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Issue(s): Hourly Power Prices
Witness: Timothy D. Finnell
Sponsoring Party: Union Electric Company
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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2010-0036

SURREBUTTAL TESTIMONY

OF

TIMOTHY D. FINNELL

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

St. Louis, Missouri
March, 2010

SURREBUTTAL TESTIMONY

OF

TIMOTHY D. FINNELL

CASE NO. ER-2010-0036

Q. Please state your name and business address.

A. My name is Timothy D. Finnell. My business address is One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, MO 63103.

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

A. I am employed by Ameren Services Company as Managing Supervisor, Operations Analysis in the Corporate Planning Function.

Q. Are you the same Timothy D. Finnell who filed direct and rebuttal testimony in this case?

A. Yes, I am.

Q. What is the purpose of your surrebuttal testimony?

A. The purpose of my testimony is to respond to Staff witness John Rogers' rebuttal testimony relating to Summer and Winter Net Base Fuel Costs (NBFC) and Staff witness Erin Maloney's supplemental rebuttal testimony regarding normalized power prices. I will explain AmerenUE's position on the Summer and Winter NBFC allocation, which will be used in the Fuel Adjustment Clause calculations, and will explain why normalized hourly power prices developed from Day Ahead (DA) Locational Marginal Prices (LMP) from the Midwest Independent Transmission System Operator, Inc.'s (MISO) Day 2 Markets should be used in the modeling that underlies the establishment of normalized NBFC is this case.

Summer and Winter Net Base Fuel Costs

Q. You noted that you were responding to Mr. Rogers' rebuttal testimony on Summer and Winter NBFC. Please explain.

A. In his rebuttal testimony, Mr. Rogers pointed out that the Summer and Winter NBFC calculated by AmerenUE witness Gary Weiss (in part based upon fuel modeling that I had conducted) seemed counterintuitive in that the Winter NBFC was higher than the Summer NBFC.

Q. Did you investigate his concern?

A. Yes. The NBFC number supplied by Mr. Weiss in his direct testimony did contain a calculation error relating to the allocation of off-system sales revenues and the purchase power costs for native load components of NBFC between the Summer and Winter periods. When these errors are corrected, the Summer NBFC rate is 1.481c/kWh and the Winter NBFC rate is 1.281c/kWh. These corrected values are very close to the NBFC rates calculated by Mr. Rogers (Summer NBFC rate: 1.449 c/kWh; Winter NBFC rate: 1.275 c/kWh). Consequently, correction of this error should resolve any concern the Staff has.

Q. Is this AmerenUE's final calculation of the Summer and Winter NBFC?

A. No, these are only corrections to Mr. Weiss' Summer and Winter NBFC using data as of the time of the filing of AmerenUE's direct testimony. The final Summer and Winter NBFC will be determined as part of the true-up phase of this case using true-up data through January 31, 2010. The true-up data will include updates for customer sales; updates for coal, oil, gas, and nuclear fuel costs; and updated power prices.

Q. Is there any remaining problem with AmerenUE's modeling, as suggested by Mr. Rogers?

A. No. When the correct allocation is made, and when the inputs used in the Company's model and the Staff's model are the same, the results of the Company's model and the Staff's model are virtually the same. Consequently, any difference in the results of those models would be caused by disagreements about inputs only. The only disagreements between the Company and the Staff about model inputs relate to higher nuclear fuel costs at the Callaway Plant (addressed in AmerenUE witness Randall Irwin's rebuttal testimony) and the development of normalized hourly power prices (addressed below). In sum, there is no modeling issue; rather, there are two input issues. If agreement is not reached on those input issues, they will be resolved by the Commission. Ultimately, rates in this case will be set based upon modeling runs using the proper inputs, according to the Commission's decision.

Normalized Hourly Power Prices

Q. You indicated you were responding to Ms. Maloney's supplemental rebuttal testimony regarding power prices. Please explain what prompted Ms. Maloney to file supplemental rebuttal testimony.

A. Ms. Maloney states that she is correcting an error in the Staff's production cost modeling used to set the Staff's net fuel-related revenue requirement in this case. She says that she believes that incorrect normalization factors were used.

Q. Why did Ms. Maloney think there was an error?

A. She indicates that the monthly peak and off-peak prices did not equal the three-year average hourly price Staff was using in its model, so she developed normalized hourly power prices differently, which she indicates raised the monthly prices to equal the three-year average used by Staff, which had the effect of raising modeled purchased power costs, but also

raising off-system sales revenue by even more.[1] This, Ms. Maloney says, lowered the Company's overall net fuel costs from the level the Staff had originally calculated.

Q. Are Ms. Maloney's normalized hourly power prices correct?

A. No, they are not, but as I note below, I believe the issue can be resolved through further consultation with the Staff. However, given that Ms. Maloney's supplemental rebuttal testimony was filed just one week ago, there has been insufficient time thus far to fully discuss the Company's concerns, which I discuss below, with the Staff.

Q. Why are Ms. Maloney's normalized hourly power prices incorrect?

A. Because her method does not fully recognize the existence of the MISO's transparent wholesale power market, or the manner in which AmerenUE's off-system sales are made. The MISO wholesale power market, which is often called the MISO Day 2 market, began in April 2005.

