

Exhibit No.:  
Issue: Revenue Requirement  
Witness: Nicholas L. Phillips  
Type of Exhibit: Direct Testimony  
Sponsoring Party: Missouri Industrial Energy Consumers  
Case No.: ER-2012-0166  
Date Testimony Prepared: September 7, 2012

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November 1, 2012  
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Missouri Public  
Service Commission

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

\_\_\_\_\_  
In the Matter of Union Electric Company, )  
d/b/a Ameren Missouri's Tariff to Increase )  
Its Annual Revenues for Electric Service )  
\_\_\_\_\_ )

**Case No. ER-2012-0166**  
Tariff No. YE-2012-0370

Surrebuttal Testimony and Schedule of

**Nicholas L. Phillips**

**Revenue Requirement**

On behalf of

**Missouri Industrial Energy Consumers**

**NON-PROPRIETARY VERSION**

September 7, 2012



**Exhibit No. 523**







1           The fact that I do not address a particular issue raised by the Company or any  
2 other party in this proceeding should not be interpreted as approval of any position  
3 taken by the Company or other parties in this proceeding.

4   **Q     PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.**

5   A     I recommend that the Missouri Public Service Commission (“Commission”) reduce  
6 Ameren Missouri’s Net Fuel Cost<sup>1</sup> (and, thus, its Net Base Fuel Cost) by not less than  
7 \$10.1 million. This net \$10.1 million reduction includes: (1) a \$7.4 million decrease  
8 from updating fuel and wholesale electric energy prices,<sup>2</sup> (2) a \$0.3 million reduction  
9 correcting the unreasonable minimum generator capability values assumed for the  
10 coal-fired generation facilities,<sup>3</sup> and (3) a \$2.4 million decrease from correcting the  
11 unreasonable assumed normalized duration for the Callaway refueling outage. In  
12 total, I am recommending a Net Fuel Cost reduction of \$10.1 million. This reduction  
13 is reflected within the Net Base Fuel Cost and base rate revenue requirement  
14 recommendations of the surrebuttal testimony of my colleague, James R. Dauphinais.

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<sup>1</sup>Ameren Missouri’s Net Fuel Cost consists of fuel and purchased power costs for native load and off-system energy sales less off-system energy sales revenues, as estimated using production cost modeling.

<sup>2</sup>Direct Testimony of Nicholas Phillips at pages 8-12.

<sup>3</sup>Direct Testimony of Nicholas Phillips at pages 13-15.

1 **II. ASSUMED MINIMUM GENERATING**  
2 **CAPABILITIES OF THE COAL-FIRED GENERATION FACILITIES**

3 **Q WHAT IS THE COMPANY'S RECOMMENDATION REGARDING THE UNIT**  
4 **MINIMUM CAPABILITIES USED IN THE PRODUCTION COST SIMULATION?**

5 A The Company continues to assert that the methodology that underlies the production  
6 cost modeling presented in its direct case is reasonable.<sup>4</sup> This methodology is a  
7 departure from the method the Company used in its past base rate proceedings.

8 **Q HAS YOUR OPINION CHANGED WITH REGARD TO WHETHER THE**  
9 **METHODOLOGY THE COMPANY USED TO ESTABLISH THE GENERATING**  
10 **UNIT MINIMUM CAPABILITIES USED IN THE PRODUCTION COST SIMULATION**  
11 **ACCOMPANYING ITS DIRECT CASE IS REASONABLE?**

12 A No. The Company has not presented any evidence that the increased minimum  
13 generator capabilities, relative to the previous rate case (No. ER-2011-0028) are  
14 justified. As I indicated in my direct testimony, the Company did not perform a  
15 calibration to historical data as it had performed in previous rate cases. The  
16 calibration process could have been used to examine whether it is necessary to raise  
17 the minimum generator capability values above the economical minimums used by  
18 the Company in the previous rate proceedings. However, absent this calibration  
19 process, raising the minimums is pure conjecture.

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<sup>4</sup>Rebuttal Testimony of Mark Peters at page 6.

