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**MISSOURI PUBLIC SERVICE COMMISSION**

**FILE NO. ER-2014-0258**

**DIRECT TESTIMONY**

**OF**

**JAIME HARO**

**ON**

**BEHALF OF**

**UNION ELECTRIC COMPANY**

**d/b/a Ameren Missouri**

St. Louis, Missouri  
July, 2014

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**DIRECT TESTIMONY**  
**OF**  
**JAIME HARO**  
**FILE NO. ER-2014-0258**

**I. INTRODUCTION**

**Q. Please state your name and business address.**

A. My name is Jaime Haro. 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 Senior Director, Asset Management and Trading for Union Electric Company d/b/a Ameren Missouri (“Ameren Missouri” or “Company”).

**Q. Please describe your educational background and employment experience.**

A. I received a Bachelor’s degree in Electro-Mechanical Engineering from Universidad Panamericana (Mexico City, Mexico) in 1995 and a Master of Business Administration degree from Tulane University in 1998. From 1992 to 1998, I held several positions with Grupo Bursatil Mexicano (“GBM”), a leading Mexican financial services and brokerage firm, dealing with money markets, currency exchange, debt placement and risk management. In 1998, I joined AmerenEnergy Inc. (“AE”) and worked as a trader of real time energy products before assuming an analytical support position in the long-term energy market trading area of AE. From 1999 to 2004, I led the group within AE that provided quantitative analysis for AE’s trading operations. In 2004, I became responsible for trading operations, including managing the transition to trading Ameren Missouri’s power (with AE acting as Ameren Missouri’s agent) in the

1 Day 2 energy markets started by the Midcontinent Independent System Operator, Inc.  
2 (“MISO”) on April 1, 2005. On December 31, 2006, the Joint Dispatch Agreement  
3 between AmerenUE and AmerenCIPS terminated, and as a result effective January 1,  
4 2007, AE’s activities were solely related to Ameren Missouri’s generation asset  
5 management, including the trading and marketing operations. On January 1, 2008,  
6 Ameren Missouri terminated the agency relationship with AE related to generation asset  
7 management, including the trading and marketing operations. As a result, AE employees  
8 formerly responsible for these activities, including me, became employees of Ameren  
9 Missouri. At that time, I assumed the title of Director, Asset Management and Trading  
10 (“AM&T”), and added the responsibilities of marketing and asset management to my  
11 existing duties. On January 1, 2011, in conjunction with the dissolution of Ameren  
12 Energy Fuels and Services Company, I assumed responsibility over gas supply for  
13 Ameren Missouri.

14 **Q. What are your responsibilities in your current position?**

15 A. As Senior Director of AM&T I manage three specific areas: (i) Real Time  
16 Operations, (ii) Trading, and (iii) Gas Supply. My main role is providing guidance,  
17 oversight and coordination of activities in these areas. I am responsible for staffing,  
18 budgeting, goal setting, management reporting and other administrative tasks associated  
19 with these functions.

20 **II. PURPOSE AND SUMMARY OF TESTIMONY**

21 **Q. What is the purpose of your testimony in this proceeding?**

22 A. I am providing testimony in support of the level of net off-system sales  
23 revenues included in the cost of service utilized for the purpose of setting Ameren

1 Missouri's rates. The level of net off-system sales revenues is also a component of the  
2 calculation of net base energy costs, or "NBEC," against which net energy cost changes  
3 are tracked through the Company's fuel adjustment clause ("FAC"). The calculation of  
4 NBEC is discussed in the direct testimony of Ameren Missouri witness Laura M. Moore.

5 **Q. Please summarize your testimony and conclusions.**

6 A. I have determined that at this time the appropriate level of normalized  
7 annual net off-system sales revenues to use in determining the Company's revenue  
8 requirement and to set NBEC in the Company's FAC is \$234.4 million. It must be noted  
9 that the Company intends to true-up net off-system sales revenues as of the end of the  
10 proposed true-up period in this case (December 31, 2014), at which time this value will  
11 change accordingly.

