Exhibit No.:
Issues: System Energy, Energy Allocation Factors

Witness: Erin L. Maloney
Sponsoring Party: MO PSC Staff
Type of Exhibit: Direct Testimony
Case No.: ER-2007-0002
Date Testimony Prepared: December 15, 2006

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

DIRECT TESTIMONY

OF

ERIN L. MALONEY

UNION ELECTRIC COMPANY d/b/a AMERENUE

CASE NO. ER-2007-0002

Jefferson City, Missouri
December 2006

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area.	)))))	Case No. ER-2007-0002

AFFIDAVIT OF ERIN L. MALONEY

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

Erin L. Maloney, 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.

Erin L. Maloney

Subscribed and sworn to before me this 13th day of December, 2006.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

SUSAN L. SUNDERMEYER
My Commission Expires
September 21, 2010
Callaway County
Commission #06942086

Susan L. Sundermeyer
Notary Public

My commission expires 9-21-10

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UNION ELECTRIC COMPANY d/b/a AMERENUE

CASE NO. ER-2007-0002

Q. Please state your name and business address?

A. Erin L. Maloney, P.O. Box 360, Jefferson City, Missouri, 65102.

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

A. I am employed by the Missouri Public Service Commission (Commission) as a Utility Engineering Specialist II in the Energy Department of the Utility Operations Division.

Q. Please describe your educational and work background.

A. I graduated from the University of Nevada - Las Vegas with a Bachelor of Science degree in Mechanical Engineering in June 1992. From August 1995 through November 2002, I was employed by Electronic Data Systems of Kansas City, Missouri, as a System Engineer. In January 2005, I joined the Commission Staff (Staff) as a Utility Engineering Specialist I.

Q. Have you previously filed testimony before the Commission?

A. Yes. Please see Schedule ELM1 for a list of the testimony I have filed previously before the Commission.

EXECUTIVE SUMMARY

Q. What is the purpose of this testimony?

A. The purpose of this testimony is to recommend that the Commission adopt the system energy loss factor and the energy allocation factors set forth in the tables below:

System Energy Loss Factor
.0449

Energy Allocation Factors		
Missouri Retail	**Wholesale**	**Total System**
.983869	.016131	1

SYSTEM ENERGY LOSS FACTOR

Q. What is the result of your system energy loss factor calculation?

A. As shown on Schedule ELM2, attached to this Direct Testimony, the calculated system energy loss factor is .0449 or 4.49%.

Q. What are system energy losses?

A. System energy losses largely consist of the energy losses that occur in the electrical equipment (e.g., transmission and distribution lines, transformers, etc.) in Union Electric Company d/b/a AmerenUE's (AmerenUE's or Company's) system between the generating sources and the customers' meters. In addition, small, fractional amounts of energy either stolen (diversion) or not metered are included as system energy losses.

Q. How are system energy losses determined?

A. The basis for this calculation is that the difference in energy between what the Company generates or purchases (sources) and what the company ultimately sells (sinks) is the actual amount of system energy loss. This can be expressed as:

NSI = Total Sales + System Energy Losses

NSI and Total Sales are known; therefore, system energy losses may be calculated as follows:

System Energy Losses = NSI – Total Sales

The system energy loss factor is the ratio of system energy losses to NSI:

System Energy Loss Factor = System Energy Losses ÷ NSI

Q. What are "Total Sales" and how are these values determined?

A. Total Sales includes all of AmerenUE's retail and wholesale sales of energy

Q. How is NSI determined?

A. In addition to the equation above, NSI is also equal to the sum of AmerenUE's net generation, net interchange, and any inadvertent flows. Net interchange is the difference between interchange purchases and off-system sales. Net generation is the total energy output of each generating station minus the energy consumed internally to enable its production. The output of each generating station and the net of off-system purchases and sales are monitored continuously. The difference between scheduled and actual flows on a system is termed inadvertent interchange; this information is also monitored continuously. The net generation, interchange purchases and sales, and inadvertent flow information was obtained from data supplied by AmerenUE in response to Staff Data Request Nos. 380, 76, and 375, respectively. NSI was provided by the Company in response to Staff Data Request No. 137. The equation for NSI can also be expressed as follows:

