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BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

<p>In the Matter of the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Service Rates in Utah and for Approval of its Proposed Electric Service Schedules and Electric Service Regulations</p>	<p>DOCKET NO. 13-035-184</p> <p>Surrebuttal Testimony of Michael D. Rossetti on Behalf of Utah Citizens Advocating Renewable Energy (UCARE) Exhibit 1.0 (SRT)</p>
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SURREBUTTAL TESTIMONY OF MICHAEL D. ROSSETTI
ON BEHALF OF
UTAH CITIZENS ADVOCATING RENEWABLE ENERGY
[NET METERING]

July 17, 2014

RESPECTFULLY SUBMITTED,
Utah Citizens Advocating Renewable Energy

Michael D. Rossetti

1 **Q: Please state your name, address and relationship to Rocky Mountain Power**
2 **(“RMP”, “Company”).**

3 A: My name is Michael D. Rossetti. My address is 13051 Shadowlands Lane,
4 Draper, Utah 84020. I am a Residential Net Energy Metering (“RNEM”)
5 customer and founder of Utah Citizens Advocating Renewable Energy
6 (“UCARE”).

7 **Q: Are you the same Michael D. Rossetti who submitted direct testimony on**
8 **behalf of UCARE in this proceeding?**

9 A: Yes.

10 **Q: For which party will you be offering testimony in this case?**

11 A: I will be offering testimony on behalf of UCARE, Utah Citizens Advocating
12 Renewable Energy, an informal organization I formed in February of this year
13 composed of Utahns who now have renewable energy and/or who believe it is
14 important that other Utahns might be encouraged to choose renewable energy in
15 the future.

16 My motivation for the establishment of UCARE evolved from inquiries I
17 had directed to RMP after I learned of their intent to impose a fee on residential
18 solar power producers in order to achieve what they described as "fairness" in
19 their billing for the provision of electricity to their customers. Upon hearing their
20 rationale for the imposition of this fee, I soon came to the realization that RNEM
21 customers needed an advocacy organization whose sole purpose would be to
22 ensure that this small subset of RMP customers would indeed be treated "fairly"
23 in the billing process. UCARE was formed for this purpose of this advocacy.

24 **Q: What is the purpose of your surrebuttal testimony?**

25 A: The purpose of my testimony is to:

- 26 1. Demonstrate that RMP’s calculations underpinning their assertions of an
27 ‘unfair’ cost-shifting are flawed and the imposition of such would result in
28 double charging for fixed-cost recovery.
- 29 2. Demonstrate that RMP’s attempt to apply cost-causation only to one subset of
30 customers (net-metering customers), while not applying such to the entire set
31 of residential customers, is a gross violation of the very fairness the Company
32 espouses.
- 33 3. Demonstrate that any kind of flat fee would be inequitable to the RNEM
34 subset of the residential customer class.
- 35 4. Demonstrate that any kind of capacity-based fee would be inequitable to the
36 RNEM subset of the residential customer class.
- 37 5. Demonstrate that RMP has not substantiated any other claims of “system
38 impacts” through any meaningful monetization, only through innuendo and
39 theory.

40 Lastly, to come to the conclusion that imposing of any kind of “facilities
41 charge” at this time would be premature, inequitable, and damaging to the
42 renewable energy environment in Utah, with no apparent benefit to any Utahn.

43 **Q: Do you have any introductory comments?**

44 A: Yes. Throughout this testimony I will refer to “solar” and “solar PV” but these
45 terms should be considered to mean all forms of residential-level renewable
46 energy including, but not limited to, solar photovoltaic panels, hydrothermal,

47 micro-hydro, and wind.

48 Also, I beg the Commission's indulgence for any procedural errors,
49 mistakes, misspellings, missteps, and/or poor grammar. UCARE is an informal
50 organization that represents a number of concerned citizens, none of whom are
51 experienced in proceedings of this nature. I formed UCARE in February of this
52 year; we have no budget, no phalanx of accountants, no paid consultants, and no
53 summer interns.

54 **Q: Will any new net metering fee that the commission may approve personally**
55 **affect you?**

56 A: Yes, but not immediately. Those of us who have already made such choices and
57 have existing solar installations are unlikely to be immediately affected by this
58 case as our investments (along with ROI calculations) were made under the
59 existing contractual conditions; requiring existing RNEM customers to comply to
60 new fees or charges would violate that original contract. Should I sell my
61 residence in the future, however, I would be affected in two ways: first, as any
62 decision to reinvest in solar PV in a new residence would be tainted by the 10%,
63 or more, cost increase of such an investment, and, second, anyone purchasing my
64 current home, one with solar PV, would be engaging in a new relationship with
65 RMP and would likely demand a price moderation equivalent to the long term
66 financial impact of that fee.

67 **Q: Please summarize your conclusions and recommendations.**

68 A: In brief, UCARE asserts the following:

- 69 1. Parties to this case who support any kind of “facilities charge” have not
70 accurately assessed or proved that RNEM customers shift these costs to the
71 class of residential customers.
- 72 2. None of the parties to this case who support any kind of “facilities charge”
73 have properly evaluated any benefits to the utility infrastructure, environment,
74 resource utilization, etc. as required by S.B. 208. These parties instead simply
75 dismiss claims of such benefits as “insignificant”.
- 76 3. No claims of “wear and tear” and “system modifications” have been
77 substantiated or monetized, thus rendering these claims as irrelevant.

78 In conclusion, any imposition of a “facilities charge” on the RNEM
79 subclass of residential customers at this time would be based on incomplete
80 information, unsupported assertions, and faulty logic and is thus premature and in
81 fact inequitable.

82 **Q: Why do you claim that none of the parties to this case, those supporting some**
83 **kind of “facilities charge”, have demonstrated that cost-shifting is occurring?**

84 A: One major example of this failure can be found in Ms. Steward’s rebuttal
85 testimony, where she provides a simple spreadsheet¹ that supposedly exposes the
86 cost-shifting caused by RNEM customers. Here is the relevant portion of that
87 spreadsheet:

¹ 257444Exhibit A to Steward Rebuttal Test - Copy of 5_Exhibit_RMP_JRS_1R 6-26-2014.xlsx

		Residential	
		COS	Cost/ Customers
10	Total kWh	6,203,851,850	
11	Net Metering kWh	13,012,995	
12	Total Bills	8,887,629	
13	Forecasted Net Metering Bills	25,117	
14	Average \$/kWh for remaining Dist./Retail costs	0.026137	
15	Net Metering Dist/Retail Costs	\$340,117	\$13.54
16	Net Metering Facilities Charge		\$4.65

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Note that Line 10 gives the total kWh consumption by all residential customers during the study period, while Line 11 gives the total kWh *consumption* by all RNEM customers during the same period. Repeating myself: Line 11 is the number of kWh *consumed* by RNEM customers; it is *not* the kWh of excess generated by the RNEM customer and delivered to the closest neighbor that is later redeemed as a credit.