12 The focus of my direct testimony is on the methodology and source data for the  
13 calculation used to determine the appropriate level of normalized net off-system sales  
14 revenues. Ameren Missouri's net off-system sales are driven in large part by its load-  
15 serving obligations to its retail customers, the availability of its generation resources, and  
16 the incremental cost of operating its generating resources relative to the market prices for  
17 energy and related services (i.e., capacity and ancillary services). To the extent the level  
18 of net off-system sales experienced during the test year is not the result of normal  
19 conditions or does not properly reflect known and measurable changes, adjustments are  
20 necessary, as outlined in more detail below. Ameren Missouri has incorporated the  
21 necessary adjustments in its PROSYM production cost model (the operation of which is  
22 addressed in the direct testimony of Company witness Mark J. Peters) to determine the  
23 normalized level of the energy component of net off-system sales revenue to include in  
24 the determination of the Company's revenue requirement. Using the results obtained

1 from the operation of this model, and further accounting for the remaining components of  
2 net off-system sales revenue as specified in Factor OSSR in the Company's FAC tariff,  
3 which are described in more detail later in my testimony, I determined the appropriate  
4 level of normalized net off-system sales revenues to use in determining the Company's  
5 revenue requirement and to calculate Factor NBEC in the Company's FAC.

6 **Q. What elements are included in your net off-system sales revenue**  
7 **recommendation?**

8 A. In the context of this proceeding, I use the term "net off-system sales  
9 revenue" in reference to the revenue from transactions resulting from Ameren Missouri's  
10 trading activities after netting out the cost associated with purchasing energy from the  
11 MISO market to meet our load requirements.

12 The net revenue from these activities comes from five primary components:  
13 (i) energy sales revenues; (ii) capacity sales revenues; (iii) ancillary services revenues;  
14 (iv) margins associated with real time revenue sufficiency guarantee make-whole  
15 payment ("RSG MWP"), and (v) other miscellaneous MISO revenues. As noted, the  
16 energy sales component is the product of modeling using the Company's PROSYM  
17 model, which is run under Mr. Peters' direction. The remaining components are based  
18 upon Ameren Missouri's historical capacity sales revenues, ancillary services revenues,  
19 real time RSG MWP margins, and miscellaneous MISO revenues, taking into account  
20 known and measurable changes.

21 **Q. Please address your determination of the appropriate level of net off-**  
22 **system sales revenues to include in Ameren Missouri's revenue requirement and to**  
23 **set the NBEC in the FAC.**



1           Q.     **How are net off-system sales of energy derived from the PROSYM**  
2 **model's output?**

3           A.     PROSYM simulates Ameren Missouri's interactions with the market. As  
4 noted in Mr. Peters' testimony, Ameren Missouri is a market participant within the MISO  
5 markets. We purchase energy for our entire load from the MISO market and we  
6 separately sell all of the megawatt-hours ("MWhs") generated by our generating units to  
7 the MISO market. In a given hour, when the volume of total sales exceeds total  
8 purchases, the Company reports net off-system sales for that period. When the volume of  
9 total purchases exceeds total sales, the Company reports net off-system energy  
10 purchases. For modeling purposes however, the amounts netted out are not reported or  
11 included in the detail.

12           The model utilizes the inputs described in Mr. Peters' testimony to simulate the  
13 dispatch of Ameren Missouri's system by utilizing the lowest cost resources to meet the  
14 hourly load requirements. In any given period, the model dispatches generation that has  
15 dispatch costs below the hourly market price for power, presuming the unit is available  
16 for dispatch in that period. In any period where Ameren Missouri has a load requirement  
17 in excess of available generation that has a dispatch cost below the hourly market price  
18 for power, the model will report a net purchase equal to the difference between load and  
19 economical generation. In any period where Ameren Missouri has a load requirement  
20 less than available generation that has a dispatch cost below the hourly market price for  
21 power, the model will report a net sale equal to the difference between load and  
22 economical generation. The simulated net off-system sales revenues are determined  
23 based on the hourly market price received for the MWhs reported as net sales. Again, I  
24 would note that the model assumes that the dispatch of Ameren Missouri's generation is



1 “perfect”; that is, for example, it assumes that available generation units will always  
2 operate at their economically optimal level in each hour and that there is no congestion  
3 between generation and load (when in fact there often is congestion). The model also  
4 ignores the fact that load and generation differ in real time from the previous day’s  
5 expectations, whereas in the real world, it is impossible to achieve a perfect dispatch of a  
6 generation system considering the weather variations that affect the load, and equipment  
7 issues affecting generators’ performance.

