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BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Investigation of the Costs and Benefits of Pacificorp's Net Metering Program	Docket No. 14-035-114 Vote Solar Exhibit 5.0 (DT)
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**TESTIMONY OF RICK GILLIAM ADDRESSING
THE AUGUST 28, 2017 SETTLEMENT STIPULATION
ON BEHALF OF VOTE SOLAR**

September 14, 2017

1 **INTRODUCTION**

2 **Q: Please state your name and business address.**

3 A: My name is Rick Gilliam. My business address is 590 Redstone Drive, Suite 100,
4 Broomfield, CO 80020.

5 **Q: Have you previously testified in this proceeding?**

6 A: Yes. I submitted Direct Testimony on June 8, 2017, in this proceeding.

7 **PURPOSE AND SUMMARY OF TESTIMONY**

8 **Q: What is the purpose of your testimony?**

9 A: The purpose of my testimony is to address aspects of the Settlement Stipulation
10 (“Stipulation”) submitted by Rocky Mountain Power (“RMP” or “the Company”) on
11 August 28, 2017.

12 **Q: Please summarize your testimony.**

13 A: Vote Solar’s mission is to make solar a mainstream energy resource across the country.
14 While deployment of solar resources has grown in recent years due to the dramatic price
15 reductions of solar equipment, notably the panels themselves, solar energy still provides a
16 very small portion of the energy consumed in most states. We support the deployment of
17 solar resources in all market segments – utility and community scales, and customer-sited
18 rooftop solar on homes and businesses – and strive to create and maintain markets in each
19 of those segments across the country. In this proceeding, Vote Solar’s goal is to maintain
20 a viable and sustainable distributed solar market in the service territory of RMP and Utah.

21 The Stipulation filed with the Commission has the support of several Utah solar industry
22 representatives, and because Vote Solar's primary interest is to maintain a viable solar
23 industry in Utah, Vote Solar will not oppose the Stipulation. However, the Stipulation
24 contains several provisions that, in Vote Solar's view, are not reasonable from a policy
25 perspective or for Utah ratepayers. Vote Solar therefore does not support the Stipulation,
26 and recommends that the Commission adopt certain minor adjustments of the Stipulation
27 terms if it approves the settlement as a whole.

28 In this testimony I review the Stipulation and in particular certain specific provisions that
29 Vote Solar cannot support as just and reasonable. These include aspects of the provisions
30 in paragraphs 24, 29, 30, and 32, and to some extent paragraph 22.

31 Specifically I recommend the following:

32 Paragraph 24: The usage (imports) and the export credits should be measured and netted
33 on a monthly basis. However, if the Commission decides to adopt 15 minute
34 measurement and netting as reflected in the Stipulation, it should clarify that RMP must
35 actually net a customer's imported energy with exported energy in each 15 minute period
36 throughout the month.

37 Paragraph 29: Clearly identify and emphasize data collection from transition customers,
38 so that the costs and benefits reviewed in the Export Credit Proceeding better reflect the
39 characteristics of systems being deployed during the transition period.

40 Paragraph 30: Specify that parties to the Export Credit Proceeding may submit evidence
41 on the appropriate study period over which to quantify and model costs and benefits
42 associated with exported energy.

43 Paragraph 32: Recovery of the amounts described in this paragraph should be subject to
44 review and challenge in the Export Credit Proceeding. In other words, paragraph 32
45 should not be precedential.

46 Paragraph 22: Require the available capacity in the transition program to be expressed in
47 both DC and AC terms.

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49 **DISCUSSION OF THE STIPULATION**

50 **Q. Please describe the Stipulation.**

51 A. The Stipulation establishes three groups of customers – the grandfathered group, the
52 transition group, and the future group, not unlike what we proposed in our direct case in
53 this docket. The first two groups are allowed to remain within the rate and structure
54 paradigms established in the Stipulation until the end of 2035 and 2032, respectively.
55 This stability is helpful but represents only a very modest level of gradualism for the
56 solar market.

57 An important aspect of the Stipulation is that it segregates solar generation used as it is
58 generated to offset the electricity consumption of the host customer from solar generation
59 that exceeds the consumption of the host. The former is treated no differently than any
60 reduction in consumption a customer is able to create through efficiency technologies,
61 fuel switching, or behavioral or lifestyle changes. In other words, what the customer
62 does on its side of the utility meter is his or her own business, provided it doesn't
63 compromise safety or reliability. The latter, i.e. solar energy that is exported from the

64 customer's meter onto the local distribution grid, is measured and treated very differently.
65 It is measured in 15 minute increments, netted against consumption also measured in 15
66 minute increments, and compensated at rates delineated in the Stipulation for the
67 transition period. This 15-minute "netting" period is highly unusual, and makes Utah one
68 of the only states in the nation to micro-measure and net solar generation to my
69 knowledge.