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The simplistic (and incorrect) determination of the **Net Metering Facilities Charge** is based on an assumption that none of the kWh consumed by the RNEM customers were billed and helped in the recovery of the “fixed costs” (aka, COS). The bottom line impact of RNEM customers was calculated by simply multiplying the total number of consumed kWh, from Line 11, by the average per kWh COS recovery rate, shown on Line 14.

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A calculation of this type might look reasonable on first glance, but it is incorrect, as we can demonstrate quite easily. During the course of my engineering studies at the University of Utah, we were taught to prove or disprove an assertion using what is called the “n plus/minus one” proof. The question

105 to ask is: It works for ‘n’ but does it work for ‘n+1’ and ‘n-1’? In the case of net
106 metering and the calculation of the RNEM cost-shifting, the calculation works
107 only for the assumption that all, ‘n’ in this case, RNEM customers are fully
108 offsetting their consumed kWhs with excess generation. But how much cost
109 would be shifted if none if the RNEM customers were generating any excess?
110 (The ultimate n-1.) The answer is obvious: none. But the spreadsheet would still
111 report \$340,117 has been shifted. That is clearly wrong.

112 The fundamental flaw with this spreadsheet is that it does not take into
113 consideration *actual* impact. The only way to calculate actual impact is to include
114 excess generation in whatever formula is used. The formula as presently
115 implemented is wrong.

116 Further eroding the credibility of this argument was the answer that RMP
117 gave to a simple question UCARE asked in its first discovery request²:

118 “ 1.1.5 Using the information underlying Steward Exhibit RRR, please
119 specify the effective monthly per-residential customer bill increase due to the
120 purported cost of service transfer from residential NEM customers to the other
121 residential customers. ”

122 The answer we received³ was:

123 “ The Company has not performed the requested analysis. ”

124 This response is interesting because one simply need divide the total (but
125 incorrect) purported impact on line 15, “Net Metering Dist/Retail Costs”, of

² UCARE 1st Data Request 13-035-184.pdf

³ UT 13-035-184 UCARE Set 1 (5-21-14).pdf

126 \$341,117 by the number of bills shown on line 12, “Total Bills”, to come up with
127 an *average* impact of 3.827¢ per bill⁴. Why this analysis could not be performed
128 by RMP is perplexing. Calculating the per-kWh impact is just as easy: \$341,117
129 divided by 6,203,851,850 gives 0.005482¢/kWh^{5,6}.

130 **Q: Are residential customers who conserve cost-shifting?**

131 A: Yes, indeed. Any customer that reduces usage, by any means, into the lower tier
132 of the residential rate structure means that customer is being subsidized by those
133 residential customers who find themselves in the highest tier. This is the nature of
134 our tiered residential rate structure with RMP. In Edison Electric Institute’s
135 comments⁷ in support of RMP’s facilities charge request they say:

136 “ When most of the fixed costs of the grid are recovered based on a
137 customer’s usage, rather than through a fixed charge, a net metered distributed
138 generator does not pay for its use of the grid. ”

139 This statement applies just as directly to consumers who ‘conserve’ electricity via
140 other means (e.g., LED light bulbs, high efficiency appliances, etc.). Rewording
141 their statement a bit:

⁴ The purported (and, I repeat, incorrect) amount being cost-shifted is relative to the total consumption on any one customer’s bill. If they use more electricity, then they will be realizing more of this cost shifting; if they use less, they realize less ‘shifting’. This means that the (fictional) impact only hits those in the top tier.

⁵ Again, these numbers will undoubtedly be significantly lower with the proper calculation.

⁶ I pointed out this minimal impact per bill to Mr. Taylor of RMP during a meeting. He responded by asking if it would still be insignificant should the number of RNEM customers increase by a factor of 10 or even a hundred. I later realized that if that were to happen then we would have over a quarter of a million RNEM customers, fundamentally changing the perspective of a facilities charge.

⁷ EEI Comments - 13-035-184.pdf, page 4

142 “ When most of the fixed costs of the grid are recovered based on a
143 customer’s usage, rather than through a fixed charge, any reduction in
144 consumption through conservation does not pay for its use of the grid. ”

145 As the tiered rate structure currently stands, the 310,000 customers who
146 consume more than 700 kWh per month are subsidizing the 380,000 residential
147 customers who consume less than 700 kWh per month and who are not paying the
148 full fixed cost, i.e. those 380,000 are cost-shifting just like the RNEM customer
149 are accused of doing. Further, an additional subsidy can be found in the 3.38¢
150 “Customer Efficiency Services” money that goes to fund customer efficiency
151 improvements.

