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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 4.0

PHASE 3 SURREBUTTAL TESTIMONY OF KENNETH L. WILSON

ON BEHALF OF

WESTERN RESOURCE ADVOCATES

May 16, 2017

I. INTRODUCTION AND SUMMARY

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

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

Q. Did you previously submit testimony in this proceeding?

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

Q. Is WRA a signatory to the Stipulation and Partial Settlement Agreement of Phase 3 Issues (Settlement Agreement) filed by Rocky Mountain Power (RMP) on May 16?

A. Yes. WRA participated in discussions with the settling parties (Parties) on May 11 and May 12. WRA signed the Settlement Agreement on May 15.

Q. What issues are purported to be resolved by the Settlement Agreement?

A. A number of issues pertaining to RMP's proposed Electric Vehicle (EV) Incentive and Time of Use (TOU) Pricing Pilot (Pilot) Programs were addressed and resolved in the Settlement Agreement, subject to approval by the Commission. WRA is a signatory to the Settlement Agreement and I will therefore not address those issues here.

Q. What issues were not resolved by the Settlement Agreement?

A. Pursuant to the Settlement Agreement, the Parties agreed that the time periods and energy charges for Rate Option 1 and Rate Option 2 for Schedule 2E under the Pilot will be litigated for final determination by the Commission. These are issues of rate design, which I address here.

Q. What is the purpose of this testimony?

A. The purpose of my testimony is to address issues raised in rebuttal by Rocky Mountain Power, the Office of Consumer Services (OCS), and Utah Clean Energy (UCE).

Q. Please summarize your testimony.

A. The primary remaining dispute is whether TOU rates for Option 1 and Option 2 of the Pilot will have a clean, simple split between on-peak and off-peak energy rates or whether one or both of those options will also have "tiered" rates superimposed on the TOU rates. WRA does not support adding tiered rates to TOU rates. Adding tiered rates to TOU rates will make the results of the pilot confusing and therefore, less valuable. Furthermore, tiered rates are not conducive to owning electric vehicles and they will be confusing to customers in the pilot.

Q. Please provide your recommendation.

A. I recommend that the Commission adopt the rate structure for the Pilot as originally proposed by Rocky Mountain Power. This proposed rate structure has a ratio between on-peak and off-peak energy of 3:1 for Option 1 and 10:1 for Option 2. If the Commission feels that the 10:1 ratio for Option 2 is too large, I would recommend that it

not be set lower than 6:1 so that the pilot has two distinct points to compare and make conclusions around.

II. DISCUSSION

Q. What is UCE proposing for the rate structure of the Pilot?

A. UCE is proposing to add energy tiers to the simple TOU rate structure proposed by RMP. In direct, UCE specified an on-peak tier for energy use less than 1,000 kWh per month and a higher price for on-peak energy use that is over 1,000 kWh per month. They do the same for off-peak energy with one price for energy use under 1,000 kWh and a higher price for energy use at off-peak times over 1,000 kWh. So essentially, the rate structure for Option 1 that UCE is proposing has four different rates instead of two.

For Option 2, UCE added a fifth rate during off-peak hours that they designated as super-off-peak. Option 2 under this proposal would therefore have five rates instead of two.

In rebuttal testimony, Sarah Wright of UCE instead proposes to reduce the tier threshold to 700 kWh instead of 1,000 kWh, while maintaining four rates instead of two. Under this revised proposal UCE is advocating that Option 2 adopt the rate structure proposed by OCS, which maintains a simple TOU rate structure, but with a very small differential between on-peak and off-peak energy use.

Q. What is your primary concern with the proposal of UCE to add tiered rates to the TOU pilot?

A. The EV Pilot was conceived to determine how customers will change their charging behavior based on TOU rates. TOU rates that charge a high price for on-peak charging

and a low price for off-peak charging will incentivize customers to charge their EVs during off-peak hours, saving money for the utility and all customers. The rate structure proposed by RMP is a clean and simple TOU rate structure with one on-peak rate and one off-peak rate. Option 1 would have a "moderate" ratio of 3:1 between on-peak and off-peak rates and Option 2 would have an "aggressive" ratio of 10:1. This would show a clear difference between customer behavior with moderate and aggressive ratios. Adding a tiered rate structure to this simple TOU rate structure results in a complex rate structure with four rates, confusing both customers and the overall analysis of the pilot, leading to unscientific results.

