Exhibit No.:	
Issue:	Revenue Normalization; Load Forecast
Witness:	Albert R. Bass, Jr.
Type of Exhibit:	Direct Testimony
Sponsoring Party:	Kansas City Power & Light Company
Case No.:	ER-2014-0370
Date Testimony Prepared:	October 30, 2014

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO.: ER-2014-0370

DIRECT TESTIMONY

OF

ALBERT R. BASS, JR.

ON BEHALF OF

KANSAS CITY POWER & LIGHT COMPANY

Kansas City, Missouri
October 2014

DIRECT TESTIMONY

OF

ALBERT R. BASS, JR.

Case No. ER-2014-0370

Q: Please state your name and business address.

A: My name is Albert R. Bass, Jr. My business address is 1200 Main, Kansas City, Missouri 64105.

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

A: I am employed by Kansas City Power & Light Company ("KCP&L" or "Company") as Manager of Market Assessment.

Q: On whose behalf are you testifying?

A: I am testifying on behalf of KCP&L.

Q: What are your responsibilities?

A: My responsibilities include supervising two employees with responsibility for short-term electric load forecasting, long-term electric load forecasting, weather normalization, and various other analytical tasks.

Q: Please describe your education, experience and employment history.

A: I received a Bachelor of Science in Business Administration degree with emphasis in Marketing from Missouri Western State University in 1989. I earned a Master of Business Administration degree from William Woods University in 1995.

Prior to joining KCP&L, I worked for APS Technologies developing product forecast models and conducting market analysis. In June 1998, I joined KCP&L as a Technical Professional. In this role, I conducted market analysis, developed market

options studies, and research. In May 2000, I took over the responsibilities for short-term forecasting (Budget), long-term load forecasting for the Integrated Resource Plan (IRP), monthly kWh sales and peak weather normalization, and weather normalization for rate case fillings. On July 2013, I was promoted to my current position as Manager of Market Assessment.

Q: Have you previously testified in a proceeding before the Missouri Public Service Commission ("Commission" or "MPSC") or before any other utility regulatory agency?

A: No.

I. WEATHER NORMALIZATION, CUSTOMER GROWTH

Q: What is the purpose of your testimony?

A: The purposes of my testimony are to:

I. Sponsor the weather normalization, customer growth, rate switching, and energy efficiency adjustments of test year monthly Kilowatt-hour ("kWh") sales and peak loads in Schedules ARB-1 through ARB-4.

II. Sponsor the ten-year electric load forecast that is being used by the Company in this case to determine the need for resources to meet future load growth in Schedule ARB-5.

Q: What normalizations are you making to kWh sales and peak loads?

A: Both monthly and hourly kWh sales are adjusted to reflect normal weather conditions. This is called a weather adjustment. KWh sales are further adjusted for customer growth that occurs between the test year and the true-up date, and for customers who were

switched from one rate to another during or after the test year. These customers are known as rate switchers.

Q: What adjustment did you make for rate switchers?

A: Each year a small percentage of customers are switched from their current tariff to another that is expected to reduce their electric bills. We adjusted kWh sales for the Large Power tariff for customers that switched into or out of this tariff. The customer growth adjustment accounted for rate switchers in the other tariffs.

Q: What adjustment did you make for customer growth?

A: For each month in the test year, the weather-normalized sales per customer was multiplied by the number of customers projected for the true-up date. This adjustment is made to weather-normalized sales to the Residential, Small General Service ("GS"), Medium GS, and Large GS classes. When the numbers become available, I will revise this adjustment using the actual number of customers as of the true-up date. Sales to Large Power customers are adjusted by plotting each customer's month kWh sales and looking for any changes in sales that appear to be or are known to be permanent. If any such changes are identified, sales during the test year are adjusted to reflect the change. The adjustments for growth to Large Power sales will be revised using the most current data for the true-up.

Q: Were any other adjustments made besides the adjustment for rate switchers and customer growth?

A: Yes, as part of the overall weather normalization process, I develop the coincident peak kW for each month and each class of customers. This is based on load research data.

The Kansas June 2013 retail coincident peak allocator was adjusted to reflect the June 2014 value.

Q: Why was this adjustment made?

