BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

Application of Rocky Mountain Power to Establish Export Credits for Customer Generated Electricity	**)** **)** **)** **)** **)**	**Docket No. 17-035-61** **DPU Exhibit 1.0 REB-PH I**

REBUTTAL TESTIMONY – PHASE ONE

OF

ROBERT A. DAVIS

ON BEHALF OF THE

UTAH DIVISION OF PUBLIC UTILITIES

April 10, 2018

TABLE OF CONTENTS

Introduction

Q: Please state your name and occupation.

A: My name is Robert A. Davis. I am a Utility Analyst in the Energy Section of the Division of Public Utilities (Division) at the Utah Department of Commerce.

Q: What is your business address?

A: My business address is 160 East 300 South, 4th Floor, Salt Lake City, Utah, 84114.

Q: On whose behalf are you testifying?

A: The Division.

Q: Are you the same Robert A. Davis that filed direct testimony in this matter?

A: Yes I am.

Q: Is there anything that has been filed by other parties that causes you to amend your conclusions and recommendations from your direct testimony?

A: Yes. My conclusions and recommendations in my direct testimony support the scope of work in this phase of the docket. However, I offer two additional recommendations: (1) to clarify the name given to behind-the-meter generation, and (2) offer a suggestion to model non-residential versus residential customers.

The scope of work in this docket is to determine a reasonable credit for customer generated export energy. An accurate, cost effective method to accomplish this task, is to determine how much export energy hits the grid and when, and then determine its value by evaluating the costs avoided by virtue of the customer exports.

Knowing the amount and timing of exported energy to the grid is the predicate to determine the value of the credit, which will avoid costs to the utility and provide benefits to its customers.

Purpose and Summary of Rebuttal Testimony

Q: What is the purpose of your rebuttal testimony in this proceeding?

A: My rebuttal testimony addresses conclusions and recommendations in the direct testimonies of Vote Solar's witness Mr. Rick Gilliam, Utah Clean Energy's witness Ms. Kate Bowman, and Vivint Solar's witness Mr. Christopher Worley. Parties should not construe that I either agree or disagree with any position or issue offered by other witnesses in this matter that I have not addressed.

Recommendation

Q: Will you please offer the Division's additional recommendations to the Commission?

A: Yes. First, I agree with Mr. Gilliam that the term "Private Generation" is misleading. Customer generation covers all types and configurations of renewable technologies including storage across all customer classes. The Division suggests all parties refer to behind-the-meter generation as "Customer Generation" for the remainder of this docket and other matters pertaining to customer generation in the future. The Commission's observance of this terminology will help parties adopt it as well, and give clarity to arguments.

Second, the Division agrees that separating residential from non-residential customers in the Load Research Study (LRS) may have merit. However, not in the same

way the intervening parties suggest.[1] Because non-residential customers typically export energy at different times of the day, it would be beneficial to separate non-residential customers from residential customers when compiling data from the study. The Division believes this separation can be accomplished as the data is compiled from the study.

Each of the intervening parties have expressed concerns with the load research study design. The Division believes RMP's LRS captures the necessary data needed to support the scope of work for Phase Two of this docket. The Division recommends the Commission approve RMP's LRS for Phase One of this docket.

Q: What are your concerns with the other parties' direct testimony?

A: Mr. Gilliam,[2] Ms. Bowman,[3] and Mr. Worley[4] generally share the same concerns with RMP's load research study design: (1) the design considers the wrong variable of interest for stratification; (2) the design does not consider orientation, tilt, azimuth, and other installation characteristics; (3) the sample size is inadequate and improperly biases between grandfathered and transition customers; and (4) the design does not consider customer usage behavior. These are the main topics. For brevity, I won't comment on every detail in their respective testimonies.

Q: Do you agree with Mr. Gilliam, Ms. Bowman, and Mr. Worley (Interveners)?

