

–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 SR
Phase II

REDACTED

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

Surrebuttal Testimony of

ROBERT A. DAVIS

September 15, 2020

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EXHIBITS

17-035-61_RMP LRS Total Data Points_DPU Exhibit 1.1_Davis SR_9-15-20

17-035-61_DPU to RMP DR 7.1_DPU Exhibit 1.2_Davis SR_9-15-20

17-035-61_System-UT-Export Correlation by Month_CONF DPU Exhibit 1.3_Davis SR_9-15-20

17-035-61_LBNL-PNNL Workgroup Sign-In Sheet_7-11-19_DPU Exhibit 1.4_Davis SR_9-15-20

17-035-61_S&PGlobalCAISO HourAheadLMP 8-18 to 8-20_DPU Exhibit 1.5_Davis SR_9-15-20

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 who filed direct and rebuttal testimony in this**
11 **proceeding?**

12 A: Yes I am.

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

14 A: Yes. Exhibits: 17-035-61_RMP LRS Total Data Points_DPU Exhibit 1.1_Davis SR_9-
15 15-20; 17-035-61_DPU to RMP DR 7.1_DPU Exhibit 1.2_Davis SR_9-15-20; 17-035-
16 61_System-UT-Export Correlation by Month_CONF DPU Exhibit 1.3_Davis SR_9-15-
17 20; 17-035-61_LBNL-PNNL Workgroup Sign-In Sheet_7-11-19_DPU Exhibit
18 1.4_Davis SR_9-15-20; and 17-035-61_S&PGlobalCAISO HourAheadLMP 8-18 to 8-

19 20_DPU Exhibit 1.5_Davis SR_9-15-20. These exhibits were prepared by me or under
20 my direction.

21 **II. PURPOSE OF SURREBUTTAL TESTIMONY**

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

23 A: My surrebuttal testimony offers the Division’s conclusions and recommendations and
24 offers a response to Vote Solar witness Dr. Albert Lee’s critique of the Division’s load
25 research analysis, conclusions, and recommendations for the timing and amount of
26 exports to the grid. Division witness Dr. Abdinasir Abdulle discusses the Division’s LRS
27 reasoning and analysis in greater detail. I address Mr. Curt Volkmann’s
28 mischaracterization of the Division’s testimony regarding the variability and potential
29 wear-and-tear customer generation might contribute to the system as evident from the
30 Division’s analysis of Rocky Mountain Power’s (“RMP”) load research study. Finally, I
31 offer the Division’s concerns about an environmental issue that warrants mention in this
32 proceeding.

33 **Q: Can you offer a brief summary of your conclusions for this docket?**

34 A: Yes. The Division has analyzed the numerous testimonies and exhibits from other
35 parties’ witnesses in this proceeding and has participated in discussions and technical
36 conferences. I have personally been involved with this matter since 2014 when Docket

37 No. 14-035-114 was opened at the conclusion of RMP's last general rate case.¹ There are
38 numerous white papers, presentations, webinars, seminars, discussions, national
39 laboratory studies, and other third party studies pertaining to distributed generation as it
40 continues to evolve.

41 The Division has completed a thorough review of the parties' direct and rebuttal
42 testimony, prepared its own analysis of RMP's load research study ("LRS"), and read
43 comments submitted by the public. The Division maintains its position that customer
44 generation ("CG"), at the current levels of export, has a minimal impact on Utah and
45 System load during morning and evening peak hours. However, the Division concludes
46 that CG does offer some benefit during daytime non-peak hours and, therefore, should be
47 priced accordingly. The Division is not convinced customer generation offers avoidance
48 of fleet generation capacity in any significant manner, and provides minimal avoidance of
49 thermal generation pollution in the main Utah attainment areas.

50 The Division is not convinced CG provides significant environmental or societal benefits
51 at the current penetration level and points to another environmental issue of concern. The
52 Division has no discernable evidence that a fixed contract between RMP and customer
53 generators is necessitated nor is it in the public interest. Finally, the Division does not
54 believe that the outcome of this proceeding, should the Commission adopt RMP's

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

55 proposal or something similar, is or will be the leading cause of decline to the roof-top
56 solar industry in Utah.

57 **III. RECOMMENDATIONS**

58 **Q: Please offer the Division’s reasons for its recommendations in this proceeding.**

59 A: The Division is tasked with advocating for the public interest, which in the case of this
60 docket, includes everyone in the State of Utah including CG customers. The Division
61 supports RMP’s Schedule 137 proposal. RMP’s proposal applies a Commission approved
62 method² to determine a forward-looking avoided cost. RMP passes through generation
63 costs to customers. Matching the export credit value with the avoided costs results in
64 non-CG customers being generally indifferent to more or less CG exports. Setting an
65 export value that adjusts dynamically with actual market conditions and costs should help
66 ensure a durable long-term solution that compensates CG customers for the value they
67 provide to the utility system and similarly leaves non-CG customers unharmed.

