

Exhibit No.:
Issues: Vegetation Management,
Infrastructure Inspection &
Maintenance, Service
Reliability and Callaway
Plant Life
Witness: Warren T. Wood
Sponsoring Party: MO PSC Staff
Type of Exhibit: Rebuttal Testimony
Case No.: ER-2007-0002
Date Testimony Prepared: January 31, 2007

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

REBUTTAL TESTIMONY

OF

WARREN T. WOOD

UNION ELECTRIC COMPANY d/b/a AMERENUE

CASE NO. ER-2007-0002

**Jefferson City, Missouri
January 2007**

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

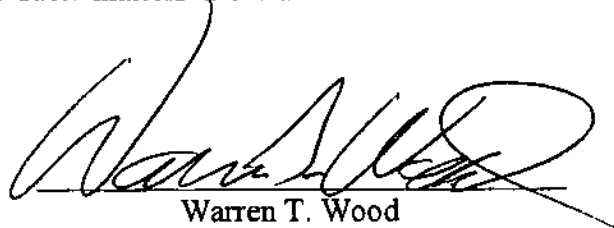
In the Matter of Union Electric Company)
d/b/a AmerenUE for Authority to File)
Tariffs Increasing Rates for Electric)
Service Provided to Customers in the)
Company's Missouri Service Area.)

Case No. ER-2007-0002

AFFIDAVIT OF WARREN T. WOOD

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Warren T. Wood, of lawful age, on his oath states: that he has participated in the preparation of the following Rebuttal Testimony in question and answer form, consisting of 10 pages of Rebuttal Testimony to be presented in the above case, that the answers in the following Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.


Warren T. Wood

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



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


Notary Public

My commission expires 9-21-10

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OF

WARREN T. WOOD

UNION ELECTRIC COMPANY d/b/a AMERENUE

CASE NO. ER-2007-0002

13 Q. Please state your name and business address.

14 A. Warren T. Wood, P.O. Box 360, Jefferson City, Missouri 65102.

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

16 A. I am the Director of the Missouri Public Service Commission (Commission)
Staff's Utility Operations Division.

17 Q. Do you have any professional licenses?

18 A. Yes. I am a registered Professional Engineer in the State of Missouri.

19 Q. Are you the same Warren T. Wood who filed direct testimony in this case on
20 December 15, 2006?

21 A. Yes.

22 style="text-align: center;">**Executive Summary**

23 Q. Would you please give a brief summary of your rebuttal testimony?

24 A. My rebuttal testimony provides the Commission Staff's (Staff) position on the
25 following four issues:

26 1) **Vegetation Management:** The Commission should require AmerenUE to
27 track and report annually all vegetation management expenditures made by or on
28 behalf of AmerenUE.

1 2) **Infrastructure Inspection & Maintenance:** AmerenUE needs to implement
2 additional infrastructure inspection and maintenance programs.

3 3) **Service Reliability:** AmerenUE needs to implement additional, or enhance its
4 existing, reliability improvement programs.

5 4) **Callaway Plant Life:** A sixty-year plant life should be implemented in this
6 case for AmerenUE's Callaway nuclear generating plant. License renewal is a clear
7 industry trend and ignoring this trend acts as a short-term disincentive for AmerenUE
8 to timely file its license renewal application.

9 **Vegetation Management**

10 Q. Does Staff have any response to vegetation management testimony found in
11 the direct or supplemental direct testimony of other parties' witnesses filed in this case?

12 A. Yes. Staff believes that a tracker should be implemented in this case in order
13 to insure that any funding provided for vegetation management in this case is actually used for
14 vegetation management. On page 5 of Mr. Ronald C. Zdellar's supplemental direct
15 testimony, filed on behalf of AmerenUE on September 29, 2006, he proposes that AmerenUE
16 track the \$15 million per year incremental amount for the new vegetation management
17 programs identified in his supplemental direct testimony in a separate account, with interest
18 applied to the balance, to guarantee that these dollars will only be used to pay for new
19 programs. Staff believes this is appropriate but recommends that this tracking be broader than
20 just the \$15 million per year for new programs.

