dated national averages Dr. Berry uses in her assumptions to value
246 her societal and environmental proposed values. The Division questions the ability to
247 single out those societal or environmental attributes solely attributable to RMP with any
248 degree of accuracy or exclusion of double counting of benefits from other programs.
249 Furthermore, PacifiCorp's 2019 IRP calls for a generation fleet that is largely comprised
250 of wind, hydro, solar, and solar plus storage within the time period Dr. Berry uses in her
251 analysis. Replacing utility-scale solar, or solar plus storage, with CG solar at Vote Solar's
252 proposed rate would substantially harm non-participating customers by burdening them
253 with much higher energy rates and is not in the public interest. Finally, the Division
254 concludes Dr. Berry's analysis does not properly consider the effects of tax credits or
255 disposition of retired photovoltaic panels, inverters, and balance of system components.²⁹

256 **Q: Please explain the issues the Division has with Dr. Yang's and Mr. Volkmann's**
257 **testimony.**

258 A: The Division does not have any specific issues with the methods Dr. Yang or Volkmann
259 use to determine their proposals at this time. However, as previously mentioned, the
260 Division has concerns with the merit of Dr. Lee's LRS analysis and ensuing conclusions

²⁹ The articles and whitepapers are too numerous to list. See attached folder Solar Recycling.

261 used by Dr. Yang and Volkmann and reserves its right to comment further in future
262 filings as necessary.

263 **Q: Please explain the unsustainable economic problems you mentioned.**

264 A: Vote Solar's proposed rate does not offer a reasonable solution for ensuring that CG
265 customers pay the full cost to serve them with the services provided by the utility. Vote
266 Solar's rate exacerbates RMP's issues with fixed cost recovery, billing administration,
267 and interconnection agreement backlogs as a result of customer generation at the current
268 rates. On a grander scale and more difficult to estimate, is the impacts Vote Solar's
269 proposed rate might have on the general Utah Economy.

270 **Q: Can you identify a few of the larger economic impacts the Division believes might be**
271 **significant?**

272 A: Yes. Basic economic principles of supply and demand, and past experiences with
273 Schedule 135 and the current Schedule 136, leads the Division to conclude that the
274 potential economic impacts of Vote Solar's proposed export credit rate is notable. Vote
275 Solar's proposed \$222 per MWh rate is four-times the average locational marginal
276 pricing for 2019 reported by S&P Global.³⁰ Further evidence of Vote Solar's
277 unreasonable rate lies in recent average net power costs ("NPC") RMP pays to qualifying

³⁰ See *supra*, n.5.

278 facilities (“QF”) of [REDACTED].³¹ Thus, the Division concludes Vote Solar’s proposed
279 rate is something the market might only see in an emergency situation.³²

280 Customer generation may appear to operate similar to a QF but is not required to adhere
281 to Public Utility Regulatory Policy Act (“PURPA”) requirements at this time, as
282 explained further below. Additionally, PURPA’s Customer Indifference Standard
283 maintains that RMP’s customers “...*should not have to pay more for their energy that*
284 *exceeds the incremental costs to the electric utility of alternative electric energy.*”³³
285 [Emphasis added] Meaning that non-participating customers should not have to pay more
286 than least reasonable cost for energy.

287 **Q: Would Vote Solar’s proposed rate impact RMP’s energy balancing account**
288 **(“EBA”)?**

289 A: Yes. Export credits that offset customer generator’s bills are cost assigned to RMP’s EBA
290 account and spread to all customers.³⁴ The magnitude of impacts to customer bills and
291 revenues, should Vote Solar’s proposed rate be approved, is under review by the
292 Division.

³¹ See RMP exhibit, 20-035-01 RMP Webb Exhibit and Workpapers EBA (JAN-DEC 2019)_CONF.

³² See <https://www.eia.gov/electricity/policies/legislation/california/subsequentevents.html#:~:text=From%20June%20000%20through%20July,the%20same%20period%20in%201999.&text=By%20December%202000%20wholesale%20prices,per%20mwh%20in%20December%201999.>

³³ The Public Utility Regulatory Policies Act of 1978, Title II, Sec. 210 (a)(2) and (b)(1) and (2), Cogeneration and Small Power Production, <https://www.usbr.gov/power/legislation/purpa.pdf>.

³⁴ See *supra* n.7, ¶ 32, Recovery of Export Credits.

