Exhibit No.:	
Issues:	OSS Allocation
Witness:	Lena M. Mantle
Sponsoring Party:	MO PSC Staff
Type of Exhibit:	Rebuttal Testimony
Case No.:	ER-2006-0314
Date Testimony Prepared:	September 8, 2006

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

REBUTTAL TESTIMONY

OF

LENA M. MANTLE

KANSAS CITY POWER & LIGHT COMPANY

CASE NO. ER-2006-0314

Jefferson City, Missouri
September 2006

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of Kansas City Power & Light Company for Approval to Make Certain Changes in its Charges for Electric Service to Begin the Implementation of Its Regulatory Plan	)))))	Case No. ER-2006-0314

AFFIDAVIT OF LENA M. MANTLE

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Lena M. Mantle, of lawful age, on her oath states: that she has participated in the preparation of the following Direct Testimony in question and answer form, consisting of 5 pages of Direct Testimony to be presented in the above case, that the answers in the following Direct Testimony were given by her; that she has knowledge of the matters set forth in such answers; and that such matters are true to the best of her knowledge and belief.

Lena M Mantle
Lena M. Mantle

Subscribed and sworn to before me this 8th day of September, 2006.

ROSEMARIE RIEDL
MY COMMISSION EXPIRES
June 1, 2009
NOTARY SEAL
#05509538
COLE COUNTY
NOTARY PUBLIC, STATE OF MISSOURI

Rosemarie Riedl
Notary Public

My commission expires June 1, 2009

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CASE NO. ER-2006-0314

Q. Please state your name and business address.

A. My name is Lena M. Mantle and my business address is Missouri Public Service Commission, P. O. Box 360, Jefferson City, Missouri 65102.

Q. What is your present position with the Missouri Public Service Commission (Commission)?

A. I am the Manager of the Energy Department, Utility Operations Division.

Q. Would you please review your educational background and work experience?

A. I received a Bachelor of Science Degree in Industrial Engineering from the University of Missouri, at Columbia, in May 1983. I joined the Commission Staff (Staff) in August 1983. I became the Supervisor of the Engineering Section of the Energy Department in August, 2001. In July 2005, I was named the Manager of the Energy Department. I am a registered Professional Engineer in the State of Missouri.

My work here at the Commission has included the review of resource plans of investor owned electric utilities since 1984. I was actively involved in the writing of the Commission's Chapter 22, Electric Resource Planning rules (Chapter 22). I participated in the review of all of the utility filings under that rule. When the Commission issued a waiver to the electric utilities from filing under Chapter 22 in 1999, the electric utilities were required to make biannual reports to the Staff regarding their resource plans. I was present at all but one of the semi-annual resource plan update meetings of the electric utilities.

Since the waiver from Chapter 22 expired, I have been the lead Staff member in the Staff's review of the resource plan filing of Union Electric Company, d/b/a AmerenUE and Kansas City Power & Light Company (KCPL).

Q. Have you previously filed testimony before this Commission?

A. Yes, I have. Please see Schedule 1 attached to this testimony for a list of cases in which I have previously filed testimony.

EXECUTIVE SUMMARY

Q. Why are you filing rebuttal testimony in this case?

A. In his direct testimony KCPL witness Don A. Frerking states that an allocator that KCPL calls "Unused Energy" allocator was used to allocate the off-system sales revenues (Frerking direct, pg. 7, line 13 through pg. 8, line 4). In his testimony witness Frerking states that "[t]he Unused Energy allocator is derived from the Demand and Energy allocators." (pg. 8, lns. 22-23) The result of the application of this allocation factor is that KCPL is allocating more off-system sales revenue to the low load factor jurisdiction (Kansas) than to the high load factor jurisdiction (Missouri). My rebuttal testimony provides general resource planning information regarding what type of generation units are built for low load factor utilities and what generation is built for high load factor utilities. Typically, high load factor utilities are most cost effectively served with a higher proportion of base load generation (i.e., high capital and low variable costs generation). Low load factor utilities are typically served most cost effectively with more intermediate and peaking generation (i.e., low capital and high variable cost generation.) To use an allocation factor that allocates more margin to the lower load factor jurisdiction, as KCPL is doing, is giving Kansas more benefits from the base load generation that would not have been constructed if it was not for the higher load factor jurisdiction, which is Missouri.

