Q. Please state your name, business address and present position with PacifiCorp (the Company).

A. My name is Mark T. Klein, my business address is 825 N.E. Multnomah, Suite 600, Portland, Oregon 97232, and my present position is Managing Director of Planning and Analytics within Commercial & Trading, PacifiCorp's regulated merchant function.

Qualifications

Q. Briefly describe your education and business experience.

A. I graduated from the University of Idaho in 1981 with a Bachelor of Science degree in Mechanical Engineering and from Washington State University in 1985 with a Master of Science in Mechanical Engineering. I am also a registered professional engineer in the State of Texas. Since 1996, I have been employed in the wholesale merchant energy business for both PacifiCorp and ScottishPower. My previous duties included Director of Structuring and Pricing (US), Energy Risk Director (UK) and Director for Commercial Development (UK).

Q. Please describe your current duties.

A. My duties and responsibilities include managing the integrated resource planning, load/revenue forecasting, net power cost, market fundamentals and structuring groups within Commercial & Trading.

Q. Have you testified previously?

A. Yes. I have previously testified or submitted testimony in the states of Idaho, Wyoming, Utah and Wyoming.

Purpose of Testimony

Q. What is the purpose of your testimony?

A. I describe how the forecasts for the number of customers, kWh sales, system loads and system peaks for the twelve-month periods ending September 30, 2006 and September 30, 2007 are developed for the Company. These forecasts are produced for all six states in which the Company serves retail customers and are necessary to develop inter-jurisdictional allocation factors. As described later in my testimony, Messrs. Weston, Widmer, Anderberg, and Griffith rely on one, or more of these forecasts, either for the State of Utah, or for the system as a whole.

Q. Has the Company used these same forecasting methodologies in prior cases before the Utah Public Service Commission?

A. Yes. The Company purchases national and county-level economic, employment and population forecast data from Global Insight, Inc., an internationally recognized economic forecasting firm. The Company uses this information within various models and methodologies to produce the forecasts within the Company's Integrated Resource Plan (IRP). The staff of the Utah Public Service Commission, the Division of Public Utilities, the Committee of Consumer Services, and other interested parties has been part of the public input process of the IRP. The Company's forecasts are regularly reviewed in that process. The Company has used forecasts produced using these methodologies in regulatory proceedings in the states of Oregon and California for several years.

Q. How does the Company's forecast methodologies compare with other utilities?

A. The Company's use of independent third-party economic data and econometric and statistical methodologies used to forecast energy requirements and peak load are similar to the methods employed by Avista Utilities, Puget Sound Energy, San Diego Gas & Electric, and Southern California Edison.

Q. Has the Company performed back-testing analyses on the accuracy of forecasts regularly produced?

A. Yes. Since 2001 the Company has consistently checked forecast accuracy at the system and state levels and, where issues have arisen, has sought to improve accuracy and enhance forecast methodology.

Q. What are the overall results of the back-testing analyses of the Company's load forecasts?

A. From 1991 through fiscal year 2005, the Company has experienced an average difference of 0.8 percent between the weather normalized actual and forecasted sales amounts for the state of Utah. Of the fourteen forecasts for this time period, nine had normalized actual sales amounts that were lower than forecasted amounts and five had normalized actual sales amounts that were higher than forecasted sales amounts. The maximum difference between the actual and forecast values was 7.6 percent.

Q. Has the Company prepared a comparison on the Utah forecast used for the last rate case?

A. Yes. The Company weather normalized actual amounts for the ten months ending

January 2006 and we have compared this with the forecast presented in the last rate case. For this ten-month period the normalized actual amounts at the state level are 5.4 percent lower than the forecasted energy amounts. This level is within the maximum difference observed for Utah and is not significantly different than five other forecast periods since 1991.

Sales Forecast

Residential, Commercial, Public Street & Highway Lighting, and Irrigation Forecasts

Q. How is the kWh sales forecast developed for the Residential, Commercial, Public Street & Highway Lighting and Irrigation customer classes?

A. The forecast of kWh sales for each customer class is the product of two separate forecasts: number of customers and energy use per customer.

Q. Please describe how the number of customers is forecasted in this proceeding.

A. The forecast of the number of customers relies on weighted exponential smoothing statistical techniques and is based on a twelve-month moving average of the historical number of customers. By applying additional weight to more current data and utilizing exponential smoothing, the transition from actual data to forecast periods is made as smooth as possible. This technique also ensures that the December to January change from year to year is reflective of the same linear pattern. These forecasts are produced at the class level for each of the states in which the Company has a retail service territory.

