Q. Are you the same Joelle R. Steward who submitted direct testimony in this proceeding on behalf of PacifiCorp dba Rocky Mountain Power ("the Company")?

A. Yes.

Purpose and Summary of Rebuttal Testimony

Q. What is the purpose of your rebuttal testimony?

A. My rebuttal testimony responds to the direct testimonies of parties responding to the Company's proposal to implement a net metering facilities charge. Specifically, I respond to testimony on this issue submitted by Mr. Daniel E. Gimble for the Office of Consumer Services ("OCS"), Mr. Artie Powell and Mr. Stan Faryniarz for the Division of Public Utilities ("DPU"), Mr. Nathanael Miksis for The Alliance for Solar Choice ("TASC"), Mr. Rick Gilliam and Ms. Sarah Wright for Utah Clean Energy ("UCE"), Mr. Dustin Mulvaney for the Sierra Club, and Mr. Michael D. Rossetti for Utah Citizens Advocating Renewable Energy ("UCARE"). Both the DPU and the OCS support implementation of a new charge for net metering customers at this time based on the principles of cost causation. TASC, UCE, the Sierra Club, and UCARE all oppose the implementation of a separate charge for net metering customers.

Q. Has the Company modified its proposal for the net metering facilities charge in this rebuttal filing?

A. Yes, the Company has modified the proposed net metering facilities charge to reflect the updated revenue requirement and residential customer charge agreed to by parties in this proceeding. With these changes, the Company's proposed facilities

charge is now $4.65 per month. Page one of Exhibit RMP___(JRS-1R) shows this calculation. Alternatively, the Company is agreeable to the facilities charge proposal from OCS that recovers the costs through a $ per installed kilowatt ("kW") rather than a flat monthly charge.

Proposed Net Metering Facilities Charge

Q. Please explain why the proposed net metering facilities charge changed from $4.25 to $4.65 per month.

A. As I noted in my direct testimony, the calculation for the facilities charge takes into account the level of the residential customer charge; the $4.25 proposed in my direct testimony was based on a customer charge of $8.00. Since the customer charge agreed to in the stipulation in this case ("Stipulation") is less than the $8.00 per month reflected in my direct testimony, the proposed Net Metering Facilities Charge increases in order to recover the fixed costs not in the customer charge and will not be recovered through net metering customers' energy usage. The Company also took into account the reduced revenue requirement increase by proportioning downward the distribution and customer service costs in the calculation. The result is that an average of $4.65 per month for distribution and customer service related costs will not be recovered through rates from average net metering customers. This amount continues to reflect only a portion of the fixed costs, with the remaining fixed costs recovered through the energy rates.

Q. Please explain OCS's proposal for a facilities charge based on a $ per installed kW.

A. While the OCS states that it generally supports the proposed facilities charge,

Mr. Gimble recommends implementing the charge on a $ per kW basis so that the monthly amount paid by individual net metering customers would reflect the rated production capability of each facility.[1] The $ per kW charge is calculated by taking the same fixed cost revenue deficiency identified for net metering customers as in the Company's calculation (after taking into account the proposed customer charge) and dividing it by the kW of installed customer generation for participants in the net metering program.

Q. Does the Company agree that this is a reasonable alternative for recovering fixed costs from net metering customers?

A. Yes, at this time the Company is not opposed to the adoption of this alternative rate design. Based on the updated revenue requirement, this alternative results in a charge of $1.55 per installed kW, or approximately $4.96 per month for a customer with the average installation size of 3.2 kW. Page two of Exhibit RMP___(JRS-1R) shows the calculation for the alternative.

Q. Is the proposed net metering charge revenue neutral for the Company?

A. Yes. The revenue from the charge is reflected in the overall allocation to the residential class agreed to by the parties in the Stipulation. In the absence of the charge, the target revenue from that charge must be recovered through higher energy rates from all residential customers, not just NEM customers, in order to achieve the allocated revenue target for the residential class.

[1] Mr. Daniel Gimble COS/RD Direct, ll. 661-663.

Response to Opposing Parties

Q. UCE, Sierra Club, TASC, and UCARE argue that the Commission should not adopt a charge for net metering customers because the Company did not present a cost benefit analysis for net metering, as required by Senate Bill 208. Do you agree?

A. No. First, the Company's filing shows through the rebuttal testimony of Mr. Gregory N. Duvall that the value of solar generation is approximately three cents per kilowatt-hour ("kWh"), based on the avoided cost valuation methodology already adopted by the Commission for solar resources. This is considerably less than the retail energy rates that range from 8.8 cents and 14.4 cents per kWh that net metering customers avoid by offsetting usage with distributed generation and are credited with for excess generation.

