Witness OCS 3D

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of Rocky Mountain Power for Authority to Increase Its Retail Electric Service Rate in Utah and for Approval of Its Proposed Electric Service Schedules and Electric Service Regulations	)))))))	**Docket No. 09-035-23** **Direct Testimony of Philip Hayet On Behalf of the Utah Office of Consumer Services**

October 8, 2009

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I. INTRODUCTION AND SUMMARY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Philip Hayet, and my business address is 215 Huntcliff Terrace, Atlanta, Georgia, 30350.

Q. PLEASE STATE YOUR OCCUPATION, EMPLOYMENT, AND ON WHOSE BEHALF YOU ARE TESTIFYING.

A. I am an Electrical Engineer and work as a utility regulatory consultant. I am President of Hayet Power Systems Consulting ("HPSC"), and I am appearing on behalf of the Office of Consumer Services ("the OCS").

Q. BRIEFLY DESCRIBE THE NATURE OF THE CONSULTING SERVICES PROVIDED BY HPSC.

A. HPSC provides consulting services related to electric utility system planning, resource analysis, production cost modeling, and utility industry policy analysis.

Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS.

A. My qualifications and appearances are provided in Exhibit OCS 3.1.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I address concerns with PacifiCorp's ("the Company") net power cost ("NPC") modeling results that it produced using its Generation and Regulation Initiatives Decision ("GRID") model for the projected test period ending June 30, 2010. The adjustments I propose are also included in Mr. Falkenberg's Table 1, which contains a list of adjustments the OCS presently supports related to NPC.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. I identify and quantify adjustments and issues regarding PacifiCorp's GRID modeling in this proceeding. I propose adjustments to the following:

- Biomass QF Non-Generation Agreement
- Wind Integration Cost Error
- Bonneville Power Wind Integration Costs
- Stateline and Long Hollow Open Access Transmission Tariff ("OATT") Wind Integration Costs

I also discuss an additional concern regarding PacifiCorp's development of wind integration costs that are included in PacifiCorp's test year NPC.

II. ADJUSTMENTS

Biomass QF Non-Generation Agreement

Q. PLEASE EXPLAIN THE BIOMASS QF ADJUSTMENT.

A. The Biomass QF contract was originally signed as a long-term contract in 1987, and is currently set to expire at the end of 2011. The QF is located in Oregon, and is a very high cost QF resource, whose contract was originally agreed to when PacifiCorp's avoided costs were expected to be much higher than they are today. The current contract price, $156/MWh, per the GRID output report, makes it one of the highest cost contracts on the system. In recognition of it being a high cost contract, the Company has negotiated non-generation agreements with Biomass QF for each year from 2005 - 2009. Under this arrangement, for example in 2007, Biomass produced no energy for a set period of time (April - June in 2007). In exchange Biomass QF was paid a reduced amount from its standard contract rate. The result was a "win-win" situation for both PacifiCorp and Biomass QF, as Biomass QF was paid less, but at the same time, it still benefited since it did not incur a fuel expense for the three month period. It was also beneficial to

PacifiCorp, as the sum of the cost it paid Biomass QF plus its cost to purchase replacement energy was less than it otherwise would have fully paid Biomass QF per the terms of the original contract.

Q. SHOULD THIS ARRANGEMENT BE REFLECTED IN NORMALIZED RATES IN THIS PROCEEDING?

A. Yes it should. The Company has entered into such agreements for the past five years, and it appears likely PacifiCorp will continue entering into these agreements in the future. In addition, in the last rate case for which a full hearing was conducted, Docket 07-025-93, the Commission ordered PacifiCorp to include a non-generation adjustment. In the 2008 proceeding, Docket 08-035-38, after having filed its Direct Testimony without a Biomass QF Non-Generation adjustment, the Company ultimately incorporated such an adjustment in the modeling assumptions it used in its rebuttal testimony. In this proceeding, the Company did not include a Biomass non-generation adjustment in its GRID modeling assumptions. Because it appears likely that the Company will continue this practice into the future, I have proposed an adjustment to provide a proper normalization for the Biomass QF contract. I performed a GRID run based on the reasonable assumption that there would be a Biomass non-generation agreement in place for the period of April through June 2010. The benefit of including the Biomass Non-Generation Agreement is about $.8 million dollars on a total Company basis. Mr. Falkenberg has reflected this as Adjustment 5 in his Table 1, and I recommend the Commission adopt this adjustment.

<u>Wind Integration Cost Error</u>

Q. PLEASE IDENTIFY THE WIND RESOURCES THAT PACIFICORP INCLUDED IN ITS GRID MODELING AND THAT WERE ASSIGNED A WIND INTEGRATION COST?