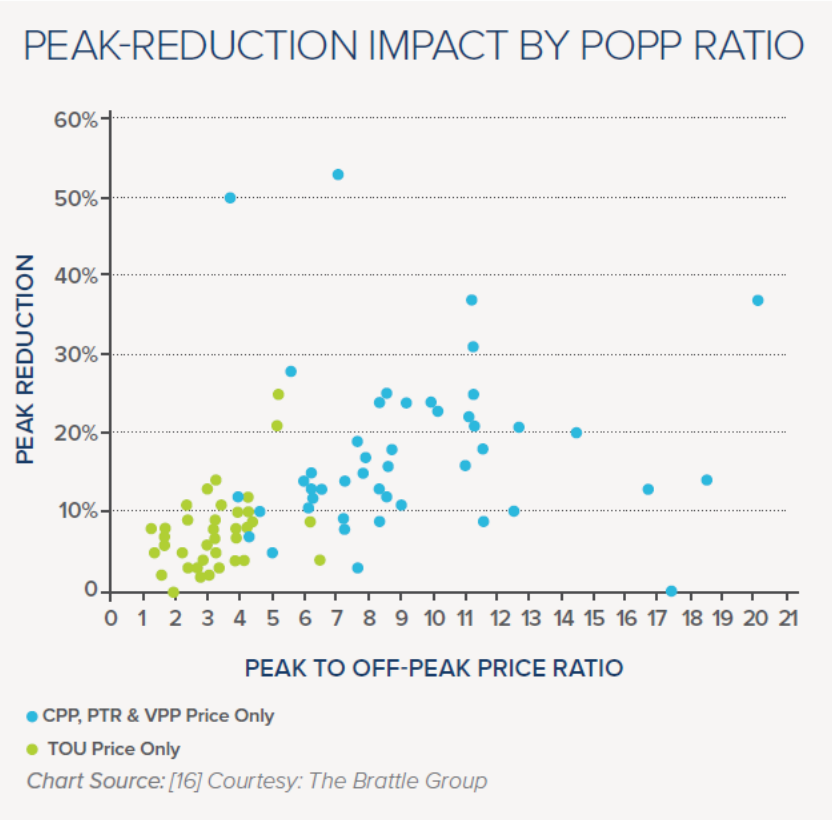
In addition, having tiered rates is a disincentive for customers to use their electric vehicles more. This is because under a tiered rate structure, EV owners will know that the more they drive their electric vehicles, the higher the price will be for electricity. This is not the message that we want to send with the EV Pilot. In general, tiered rates are not beneficial for the promotion of electric vehicles.

Q. What is your primary concern with a small ratio between on-peak and off-peak energy use, as advocated by OCS and adopted by UCE in rebuttal?

A. Considerable work has been done to look at the ratio of on-peak rates to off-peak rates that is necessary to incentivize customers to change the time of day when they use energy. Figure 1 below was originally developed by the Brattle Group, summarizing data

from a number of rate studies, and was published in a 2016 report by the Rocky Mountain Institute (RMI). [1]

Figure 1: Peak Reduction Impact Based on Peak to Off-Peak Ratios



This chart depicts the peak reduction impact of various TOU rates as a function of the peak to off-peak price ratio, or POPP ratio. The chart shows that peak reduction is strongly correlated with the POPP ratio. Analysis of the chart by RMI's report (WRA Exhibit A) shows that a 2:1 ratio can be expected to produce a peak reduction of about

[1] Rocky Mountain Institute, A Review of Alternative Rate Designs: Industry Experience with Time-Based and Demand Charge Rates for Mass-Market Customers, May 2016; attached as WRA Exhibit A and also available at www.rmi.org/alternative_rate_designs.

5%, while a 5:1 ratio can be expected to produce a 14% peak reduction. A 10:1 ratio can be expected to produce a 16% peak reduction, indicating some diminishing return above about a 5:1 ratio.

While the RMI study did not evaluate a change in charging behavior for EVs specifically, it does indicate a general trend in customer behavior. Ultimately, we need the EV Pilot to test how actual charging behavior in Utah changes with respect to the POPP ratio. If we don't have both moderate and aggressive options to compare, we will likely see little change in behavior and therefore will not be able to perform an evaluation of the pilot that reaches scientifically valid conclusions. For these reasons I strongly urge the Commission to maintain both moderate and aggressive TOU rates for Options 1 and 2 respectively, as originally planned for the pilot by RMP.

Q: You said you support RMP's moderate (3:1) and aggressive (10:1) TOU rate differentials for the EV Pilot. Would you accept something less than 10:1 for the aggressive TOU rate differential?

As referenced in the RMI study, we could consider reducing the aggressive 10:1 POPP ratio proposed by RMP in Option 2 to a ratio of 5:1 or 6:1, as these ratios should still be adequate to incent changes in customer charging behavior. However, we should not go below that range.

Q. Does this conclude your testimony?

A. Yes.