Q. Please state your name, business address and present position with PacifiCorp d/b/a Rocky Mountain Power ("the Company").

A. My name is Kelcey A. Brown. My business address is 825 NE Multnomah Street, Suite 600, Portland, Oregon 97232. My present title is Manager, Load Forecasting.

Qualifications

Q. Briefly describe your education and professional experience.

A. I have been employed by PacifiCorp since May 2011. I have been the Manager of Load Forecasting since June 2012. Before that time, I worked as a Senior Consultant in the Regulatory Net Power Costs Department. Before joining PacifiCorp, I worked at the Public Utility Commission of Oregon from November 2007 through May 2011. During my time at the Commission, I sponsored testimony in several dockets involving net power costs, integrated resource planning, and various revenue and policy issues. From 2003 through 2007, I was the Economic Analyst with Blackfoot Telecommunications Group, where I was responsible for revenue forecasts, resource acquisition analysis, pricing, and regulatory support. I have a Bachelor of Science degree in Business Economics from the University of Wyoming, and I have completed all course work towards a Master's degree in Economics from the University of Wyoming.

Purpose of Testimony

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

A. The purpose of my testimony is to explain how the Company developed the forecasts of the number of customers, kilowatt-hour ("kWh") sales at the meter

("sales"), system loads and system peak loads at the system input level ("loads"), and number of bills by rate schedule for the 12-month period ending June 30, 2015. In addition, I will explain changes in the forecast, and forecast methodology, as compared to the 2012 general rate case ("GRC") and discuss why these changes are reasonable.

Overview of Testimony

Q. When did the Company prepare the sales and load forecast used in this filing?

A. The sales and load forecast used in this filing was completed in October 2013 and is the most recent forecast of sales and loads prepared by the Company.

Q. How did the Company use the October 2013 sales and load forecast in its preparation of this general rate case?

A. The October 2013 load forecast was used to calculate net power costs, sponsored by Company witness Mr. Gregory N. Duvall. The load forecast was also used by Company witness Mr. Steven R. McDougal to calculate the inter-jurisdictional allocation factors. The sales forecast by rate schedule was used by Company witness Ms. Joelle R. Steward to allocate costs between customer classes and to design rates that correctly reflect the cost of service.

Q. Please provide a summary of the forecast energy sales for July 2014 through June 2015 ("Test Period").

A. Table 1 provides the forecast energy sales for the 12 month period ending June 30, 2015.

Table 1 - Test Period Sales Forecast (MWh)

	July 2014 to June 2015	
	Total Company	**Utah**
Residential	15,421,549	6,401,383
Commercial	17,429,594	8,327,476
Industrial	19,770,205	8,029,187
Irrigation	1,262,520	189,890
Public Authority	274,700	274,700
Lighting	143,180	77,730
Total	54,301,748	23,300,366

Q. Please provide a general overview of the Company's sales and load forecast methodology.

A. The Company's methodology consists of first developing a forecast of monthly sales by customer class and monthly peak load by state. This sales forecast becomes the basis of the load forecast by adding line losses, meaning kWh sales levels are grossed-up to a generation or "input" level. The monthly loads are then spread to each hour based on the peak load forecast and typical hourly load patterns to produce the hourly load forecast.

Comparisons to Prior Sales Forecasts

Q. How does the total-company sales forecast for 2014 compare to the sales forecast used in the 2012 GRC?

A. As shown in Table 2, total-company test period forecast sales are 0.1 percent higher than 12 months ended May 2013 forecast sales used in the 2012 GRC. The difference in the forecasts is attributable to an increase in commercial, irrigation and lighting load offset by a decline in industrial and residential load. The growth in the commercial class is related to data centers. The industrial class decrease in the forecast is attributable to self-generation elections by some of the Company's

large industrial customers in Utah, Wyoming, and Oregon. Forecast residential decrease is due to decreases in average-use-per customer from increases in energy efficiency saturation and federal lighting standard phase in through 2015.