68 As a reference point, RMP’s avoided cost-based export credit proposal falls within a
69 range of acceptable pricing compared to California Independent System Operator
70 (“CAISO”) market rates for example. RMP’s proposal helps to align the export credit rate
71 for customer generation to the utility’s avoided costs during peak hours while recovering
72 fixed system costs that CG customers use rather than shifting those costs to other rate

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>.

73 payers.

74 The Division is aware of RMP's energy pricing for resources providing energy for its
75 various renewable energy programs, current and future, such as the current subscriber
76 solar program, RMP's GRC proposed subscriber solar program, and power purchase
77 agreement ("PPA") pricing for qualifying solar facilities. While the Division is not privy
78 to all of RMP's energy prices from all of its purchases, it concludes that the value of CG
79 export credits should not vary significantly from those prices. Those prices represent
80 examples of real available energy generation costs, that non-participating customers
81 would otherwise pay for similar energy.

82 The Division concludes that the Schedule No. 37 pricing method for fixed solar provides
83 a reasonable proxy for the value of customer generation export energy plus avoided line
84 losses at the primary level.³ Schedule No. 37 pricing is reviewed regularly and reflects
85 current market conditions. In its recent order for Docket Nos. 19-035-38 and 20-035-T04,
86 the Commission addressed several points of interest applicable to this proceeding. The
87 Commission recognizes and concludes that the Utah Public Service Commission's
88 ("PSC") "fundamental role" in regulating RMP's compliance with PURPA "*is to ensure*
89 *QFs have the opportunity to sell to RMP and that RMP pays no more than its avoided*
90 *cost.*"⁴ [Emphasis added] This means that PURPA's Customer Indifference Standard

³ The Division notes that there may be some additional avoided line loss benefits at the secondary level but has not verified any monetary value at that system level.

⁴ See <https://pscdocs.utah.gov/electric/19docs/1903518/3150691903518and20035T04o8-20-2020.pdf>, at page 6.

91 maintains that RMP’s customers “...*should not have to pay more for their energy that*
92 *exceeds the incremental costs to the electric utility of alternative electric energy.*”⁵
93 [Emphasis added] The Division recognizes that CG is not exactly similar to a qualifying
94 facility in all ways, but the same general principles should apply: customers and
95 generators are treated fairly when exported energy is purchased at the same value that it
96 would otherwise cost the utility to produce or acquire.

97 **Q: Please offer the Division’s recommendations.**

98 A: The Division recommends that the Commission approve RMP’s proposed Schedule 137
99 rate structure. Third-party market data and other solar energy supplied program resources
100 support RMP’s proposed rate structure.⁶ The Division supports RMP’s proposed
101 Schedule 137 as just and reasonable and in the public interest. The Division recommends
102 the Commission deny Vote Solar’s proposed revised export credit rate of \$222.22 per
103 MWH or 22.22 cents per kWh because it is unreasonable and is not supported by market
104 data. It would result in a substantial and unjustifiable wealth transfer from non-CG
105 customers to CG customers. Finally, the Division recommends the Commission deny
106 Utah Clean Energy’s (“UCE”) proposal for asymmetrical twenty-year contracts as the
107 contracts are unreasonable, unnecessary, and in conflict with the concept of gradualism in

⁵The 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>.

⁶See Division witness Mr. Davis, Direct Testimony, March 8, 2020, CAISO Price for Feb 10, 2020 and 17-035-61_DPU Exhibit 1.2_Davis Dir_PH II_S&P Global Market Pricing_3-3-20.

108 this docket.⁷

109 The Division recommends the Commission direct RMP to open a docket for the purpose
110 of studying distribution planning where interested parties can discuss, develop and submit
111 a plan for Commission approval, jointly or singly, to implement a distribution planning
112 program for RMP that considers the costs and benefits of distributed generation impacts
113 to RMP's.

114 **IV. VOTE SOLAR'S LOAD RESEARCH ANALYSIS**

115 **Q: Do you agree with Vote Solar witness Dr. Lee's assessment of the Division's Load**
116 **Research Study conclusions?**

117 A: No. Dr. Lee's critique of the Division's load research study ("LRS") is unwarranted as
118 the Division's analysis results in similar conclusions to those of Dr. Lee's. Division
119 witness Dr. Abdulle Abdinasir addresses Dr. Lee's critique of the Division's reasoning
120 and analysis of RMP's LRS data in his surrebuttal testimony.