Q. Why is it important to weight the historical data for forecasting customers?

A. The Company believes that the recent past is most reflective of the near future. Using weights applies greater significance to the recent historical periods than the more distant historical periods and improves the reliability and relevance of the final forecast. The forecasts are then reviewed for reasonableness and adjusted if appropriate.

Q. How is average use per customer for these classes forecast?

A. The Company performs both time-series and regression analyses on the average use per customer to determine if there is any material change in the trend over time. The forecasts are reviewed for reasonableness and adjusted if appropriate.

Q. How then are these two forecasts used to forecast energy sales for each customer class?

A. The forecast of the number of customers is multiplied by the forecast of the average use per customer to produce annual forecasts of energy sales for each of the four classes of service.

Industrial and Other Sales to Public Authorities Forecasts

Q. How does the Company forecast the Industrial and Other Sales to Public Authorities customer classes?

A. These customers are classified based on Standard Industrial Classification (SIC) codes, numerical codes that represent different types of businesses. Customers are further separated into large power users and smaller power users. We consult with the account managers assigned to each of the large power users regarding their projected energy consumption. The account managers have ongoing direct

contact with large customers and are in the best position to know about the customer's plans for changes in business processes, which might impact their energy consumption. In addition, we review industry trends and monitor the activities of the customers in SIC code groupings that account for the bulk of the industry sales. Sales forecasts are then developed for each SIC code group and aggregated to produce a forecast for each class. The forecasts are reviewed for reasonableness and adjusted if needed.

Q. Why are these classes forecasted by a different methodology than the other customer classes?

A. These classes are forecasted differently because of the diverse make up of the customers within the class. In the industrial class, there is no "typical" customer. Large customers have very diverse usage patterns and sizes. It is not unusual for the entire class to be strongly influenced by the behavior of one customer or a small group of customers.

In contrast, customer classes that are made up of mostly smaller, homogeneous customers are best forecasted with the methodology described earlier in my testimony. These customer classes are generally composed of many smaller customers that have similar behaviors and usage patterns. No small group of customers, or single customer, influences the movement of the entire class. This difference in diversity necessitates the different approaches to sales forecasting.

Q. How is the monthly forecast of sales and consumers developed?

A. The consumers forecast is developed using the monthly distribution of customer

growth over the past 5 years. The distributions are reviewed by looking at the year-on-year growth of the customers to make sure they reflect reasonable values. If they do not, then the forecasts will be adjusted. Developing monthly forecasts of sales is a little more involved because we are trying to make the distribution and connection of values from month to month as seamless, and reasonable, as possible. The annual forecasted values are increased to system load levels by including line losses. Once this is done, they are distributed to hourly values using the regression model described later in my testimony. These hourly values are then summed to monthly totals. Line losses are then subtracted from this monthly value and the total state value at sales level is established. Then for each state and customer class an average monthly shape is developed using the most recent five years of history. This process captures any changing trends in usage on a monthly basis. This average monthly shape is then applied to the annual forecasts by state and class to arrive at monthly numbers. The sum of these class totals are compared and then adjusted by iteration to the total state level established earlier using the sum of the hourly values.

Summary of Results of Sales Forecast

Q. Please summarize the results of the sales forecast used in this filing.

A. PacifiCorp's Utah retail sales for all classes are forecast to increase by 4.2 percent for the twelve months ending September 30, 2006 from the twelve months normalized sales ending September 30, 2005 and are forecast to increase by 4.0 percent for the twelve months ending September 30, 2007 from the twelve months forecast sales ending September 30, 2006. The class level detail is presented as

Exhibit UP&L___(MTK-1).

Q. Why are adjustments made to the actual sales for the twelve months ending September 30, 2005?

A. The adjustments are done to bring the historical values into alignment with the assumptions for the future test period. The major adjustment is to remove the impact of warmer or colder weather during the historical period. The forecast is based on the NOAA normal weather values, a 30 year average of temperatures. The weather adjustment brings the historical period to this same weather condition.

Utah Growth by Class of Service

Q. How do you group customers?

A. The Company typically groups customers by the type of service they receive. The Company groups customers into Residential, Commercial, Industrial, Public Street and Highway Lighting, Other Sales to Public Authorities, and Irrigation categories.

Q. How does each category of customers contribute to the total energy consumed in the state?

A. In calendar year 2005, residential sales made up 28.4 percent of retail energy sales, while commercial sales contributed 33.7 percent and industrial sales made up 34.5 percent of retail energy sales. The remaining energy was split between the following categories: irrigation, other sales to public authorities and public street and highway lighting.