293 The avalanche effect that an extreme rate would have on the system is easy to foresee. If
294 RMP is forced to purchase energy at a price more than double the entire retail rate it
295 currently charges customers, while simultaneously entitled to a fair rate of return, the
296 other customers are burdened with the difference in energy purchase price. The energy
297 price flows through the EBA mechanism into customer rates in Utah. That cost, in turn,
298 drives up customer rates and causes more non-participating customers to install CG to
299 avoid paying the higher rates. The greater the CG penetration, the higher the retail rates,
300 and therefore, the higher the incentive to participate. Ultimately the result taken to its
301 logical conclusion would be that only those who cannot participate would bear nearly the
302 entire cost of the system's operations. A fair rate will result in non-participating customer
303 indifference to the choice of other customers.

304 **Q: Does the Division believe Vote Solar's proposed rate would cause an unsustainable**
305 **frenzy in the solar market?**

306 A: Yes. Solar companies from across the country would likely descend on Utah to install as
307 many systems as they could leading to an unprecedented backlog and delay for RMP to
308 complete interconnection agreements similar to what was experienced during the
309 transition from Schedule 135 to Schedule 136.³⁵ RMP would likely need to increase
310 engineering and billing staff to meet the demands of the industry or ask the Commission

³⁵ See Rocky Mountain Power's Motion for Emergency Waiver of Levels 1 and 2 Interconnection Review Processing Timeframes, November 28, 2017.
<https://pscdocs.utah.gov/electric/14docs/14035114/298131RMPMotEmerWaivLv11,211-28-2017.pdf>.

311 for relief from mandated interconnection agreement completion times. Once the customer
312 generation solar market saturates, the solar companies would likely move to the next
313 “hot” market leaving behind the remnants of all the issues it created (i.e., RMP over-
314 staffing, laid-off installers that choose not to relocate with solar company, housing for
315 installers, tax base, etc., to name a few).

316 The point the Division wishes to express is the potential implications of an export rate
317 that is more than double the current average residential rate and the potential impacts
318 Vote Solar’s proposed rate might have on Utah’s general economy. Finally, it has been
319 demonstrated in Hawaii, California, and other states, when customer generation reaches
320 double-digit penetrations, the long-term effects become detrimental to the grid and utility
321 resources.³⁶

322 **Q: Does the Division have other concerns with Vote Solar’s proposed rate that will**
323 **impact RMP and its customers if approved?**

324 A: Yes. RMP’s ability to manage expired excess credits created by over-built customer
325 generation is already problematic.³⁷ According to RMP’s 2020 Annual Net Metering
326 report,³⁸ the past few years have seen an accelerating increase in expired excess credits.

³⁶ The list of whitepapers, studies, proceedings, and articles is vast and well represented by simple Internet searches.

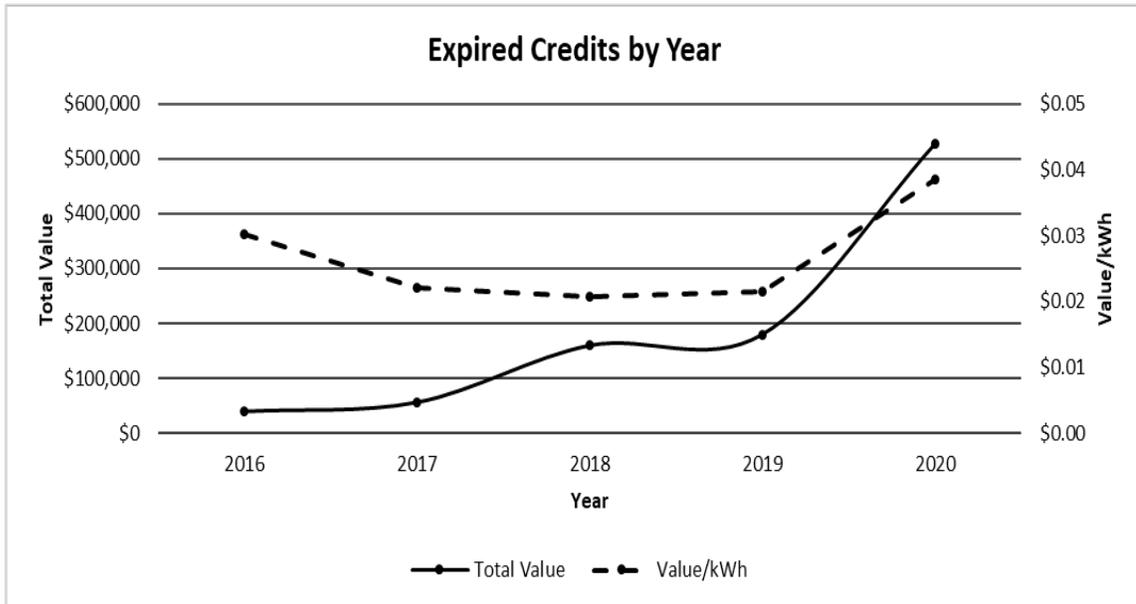
³⁷ Customers that generate their own energy store credits with RMP over the course of a year. Annually, those credits are zeroed out and become expired excess credits, <https://le.utah.gov/xcode/Title54/Chapter15/54-15-S104.html>. Expired net metering credits currently offset funds collected from all customers through Schedule No. 91 and Schedule No. 92 (“HELP”) surcharge refund, respectively. See Division comments for November 8, 2018, <https://pscdocs.utah.gov/electric/18docs/1803539/305425CommDPU11-8-2018.pdf>.