A: Not entirely. The information requested by the Interveners may be of use in other

[1] Vote Solar witness Rick Gilliam, Direct Testimony, lines 502-527.
[2] Id., Direct Testimony, lines 384-413 and lines 537-547.
[3] Utah Clean Energy witness Kate Bowman, Direct Testimony, lines 402-428.
[4] Vivint Solar, Inc. witness Christopher Worley, Direct Testimony, lines 19-30.

matters; however, obtaining the suggested detail for this matter would be costly and unnecessary. As I mentioned in my direct testimony[5], the LRS should result in sufficient information about customer generation and its timing to allow the creation of an export credit structure and rate for excess customer generation. Two elements of information about excess customer generation are needed to begin to value it: (1) how much energy is being exported from the customer to the distribution grid; and (2) the time of day the energy is being exported to the distribution grid.

Q: Do you support using installed capacity to stratify the LRS sample?

A: Yes. The missing component to determine customers' full usage requirements is the energy produced from their systems. On any given day, all things considered, the systems produce what they produce regardless of load. How the energy is used, when it is used, and where the excess flows, varies. Installed capacity describes generation better than load and should be used to stratify the sample set.

Stratification by customer load data may add considerable variance to the study requiring an increase in sample size at additional cost. The full usage requirements, determined mathematically as proposed by RMP, will sufficiently demonstrate customer load characteristics. System production information is needed to determine full usage requirements (customer load).

Q: Should system installation characteristics be included in the study?

[5] Division witness Robert A Davis, Direct Testimony, lines 61-63.

A: No. Installation characteristics such as orientation, tilt, azimuth, shading, etc., are unnecessary for this study. The relevant consideration is how, on a Utah-system basis, the combined export energy of customer generation impacts the system and when. The LRS results will reflect installation characteristics because those characteristics affect the amount of energy exported to the grid throughout each day. Location and feeder/circuit information are already known and can be compiled with the data from the study to better understand those system impacts.[6] The specific installation characteristics of each project are unnecessary details for valuing customer generation exports.

Q: Is the sample size and stratification reasonable for the study?

A: Yes. Mr. Peterson, on behalf of the Division, testified that RMP's LRS design followed approved statistical methods to mathematically derive a reasonable sample size and stratification based on the desired precision level.

Q: Do you agree with the Interveners' concerns with the sampling of grandfathered and transition customers?

A: Yes and no. For a few reasons, it makes sense to acquire export, delivery, and generation data from the same sample customer whether it be grandfathered or transition customers. At the time RMP designed the LRS for this phase of the docket, there were either no transition customers or fewer than twenty interconnected

[6] It should be noted that Vivint Solar witness, Christopher Worley, references Residential Schedule 2 in his Table 2: Summer peak hour output (kWh) by system azimuth, at line 219, when describing how solar contributes to peak load hours. These hours do not coincide with system peak or Utah non-coincidental peak hours. There are currently less than 500 customers on Schedule No. 2, (Docket No. 18-035-06, RBA Filing, March 15, 2018, Robert Meredith, Exhibit RMP (RMM-1) page 1).

transition customers. Grandfathered net metering customers with and without generation meters will provide the generation component of the LRS. The meters installed for the grandfathered samples can also provide export and delivery data at 15-minute intervals.

There are not enough transition customers currently interconnected to randomly sample them. However, export and delivery data will be acquired from all transition customers. Generation data from grandfathered sample customers will be used to calculate full usage requirements for transition customers. Bias may be added to the study due to system degradation because older, grandfathered systems and newer transition customer systems will differ in performance. Given the limited number of transition customers, there is not a reasonable fix for this problem. The possible bias should be noted and parties can evaluate its materiality and propose adjustments in the future.

Q: Do you agree that customer usage behavior should be part of the study?

A: No. The Division has no evidence that transition customers and grandfathered customers exhibit substantially different usage profiles. Trying to design a load research study around customer behavior would lead to substantial variability, increased sample size, and cost, with little if any benefit. The customer behavior data will not help to value customer generation exports, though it might be useful for other purposes.

Q: Mr. Worley suggests using generation meters that cost less and are readily available. Do you support the use of these meters?

A: No. RMP is required to follow certain statutes containing guidelines for the metering it uses throughout its system.[7] My understanding from discussions with RMP employees is the meters chosen by RMP must meet stringent guidelines and pass numerous quality assurance tests. A high-level comparison of the meters used by RMP and suggested by Mr. Worley[8] reveal they are not the same as Mr. Worley suggests. The Aclara meters used by RMP have many more capabilities available with simple programming changes. They can be used for billing and other data gathering. The meters suggested by Mr. Worley may not be compatible with RMP's billing system. They would have to go through extensive testing before they could be validated and used for billing. They could require a manual read and higher administrative costs.[9] These issues suggest caution in adopting the different metering technology. It is also not clear if Mr. Worley's research included other installation costs similar to RMP's analysis.