Table 2 - Total Company Sales Comparison (MWh)

	2012 GRC Forecast June '12 to May '13	2014 GRC Forecast July '14 to June '15	Percentage Difference
Residential	15,824,583	15,421,549	-2.5%
Commercial	16,782,979	17,429,594	3.9%
Industrial	19,903,472	19,770,205	-0.7%
Irrigation	1,214,886	1,262,520	3.9%
Public Authority	405,770	274,700	-32.3%
Lighting	141,350	143,180	1.3%
Total	54,273,040	54,301,748	0.1%

Q. How does the Utah sales forecast for the test period compare to the sales forecast for the 2012 GRC?

A. As shown in Table 3 below, the 2014 Utah sales forecast has decreased by approximately two percent from the 12 months ended May 2013 sales forecast used in the 2012 GRC. On a Utah basis, the commercial class increase reflects the planned expansion of data centers in Utah. The declines in residential and industrial load reflect growth in energy efficiency and conservation programs, and self-generation elections by some of the Company's large industrial Utah customers.

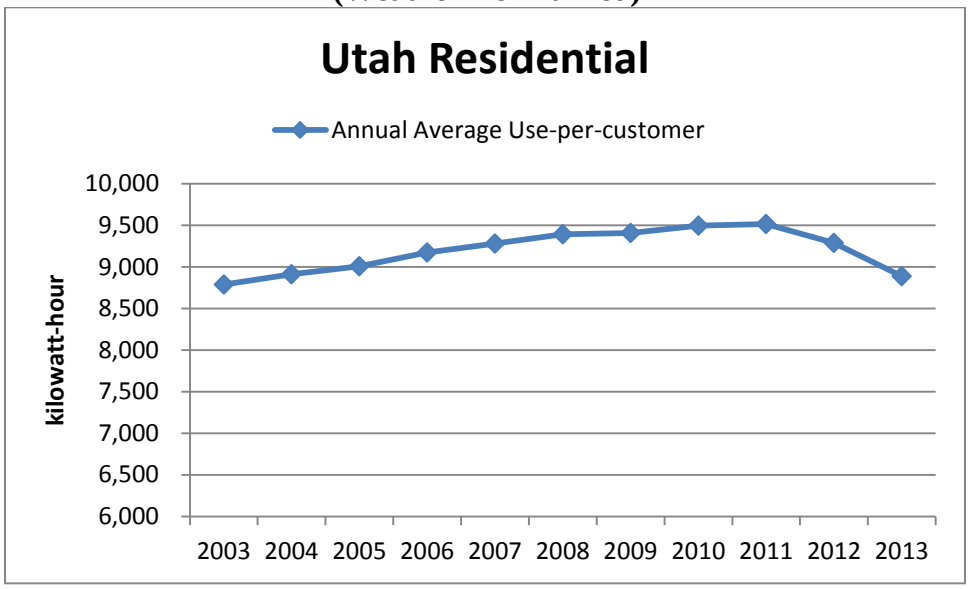
Table 3 - Utah Sales Comparison (MWh)

	2012 GRC Forecast June '12 to May '13	2014 GRC Forecast July '14 to June '15	Percentage Difference
Residential	6,634,404	6,401,383	-3.5%
Commercial	8,084,103	8,327,476	3.0%
Industrial	8,376,573	8,029,187	-4.1%
Irrigation	187,280	189,890	1.4%
Public Authority	405,770	274,700	-32.3%
Lighting	77,260	77,730	0.6%
Total	23,765,390	23,300,366	-2.0%

Q. Please discuss the changes in residential sales that have occurred since the 2012 GRC.

A. Utah residential sales have shown declines in average use-per-customer since 2011. The Company believes that the decrease in average use are due to increases in energy efficiency, slowing saturation of central air conditioning and behavioral changes due to increasing electricity prices over the last several years. Figure 1 below illustrates the changes in Utah residential average use-per-customer on a weather normalized basis 2003 through 2013.

Figure 1 Utah Residential Average Use-per-customer (Weather Normalized)



Q. What information is the Company relying on in its conclusion that changes in average use are due to energy efficiency changes and a slowing saturation of central air conditioning?

A. With the observed changes in residential average use since 2011, the Company conducted a residential survey in Utah and Oregon in September 2013. Rocky Mountain Power sent approximately 243,000 surveys to its Utah residential

customers over a three week period and received over 32,000 responses in return. The survey responses from residential customers showed that annual average growth in cooling appliance saturation has declined from 12 percent annual growth 2001 to 2004 down to two percent annual growth from 2006 through 2013. In addition, energy efficient lighting was shown to make up 51 percent of the reported number of sockets in residential homes and 40 percent of customers responded that they had invested in energy efficiency upgrades to the home.