A: In 2013 Kansas peaks did not respond as their historical trend would suggest. The annual peak and coincident peaks for the year occurred in July where Missouri's occurred in August. Historically Kansas would have its annual peak and coincident peak in the same month as Missouri. Further, the month of June 2013 stood out as an anomaly with Kansas weather normalized peak declining year-over-year by 92 MW and Missouri weather normalize peak growing by 165 MW resulting in a peak allocation of Missouri - 57% and Kansas - 43%. Historically, the allocation between Missouri and Kansas in June has been approximately Missouri - 53% and Kansas - 47%. The decline in Kansas was primarily driven by the residential class. Since the June 2014 values returned to normal trend it was concluded that June 2013 was an anomaly and it was adjusted to reflect the Kansas June 2014 peak value resulting in a peak allocation of Missouri - 53% and Kansas – 47%. This adjustment is used in the D1 allocator sheet used by Company witness Ronald A. Klote in developing the jurisdictional revenue requirement. This will be trued-up during the update in the case.

Q: What is the purpose of making a weather adjustment?

A: Abnormal weather can increase or decrease a utility company's revenues, fuel costs, and rate of return. Therefore, revenues are typically adjusted to reflect normal weather when these are used to determine a company's future electric rates. These adjustments are made by first adjusting kWh sales and hourly loads and then using these results to adjust revenues and incremental costs (i.e. fuel and purchased power). Weather normalized

sales and peak loads are also used to allocate costs between jurisdictions and different rate groups.

Q: What method was used to weather-normalize kWh sales?

A: The method was based on load research ("LR") data, which was derived by measuring hourly loads for a sample of KCP&L's customers representing the Residential, Small GS, Medium GS, Large GS, and Large Power classes. The hourly loads were grossed up by the ratio of the number of customers for each of these classes divided by the number sampled.

In the first step, the hourly loads for the sample were calibrated to the annual billed sales of all customers in each class. The ratio of the billed sales divided by the sum of the hourly loads was multiplied by the load in each hour.

In the second step, the hourly loads were estimated for lighting tariffs and the loads for all tariffs, including sales for resale, were grossed up for losses and compared to Net System Input ("NSI"). The difference between this sum and the NSI then was allocated back to the LR data in proportion to the hourly precisions that were estimated for the load research data.

In the third step, regression analysis was used to model the hourly loads for each rate class. These models included a piecewise linear temperature response function of a two-day weighted mean temperature.

In the fourth step, this temperature response function was used to compute daily weather adjustments as the difference between loads predicted with normal weather and loads predicted with actual weather. Normal weather was derived using spreadsheets

provided by the MPSC Staff. The normal weather represents average weather conditions over the 1981-2010 time-period.

In the fifth step, the daily weather adjustments were split into hourly adjustments and these were added to NSI to weather-normalize that series.

In the sixth step, the daily weather adjustments were split into billing months based on the percentage of sales on each billing cycle and the meter reading schedule for the test year period. These weather adjustments then are summed by billing month and added to billed kWh sales to weather-normalize that data.

Q: What are the adjustments to annualize the impact of Company's energy efficiency programs on test year's sales?

A: During the test year, KCP&L invested significantly on programs designed to help customers use energy more efficiently. The result of this investment in energy efficiency programs is a decline in the sales made by the Company relative to the level of sales that would be made absent of the programs. Because the Company programs generated customer saving during the test year and true up period, the impact of those efficiency measures installed during the test year should be annualized to reflect the full impact of the measures on the Company's sales.

Q: Does installed efficiency measures in the test year affect the test year sales and why is it necessary to further adjust sales to fully reflect the impact of the programs?

A: For example, if a residential customer who is not participating in any Company energy efficiency programs has an annual average usage of 10,500 kWh and then decided to participate in the Company programs with four months left in the test year, which now reduces their actual test year usage to 10,000 kWh the Company would only see a

reduction of 500 kWh in the test year. In this example on an annual basis going forward, however, the customer's true annual average consumption is actually reduced by 1,500 kWh due to the energy efficiency actions promoted by the Company. The reason is the change took place during the test year, but the impacts of the installed measures are only reflected in one-third of the test year load. The effect can be extreme when you start looking at all customer participation rates and the fact that they sign up and participate in various programs throughout the test year. Since the Company has documented participation rates and measures installed in the test year, the annualized energy savings of those measures, and the installation dates of the measures, it is appropriate to reflect the full energy impact of the measures in the test year. This is a known and measurable change in the energy consumption that occurred before the end of the test year, which will continue going forward and should be annualized.

Q: Describe how you calculated the energy efficiency adjustment.

A: Using tracking reports maintained by the Company, we assessed each program and the measure installed during the test year to determine the annualized impacts from the tracking reports. The impacts are applied to the weather normalized and customer adjusted kWhs. Schedule ARB-2 shows the annualized kWh impacts by month and rate class.