21 Q. What broadening of the tracking does Staff recommend?

22 A. Staff believes that any tracking mechanisms implemented to assure funding for
23 vegetation management is actually used to manage vegetation should apply to all funding for

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1 all vegetation management programs. Instead of tracking just the \$15 million for new
2 programs, Staff believes AmerenUE should track all vegetation management funding (\$45
3 million) for transmission and distribution systems. Without appropriate monitoring of these
4 accounts, the potential for shifting of dollars between accounts to achieve reporting targets
5 exists. Staff also believes that reporting requirements regarding these tracking accounts
6 should be implemented.

7 Q. What reporting requirements does Staff recommend?

8 A. On page 5, at lines 11 and 12 of his supplemental direct testimony, Mr. Ronald
9 C. Zdellar proposes that AmerenUE provide the Staff with an annual report reconciling the
10 account deposits, interest earned and qualifying expenditures. While Staff has no objections
11 to the timing of these reports, Staff believes the scope of these reports should include all
12 vegetation management funding for transmission and distribution systems, not just the \$15
13 million for new programs.

14 Q. Do you have anything further to discuss regarding the vegetation management
15 tracker?

16 A. Yes. The tracker should be used to identify the dollars expended for vegetation
17 management. If the Company does not spend the entire \$45 million for the annual reporting
18 period (e.g. July '07 through June '08), then interest would be applied to the difference
19 between the annual commitment of \$45 million and what was actually spent, referred to as the
20 unspent portion. The Company would be allowed to spend in excess of the \$45 million in a
21 subsequent year to offset the unspent portion for a previous year and the applicable interest
22 but could not spend in excess of the \$45 million in a year to hedge for future under spending.
23 The Staff views this tracker as a one way tracker whereby interest would be applied to

1 unspent funds, but no regulatory treatment would be considered for spending in excess of the
2 annual \$45 million.

3 **Infrastructure Inspection & Maintenance**

4 Q. Does Staff have any response to infrastructure inspection and maintenance
5 testimony found in the direct or supplemental direct testimony of other parties' witnesses filed
6 in this case?

7 A. Yes. Staff believes that AmerenUE needs to implement additional
8 infrastructure inspection and maintenance programs. On page 4, at lines 15 through 17 of Mr.
9 Richard J. Mark's direct testimony, filed on behalf of AmerenUE on July 7, 2006, he states
10 "[r]ecent studies have shown that we can enhance reliability by conducting regular pole
11 inspections for poles used in the distribution system." In Staff's Report on AmerenUE's
12 Storm Outage Planning and Restoration Effort Following the Storms on July 19 and 21, 2006
13 (Report), Staff observed that the average age of AmerenUE's distribution poles versus their
14 expected useful life and the current rejection and replacement rate for these poles were cause
15 for concern. Further, during the public hearings in this case, several witnesses testified that
16 the infrastructure in their area is old and in need of replacement and asserted that the age of
17 the infrastructure in their area contributes to the frequency of outages they are experiencing.
18 Staff's Report is attached to my direct testimony filed December 15, 2006, as **Schedule WW-**
19 **1**. Page 3 of Appendix B of **Schedule WW-1** provides Staff's recommendation regarding the
20 need for AmerenUE to assess its current non-feeder distribution pole inspection programs in
21 light of these concerns. Appendix E of **Schedule WW-1** provides Staff's draft proposed
22 reporting rule for infrastructure inspections.

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1 Q. What infrastructure inspection and maintenance programs does Staff believe
2 AmerenUE should implement?

3 A. Consistent with Mr. Mark's direct testimony and Staff's Report, Staff believes
4 AmerenUE must implement programs that result in all electric delivery infrastructure being
5 inspected at regular intervals consistent with industry practice, but in no case less frequently
6 than every twelve years. These programs must be structured to identify infrastructure that is
7 in need of repair or replacement. AmerenUE's current overhead circuit inspection program
8 that utilizes vegetation management contractors to identify infrastructure problems does not
9 currently provide the level of infrastructure inspection needed. Staff believes some
10 components of AmerenUE's electric delivery system have not been inspected adequately, and
11 need to be inspected and either repaired or replaced.