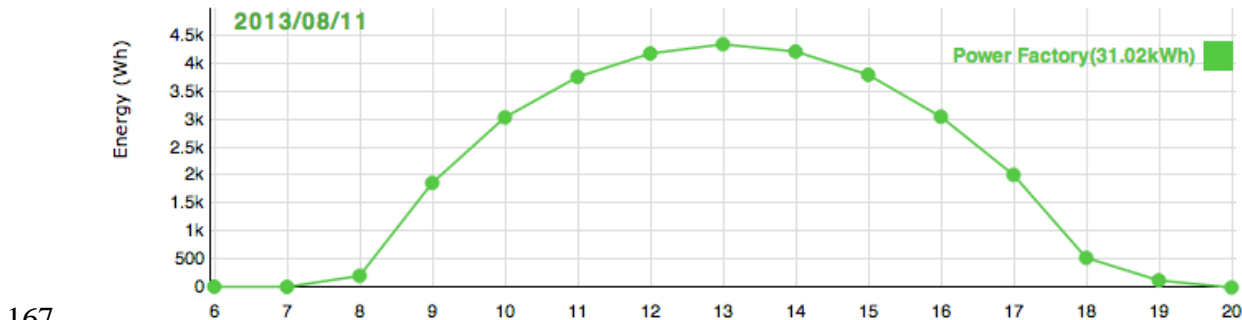
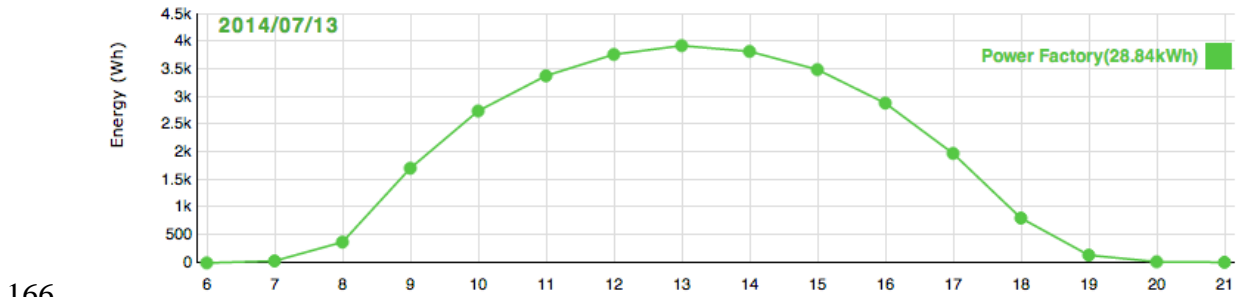
152 It would be, to use RMP’s word, unfair to RNEM customers if they were
153 charged a fee for reduced system usage when other members of the same
154 residential class who reduce their system usage via different alternatives are not
155 required to pay the same fee. The challenge is to develop a fee structure that will
156 be fair to *all* residential customers.

157 **Q: RMP claims that residential solar is a poor match to residential peak demand**
158 **and any benefit therefrom is insignificant. Why do you disagree with this**
159 **claim?**

160 A: Mr. Marx says in his rebuttal testimony⁸, “This coincidental data validated the
161 model in as much as the customer’s generation peaked between 1:00 and 2:00
162 p.m. and the peak energy received from RMP occurred at 4:00 p.m. or later.”

⁸ Rebuttal Testimony of Douglas L. Marx, lines 83–85.

163 Let's take a look at a real life example from my personal residential solar
164 installation. Here are two daily samples, one from 7/13/2014 and one from
165 8/11/2013:



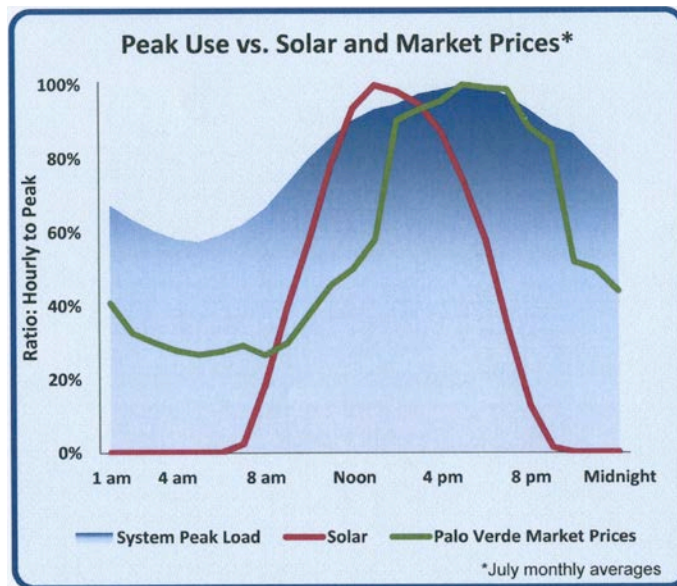
167
168 As one can see, during Mr. Marx's first peak hour of 4 PM, my system produced
169 2.42 kWh and 2.52 kWh, respectively. For the 5 PM peak hour, it produced 1.38
170 kWh and 1.26 kWh. And during the 6 PM hour, it produced 0.46 kWh and 0.32
171 kWh. The totals for the peak time from 4 PM to 7 PM are 4.25 kWh and 4.10
172 kWh.

173 While my south facing solar panels may not be a *perfect* match to peak
174 demand, my system clearly still offers value in offsetting the highest cost peak
175 energy. Furthermore, I had already reduced, and continue to reduce, consumption
176 through conservation and efficiency; this is typical of any customer investing in
177 solar. (For example, replacement of incandescent lamps with CFL and LED.) This

178 benefit is hardly insignificant and is certainly worthy of valuation and
179 consideration as a financial benefit to RMP.

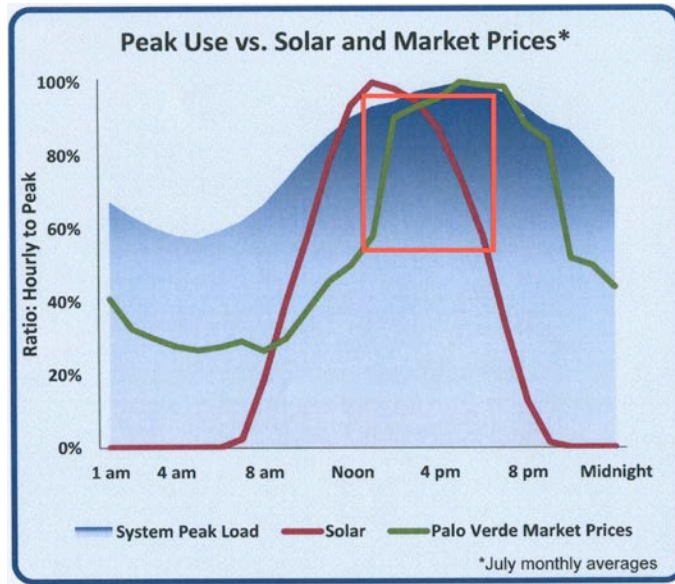
180 **Q: Why do you assert that benefits of the RNEM program have not been**
181 **considered by any of the parties to this case supporting some kind of**
182 **“facilities charge”?**

183 A: Parties to this case who have cited formal studies have provided no substantial
184 evidence supporting their claims that any benefits of residential renewable energy
185 are not significant. All we have seen is theoretical general analyses, rife with
186 unsubstantiated opinion.⁹ Yet even a simple examination of a graph RMP
187 presented at the recent 2014 Utah Governor’s Energy Development Summit
188 shows *direct financial benefit* that has, thus far, been ignored:



189 This shows a significant overlap of solar production during peak market pricing. I
190 will highlight next the significant area of high-cost offsetting:
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⁹ OCS 15.16.docx.