121 Both Dr. Lee's own LRS analysis and his analysis of RMP's LRS, has if anything,
122 confirmed that RMP's LRS was reasonable and its results were similar to that of Vote
123 Solar's. The data points produced by RMP's LRS were voluminous and proffered
124 numerous avenues for analysis. The Commission's order in Phase One of Docket No. 17-

⁷The Division is not opposed to the principle of long-term bilateral power purchase contracts where both buyer and seller are obligated to perform. The Division believes that it is impractical to require long term delivery guarantees from CG customers and as a result does not support long term contracts for CG customers. If CG customers as a group propose long term delivery commitments in a practical and enforceable way, the Division may support such a proposal.

125 035-61 directed the parties to determine the timing and amount of exports to the grid.⁸
126 Vote Solar conducted its own LRS using regression analysis on RMP's LRS data and
127 other data gathered through data requests from RMP. RMP witness Mr. Daniel MacNeil
128 summed up Vote Solar's LRS appropriately in his rebuttal testimony stating, "*Vote*
129 *Solar's regression analysis is the culmination of a significant expenditure of effort that*
130 *does not result in a significant change in estimated exports relative to the Company's*
131 *census of Schedule 136 customers.*"⁹ [Emphasis added]

132 Despite Dr. Lee's critique of the Division's analysis, the Division's conclusions
133 concerning the timing and amount of exports to the grid are, for all intents and purposes,
134 the same as Vote Solar's conclusions as illustrated by comparing Division Exhibit 1¹⁰
135 from Mr. Davis's rebuttal testimony to Dr. Lee's Figure 3 Production by Hours (2019)
136 from his revised direct testimony.¹¹

⁸ See <https://pscdocs.utah.gov/electric/17docs/1703561/3022941703561pIo5-21-2018.pdf>, page 18, ¶ 2, "*We find that the most relevant information for that analysis is the volume of electricity that is exported to the distribution system and the times when that electricity is exported.*"

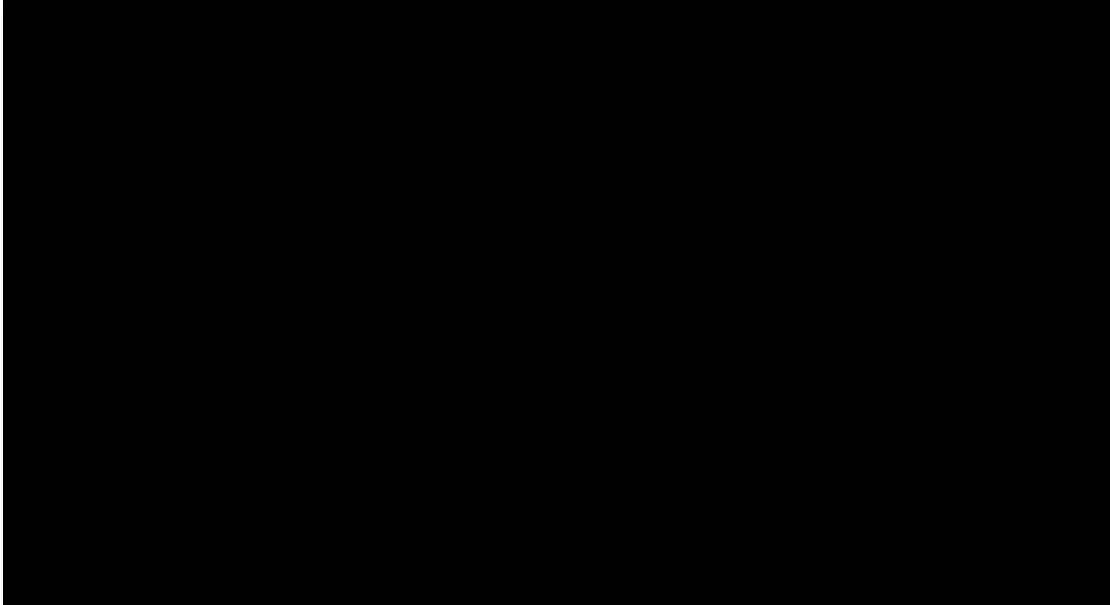
⁹ RMP witness Daniel J. MacNeil, Rebuttal Testimony, July 15, 2020, page 9, lines 183-185.

¹⁰ Division witness, Robert A Davis, Rebuttal, July 15, 2020, Exhibit 1, page 10, line 164.

¹¹ Vote Solar witness Dr. Albert J. Lee, Revised Direct Testimony, May 8, 2020, Figure 3: Production by Hours (2019), page 23, line 329.