³⁸ See <https://pscdocs.utah.gov/electric/20docs/2003532/314520RMP2020NetMeteringRprt7-1-2020.pdf>.

327 The Division believes this is the result of customers over-building their systems to meet
328 their own loads, becoming more energy efficient, weather related factors, or a
329 combination of all three. Exhibit 2 demonstrates the Division's observations.³⁹

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Exhibit 2



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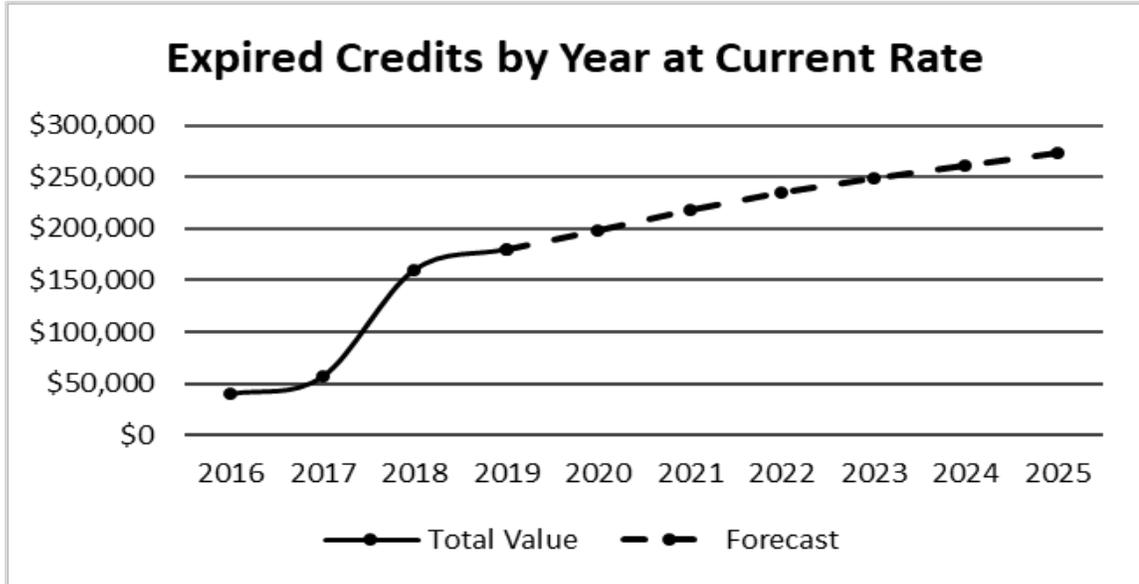
332 A comparison of current expired credits under the current rate, RMP's proposed rate, and
333 Vote Solar's proposed rate shows the potential increase if Vote Solar's proposal is
334 approved. Exhibit 3, Exhibit 4, and Exhibit 5, respectively, illustrates the impact on
335 expired excess credits under the current rate, RMP's proposed rate, and Vote Solar's
336 proposed rate.⁴⁰

³⁹ Division witness Davis, 17-035-61_DPU Exhibit 1.2_Davis REB_7-15-20, Tab Charts.

⁴⁰ Division witness Davis, 17-035-61_DPU Exhibit 1.3_Davis REB_7-15-20, Tab Charts.

