Q. Are you the same Joelle R. Steward who presented direct testimony in this proceeding?

A. Yes.

Q. Please provide an overview of your rebuttal testimony.

A. My testimony responds to the direct testimony of Robert Davis on behalf of the Division of Public Utilities ("DPU"), Philip Hayet on behalf of the Utah Office of Consumer Services ("OCS"), and Tim Woolf and Ben Norris on behalf of Utah Clean Energy, The Alliance for Solar Choice, and the Sierra Club (the "Joint Parties"). Specifically, my testimony addresses the use of the cost of service study by the DPU and OCS, and several aspects of the tests proposed by the Joint Parties.

Q. Please summarize the Company's proposal in this proceeding.

A. The Company is proposing the adoption of a two-part framework for the Commission to evaluate the costs and benefits of net energy metering ("NEM"), as required by Utah Code Ann §54-15-105.1. The two parts of the framework are comprised of (1) using avoided costs for the valuation of excess energy production from NEM customers, and (2) a cost of service study in which NEM customers are identified as a separate class from non-NEM residential customers to determine the cost of serving the NEM customer. The cost of service study will also reflect benefits to NEM customers where they may impose fewer costs on the utility system. The Company's proposed framework relies on tools, policies, and procedures already adopted by the Commission to develop rates. Separating these customers in the cost of service study will provide the necessary perspective to determine what costs are necessary for serving NEM customers.

Response to Mr. Davis for the DPU

Q. How does DPU witness Mr. Davis recommend calculating the costs and benefits of the NEM program?

A. Similar to the Company, Mr. Davis proposes using a cost of service based framework. Specifically he proposes conducting two studies. In the first study, the revenue requirement and the cost of service would consider the loads of NEM customers without any distributed generation by assuming NEM customers were full requirements customers. The second study would consider the revenue requirement and cost of service that reflects NEM customers' net loads. The difference in results between these two studies would, he argues, represent the benefit of the NEM program in Utah and to specific customer classes.

Q. Please comment on Mr. Davis' proposal.

A. Like Mr. Davis' proposal, the Company's proposed framework relies upon the cost of service study to evaluate the costs and benefits of the NEM program. While using similar tools, I believe that the Company's proposed approach of creating a separate class for NEM customers in the cost of service study will more effectively and efficiently accomplish the goal of identifying the costs and benefits of NEM customers, without the need for relying on estimated data to approximate a full requirements customer or the complexities of preparing a second revenue requirement. The Company's approach will also have a practical application for the development of rates. Moreover, the Company disagrees with including excess energy in the cost of service study, as proposed by Mr. Davis. The cost of service study is designed to evaluate the cost of energy delivered to customers, not energy

supplied to the Company. Avoided cost is a better tool for calculating the value of energy supplied to the Company. Utilizing these two tools, the Company's approach differentiates the costs and benefits from NEM customers in their two unique roles as a partial requirements customer and power producer.

Under the Company's approach, the differences attributable in the cost of serving NEM customers can be observed by comparing the unit cost results (i.e., the $/kWh costs related to generation, transmission, distribution, etc.) from the residential NEM class in the study to the unit cost results for the full requirements residential class. Where there are benefits, these will be apparent as lower unit costs for NEM customers, which represent a lower cost to serve. More directly calculating the actual cost to serve NEM customers through the Company's proposed approach, rather than with the DPU's more indirect approach of using two studies would allow for a more practical application of results and is consistent with Commission established policies and practices for establishment of rates for other types of customers.

Q. Do you have concerns with the analytical requirements of the DPU's proposal?

A. Yes. In order to perform the alternative revenue requirement and cost of service study where NEM customers are considered full requirements customers, a statistically significant sample of production interval meters would be needed to measure the output of the customer's facility. The output from the customer facility would then need to be compared to the measured usage at the Company's meter in order to reliably determine the customer's full requirements usage. While the Company is currently conducting a load research study on residential NEM

customers in Utah, the Company experienced difficulty in getting approval from customers for the installation of production meters on customer facilities. The Company can and has installed load research meters that measure energy supplied to the NEM customer and energy exported to the grid on a 15 minute interval. However, NEM customers are under no obligation to allow the Company to install meters that measure the output of their generating facility. In order to effectively rely on the DPU's proposed framework for rate setting purposes, the Commission would have to require customers to allow the Company to install production meters on their facilities, pursuant to U.C.A. §54-15-103(4). Therefore, the implementation of the DPU's proposal would be far more challenging than the methods proposed by the Company.