1 **Q WHAT IS THE IMPORTANCE OF SELECTING A REASONABLE MINIMUM**  
2 **GENERATOR CAPABILITY?**

3 A The minimum generator capabilities, as they are related to production cost modeling,  
4 assign an operating constraint that cannot be violated during the simulation.  
5 Furthermore, both the Company and I model the coal-fired generating units as  
6 “must-run” units. In other words, in the simulations used to set Net Fuel Cost, the  
7 coal-fired generators must run at or above their assumed minimum operating  
8 capability in every hour when they are not in a planned or forced outage state.  
9 Therefore, if an assumed minimum generator capability is unreasonably high, it will  
10 overstate Net Fuel Cost because the economic decision making ability of the model  
11 has been unreasonably constrained.

12 **Q HAVE YOU REVIEWED THE ALTERNATIVE METHODOLOGY PROPOSED BY**  
13 **THE COMPANY?**

14 A Yes. I have reviewed the alternative methodology proposed by the Company and will  
15 continue to review and discuss the proposal with the Company.

16 **Q PLEASE SUMMARIZE THE PROPOSED ALTERNATIVE METHODOLOGY.**

17 A The alternative methodology proposed by the Company attempts to analyze the  
18 hours during which a generating unit is operating at or near its minimum capability,  
19 and also is cleared for regulating reserves<sup>5</sup> in the MISO ancillary services market.  
20 Then, it weights each generating unit’s regulation ability by the number of hours the  
21 unit is cleared to provide regulation when operating near its economical minimum

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<sup>5</sup>Regulation service is an ancillary service in the MISO market supplied by a online, regulation qualified resource that is capable of responding to an automatic generator control signal sent by MISO for frequency response.

1 capability. This weighted regulation ability is then added to the generating unit's  
2 minimum capability to establish a new minimum capability.

3 **Q DO YOU HAVE ANY CONCERNS WITH THE ALTERNATIVE METHODOLOGY**  
4 **PROPOSED BY THE COMPANY?**

5 A Yes. The Company fails to demonstrate that when utilized in a production cost  
6 model, its proposed alternative methodology will reasonably account for the fuel cost  
7 associated with providing regulation reserves. The Company has not offered any  
8 analyses which suggests that its proposed methodology represents the actual fuel  
9 costs associated with providing regulation service. The proposed methodology  
10 assumes a minimum generating capability that will be enforced in every hour of the  
11 simulation period; however, Ameren Missouri's coal-fired generators are not cleared  
12 to provide Regulating Reserve in all hours. By removing the ability of the model to  
13 reduce generator output to economical minimums during the hours that the unit is not  
14 cleared for regulation, the model is then forced to either sell energy off-system  
15 uneconomically or serve native load with an uneconomic dispatch. The ultimate  
16 effect of this would be a reduction in OSS margins, an increase in native load fuel  
17 cost or some combination of the two. Whatever the case may be, it will raise Net Fuel  
18 Cost. The issue at hand is that the Company has not even attempted to demonstrate  
19 that this increase in Net Fuel Cost would reasonably represent a normalized level of  
20 fuel cost associated with providing regulation service. Similar to the Company's  
21 recommended minimums, the reasonableness of this alternative proposal could be  
22 examined via calibration to historical operations. However, the Company stated in  
23 response to MIEC Data Request 3.1:

24 "Ameren Missouri believes that the consistent and very well calibrated  
25 results provided in these prior cases (within ½% and 1% respectively



1 in the past two cases for example) have adequately demonstrated the  
2 validity of the model, and that such further testing in the face of such  
3 consistent results was unnecessary.”

4 **Q WHAT WAS THE HISTORICAL PERIOD AMEREN MISSOURI CALIBRATED THE**  
5 **PROSYM MODEL TO IN THE PREVIOUS RATE PROCEEDING?**

6 A Calendar year 2009.

7 **Q WHEN DID MISO BEGIN FULL OPERATION OF ITS ANCILLARY SERVICE**  
8 **MARKET?**

9 A January 2009.

10 **Q WHAT IS THE SIGNIFICANCE OF THE MISO ANCILLARY SERVICES MARKET**  
11 **BEGINNING FULL OPERATION IN JANUARY 2009?**

12 A The significance is that the most recent calibration performed by the Company  
13 reflected a period when the ancillary services market was in full effect. Furthermore,  
14 when calibrating to this period, the Company utilized the economical minimum  
15 generator capabilities and calibrated to within ½% of historical generation. If  
16 anything, this justifies the use of the economic minimum generator capabilities in this  
17 case in order to avoid the possible over recovery of Net Fuel Cost related to selecting  
18 unreasonably high minimum generator capabilities, as I discussed above.

