Exhibit No.: 017P
Issues: Nuclear Fuel Costs
Witness: Randall J. Irwin
Sponsoring Party: Union Electric Company
Type of Exhibit: Rebuttal Testimony
Case No.: ER-2007-0002
Date Testimony Prepared: January 31, 2007

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2007-0002

REBUTTAL TESTIMONY

OF

RANDALL J. IRWIN

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

St. Louis, Missouri
January, 2007

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REBUTTAL TESTIMONY

OF

RANDALL J. IRWIN

CASE NO. ER-2007-0002

Q. Please state your name and business address.

A. My name is Randall J. Irwin. My business address is One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

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

A. I am employed by AmerenUE as Supervising Engineer, Fuel Cycle Management in the Nuclear Division.

Q. Please describe your educational background.

A. I graduated from the University of Oklahoma in 1972, receiving a Bachelor of Science Degree in Engineering Physics. I have also taken graduate courses in nuclear engineering from the University of Missouri – Rolla.

I am a registered professional engineer in the State of Missouri.

Q. What has been the nature of your duties while in the employ of AmerenUE?

A. I was employed by Union Electric Company in January, 1973. In July 1973, I was assigned to the nuclear group. My primary duties since that time have involved nuclear fuel.

Q. Please describe your duties and responsibilities regarding nuclear fuel.

A. I am responsible for the procurement of nuclear fuel goods and services to support the operation of the Callaway Plant. In this regard, I am responsible for the

determination of nuclear fuel requirements, development of nuclear fuel procurement strategies, negotiation and administration of the various nuclear fuel-related contracts, monitoring the nuclear fuel markets, and maintaining business relations with the numerous suppliers in the nuclear fuel industry. In addition, I am responsible for the preparation of fuel cycle economic studies and projections of nuclear fuel costs. I have also had the responsibility for reactor core fuel management activities necessary to support reload design, licensing and plant operation.

Q. Have you previously filed written testimony concerning nuclear fuel costs before this Commission?

A. Yes, I submitted testimony in Union Electric Company's initial Callaway rate case, Case No. ER-85-160, and also in Case Nos. EC-87-114 and EC-87-115.

Q. Have you previously filed direct testimony in this proceeding?

A. No.

Q. What is the purpose of your Rebuttal Testimony in this proceeding?

A. With reference to the direct testimony of Mr. John P. Cassidy of the Commission Staff, the purpose of this testimony is to provide updated information on nuclear fuel costs for the Callaway Plant in 2007. In addition, current balances of nuclear fuel inventory in the reactor will be discussed.

Q. The Staff used a test year average nuclear fuel price of ** [redacted] **. Is that price expected to change for calendar year 2007?

A. Yes.

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Q. Please identify the change and discuss the reasons.

A. The Callaway Plant undergoes a refueling every 18 months. During each refueling, about ½ of the fuel assemblies in the reactor core are removed and a similar number of new fuel assemblies are added. Fuel costs for the subsequent cycle are based on the unamortized value of the fuel assemblies remaining in the reactor and the original cost of the new fuel assemblies added. The cost of new fuel assemblies has increased, and the increase is expected to continue.

Q. What is the reason for the increase?

A. The nuclear fuel market has undergone a significant transformation during the past few years. Due to increases in demand for uranium, conversion and enrichment services, and the lack of production expansion due to years of depressed prices, the prices for these commodities and services have increased substantially. The market has rapidly changed from a buyer's market to a seller's market. The prices for nuclear fuel are predicted to continue increasing for the next few years, until such time as production more closely matches demand.

Q. How has the increase in prices affected the cost of fuel for the Callaway Plant?

A. The cost of the new fuel assemblies added during the refueling for Cycle 15 (November 2005 start) was ** [redacted] **. The cost of the new fuel assemblies to be added during the refueling for Cycle 16 (May 2007 start) will be formally reconciled in April 2007. Procurement of the necessary goods and services for the new fuel assemblies is complete and essentially all of the new fuel assemblies are onsite. Other than the accrual of financing costs for the next few months, the costs associated with the new fuel assemblies are

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reasonably known. It is estimated that the total cost of the new fuel will be **[redacted]**.