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During this overlap, excess RNEM electricity is being delivered to the closest non-RNEM neighbor at *no cost* to the utility – at a time when kWh costs are quite expensive—and the RNEM customer receives credits. Later in the day, the RNEM customer exchanges those neighborly kWh credits for cheaper-to-produce electricity. A simple integration of data underlying this graph should give actual numbers that can be used to demonstrate a financial benefit to RMP due to a different kind of “cost shifting”. Thus, even though peak solar does not *perfectly* match peak consumption, it is disingenuous to claim that there is no value at all in offsetting high-cost peak electricity.¹⁰

This is just one example of benefits resulting from the RNEM program. Several other parties to this case have identified many benefits in their testimonies (For example, The Sierra Club and Utah Clean Energy) and there are many

¹⁰ For examples see “Sierra Club:Exhibit B - Exhibit SC_DM-2 - NEM Avoided Cost Methodology”

205 external studies identifying those benefits¹¹, studies with actual numbers. It would
206 behoove even the most skeptical to at least consider that CO₂, NO₂, NO_x, and Hg
207 emission reductions have *some* benefit to the general citizenry in a state that
208 already has poor air quality, especially along the densely populated Wasatch
209 Front.

210 UCARE believes that a diligent inventory and analysis of all potential
211 benefits, one at least as thorough as the analysis of costs, should be required
212 before any fee decision can legitimately be made.

213 **Q: Why does UCARE claim that cost-causation should not be used to justify an**
214 **RNEM facilities charge?**

215 A: The principle of cost causation implies that, since an RNEM customer still has a
216 peak demand, that RNEM peak demand still aligns closely with the typical
217 residential peak demand graph. This may not necessarily be the case. Lumping
218 RNEM into the average profile, without *actually* understanding how well the
219 average RNEM customer's consumption and generation compares to the average
220 residential customer, simply transfers the purported 'unfair' advantage from one
221 class of residential customer to another.

222 For example, RNEM customers tend to be older, many retired. They are
223 more likely to be running their A/C all day in the summer, especially if they live
224 in southern Utah. Likewise, they will run their heater in the winter. In contrast, the
225 average customer causes a huge peak later in the day when they return home from

¹¹ For example: http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/public-benefits-of-renewable.html, <http://mediamatters.org/research/2013/01/24/myths-and-facts-about-solar-energy/192364>.

226 work and turn their thermostat down (or up). That A/C or furnace works extra
227 hard for an hour or more to bring the home temperature to a comfortable level.
228 The RNEM customer, keeping their A/C or furnace at a comfortable level
229 throughout the day, is a poor match to the average residential customer profile.

230 Ms. Steward's rebuttal testimony on page 8 includes two graphs, one
231 showing residential load factors and distributed generation load factors for a
232 single peak day from a summer day and another for a peak day from the winter.
233 There are two major problems with considering this data meaningful. First, there
234 is no clue as to the specification of the underlying data: what year, how the
235 imaginary PV array was oriented, etc. The second problem is far more important:
236 the graph does not show the total system load factor, it only considers the
237 residential load factor. It is inconceivable that the infrastructure involved in
238 delivering electricity to a residence *only* serves residences. This is but one small
239 indication of the Company, and other organizations, having ignored numerous
240 details, oversights that cast considerable doubt over the peak impact calculations.

241 Those responsible for the peak demand calculations further ignore the fact
242 that those who invest in renewable energy also aggressively reduce their energy
243 consumption and employ *additional* energy-efficiency measures. This means that
244 the peak demand by an RNEM customer has already been reduced below that of
245 the average customer, who does not typically adopt this overarching approach to
246 energy conservation.¹²

¹² As an example, with my current system and eliminating any credits for excess generation, my gross consumption for the month of June 2014 would have still been considerably below the 700 kWh average.

247 Relying on the peak demand aspect of cost-causation to justify a surcharge
248 is discriminating against RNEM customers. If cost-causation is used to calculate
249 this surcharge, then *all* customers —regardless of whether they have adopted solar
250 or not— should be charged fixed costs based on their peak demand profile. Until
251 this can be done for *all* customers (something very unlikely) it would be unfair to
252 single out RNEM customers.

253 **Q: Does a net metering “facilities charge” result in RMP charging double for the**
254 **COS recovery?**

255 As long as the Company continues to charge all customers for fixed facilities
256 costs within its current tiered approach, then “yes” RNEM customers will be
257 charged double when they additionally have to pay a flat surcharge to cover the
258 same costs they purportedly have caused. UCARE contends that this double
259 charge actually benefits the Company, while discriminating specifically against
260 RNEM customers, in contrast to Mr. Walje’s explanation of “revenue neutrality”
261 where he says, “As explained in Ms. Steward’s testimony the charge is revenue
262 neutral to the Company. The charge is also revenue neutral within the residential
263 class. Therefore the Company does not additionally profit from the charge.”¹³
264 This is not actually true in that by applying a “facilities charge” against each
265 NEM customer, RMP is actually charging double for the same system usage, at
266 least as long as the fixed costs are integrated into the tiered approach.

267 Mr. Gilliam, testifying for Utah Clean Energy (UCE)¹⁴, says, “...energy

¹³ Rebuttal Testimony of A. Richard Walje, (6-26-14).pdf, lines 30–32.

¹⁴ UCE Exhibit 3.0 (DT) [COS + RD] (255154Direct Testimony of Rick Gilliam for UCE 5-22-2014.docx), lines 270–273.

268 generated by a solar facility in excess of the host’s consumption flows into a
269 neighboring home or business and is consumed there. That neighboring customer,
270 not knowing the source of the energy, *pays full retail rates to RMP* as if RMP
271 supplied the power. As a result, RMP receives full cost recovery.”

272 Mr. Stan Faryniarz, on behalf of the Utah Division of Public Utilities
273 (“The Division”), attempts, in his rebuttal¹⁵, to discredit Mr. Gilliam’s testimony
274 by giving an example of the money flow for a limited set of customer scenarios.
275 The problem with his example is that it does not take *all* members of the
276 residential customer class into consideration: it doesn’t consider those residential
277 customers who have conserved energy in other ways (e.g., better insulation, LED
278 lighting, etc.) nor does it consider the many RNEM customers who have adopted
279 energy-efficiency measures beyond installing solar panels.