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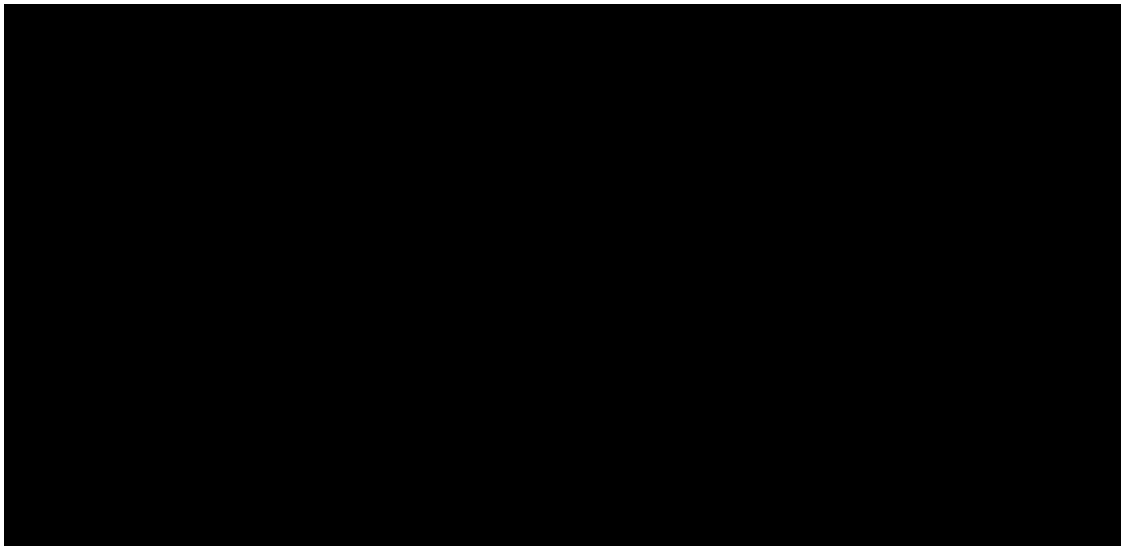
Division Exhibit 1 (CONFIDENTIAL)



138

139

Vote Solar Figure 3: Production by Hours (2019) (CONFIDENTIAL)



140

141 Dr. Lee critiques the Division's analysis as fundamentally flawed and offers his opinion
142 on the correct method of applying the sample strata weights. Dr. Abdulle explains the
143 Division's method for its analysis utilizing the Commission approved sampling strata
144 weights in comparison to Dr. Lee's recommended method.

145 Pursuant to the Commission's Order in Phase I, RMP's LRS produced enough data to
146 draw conclusions of the timing and amount of exports with 1,880,308 rows of export data
147 and 180,509,568 points of interval data. For the study period, the full population of
148 Schedule 136 customers produced 1,807,350 rows of residential data and 173,505,600
149 residential interval data points.¹² The Division assumes that if Excel had the capabilities
150 to process this data at once, a simple plot would have illustrated similar results for the
151 exports.

152 The critical takeaway from all of this is that Dr. Lee goes into great detail critiquing the
153 Division's work while his unverified regression analysis does not reach any significantly
154 different conclusions, and importantly, is represented by aggregating data over longer
155 time periods that hide the variability found in the data reported by the Division in its prior
156 filings to this docket.¹³ The Division agrees with Mr. MacNeil's conclusions that the
157 Commission's data set of interest, that better portrays CG in the future, is the Schedule

¹² See Division Exhibit 1.1, 17-035-61_RMP LRS Total Data Points_DPU Exhibit 1.1_Davis SR_9-15-20.

¹³ Division witness Mr. Davis, Direct Testimony, March 8, 2020, lines 631-638.

158 136 full population as it provides a better estimate of the customer exports that will occur
159 during the rate effective period.¹⁴

160 RMP's response to data request DPU 7.1 included as DPU Exhibit 1.2_Davis SR,
161 illustrates another point of interest. RMP reported 231,278,337 kWh of exported energy
162 for 2019.¹⁵ The Division's analysis, DPU Exhibit 1.3_Davis SR, reports [REDACTED]
163 [REDACTED] of combined exported energy for 2019 by totaling the LRS sample exports and
164 Schedule 136 exports.¹⁶ Dr. Lee's analysis concludes total exports of [REDACTED]
165 for 2019.¹⁷ The Division's estimate is higher than RMP's and Vote Solar's as a result of
166 the Division summing the exports for each fifteen-minute interval over the study period
167 for each sample set. This analysis may be useful for some purpose but it is not
168 particularly relevant to the setting of an export credit rate as it does not help the reader
169 understand the timing and amount of exports hitting the grid as ordered. The Division
170 analyzed the data in a reasonable manner considering the large amount of data and
171 specific to the Commission's Order to determine the timing and amount of exports to the
172 grid. The Division's analysis points to another issue of variability observed as a result of
173 the LRS. I will discuss this point later in my testimony.

¹⁴ *Supra*, n.9, at lines 185-192.

¹⁵ RMP response to Division data request DPU 7.1, February 10, 2020. See Division Exhibit 1.2, 17-035-61_DPU to RMP DR 7.1_DPU Exhibit 1.2_Davis SR_9-15-20.

¹⁶ See Division Exhibit 1.3, 17-035-61_System-UT-Export Correlation by Month_CONF DPU Exhibit 1.3, Tab 'Compiled LRS Exports', Cell B17.