Q. How will this increase affect nuclear fuel costs for calendar year 2007?

A. Nuclear fuel costs for the period November 2005 through March 2007 are associated with Cycle 15. Per the Company's C-9 report for November 2006, the Fuel Burned cost is **[redacted]**. The Fuel Burned cost for the remainder of Cycle 15 (through March 2007) is expected to remain similar to this value. During April 2007, the Callaway Plant will be refueled and new fuel assemblies will be added. Fuel burn costs for the period May 2007 to October 2008 (expected end of Cycle 16) will include the **[redacted]** of new fuel assemblies added. The Fuel Burn costs for the period May 2007 through December 2007 are estimated to average **[redacted]**.

Q. Would a Fuel Burn cost of **[redacted] be more representative for 2007?**

A. Yes, I believe it would.

Q. Are there other problems with the Staff's calculation of nuclear fuel related costs?

A. Yes.

Q. Please explain.

A. As noted in the testimony of Mr. Cassidy, "The Staff also included ..... approximately $1.59 million in fees paid to the U.S. Department of Energy (DOE) related to the decommissioning and dismantling of certain DOE facilities". The fees paid to DOE for decommissioning and dismantling (D&D) escalate each year, and are invoiced to the Company each October. Allocation of the charges to nuclear fuel costs occurs equally over

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the subsequent twelve month period. The most recent invoice from DOE for D&D fees, dated October 3, 2006, was $1.863 million. The fees are to be allocated equally over the period from November 2006 to October 2007, inclusive.

Q. Is the $1.863 million charge from DOE more representative of actual costs to be incurred for D&D?

A. Yes, it is.

Q. Are there any other changes that should be considered?

A. Yes. The testimony of Mr. Cassidy stated that "The Staff also included a 93.6 cent/MWH cost, consistent with the Company, in order to reflect annual required costs that are associated with the disposal of spent nuclear fuel...."

Q. Have the fees for disposal of spent fuel changed for AmerenUE?

A. Yes. The DOE spent fuel disposal fee is based on the amount of MWh that are generated and sold by the Callaway Plant. For payment purposes, the DOE allows for a reduction in the amount of MWh generated due to transmission line losses. Transmission line losses for AmerenUE are determined yearly and effectively reduce the amount of MWh available for sale, and thus subject to the spent fuel fee. A new rate is calculated each year and typically is in effect by May of each year. From July 2005 through April 2006, the applicable rate paid to DOE for spent fuel disposal was 93.6 cents/MWh. In May 2006, a new line loss factor for AmerenUE was calculated. The new loss factor was slightly lower than that used in 2005. As a result, the current rate paid to DOE, effective May 2006, is now 94.56 cents/MWh. This rate will be applicable through at least April 2007.

Q. Is the higher rate of 94.56 cents/MWh for spent fuel disposal more representative?

A. Yes, it is the current rate being incurred.

Q. Are there any other nuclear fuel related cost issues that need clarification?

A. Yes. In the testimony of Mr. Cassidy, it is stated that "The Staff included the average balances that existed for the 18 months ending June 30, 2006 for nuclear fuel, as a representative ongoing level."

Q. Please describe what those balances represent.

A. The average balances referred to relate to the unamortized value of nuclear fuel in the reactor during the period January 2005 to June 2006. From the documentation GSW WP E784, the average balance during such period was ** [redacted] **.

Q. Is that value representative as an ongoing level?

A. No. As I mentioned previously, the nuclear fuel market has undergone a significant transformation during the past few years. Prices have increased and supplies have tightened. The costs of new fuel assemblies for the Callaway Plant have increased, and these increases are expected to continue. Reflecting these higher costs, an updated estimate of the average balance of nuclear fuel in the reactor for an 18 month period is ** [redacted] **.

Q. Would that higher value be more representative of the current situation?

A. Yes, I believe it would.

Q. Does this conclude your Rebuttal Testimony?

A. Yes, it does.

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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 RANDALL J. IRWIN

STATE OF MISSOURI)
) **ss**
CITY OF ST. LOUIS)

Randall J. Irwin, being first duly sworn on his oath, states:

1. My name is Randall J. Irwin. I work in St. Louis, Missouri and I am employed by AmerenUE as Supervising Engineer, Fuel Cycle Management in the Nuclear Division.

2. Attached hereto and made a part hereof for all purposes is my rebuttal Testimony on behalf of Union Electric Company d/b/a AmerenUE consisting of 6 pages, which has been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Randall J. Irwin

Randall J. Irwin

Subscribed and sworn to before me this 30th day of January, 2007.

Danielle R. Moskop

Notary Public

My commission expires: July 21, 2009

Danielle R. Moskop
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires: July 21, 2009
Commission # 05745027