Hayet Rebuttal - OCS-2R

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Investigation of the Costs and Benefits of PacifiCorp's Net Metering Program	**))))))**	**Docket No. 14-035-114 Rebuttal Testimony of Philip Hayet On Behalf of the Utah Office of Consumer Services**

September 8, 2015

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, TITLE AND COMPANY.

A. My name is Philip Hayet and my business address is 570 Colonial Park Drive, Suite 305, Roswell, Georgia, 30075. I am Vice President of J. Kennedy and Associates, Inc. (Kennedy and Associates),

Q. PLEASE STATE ON WHOSE BEHALF YOU ARE TESTIFYING.

A. I am appearing on behalf of the Office of Consumer Services ("Office").

Q. DID YOU PREVIOUSLY FILE TESTIMONY IN THIS DOCKET?

A. Yes, I filed direct testimony on July 30, 2015 on behalf of the Office.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to the direct testimonies of the Joint Parties' witnesses, Ms. Pamela Morgan, Mr. Tim Woolf, and Mr. Ben Norris, the Division of Public Utilities' ("Division") witness, Mr. Robert Davis, and PacifiCorp's (also referred to as "Rocky Mountain Power" or "the Company") witnesses, Mr. Paul Clements and Ms. Joelle Steward. Each of the parties have responded to the Commission's request for a framework to determine the costs and benefits to the Company and its non-net metering customers of PacifiCorp's net metering program, and I will discuss areas of agreement and disagreement with the different frameworks presented. I will also discuss my current recommendations in light of my review of the different frameworks that parties presented.

II. OVERVIEW OF PARTIES' FRAMEWORKS

Q. PLEASE BRIEFLY DESCRIBE THE FRAMEWORK THAT YOU PROPOSED IN DIRECT TESTIMONY.

A. The framework I proposed included identifying the appropriate costs and benefits to use in the analysis, determining the appropriate time period for the analysis, which could vary depending on the study objectives, computing the net benefits by subtracting the costs from the benefits, and calculating a net present value of the net benefit results. I emphasized that to meet the Commission's requirements, the costs and benefits considered in the analysis had to be quantifiable and verifiable. If the objective of the analysis is to determine the long-term cost and benefit impacts on the utility, then the Office acknowledges that with adequate adjustments a highly modified form of a DSM cost/benefit test could be used to measure those impacts, which is basically an economic evaluation. If the objective of the analysis is to determine the short-term ratemaking cost and benefits impacts on the utility and the non-net metering customers, then a form of a cost of service analysis should be used to measure those impacts.

Q. DID YOU FIND THAT THERE ARE SIMILARITIES BETWEEN THE OFFICE'S RECOMMENDED FRAMEWORK AND THE FRAMEWORKS RECOMMENDED BY OTHER PARTIES?

A. The Office, Division and Company all appear to promote similar recommendations, though some differences do seem to exist. Even the Joint Parties' framework is somewhat similar to the Office's, however it is clear that the Joint Parties' conclusions are different.

Q. PLEASE COMPARE THE SIMILARITIES AND DIFFERENCES BETWEEN THE OFFICE'S, THE DIVISION'S AND THE COMPANY'S FRAMEWORKS.

A. The Company, the Division, and the Office primarily focused on the objective of evaluating the cost and benefit impacts on the utility and the non-net metering customers. With this objective in mind, these parties all appear to agree that the Commission should adopt a framework to evaluate costs and benefits of net metering based on cost of service principles, which will ultimately lead to proper rate design. Mr. Davis, on behalf of the Division, explains that the steps to calculate costs and benefits would be to perform two separate cost of service studies, one treating net metering customers as full requirements customers, and the other treating them as net metering customers modeling just their net loads. The difference in the two studies provides the benefits of net metering to the system and to specific customers.[1] This analysis appears to be essentially the same as the study that I proposed, as demonstrated in my hypothetical analysis.

The Company also proposes a framework based on cost of service principles, however, it proposes to analyze costs and benefits based on a two part methodology. One part relates to the excess energy supplied to PacifiCorp when the Net Energy Metering ("NEM") customer's generation exceeds its load, and the other part relates to the energy purchased from PacifiCorp when the NEM customer's generation is less than its load. The Company proposes to apply a cost of service analysis to the part when energy is purchased from PacifiCorp because the customer's generation is less than its load.[2] This analysis will derive the costs that should be allocated to NEM customers when they require service from PacifiCorp.

[1] Mr. Davis discusses his framework beginning at line 100 of his direct testimony.
[2] Ms. Joelle Steward discusses the Company's framework beginning at line 58 of her direct testimony.