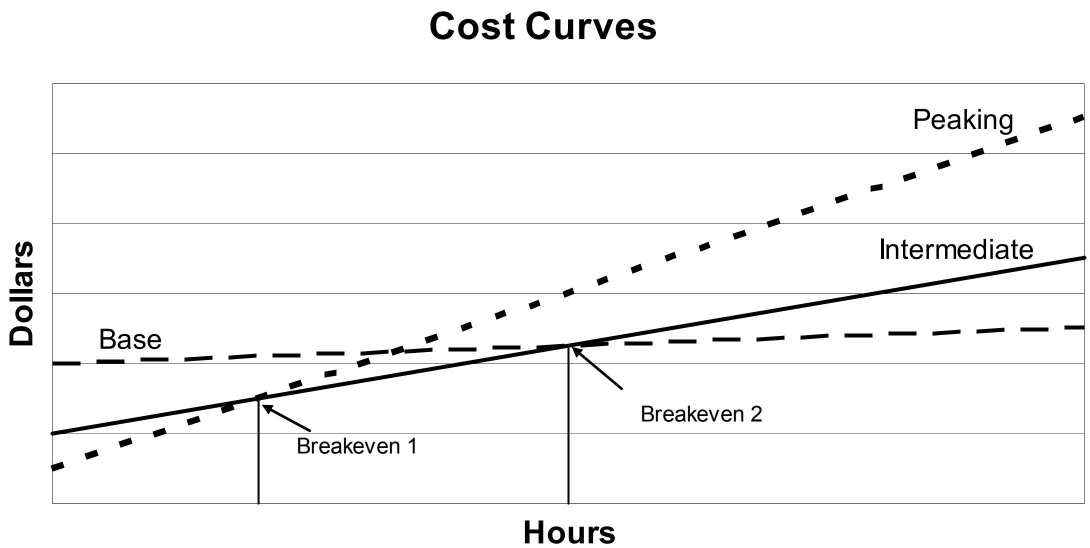
DETAIL

Q. Would you please explain this in greater detail?

A. The most cost effective solution to meeting an electric utility's load requirements is not the same for all utilities. To most cost effectively meet the load requirements, the duration of load (i.e., load shape) needs to be considered along with the capacity needs (i.e., demand.)

Load factor is one measure of the load shape. Load factor is the average energy usage divided by the peak demand. A higher load factor signifies that the average load is closer to the peak load than a low load factor. A low load factor indicates that the average usage is much lower than the peak.

Basically generation units can be categorized as peak, intermediate or base load generation. The cost characteristics of the three different types of generation are shown below.



Generally, base load generation such as coal and nuclear, have fairly flat cost curves due to their low variable costs. However, these types of plants have a high upfront capital cost. They are most cost effective if the duration of the need for generation is long (e.g., past the breakeven point 2 on the graph above). On the other hand, peak load generation, such as natural gas or oil combustion turbines, have a steeper cost curve because of the higher price of their fuel and therefore a higher variable cost. However, for a limited number of hours (up to breakeven point 1 on the graph above), peak generation is more cost effective because of the low capital cost of peak generation. Intermediate generation is cost effective between breakeven point 1 and breakeven point 2. Intermediate generation is typically natural gas combine cycle plants or older coal plants.

Q. What does this have to do with the Unused Energy allocator?

A. The Unused Energy allocator rewards the lowest load factor jurisdiction with a larger percentage of the off-system sales revenues. A higher load factor would indicate that generation could be utilized longer, moving further up the cost curve past the first breakeven point where intermediate and base load generation are most cost-effective.

