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BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

IN THE MATTER OF THE APPLICATION
OF ROCKY MOUNTAIN POWER TO
IMPLEMENT PROGRAMS
AUTHORIZED BY THE SUSTAINABLE
TRANSPORTATION AND ENERGY
PLAN ACT

Docket No. 16-035-36

WRA EXHIBIT 3.0

PHASE 3 REBUTTAL TESTIMONY OF KENNETH L. WILSON

ON BEHALF OF

WESTERN RESOURCE ADVOCATES

April 27, 2017

1 **I. INTRODUCTION AND SUMMARY**

2 **Q. Please state your name, employer, position and business address.**

3 A. My name is Kenneth L. Wilson. I am employed by Western Resource Advocates (WRA)
4 as an Engineering Fellow with the Clean Energy Program. My business address is 2260
5 Baseline Road, Suite 200, Boulder, Colorado 80302.

6
7 **Q. Did you previously submit testimony in this proceeding?**

8 A. Yes, I submitted Phase 1 and Phase 3 Direct Testimony on behalf of WRA. A
9 description of my qualifications is included with my Phase 1 testimony.

10

11 **Q. What is the purpose of this testimony?**

12 A. My testimony will address issues raised in direct by Utah Clean Energy (UCE) and the
13 Office of Consumer Services (OCS).

14

15 **Q. Please summarize your testimony.**

16 A. UCE is proposing to add inclining block rates to Rocky Mountain Power's (RMP's)
17 Electric Vehicle (EV) Charging Pilot. I oppose the inclusion of inclining block rates as
18 they complicate the pilot and potentially confuse the analysis and results. I support the
19 UCE proposal to add a Super Off-Peak rate to Option 2 of the pilot. I further support the
20 UCE proposal to eliminate the morning peak hours that RMP has proposed as I believe

21 they unnecessarily complicate the pilot. I disagree with the OCS proposal to dramatically
22 compress the difference between the On-Peak rate and the Off-Peak rate in Option 2 and
23 offer a counter proposal to add a Super Off-Peak energy rate to Option 2 as suggested by
24 UCE. Finally, I support the issue raised by OCS that there will be a difference between
25 the charging patterns of EV owners with Type I chargers versus Type II chargers and that
26 this issue needs to be addressed in some way by the pilot.

27

28 **Q. Please provide your recommendation.**

29 A. I recommend that the Commission accept the EV Charging Pilot as proposed by Rocky
30 Mountain Power with the following exceptions: include a Super Off-Peak energy rate in
31 Option 2; eliminate the morning peak rate during winter months; and direct RMP to
32 consider how to address the issue of differences in charging patterns between Type I and
33 Type II chargers.

34

35 **II. DISCUSSION**

36 **Q. What was your position on Rocky Mountain Power's EV Charging Pilot proposal in**
37 **your Phase 3 Direct Testimony?**

38 A. The purpose of the EV Charging Pilot is to determine how EV owners will choose to
39 change their charging patterns based on rate structures that encourage charging at off-
40 peak times. RMP proposed two relatively simple Time of Use (TOU) rate structures plus
41 a control group, with between 40 and 60 participants in each group, randomly selected

42 from a larger pool. In my direct testimony, I characterized the TOU rate structures
43 proposed by RMP as “moderate” and “aggressive” based on the difference in the on-peak
44 and off-peak rates, which were 3:1 and 10:1 respectively. I supported the RMP proposal
45 in direct testimony as a reasonable approach to accomplish the goals of the pilot.

46

47 **Q. Do you have concerns with the rate design that UCE is proposing for the EV Pilot?**

48 A. Yes. UCE witness Sarah Wright proposes adding inclining block rates to the two TOU
49 rate structures in the pilot. While I feel that inclining block rates are good for overall
50 energy efficiency and I would advocate in a general rate case for their use, I think they
51 would complicate this pilot and confuse the eventual analysis and conclusions. We
52 should remember that this is a very limited pilot and not a rate case. Our goal should be
53 to have good, scientifically relevant pilot results and not be overly concerned with more
54 general issues of energy efficiency. Hopefully the information obtained from the pilot
55 will inform a rate case at some point in the future. That rate case can consider both
56 energy efficiency and reducing peak load on RMP’s system.

57

58 **Q. What are the specific proposals and issues between the RMP proposed rates for the**
59 **pilot and the rates proposed by UCE?**

60 A. The rate options proposed by RMP and UCE are shown in the table below.

61

62

63

Table 1: Comparison of Rate Options Proposed by RMP and UCE

<i>All values in cents/kWh</i>	RMP Rate Option 1	UCE Rate Option 1	RMP Rate Option 2	UCE Rate Option 2
On-Peak to 1000 kWh	22.2755	20.1539	34.3753	TBD
On-Peak > 1,000 kWh	22.2755	22.7089	34.3753	Tier 1 On-Peak +2.5
Off-Peak to 1,000 kWh	6.7881	7.1600	3.4003	7-9
Off-Peak > 1,000 kWh	6.7881	9.7150	3.4003	9.5-11.5
Super-Off Peak				3.4003