A. The following wind resources were included in PacifiCorp GRID modeling.

All Resources below have a $6.91/MWh Wind Integration Cost Unless Specifically Stated

PacifiCorp Resources

Foote Creek I	
Glenrock Wind	
Glenrock III Wind	
Goodnoe Wind	BPA Int Cost = $2.72/kW-month
High Plains Wind	
Leaning Juniper 1	BPA Int Cost = $2.72/kW-month
Marengo I	
Marengo II	
McFadden Ridge Wind	
Rolling Hills Wind	
Seven Mile Wind	
Seven Mile II Wind	

Long Term Wind Purchases

- Combine Hills
- Rock River
- Three Buttes Wind
- Wolverine Creek
- BPA FC II Storage Agreement
- BPA FC IV Storage Agreement
- EWEB FC I Storage Agreement
- PSCO FC III Storage Agreement
- Long Hollow
- SCL State Line Storage Agreement

QF Wind Purchases

- Mountain Wind 1 QF
- Mountain Wind 2 QF
- Oregon Wind Farm QF
- Spanish Fork Wind 2 QF

All of the wind resources above, except for Goodnoe and Leaning Juniper 1, are located in PacifiCorp's service territory. Goodnoe and Leaning Juniper 1 supply energy to PacifiCorp's system, however, they are located in BPA's service territory and PacifiCorp pays wind integration costs to BPA for the use of BPA's transmission system associated with those resources.

Q. HOW DID PACIFICORP DERIVE WIND INTEGRATION COSTS THAT WERE INCLUDED IN NPC?

A. PacifiCorp developed test year wind integration costs based on a methodology that it had developed in the 2008 Integrated Resource Plan ("IRP") methodology. The methodology derived a cost of integrating wind resources on a day-ahead, hour-ahead, and intra-hour scheduling basis. PacifiCorp's wind integration cost in this proceeding was computed based on data that was specific to the test period, and was determined to be $6.91/MWh. PacifiCorp calculated wind integration costs for all resources, which it included in test year NPC, by multiplying the amount of energy associated with the wind resources by the wind integration rate, and adding that cost to the total net power costs.

Q. PLEASE EXPLAIN THE WIND INTEGRATION COST ERROR THAT YOU INDENTIFIED.

A. The wind integration cost error relates to a calculation in which PacifiCorp overstated the amount of wind energy on the West side of the System. PacifiCorp calculated a weighted average System wind integration cost based on the data in the following table:

PacifiCorp Wind Integration Calculation

	Expected to Day Ahead ($/Expected MWh)	Day Ahead to Hour Ahead ($/Expected MWh)	Total Inter-hour ($/Expected MWh)	Intra Hour Reserves ($/MWh)	Total ($/MWh)
West	$0.41	$2.41	$2.82	$4.83	$7.65
East	$0.22	$1.08	$1.30	$4.83	$6.13
System	$0.32	$1.77	$2.09	$4.83	**$6.91**

Provided in Attach OCS 3.31d-1 Wind Integration summary.xls

The values associated with the row above labeled "System" were derived from a weighted average calculation using the East and West data. The weighting factors that the Company used came from the 2008 IRP wind integration study. I found the derivation of the weighting factors to be in error because it did not account for the test year wind energy data found in the Company's net power cost study. I have revised the Company's weighting factors using the appropriate data from the net power cost study. The Company's data had originally been provided as capacity values; however, for comparison purposes, I converted the data to energy values assuming a 30% capacity factor. Both PacifiCorp's and my revised weighting factors are calculated as follows:

PacifiCorp Weighting Factors Based on Wind Integration Study

	Total Wind Energy (MWh)	%
West	1,505,844	51.8%
East	1,403,352	48.2%
	2,909,196	1.00

Revised Weighting Factors Based on Test Year Data

	Total Wind Energy (MWh)	%
West	1,327,706	32.4%
East	2,763,965	67.6%
	4,091,671	1.00

My revised weighting factors are more reasonable, since they reflect the test period wind energy data assumptions that the Company incorporated as part of its

GRID study. Using the revised weighting factors, the corrected System wind integration charge is reduced from $6.91/MWh to $6.62/MWh, and the adjustment to NPC that I recommend is $1,202,561 on a total Company basis. This is included in Mr. Falkenberg's Table 1, and is identified as Adjustment 12, Wind Integration Cost Error.