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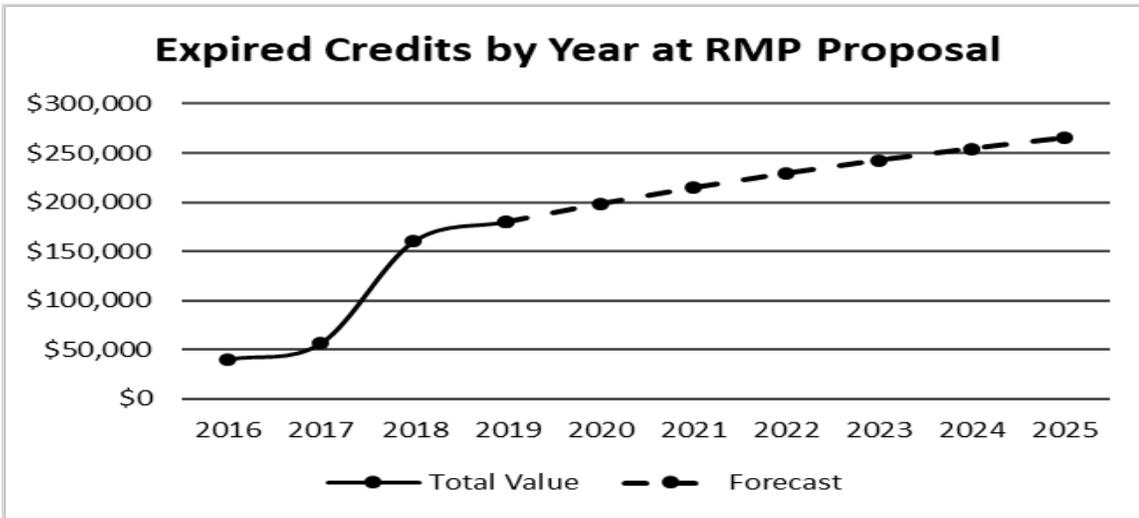
Exhibit 3



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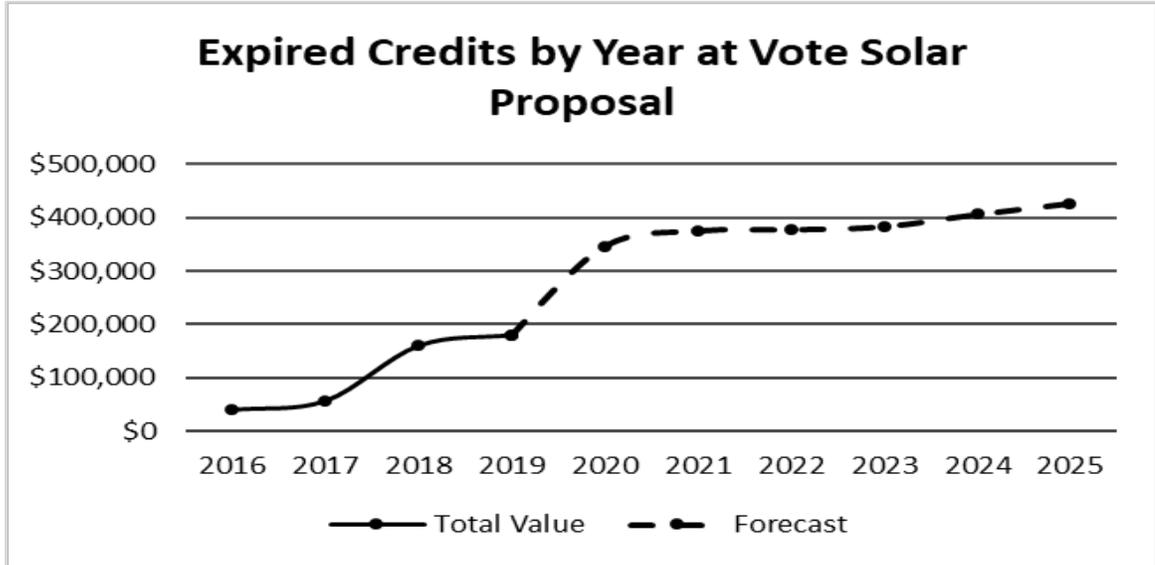
Exhibit 4



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Exhibit 5



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Exhibit 5 illustrates an incremental increase in expired excess credits under Vote Solar’s proposal at the end of 2020 and sustained to at least 2025.