¹⁷ Vote Solar witness Albert J. Lee, Rebuttal Testimony, July 15, 2020, Table 2, Credits Per Customer Under Proposed Schedule 137, page 22, line 326.

174 The Division concludes that the LRS ordered by the Commission in Phase One of this
175 docket is beneficial and illustrates how and when CG exports hit the grid, which helps to
176 guide the development of an export credit rate structure. While CG penetration levels are
177 increasing and, therefore, the total exports to the grid are growing, they are not changing
178 the timing as the analysis illustrates. The consistent growth of CG exports renders
179 forecasting exports with any degree of certainty, based on this type of analysis,
180 impractical and costly. Fortunately, a perfect forecast is not necessary. If a pricing model
181 for export credits is dynamic and self-correcting, effects of forecasting errors will
182 naturally solve themselves in just a few correction periods.

183 The Division recommends the Commission approve RMP's proposed Schedule 137
184 export credit rate structure proposal as it is reviewed at least annually. Developing a LRS
185 every few years to study CG exports and attributes is costly, time consuming, and
186 unnecessary.

187 **V. VOTE SOLAR'S ASSESSMENT OF WEAR-AND-TEAR ON THE SYSTEM**

188 **Q: Does you agree with Vote Solar witness Mr. Volkmann's assessment of the wear-**
189 **and-tear to the distribution system as a result of CG?**

190 **A:** No. Mr. Volkmann mischaracterizes and misses the point that I was trying to make. Mr.
191 Volkmann takes advantage of my admission of not having any data to support my claims
192 that CG variability might add wear-and-tear to RMP's distribution system. Mr.
193 Volkmann also claims that my references do not support my wear-and-tear assumption,

194 specifically, the LBNL-PNNL Workshop that was requested by the moving parties in
195 which Mr. Volkmann participated.¹⁸

196 I agree that the presentation materials do not explicitly define numerical data to support
197 wear-and-tear as a result of distributed generation, however, the presenters discussed the
198 topic in detail.

199 Despite Mr. Volkmann’s assessment, there is evidence that variability is present in the
200 LRS samples and Schedule 136 data, as illustrated in the Division’s analysis of RMP’s
201 LRS data. The Division argues that there must be some level of concern of added
202 variability due to bi-directional power flows from distributed generation resources as a
203 result of the expanse of the research going into the topic. Mr. Volkmann discusses
204 distributed generation and system reliability in other states and utility systems to great
205 length in his rebuttal testimony from line 161 to 246.¹⁹ Apparently, and evident from the
206 reports originating from those states and entities Mr. Volkmann references, a great deal
207 of effort and expense is going into ensuring system reliability by finding solutions to
208 mitigate the reliability issues caused by the mix of distributed and traditional generation.
209 Utah has not reached the level of distributed generation that Mr. Volkmann’s references
210 in his rebuttal. However, the Division finds it reasonable to learn from the examples of

¹⁸ Vote Solar witness Volkmann, Rebuttal Testimony, July 15, 2020, lines 139-141. See Division Exhibit 1.4, 17-035-61_LBNL-PNNL Workgroup Sign-In Sheet_7-11-19_DPU Exhibit 1.4_Davis SR_9-15-20.

¹⁹ Id., lines 161-246.

211 other states and entities and work diligently to mitigate the distributed generation related
212 issues in Utah.

213 Mr. Volkmann agrees with the Division that CG is an intermittent resource²⁰ and that CG
214 output can raise circuit voltages but can be mitigated with advanced inverters.²¹ Mr.
215 Volkmann also discusses advanced inverters in detail and suggests that RMP take
216 advantage of advanced inverters to mitigate Voltage issues.²² The Division concludes that
217 without knowing the number or anticipating the number of advanced inverters on its
218 system or the location of those inverters or inverter settings, Mr. Volkmann's
219 assumptions are premature and potential wear-and-tear from variability likely exists on
220 the distribution system. RMP is well aware of the capabilities, as are the parties involved,
221 of advanced inverters from RMP's study completed through its Sustainable
222 Transportation Energy Plan Act ("STEP") program as Mr. Volkmann cites in his
223 rebuttal.²³

224 The Division accepts that there is limited quantifiable supporting evidence that CG adds
225 wear-and-tear to the distribution system at this time; however, Mr. Volkmann has no
226 evidence to support his claim that CG does not contribute to additional wear-and-tear on

²⁰ Id., line 172.

²¹ Id., lines 258-260.

²² Id., lines 247-368.

²³ Id., lines 324-328.

227 the system.²⁴ It is important that the costs associated with incremental additional wear-
228 and-tear to the extent that they exist as a result of CG are not shifted to other customers.