Q: What are the results of these normalizations?

A: Schedule ARB-1 shows the monthly adjustments for normalization on kWh sales. Schedule ARB-2 shows the annualized kWh energy efficiency impact. Schedule ARB-3 shows weather-normalized customer annualized monthly peaks by class, and Schedule

ARB-4 shows weather-normalized customer annualized loads by class at the time of the monthly system peak load.

II. TEN YEAR ELECTRIC LOAD FORCAST

Q: How was the electric load forecast developed?

A: KCP&L develops a forecast for each class of customers in each state. The classes are residential, commercial, industrial, and lighting. The commercial and industrial classes are split by voltage level and the lighting class is split by type of lighting. These forecasts are based on KCP&L historical information and on other forecasts, one being a forecast of economic activity provided by Moody's economy.com ("Moody's") and the other being a forecast of appliance and equipment use provided by the U.S. Department of Energy ("DOE") for the West North Central Region.

Q: How was the load forecast for the residential class developed?

A: KCP&L forecasts both the number of residential customers and the kWh used per customer, and the product of these is the forecast of kWh sales for the class. The number of customers is forecasted using a forecast of households for the Kansas City Metro Area from Moody's. The forecast of kWh used per household is developed using data from KCP&L's own appliance saturation surveys, forecasts of trends in efficiencies and usage rates for appliances from DOE and from forecasts of economic variables from Moody's, such as income per household and persons per household.

Q: Why did you choose to use a forecast from Moody's?

A: Moody's is one of two major vendors of economic forecasts with over 500 clients worldwide, including the largest commercial and investment banks, insurance companies, financial services firms, mutual funds, governments at all levels, manufacturers, utilities,

and industrial and technology clients. Moody's has a solid reputation among economists and has provided us a good product for many years.

Q: Why did you choose to rely on forecasts from the DOE?

A: The DOE has a large research staff devoted to energy forecasting. The DOE periodically conducts surveys of homes, commercial buildings and factories to determine their current energy using characteristics, their stocks of appliances and equipment and how these are changing over time. The DOE forecasts energy usage trends for appliances and equipment used in these buildings and incorporates the impacts of energy standards and tax credits for efficient equipment. The DOE provides extensive documentation of their models, assumptions and data that can be downloaded over the internet. Many electric utilities use DOE data and forecasts in their load forecasting models.

Q: How did you develop the load forecast for commercial customers?

A: First, we forecasted the number of commercial customers on a secondary voltage in a statistical regression based on the historical number of residential customers. Most commercial customers, such as retail, schools, banks and government are operating to serve households or other commercial customers, so we used the number of households as the primary driver. Next, we forecasted commercial secondary use per customer based on DOE projections of equipment use for different types of equipment used in commercial buildings. The forecast of sales for this class is the product of the forecasts for the number of customers and kWh sales per customer. The forecast of sales for commercial customers served at a primary voltage was forecasted directly using DOE projections of equipment use for commercial customers.

Q: How did you develop the load forecast for industrial customers?

A: In Missouri, sales to industrial customers are about 17 percent of total sales. Because light manufacturing comprises most of the sales to this class, the sales were forecasted using methods that were similar to those used for commercial customers.

Q: How do the Company's energy efficiency programs affect the load forecast?

A: The load forecast includes the impacts of demand side management and energy efficiency for the programs that KCP&L has adopted. New programs that the Company might adopt in the future are not included in the forecast but are instead evaluated along with supply options for meeting future load growth.

Q: Please summarize your electric load forecast.

A: Schedule ARB-5 shows the forecast of annual net system input and peak demand for KCP&L customers in Kansas and Missouri from 2011 through 2020.

Q: How are these results used?

A: The load forecast is used to determine the need for future resources to meet future load growth. This process is described in the Direct Testimony of KCP&L witness Burton Crawford.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light Company's Request for Authority to Implement A General Rate Increase for Electric Service	)))	Case No. ER-2014-0370

AFFIDAVIT OF ALBERT R. BASS, JR.

STATE OF MISSOURI)
) **ss**
COUNTY OF JACKSON)

Albert R. Bass, Jr., being first duly sworn on his oath, states:

1. My name is Albert R. Bass, Jr. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Manager of Market Assessment.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Kansas City Power & Light Company consisting of ten (10) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

Albert R. Bass, Jr.

Subscribed and sworn before me this 30th day of October, 2014.