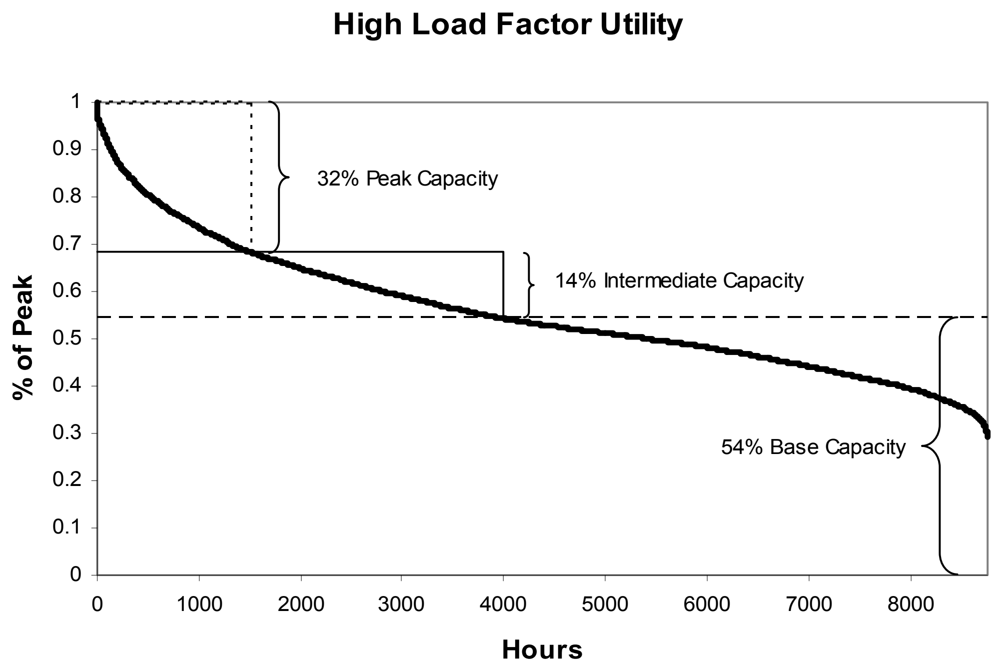
Typically the average energy is not constant with just one hour being higher than the others. With a low load factor, the energy usage typically fluctuates more across time than it does for a utility with a high load factor. Therefore, a utility with a lower load factor would more likely build peak load generation because it needs the energy for a shorter duration of time.

Q. Would the higher load factor utility only have base load generation?

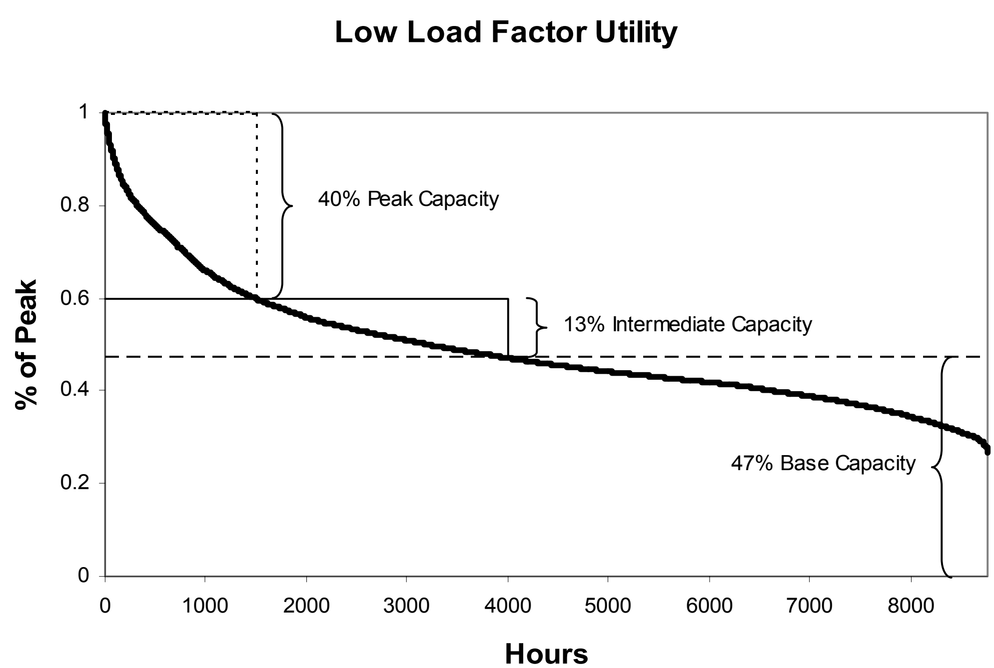
A. No, most utilities, including all of the regulated electric utilities in Missouri, have a mixture of base, intermediate and peak load generation regardless of their load factors. It is the proportion of each type of generation in the utility's portfolio that is different for high vs. low load factor utilities.

Q. Do you have another way to show how the differences in capacity types vary for electric utilities with different load shapes?

A. Below are graphs that show load duration curves for two different utilities. A load duration curve is a graphical representation of the hourly loads sorted from highest hourly demand to the minimum hourly demand. In these graphs, the load has been unitized (i.e., each hour's load has been divided by that utility's peak load) so that the two graphs can be compared. Each graph also shows a simplified representation of the three types of generation to most cost effectively meet the load.