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In Docket Nos. 19-035-28 and 19-035-39, the Commission asked parties to comment on the use of expired excess credits. Some of the parties concluded that the expired credits might be used to help low-income customers with energy efficiency projects through

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various organizations. RMP concluded that eligible projects under Schedule 118 were

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over-funded at the time. On January 11, 2019, the Commission issued its Order in Docket

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No. 18-035-39 directing RMP to allocate the excess credit balance as a one-time offset to

351 each customer's bill that qualified for the HELP program.⁴¹ The Division concludes that
352 this process, if required every year, is not in the public interest.

353 The Division concludes that to haphazardly set a rate for exported generation, as Vote
354 Solar proposes, comes with consequences. The potential impacts Vote Solar's proposed
355 rate to expired excess credits is of concern to the Division. The other potential economic
356 impacts mentioned above are more complex, detrimental to RMP's customers, the State
357 of Utah, and the solar industry. Businesses in the State that continue for years, employ
358 workers, and maintain good citizenship is more sustainable for Utah's economy than an
359 industry that purposely saturates the market only to leave when it is over.

360 **V. UTAH SOLAR ENERGY ASSOCIATION MARKET ASSUMPTIONS**

361 **Q: Do you agree with Mr. Evans assertion that the status of Utah's solar market has**
362 **diminished since the beginning of this docket and expects further decline if the**
363 **Commission approves Rocky Mountain Power's export credit rate proposal?**⁴²

364 A: No. The uptake of roof-top solar is attributable to customer's current economic sentiment,
365 ability to purchase the system or make payments, adequate roof space facing in a
366 desirable direction, a desire to offset energy use, or simply a desire to obtain energy from
367 a renewable resource to name a few (buyer behavior). Mr. Evans market assumptions
368 appear to be based on gut feeling and do not account for buyer behavior. Buyer sentiment

⁴¹ See <https://pscdocs.utah.gov/electric/18docs/1803539/3061961803539o1-11-2019.pdf>.

⁴² Direct testimony of Mr. Ryan Evans on behalf of Utah Solar Energy Association, Docket No. 17-035-61, March 3, 2020.

369 to purchase a solar system is likely no different than purchasing a vehicle or travel trailer
370 of equal value for example. It is plausible that roof-top solar in Utah has reached
371 maturity. Solar would not be the first product with such a life cycle. Mr. Evans insinuates
372 that changes to the current billing schemes for customer generation are the reason solar
373 system sales have declined.⁴³

374 The Division asked Mr. Evans to provide analysis to support his assumption in data
375 request DPU Data Request 1.1 and 1.2.⁴⁴

376 DPU Data Request 1.1

377 In reference to Mr. Evans direct testimony, lines 40-42, “In fact, since the Transition
378 Program, began, Utah has seen a steady but rapid decline in new rooftop solar
379 installations.” At lines 51-52, Mr. Evans states *“This decline in solar installations has
380 thus resulted in hundreds of jobs lost, sales and property tax declines for the State, and
381 significantly reduced capital investment.”* Mr. Evans offers his conclusions for the
382 declining Utah solar industry in lines 82-97. Please provide the analysis, in Excel format
383 with intact formulae, which supports these conclusions including the findings from those
384 companies that provided data, data for the overall status of Utah’s economy, and
385 customers’ generation sentiment since the closure of Schedule 135 and opening of
386 Schedule 136.

387 Response to DPU Data Request 1.1

388 USEA objects to this request on grounds that it is onerous and burdensome and requires
389 USEA to develop formulae in Excel format which Mr. Evans did not need or develop to
390 reach his conclusions. Notwithstanding this objection, USEA responds as follows: Mr.
391 Evans provided this information in his testimony based on his experience working in the
392 solar industry and interacting every day with solar professionals and customers.

393 DPU Data Request 1.2

394 In reference to lines 102-108, *“It will be important, however, to recognize as we move
395 forward, the impact that the settlement and Transition program has had on an industry
396 that grew by means of a government promoted program of Net Metering. Investments*

⁴³ *Id.*, lines 39-52.

⁴⁴ Utah Solar Energy Association response to DPU Data Request 1, April 29, 2020.