280 Considering for now only those residential customers who conserve in
281 ways other than by relying on solar power, let’s add a Scenario D to Mr.
282 Faryniarz’s example. In Scenario D, Customer 1 is a ‘conserver’ who
283 aggressively cuts down on electricity consumption, to the tune of 500 kWh per
284 month. Here are the numbers for the new chart:

¹⁵ Rebuttal Testimony of Stan Faryniarz, DPU Exhibit 11.9 REB-COS, lines 94–141.

Customer	Scenario A		Scenario B		Scenario C		Scenario D	
	1	2	1 (Solar)	2	1 (Solar)	2	1 (Conserve)	2
Metered Energy Use (kWh)	1,000	1,000	1,000	1,000	1,000	1,000	500	1,000
Metered Generation (kWh)	0	0	500	0	1,500	0	0	0
Utility Generation (kWh)	1,000	1,000	500	1,000	0	500	500	1,000
Utility Variable Costs	\$ 50	\$ 50	\$ 25	\$ 50	\$ 0	\$ 25	\$ 25	\$ 50
Utility Fixed Costs	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50
Total Costs	\$ 100	\$ 100	\$ 75	\$ 100	\$ 50	\$ 75	\$ 75	\$ 100
Billed Utility Revenues	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 50	\$ 100
Unrecovered Costs	\$ 0	\$ 0	\$ 25	\$ 0	\$ 100	\$ (25)	\$ 25	\$ 0
Total Unrecovered Costs	\$ 0	\$ 0	\$ 25	\$ 0	\$ 100	\$ (25)	\$ 25	\$ 0

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A quick look will reveal that the ‘conserver’ has the same failure-to-recover as attributed to the solar customer. The RNEM customer should be treated no differently than the customer who has otherwise conserved energy. Doing otherwise merely shifts the purported unfairness from one type of residential customer to another.

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Also ignored by Mr. Faryniarz’s example scenario is the value of the 500 kWh excess generated each month and sacrificed by the solar customer at the end of March. That is 6,000 kWh of uncompensated ‘contribution’ made by Solar 1 to the electric utility in past years.

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There was an interesting comment in Ms. Steward’s rebuttal testimony¹⁶. I’ll quote it here:

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“ Q: UCARE argues that there is a considerable financial benefit realized by the Company as a result of the excess generation being used to serve a net metering customer’s neighbor and through the

¹⁶ Rebuttal Testimony of Joelle R. Steward, lines 327–346.

300 **expiration of the excess credits at the end of the net metering program**
301 **year. Do you agree?**

302 “ A: No. This argument overlooks the fact that the cost to those
303 neighboring customers for that non-dispatchable energy is between 8.8
304 cents to 14.4 cents per kWh which, as I previously noted, is considerably
305 higher than the Company’s avoided cost of energy. Since that rate includes
306 fixed costs, that neighbor essentially ends up paying for the fixed costs
307 required to serve the net metering customer that the net metering customer
308 does not pay by virtue of the rate structure. UCARE also acknowledges
309 and identifies this cost shift, which it characterizes as “straining at gnats.”

310 “ Regarding the expiration of the excess credits at the end of the net
311 metering program year, as UCARE points out, Senate Bill 208 provides
312 that these excess credits will be valued at avoided cost and granted to the
313 Company’s low income assistance program, or other use as directed by the
314 Commission. As a result, there will be no financial benefit to the Company
315 in the test period from any expiring credits. It is also interesting to note
316 that the legislature has valued the credits at avoided cost, which is the
317 same valuation discussed in Mr. Gregory N. Duvall’s rebuttal testimony. ”

318 Ms. Steward points out that neighbor paid the full retail price for the
319 excess electricity generated by the solar customer and “...that neighbor essentially
320 ends up paying for the fixed costs required to serve the net metering customer...”

321 The only conclusion that can be made from this statement is that the fixed costs

322 incurred by the net metering customer will be recovered twice if a “facilities
323 charge” is demanded of the RNEM customer: once from the neighbor and once
324 from the net metering customer.

325 In the second part of her response, Ms. Steward says there is no financial
326 benefit from expiring credits. Those expiring credits represent non-RMP produced
327 kWhs delivered to some other customer for which full retail was received.

328 **Q: Don’t ‘conservers’ reduce their peak demand while net meterers peak
329 demand remains the same?**

330 Yes, some will point out that the ‘conservers’ actually reduce their maximum
331 peak demand while the RNEM customers will not have reduced their peak
332 demand. As mentioned out earlier, however, no actual monetization has been
333 assigned to this “peak demand” impact by net metering. UCARE asserts that it
334 would be extremely difficult to find any significant impact, even if the flawed
335 calculation was corrected, as net metering represents less than 0.1% of total
336 residential energy flow through the utility infrastructure (meaning, the common
337 buss bar at the corner of a net meterer’s property).

338 Further eroding the “peak demand” argument is the lack of any evidence
339 that conservation and efficiency has led to any reduction in plant development or
340 upgrades, substation and transformer maintenance, etc. If the benefits of
341 ‘efficiency’ cannot be measured and attributed but are still used to justify the
342 program then the failure to identify and attribute benefits of net metering cannot
343 be used to denounce net metering.

344 And finally, the “peak demand” argument would hold weight if the peak

345 demand aspect of cost-causation were being applied equally across the residential
346 class, however, as discussed in the preceding section, peak demand is *not*
347 currently taken into consideration and so is moot in this case.

348 One important fact not pointed out by Mr. Faryniarz is the value of the
349 excess energy delivered to the neighbor from the point of view of the utility. That
350 500 kWh that the RNEM customer delivers at essentially zero cost to the utility
351 occurs, as shown in Ms. Steward’s testimony, when wholesale costs are higher.
352 Being generous¹⁷, those kWh credits are redeemed by the solar customer later in
353 the day for, at most, the daily average wholesale price, a lower cost.

354 **Q: Why are “wear and tear” and “RNEM-caused system modifications”
355 irrelevant to justifying an RNEM “facilities charge”?**

356 A: RMP’s witness statements assert many claims of net metering-related system
357 impact, but not one penny of cost has been directly or indirectly associated with
358 those purported impacts. In discovery, UCARE requested substantiating
359 information relating to “wear and tear” and system modifications¹⁸:

360 “ 2.1: Ms. Steward says in her testimony: “Unlike a traditional energy
361 efficiency measure where the load and impact on the grid will predictably be
362 reduced by the implementation of the efficiency measure, customers that
363 install distributed generation have the same, or in many cases an increased
364 impact, on the local distribution facilities. Frequently the Company is required

¹⁷ This is a generous concession to RMP in that the solar customer is actually redeeming those credits at the cheapest wholesales rates in that the solar customer would have used electricity during higher cost times even if they weren’t redeeming credits.