64

65 **Q. What are your thoughts on these rates?**

66 A. As I mentioned earlier, UCE is really bringing up issues of energy efficiency that can be
67 more effectively addressed in a general rate case rather than in a very limited pilot for
68 customers with EVs. The tiers in the UCE plan could be confusing to customers when
69 used in conjunction with changes in price due to the time when they are using the
70 electricity. We have no idea how general customers without EVs would react to a TOU
71 rate structure with tiers. For instance, if we add tiers to the pilot, is the EV charging time
72 behavior of the customers in the pilot due to the TOU differences, to the tiers, or to both?
73 I believe adding tiers will complicate the analysis and would open up the conclusions that
74 are drawn from the pilot to doubt about what was actually being measured. This is
75 particularly true since the size of each group in the load study is relatively small. If each
76 group in the load study was much larger, it might be possible to evaluate both the impact

77 of TOU and the tiers. Alternatively, if the study was expanded to include two additional
78 groups for the load study, with rates modeled on the UCE proposal, we could see the
79 impact of the tiers with TOU.

80

81 **Q. UCE is specifically concerned that high energy usage customers will be rewarded**
82 **for their high energy use by effectively lowering their bills when they subscribe to**
83 **the pilot rates. Does this concern you?**

84 A. The pilot has relatively few participants. They will all have recently purchased EVs,
85 which now need to be charged. Their bills will generally go up, due to the significant
86 new load. I doubt they will be aware that if they didn't have an EV, due to the pilot rate
87 structure, their total bill might go down by a small amount. If the pilot was to test rate
88 plans for energy efficiency, then I would share UCE's concern. Given that the pilot is to
89 test people's willingness to move EV charging to off-peak hours, I am not generally
90 concerned with the impact on the price of energy for uses other than EV charging.

91

92 **Q. What are your thoughts on the Super-Off Peak rate that UCE is proposing for Rate**
93 **Option 2 during the hours of 12 am to 6 am?**

94 A. In contrast to my opinions on the addition of tiers to both options of the pilot, I share
95 UCE's concern that selling energy to customers at 3.4 cents/kWh for 80-85% of the week
96 seems like an excessive gift. I think UCE's proposal to only offer that rate during the
97 hours between 12 am to 6 am has merit. It would also allow us to see if customers are

98 willing to move charging by many hours to get the very low rate instead of just a few
99 hours. In this light, I support the UCE proposal for a Super-Off Peak rate in Option 2.

100

101 **Q. Does OCS have an issue with the Option 2 proposal from RMP?**

102 A. Yes, OCS witness James Daniel believes that the spread between on-peak energy and off-
103 peak energy is too large in Option 2 and therefore, that it does not properly reflect costs.

104

105 **Q. Do you share this concern?**

106 A. No. As I commented above, this is a small pilot and not a general rate case. The pilot
107 needs to investigate changes in EV charging behavior with different rate treatments. If
108 Option 1 and Option 2 are too similar, there will likely not be a statistically significant
109 difference in charging behavior between the treatments. My concern is that if we adopted
110 the suggestions of Mr. Daniel, this would be the result.

111

112 **Q. Is there a simple solution to address OCS's concern?**

113 A. I believe so. If Option 2 added the Super Off-Peak rate that is proposed by UCE and that
114 I support above, it will reduce the number of hours that the very low price is offered and
115 it will increase the price of the normal Off-Peak rate. This should make the Option 2 rate
116 structure more acceptable to OCS. Adding a Super Off-Peak rate to the nighttime hours
117 will adjust the normal Off-Peak rate upward, which will also necessitate some downward
118 adjustment of the On-Peak rate.

119

120 **Q. In Ms. Wright's testimony, UCE questions the value of adding a second peak period**
121 **between 8 am and 10 am during the winter. What is your opinion of this second**
122 **peak period?**

123 A. I also question the inclusion of a winter peak period into the pilot rates, but for a different
124 reason. After further consideration of the adding of this second peak, I think that it could
125 be confusing to customers in the pilot. We are most interested in moving charging off the
126 afternoon and early evening system peaks. Why complicate this objective by adding a
127 second winter peak that is considerably lower than the actual system peak? I think this
128 issue should be reconsidered.

129

130 **Q. OCS witness Jacob Thomas has concerns regarding the potential differences in**
131 **charging patterns between customers with Type I and Type II charging stations. Do**
132 **you have similar concerns?**

133 A. Yes. Mr. Thomas raises a good point regarding the potential differences in charging
134 patterns between EV owners who have Type I chargers (120v) and those who have Type
135 II chargers (220v). Type I chargers typically take all night to charge a vehicle with a
136 moderately sized battery like those in a Volt or Leaf. Type II chargers are needed for
137 EVs with larger batteries such as the Bolt and longer range EVs as they can't be charged
138 overnight on a Type I charger. Some customers with even moderately sized EV batteries
139 will opt for Type II chargers to charge their EVs faster. The analysis of Mr. Thomas is
140 convincing on this point.

141

142 **Q. How do you recommend addressing this issue in the pilot?**

143 A. The difference in charging patterns between EV owners with Type I chargers and Type II
144 chargers is an issue that needs to be considered in the pilot. This could be accomplished
145 by segmenting the customers in each treatment into two groups, one with Type I chargers
146 and one with Type II chargers. However, I am concerned that if the number of
147 participants in each group is not increased, the precision of the results under this scenario
148 will suffer. OCS witness Jacob Thomas makes suggestions that should be considered as
149 well.

150

151 **Q. Does this conclude your testimony?**

152 A. Yes.