The utility in the graph above has a higher load factor than the utility shown below. It shows that this utility should have approximately 54% of its generation capacity base load, 14% intermediate and 32% peak.



The utility shown in this second graph has a lower load factor than the previous utility. It shows that the base load generation percentage of this utility's portfolio should be approximately 47%, 13% intermediate and 40% peak.

I would like to emphasize that this is not a definitive measure of how much of each type of capacity either of these utilities should have. It is only a quick, graphical method to give a reasonable amount of each type of capacity. A resource planning model that takes into account the hourly loads and how they fluctuate should be used to estimate the most cost-effective generation mix, including the reserve requirements.

Q. Why is this discussion important in the allocation of off-system revenues for KCPL?

A. Off-system sales margins are higher when the generation used to generate the energy sold was generated by base load generation since the variable cost of base load generation is lower than other types of generation. KCPL is a very heavily base loaded generation utility. Because its Missouri jurisdiction has a higher load factor than its Kansas Jurisdiction, KCPL's generation portfolio more closely reflects the cost-effective generation requirements of its Missouri jurisdiction. If KCPL's generation capacity was built to most cost effectively meet the load requirements of KCPL's Kansas jurisdiction, it would have a higher proportion of peak capacity. If this were the case, there would be less off-system sales and the off-system sales margin would be smaller since the variable cost of peak generation is higher. To use an allocation factor that allocates more margin to the lower load factor jurisdiction, as KCPL is doing, is giving Kansas more benefits from the base load generation that would not have been constructed if it was not for the higher load factor jurisdiction.

Staff witness Cary G. Featherstone discusses in greater detail why the load factor is important for the Unused Energy allocation factor.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

PREVIOUS TESTIMONY OF LENA M. MANTLE

CASE NUMBER	TYPE OF FILING	ISSUE
ER-84-105	Direct	Demand-Side Update
ER-85-128, et. al	Direct	Demand-Side Update
EO-90-101	Direct, Rebuttal & Surrebuttal	Weather Normalization of Sales; Normalization of Net System
ER-90-138	Direct	Normalization of Net System
EO-90-251	Rebuttal	Promotional Practice Variance
EO-91-74, et. al.	Direct	Weather Normalization of Class Sales; Normalization of Net System
ER-93-37	Direct	Weather Normalization of Class Sales; Normalization of Net System
ER-94-163	Direct	Normalization of Net System
ER-94-174	Direct	Weather Normalization of Class Sales; Normalization of Net System
EO-94-199	Direct	Normalization of Net System
ET-95-209	Rebuttal & Surrebuttal	New Construction Pilot
ER-95-279	Direct	Normalization of Net System
ER-97-81	Direct	Weather Normalization of Class Sales; Normalization of Net System; TES Tariff
EO-97-144	Direct	Weather Normalization of Class Sales; Normalization of Net System;
ER-97-394, et. al.	Direct, Rebuttal & Surrebuttal	Weather Normalization of Class Sales; Normalization of Net System; Energy Audit Tariff

EM-97-575	Direct	Normalization of Net System
EM-2000-292	Direct	Normalization of Net System; Load Research;
ER-2001-299	Direct	Weather Normalization of Class Sales; Normalization of Net System;
EM-2000-369	Direct	Load Research
ER-2001-672	Direct & Rebuttal	Weather Normalization of Class Sales; Normalization of Net System;
ER-2002-1	Direct & Rebuttal	Weather Normalization of Class Sales; Normalization of Net System;
ER-2002-424	Direct	Derivation of Normal Weather
EF-2003-465	Rebuttal	Resource Planning
ER-2004-0570	Direct	Reliability Indices
ER-2004-0570	Rebuttal & Surrebuttal	Energy Efficiency Programs and Wind Research Program
EO-2005-0263	Oral	DSM Programs and Integrated Resource Planning
EO-2005-0329	Oral	DSM Programs and Integrated Resource Planning
ER-2005-0436	Direct	Resource Planning
ER-2005-0436	Rebuttal	Low-Income Weatherization and Energy Efficiency Programs
ER-2005-0436	Surrebuttal	Low-Income Weatherization and Energy Efficiency Programs; Resource Planning
EA-2006-0309	Rebuttal & Surrebuttal	Resource Planning
ER-2006-0315	Rebuttal	DSM and Low-Income Programs