¹⁸ UCARE 1st Data Request 13-035-184.pdf

365 to modify the distribution network in order to effectively minimize negative
366 impacts on the grid and accommodate the new flow of electrons from the
367 customer to the grid.” For those residential NEM installations in the last five
368 years that have required utility system modifications (beyond so-called
369 ‘smart’ meter installation), please give the following information:

370 “ 2.1.a: the number of installations that have required system modification,

371 “ 2.1.b: the types of system modifications required, and

372 “ 2.1.c: the total costs of those system modifications. ”

373 RMP failed to respond to this question, which could mean the Company
374 either did not conduct the requested analyses or that, once performed, the results
375 failed to support RMP’s arguments.

376 In the same discovery, UCARE asked for information regarding excess
377 generation impact:

378 “ 2.2: Ms. Steward continues: “Even in cases where upgrades are not
379 required, the flow of energy back through transformers and onto the grid
380 causes increased wear on the equipment.” For those residential NEM
381 installations where there is an increase in “wear and tear” on your utility
382 infrastructure (production facilities, substations, transformers, high-tension
383 lines, etc.), please specify the average monthly cost due to the following for
384 the base year ending June 2013:

385 “ 2.2.a: reduction of load/consumption from self-produced residential
386 electricity,

387 “ 2.2.b: excess electricity from residential NEM production. ”

388 RMP could not provide any information about impact costs:

389 “ The Company has not developed an estimate of the cost of increased wear
390 and tear on the utility infrastructure from residential NEM customers.

391 However, please see the Company’s response to OCS Data Request 15.16,
392 specifically see Attachment UCARE 1.2.2. ”

393 Examination of the response to OCS Data Request 15.16 yielded no actual
394 impact calculations, only theoretical impact. Unless some impact can be
395 monetized, any justification for a “facilities charge” based on this argument must
396 be dismissed. Moreover, the study¹⁹ cited in this response was conducted and
397 written 14 years ago. In the meantime, substantial improvements have occurred in
398 both solar inverter technology and utility management systems.

399 RNEM total *consumption* represents only 0.21% of total residential
400 consumption²⁰. Again, the relevant number to use is the RNEM total *excess*
401 *generation*, which is 0.08%; 0.08% is hardly an urgent call to action. This low
402 penetration, and the unlikelihood that it will jump dramatically over the next year,
403 shows that we have time to properly study all factors and come to a just and

¹⁹ Barker, P.P.; De Mello, R.W., "Determining the impact of distributed generation on power systems. I. Radial distribution systems," *Power Engineering Society Summer Meeting, 2000. IEEE* , vol.3, no., pp.1645,1656 vol. 3, 2000 doi: 10.1109/PESS.2000.868775

²⁰ Using RMP’s data for the year ending 6/2013.

404 equitable solution rather than rushing to a bad decision.

405 **Q: What benefits of conservation has RMP identified?**

406 A: The Company has not acknowledged many benefits resulting from conservation
407 beyond energy consumption reduction. RMP, in fact, passes along the costs of
408 their efficiency program in a 3.38¢ surcharge to each residential customers bill.
409 Beyond that, the Company has not documented cases of postponed plant
410 constructions, upgrades resulting from conservation, emissions reductions
411 resulting in improved health, etc. At the same time, RMP’s own website²¹, in
412 addition to its home mailers, loudly tout the benefits of energy efficiency. It is
413 disingenuous for any party to claim the benefits of energy efficiency to the public,
414 but to not actually demonstrate the conservation and efficiency benefits
415 specifically of solar energy and net metering for purposes of justifying their
416 proposed net-metering surcharge.

417 **Q: Why do you assert that a fixed fee approach is not equitable for the RNEM**
418 **customer?**

419 A: Consider Dr. Powell’s comments:

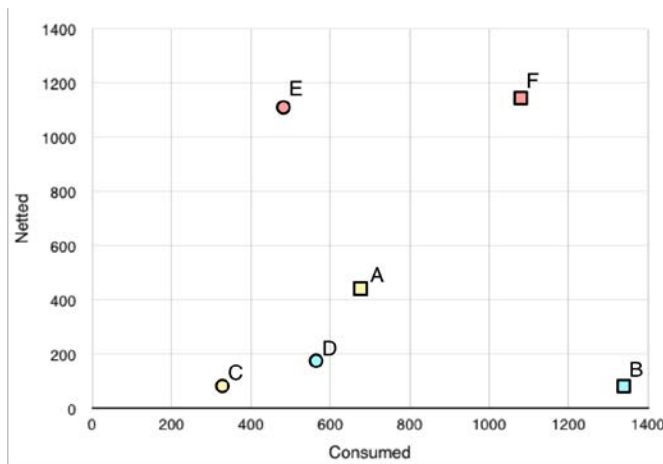
420 “ As I explained in my direct testimony, the net metering charge is about
421 collecting existing costs in an equitable manner. The net metering charge would
422 have the residential net metering customers as a group pay on average the same
423 (average) amount as other non-net metering residential customers. ”

424 First, if Ms. Steward’s calculations were not fatally flawed, this might be a

²¹ <https://www.rockymountainpower.net/env.html>

425 good start. Unfortunately, charging each RNEM customer the same flat, average
426 “facilities charge” would be inequitable to the extreme.

427 Why would a flat charge be inequitable? Because: a) no two RNEM
428 systems are the same, b) no two RNEM customers have the same consumption
429 profile, and 3) environmental factors are different for every RNEM site. Consider
430 the following graph:



431
432 A and B represent a customer with 5 kW of capacity where A shows the a month
433 in the summer and B shows a winter month and where pre-solar consumption
434 averaged around 1,000 kWh over the year. C and D represent a customer with 1
435 kW of capacity and with low electricity usage, averaging 600 kWh as measured
436 before installing solar. E represents a customer with very low consumption but a
437 very large array, and F a customer with high consumption and a very large array.

438 The point is, there are all sorts of RNEM installations and trying to put
439 them all into the same pigeonhole would be terribly inequitable. A flat fee is not
440 appropriate.