Notary Public

My commission expires: Feb. 4, 2015

NICOLE A. WEHRY
Notary Public - Notary Seal
State of Missouri
Commissioned for Jackson County
My Commission Expires: February 04, 2015
Commission Number: 11391200

ADJUSTMENTS TO MONTHLY BILLED SALES OF KCP&L MISSOURI

NORMALIZATIONS TO MONTHLY MWH SALES

		Weather Adjustments to Monthly Billed Sales													Mar 2015 Customer	Total
State	Tariff	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Test Year	Growth	Adjustments
KS	Residential	-14,395	-9,791	-1,226	8,364	22,036	-5,719	-11,383	-5,725	-12,245	-12,327	-24,273	-21,312	-87,996	37,910	-50,085
KS	Small GS	-663	-407	42	494	1,220	-340	-720	-274	-665	-677	-1,344	-1,176	-4,510	9,389	4,879
KS	Medium GS	-326	-17	303	780	2,034	-646	-1,659	-142	-865	-922	-1,842	-1,486	-4,788	4,403	-385
KS	Large GS	-2,817	-915	77	1,361	3,903	-782	-3,125	-798	-3,560	-3,791	-7,321	-6,723	-24,491	-10,262	-34,754
KS	Large Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Off Peak Lighting														0	0
	Total	-18,201	-11,130	-805	10,998	29,193	-7,486	-16,887	-6,939	-17,335	-17,717	-34,779	-30,697	-121,785	41,440	-80,345
MO	Residential	-13,373	-9,697	-1,325	3,549	22,878	-55	-13,349	-4,606	-10,128	-10,261	-18,434	-20,492	-75,293	23,652	-51,641
MO	Small GS	-851	-494	258	298	1,763	-60	-1,356	-240	-854	-878	-1,576	-1,743	-5,732	852	-4,880
MO	Medium GS	-974	-310	369	477	3,190	-52	-2,589	-194	-1,439	-1,541	-2,750	-2,978	-8,791	-972	-9,763
MO	Large GS	-3,316	-1,593	332	654	3,836	-216	-3,125	-793	-3,565	-3,730	-6,788	-7,260	-25,564	18,009	-7,555
MO	Large Power	1,911	1,305	293	1,144	1,858	-1,160	-1,104	670	80	0	9	483	5,488	51,944	57,432
	Total	-16,603	-10,789	-73	6,122	33,525	-1,544	-21,523	-5,164	-15,906	-16,410	-29,539	-31,990	-109,892	93,485	-16,407
															134,925	-96,752

ENERGY EFFICIENCY ADJUSTMENT TO MONTHLY MWH SALES

		Energy Efficiency Adjustments to Monthly Billed Sales													Weather	Mar 2015	Total
State	Tariff	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Test Year	Adjustment	Customer	Adjustm
KS	Residential	0	0	0	0	0	0	0	0	0	0	0	0	0	-87,996	37,910	-50,085
KS	Small GS	0	0	0	0	0	0	0	0	0	0	0	0	0	-4,510	9,389	4,879
KS	Medium GS	0	0	0	0	0	0	0	0	0	0	0	0	0	-4,788	4,403	-385
KS	Large GS	0	0	0	0	0	0	0	0	0	0	0	0	0	-24,491	-10,262	-34,754
KS	Large Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Off Peak Lighting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	-121,785	41,440	-80,345
MO	Residential	-38	-88	-241	-199	-125	-17	-1	0	0	-1	0	0	-709	-75,293	23,652	-52,350
MO	Small GS	-16	-3	0	0	0	0	0	0	0	-20	0	0	-38	-5,732	852	-4,918
MO	Medium GS	-79	-16	0	0	0	0	0	0	0	-99	0	0	-193	-8,791	-972	-9,957
MO	Large GS	-73	-14	0	0	0	0	0	0	0	-91	0	0	-178	-25,564	18,009	-7,733
MO	Large Power	-60	-12	0	0	0	0	0	0	0	-75	0	0	-147	5,488	51,944	57,285
	Total	-266	-132	-241	-199	-125	-17	-1	0	0	-285	0	0	-1,266	-109,892	93,485	-17,674

