BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

Docket No. R-2010-2161694

PPL Electric Utilities Corporation

Statement No. 5

Direct Testimony of David R. Woodruff

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Q. Please state your full name and business address.

A. David R. Woodruff, Two North Ninth Street, Allentown, Pennsylvania 18101.

Q. By whom are you employed and in what capacity?

A. I am employed by PPL Electric Utilities Corporation ("PPL Electric" or the "Company") in the Regulatory Compliance group as Manager – Load Analysis.

Q. What are your duties as Manager – Load Analysis?

A. I am responsible for the overall direction of the functions of the Load Analysis section of the Regulatory Compliance group of PPL Electric's Finance Department. In this capacity, I direct the forecasting of customer energy sales, revenues, and peak demands. In addition, I oversee the Validation, Estimating, and Editing (VEE) of interval meter data and the development of historical and forecasted customer and rate class hourly demands. This includes the forecasting of hourly demands for the PPL System within PJM.

Q. What is your education background?

A. I graduated from The Pennsylvania State University in 1980 with a Bachelor of Science in Civil Engineering, and from Drexel University in 1998 with a Master of Science in Engineering Management. I am a licensed Professional Engineer in the State of Pennsylvania.

Q. Please describe your professional experience.

A. I was employed by PPL Electric's predecessor, Pennsylvania Power & Light Company, in 1980 as an Engineer in the Power Plant Engineering Department. My responsibilities were to design modifications to the Company's fossil and hydro power plants. In 1988, I assumed the position of Project Engineer in the Fuel Planning Section of the Fossil Fuels Department. My responsibilities included fuel price forecasting and analytical support for Fuel Operations. In 1995, I assumed the position of Fuel Procurement Agent within the Fuel Procurement Section of the Fossil Fuels Department. My responsibilities included the procurement of fuel (anthracite coal, bituminous coal, petroleum coke) for the fossil power plants. In 1996, I assumed the position of Senior Consultant in the IS Consulting Section of the Information Services Department. My responsibilities included the negotiation of computer hardware contracts, and procurement of computer equipment. In 1998, I was named acting Supervisor within the Consulting Section. In 1998, I assumed the position of Senior Forecaster in the Load Analysis Section. My responsibilities included the development and implementation of new hourly forecasting models to meet the

POLR requirements of PPL Electric, the implementation of new monthly sales forecasting models, and forecasting of Electric Generation Supplier ("EGS") loads. In 2001, I assumed my current position.

Q. Mr. Woodruff, what is the purpose of your testimony?

A. The purpose of my testimony is as follows:

- To explain the development of the Company's forecast of customer sales, revenues, and peak demands;
- To sponsor and explain the annualization of sales and base rate revenues as summarized on Schedules D-3 of Exhibit Historic 1 and Exhibit Future 1; and
- To explain the derivation of customer load data used to develop the demand allocators employed by Mr. Kleha in his cost allocation studies.

Q. Have you prepared any exhibits to accompany your direct testimony?

A. Yes. I am sponsoring Exhibit DRW 1 which consists of 4 pages. The first page sets forth the Company's actual annual sales by customer class for the historical period 2008 and 2009, and the forecast of annual sales for the 2010 future test year. Page 2 of Exhibit DRW 1 provides aggregate peak load data for the same periods. Page 3 of Exhibit DRW 1 shows the 2009 annualization adjustment by rate schedule of distribution revenues, and page 4 of Exhibit DRW 1 shows the 2010 annualization adjustment details for the future test year.

Q. Please describe the development of the sales forecast set forth in Exhibit DRW 1.

A. The sales forecast is developed for the Residential, Commercial, Industrial, and Other customer classes. The Residential customer class is segmented into Electrically Heated Home (EHH) and General Residential Service (GRS); the Industrial customer class is segmented by industry. These customer class forecasts were developed from models using regression analyses of historical sales data, economic data, and weather data. Historical and forecasted economic data for the Commonwealth of Pennsylvania are obtained from Moody's Economy.com. The weather data are obtained from the following airports: Lehigh Valley International, Harrisburg (Middletown), Wilkes-Barre/Scranton (Avoca), and Williamsport. Because PPL Electric does not bill customers on a calendar-month basis (bills are rendered based on meter reads throughout the month), billing-month heating degree-days (HDDs) and cooling degree-days (CDDs) are calculated for each billing-month, based on the meter read schedule for each billing-month. Forecasted weather is determined by calculating normal billing-month weather on a HDD and CDD basis for the past 10 years. The models use these inputs to generate a monthly sales forecast for each customer class.