441 **Q: Why do you assert that the rated system capacity approach for determining**
442 **the RNEM fee is not equitable for the residential net-metering customer?**

443 A: A monthly fee based on the *maximum rated system capacity* of a solar PV system,
444 as proposed by the OCS²², does not take into account a variety of factors that
445 affect the performance of each individual system: shade, inclination, orientation,
446 tracking, etc. In order to calculate the *effective system capacity*, a professional
447 solar technician would have to assess each system individually. Such an
448 assessment would add significant costs and, because things like trees grow and/or
449 die, an occasional reassessment would likely be required. Even with such an
450 assessment, the resulting effective capacity would be questionable due to
451 uncontrollable factors such as smog, a very significant contributor along the
452 Wasatch Front.

453 Weather is another factor that dramatically affects solar production.
454 UCARE members in Summit Country have reported that that snow load will
455 regularly render their solar arrays completely unproductive for 4 to 6 weeks
456 during the winter. I have personally experienced significant downtime in my
457 system, measured in weeks, here in Salt Lake Valley. Neither rated nor effective
458 capacity assessments will take such environment impacts into proper
459 consideration.

460 **Q: Why do you recommend that a decision regarding RNEM fees be delayed?**

461 The OCS seems to accept, without question, the claim by RMP that

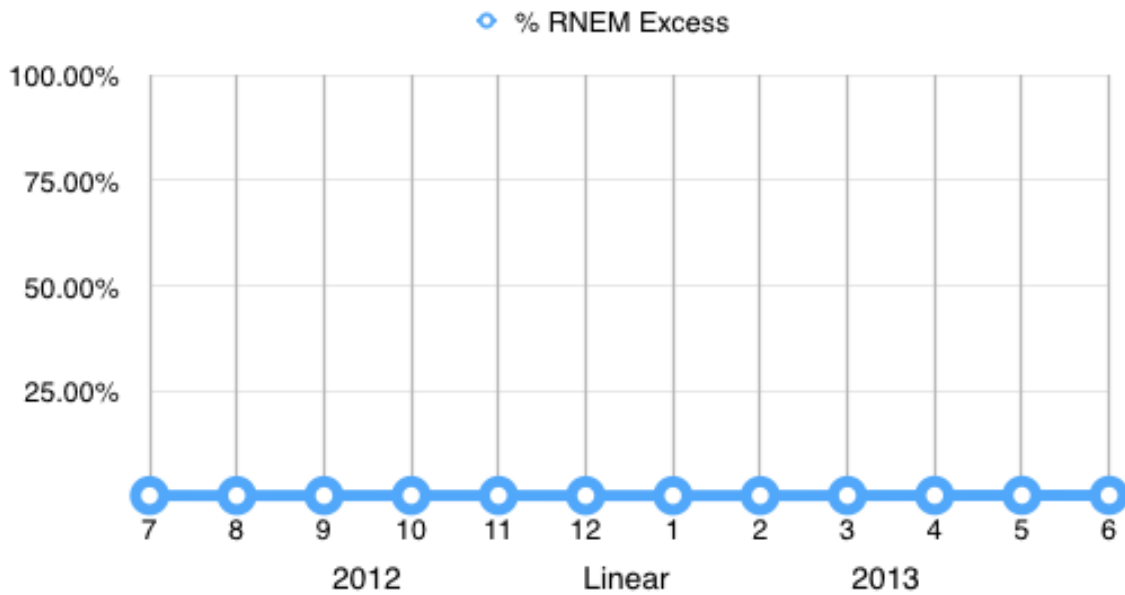
²² See: "Direct Cost of Service Rate Design Testimony of Daniel E. Gimble for OCS"

462 approximately 2,000 RNEM customers have cost-shifted \$313,069 to all
463 residential customers for the year.²³ Let's consider the significance of that
464 'shifting'. During that year, 8,887,629 residential bills were sent out, which means
465 that each of those bills were purportedly increased by 3½¢ due to 'cost-shifting'.
466 Even if the number of RNEM customers were to increase by 30% over the next
467 year, the per-bill cost-shifting would only approach 4.6¢, all without considering
468 any benefits of the RNEM program.

469 Looking at this in another way, during this time period,
470 6,203,851,850 kWhs of electricity were delivered to residential customers,
471 making the per-kWh impact of purported cost-shifting only 0.00505¢, an increase
472 of a mere 0.044%. (The proposed 5.1% residential rate hike is a factor of 116X
473 greater than the purported impact of the RNEM program.)

474 Consider the following graph that shows the relationship of excess RNEM
475 energy pumped back into the grid (i.e. delivered to the immediate neighbor) to
476 total residential energy usage billed:

²³ Source: 249702Exhibit JJJ - Direct Testimony of Joelle R Steward 1-3-2014.docx.



477

478

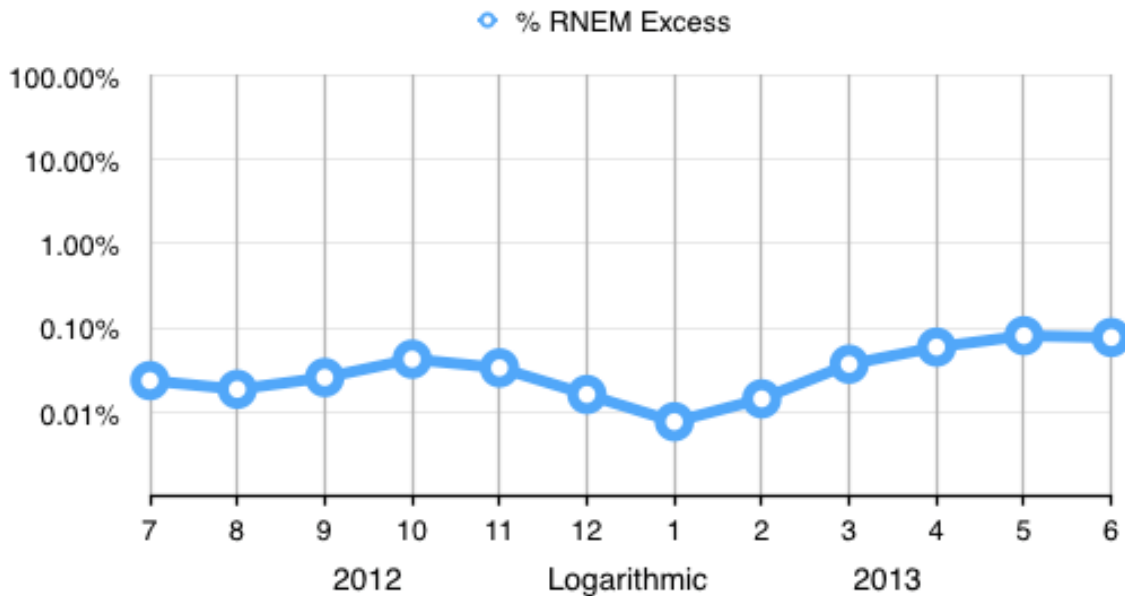
Clearly, a linear scale shows the impact is so insignificant that it is impossible to