70 A new regulatory proceeding is also contemplated by the Stipulation to determine the
71 export credit rate, to be promptly filed by the Company after the conclusion of this
72 docket. The new Export Credit Proceeding will last no more than three years, with the
73 expectation that the first phase of the proceeding will be the gathering of data "expected
74 to be considered in determining the appropriate export rate." (paragraph 29)

75 In addition, net export credits will be automatically and fully recovered by the Company
76 through its Energy Balancing Account ("EBA") or "another pass-through mechanism."

77 Paragraph 27 appears to lock in the current rates for Grandfathered customers through
78 2035, and to Transition customers through 2032. This import rate stability will be helpful
79 for reducing customer risk and preserving the economics of rooftop solar systems for
80 those groups of customers.

81 There are also "stay-out" provisions (paragraphs 33-36) that require signatories to
82 support the terms of the Stipulation and not to oppose it in certain specified contexts.

83 The Stipulation does note however that it is not intended to prevent Parties from seeking
84 administrative or judicial review of any regulatory decision other than approval and
85 enforcement of this Stipulation and its terms. These provisions are effective until 30

86 months after the date of the order in the export rate proceeding, or approximately the
87 second quarter of 2023.

88 The final few substantive provisions of the Stipulation provide for collective
89 development of (a) a communications plan, (b) a Utah.gov website to explain the
90 treatment of net metering and customer generation, and (c) consumer protection
91 regulations, as well as a plan to meet in 2018 to discuss options for a low-income solar
92 program.

93 **Q Are there aspects of the Stipulation that you believe are helpful for the solar**
94 **market?**

95 A. Yes. Notably, paragraphs 37, 38, and 39 of the Stipulation are helpful and will improve
96 public understanding, protect consumers against misleading claims, and bring solar
97 resources to those whose access has hitherto been limited. In addition, the grandfathering
98 provision is fair.

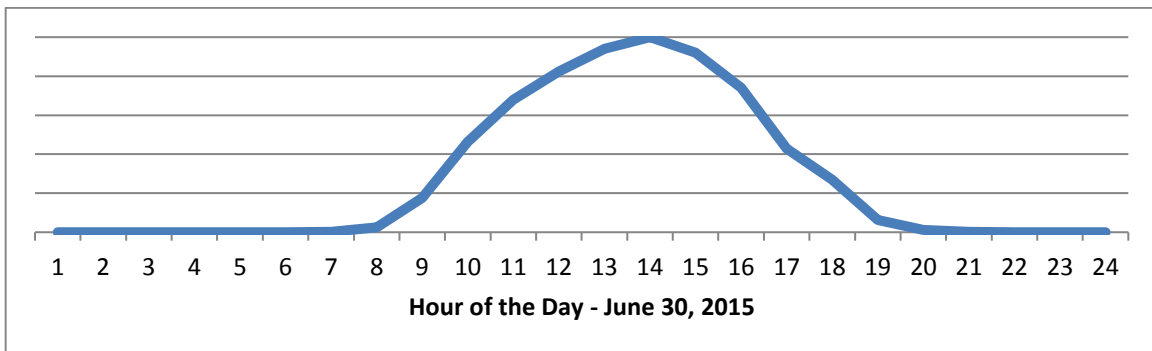
99 **Q. Do you have concerns with the Stipulation?**

100 A. Yes, I do. While there are a number of positive features, there are a number of issues I
101 believe conflict with the goal of a viable and sustainable solar market. These include
102 paragraph 24's terms relating to the measurement and netting periods for electricity
103 supplied to the customer and from the customer to RMP, paragraph 29's requirement that
104 all NEM customers randomly selected must participate in a load research study,
105 paragraph 30's lack of clarity regarding the process for evaluating the time frame of
106 review of costs and benefits in the Export Credit proceeding, and paragraph 32's

107 automatic pass through of certain amounts through the Energy Balancing Account
108 (“EBA”).