Q. How was the sales forecast set forth in Exhibit DRW 1 used in this rate filing?

A. The sales forecast was used to develop projected future test year sales and revenues.

Q. Were any adjustments made to the revenue forecast?

A. Yes, adjustments were made for the Rate Schedule SE Mitigation Plan, Universal Service Rider ("USR"), Act 129 Compliance Rider ("ACR"), Purchase of Receivables ("POR"), and Remand Riders 1 and 2.

Q. What adjustments were made for the Rate Schedule SE Mitigation Plan?

A. At Docket No. R-2008-2066381, PPL Electric established a mitigation plan for 2010 and 2011 for customers on Rate Schedule SE. In this plan, PPL Electric established a credit for 2010 of 2.755 cents per KWH for street lighting equipment on a company pole, and 7.180 cents per KWH for street lighting equipment on a customer pole or support. In the plan, PPL Electric stated that the Company will not seek to recover the resulting revenue loss from this voluntary proposal either from Rate Schedule SE customers or any other customer class in any future proceeding. As a result, the credit for 2010, totaling

$1,682,789, was added back to the base Distribution revenue for Rate Schedule SE in the future test year.

Q. What adjustments were made for the Universal Service Rider?

A. The USR is adjusted annually, as set forth in PPL Electric's Tariff – Electric Pa. P.U.C. No. 201. The most recent adjustment was filed at Docket No. M-2009-2145179. The USR is a reconcilable adjustment clause under Section 1307 of the Public Utility Code, and is included in the Distribution rates for all residential customers. USR revenues and costs have been excluded from the base Distribution revenue in the future test year.

Q. What adjustments were made for the Act 129 Compliance Rider?

A. At Docket No. M-2009-2093216, PPL Electric established an Energy Efficiency & Conservation Plan ("EE&C") in compliance with Section 2806.1 (b)(1)(i) of Act 129.. As part of this plan, PPL Electric instituted the ACR, which is a reconcilable adjustment clause under Section 1307 of the Public Utility Code. The ACR is included in the Distribution rate for residential rate schedules, and is a separate charge for commercial and industrial rate schedules. ACR revenues and costs have been excluded from the base Distribution revenue in the future test year.

Q. What adjustments were made for the Company's Purchase of Receivables program?

A. At Docket No. P-2009-2129502, The Commission approved PPL Electric's current voluntary Purchase of Receivables Program ("POR Program") and Merchant Function Charge ("MFC"). In developing its POR Program and MFC, the Company was required to reduce its distribution rates by the amount of the bundled generation supply-related uncollectible accounts expense included in its current distribution rates established at Docket No. R-00072155. As a result, the Distribution revenue for the future test year was reduced. Specifically, residential distribution rates were reduced by $13,383,244, and small C&I distribution rates were reduced by $1,064,883, as adjusted for Gross Receipts Tax.

Q. What adjustments were made for the Remand Riders 1 and 2?

A. As a result of the terms of the Commission order, entered on July 25, 2007, at Docket No.R-00049255, Remand Rider 1 provided for the reallocation among customer classes of charges for transmission service billed by the Company during the period January 1, 2005 through July 31, 2007, and Remand Rider 2 provided for the refund of Hurricane Isabel costs and the reallocation among customer classes of charges for distribution service billed by the Company during the period January 1, 2005 through July 31, 2007. Both riders ended on December 31, 2009. Because these riders ended in the middle of the January

2010 billing period, the January 2010 bill was pro-rated for each customer based on the billing days before December 31 and those after that date. To derive to base distribution revenue, the budgeted revenue for both Remand Rider 1 and 2 was excluded from the Distribution revenue in the future test year.