Second, the Company's proposal is limited to recovering costs for only distribution and customer service costs. These are costs that are incurred for facilities and services necessary for the provision of service to all customers today, including net metering customers. However, as I explained in my direct testimony, as a result of the residential rate structure, which was developed for full requirements service and places a significant portion of these costs in the volumetric energy charges, these costs will not be fairly recovered from net metering customers who rely on the Company for partial requirements service. As a result, absent the charge, these distribution and customer service costs will be shifted to other residential customers through higher energy rates. The Company's proposal is

intended to minimize this cost shifting, regardless of the introduction and passage of Senate Bill 208.

Q. Please explain why the distribution and customer service costs should be reflected in a fixed charge to net metering customers.

A. These are not costs that go away with the existence of or growth in customer generation; however, as a result of the rate structure, customers will no longer adequately pay for these costs when they install distributed generation. These are costs for distribution infrastructure and services that are currently used and useful and known and measurable, serving all customers today including net metering customers. The rebuttal testimony of Mr. Douglas L. Marx addresses how solar distributed generation does not offset the costs and needs of the distribution system for net metering customers.

This was also recognized by both the DPU and OCS in direct testimony. Mr. Gimble states: "the Office does not believe that evidence can be produced to show that the residential NM output provides enough value to offset distribution costs."[2] Mr. Powell states:

The Division views the net metering charge as a cost causation issue. The principle of cost causation indicates that those customers causing the costs, in this case all customers using the infrastructure, should pay for those costs. Net metering customers, while decreasing their energy consumption taken from the Company, still utilize the infrastructure put in place to deliver energy when needed.[3]

[2] *Id.*, at ll. 621-623.
[3] Powell COS/RD Direct, ll. 182-187.

Customer service expenses likewise are not diminished with the existence of customer generation or changes in usage. Net metering customers as much as any other residential customer receive customer service support such as billing, metering, answering and responding to customer phone calls, providing customers with online access to their accounts, customer and community communications and outreach, payment processing, providing pay stations, and handling collections; individual usage levels or usage patterns in no way impact the occurrence of these costs, and therefore, should be reflected in a rate structure that fairly captures these costs for all customers.

Notably, the proposed net metering charge does not recover *all* distribution and customer service costs through a fixed charge. The calculation, shown in Exhibit RMP___ (JRS-1R), continues to reflect that 75 percent of these costs not included in the customer charge are recovered through the customer's net billed energy consumption charges. The net metering facilities charge, in conjunction with the customer charge, merely recognizes a minimum level of contribution for the facilities and services available that are not being fully recovered through the current rate structure.

Q. UCE argues that because the current number of net metering customers is very low and significant growth is not projected by the Company, urgent action by the Commission is not warranted at this time.[4] Do you agree?

A. No. The Company believes that now, while the number of impacted customers is small, is precisely the time to ensure rates are consistent with cost causation in

[4] Gilliam, COS/RD Direct, ll.105-109; Wright COS/RD Direct, ll. 559-565.

order to minimize any further cost shifting as the number of customer generators grows and before more customers undertake long-term commitments. As Mr. Gimble noted in his direct testimony:

> [I]t is important for the Commission to send a clear policy signal in this proceeding on the NM facilities charge so that potential NM customers can make an informed economic decision when evaluating whether or not to invest in a solar PV system. Delaying a decision on the NM facilities charge would create uncertainty for prospective NM customers while leaving the current cost shift issue unresolved.[5]

Additionally, it's not clear what constitutes significant growth to UCE that would warrant action. As noted in my direct testimony, the number of customers installing facilities and participating in net metering has grown by over 30 percent annually. In just the five months since my direct testimony was prepared, the total number of net metering customers has grown by a nearly additional 20 percent. Nearly 90 percent of net metering customers are residential. Given the climate and solar potential in Utah, this growth is expected to continue.

Q. UCE, TASC, and UCARE argue that the net metering facilities charge is unfairly targeting net metering customers.[6] Do you agree?