397 *were made, jobs were created, and taxes were paid based on the Net Metering program,*
398 *any future rate or rate structure should, in my opinion, take the impact on the Utah*
399 *economy into consideration and, at the least, respect the investments made my [sic] Utah*
400 *entrepreneurs in the solar industry.” Please provide the analysis, in Excel format with*
401 *intact formulae, which demonstrates how the grandfathering of Schedule 135 and*
402 *Schedule 136 of customer generation and the approximate 2 cent difference between*
403 *residential net metering and residential transition rates have caused the problems as noted*
404 *in Mr. Evan’s testimony.*

405 Response to DPU Data Request 1.2

406 USEA asserts the same objections to Data Request 1.2 as it asserted to Data Request 1.1.
407 Notwithstanding these objections, USEA answers as follows: The data Mr. Evans utilized
408 for observations in his testimony were the actual number of new schedule 136 Transition
409 Rate customers compared to the prior years of new customers as reported by Rocky
410 Mountain Power in each year of their annual customer generation and net metering report
411 filings as can be found on the Commission’s website, psc.utah.gov. The statement
412 regarding the decline in solar installations resulting in hundreds of jobs lost, sales and
413 property tax declines is a general observation based on what fewer installations would
414 mean for Utah businesses and the economy. It is an inference made whereby fewer
415 installations would mean less revenue for Utah companies and therefore lost jobs. Fewer
416 installations means less sales tax revenue generated for the state. There was no specific
417 amount provided, as again, it was a general statement and observation. Regarding
418 reductions in property tax revenue, all commercial solar owners are required to pay
419 personal property tax and all third party owned residential systems (e.g. leased solar
420 systems to a residential customer) are subject to personal property taxes as well.

421 **Q: Does Mr. Evans responses to the Division’s data requests change its opinion of the**
422 **solar market in Utah?**

423 A: No. The Division concludes that without economic analysis that demonstrates disruptions
424 in Utah’s solar market as a result of this proceeding and the fact that customers taking
425 service under Schedule 135 and Schedule 136 are grandfather to at least 2032, does not
426 convince the Division that the solar market is ebbing due to this proceeding or a rate
427 structure as proposed by RMP.

428 In fact, the current net metering report filed by RMP on July 1, 2020 illustrates a robust
429 increase in solar facilities from 3,825 reported at March 31, 2019 to 11,597 facilities as of
430 March 31, 2020, equating to a year over year increase of 203 percent for Schedule 136
431 Transition Customers.⁴⁵ Customer generation capacity by resource type for Schedule 136
432 increased from 27,772 kWh to 90,007 kWh over the same time period equating to a year
433 over year increase of 224 percent.⁴⁶

434 **VI. UTAH CLEAN ENERGY’S 20-YEAR CONTRACT PROPOSAL**

435 **Q: Should the Commission approve 20-year contracts for customer generators?**

436 A: No. The Division concludes UCE’s proposal is unreasonable and should not be approved.
437 Navigant’s report illustrates that simple payback for private generation occurs at ten
438 years.⁴⁷ The Commission’s Order in Docket No. 15-035-53 found that a fifteen-year
439 maximum contract term for a QF to be in the public interest.⁴⁸ CG does not perform like
440 QF’s and is not subject to reciprocal agreements for long-term delivery obligations like
441 those required for QFs to receive long-term contract prices. The proposed one-sided put
442 option that transfers nearly all long-term price risk to non-participating customers with no
443 benefit is not in the public interest.

444 **Q: Is customer generation similar to a qualifying facility?**

⁴⁵ See *supra* n.38, Customer Generation Report, pg. 1, Section 1, Customer Generation Facilities by Resource Type (Schedule 136).

⁴⁶ *Id.*, pg. 3, Section 3, Customer Generation Capacity by Resource Type (kW) (Schedule 136).

⁴⁷ See *supra*, n.24, pg. 10.

⁴⁸ See Commission Order, Docket No. 15-035-53, January 7, 2016, pg. 19, section 3.3.

445 A: Not at this time. Although CG is somewhat similar to Schedule 37 QFs in regards to
446 requirements, CG is not similar to Schedule 38 QFs. RMP has no control over customer
447 generation. CG is not dispatchable due to its variability on a system basis. CG has no
448 reliability requirements. CG is not required to have a contract with RMP other than its
449 interconnection agreement. Finally, RMP has no control of when customer generation is
450 available.

