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Witness: George M. McCollister, Ph.D
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Case No.: ER-2006-____
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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2006-____

FILED³

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DIRECT TESTIMONY

OF

Missouri Public
Service Commission

GEORGE M. MCCOLLISTER, PH.D

ON BEHALF OF

KANSAS CITY POWER & LIGHT COMPANY

Kansas City, Missouri
January 2006

VCR Exhibit No. 28
Case No(s) ER-2006-0318
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DIRECT TESTIMONY
OF
GEORGE M. MCCOLLISTER, Ph.D

Case No. ER-2006-_____

Q: Please state your name and business address.

A: My name is George M. McCollister, Ph.D. My business address is 1201 Walnut,
Kansas City, MO, 64106-2124.

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

A: I am the Manager of Market Assessment at Kansas City Power & Light Company
("KCPL").

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

A: I earned three degrees from the University of California at San Diego. These
include a Bachelor of Arts degree in mathematics and chemistry, a Master of Arts
degree in mathematics, and a Ph.D. in economics. My specialties in the
economics program were microeconomics and econometrics.

I was previously employed at three electric and natural gas utilities. I was
employed as an Energy Economist at Pacific Gas and Electric Company where I
was responsible for developing end-use models of electric and natural gas sales
and for analyzing responses to energy-use surveys of our customers. I was
employed as a Senior Forecast Analyst at San Diego Gas and Electric Company
where I developed models of customer choice, energy sales and system reliability.
I was also employed by UtiliCorp United, Inc. as the Forecast Leader where I was
responsible for end-use forecasting in integrated resource plans; budget forecasts;
weather normalization; variance analysis; and for statistical analysis. I have also

1 been employed by several consulting firms including Resource Management
2 International and Spectrum Economics, Inc. that focused on regulated industries.
3 The majority of my consulting projects focused on energy forecasting issues and
4 modeling for electric and natural gas utilities.

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

7 A: Yes, I have testified before the MPSC, the Oklahoma Corporation Commission,
8 the Kansas Corporation Commission, and the Public Utilities Commission in
9 Colorado.

10 **Q: What is the purpose of your testimony?**

11 A: I am sponsoring several normalizations to monthly Kilowatt hour ("kwh") sales
12 and peak loads in Schedules GMM-1 through GMM-3. I recommend that the
13 Commission adopt these results in the current case.

14 **Q: What are normalizations of kwh sales and hourly loads?**

15 A: Both kwh sales and hourly loads are adjusted to reflect normal weather
16 conditions. This is called a weather adjustment. Kwh sales are further adjusted to
17 restate the sales on a calendar month or accrued basis rather than on a billing
18 month basis, and for expected customer growth through September 2006.

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

20 A: Abnormal weather can increase or decrease a utility company's revenues, fuel
21 costs and rate of return. Therefore, revenues and expenses are typically adjusted
22 to reflect normal weather when these are used to determine a company's future

1 electric rates. These adjustments are made by first adjusting kwh sales and hourly
2 loads and then using these results to adjust revenues and fuel costs.

3 During the period October 2004 to September 2005, there were 12% fewer
4 heating degree days and 20% more cooling degree days than normal. Thus,
5 heating loads were less than normal and cooling loads were greater than normal.

6 **Q: What is the purpose of restating kwh sales on a calendar month or accrued**
7 **basis?**

8 A: Fuel costs are typically measured over calendar months whereas revenues are
9 measured and invoiced daily throughout the month. Because it is important to
10 measure revenues and fuel costs over the same time period, it is customary to
11 adjust revenues to a calendar month basis. This is accomplished by first adjusting
12 kwh billed sales to a calendar month basis and then determining how this change
13 affects revenues. Because the test year consists of a 12-month period, this
14 adjustment is computed by adding unbilled sales from the end of the period and
15 subtracting unbilled sales at the beginning of the period.

16 **Q: What method was used to weather normalize kwh sales?**

17 A: Our method was based on load research ("LR") data, which was derived by
18 measuring hourly loads for a sample of KCPL's customers representing the
19 Residential, Small General Service, Medium General Service, Large General
20 Service and Large Power Service classes. The hourly loads were grossed up by
21 the ratio of the number of customers for each of these classes divided by the
22 number sampled.

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

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

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

12 In the fourth step, this temperature response function was used to compute
13 daily weather adjustments as the difference between loads predicted with normal
14 weather and loads predicted with actual weather. Normal weather was derived
15 using spreadsheets provided by the MPSC Staff. The normal weather represents
16 average weather conditions over the 1971-2000 time period.

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

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

1 **Q: What method was used to adjust weather normalized monthly billed sales to**
2 **a calendar month test period?**

3 **A:** The portion of weather normalized billed sales in October 2004 and October 2005
4 that was unbilled from the previous month was estimated using the meter reading
5 schedule and the amount of sales in each billing cycle. Then, from test year billed
6 sales, the unbilled portion from October 2004 was subtracted and the unbilled
7 portion from October 2005 was added.