229 The Division recommends the Commission direct RMP to open a docket to study the
230 affects variability, reliability, wear-and-tear, and other attributes of distributed generation
231 have on its distribution system and associated costs or benefits.

232 VI. FUTURE ENVIRONMENTAL CONCERNS

233 **Q: Does the Division have concerns about future environmental impacts that might**
234 **occur as a result of customer generation and Vote Solar’s proposal?**

235 A: Yes. As discussed in my rebuttal testimony, Dr. Carolyn Berry’s analysis does not
236 consider the disposition of retired photovoltaic panels, inverters, and balance of system
237 (“BoS”) components in her environmental analysis.²⁵

238 To further the point, recycling costs of PV photovoltaic panels and balance of system
239 components is vastly uncharted territory at the present time in this country. Even
240 though there are numerous white papers, studies, and articles, recycling costs are not
241 known with any certainty at this time. Estimates for recycling e-waste is documented well
242 enough that costs associated with recycling PV panels, BoS components, and the
243 associated risks to the environment, can be modeled to some extent.²⁶

²⁴ *Id.*, lines 157-160.

²⁵ *Supra*, n.10, lines 253-255.

²⁶ See <https://www.wired.com/story/solar-panels-are-starting-to-die-leaving-behind-toxic->

244 The Division generally does not find it prudent to impose hypothetical future costs on
245 customers until those costs become actual current or known future period costs.
246 Moreover, it is unlikely that such costs will be direct costs to the utility and therefore
247 borne by utility customers. However, if the Commission does attempt to start
248 compensating CG customers for hypothetical future environmental benefits that are
249 similarly not directly assignable to customers, it should also include the costs of
250 hypothetical future environmental impacts such as recycling and replacement that need to
251 be included in any environmental avoided cost modeling.

VII. DOCKET SUMMARY

252
253 **Q: Will you summarize your analysis and findings for Phase Two and the entirety of**
254 **this docket?**

255 A: Yes. The purpose of this docket is to propose a sustainable rate structure for exported
256 energy from CG customers. Experience has shown that neither an export credit valued in
257 energy, nor a dollar value, which is based on a retail rate structure where the volumetric
258 rate includes more than simply the energy costs, is sustainable. Reasonably, parity must
259 exist between the value of the export to the utility and the value of the export credit
260 provided to the CG customer for the export credit rate to be just and reasonable for all
261 customers.

262 **Q: Please explain how this docket has proceeded.**

263 A: The initial step in Docket No. 17-035-61 to establish a reasonable rate for exports was to
264 determine when and how much CG contributes to the system during peak and non-peak
265 times (Phase One). The Commission approved Phase One initiating RMP's LRS.
266 Samples of Schedule 135 net metering residential customers, and non-residential
267 customers, and the full population of residential and non-residential transition customers
268 (Schedule 136) were studied over the course of 2019. The Division's analysis of RMP's
269 LRS data clearly shows that solar CG customers use the system differently than non-solar
270 customers and currently export a small amount of energy during the Utah peak and non-
271 peak hours throughout the year at the current CG penetration levels.

272 Vote Solar prepared its own LRS based on RMP LRS data with its own attributes lending
273 to the characteristics of solar CG that largely mirrored the results of RMP's LRS. Despite
274 the Division's frustrated attempts to verify the results of Vote Solar's LRS, the Division
275 concluded that Vote Solar's LRS was not significantly different than the Division's
276 results related to the timing and amount of CG exports to the grid. In-fact, the Division's
277 analysis reached a total export calculation that was greater than Vote Solar's or RMP's
278 due to the method in which the Division analyzed the data.

279 The purpose of Phase Two in Docket No. 17-035-61 is to develop a reasonable export
280 credit rate based on the CG energy that is delivered to the grid as determined from Phase
281 One. The results from the analysis of the LRS demonstrate that the amount of exports is a
282 moving target due to growth and difficulty in forecasting. Phase One did offer

283 conclusions for the timing of CG exports in relation to Utah and System peak periods.

284 The amount of exports is expected to increase over time while the data suggests that the

285 timing of those exports in relation to the Utah and PacifiCorp System Peak, is not.

286 **Q: Please explain how this docket differs from traditional ratemaking.**

287 A: Traditional utility ratemaking attempts to match cost and causation for the utility to

288 deliver energy to customers and set rates accordingly to allow the utility to recover those

289 costs. For simplicity in ratemaking and at least in part for purposes of incenting

290 conservation, residential retail rates have historically included most costs of service in a

291 volumetric energy based rate.²⁷ The intermittent, seasonal, bi-directional flow of CG,

292 does not fit well under the traditional ratemaking paradigm. Fair compensation requires

293 ratemaking that considers the costs and benefits of CG in a way that keeps non-CG

294 customers indifferent.

