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**Missouri Public
Service Commission**

Exhibit No.: 018P
Issues: Nuclear Fuel Costs
Witness: Randall J. Irwin
Sponsoring Party: Union Electric Company
Type of Exhibit: Surrebuttal Testimony
Case No.: ER-2007-0002
Date Testimony Prepared: February 27, 2007

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2007-0002

SURREBUTTAL TESTIMONY

OF

RANDALL J. IRWIN

ON

BEHALF OF

**UNION ELECTRIC COMPANY
d/b/a AmerenUE**

AmerenUE Exhibit No. 18NP
Case No(s). ER-2007-0002
Date 3/29/07 Rptr pf

**St. Louis, Missouri
February, 2007**

Public

1 **Q. Is a weighted average nuclear fuel cost for the entire calendar year 2006**
2 **the most accurate representation of actual current costs?**

3 A. No.

4 **Q. Please explain.**

5 A. Nuclear fuel costs are based on the amortization of each of the 193 nuclear
6 fuel assemblies in the reactor. Monthly nuclear fuel costs represent the total of the
7 amortization of each of the fuel assemblies during a given month. A key component in
8 monthly fuel expense determination is the forecast of remaining total generation (MWh or
9 MMBtu) of each fuel assembly during its lifetime in the reactor. Fuel assemblies typically
10 reside in the reactor for two fuel cycles, or a total of 3 years. As the operation of a given fuel
11 cycle evolves, the remaining production from each fuel assembly becomes more accurate.
12 Also, after the initial months of operation in a given cycle, reload design planning for the
13 subsequent cycle begins. This can impact the remaining lifetimes of fuel assemblies in the
14 current cycle. Fuel assembly lifetimes are monitored routinely and are updated as more
15 accurate information becomes available.

16 **Q. How does this process impact the average fuel costs for 2006?**

17 A. In May 2006, an updated fuel utilization plan was developed and
18 implemented. Fuel assembly generation lifetimes were updated to reflect current operational
19 plans. As I mentioned previously, remaining generation is a key component of nuclear fuel
20 cost determination. As a consequence of implementing these changes, nuclear fuel costs
21 increased from the pre May 2006 values.

1 **Q. What period of 2006 provides the most accurate representation of**
2 **AmerenUE's current nuclear fuel costs?**

3 A. The period July – December 2006 provides the most accurate reflection of
4 current nuclear fuel costs. Updated fuel assembly lifetimes have been incorporated and a
5 representative generation profile is included.

6 **Q. What are the actual nuclear fuel costs for this period?**

7 A. Using the Staff's method of generation weighting, the average nuclear fuel
8 cost for the period July through December 2006 is **[REDACTED]** cents/MMBtu.

9 **Q. Does this value more accurately reflect current nuclear fuel costs for 2006**
10 **than the Staff's value of **[REDACTED]** cents/MMBtu?**

11 A. Yes, I believe it does.

12 **Q. As of January 1, 2007, are there known and measurable nuclear fuel costs**
13 **for 2007?**

14 A. Yes. Nuclear fuel costs throughout 2007 are based on two major components:
15 1) the unamortized cost of nuclear fuel in the reactor as of December 31, 2006, and 2) the
16 cost of the new fuel assemblies that will be loaded into the reactor in April 2007. The
17 unamortized costs of the fuel currently in the reactor are known. In addition, the cost of the
18 new fuel assemblies to be loaded into the reactor in April 2007 is also known as of January 1,
19 2007. Due to the lead-time necessary to procure and manufacture nuclear fuel assemblies,
20 costs are known prior to a refueling. The fuel assemblies that will be loaded into the reactor
21 in April 2007 have already been purchased and delivered to the Callaway Plant. In summary,
22 the costs which form the basis for the 2007 nuclear fuel expense are known and measurable
23 as of January 1, 2007.

Public

1 **Q. As of January 1, 2007, what would the known nuclear costs be for 2007?**

2 A. Using the Staff's methodology of generation weighting, the average nuclear
3 fuel cost for calendar year 2007 would be **[REDACTED]** cents/MMBtu.

4 **Q. As of January 1, 2007, would **[REDACTED]** cents/MMBtu be the most**
5 **accurate, known and measurable, nuclear fuel cost for calendar year 2007?**

6 A. Yes, it would.

7 **Q. Does this conclude your Surrebuttal Testimony?**

8 A. Yes, it does.

Public

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.)

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

Randall J. Irwin
Randall J. Irwin

Carol J. Woodstock
Notary Public

My commission expires: May 19, 2008