8 **Q. What market price assumptions were utilized to model the dispatch of**  
9 **Ameren Missouri’s generation?**

10 A. The PROSYM model was run using hourly energy prices which averaged  
11 \$25.53 per MWh. That price is the average of the hourly energy prices for the 36-month  
12 period ending with the anticipated true-up cutoff date in this case, December 31, 2014.  
13 The energy prices for the 36-month period are weighted average market energy prices  
14 actually received at Ameren Missouri’s generating units (i.e., the day-ahead locational  
15 marginal prices (“LMPs”) in the MISO energy market actually received by Ameren  
16 Missouri) during the 28-month period from January 1, 2012 through April 30, 2014 plus  
17 around-the-clock (“ATC”) basis-adjusted forward energy prices for the eight-month  
18 period from May 1, 2014 through December 31, 2014<sup>1</sup>. I propose to replace those  
19 forward energy prices with actual energy prices as part of the true-up in this case.

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<sup>1</sup> These forward energy prices are taken from a combination of broker quotes and published data for trading activity at the Indiana Hub (formerly known as the Cinergy Hub), a well-recognized Midwest energy trading market. The forward energy prices were adjusted for a calculated basis differential that exists between prices at the location of the Indiana Hub and the prices that are actually realized at the Ameren Missouri generating units.

1           **Q.     Have you made any adjustments to the historical market prices to**  
2 **account for any severe weather anomalies which may have occurred during the data**  
3 **collection period?**

4           A.     Yes. Market prices for the period of January 1, 2014 – March 31, 2014,  
5 have been replaced with the average prices for the applicable peak period by month, from  
6 January, 2012 – March, 2012. This adjustment is being made to account for the severe  
7 weather anomaly which has been commonly referred to as the "Polar Vortex." Adjusting  
8 the normalized market prices for such weather anomalies is consistent with past practice.

9           **Q.     Please explain why you chose to utilize day-ahead LMPs**  
10 **(“DA-LMPs”) at the generator nodes.**

11          A.     As mentioned before, the PROSYM model simulates the dispatch of the  
12 Company’s generators based on a series of inputs. This dispatching process is similar to  
13 the one followed by the MISO to determine its day-ahead commitment of all of the  
14 generators in its footprint. The result of the MISO process is, among other things, the  
15 determination of individual LMPs for each generator. It is most appropriate to use the  
16 historical prices applicable to Ameren Missouri generation for the day-ahead markets  
17 since these are the prices that determined the generation levels that produced the vast  
18 majority of Ameren Missouri’s historic net off-system sales. In fact, day-ahead prices  
19 determine about 97 percent of Ameren Missouri’s generation commitment and dispatch.

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**IV. CAPACITY SALES REVENUES**

**Q. What is the level of capacity sales revenues on an annual basis that you determined was appropriate to include in total net off-system sales?**

A. I determined that \$5.7 million is the appropriate amount to include as capacity sales revenues, using capacity sales for delivery for the period which coincides with the end of the true-up period. This is the same approach used in the Company's last rate case and, as was done in that case, we intend to update this total based upon the twelve months ending with the last day of the true-up period in this case as part of the true-up phase of this proceeding.

**V. ANCILLARY SERVICES REVENUES**

**Q. What level of annual ancillary services revenues did you determine was appropriate to include in total net off-system sales?**

A. I have concluded that the test year level of ancillary services revenues, \$11.2 million, is the appropriate level to include in total net off-system sales. As was done in the prior case, we intend to true-up this level through December 2014, based upon data for the twelve month period ending December 31, 2014.

**VI. REAL TIME REVENUE SUFFICIENCY GUARANTEE MAKE-WHOLE PAYMENT MARGINS**

**Q. What level of real time revenue sufficiency guarantee make-whole payment margins did you determine was appropriate to include in net off-system sales?**

A. As noted above these revenues are \$3.0 million. I determined this level of margins by utilizing the percentage used to determine the real time RSG MWP margins as part of the true-up phase of the prior case, which was 51 percent and multiplying it by

Direct Testimony of  
Jaime Haro

1 the \$5.9 million in real time RSG MWPs for the test year. Consistent with the  
2 methodology employed in each of the last three rate cases, we intend to update this  
3 percentage as part of the true-up process, to reflect actual amounts during the twelve  
4 months ending with the last day of the true-up period.

5 **VII. MISCELLANEOUS MISO RELATED REVENUES**

6 **Q. What are the miscellaneous MISO related revenues?**

7 A. These are receipts related to inadvertent energy from MISO, and they  
8 totaled \$30,934 during the test year. Consistent with other components, we intend to  
9 true-up this level through December 2014, based upon data for the twelve month period  
10 ending December 31, 2014.

11 **Q. Does this conclude your direct testimony?**

12 A. Yes, it does.