Q. Can you explain how growth will occur by customer category?

A. Yes.

Residential Growth

Q. Why do you expect Utah to see a continuing high residential customer growth compared to surrounding states?

A. One reason is that Utah has a higher birth rate than surrounding states. Also, as people age they have a tendency, all other things remaining equal, to locate where they grew up. As such, Utah has a fundamental difference from surrounding states that will result in a higher customer growth.

Q. What other factors may drive residential load growth in Utah?

A. Utah also tends to have a more educated labor pool and lower average living costs. This larger population of educated workers and lower wages tends to be a draw for businesses. Additionally, Utah offers a different culture from many locations. Many people seek to move to the state to enjoy the cultural differences in Utah. Utah also enjoys a strategic location in the West. Utah is somewhat centrally located in the West between population centers in Colorado, California and the Pacific Northwest. This makes it a prime location to establish businesses and have equal access to major western population centers.

Q. On average Utah residential customers tend to use more each year. Do you expect that to continue?

A. Yes.

Q. Please explain.

A. Some of the changes in Utah that have led to higher residential usage in Utah are

expected to continue. During the last decade, Utah homes on average have increased in size. As the growth continues, the Company expects the average size of homes to increase. Additionally, the Company has observed that more homes have Central Air Conditioners (CAC). Customers across our Utah service territory are seeking more comfortable living conditions and seem to be willing to pay for these amenities. CAC are becoming the norm for space conditioning on hot summer days. More new homes require CAC as a selling point. Some customers with Evaporative Air Conditioners (EAC) are changing their equipment to keep up with the norm. People who move into the state from areas with homes that have CAC bring that same expectation when locating in Utah.

Q. Please provide details as to the level of change over time witnessed in the size of homes and CAC saturation.

A. The Company periodically conducts surveys of its residential customers, seeking to better understand their energy usage characteristics. Over time, the residential customer surveys have shown an increasing home square footage and an increasing CAC saturation. From 1994 to 2004, Utah's overall residential CAC saturation increased from 20 percent to nearly 50 percent. Over the same time period, average home size increased from 1,762 square feet to 2,244 square feet.

Commercial Growth

Q. Do you expect the commercial customer growth to continue?

A. Yes, the commercial class will experience growth to meet the demand for services required by the growing residential class. This growth is most evident in sectors such as offices, transportation and warehousing, education, health, and retail trade

that are necessary to meet the needs of the increasing population. Additionally, some businesses are locating in the state to take advantage of the state's labor force or geographic location. These are businesses that export services, rather than goods manufactured in the state, and include call centers and regional distribution centers. The continuing growth in this area is also expected to increase growth in several of the commercial sectors such as offices and wholesale businesses. In addition, Utah has developed a robust tourism activity associated with visitors to the state and conventions in the area. As this activity continues it will contribute to ongoing growth in many of the commercial sectors, including hospitality activity within the hotels sector and the retail trade sub-sectors of restaurants and stores.

Q. What is happening to the commercial average customer use?

A. Commercial use per customer will increase. The Company's recent survey of its commercial customers shows increasing energy usage in cooling, ventilation, lighting (both interior and exterior), office equipment, and refrigeration end-uses. The increased energy usage in these end-uses outweighs any expected decreases from equipment efficiency increases over time. Also, adding to the increase in the class weighted-use-per-customer is faster growth in the office sub-sector. Due to the faster average growth rate in this sector it is becoming a proportionally larger part of Utah's commercial class. Offices, forecast to be the fastest growing commercial sector in terms of employment, have a higher use per customer than the average Utah commercial customer.

Industrial Class Growth

Q. What can you tell us about the growth in the industrial category?

A. Prior to the last decade, Utah's industries were heavily concentrated in areas that depended on the natural resource supplies in the state, such as coal, uranium, oil, gas and copper. While these industries are still very important contributors to the state overall, they have started to play a less significant role. During the last decade, the Company has seen a trend to a more diversified economy. Various manufacturing companies have moved into the state to take advantage of the well educated labor pool and the state's strategic location. Additionally, the service exporting businesses in the commercial sector have contributed greatly to providing a diversified economic base for the state. The state now has an economic base that is more stable during economic cycles. As the state becomes more diversified, the state has greater stability over a variety of economic conditions i.e., when some sectors of the business community are experiencing contracting cycles, other sectors may offset the loss with expanding cycles.