295 Asking non-CG customers to pay more for the same energy they could otherwise

296 purchase from another source in order to subsidize CG customers is unreasonable and not

297 in the public interest. Rather, any reasonable export credit rate proposal should be

298 benchmarked against known alternatives to purchase replacement energy. The utilities'

299 avoided costs are the most direct valuation that I am aware of for short term market

300 pricing until a time if or when something like locational marginal pricing will provide

²⁷ For example: volumetric based rates are used because providing demand meters to the residential class is often cost prohibitive.

301 greater transparency and granularity into more localized pricing. Another benchmark to
302 compare is market pricing within the Energy Imbalance Market (“EIM”) in which RMP
303 operates. Similarly, a robust market exists for solar energy facility purchases or purchase
304 agreements as evidenced by RMP’s recent request for proposal (“RFP”). To the extent
305 that a proposed export credit value varies widely from known independent sources of
306 energy pricing—including solar generation, the Commission should exercise particular
307 skepticism.

308 To the extent that the entire adjustment for CG customer interaction with the grid is
309 captured in an export credit, it must be recognized that CG customers use the distribution
310 system in a different way than non-CG customers. Although CG customers take delivery
311 in the same manner as other non-CG customers when their systems are not producing or
312 producing less than full requirements, the CG customers also use the system to export
313 energy not consumed from their own production. The Division supports fully
314 compensating CG customers for any quantifiable actual cost savings that result from the
315 bi-directional use of the grid. Similarly, the Division supports CG customers paying the
316 full cost of their bi-directional use of the grid.

317 Until such time as the benefits of CG, such as use of advanced inverters, penetration
318 levels of CG increase, and true system costs that can be avoided reliably are identified
319 and assigned to users, the value of CG exported energy should be valued similarly to
320 what the utility pays for energy from any other similar generation resource plus avoided

321 line losses. In other words, CG energy exported to the grid should be homogenous with
322 the rest of the system and all of RMP's customers should be indifferent to where their
323 energy needs are generated.

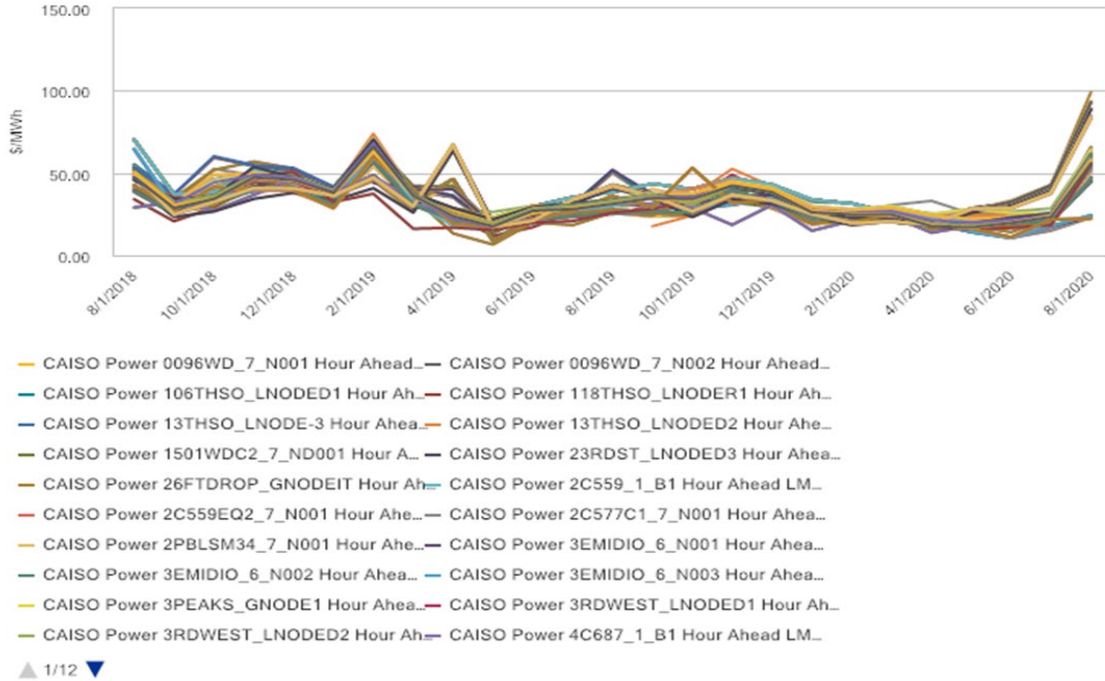
324 **Q: Will you offer your summary of Vote Solar's proposed export credit rate?**

325 A: Yes. Vote Solar proposes a stacked value method. Determining a value for CG exports in
326 a complex interdependent market using a stacked avoided cost method is questionable on
327 its face. The market value of nearly all goods and services are less than the sum of the
328 individual utility values of those goods and services and in a competitive market, the
329 market value typically approaches the cost of production of the least cost alternative, not
330 the sum of stacked values to the buyer. In the instant case, this can be observed by
331 examining both the wholesale market value for energy and the market for solar
332 generation, both of which are a fraction of Vote Solar's stacked value.