<u>Bonneville Power Administration ("BPA") Wind Integration Costs</u>

Q. PLEASE EXPLAIN THE BPA WIND INTEGRATION COST ADJUSTMENT.

A. Mr. Duvall's June 23, 2009 direct testimony states that wind integration charges paid to BPA are now included in wheeling expenses (page 5, line 96), and that the BPA wind integration charge has been updated from $.68 per kW-month to $2.72 per kW-month based on the most recent proposal from BPA in its current transmission rate case (page 15, line 334). However, the BPA wind integration cost was not ultimately increased to $2.72 per kW-month, but instead to $1.29 per kW-month, which was confirmed in the Company's response to OCS DR 9.16. The revised rate ($1.29 per kW-month) was indicated in both the BPA Administrator's Draft Record of Decision that was published on June 23, 2009, and in its Final Record of Decision, published July 21, 2009. Therefore, I have revised the Company's Firm Wheeling Cost computation that appears in the Net Power Cost report, to reflect the lower BPA wind integration costs. This adjustment applies to the capacity associated with the Goodnoe and Leaning Juniper 1 wind projects, and results in a reduction to total Company NPC of $2.5

million. This is one of two components of Mr. Falkenberg's Adjustment 13 that is identified as Wholesale Wind Integration Charges in his Table 1.

<u>Stateline and Long Hollow Open Access Transmission Tariff ("OATT") Wind Integration Costs</u>

Q. WHAT IS YOUR CONCERN REGARDING THE LONG HOLLOW AND STATELINE WIND RESOURCES?

A. Long Hollow and Stateline are wind resources located within PacifiCorp's service territory, and are PacifiCorp Transmission Customers that supply wind energy to other utility companies. Since they are located within PacifiCorp's service territory, PacifiCorp provides transmission services to them under its FERC approved OATT. Currently, PacifiCorp's OATT allows for the recovery of the cost of providing operating reserves, but not for the cost of providing wind integration services. Despite providing wind integration services to those wholesale customers, PacifiCorp receives no revenues from them for the provision of those services. Instead, PacifiCorp is seeking to recover the cost of providing those services from its retail customers in this proceeding, even though the retail customers won't receive any energy or any other benefits from the wholesale Transmission Customers.

Q. WHAT ADJUSTMENT DO YOU PROPOSE TO PACIFICORP'S NPC ASSOCIATED WITH THE LONG HOLLOW WIND RESOURCE?

A. Since Long Hollow is a Merchant-owned wind resource that operates within PacifiCorp's control area, Long Hollow should be responsible for paying for services that it receives from PacifiCorp, not PacifiCorp's retail customers. PacifiCorp has added $2.23 million to total Company NPC to account for supplying wind integration services to Long Hollow. I recommend that this cost be removed from PacifiCorp's total Company NPC.

Q. WHAT ADJUSTMENT DO YOU PROPOSE TO PACIFICORP'S NPC ASSOCIATED WITH THE STATELINE WIND RESOURCE?

A. Stateline is jointly owned by NextEra (formerly FPL Energy) and Seattle City Light ("SCL"), and is located on the border of Washington and Oregon. PacifiCorp provides exchange and integration services to SCL, and SCL is required to supply PacifiCorp with a certain amount of operating reserves in exchange for those services; however, PacifiCorp does not have a similar agreement in place with NextEra. Therefore, PacifiCorp provides wind integration services to NextEra, but it does not charge NextEra for those services. From PacifiCorp's NPC report, the total amount of Stateline wind energy is 481,633 MWh, and the amount of wind energy that SCL receives is 323,356 MWh. Therefore, NextEra's portion of Stateline wind energy is 158,277 MWh. The wind integration cost associated with NextEra's generation is charged to retail customers through NPC, yet retail customers receive no corresponding benefits. I recommend that the cost associated with NextEra's portion of Stateline energy, 158,277 MWh, should be disallowed. This amounts to a reduction in total Company net power costs of approximately $1.05 million (158,277 MWh * $6.62/MWh).

Q. WHAT ADJUSTMENT DO YOU RECOMMEND FOR LONG HOLLOW AND NEXTERA'S PORTION OF STATELINE?

A. PacifiCorp's attempt to include wind integration costs in NPC for these two resources is a classic case of expecting retail customers to subsidize wholesale services. This is completely unreasonable, and I recommend that the wind integration costs associated with Long Hollow and NextEra's portion of Stateline be disallowed. The amount of the disallowance for both Long Hollow and NextEra's portion of Stateline is $3.28 million over the test year on a total Company basis.[1] This is the second of two components of Mr. Falkenberg's Adjustment 13 that is identified as Wholesale Wind Integration Charges in his Table 1.

Q. WHAT IS PACIFICORP'S EXPLANATION FOR NOT CHARGING WIND INTEGRATION RATES TO ITS TRANSMISSION CUSTOMERS?

A. In the Company's 2010 Transition Adjustment Mechanism filing, which the Company made to adjust net power costs in Oregon rates (Oregon Docket No. UE-207), Company witness Duvall, included the following question and answer in his testimony.