NSI = Net Generation + Net Interchange + Inadvertent Flows

Q. Which Staff witness used your calculated system energy loss factor?

A. The system energy loss factor was used by Staff witness Shawn E. Lange.

ENERGY ALLOCATION FACTORS

Q. What energy allocation factors are you recommending be used in this case?

A. The factors are as shown on Schedule ELM3 and are repeated here.

Energy Allocation Factors

Missouri Retail	Wholesale	Total System
.983869	.016131	1

Q. What types of costs were allocated on the basis of energy?

A. It is my understanding that other Staff witnesses allocate variable expenses, such as fuel and certain operational and maintenance (O&M) costs, to the jurisdictions based on energy consumption.

Q. How did you calculate the energy allocation factor?

A. The energy allocation factor for an individual jurisdiction is the ratio of the normalized annual kilowatt-hour (kWh) usage in the particular jurisdiction to the total normalized annual AmerenUE kWh usage. The sum of the energy allocation factors across jurisdictions equals one. The actual jurisdictional kWh usage totals were provided in the Company response to Staff Data Request No. 381.

Q. What adjustments were made to these recorded kWhs?

A. The Staff made the following adjustments to be consistent with the net system hourly loads used in determining normalized fuel costs:

a. Large Customer Annualization

b. Weather

c. Days

d. Customer Growth

Q. Did you calculate these adjustments?

A. No. Staff witness Curt Wells supplied (a) above, Staff witness Shawn E. Lange supplied adjustments (b) and (c), and Staff witness Jeremy Hagemeyer supplied adjustment (d). Please refer to the testimony submitted by these Staff members for a summary of the adjustments.

Q. Which Staff witness used your energy allocation factors?

A. I provided these energy allocation factors to Staff witness Greg Meyer.

Q. Does this conclude your prepared Direct Testimony?

A. Yes, it does.

Previous Testimony Filed by
Erin L. Maloney

Case Number	Type of Testimony	Issue
ER-2005-0436	Direct	Reliability
ER-2006-0315	Direct	System Losses and Jurisdictional Demand and Energy Allocation
ER-2006-0314	Direct, Rebuttal, Surrebuttal, True-up Direct	System Losses and Jurisdictional Demand and Energy Allocation

Calculation of System Losses in MWh

Union Electric Company d/b/a AmerenUE

Case No. ER-2007-0002

NSI = Total Sales + System Energy Losses
NSI = Net Generation + Net Interchange + Inadvertent Flows
Total Sales + System Losses = Net Generation + Net Interchange + Inadvertent Flows

Solving for System Losses:
System Losses = Net Generation + Net Interchange + Inadvertent Flows - Total Sales

	Net Generation	Off System Sales	Purchases	Inadvertent Flows	Total Sales to Ultimate Consumers	Calculated System Losses	System Loss Factor = System Losses/NSI*
Source:	DR # 380	DR # 76	DR # 76	DR # 375	DR # 381		
	48,962,115	**-13,221,180**	**4,058,653**	**4,070**	**-38,018,866**	**1,784,792**	**4.494%**

Actual NSI 39,712,524 * NSI data source is DR # 137

UNION ELECTRIC COMPANY d/b/a AmerenUE
COMPONENTS OF ANNUAL NET SYSTEM INPUT & JURSDICTIONAL ENERGY ALLOCATORS
Case No. ER-2007-0002

	Sales (kWh)	Large Customer Annualizations	Normalization for Weather	Days Adjustment	Additional kWh from Cust Growth	Total AmerenUE Normalized kWh
Mo Retail	38,678,145,703	(30,796,760)	(448,421,616)	46,140,154	233,107,107	38,478,174,588
Wholesale	632,342,031	-	(1,474,812)	-	-	630,867,219
NSI w/o losses	39,310,487,734	(30,796,760)	(449,896,427)	46,140,154	233,107,107	39,109,041,807
MSD	164,757					164,757
Losses	39,310,652,491					39,109,206,564
4.49%	41,158,677,092.26	(32,244,540.24)	(471,046,411.12)	48,309,238.56	244,065,655.19	40,947,761,034.66

	Jurisdictional Energy Allocation:
MO Retail	**0.983869**
Wholesale	**0.016131**
Total System	**1**