Q. PLEASE DISCUSS THE OTHER PART OF THE COMPANY'S ANALYSIS, IN WHICH THE NET METERING CUSTOMER GENERATES EXCESS ENERGY THAT IT SUPPLIES TO THE COMPANY.

A. Mr. Clements explains that for this part of the evaluation, the benefit of excess generation could be determined using similar assumptions as the Company uses to evaluate qualifying facilities ("QFs") payments. In other words, Mr. Clements recommends that Schedule 37 should be used to account for the avoided capacity and energy costs in this part of the net metering evaluation.

Q. DO YOU HAVE ANY CONCERNS ABOUT PACIFICORP'S RECOMMENDATION TO USE SCHEDULE 37 TO DERIVE AVOIDED CAPACITY AND ENERGY COSTS?

A. No I do not. In fact, in my direct testimony, I also recommended that Schedule 37 be used to derive avoided capacity and energy costs.

Q. DID THE COMPANY ALSO DISCUSS USING ITS FRAMEWORK IN THE DEVELOPMENT OF RATES?

A. Yes, Ms. Steward explained that rate design is essential to determining how costs and benefits are evaluated. Ms. Steward stated that rate design cannot be completely separate from evaluating net metering costs and benefits, because "…it's how customers receive price signals and compensation for distributed generation."[3] Ms. Steward noted that the Company recommends establishing a separate class of service for NEM customers and would use the Company's cost of service model in a future ratemaking proceeding to establish a rate structure for the NEM customers.

[3] Direct Testimony of Joelle Steward, line 154.

Q. DO YOU HAVE ANY CONCERNS ABOUT USING PACIFICORP'S FRAMEWORK FOR DETERMINING NEM COSTS AND BENEFITS AND ULTIMATELY FOR USE IN RATE DESIGN AS PACIFICORP HAS RECOMMENDED?

A. Fundamentally, I believe the Company's framework is an improvement over the current rate design, in which NEM customers avoid paying their fair share of the System's fixed costs by paying less in variable energy rates, which is the primary way that revenues are collected from residential customers. But I do have some concerns, which I believe should be addressed. One concern is that additional benefits should be included that the Company did not discuss. I believe that the Company should account for avoided losses and certain avoided environmental costs. While I discuss avoided environmental costs at greater length below, I would mention that I only recommend including environmental costs that are currently quantifiable and verifiable, and that could be avoided by distributed generation resources, such as SO_2 and NO_x allowance costs. In addition, the Company has only provided a rough outline of its methodology so far, and there are many additional details that need to be explained. For example, how will the Company use the load research data to perform its cost of service analysis, and how will the Company ensure that it will eliminate the possibility that fixed costs will not be shifted to non-net metering customers.

Q. PLEASE COMPARE THE SIMILARITIES AND DIFFERENCES BETWEEN THE FRAMEWORKS PROPOSED BY THE OFFICE AND THE JOINT PARTIES.

A. The Joint Parties have focused on performing a long-term evaluation of net metering costs and benefits on the utility, and have derived a utility rate impact, using a framework that Mr. Woolf described as being "….based upon the same analytical framework as the Utility

Cost test".[4] The Joint Parties' analysis compares cost results of two modeled cases, one with and one without distributed generation over a long-term horizon. In my direct testimony, I also discussed that my framework could be used to perform a similar long-term analysis. However, as I discussed in direct testimony, I do not believe it would be appropriate to use such an analysis to create a framework to determine the costs and benefits of NEM on the non-net metering customers or to use it as the framework to develop rates. To meet the Commission's ultimate objective to develop rates, I believe that a framework similar to what the Office, the Company or the Division have proposed that is short-term in nature, and that is based on cost of service principles should be adopted.

Q. COULD THE JOINT PARTIES' FRAMEWORK BE ADAPTED TO PERFORM THE SAME EVALUATION OF THE COSTS AND BENEFITS OF NET METERING AS YOU DEVELOPED?

A. Yes it could. With some modifications, the Joint Parties' framework could be used to produce the same results that I developed with my framework. Since the Joint Parties developed an illustrative rate impact analysis to demonstrate its analytical framework, I was able to able to modify that analysis and use the assumptions that I selected in my hypothetical analyses to derive the same results that I presented in my direct testimony. In other words, I was able to demonstrate that using the Joint Parties' methodology, and the hypothetical assumptions that I used in direct testimony, the following cost shifts from net metering to non-net metering customers could be expected, which are nearly the same results that I presented in Table 3 of my direct testimony.