A. No. Net metering customers are a distinctly different type of customer than customers that rely on the Company for all electricity needs, or full requirements service. The graphs below show a typical load profile on the summer distribution peak day (Diagram A) and the winter distribution peak day (Diagram B) for (1)

[5] Gimble COS/RD Direct, ll. 724-729.
[6] Gilliam COS/RD Direct, ll. 399-413; Miksis COS/RD Direct, 27:5-28:9; Rossetti COS/RD Direct, ll. 164.

an average residential customer without distributed generation facilities and (2) the load profile for residential customer with a rooftop solar facility, based on a generation profile from National Renewable Energy Labs ("NREL") PVWatts calculator for a 3.2 kW facility in Salt Lake City.

Diagram A

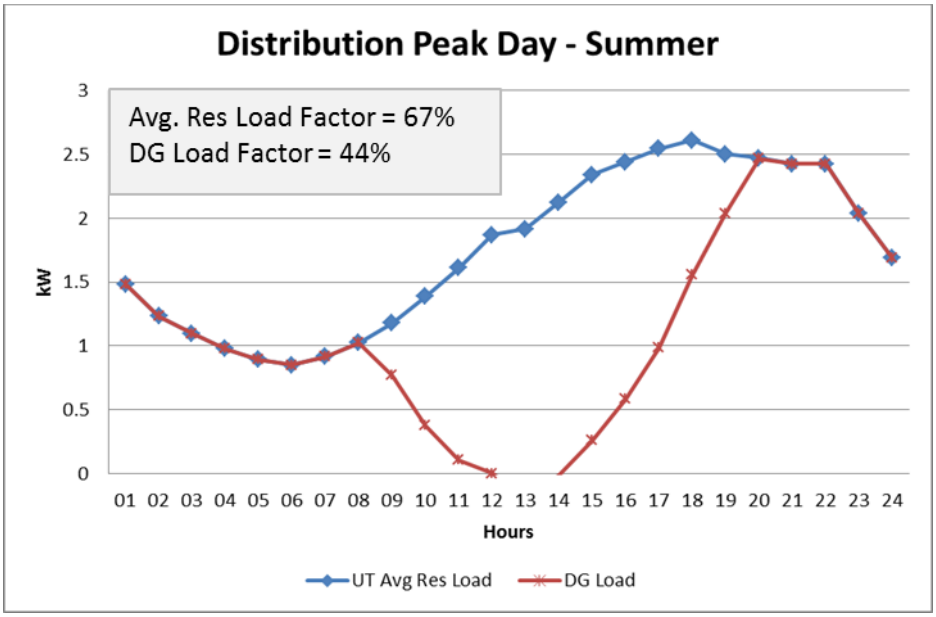
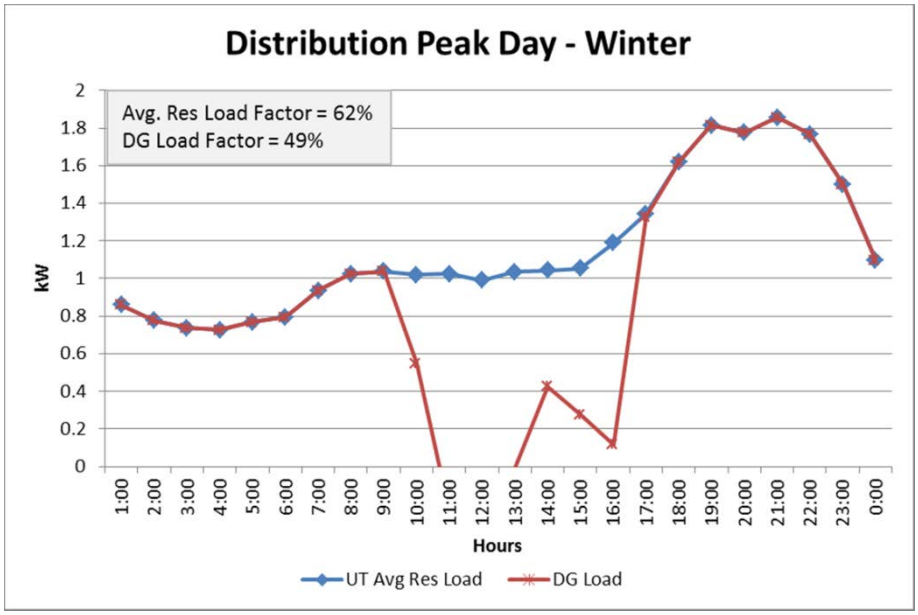


Diagram B



Historically, rates for residential customers have been designed on the premise that the customers had no other viable choice when buying and using electricity but to pay regulated rates. This allowed the energy component of two-component, full requirements service rates to be loaded with fixed costs not reflecting more complex cost causation. The residential rate was developed for a customer that receives full requirements service for energy from the grid and delivers no energy back to the grid.