451 **Q: Have you had the opportunity to review a typical qualifying facility contract?**

452 A: Yes. In response to Division data request DPU Data Request 8.1, 8.2, and 8.3, RMP
453 provided some recent QF contract samples. Although each contract is specific and
454 confidential to each QF, each contract contains common language.⁴⁹ The requirements
455 QF's have to maintain to transport to the grid are far reaching compared to customer
456 generators who have none other than those required in the interconnection agreement.

457 **Q: Is the Division suggesting that customer generation could never be considered a**
458 **QF?**

459 A: No. The Division is merely pointing out that CG currently operates in a dissimilar
460 manner compared to utility-scale QFs that have pricing based on part on assurances of
461 deliveries. The Division concludes that if CG customers want to be treated as QFs in the
462 future, then CG customers should similarly be required to agree to the requirements for
463 long-term QF PPAs. And RMP customers should not expect to pay for energy at rates

⁴⁹ Rocky Mountain Power's response to DPU Data Request 8.1, 8.2 and 8.3, April 23, 2020.

464 higher than other comparable QFs. To the extent that FERC or federal courts were to
465 determine that CG customers are QFs under PURPA, the Commission would need to
466 address this in a future docket.

467 VII. RMP LRS TIME-ZONE IMPACTS

468 **Q: Please explain the timing of the data collected during certain months of the study**
469 **period.**

470 A: RMP brought to the parties' attention that some meter data throughout its LRS study
471 period was reported in meter recorded time rather than Mountain Standard Time
472 ("MST"). Meter recorded time is Mountain Prevailing Time ("MPT") using the pre-2007
473 definition for daylight savings time. To be consistent with MST, the meter data at the
474 time of the daylight savings time ("DST") should have been shifted back one hour
475 beginning at hour ending three on the first Sunday of April (April 7, 2019) through hour
476 ending two on the last Sunday of October (October 27, 2019).⁵⁰

477 **Q: Does the Division have concerns about the impacts this timing difference might have**
478 **on its LRS analysis reported in Mr. Davis's direct testimony?**

479 A: No. The Division concludes that the amount and timing of customer generation during
480 times of morning and evening peaks during the summer months is not significant with or
481 without the reporting time discrepancy.

⁵⁰ RMP, Utah Parties-LRS 12, Docket No. 17-035-61, Data Request response, March 12, 2020.

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VIII. SUMMARY AND CONCLUSIONS

Q: Will you summarize your analysis and findings for Phase Two of this docket and offer your recommendations?

A: Yes. The intent of the legislation that provides for customer generation is to allow customers the opportunity to generate enough energy to offset their energy needs throughout the year and credited at a reasonable rate for energy sent to the grid. Traditional utility ratemaking attempts to match costs and causation for the utility. The same principles should be applied here. The costs the utility must spend for providing the service to CG customers should be recovered from those customers. And the costs that CG customers offset or avoid by exporting energy to the grid should be credited to those customers. CG customers are not free to serve and CG exports do not reduce the cost to serve by 22 cents per kWh on a system basis.

The fact that solar customer generation is spread-out across the state and dependent upon sunlight and fair weather makes it a non-dispatchable generation resource. During times of production, energy is consumed on-site or exported to the grid as a credit. This credit offsets the customer's bill either as a kWh adjustment (Schedule 135) or kWh converted to a dollar amount (Schedule 136) throughout the year. The Division's analysis of RMP's LRS data clearly shows that solar customers use the system differently than non-solar customers and currently export a small amount of energy during the Utah peak and non-peak hours.

502 The Division concludes that Vote Solar’s proposal has little merit in determining a
503 reasonable rate for export credits in this matter. The Division has concerns with the
504 impacts Vote Solar’s proposed rate might have on RMP, RMP’s customers, RMP’s self-
505 generating customers, local economies, and Utah’s general economy as stated herein.

506 The Division recommends the Commission approve RMP’s proposal or a similar
507 proposal that is based on an Avoided cost method (Schedule 37) approved by the
508 Commission and reviewed at least annually. The Division recommends the Commission
509 deny Vote Solar’s proposed 22.22 cent per kWh (\$222.20 per MWh) export rate as
510 unreasonable for all the reasons stated herein. Finally, the Division recommends the
511 Commission deny UCE’s proposed twenty-year contract as unreasonable and
512 unnecessary.

513 **Q: Does this conclude your rebuttal testimony?**

514 **A:** Yes, it does.