Q. Why does slowing saturation of central air conditioning cause a decline in residential average use-per-customer?

A. Customers who have central air conditioning use 35 percent more electricity per year than customers who have no cooling unit in the home and 27 percent more electricity than customers with other types of cooling appliances. Without the addition of customers adding more significant amounts of air conditioning units, the ongoing improvements in energy efficiency of installed appliances become more dominant in reducing the average use of the class.

Q. Does the Company believe that the decreases in average use per customer will continue in the future?

A. Yes. The Company expects continued increasing saturation in energy efficient lighting due to the final phase-in of the Federal Lighting Standards through 2015. In addition, the residential survey also showed a demographic shift with Rocky Mountain Power customers moving towards condos, townhomes and apartment or multi-dwelling units versus single family homes. Multi-dwelling unit homes use approximately 40 percent less energy than a typical single family home and newer

homes are more energy efficient, therefore average use per customer is expected to continue to decline.

Q. Has the electric industry seen changes in residential average use that are similar to what Rocky Mountain Power has experienced in Utah?

A. Yes. ITRON, an industry leader in metering and load forecasting software, recently completed an industry benchmarking survey that showed that residential average use was declining across the industry and cited energy efficiency changes as the primary cause. Efficiency improvements have been made in residential products such as clothes washers, dryers, refrigerators, room air conditioners, and central air conditioners over the last several years and additional code and standard requirements are in place for 2014 and 2015 that will reduce appliance energy use even further.[1]

Q. What is driving the forecast decrease in industrial usage relative to the 2012 GRC?

A. The forecast decrease in Utah industrial class use is driven by the Company's largest industrial customers. Removing five of Utah's large industrial customers from Table 3 shows that the remainder of Utah industrial class forecast is 5.3 percent higher than the 2012 GRC. See Table 4 below for a comparison of the 2012 GRC test period forecast compared to the 2014 GRC test period forecast with the five large customers removed from the Utah industrial class sales forecast.

[1] Energy Trends Benchmarking Survey 2013, Mark Quan, ITRON, November 2013.

Table 4 - Utah GRC Industrial Class Sales Forecast Break-down

MWh	2012 GRC Forecast June '12 to May '13	2014 GRC Forecast July '14 to June '15	Percentage Difference
Utah Industrial Class	8,376,573	8,029,187	-4.1%
Five Large Customers	2,664,117	2,011,150	-24.5%
Industrial less Large Customers	5,712,456	6,018,037	5.3%

Summary of Changes in Forecast Data, Assumptions and Methodology

Q. Please summarize major updates used to produce the 2014 forecast as compared to the forecast used in the 2012 GRC.

A. The Company updated many of its data inputs and assumptions compared to the forecast prepared for the 2012 GRC. For each of these updates, the Company used the most recent information available.

1. The Company updated the historical data used to develop the monthly retail sales forecasts from the prior historical period of January 1997 through July 2011 to include the most recent data available at the time of the forecast. In general, the class level forecasts for each state use the time period of January 1997 through August of 2013 – however, some class level forecasts reflect truncated periods due to data availability at the time of the forecast and customer reclassification.

2. Updated the historical data period used to develop the monthly peak forecast from January 1997 through December 2010 to January 1997 through December 2012, however, certain monthly peak forecasts reflect truncated periods due to customer reclassification.

3. The Company updated the economic drivers from IHS Global Insight using the most recent information available at the time of the forecast for each of the Company's jurisdictions.

4. The Company updated the forecast of individual industrial customer usage based on the best information available as of March 2013.

5. The time period used to define normal weather was rolled forward to the 20-year time period of 1993 through 2012.

6. The Company rolled forward the line loss calculation to the five-year period ended December 2012.

7. The data used to develop temperature splines was rolled forward based on available customer class hourly data (2008 through 2012).

8. The Company used the residential use per customer per day model with appliance saturation and efficiency results released in June 2012 from ITRON.

9. The Company changed the commercial forecast methodology from a use-per-customer model to a total usage model; similar to what is used for the industrial class forecast. After analyzing the commercial load forecast the Company determined that a forecast model that utilized "average use-per customer" was less accurate than a model that utilized average use per day.

10. The Company changed the large industrial forecast methodology from a customer level forecast using customer input and probability weighting to regression analysis for the majority of all industrial customers in each state. The Company determined that the inputs provided by customers were unrealistic when compared with actual historical loads whereas regression analysis uses the historical patterns of usage and growth to

inform the forecast.