[4] Woolf Direct Testimony, line 290.

Illustrative Example – Using Joint Parties' Framework, Office Assumptions

Millions of Dollars	Base 3,300 NEM Customers	20% Growth 20,433 NEM Customers	40% Growth 95,454 NEM Customers
Fixed Costs Shifted to Other Customers	$2.2	$17.3	$78.4

Q. IF THE JOINT PARTIES' FRAMEWORK COULD BE ADAPTED TO DETERMINE THE COSTS AND BENEFITS OF PACIFICORP'S NET METERING PROGRAM, WHAT DO YOU BELIEVE ARE THE SIGNIFICANT DIFFERENCES BETWEEN THE JOINT PARTIES' AND YOUR FRAMEWORKS?

A. The primary differences lie in the assumptions of costs and benefits that should be included in the analysis, the magnitude of assumptions that we both included, and the time period studied. For purposes of the analysis to determine costs and benefits of PacifiCorp's NEM program and impacts on non-net metering customers, I believe that the study should be performed over a short-term period (1 to 2 years) using inputs derived from a cost of service study. The data the Joint Parties developed for its analysis were derived for use in a 20-year study, and the results presented focused on 10 of the 20-year study period.

Q. WHAT DIFFERENCES ARE THERE IN THE TYPES OF COSTS AND BENEFITS THAT YOU WOULD INCLUDE IN YOUR ANALYSIS COMPARED TO WHAT THE JOINT PARTIES WOULD INCLUDE?

A. First, I would mention that there are categories of costs and benefits that we both agree should be included. With regard to costs, we agree the following should be included:

program administration costs, increased distribution costs,[5] and lost revenues. Likewise, we agree the following benefits should be included: avoided energy, avoided capacity, avoided transmission and distribution, and avoided line losses. The benefits proposed by the Joint Parties that I disagree with include: avoided environmental compliance costs, including EPA 111(d); a risk reduction cost component, which includes fuel price risk; reduced grid costs as a result of PV power production; and reduced revenue requirements at the end of the year that provide assistance to low-income customers.

Q. PLEASE EXPLAIN WHY YOU DISAGREE WITH INCLUDING THESE BENEFITS SUPPORTED BY THE JOINT PARTIES.

A. Primarily, I disagree with these benefits because I do not think they are quantifiable and verifiable, which is a condition that the Commission has also established must be met to be included in the framework. The Commission has, in fact, required that parties advocating for the inclusion of costs or benefits must bear the burden of demonstrating these costs are quantifiable and verifiable, and will increase or decrease PacifiCorp's cost of service.[6] Unless the Joint Parties can meet these requirements, I do not believe they should be included in the evaluation of NEM costs and benefits.

Q. ARE YOU OPPOSED TO INCLUDING ALL AVOIDED ENVIRONMENTAL COSTS IN THE FRAMEWORK?

A. Again, if there are costs that can be avoided that are quantifiable and verifiable, and can be shown to increase PacifiCorp's cost of service, then those should be included in the framework as a benefit. For example, if SO_2 or NO_x allowance costs can be avoided by

[5] For clarification, while I do believe there could be benefits or costs associated with impacts of distributed generation on the distribution network, I continue to believe, as I stated in direct testimony, that I do not think they are readily or cost effectively quantifiable, and should be ignored.
[6] Utah Public Service Commission, Docket 14-035-114, Order issued July 1, 2015 at page 16.

distributed generation, then those costs should be included as avoided environmental costs. However, the Joint Parties mentioned including Clean Power Plan (EPA 111(d)) CO_2 costs as a benefit in the framework. At this time, I disagree with including CO_2 costs as the EPA has not even published the rule in the Federal Register yet, and even after that it will be years before cost impacts could even arise.[7]

Q. YOU MENTIONED AT THIS TIME YOU ARE OPPOSED TO INCLUDING CO_2 COSTS. WOULD YOU CONSIDER INCLUDING THOSE COSTS AT SOME FUTURE TIME?

A. Yes. The Office believes that its methodology for deriving cost and benefit impacts, particularly on non-net metering customers should be evaluated over a short-term horizon, and should be updated over time, such as when general rate cases occur. Over time, it may become clear that different categories of costs, such as CO_2 costs, could be avoided by distributed generation, and those costs should be included as benefits in the framework at that time. Such costs should not be added speculatively at this time, but rather should be added if and when they become quantifiable and verifiable.