19 **Q WHAT GENERATING UNIT CAPABILITIES DO YOU RECOMMEND BE USED IN**  
20 **THE NORMALIZED TEST YEAR PRODUCTION COST RUN?**

21 A I recommend using the minimum capabilities provided by Ameren Missouri in  
22 response to MIEC Data Request 9.1, as presented in Table 1 of my Direct Testimony.

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1 **III. ASSUMED DURATION FOR THE CALLAWAY REFUELING OUTAGE**

2 **Q WHAT IS THE ASSUMED NORMALIZED DURATION FOR THE CALLAWAY**  
3 **REFUELING OUTAGE RECOMMENDED BY THE COMPANY?**

4 A In response to my direct testimony, the Company, in rebuttal, recommends correcting  
5 the assumed normalized duration for the Callaway refueling outage from 27 days in  
6 its direct testimony to 24 days to account for a mathematical error.<sup>6</sup>

7 **Q DO YOU AGREE WITH THIS RECOMMENDATION? PLEASE EXPLAIN.**

8 A No. This recommendation fails to consider the extension of Callaway refueling  
9 outage 18, which as the Company has admitted, was a direct result of its own  
10 mismanagement prior to, and during, refueling outage 18. In the Company's  
11 response to MPSC Data Request 84,<sup>7</sup> the Company admits,

12 "Callaway Plant struggled with schedule performance during Refuel  
13 18. Total outage duration was scheduled for 30 days and completed  
14 at 41.1 days."

15 and continues,

16 "Due to various issues in Refuel 18, the original schedule ended up  
17 extending by about 11 days (720 hours original duration, 988 hours  
18 final duration). Lack of Site preparation challenged Refuel  
19 performance by missing or jeopardizing numerous milestones prior to  
20 refuel start. A Common Cause Analysis was performed and revealed  
21 one prevalent common cause after breaker open: inadequate  
22 preparation, oversight, and contingency planning by the Reactor  
23 Service Organization."

24 Due to the Company's admission of mismanagement regarding the refueling 18  
25 outage, I do not believe it is reasonable to include the full duration of this outage in  
26 the Callaway refueling outage normalization.

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<sup>6</sup>Rebuttal Testimony of Mark Peters at page 9, lines 5-6.

<sup>7</sup>A copy of the Company's response to MPSC Data Request 84 is attached to my colleague, Greg Meyer's, direct testimony as Schedule GRM-1.

1 Q HAS THERE BEEN ANY DISCUSSION WITH THE COMPANY REGARDING THIS  
2 ISSUE?

3 A Yes, it is my understanding that the Company has accepted the expense adjustment  
4 related to Callaway refueling outage 18 proposed by my colleague, Greg Meyer.  
5 Similarly, my adjustment to exclude the extension to the originally scheduled  
6 Callaway refueling 18 outage duration when determining the normalized duration for  
7 Callaway refueling outages for the normalized test year production cost run should be  
8 adopted.

9 Q WHAT NORMALIZED DURATION FOR THE CALLAWAY REFUELING OUTAGE  
10 DO YOU RECOMMEND BE USED IN THE NORMALIZED TEST YEAR  
11 PRODUCTION COST RUN?

12 A I recommend using a normalized duration of 22.5 days for the Callaway refueling  
13 outage in the normalized test year production cost run. This excludes the extension  
14 to the originally scheduled Callaway refueling 18 outage duration.

15 Q HAVE YOU RERUN YOUR PRODUCTION COST MODEL FOR THE NORMALIZED  
16 TEST YEAR USING THE NORMALIZED DURATION FOR THE CALLAWAY  
17 REFUELING OUTAGE THAT YOU HAVE RECCOMENDED?

18 A Yes. Our rerun of this adjustment, which is summarized in Schedule NLP-SUR-1,  
19 reduced Ameren Missouri's proposed Net Fuel Cost by \$2.4 million. I recommend  
20 that this adjustment be made and that the adjusted normalized duration for the  
21 Callaway refueling outage be used in the true-up production cost runs for the  
22 normalized test year in this proceeding.