ANNUALIZED ENERGY EFFICIENCY IMPACTS FOR KCP&L MISSOURI

Energy Efficiency Adjustments (KWh), without losses

State	Tariff	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Total
KS	Res	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Small GS	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Medium GS	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Large GS	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Large Power	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Sales for Resale	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
MO	Res	38,195	87,558	241,391	198,905	124,525	17,083	563	193	0	594	381	0	709,387
MO	Small GS	15,690	3,095	0	0	0	0	0	0	0	19,601	0	0	38,386
MO	Medium GS	79,036	15,590	0	0	0	0	0	0	0	98,734	0	0	193,359
MO	Large GS	72,884	14,376	0	0	0	0	0	0	0	91,050	0	0	178,311
MO	Large Power	60,062	11,847	0	0	0	0	0	0	0	75,032	0	0	146,941
MO	Sales for Resale	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	265,867	132,466	241,391	198,905	124,525	17,083	563	193	0	285,010	381	0	1,266,384

WEATHER NORMALIZED MONTHLY PEAK LOADS (MW)

WEATHER NORMALIZED MONTHLY PEAK LOADS WITH CUSTOMER GROWTH THROUGH March 2015 (MW)

State	Tariff	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Test Year
KS	Residential	499	606	824	981	936	835	632	543	708	739	612	655	981
KS	Small GS	62	73	89	99	95	94	76	61	71	77	66	63	99
KS	Medium GS	130	146	173	185	195	178	142	130	140	150	150	125	195
KS	Large GS	375	411	428	453	475	451	431	378	419	436	413	374	475
KS	Large Power	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Street Lights	3	3	3	3	3	3	3	3	3	3	3	3	3
KS	Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Area Lights	1	1	1	1	1	1	1	1	1	1	1	1	1
KS	Off Peak Lighting	10	10	10	10	10	10	10	10	10	11	11	11	11
MO	Residential	397	491	823	884	903	749	437	419	589	579	496	516	903
MO	Small GS	68	80	109	111	112	105	87	70	80	82	76	64	112
MO	Medium GS	175	210	267	261	287	248	204	176	199	207	215	177	287
MO	Large GS	356	380	419	420	455	425	397	344	387	410	388	365	455
MO	Large Power	304	334	333	370	338	318	300	273	299	267	281	283	370
MO	Street Lights	18	18	18	18	18	18	18	18	18	16	16	16	18
MO	Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0
MO	Area Lights	4	4	4	4	4	4	4	4	4	4	4	4	4

Note: These numbers include losses.

WEATHER NORMALIZED MONTHLY COINCIDENT PEAK LOADS (MW)

WEATHER NORM WEATHER NORMALIZED MONTHLY COINCIDENT PEAK LOADS WITH CUSTOMER GROWTH THROUGH March 2015 (MW)

State	Tariff	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Test Year
KS	Residential	495	570	760	919	922	752	603	442	699	739	612	655	922
KS	Small GS	48	70	86	95	92	90	69	50	59	60	55	43	95
KS	Medium GS	95	133	160	175	166	168	129	98	106	113	115	92	175
KS	Large GS	279	373	391	425	412	409	392	363	326	377	348	287	425
KS	Large Power	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Street Lights	3	0	0	0	0	0	0	0	3	3	3	2	3
KS	Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Area Lights	1	0	0	0	0	0	0	0	1	1	1	1	1
KS	Off Peak Lighting	10	0	0	0	0	0	0	0	10	11	11	9	11
	Total Retail	931	1,146	1,397	1,614	1,593	1,420	1,195	954	1,204	1,303	1,144	1,090	1,614
MO	Residential	389	476	784	831	878	624	437	360	566	575	481	508	878
MO	Small GS	49	76	105	107	108	99	78	59	68	65	60	45	108
MO	Medium GS	127	181	248	250	245	230	185	143	154	156	156	125	250
MO	Large GS	263	348	391	388	384	387	350	330	304	352	342	290	391
MO	Large Power	277	292	313	350	321	304	290	251	234	238	263	250	350
MO	Street Lights	18	0	0	0	0	0	0	0	18	16	16	14	18
MO	Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0
MO	Area Lights	4	0	0	0	0	0	0	0	4	4	4	3	4
	Total Retail	1,125	1,373	1,841	1,926	1,936	1,643	1,338	1,143	1,348	1,406	1,322	1,235	1,936

Note: These numbers include losses.

FORECAST OF NEST SYSTEM INPUT (NSI) & PEAK FOR KCP&L

	NSI	Hourly Peak Demand
	GWh	MW
2011	16,134	3,610
2012	16,437	3,677
2013	16,588	3,741
2014	16,846	3,798
2015	17,101	3,849
2016	17,409	3,895
2017	17,614	3,939
2018	17,865	3,983
2019	18,133	4,032
2020	18,450	4,116