Q. DO YOU HAVE ANY CONCERNS WITH THE METHODS THE JOINT PARTIES' WITNESS NORRIS RECOMMENDS FOR CALCULATING AVOIDED COSTS?

A. Mr. Norris has provided recommendations for developing avoided costs in his testimony, and while some seem to be specific, there are some generalities that cause me to be concerned. For example, Mr. Norris suggests that as a simplifying assumption it would be reasonable to use peaking resources to develop avoided energy costs. I disagree as peaking

[7] The rule will not be legally effective until 60 days after it is published in the Federal Register, and the earliest that states have to comply with the plan is 2022.

resources are typically very expensive, and may not necessarily be the resources that would be fully avoided by solar energy. It is conceivable that distributed generation could avoid coal or combined cycle energy, and therefore, using peaking resources to derive avoided energy costs would overstate the benefits of solar energy.

Q. DO YOU HAVE ANY CONCERNS WITH MR. NORRIS' RECOMMENDATION TO CALCULATE AVOIDED CAPACITY COSTS?

A. Yes I do. Mr. Norris' recommendation for developing avoided capacity costs begins by first calculating the capacity contribution of solar resources. Mr. Norris introduces a method that determines the solar fleet production over some number of hours, such as 100 hours. Methods such as this were evaluated recently in Docket 14-035-140, which evaluated the appropriate capacity contribution of solar resources for purposes of setting Schedule 38 Qualifying Facility ("QF") rates. Approaches similar to what Mr. Norris proposed were discussed in that docket, and were rejected in favor of the Capacity Factor Approximation Method ("CF Method"). I continue to recommend, as I discussed in my direct testimony, that for purposes of this docket, the Commission should adopt the capacity contribution value of 34.1% for fixed solar resources that it approved for Schedule 38 resources. This value can be refined at some later time as the capacity contribution of distributed generation resources are further studied. Given the flaws that I believe exist in the development of the Joint Parties' avoided capacity costs, I recommend that the Commission rely on the avoided capacity cost recommendations that I presented in my direct testimony.

Q. DO YOU HAVE ANY CONCERNS WITH MR. NORRIS' RECOMMENDATION TO CALCULATE BENEFITS ASSOCIATED WITH REDUCED RISKS?

A. Yes, I do. Primarily I believe that the risks that Mr. Norris discusses, for example, the uncertainty in the price of commodities such as steel, uncertainty in future environmental compliance requirements, and others, are speculative risks that are more appropriately addressed in the Integrated Resource Plan ("IRP"). The goal of the IRP is to develop the least cost expansion plan while taking into consideration these and other risks in the evaluation. Given that these are already addressed in the IRP, there is no reason to provide an additional benefit for reduced risks. Furthermore, these benefits are speculative and for them to even be considered, the Joint Parties must provide support demonstrating they will affect PacifiCorp's customers cost of service, which they have not yet done.

Q. YOU NOTED THAT THE JOINT PARTIES CONDUCTED AN ILLUSTRATIVE ANALYSIS OF ITS FRAMEWORK. WHAT DID THEIR RESULTS DEMONSTRATE?

A. Mr. Woolf performed the Joint Parties' illustrative rate impact analysis. His analysis included four scenarios, two that assumed a solar penetration of 5%, meaning that 5% of all customers would adopt net metering, and two that assumed a solar penetration of 10%. For each of these penetration levels, Mr. Woolf assumed that one case had a lower avoided cost assumption of $60/MWh, and the other case had a higher avoided cost assumption of $116/MWh. Mr. Woolf's Figure 3 on page 27 of his testimony contained the Ten Year Cumulative Impact on Rates for each of his four scenarios. The results in table form are:

	High Avd Cost 5% Penetration	High Avd Cost 10% Penetration	Low Avd Cost 5% Penetration	Low Avd Cost 10% Penetration
10 Year Cumulative Impact on Rates (%)	-.72%	-1.51%	1.58%	3.29%

Mr. Woolf noted that with these different cases the rate impacts are small and in some cases are negative.

Q. DO YOU AGREE WITH HIS INTERPRETATION?

A. Certainly the results of his illustrative analysis do show that the rate impacts are small, though not insignificant; however still, I believe his case was contrived as a hypothetical and therefore, the conclusion that rate impacts will always be small and even negative should not be assumed. The fact that negative rate impacts occurred is actually somewhat counterintuitive, because normally when net metering programs are evaluated it is assumed that the reduction in load will cause rates to increase. It is not inconceivable that rates could go down, and in fact Mr. Woolf actually discusses this and explains that this could happen if, “the downward pressure on rates from avoided costs exceeds the upward pressure on rates from the recovery of utility lost revenues.” Only in a case in which avoided costs are set very high, such as his $116/MWH, could this possibly occur. This is significantly greater than the current Schedule 37 avoided cost rate, which Mr. Clements notes is 5.2 cents per kWh.[8]

[8] Paul Clements direct testimony at line 406.