12 Q. Does Staff have any other issues it wishes to address regarding Mr. Mark's
13 testimony on infrastructure inspection and maintenance?

14 A. Yes. Staff disagrees with the characterization by Mr. Mark that "[r]ecent
15 studies have shown that we can enhance reliability by conducting regular pole inspections for
16 poles used in the distribution system" if he is implying that the electric utility industry has
17 only recently realized that reliability can be enhanced by regular inspections of infrastructure
18 to identify hardware that may fail so it is replaced before it fails. Staff views infrastructure
19 inspection and maintenance as one of the key functions to providing safe and adequate
20 service. In fact, the 2002 edition of the National Electric Safety Code (NESC), Part 2, Section
21 21, Rule 214.A.2 – Inspection, states "[l]ines and equipment shall be inspected at such
22 intervals as experience has shown to be necessary." This is the electric safety code the
23 Commission has adopted in rule 4 CSR 240-18.010. This inspection provision of NESC is

1 not new. The 1926 edition of the NESC, Part 2, Section 21, Rule 213.A.2 – Inspection, states
2 “[l]ines and equipment shall be systematically inspected from time to time by the person
3 responsible for the installation.”

4 **Service Reliability**

5 Q. Does Staff have any response to service reliability testimony found in the
6 direct or supplemental direct testimony of other parties’ witnesses filed in this case?

7 A. Yes. Staff believes AmerenUE needs to either implement additional reliability
8 improvement programs or enhance its existing programs. On page 6, at lines 10 and 11 of
9 AmerenUE witness Mark’s direct testimony, Mr. Mark states “AmerenUE’s 2005 survey
10 results indicate that its customers rank ‘power quality and reliability’ as the most important
11 driver of customer satisfaction.” This observation is not surprising, especially in light of the
12 severity of the weather and major outages in the St. Louis area in 2004, 2005, and 2006, and
13 the widespread customer dissatisfaction expressed regarding a lack of service reliability in the
14 public hearings in this case. During those public hearings numerous witnesses objected to the
15 frequency and duration of outages following the major storms in recent years. Some
16 witnesses also objected to AmerenUE’s service reliability in general, noting that they
17 experienced frequent outages not related to severe weather. Staff recognizes that the majority
18 of outages following major storms are unavoidable without implementation of extensive
19 programs to “harden” the delivery system, including but not limited to, burying much of the
20 utility delivery system.

21 Q. Has Staff reviewed AmerenUE’s day-to-day service reliability, not related to
22 outages caused by major storms?

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1 A. Yes. Appendix A of **Schedule WW-1** attached to my direct testimony
2 provides Staff's observations regarding AmerenUE's general service reliability. It is Staff's
3 observation that AmerenUE's average general service reliability metrics are not abnormal,
4 but, based on the testimony at the public hearings in this case, AmerenUE's customers in
5 some regions of AmerenUE's service area are receiving service that is significantly less
6 reliable than these AmerenUE Missouri service area reliability averages.

7 Q. Does AmerenUE have programs in place to address general service reliability?

8 A. Yes. In his direct testimony, Mr. Mark describes some of the reliability
9 programs AmerenUE has in place. Appendices A and B of **Schedule WW-1** also describe
10 some of these programs. On page 4, at lines 5 through 8 of Mr. Mark's direct testimony he
11 states "[a] recent change made by the Company is the implementation of a tap fusing
12 program." In his testimony Mr. Mark also describes lightning protection equipment,
13 automated switching and underground cable replacement programs. Appendix F of **Schedule**
14 **WW-1** attached to my direct testimony filed December 15, 2006, provides Staff's draft
15 proposed reliability reporting rule. As noted in Appendix A of **Schedule WW-1**, AmerenUE
16 also conducts Division Reliability Reviews.