Response to Mr. Hayet for the OCS

Q. What is your response to Mr. Hayet's testimony?

A. First, I would note that Mr. Hayet also proposes a framework that relies on studies with and without NEM customers. Like Mr. Davis, his approach would also require the use of data from production meters in order to reliably measure the output of a customer's facility to determine the full electricity usage of an NEM customer.

Second, Mr. Hayet recommends an approach that uses a shorter term horizon and costs to be included for ratemaking purposes. Consistent with my comments on Mr. Davis's proposal, the Company's approach to separately account for NEM customers in the cost of service study would more directly and efficiently accomplish the same goal.

Response to Mr. Woolf for the Joint Parties

Q. On page 12 and 13 of Mr. Woolf's testimony, he discusses different types of "inequities that occur" with regulated utility rates. Are the situations that Mr. Woolf enumerates comparable to the dilemma of potential cross-subsidization of net metering?

A. No. The situations that Mr. Woolf lists have occurred as long as regulated utilities have existed and they should not be compared to the potential inequities that may occur with net metering. In none of the situations that Mr. Woolf presents do customers have the opportunity to significantly reduce their utility bill while still substantially relying upon the utility's system. I think that each of his examples simply demonstrate that the Company charges customers rates that are based upon average costs. Some customers may be more costly to serve than others, but the Company cannot charge every individual customer a different rate. However, customers are assigned to different classes in the cost of service study and are made subject to different rate schedules when a group of customers shares similar characteristics of their service. For example, irrigators are in their own class in the cost of service study and are subject to Schedule 10. They tend to use power almost exclusively during the growing season and have a seasonal pattern of energy usage that is unlike any other class in the cost of service study. Distributed generation is a fundamentally new way that customers can use the utility system. It is important that rates for this new type of customer fairly reflect their costs.

Q. On pages 14 and 15 of Mr. Woolf's testimony, he lays out several reasons why he believes that the Utility Cost Test should be used to evaluate the NEM program. Please comment.

A. The Utility Cost Test is an important tool for determining the cost effectiveness of resource acquisition. However, it is not used to set rates. As I discussed in my direct testimony, rate design is an essential element of the NEM program. Ultimately the NEM statute requires the governing authority to "determine a just and reasonable charge, credit, or ratemaking structure, including new or existing tariffs, in light of the costs and benefits." The Company's proposal is better suited to meet the rate setting emphasis and requirements of the mandate. Its two-part approach utilizes the cost of service study, which is currently used to guide the rates that retail customers pay, and avoided costs which develop the prices that the Company pays to QFs for the output of their generation.

Q. Do you believe that DSM programs are directly comparable to net metering?

A. No. As I discussed on pages 13 and 14 of my direct testimony, there are important differences between DSM programs commonly evaluated by the Utility Cost Test and the NEM program. The reduction in customer load from conservation measures occurs at the same time that a customer is using energy which is in contrast to distributed generation which may or may not produce energy at the time that the customer requires it. NEM customers only reduce their *purchase* of electricity from the Company, not their demand or consumption of electricity. They use the utility system differently, relying on it for backup and facilitation of excess output.

Additionally, the incentives paid to participants and the administrative costs of DSM programs are recovered through a separate surcharge outside of the base ratemaking process. Generally DSM participants are paid one-time financial incentives for the measures that they take. In contrast, the primary incentive for

NEM is the reduction in the NEM customer's bill and the full retail energy rate credits that they receive for excess generation. The cost of the NEM program is not explicitly paid for in a separate surcharge nor is there any specific allocation of the costs of the NEM program within the cost of service study. The cost recovery of the NEM program is simply captured in the overall rates that retail customers pay.

In light of these key differences, using the Utility Cost Test, while a good tool for resource planning purposes, is not the correct way to calculate the costs and benefits of the NEM program to "determine a just and reasonable charge, credit, or ratemaking structure, including new or existing tariffs" as required by Utah Code Ann §54-15-105.1.