109 **Q. Please describe your concern with paragraph 24.**

110 A. Paragraph 24 specifies that the transition customer’s usage, export credit, and modified
111 export credit (if applicable) “will be measured and netted in 15-minute increments.” I
112 have several concerns with this approach. Most importantly, I believe it will be difficult
113 for the solar industry to provide good estimates to potential customers of the cost savings
114 resulting from rooftop solar installations due to the variability of usage characteristics for
115 individual customers. The transition export credit for Schedule 1 customers is 9.2¢/kWh,
116 greater than the tier 1 rate but less than the tiers 2 and 3 rates. The smallest and most
117 efficient customers whose monthly consumption rarely exceeds 400 kWh will benefit by
118 any excess generation. For medium to higher usage customers, those with monthly
119 consumption exceeding 400 kWh, the picture is more complicated. These customers
120 would benefit by offsetting grid-supplied energy consumption from the higher tiers with
121 concurrent solar generation, thereby receiving a 10.7, 11.5 or 14.5¢/kWh value rather
122 than a 9.2¢/kWh value for excess energy. As a result, these customers would have an
123 incentive to shift consumption to the middle of the solar day to reduce exports and offset
124 more grid energy with self-generation. Figure 1 is a chart showing the average pattern of
125 exports to the grid for the 52 customers for which RMP had data on June 30, 2015 – the
126 peak load day of the year.



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Figure 1. Unitized Aggregated Exports for 52 Rooftop Solar Customers

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It should be noted that the excess rooftop solar generation represented in Figure 1 is

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measured on a 60 minute basis, and that excess generation measured on a 15 minute basis

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would likely be greater. The implication is that larger amounts of energy would be

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exported by the customer at a value less than the retail rate, based on these 52 customers.

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The reduced value and the shorter measurement and netting period create uncertainty for

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customers and solar companies alike. The solar company seeking to help the customer

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optimize their use of solar will have little information about the customer's usage patterns

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and ability to shift consumption in order to properly size and orient rooftop solar systems.

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The likely result of the uncertainty will be reduced deployment of rooftop solar resources

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and smaller systems being deployed, thus reducing the long term system and customer

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benefits that result from reducing the system peak load and generating capacity needs due

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to rooftop solar generation during peak energy usage periods.

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Q. Is the customer load shifting you describe beneficial for RMP?

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A. Daytime hours tend to be higher load hours for the system. Increasing the load during

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this time will increase costs for all customers, both in the near term and the long term.

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Q. Do you have other concerns with 15 minute measurement and netting?

145 A. Yes. The netting of the 15 minute measurements is not defined in the Stipulation, most
 146 likely because parties believe they know what it means. For example, monthly netting
 147 nets inflows and outflows over a monthly period, so 15 minute netting should be the
 148 netting of inflows and outflows over 15 minute periods. However, RMP’s sister
 149 Company Nevada Energy (NVE)’s subsidiary Sierra Pacific Power Company (“SPPC”)
 150 did not follow this logic when it established hourly netting following the Modified Final
 151 Order issued by the Nevada Public Utilities Commission in February of 2016. Instead,
 152 SPPC summed all the hourly import measurements and netted total hourly export
 153 measurements against them, effectively applying the import and export rates in each
 154 measurement period without netting the energy first. The results of these two different
 155 approaches are not the same as Table 1 shows.

Billing Example ¹	Period 1	Period 2	Period 3	Total
Inflow kWh	20	20	20	60
Outflow kWh	(10)	(20)	(30)	(60)
Net kWh	10	0	(10)	0
Import rate:	\$0.15	\$0.15	\$0.15	
Export rate:	\$0.10	\$0.10	\$0.10	
Bill: netting method	\$1.00	\$ 0	\$(0.50)	\$0.50
Bill: SPPC method	\$2.00	\$1.00	\$ 0	\$3.00

Table 1: Netting Method vs. NVE/SPPC Method: Illustrative Example

157 Table 1 demonstrates that the order of operations matters. Paragraph 24 should be
 158 clarified so it is clear that the energy imports and energy exports are netted in each period
 159 before applying the import or export rate.

160 **Q. Please summarize your concerns with the 15 minute measurement and netting.**

¹ All numbers are illustrative.

161 A. The uncertainty created by the switch to 15 minute measurement and netting may cause a
162 dramatic reduction in the deployment and size of rooftop solar resources, undermining a
163 viable and sustainable market. Even if 15 minute measurement and netting is retained,
164 the Stipulation should clearly state that the energy imports and exports are netted before
165 the appropriate rate is applied.

166 **Q. Please describe your concern with paragraph 29.**

167 A. Paragraph 29 requires that randomly selected net metering (grandfathered) customers and
168 transition customers must participate in a load research study. The data collected will be
169 used in the Export Credit Proceeding. My concern is that transition customers, subject to
170 15 minute measurement and netting of imports and exports as described above, may
171 install smaller systems with different configurations than they would have under
172 traditional net metering. As a result, exports would be smaller and result in different
173 costs and benefits to be evaluated in the Export Credit Proceeding. Thus, use of data
174 reflecting the characteristics of existing grandfathered customers may not be
175 representative of those rooftop solar customers that will be subject to an export credit
176 through 2035. My recommendation is to clearly identify and emphasize data collection
177 from transition customers, in addition to existing customers, with the ability to
178 distinguish between each type of customer.