Moreover, since the load characteristics of the majority of residential customers were very similar, rates have been developed for the average residential customer with an average load factor (frequency and stability of usage), an average load curve (usage pattern), and average billing determinants. But when the net metering customer's generator operates, the customer has a markedly different load curve and load factor than the average residential customer for whom the residential rate was designed; however, as shown in the graphs above, the customer peak usage remains relatively unchanged. Accordingly, residential net metering, or partial requirements, customers are not *similarly situated* to other residential customers, as UCE contends.[7]

As I explained in my direct testimony for cost of service, distribution system costs are incurred and allocated to customer classes based on customers' contribution to either the distribution system peak (substations and primary lines), the non-coincidental peak (line transformers and secondary lines) or by the number of customers (service lines and meters). Customer service costs are driven by the

[7] Gilliam, COS/RD Direct, ll. 412.

number of customers and are generally allocated to customer classes using weighted customer factors. This means that distribution and customer service costs are allocated to the residential class on maximum or peak usage and number of customers. As Diagrams A and B show, solar distributed generation does not reduce the contribution to the distribution peaks. However, in the current residential rate structure a significant portion of these costs are recovered through energy rates. As a result, the reduction in billed consumption for net metering customers does not fully recover the costs that their usage imposes on the distribution system so other residential customers pay those costs. Furthermore, since net metering customers are credited for excess production at the rate block the customer is able to avoid paying as a consequence of that production, their billed consumption is even lower than what they have actually taken from the grid. For non-residential customers with onsite generation rates include demand charges and/or backup facilities charges that better capture the costs of serving these customers.

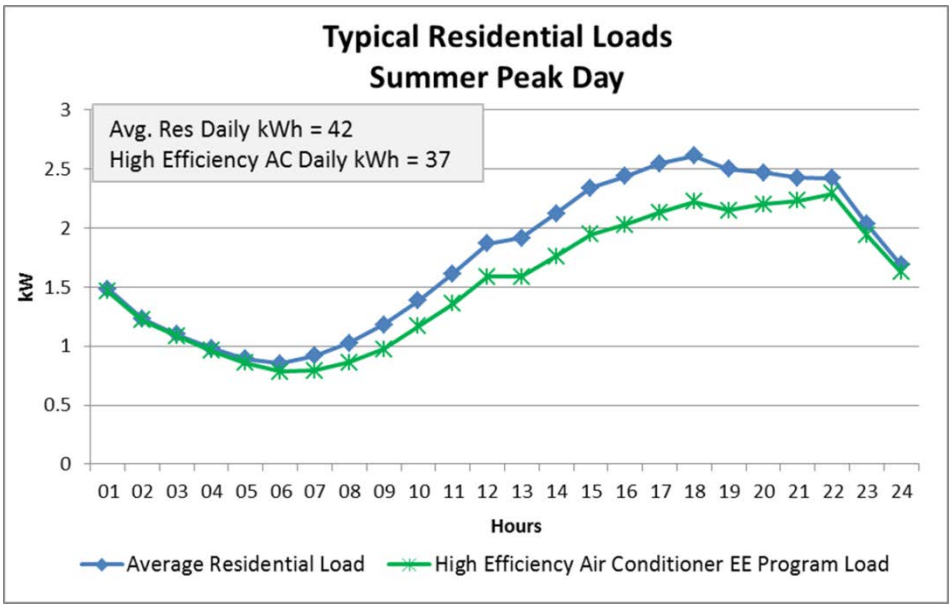
Q. Is the reduction in usage by customers with distributed generation similar to other customer behaviors such as those who adopt energy efficiency, as asserted by TASC and UCARE?[8]

A. No. Net metering customers are not equivalent to the average residential customer who reduces consumption through energy efficiency or reduces peak usage through demand response programs. A net metering customer's avoidance of a kWh *purchase* from the grid is not the same as a residential customer's permanent avoidance of a kWh of *consumption* via energy efficiency or demand-side

[8] Miksis COS/RD Direct, 15:9–19; Rossetti COS/RD Direct, ll. 280-298.

management. When a residential customer adopts energy efficient appliances or behaviors, both energy consumption and energy purchases from the grid are reduced. They also reduce energy consumption at the time of the system peak, improving load shape and load factor and ultimately the class and system load factor. Diagram C below shows an average profile for a residential customer compared to a customer that installs a high efficiency air conditioner. This shows that in addition to overall lower usage, the customer's usage at the peak is reduced.