Moreover, the Company agrees with Mr. Davis that using the DSM tests, including the Utility Cost Test, would require modifications, and therefore, would no longer be the same test as used for DSM. For instance, in order to conform with the NEM law that requires an analysis that reflects the costs and benefits to the Company as well as other customers, the Utility Cost Test that Mr. Woolf uses would need to include the fixed cost recovery that is shifted to other customers, which would result in using the Rate Impact Measure ("RIM") test.

Q. Mr. Woolf argues that the RIM test, and in particular, existing costs that may be shifted to other customers (which he refers to as lost revenue) should not be used as part of any analysis because the existing costs are recovered from customers regardless of whether NEM exists. How do you respond?

A. I couldn't disagree more. The cost shift from NEM impacts other customers in the form of higher rates that are needed to recover those fixed costs. As a matter of

equity, it's necessary to consider which customers are paying the fixed costs, not just whether or not they are being recovered. The Company's proposed framework of using the cost of service study will determine if NEM customers are fairly paying the costs necessary to serve them.

Response to Mr. Norris for the Joint Parties

Q. Do you agree with Mr. Norris' method of estimating avoided transmission and distribution losses?

A. No. While I agree that line losses should be captured to calculate the cost of serving NEM customers and that the benefits of the excess output should reflect avoided losses, Mr. Norris' way of calculating them is unduly complex. He recommends that losses be calculated for every hour and on a marginal basis. This would be a divergence from the way the Company calculates and uses losses to set rates for other customers. For ratemaking purposes, the Company calculates line losses on an average not a marginal basis. The line loss factors which the Company uses were developed by an outside consultant. To develop hourly loss factors would potentially require engaging a consultant for a new costly study.

On page 12 of his testimony, Mr. Norris recommends that the calculation of avoided losses should consider the non-linear relationship between losses and load. He makes the statement, "For example, the total load-related losses during an hour with a load of 2X would be approximately 4 times the total load-related losses during an hour with a load of only X." In the cost of service study, the Company uses different loss factors for energy and peak load. This already captures some of

the differences between losses that occur on average and at the time of peak. Table 1 shows the loss factors which were used in recent cost of service study filings:

Table 1. Line Loss Factors

Voltage Level	Energy Loss Factor	Demand Loss Factor
Secondary	9.32%	10.11%
Primary	6.63%	7.38%
Transmission	4.53%	4.26%

The different values for loss factors presented in Table 1 show that the estimated losses at the time of peak demand are not orders of magnitude larger than the average energy-related loss factors as Mr. Norris seems to suggest they might be. Determining losses on a marginal basis and for each hour is unnecessary.

Q. Lastly, Mr. Norris advocates for a jurisdictional allocation benefit. Considering the other benefits that Mr. Norris presents, should additional benefits be given for inter-jurisdictional allocations?

A. No. Mr. Norris' recommendation would double count generation and transmission costs that he already included in other benefit categories. Inter-jurisdictional allocations are used to allocate shared costs such as generation, transmission, and customer services amongst the states which PacifiCorp serves. Distributed generation can potentially reduce the allocation of generation and transmission costs for a jurisdiction, but his methodology already considers the potential benefits of reduced energy and capacity on generation and transmission costs. It would be inappropriate to calculate this benefit twice.

Q. Please summarize your rebuttal testimony and proposed framework.

A. The Company's proposed framework uses tools already established by the Commission and is consistent with how rates are set for other customers. The Company's proposed framework is similar to those proposed by the DPU and OCS in that it relies on the cost of service study and reflects near term costs, but is a more direct approach by calculating the cost of serving NEM customers, which can be compared to the cost of serving non-NEM customers. Additionally, this more direct approach will have practical application for the development of rates. The framework proposed by the Joint Parties requires greater complexity, speculation for future costs and benefits, and ignores the cost shift for recovery of fixed costs that occurs from net metering due to the existing residential rate design. And because it is a long-term view of costs and benefits, it ignores the Commission's direction that "any cost or benefit to be included … must be a cost or benefit that has some impact on the utility's cost of service.[1]

Q. Does this conclude your rebuttal testimony?

A. Yes.

[1] *In the Matter of the Investigation of the Costs and Benefits of PacifiCorp's Net Metering Program*, Docket No. 14-035-114, Order Re: Conclusions of Law on Statutory Interpretation and Order Denying Motion to Strike, p. 15 (July 1, 2015).