17 Q. What does AmerenUE do in its Division Reliability Reviews?

18 A. AmerenUE's Division Reliability Reviews bring together division
19 construction, forestry, operating, substations and reliability engineering on a semiannual basis
20 to review worst performing circuits, extended outage data, frequent interruptions data, longest
21 outage data, highest customer interruptions data and data describing the primary causes of
22 outages. Each division's engineering group then annually generates a reliability improvement
23 plan. These plans include recommended upgrades to improve worst performing circuits,

1 reduce high loads on particular feeders, tap fuse installations, animal guarding and other
2 projects. Each of AmerenUE's divisions is given a frequency of outage target to hit and a
3 timeframe to meet this target.

4 Q. Does Staff believe this program is sufficient for addressing AmerenUE's
5 general service reliability in Missouri?

6 A. The structure of the program appears to be adequate in terms of identifying
7 some additional steps that should be taken to improve general service reliability. Staff is
8 concerned, based on its observations in the field and the testimony of witnesses in the public
9 hearings, that some circuits which have needed to be rebuilt for several years, due to their age
10 and condition, have not yet been rebuilt. This leads Staff to conclude some additional steps to
11 improve service reliability in some regions are either not being identified or are not being
12 funded.

13 **Callaway Plant Life**

14 Q. Does Staff have any response to testimony about the plant life of AmerenUE's
15 Callaway nuclear plant found in the direct or supplemental direct testimony of other parties'
16 witnesses filed in this case?

17 A. Yes. Staff reiterates that a sixty-year plant life should be used for Callaway in
18 this case. On page 9, at lines 13 and 14 of Mr. Charles D. Naslund's direct testimony, filed on
19 behalf of AmerenUE on July 7, 2006, he states "[a]s of now, AmerenUE has made no
20 decision as to whether it should request an extension of the Callaway license." Also, on page
21 9, at lines 11 and 12 of Mr. Naslund's direct testimony, he states "[t]his process normally is
22 started about 10 years before the license is scheduled to expire." Staff notes that as of January
23 12, 2007, nine of the nuclear power plants that have either applied for or received a twenty-

1 year license renewal began operation in 1984 or later, the same year Callaway started
2 operation. One of these nine plants is Wolf Creek, a unit very similar to Callaway that
3 applied for license renewal in October 2006, but has not yet replaced its steam generators,
4 high and low pressure turbines or condensers.

5 The fact that AmerenUE has not yet decided as to when it will apply for a license
6 renewal is not a sufficient basis for leaving the current life of Callaway at forty years. As
7 established in my direct testimony, twenty-year license renewals for nuclear power plants are
8 clearly an industry trend. Further, leaving Callaway's plant life for depreciation at forty years
9 acts as a short-term disincentive for AmerenUE to file an application for a twenty-year license
10 renewal in a timely manner.

11 Q. You have stated that twenty-year license renewals for nuclear power plants are
12 clearly an industry trend, on what basis do you make this assertion?

13 A. In my direct testimony filed on December 15, 2006, I establish that of the 104
14 nuclear power plants with operating licenses in the U.S., as of November 28, 2006;
15 approximately eighty-nine percent of these plants that are eligible to apply for license renewal
16 have either sought, or indicated they will seek, license renewal and eleven percent have not.

17 Since the filing of my direct testimony on December 15, 2006, the number of plants
18 that have received a twenty-year license renewal has increased from forty-seven to forty-eight
19 (on January 17, 2007, the Palisades nuclear power plant received a twenty-year license
20 renewal). Also, since the filing of my direct testimony, the number of plants with letters of
21 intent filed at the NRC to apply for license renewal has increased from fourteen to nineteen.
22 This means that, of the nuclear power plants that are eligible to apply, there are now less than

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1 | ten nuclear power plants in the U.S., which have not sought, or indicated they will seek,
2 | license renewal. Callaway is one of these plants.

3 | Q. Does this conclude your rebuttal testimony?

4 | A. Yes, it does.