479

distinguish the impact from the 0.0% axis line. Therefore, let's show this same

480

data graphed on a logarithmic scale:



481

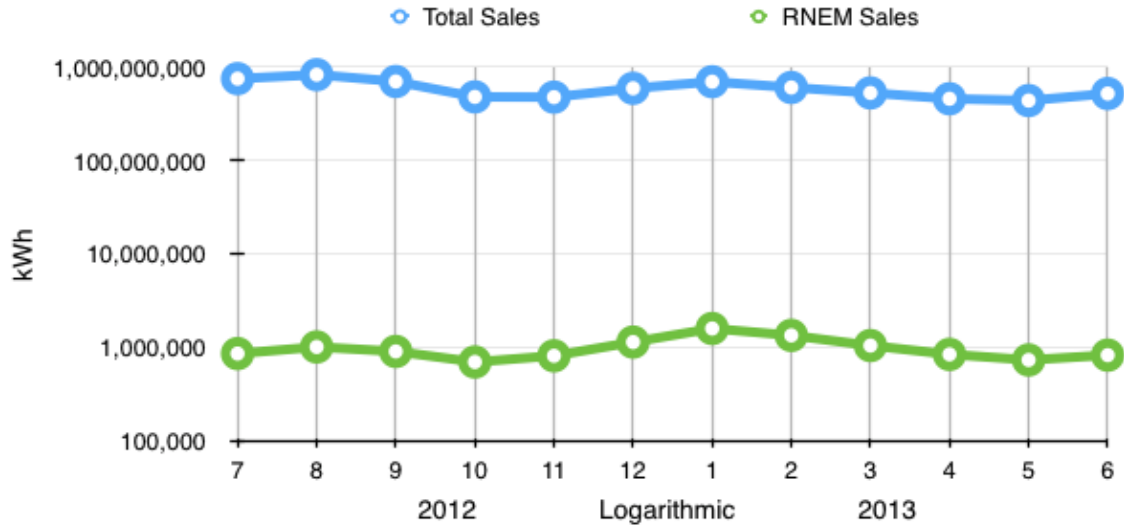
482

While RNEM excess generation appears to be growing, it will have to increase by

483

a factor of 10 before it hits even 1% of total residential consumption. Here is

484 another logarithmic graph of RNEM consumption compared to total residential
 485 consumption (“Sales”):



486
 487 Having to use a *logarithmic* scale to bring out the magnitude (actually, the lack of
 488 magnitude) of the current impact of RNEM is quite indicative.

489 UCARE can only speculate why it is so urgent that a rushed, premature
 490 decision be made without, at the very least, gathering and conducting analyses of
 491 *all* contributing factors rather than limiting the analysis to a single factor (as
 492 shown in Ms. Steward’s flawed spreadsheet).

493 Again, UCARE asserts that purported ‘cost-shifting’ impact, even without
 494 considering any benefits, is insignificant and does not justify a rushed, premature,
 495 poorly considered, and inequitable solution that will have a dramatic dampening
 496 effect on private citizen investment in renewable energy.

497 **Q: What do you anticipate will happen should the Commission approve a net**
 498 **metering fee?**

499 **A:** A simple calculation will show that the proposed \$4.65 facilities charge adds up

500 to \$1,395 over the expected 25 year lifetime of a solar PV system. Since the \$4.65
501 would be expected to increase, potential renewable energy customers will factor
502 in this system cost increase while making trade-off decisions. As a result,
503 residential customers who wish to invest in renewable energy are likely to identify
504 alternative technologies having a similar cost profile to the facilities charge,
505 technologies that will allow the use of renewable energy without requiring net
506 metering.

507 Over the next decade and more, should such choices be made by growing
508 numbers of individual home owners, the utility will have no recourse but to raise
509 rates dramatically across the board for all residential customers—an action not
510 likely to be well-received.

511 I believe it would be in everyone’s interest, especially Rocky Mountain
512 Power’s, for RMP to work *with* rather than *against* residential customers who are,
513 in increasing numbers, interested in making personal choices to invest in clean,
514 renewable energy. Instead of fudging the numbers in an effort to pit one class of
515 residential customer against another, let’s take the time to figure out the right
516 solution. In my conversations with UCARE’s members, the vast majority
517 volunteer in their conversations that they believe it is right for them, and all RMP
518 customers, to pay a reasonable amount for having access to a reliable electrical
519 utility; they just want whatever solution to be fair to everyone, including
520 themselves. It is obvious that none of the currently proposed solutions remotely
521 approach ‘fair’.

522 Should RMP choose to continue to discourage private renewable energy

523 investments through various fees and tariffs, it runs the risk of becoming
524 irrelevant, much like the telegraph and, soon, the land line telephone. A much
525 brighter future, for both RMP and its customers, is one where RMP gradually
526 develops an energy management, storage and distribution partnership with
527 distributed energy producers, including private residential ownership of
528 renewable energy generation.

529 **Q: What would you like to ultimately occur in relation to private citizen**
530 **ownership of renewable energy and the Commissions actions now and in the**
531 **future?**

532 A: I would like the Commission to 1) envision a future where distributed, privately-
533 owned energy generation is a key element of a resilient and non-polluting
534 environment, 2) not just implicitly trust one of the country's largest monopolies to
535 "do the right thing", but engages them with other parties having different
536 motivations, 3) with those parties, properly project the future of electricity
537 generation and distribution, 4) identify a rough path for getting to that future 10 to
538 20 years out, and 5) create short-term objectives that will start to get us on that
539 path. I would not like to see the Commission make a rash decision that treats one
540 small subset of the residential class of electricity customer very unfairly while
541 letting the monopoly "get their foot in the door" through the imposition of an
542 unfair flat fee.

543 Therefore, we recommend that the Commission a) reject the current
544 proposal for any type of facilities or capacity charge against net metering
545 residential customers, and b) initiate a study that properly evaluates the costs and

546 benefits of net metering.

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

548 A: Yes.