8 **Q: What adjustments were made for load and customer growth?**

9 **A:** First, KCPL's 2006-2010 budget forecast was used to project kwh sales, hourly
10 loads and peak loads for October, November and December 2005. The ratio of
11 projected growth for these months divided by the weather normalized sales in the
12 same month of 2004 was multiplied by weather normalized sales, hourly loads
13 and peaks loads in October, November and December 2004

14 Then the customer projections in our budget forecast were used to "true
15 up" sales and peak loads for customer growth through September 2006.

16 **Q: Are these your final calculations?**

17 **A:** Both of these adjustments are temporary because we expect to weather normalize
18 the last three months of 2005 when actual kwh sales become available. Also, the
19 true up will be based on actual customer growth when the customer numbers
20 become available.

21 **Q. What are the results of these normalizations?**

22 **A.** Schedule GMM-1 shows the adjustments for each normalization on kwh sales.
23 Schedule GMM-2 shows weather normalized peak loads by class and Schedule

1 GMM-3 shows weather normalized loads by class at the time of the monthly
2 system peak load.

3 **Q: Does that conclude your testimony?**

4 **A:** Yes, it does.

In the Matter of the Application of Kansas City)
Power & Light Company to Modify Its Tariffs to) Case No. ER-2006-____
Begin the Implementation of Its Regulatory Plan)

STATE OF MISSOURI)
) SS
COUNTY OF JACKSON)

1. My name is George M. McCollister. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Manager of Market Assessment.

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.

George M. McCollister
George M. McCollister, PhD

Subscribed and sworn before me this 27th day of January 2006.

Carey Smith
Notary Public

My commission expires



CAROL SIVILS
Notary Public - Notary Seal
STATE OF MISSOURI
Clay County
My Commission Expires: June 15, 2007

WEATHER ADJUSTMENTS TO MONTHLY BILLED SALES

Class	Weather Adjustments to Monthly Billed Sales												To Accrued	Sept 2006 Customer Growth	Total 2005 Accrued Plus Customer Growth
	Oct-04	Nov-04	Dec-04	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct04- Sep05		
Residential	1,975	7,619	9,576	7,430	8,138	5,820	-273	-448	-9,240	-10,398	-8,912	-29,454	-18,168	2,068	21,796
Small GS	-136	491	730	572	666	564	-51	-159	-900	-816	-699	-2,346	-2,083	429	3,109
Medium GS	-521	404	386	377	550	564	-76	-459	-1,714	-1,400	-1,132	-3,888	-6,910	978	6,358
Large GS	-1,253	1,268	3,450	2,630	3,479	3,641	389	-310	-2,792	-2,172	-1,824	-6,320	186	4,295	23,541
Large Power	-666	-118	-113	0	0	340	-1,289	-1,043	-2,074	-835	-1,418	-4,902	-12,118	830	9,738
Special Contract	-1	5	8	5	6	5	0	-2	-6	-3	-2	-8	9	0	0
Total	-601	9,669	14,036	11,014	12,840	10,934	-1,300	-2,421	-16,726	-15,625	-13,987	-46,918	-39,085	8,601	64,541

WEATHER NORMALIZED MONTHLY PEAK LOADS (MW)

Class	Oct-04	Nov-04	Dec-04	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Test Year
Residential	416	425	512	481	484	393	326	606	791	880	804	706	880
Small GS	79	79	80	92	79	73	69	91	108	114	116	100	116
Medium GS	176	149	155	161	153	158	167	202	227	237	230	206	237
Large GS	341	340	348	378	358	328	322	383	406	413	414	391	414
Large Power	342	315	306	289	309	316	337	362	378	371	379	352	379
Street Lights	15	15	15	15	15	15	15	15	15	15	15	15	15
Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Lights	4	4	4	4	4	4	4	4	4	4	4	4	4
Special Contract	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Retail	1,193	1,200	1,289	1,308	1,269	1,141	1,090	1,477	1,803	1,901	1,822	1,558	1,901

Note: These numbers include losses.

WEATHER NORMALIZED MONTHLY COINCIDENT PEAK LOADS (MW)

Class	Oct-04	Nov-04	Dec-04	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Test Year
Residential	394	418	501	444	467	390	323	510	733	817	792	702	817
Small GS	47	58	58	80	59	51	50	82	103	103	80	77	103
Medium GS	145	127	125	132	127	122	126	180	210	225	197	168	225
Large GS	274	306	307	364	320	280	259	357	390	402	393	296	402
Large Power	314	272	279	275	278	281	300	347	366	353	351	294	366
Street Lights	15	15	15	3	15	13	15	0	0	0	0	0	15
Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Lights	4	4	4	1	4	3	4	0	0	0	0	0	4
Special Contract	1	1	1	1	1	1	1	1	1	1	1	1	1

Note: These numbers include losses.