333 As an example, the CAISO historical market data does not support Vote Solar's proposed
334 export credit rate. In fact, the chart below illustrates that Vote Solar's proposed rate is at
335 least double the highest hour ahead locational marginal pricing across all CAISO nodes
336 reported by S&P Global.

337

S&P Global CAISO Hour Ahead LMP 8-1-18 through 8-1-20²⁸



338

339

The availability of alternative energy sources for far less cost, suggests that the stacked

340

valuation method is unreliable at calculating an export value that is similar to what the

341

energy would otherwise cost from alternative sources. If given the option to purchase

342

solar energy for \$222.20 per MWh or \$57 per MWh (2021 in \$2019), as shown in the

343

EIA chart below for all generation resources, how many RMP customers would choose to

344

pay \$222? How many cities would join the community renewable energy program if the

345

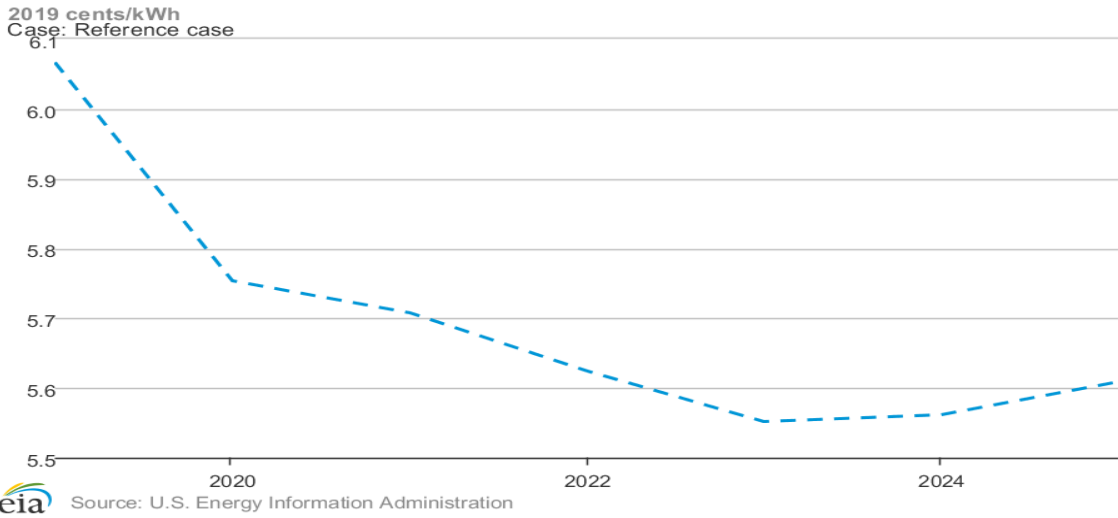
incremental cost of new renewable generation is \$222 per MWh? And if the answer is

²⁸ See 17-035-61_S&PGlobalCAISO HourAheadLMP 8-18 to 8-20_DPU Exhibit 1.5_Davis SR_9-15-20.

346 zero, how would it be reasonable to make that same decision on behalf of RMP’s captive
347 non-CG customers?

348 **EIA Electricity by Service Category: Generation²⁹**

Electricity: Prices by Service Category: Generation



349

350 **VII. CONCLUSIONS and RECOMMENDATIONS**

351 **Q: Will you offer your conclusions and recommendations for Phase Two of this docket?**

352 **A:** Yes. The Division recommends the Commission approve RMP’s proposed Schedule 137

353 rate structure as just and reasonable and in the public interest and based on an avoided

²⁹ See <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=8-AEO2020®ion=0-0&cases=ref2020&start=2019&end=2025&f=A&linechart=ref2020-d112119a.74-8-AEO2020~~&ctype=linechart&sourcekey=0>. Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors that have a non-regulatory status; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

354 cost method (Schedule 37) approved by the Commission and reviewed at least annually.

355 This method would reasonably calculate the value CG exports contribute to the grid.

356 The Division concludes that Vote Solar's proposed rate is unreasonable. The Division

357 recommends the Commission deny Vote Solar's proposed \$222.20 per MWh or 22.22

358 cent per kWh export rate for all the reasons stated herein and throughout my testimony in

359 this matter.

360 The Division recommends the Commission deny UCE's proposed twenty-year contract

361 as unreasonable, unnecessary, and in conflict with the concept of gradualism in this

362 docket.

363 Finally, the Division recommends the Commission direct RMP to request the opening of

364 a docket in the near future to study the affects of variability, reliability, wear-and-tear,

365 and other attributes of distributed generation on its distribution system and associated

366 costs and benefits.

367 **Q: Does this conclude your surrebuttal testimony?**

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