Q. How do you see the past causes of growth continuing in the industrial category?

A. Many of the things that have aided the state in the past we see continuing. Utah will continue to have a highly educated workforce. People will continue with a desire to locate in the state, and the state will likely continue to have a higher birth rate than the rest of the nation, resulting in a sizable and affordable labor pool. As the "Crossroads of the West", Utah makes it ideally located near major western population centers and business markets. These factors should continue to attract

businesses into the state and continue the increase in state growth.

Q. Which other witnesses rely on these forecasts?

A. As I discuss later in my testimony, Mr. Griffith relies on these forecasts to calculate present revenues for the forecasted test period. Mr. Gerrard uses these forecasts to assist with the development of distribution costs.

System Load Forecasts

Q. Please explain the difference between the sales forecast that was just described and the system load forecast?

A. The sales forecast for each state is increased by estimates of system line losses to create the system load forecast. Line loss percentages represent the additional electricity requirements to move the electricity from the generating plant to each end-use customer.

Q. How are the loads distributed to hourly levels?

A. The Company has developed a regression based tool that models hourly load against a large number of independent variables. Many of these variables represent spatial conditions over the year, such as the time of day, the week of the year or day of the week. Hourly temperatures for weather stations, where the bulk of the load in the state resides, is a variable in the model as well as humidity levels.

Q. When using a model of this type the independent variables require a starting value for the calculation. What values does the Company use?

A. For the spatial variables the date and time in the future is used. Typically the load on a weekend is lower than on a weekday because industrial and some

commercial customers use less. So a variable used to identify a weekend would have a lower contribution to the forecasted load than a weekday, and using the calendar date in the future identifies these spatial conditions. For the weather values we use the equivalent of the 30-year average temperature for the weather stations at the appropriate day and time in the future. This is also what is used for the humidity measure. We also review the growth of the hourly load over time against historical growth rates to make sure that the loads are growing at the appropriate times. State loads are aggregated by month and by time of day, and future growth rates are compared with historical growth rates. This allows us to review the night-time growth rates verses daytime growth rates. Growth in the winter months may differ from the growth in the spring and fall. All of this is reviewed and trends are incorporated to reflect the historical patterns observed.

Q. Please explain how other witnesses use the system load forecast in this case.

A. Mr. Widmer uses the system load forecast to estimate load resource balances in his net power cost study. The system load forecast estimates the amount of electricity that the Company will need to generate or purchase to meet projected customer usage. In addition, these forecasts are an input to the calculation of inter-jurisdictional allocation factors used by Mr. Weston and Mr. Anderberg in revenue requirement and cost of service analyses.

System Peak Forecasts

Q. Please describe the system peak forecast.

A. The system peaks are the maximum load required on the system in any hourly period. Forecasts of the system peak for each month are prepared based on the

load forecast produced using the methodologies described above. From these hourly forecasted values, forecast peaks for the maximum usage on the entire system during each month (the coincident system peak) and the maximum usage within each state during each month are extracted.

Q. Which witnesses rely on these forecasts?

A. Mr. Anderberg uses these forecasts in his cost of service study. Mr. Weston uses these forecasts for purposes of calculating inter-jurisdictional allocation factors.

Rate Schedule Forecasts

Q. Are there any additional forecasts that you created for this proceeding?

A. Yes. To develop forecasted billing determinants, Mr. Griffith 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 for the Company's service territory in Utah?

A. Growth rates of sales to the customers on each rate schedule are calculated to determine how the different schedules are changing within the state. For the schedules that are very slow growing or have no growth, an average monthly energy usage from the last three years is used to determine the forecasted sales for this schedule. For schedules that are represented by single customers, or a few very large customers, a review of the information from the account managers helps determine the appropriate growth rate for this schedule. Adjustments are

made to historical consumption levels to reflect anticipated customers changes. For schedules that are growing or declining the average monthly energy usage is adjusted by a factor reflecting the level of change to calculate the forecasted sales for the schedule. The forecasts are then calibrated to make sure that the sum of the rate level forecasts equals the class level forecasts.

Q. How is the number of bills for each schedule forecasted?

A. Growth rates based on customer change for each rate schedule are calculated to determine how the different schedules are changing within the state. These growth rates are then used to forecast each rate schedule into the future. Growth rates by rate schedule are adjusted to reflect the overall trend in customer growth established by the total class forecast. The forecasts are then calibrated to make sure that the sum of the rate level forecasts equals the class level forecasts.

Q. Does this conclude your direct testimony?

A. Yes.