Diagram C



In contrast, when a customer adds distributed generation, energy purchases by the customer from the grid are reduced but that customer's total energy consumption may remain unchanged. So if there are any interferences with the output of a customer's generation facility, such as cloud cover or an outage, then the Company must stand ready to serve the customer.

Similarly, most residential demand-side measures result in the customer reducing energy consumption at the time of the system peak, improving load shape

and load factor and ultimately the class and system load factor. In contrast, when a customer adds distributed generation, the customer's peak energy production may not be coincident with the peak usage of the grid.

Q. How do you respond to UCE's argument that the cost shifting the Company claims applies to any customer with lower than average consumption?[9]

A. The Company has raised concerns about intra-class cross-subsidization between high use customers and low use customers as a result of the low monthly customer charge in every rate case for several years. In the current case the Company again raised this argument in support of the proposed customer charge of $8.00 per month. While the issue is similar, low usage full requirements customers are distinct from net metering or partial requirements customers in that their load shape and load factor are more consistent with the residential class, for which rates are designed. Also, with net metering customers the cost shifting is exacerbated by the fact that the full retail energy rate is applied to the excess generation that is sold back to the Company, thus shifting additional costs to other customers because of the fixed cost recovery that is embedded in the full retail energy.

[9] Gilliam COS/RD Direct, ll. 552-553.

Q. UCE witness Sarah Wright recognizes a constraint in the current residential rate structure and states: "in order to make cost recovery for 'fixed' costs equitable, non-customer charge fees should be based on consumption *and demand* to better reflect contributions to peak and cost causation."[10] (emphasis added). She notes that non-residential customers pay a demand fee and recommends that the Commission investigate practicable options for residential rate design.[11] Do you agree with these statements?

A. I generally agree with her statements, particularly in regards to a potential approach for rates that better facilitate cost recovery with cost causation for the relatively new but growing sub-class of residential customers that rely on the Company for partial requirements service. The Company is exploring the development of a new rate schedule class for these customers by deploying a load research study to gather specific time-based data that will allow the development of allocation factors and billing determinants for residential customers with distributed generation. As Ms. Wright notes, residential customers are not currently equipped with meters that allow the Company to measure customers' peak kW demand. The load research study will allow us to measure these customers' usage at the time of the system coincident peaks, which is the driver for allocations of transmission and generation costs.

Since the current number of customers in this sub-class is still relatively small, the Company could install meters capable of measuring demand and develop

[10] Wright COS/RD Direct, ll. 254-256.
[11] *Id.*, at ll. 263-264.

a three-part rate structure with customer, demand, and energy charges, similar to rate structures for non-residential customers. The three-part rate structure would better reflect cost recovery with cost causation by having: 1) costs necessary for the provision of service to all customers (i.e., customer service and distribution facilities) recovered through monthly fixed charges; 2) costs driven by system peak demand recovered through kW charges; and 3) costs driven by overall energy consumption recovered through kWh charges. Three-part rates better capture variations between customer load shapes and load factors, which is why they are more readily used for non-residential customer classes, which display a considerably wider range of usage patterns and load factors by individual customers than the residential class. With net metering customers being a new type of partial requirements customer, with significantly different load pattern and load factor than the typical residential customer for which the current two-part rates are designed, a three-part rate is a better rate design. Additionally, a separate rate structure for this sub-class could reflect time of use differentiation in rates that will provide more accurate price signals than the current tier block rate structures and provide better incentives to customers with distributed generation to maximize the benefits to the grid and the customers it serves.

Q. Should the Commission wait and see the outcome of the load study the Company has initiated before adopting a net metering facilities charge in this proceeding?

A. No. There is sufficient evidence presented in this case that shows that the negligible benefits, if any, do not offset the costs incurred for the distribution system and

customer services to support the proposed net metering facilities charge at this time. Moreover, a sizable portion of these costs are still being recovered through energy charges even after implementation of the net metering facilities charge. While the new study will help refine future rates for a potential new class of residential customers requiring partial requirements service, adopting the proposed net metering facilities charge now will help transition net metering customers to new rates and rate designs. In fact, the alternative structure proposed by OCS for a $ per installed kW may help residential customers become familiar with a kW demand-based charge.

Q. How do you respond to UCE's argument that the net metering facilities charge does not distinguish between exported energy and solar energy consumed onsite[12] and that the application is inconsistent with the rationale[13]?