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1 **IV. ASSUMED RUSH ISLAND START FUEL BLEND RATIO**

2 **Q PLEASE COMMENT ON THE PROPOSED SOLUTION REGARDING YOUR**  
3 **CONCERN WITH THE RUSH ISLAND START FUEL BELND RATIO.**

4 A I believe that the Company and I are in agreement, to the extent that our goal is to  
5 include an appropriate normalized level of fuel oil expense in the normalized test year  
6 production cost runs. The Company<sup>8</sup> and I now appear to agree that it is imperative  
7 that care be taken to ensure that the differences between the number of expected  
8 starts and the number of historical starts used to determine the initial fuel blend ratios  
9 are synchronized so that the results produce a reasonable level of fuel oil  
10 consumption.

11 **V. CONCLUSION**

12 **Q PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.**

13 A I recommend that the Commission reduce Ameren Missouri's Net Fuel Cost (and,  
14 thus, its Net Base Fuel Cost) by not less than \$10.1 million. This net \$10.1 million  
15 reduction includes: (1) a \$7.4 million decrease from updating fuel and wholesale  
16 electric energy prices,<sup>9</sup> (2) a \$0.3 million reduction correcting the unreasonable  
17 minimum generator capability values assumed for the coal-fired generation facilities,<sup>10</sup>  
18 and (3) a \$2.4 million decrease from correcting the unreasonable assumed  
19 normalized duration for the Callaway refueling outage.

20 **Q DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

21 A Yes, it does.

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<sup>8</sup>Direct Testimony of Mark Peters at page 7.

<sup>9</sup>Direct Testimony of Nicholas Phillips at pages 8-12.

<sup>10</sup>Direct Testimony of Nicholas Phillips at pages 13-15.

**Non-Proprietary**  
**Ameren Missouri**  
**Case No. ER-2012-0166**  
**Production Cost Modeling (Net Fuel Cost) Adjustments Proposed by MIEC**

	Incremental Increase/(Decrease)	Net Fuel Cost	Gross Fuel Cost	OSS Revenues	Coal Fuel Cost	Nuclear Fuel Cost	Oil/Gas Fuel Cost	Spot Purchased Power	Wind Purchased Power
(ORIGINAL) Ameren Missouri ProSym Case-in-Chief		\$ 555,428,954	\$ 896,729,954	\$341,301,000					
BAI Update <sup>1</sup>	\$ (7,395,451)	\$ 548,033,503	\$ 923,850,959	\$375,817,456					
BAI Adjustment 1 - Minimum Capability Values <sup>1</sup>	\$ (331,596)	\$ 547,701,907	\$ 919,922,195	\$372,220,288					
BAI Adjustment 2 - Callaway Refueling Outage <sup>2</sup>	\$ (2,360,800)	\$ 545,672,703	\$ 924,810,502	\$379,137,799					
BAI Adjustment 1 - Minimum Capability Values	\$ (331,596)	\$ 547,701,907	\$ 919,922,195	\$372,220,288					
BAI Adjustments 1 & 2 Cumulative	\$ (2,692,119)	\$ 545,341,384	\$ 920,859,487	\$375,518,103					

	Net MWh	Gross MWths	Native Load MWths	OSS MWths	Coal MWh	Nuclear MWh	Oil/Gas MWh	Spot Purchased Power	Wind Purchased Power	Pumped Storage MWths	Hydro MWths
(ORIGINAL) Ameren Missouri ProSym Case-in-Chief											
BAI Update <sup>1</sup>											
BAI Adjustment 1 - Minimum Capability Values <sup>1</sup>											
BAI Adjustment 2 - Callaway Refueling Outage <sup>2</sup>											

BAI Adjustment 1 - Minimum Capability Values  
BAI Adjustments 1 & 2 Cumulative

Notes

1. BAI Update and BAI Adjustment 1 were originally presented and discussed in the direct testimony of Nicholas L. Phillips in case no. ER-2012-0166
  2. BAI Adjustment 2 is presented and discussed in the surrebuttal testimony of Nicholas L. Phillips in case no. ER-2012-0166
- Gross is a summation of all coal, nuclear, gas, oil, hydro, and purchased power (both spot purchases and wind)  
Net is the difference of gross and off system sales  
Native load is the summation of Net and pumped storage  
Nuclear Fuel Cost Includes Spent Fuel Charge  
BAI update includes updates to assumed prices for fuel oil, natural gas, coal, and wholesale electric energy prices