Q: Should data be collected from customer's inverters?

A: The Division is not opposed to collecting data from customer's inverters as Mr. Worley suggests.[10] It does have concerns about the confidentiality of the data, the cost involved with administering the data, and the accuracy of the data compared to that provided by RMP's generation meters. Mr. Peterson provides further comments on the use of

[7] Utah Public Service Commission Rules R746-310-3 and R746-310-4.
[8] Locus Energy LGate 120 and Solar-Log 350.
[9] Vote Solar witness Rick Gilliam, Direct Testimony, lines 296-297, suggests that RMP should issue a discrete request for proposal for meter installation to lower costs. The Division does not agree with this suggestion as it would add time and costs to Phase One of the docket.
[10] Vivint Solar, Inc. witness Christopher Worley, Direct Testimony, lines 132-138.

inverter data and the potential impacts on the sample design and costs.

Q: Should RMP redesign its LRS and separate non-residential and residential customers?

A: No. The outcome of this study is to determine how customer generation impacts the system. Non-residential and residential customers often share the same feeders and circuits. Further, if not for customer generation exports, the utility would generate or purchase power at the network level and not class specific. The LRS study should explain the interaction of the system with all customers, those with behind-the-meter generation and those that do not. The data from the LRS can be compiled to identify non-residential customers and residential customers so profiles can be compared between the two groups. There is no need to redesign the LRS to separate non-residential and residential customers.

Q: Do you have any final thoughts regarding Phase One of this docket?

A: Yes. The Division agrees with the intervening parties that the LRS needs to provide the necessary data to determine the export credit rate in Phase Two of this docket. The Division has considered the suggestions put forth by the intervening parties. The customer behavior data sought by the Interveners is likely already available in different forms and might be compiled at the conclusion of the LRS. The added cost and effort of including it in the initial LRS is not reasonable when weighed against its limited value in determining the value of exported customer generation. The Division suggests that the parties explore how to compile and apply the LRS data and other available data during the workshops leading to Phase Two of the docket.

The Division concludes that the LRS data, combined with feeder/circuit data,[11] and mathematically derived full requirements usage will be sufficient for a proper load study. System size, orientation, tilt, azimuth, customer usage behavior, weather trends, etc., ultimately determine the amount of excess energy put to the grid and when. Over the study period, LRS data should provide interested parties with the information needed to understand the costs avoided by the utility and potential benefits provided to all customers as a result of customer generated energy exported to RMP's system. Phase Two will use this information to determine the value of those avoided costs and benefits.

Conclusion

Q: Please summarize the Division's recommendations.

A: The Division recommends the parties refer to behind-the-meter generation as "Customer Generation" for the remainder of this docket and other matters pertaining to customer generation in the future.

The Division understands that separating residential from non-residential customers in the Load Research Study (LRS) has merit. However, not in the same way the intervening parties suggest. Because non-residential customers typically export

[11] The Division is aware that RMP does not have the necessary metering on the utility side for every feeder and circuit where the LRS metering may be installed. RMP has the ability to install temporary metering in some locations and actively installing metering through the STEP Advanced Metering Program in some locations. RMP does not typically use substation and feeder metering for purposes suggested here. The utility side metering is used more for system design, performance, and troubleshooting. It does have the ability to measure load at interval periods at those substations and feeders that have metering.

energy at different times of the day, it would be beneficial to separate non-residential customers from residential customers when compiling data from the study. But valuation of exports depends on amount and time of day, not the type of customer generating those exports.

Although each party has put forth its own load research design suggestions in this matter, RMP has designed the LRS in a manner sufficient for interested parties to propose, and the Commission to adopt, a reasonable customer export credit rate in Phase Two of this docket. The Division recommends that the Commission approve RMP's Load Research Study.

Q: Does this conclude your rebuttal testimony?

A: Yes it does.