Q. How did you develop the peak load forecast set forth on page 2 of Exhibit DRW 1?

A. The peak load forecast shown on page 2 of Exhibit DRW 1 is a function of historical weather-normalized peaks. Beginning in 2007, PJM began calculating weather-normalized peaks and forecasts of peaks. The PJM forecast is used to set the peak loads for capacity obligations, for reliability studies, and to support the Regional Transmission Expansion Plan. Until 2007, weather-normalized summer and winter peaks were determined by the electric distribution companies ("EDCs"). PPL Electric calculated the weather-normalized peaks based on a regression of actual daily unrestricted peaks against the corresponding weather conditions for the respective season, consistent with the weather-normalization process in effect at that time in *PJM Manual 19: Load Forecasting and Analysis.* PJM calculates the weather-normalized peaks based on the procedure outlined in Section 4 of *PJM Manual 19.*

The forecasted peaks are developed for both the summer and winter season using two separate regression models. These models estimate the relationship

between the historical seasonal peaks to annual energy sales and various economic drivers. This analysis uses 10 years of history, which results in the forecasted seasonal peaks for the subsequent years. The other months of the year are estimated by using the historical percentage of the seasonal peak for the appropriate month.

Q. Please describe the development of the revenue forecast used in Schedule D-3 of Exhibit Future 1.

A. The first step in this process is to convert the forecast of sales by customer class to a forecast of sales by rate schedule. This conversion is accomplished by applying historic billing factors which allocate the customer class sales to the various rate schedules. These factors are annual factors based on revenue-month billing data from the most recent revenue-year. The revenue forecast is developed by applying the forecast of sales by rate to the appropriate rate schedule pricing as set forth in PPL Electric's Tariff – Electric PA P.U.C. No. 201.

Q. Schedules D-3 of Exhibit Historic 1 and Future 1 reflect annualizations of sales and base rate revenues for the historic and future test years. Please explain how those adjustments were developed.

A. The annualization adjustment of sales and base rate revenues for the historic year ended December 31, 2009 has two components. One component accounts for changes in the number of customers over the test year, and the second component accounts for changes in customer usage. The adjustment for the change in the number of customers as reported for the year by rate class was determined in the following manner. The change in the number of customers from December 31, 2008 to December 31, 2009 was computed for each rate class. One-half of that change was assigned on a class-by-class basis and then multiplied by the average annual KWH usage per customer to obtain the sales adjustment associated with new customers entering the rate class. The average unit base rate for each rate class was applied to the resulting KWH sales levels to obtain the base rate revenue adjustments for all rate components.

The other adjustment recognizes changing KWH usage levels by existing customers and was determined in the following manner. The average change over the past three years in average annual usage for each class was computed. One-half of the change in average use was multiplied by the year-end number of customers for each rate class to obtain the KWH sales adjustment. The incremental base rate for each rate class was applied to this sales adjustment to obtain the base rate revenue adjustment. Details of the 2009 annualization adjustment are shown on page 3 of Exhibit DRW 1. The annualization of future test year sales and revenues consisted of similar adjustments for changes in the numbers of customers and customer usage. The details of the future test year

annualization adjustment are shown on page 4 of Exhibit DRW 1.

Q. Please explain the source of the customer load data used to develop the customer class demand allocators employed in the Company's cost allocation studies.

A. PPL Electric continuously collects load data in 15-minute or 60-minute intervals through recording demand meters on a sample of customers in the residential, GS-1, GS-3, LP-4, and GH classes, and for all customers on Rate Schedules LP-5, LP-6, IS-P, IS-T, and all FERC jurisdictional customers. For the rate classes represented by samples of load data, the sample data are extrapolated to determine hourly demands for the entire rate class. For the rate classes from which interval data is collected from all customers, the hourly demands are aggregated to a total class level. Any rate schedules that have been combine for revenue requirements purposes, as outlined in Statement No. 7 Direct Testimony of Oliver G. Kasper, have also been combined in determining hourly demands. These rate class hourly demands are used to determine the annual rate class maximum demands, and the contribution of each rate class to the annual peak during the historic test year.

For the future test year, the rate class average demand coincident to the monthly system peak demand and the annual rate class maximum demands were projected by analyzing total rate class demand data from 1999 through 2009.

The respective rate class historical values were analyzed using a Box-Jenkins modeling technique, which is a time series analysis that looks at various models, such as a simple moving average, to find the best fit with the historical data in order to forecast the future test year demand values.

Q. Does this conclude your testimony?

A. Yes it does.