> **Q. Why doesn't the Company charge for wind integration resources related to the Long Hollow wind facility?**
> A. Staff is correct that the Company does not charge generators for the cost of wind integration, because such charges are not provided for under the Company's OATT. Before charging wholesale transmission customers for this type service, PacifiCorp would be required to make a rate application to FERC proposing a wind integration charge and FERC approval would be required.
> (Greg Duvall Rebuttal Testimony, page 43, http://edocs.puc.state.or.us/efdocs/HTB/ue207htb9750.pdf)

Mr. Duvall also stated that PacifiCorp is not aware of any other transmission provider that has requested or received approval for this type of charge at FERC. However, as discussed above, BPA's OATT includes a wind integration charge. Mr. Duvall's testimony also stated that PacifiCorp has no plans at this time to submit a wind integration tariff to FERC for approval, as it is waiting for additional guidance from FERC.

[1] Long Hollow – $2.23 million, NextEra's portion of Stateline - $1.05 million

Q. IS THE COMPANY'S TREATMENT OF INTEGRATION COSTS FOR TRANSMISSION CUSTOMERS REASONABLE?

A. It is unreasonable that in all the time that PacifiCorp has evaluated adding wind resources to its System, it has not sought a FERC approved rate tariff that would allow it to charge the appropriate customers for the cost of wind integration services, which PacifiCorp must provide as the Transmission Operator. Only PacifiCorp is in the position to be able to negotiate contracts and develop transmission tariffs to recover costs that wholesale customers impose on its system. PacifiCorp must be responsible for deriving fair payment for any services that it supplies to wholesale transmission customers, so that retail customers do not subsidize wholesale services. It is completely inequitable for PacifiCorp to charge retail customers to pay for wholesale transmission services, for which they receive no benefit.

III. ADDITIONAL ISSUE

<u>PacifiCorp Wind Integration Cost Adjustment</u>

Q. DO YOU AGREE THAT THERE ARE COSTS ASSOCIATED WITH INTEGRATING WIND RESOURCES INTO THE UTILITIES' SYSTEM?

A. Yes. While wind resources provide energy benefits, they also present various operational challenges, which result in additional operating costs being incurred by utility companies that own wind resources. However, the Commission must determine whether PacifiCorp derived a reasonable estimate of the additional amount of operating reserves required to integrate the planned amount of wind resources, and whether the wind integration cost PacifiCorp included in NPC is reasonable.

Q. WHAT ARE YOUR CONCERNS REGARDING PACIFICORP'S WIND INTEGRATION MODELING APPROACH?

A. My concerns are as follows:

1. **Evaluation of Net Load -** The Company's analysis did not examine wind and load variability in combination, which is important in a wind integration study. Net load is ultimately the load that utility operators must balance with remaining generation. This is pointed out in various wind integration studies that have been performed worldwide,[2] and was also discussed at length at PacifiCorp's August 31, 2009 Public IRP Meeting devoted to PacifiCorp's wind integration methodology. Attendees at PacifiCorp's IRP meeting expressed concern that PacifiCorp possibly overstated its wind integration costs by considering wind variability alone.

2. **Limited Historic Data -** PacifiCorp's analysis was limited to a partial year's worth of historic data, September 2008 – April 2009, and did not include the very important summer months. Because less wind energy is typically produced during the summer months, wind integration costs would have most likely been lower during that season compared to other seasons of the year. If PacifiCorp had included the summer month's historic data in the analysis, it most likely would have derived a lower average annual wind integration rate for use in its NPC analysis.

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[2] As an example, see IEEE Transactions on Power Systems, Vol. 22, No. 3, August 2007, http://www.nrel.gov/docs/fy07osti/41329.pdf

3. **Hour-Ahead Rebalancing Cost –** PacifiCorp's wind integration cost calculations rely on a factor PacifiCorp incorporated in a table entitled, "Hour-ahead Rebalancing Cost Schedule". The Company explained that this data relied on PacifiCorp's trader's opinions of differences between bid and ask spreads for energy transactions on both sides of PacifiCorp's System. PacifiCorp was asked to provide all analyses that were performed to develop this data, and PacifiCorp responded in DR OCS 21.7 that the data was derived based only on "…verbal discussions with the real-time trading desk." Without any analysis of how these assumptions were derived, it is very difficult to assess the reasonableness of the hour-ahead rebalancing cost.
4. **Resource Stack Model -** PacifiCorp did not rely on a tested production cost model in its wind integration cost analysis. Instead, PacifiCorp created a new spreadsheet tool known as the "Resource Stack Model" ("RSM") to develop wind integration costs. Furthermore, PacifiCorp did not benchmark the model. The problem is that while PacifiCorp's other production cost models, such as the GRID and PaR, have undergone a considerable amount of testing and scrutiny, the RSM model has not. A benchmark would help demonstrate that no data input errors have been introduced, and that the design of the logic is reasonable and accurate for its intended purpose.

The Commission should require the Company to enhance its wind integration cost methodology; expand the historic input data; provide additional documentation of how it developed the hour ahead rebalancing cost schedule; and conduct a benchmark analysis of the RSM model before the wind integration study is used in any other regulatory proceeding in Utah.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes it does.