Forecasts for Non-Industrial Customer Classes

Q. How are monthly sales forecasts developed by customer class?

A. The Company develops monthly sales forecasts as a product of two separate forecasts: (1) the number of customers; and (2) sales per customer. The Company uses this methodology for the residential customer class.

Q. How are the forecasts for number of customers developed?

A. The Company forecasts the number of customers using IHS Global Insight's forecast of number of households and population as the demographic driver. For the commercial class, the Company forecasts the number of customers using the forecasted number of residential customers as the demographic driver. For the industrial, irrigation, and street lighting classes, the customer forecasts are fairly static and developed using time series or regression models without any economic or demographic drivers.

Q. How does the Company forecast sales per customer for the residential class?

A. The Company models sales per customer for the residential class through a Statistically Adjusted End-Use ("SAE") model, which combines the end-use modeling concepts with traditional regression analysis techniques. Drivers of the SAE-based residential model are heating and cooling-related variables that incorporate central air conditioning and heating appliance equipment shares, saturation levels and efficiency trends, and economic drivers such as household size, square footage, income, and energy price.

Q. What methodology does the Company use to forecast the commercial class sales?

A. For the commercial class, the Company forecasts sales using regression analysis techniques with non-manufacturing employment, population, real gross county product and number of households as the economic drivers, in addition to weather-related variables. Also, similar to how the Company forecasts its largest industrial customers, data center forecasts are based on input from the Company's customer and community managers ("CCMs"). Although the scale is much smaller, the treatment of data centers is similar to the previous methodology for large industrial customer sales, which is discussed below.

Q. Please discuss why the Company changed its commercial sales forecast methodology since the 2012 GRC.

A. The Company moved towards a total usage forecast due to analysis that showed the total usage methodology was more accurate as compared to the average use-per-customer model.

Q. What analysis did the Company undertake to determine that the total usage model was more accurate than the use-per-customer model?

A. The Company did a "backcast" analysis, which simply means re-forecasting prior periods using the same information known at the time of the forecast and comparing the forecast of each method to what actually occurred. In addition, the statistics of the forecast model, mean absolute percentage error and Rsquared, are used to understand how accurate the models are relative to the history. These regression statistics were improved in the commercial total usage model versus

the previous use-per-customer model.

Q. What methodology does the Company use for the irrigation and lighting sales forecasts?

A. Monthly sales for irrigation and lighting are forecast directly from historical sales volumes using regression and a simple linear trend analysis respectively.

Industrial Class Forecasts

Q. How does the Company forecast sales for the industrial customer class?

A. The majority of industrial customers are modeled using regression analysis with trend and economic variables. Manufacturing employment, total employment, population, real gross county/state product and personal income are used as the economic driver's in PacifiCorp's six state territories. For a small number of industrial customers, the largest on the Company's system, the Company individually forecasts these customers based on input from the customer and information provided by the CCMs.

Q. Has the Company changed how it models its industrial forecast?

A. Yes. Previously, the Company separated the industrial class into three categories: (1) existing customers tracked by CCMs (more than 150 customers); (2) new large customers or expansions by existing large customers; and (3) industrial customers that are not monitored by CCMs. The Company developed the forecast for the first two categories through the usage data gathered by the CCMs based on direct input from the customers, forecast load factors, and the probability of the project occurrence. The third category was forecast using regression analysis consistent with how the total industrial class is now forecast, excluding the largest

industrial customers.

Q. What was the reason for the change in methodology of the industrial forecast?

A. For existing large industrial customers and for new large industrial customers, the Company found that the inputs provided by customers for their existing loads and for new load tended to be overly optimistic and ultimately overstated. Therefore, the Company uses a regression analysis for the entire industrial class, excluding the largest industrial customers and taking into consideration historical patterns of industrial growth. The Company believes this is a reasonable means of forecasting existing customer load and future growth. The Company continues to monitor new load requests and planned expansions of existing customers for significant changes that would require an adjustment to the forecast.

Q. Was the regression analysis that the Company is now using for its industrial forecast recommended by another party in a previous proceeding?

A. Yes. In Docket No. 09-035-23 ("2009 general rate case") Division of Public Utility ("DPU") witness Mr. Jonathan Nunes recommended the Company use an econometric approach using multiple economic variables that reflect upon the components of the Company's load for the large industrial forecast. His conclusion was that the econometric approach would be less time consuming and improve the timeliness and quality of the forecasts for the large industrial customers.[2]

[2] Docket No. 09-035-23, DPU Exhibit 9.0, Page 11, Lines 146-162.