A. The premise for these arguments—that the Company's rationale for the net metering facilities charge is based on the time during which solar generation exceeds consumption—is incorrect. The rationale for the charge is that the residential rate structure recovers a significant portion of fixed costs through energy rates and therefore does not adequately reflect cost causation.[14] See my discussion above for how cost causation for distribution and customer service costs is inconsistent with the residential rate structure.

[12] Gilliam, COS/RD Direct, ll. 231-285.
[13] *Id.*, at ll. 384-396.
[14] Steward Direct, ll. 493-495.

Q. Do you agree with the Sierra Club that the proposed net metering facilities charge will impact energy usage or decisions to make energy efficiency investments?[15]

A. No. A significant portion of the customer's bill will still be based on volumetric energy rates. As previously noted, the proposed charge recovers only a portion of the distribution and customer service costs with the remaining costs in the energy rates, along with *all* of the costs related to generation and transmission. Accordingly, a significant incentive remains with the current residential rates to encourage and reward energy efficiency.

Additionally, the combined monthly fixed charge of $10.65 with the customer charge and the facilities charge is still less than other utilities, including the neighboring Dixie Escalante, which has $14.00 monthly residential customer charge plus a $30.00 per month charge for net metering customers.

Q. OCS recommends that the Company develop stronger messaging to provide current and potential future residential net metering customers on the Commission's net metering policy and how rates for net metering customers may change over time.[16] **Do you agree with this recommendation?**

A. Yes. Following a Commission decision in this proceeding, the Company is willing to work with parties to craft appropriate messaging for current and potential net metering customers on the potential for rate changes over time.

[15] Mulvaney, COS/RD Direct, 34:9-19.
[16] Gimble, COS/RD Direct, ll. 764-783.

Q. While DPU supports the net metering facilities charge and it calculates the charge to be $4.81 based on its proposed $5.00 customer charge, DPU recommends that the charge not be higher than $4.25 per month at this time based on the principle of gradualism.[17] Do you agree?

A. No. Since DPU appears to agree that the charge reflects cost causation, it is inconsistent to hold back $0.40 in the name of gradualism. Based on the rationale discussed in my testimony and that of the other Company witness, the Company recommends that the Commission implement the $4.65 charge in this proceeding.

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 expiration of the excess credits at the end of the net metering program year.[18] Do you agree?

A. No. This argument overlooks the fact that the cost to those neighboring customers for that non-dispatchable energy is between 8.8 cents to 14.4 cents per kWh which, as I previously noted, is considerably higher than the Company's avoided cost of energy. Since that rate includes fixed costs, that neighbor essentially ends up paying for the fixed costs required to serve the net metering customer that the net metering customer does not pay by virtue of the rate structure. UCARE also acknowledges and identifies this cost shift, which it characterizes as "straining at gnats."[19]

[17] Faryniarz, COS/RD Direct, ll. 323-374.
[18] Rossetti, COS/RD Direct, ll. 77-91.
[19] *Id*., at ll. 198-207.

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

Q. Have you identified other errors in UCARE's analysis and assertions?

A. Yes. On page nine, UCARE claims a reduction of emissions based on his claim that "residential NEM customers produced 13,012,995 kWh of excess electricity for the reporting period."[20] However, this figure that it characterizes as excess electricity, which appears in Exhibit RMP___(JRS-8), is not excess electricity produced by net metering customers; instead, 13,012,995 kWh is the annual net billed *usage* by net metering customers.

Q. Do you have other comments on the direct testimony of UCARE?

A. Possibly. However, the Company was not served a copy of UCARE's direct testimony at the time it was filed, May 22, 2014. The Company did not become aware of UCARE's testimony until June 24, 2014. Accordingly, the Company has not had an opportunity to thoroughly review the testimony, has not received any workpapers, and has not been able to issue any data requests prior to filing this

[20] *Id*., at ll. 167-168.

rebuttal testimony. Therefore, the Company reserves the right to provide any additional rebuttal to UCARE's direct testimony with the surrebuttal filing.

Q. Please summarize your recommendation.

A. The Company's proposed net metering facilities charge, which has been revised to $4.65 per month, or alternatively, $1.55 per installed kW, is necessary in order to better reflect the costs of serving net metering customers and to minimize cost shifting. The proposed charge recovers costs related to the distribution system and customer services that net metering customers require for service but are not fairly captured through the current residential rate structure. As such, the proposed charge is an improvement in the balance between cost recovery and cost causation. Future steps towards further improving this balance may include the development of three-part rates for residential customers, but until that time, the current proposed charge is a reasonable and cost based solution.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.