Q. EARLIER YOU STATED THAT YOU DISAGREED WITH THE INCLUSION OF AN AVOIDED ENVIRONMENTAL COMPLIANCE COST AND A RISK REDUCTION COST COMPONENT, DID YOU REVISE MR. WOOLF'S ANALYSIS TO REMOVE THOSE BENEFITS?

A. Yes. In Mr. Woolf's analysis, his high avoided cost cases assumed an avoided cost of \$116/MWH, and of that amount, \$35/MWH was associated with avoided environmental costs and reduced fuel price risk. When those values are removed, Mr. Woolf's high avoided cost reduces to \$81/MWH. The following table contains a comparison with and without these two benefits included in the analysis.

10 Year Cumulative Impact on Rates (%)	High Avd Cost 5% Penetration	High Avd Cost 10% Penetration
\$116/MWH Avd Cost	-.72%	-1.51%
\$81/MWH Avd Cost	+.71%	+1.49%

I acknowledge that these results should be considered as illustrative examples, and realize that one should not place too much importance on the specific values themselves. Nevertheless, when the environmental and fuel risk benefits that have not been demonstrated are removed, as I believe they should be, the rate reductions turn around and become rate increases, which is more intuitive.

Q. IN ADDITION TO POINTING OUT THE NEGATIVE RATE IMPACTS, MR. WOOLF ALSO NOTED THAT THE RATE IMPACTS ARE SMALL. DO YOU BELIEVE THAT WOULD ALWAYS NECESSARILY BE THE CASE?

A. No I do not. In the analyses that I performed and presented in my direct testimony, I developed different hypothetical assumptions with lower avoided costs, and different penetration levels than what Mr. Woolf presented. With a little higher penetration (12.7% vs. 10%), and lower avoided costs (53.52/MWH vs $60/MWH) than what Mr. Woolf assumed, and with some other differences, I determined that there could be as much as an 8.35% cumulative rate impact. This is much larger than the 3.29% impact that Mr. Woolf determined for a comparable case.

III. CONCLUSIONS AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A. I continue to believe that the framework that I recommended in my direct testimony and that the Office supports is reasonable, and is in fact similar to the frameworks proposed by other parties, including the Joint Parties. I also believe that the frameworks supported by the Company, the Division, and the Office are the most similar and are primarily focused on the objective of evaluating the cost and benefit impacts on the utility and the non-net metering customers. Furthermore, each of these parties agree that the framework should be based on cost of service principles, which will ultimately lead to proper rate design.

The Division and the Office's methodologies appear to be the most similar. The Company's methodology also appears to be alike in that it is based on cost of service principles, and will likely derive similar impacts on non-net metering customers. One difference in the Company's methodology is that it has been designed as a two-part methodology. Since the Company only provided an outline of its approach, I would recommend that the Company provide an illustrative example containing additional details explaining how its analysis would be performed.

Q. WHAT ARE YOUR CONCLUSIONS AND RECOMMENDATIONS CONCERNING THE JOINT PARTIES METHODOLOGY?

A. The Joint Parties' methodology is similar to the Office's methodology in that it also compares the costs and benefits of two modeled cases, one with and one without distributed generation. As discussed above, the primary differences relate to the length of the study analysis, as well as the types and magnitude of the costs and benefits that we both recommend including in the evaluation framework. With proper adjustments, I believe that even the Joint Parties' framework could be adapted to perform the evaluation of costs and benefits; although there would still be differences in the study length, and the types and magnitude of costs that we would both recommend including in the framework. Since I do not believe that environmental costs such as CO_2 costs, risk reduction components, or reduced grid costs are quantifiable or verifiable, nor do I believe they would impact the Company's costs of serving its customers, I do not recommend including those in the framework. I also believe that the Commission should reject the Joint Parties' arguments that the impacts on non-net metering customers would be small. In fact, I demonstrated that they could be more significant than Mr. Woolf demonstrated, and it would be inappropriate to ignore the impacts. Finally, I also believe the Commission should reject the Joint Parties' arguments that cross subsidies should be ignored. It is not reasonable to expect that lower income customers could afford the cost of installing distributed generation systems, and given the inequity that exists in the net metering rate design, they are being expected to absorb the costs that are shifted to them by customers that are able to afford the costs of installing distributed generation equipment. This is discussed in greater length in Office witness Beck's testimony.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes it does.