Q. How does the Company forecast its largest industrial customers in Utah, Wyoming, Oregon and Idaho?

A. Due to self-generation and operational changes that can have large and unexpected changes on electricity usage, the Company continues to forecast its largest customers (less than 10) using inputs from the customer and CCMs. These individual customer forecasts are not included in the regression analysis and are added to the industrial class forecast at the end of the process.

Q. Why does the Company forecast industrial class sales using total usage versus the use-per-customer methodology used for the residential customer class?

A. The Company forecasts the industrial class using a total usage model because of the diverse makeup of the customers within the class. In the industrial class, there are no "typical" customers. Large customers have very diverse usage patterns and power requirements. In contrast, customer classes that are made up of mostly smaller, homogeneous customers are best forecasted by multiplying use-per-customer by the number of customer, such as the residential class which is composed of many smaller customers that have similar behaviors and usage patterns.

Hourly Load Forecast

Q. Please describe how the hourly load forecast is developed.

A. After the Company develops the forecasts of monthly energy sales by customer class, a forecast of hourly loads is developed in two steps.

First, monthly and seasonal peak forecasts are developed for each state.

The monthly peak model uses historical peak-producing weather for each state, and incorporates the impact of weather on peak loads through several weather variables that drive heating and cooling usage. These weather variables include 20 years of average temperature on the peak day and lagged average temperatures from up to two days before the day of the forecast for each month. The peak forecast is based on the 20 year average monthly historical peak-producing temperatures for the most recent rolling 20-year period, currently 1993 through 2012.

Second, the Company develops hourly load forecasts for each state using hourly load models that include state-specific hourly load data, daily weather variables, the 20-year average temperatures for the most recent rolling 20-year period, currently 1993 through 2012, a typical annual weather pattern, and day-type variables such as weekends and holidays as inputs to the model. The hourly loads are adjusted to match the monthly and seasonal peaks from the first step above. Also, the hourly loads are adjusted so the monthly sum of hourly loads equals monthly sales plus line losses.

Q. How are monthly system coincident peaks derived?

A. After the hourly load forecasts are developed for each state, hourly loads are aggregated to the total system level. The system coincident peaks can then be identified, as well as the contribution of each jurisdiction to those monthly peaks.

Forecasts by Rate Schedule

Q. Were any additional forecasts created for this proceeding?

A. Yes. As mentioned earlier, Ms. Steward requires two additional forecasts that are

based on the kWh sales forecast and the number of customers forecast. Once the kWh sales forecast is complete, it must be applied to individual rate schedules to forecast kWh sales by rate schedule. In addition, the forecast of number of customers must be expressed in number of bills.

Q. How are rate schedule level forecasts produced?

A. The Company develops this forecast in multiple steps. First, the Company determines the proportional distribution of each schedule within the customer class. For example, Schedule 1 in the Utah residential class makes up 93 percent of the total. Second, the Company determines if the historical rate schedule sales are correlated (moving in lock step) as the class level sales. If the rate schedule historical sales move in lock step with the class level sales the rate schedule forecast is proportionally adjusted to the class level sales forecast, e.g. 93 percent of the class level sales forecast is reflected in the rate schedule forecast. If the rate schedule is uncorrelated to the class, such as Schedule 23, residential general service, the schedule is forecast separately using regression analysis or time-series analysis and then the correlated schedules are adjusted so that the total matches the customer class forecast.

Q. How does the Company forecast the number of bills for each rate schedule?

A. The forecast of the number of bills for each rate schedule follows the same process as the sales forecast for each rate schedule. First, the Company forecasts the number of bills by class and proportionally adjusts the forecasted number of bills by rate schedule so that the total number of bills matches the customer class forecasted number of bills.

Q. Please summarize your testimony.

A. The Company's load forecast has been updated with the most recent information available at the time of the forecast and includes changes in methodology that the Company believes will more accurately forecast load. The changes in methodology employed in this forecast reflect the due diligence and analysis done by the Company that will improve the accuracy of the forecast and also reflect prior recommendations from the DPU. The residential class usage patterns have changed over the last two years and, in response, the Company has conducted a customer survey and participated in industry benchmarking surveys to better understand those changes and therefore improve the forecast in the long-run.

Q. Does this conclude your direct testimony?

A. Yes.