179 **Q. Please describe your concern with paragraph 30.**

180 Paragraph 30 states that the Commission will determine the appropriate study period over
181 which to quantify and model export credit components in the next proceeding, but does
182 not set forth a process for the parties to submit evidence on what that period should be.

183 Vote Solar believes that overwhelming evidence will show that a time-frame for this
184 analysis should be the long term, to fully capture the costs and benefits of distributed
185 solar to the system and ratepayers. The resolution of this proceeding should confirm that
186 parties will have an opportunity, in the Export Credit Proceeding, to submit arguments
187 and evidence on the appropriate time frame for that analysis.

188 **Q. Please describe your concern with paragraph 32.**

189 A. Paragraph 32 provides for the between rate case pass-through of “net” export credits, i.e.
190 the difference between export credits to transition and post-transition customers and the
191 loss-adjusted market value of the exports. The paragraph allows for discussion of the
192 methodology for calculating amounts to be recovered in the Export Credit Proceeding (or
193 other proceeding), but locks RMP’s recovery of 100% of the calculated amounts, which
194 arguably may only be accomplished through an automatic pass-through mechanism. I
195 believe the Stipulation is an improper and far too limited vehicle to determine the long
196 term recovery method for these amounts. I recommend that the recovery of the amounts
197 described in this paragraph also be subject to review and challenge in the Export Credit
198 Proceeding. In other words, paragraph 32 should not be precedential in any way.

199 **Q. Do you have other concerns?**

200 A. Yes. I believe that paragraph 22 uses an improper measure to define the limit on
201 additional solar generating capacity available in the transition period

202 **Q. Please describe your concern with paragraph 22.**

203 A. Paragraph 22 describes the total amount of capacity allowed for all transition customers
204 for residential and non-residential customers as 170 MW and 70 MW direct current or
205 DC, respectively. I disagree with the use of DC in this instance where in prior parts of
206 the Stipulation, capacity is implicitly expressed in alternating current (AC) terms. For
207 example, paragraph 11 requires the Commission to cap the net metering program “at the
208 cumulative generating capacity of all customer generation systems for which complete
209 interconnection applications have been submitted to the Company....” This generating
210 capacity refers back to the current cap of 20% established by this Commission and tied to
211 the 2007 maximum load of the RMP system. All of these figures are expressed in AC
212 terms.

213 The problem with this new and unique use of DC is that the provision may
214 unintentionally mislead the Commission or others to think that more capacity is available
215 than the Stipulation actually provides. A difference of 10% between AC and DC
216 capacity is generally seen as the default value, but it can be as much as 25%.² I
217 recommend the Commission require the available capacity be expressed in both DC and
218 AC terms so that the Stipulation is fully transparent as to the value of its capacity cap.

219 **RECOMMENDATIONS**

220 **Q. Please summarize your recommendations.**

221 A. Specifically I recommend the following changes:

² NREL PVWatts documentation: The default value of 1.10 is reasonable for most systems. A typical range is 1.10 to 1.25, although some large-scale systems have ratios of as high as 1.50. The optimal value depends on the system's location, array orientation, and module cost. See <http://pvwatts.nrel.gov/pvwatts.php>

222 Paragraph 24: The usage (imports) and the export credits should be measured and netted
223 on a monthly basis. However, if the Commission decides to adopt 15 minute
224 measurement and netting as reflected in the Stipulation, it should clarify that RMP must
225 actually net a customer's imported energy with exported energy in each 15 minute period
226 throughout the month.

227 Paragraph 29: Clearly identify and emphasize data collection from transition customers,
228 so that the costs and benefits reviewed in the Export Credit Proceeding better reflect the
229 characteristics of systems being deployed during the transition period.

230 Paragraph 30: Specify that parties to the Export Credit Proceeding may submit evidence
231 on the appropriate study period over which to quantify and model costs and benefits
232 associated with exported energy.

233 Paragraph 32: Recovery of the amounts described in this paragraph should be subject to
234 review and challenge in the Export Credit Proceeding. In other words, paragraph 32
235 should not be precedential.

236 Paragraph 22: Require the available capacity in the transition program to be expressed in
237 both DC and AC terms.

238 Having made those points, the Stipulation has the support of several Utah solar industry
239 representatives, and because Vote Solar's primary interest is to maintain a viable solar
240 industry in Utah, Vote Solar will not oppose the Stipulation.

241 **Q: Does this conclude your testimony?**

242 A: Yes.