Q. Why is it necessary to use the method used by AmerenUE to develop normalized hourly power prices, which utilizes the MISO Day-Ahead Locational Marginal Prices (DA-LMP)?

A. The MISO DA-LMP is the best source of hourly power prices because it reflects transparent market values for power based on the entire MISO system, in which AmerenUE is a major participant. The MISO DA-LMP is calculated by the MISO's settlement process, which uses day-ahead load and day-ahead generation bids to generate an hourly market clearing price for energy. This energy price is then combined with a congestion cost component and with a loss cost component for each generator and each load center to determine the hourly LMP at each location. The LMPs created by the MISO settlement process are reliable, transparent values

[1] The Company and the Staff agree that use of a three-year average of hourly prices is appropriate. This issue here is how one determines the hourly price for each hour during those three years.

that reflect hourly power prices that can be, and are commonly used by market participants for power purchases or power sales, including for power purchases by AmerenUE and for a large proportion of AmerenUE's off-system sales.

The Staff's method for determining normalized hourly power prices used in this case may have been appropriate when there was no transparent market data available. However, that is not the case for AmerenUE which is a participant in the MISO market. In fact, the Staff used the MISO's DA-LMP, just as AmerenUE has done in this case, in the Company's last rate case (Case No. ER-2008-0318), but for some reason used a combination of MISO Real Time LMPs (RT-LMP) and other non-MISO market prices in Ms. Maloney's supplemental rebuttal testimony. The problem this creates is that it distorts the normalized hourly power price and leads to inaccurate results, as I discuss further below.

Q. Why did AmerenUE utilize the MISO DA-LMP instead of the MISO Real Time Locational Marginal Prices (RT-LMP)?

A. The DA-LMP was used because it is the primary power market into which AmerenUE (and in fact most market participants) sell power. All market participants participate in the Day Ahead (DA) market by supplying load and generation bids, which result in a DA settlement. The DA settlement process generates an hourly market clearing price for energy, which is combined with a congestion cost component and a loss cost component for each generator and load to determine the Locational Marginal Price. The Real Time (RT) market is used for balancing *deviations* between actual and day-ahead cleared loads and actual and day-ahead cleared generation, and it is not representative of normalized conditions because it can be heavily influenced by real time deviations caused by supply and demand shortages or surpluses.

Since the vast majority (nearly 80%) of AmerenUE's off-system sales are made in the MISO DA market, the DA-LMP is the most reflective hourly price to use in developing normalized power prices. The table below shows the 2009 volumes of off-system sales by transaction type (DA, RT and Bilateral contracts with specific counterparties). The year was divided into two periods (prior to the expiration of the Company's former contract with Arkansas Power & Light Company (APL) and after expiration of the APL contract).

2009 AmerenUE Off-system Sales (MWh)						
	Jan 09 - Aug 09		Sept 09 - Dec 09		Jan 09 - Dec 09	
MISO Day Ahead Sales	6,197,632	76.5%	3,783,436	84.0%	9,981,067	79.2%
MISO Real Time Sales	737,881	9.1%	299,588	6.7%	1,037,469	8.2%
Bilateral Sales	1,165,985	14.4%	420,338	9.3%	1,586,323	12.6%

Q. Please summarize some of your main concerns regarding the Staff's method for developing normalized hourly power prices.

A. There are several, but three that are immediately apparent are: (1) the inclusion of bilateral sales, which were tied to power purchased under the now-expired APL contract, (2) the inclusion bilateral sales that continued for more than one hour at a fixed price (i.e., "block sales"), and (3) the improper mixing of DA-LMPs and RT-LMPs.

Q. Please explain the issue relating to the now-expired APL contract.

A. The APL contract was a purchase power agreement that began before the MISO market came into being and was associated with a power supply located in the Entergy control area, which is outside of the MISO market. Power prices in the Entergy control area are often higher than the MISO LMPs due to Entergy's heavier reliance on gas-fired generation, thus AmerenUE frequently used the APL power supply as a source for bilateral sales. The proceeds of those bilateral sales flowed through the FAC, which meant that customers were capturing 95%

of the margin AmerenUE made by buying the APL power at a lower price and selling it into the Entergy control area at a higher price.

However, when the APL contract expired in August 2009, the volume of bilateral sales was reduced substantially. Among other reasons, this is why our modeling and NBFC for this rate case exclude the APL contract, because that contract will not be in effect when rates set in this case will take effect. I would note that the Staff has also excluded the APL power purchases from its fuel modeling, but in its corrected power price analysis described in Ms. Maloney's supplemental rebuttal testimony, the Staff continues to use sales of power that were made possible by the APL contract.

By including the higher prices we were formerly realizing on these APL-related sales, the Staff's analysis distorts the hourly power prices that should be used on a going-forward basis (when rates in this case will be in effect). Had the Staff properly used the transparent MISO DA-LMPs, as the Staff did in the prior case, this distortion would not exist. Schedule TDF-SR9 attached to this testimony is an example of a transaction using power formerly purchased from APL that was sold into the Entergy control area at a much higher overall price and at an hourly price (which was constant over the 16 hours covered by the sale) that varied considerably from the hourly MISO DA-LMP.

Q. You mentioned block sales, that is, sales that are made for more than an hour at a fixed price. What is the problem with using block sales to develop normalized hourly power prices?

A. Block sales cover multiple hours at a fixed price and should be excluded from any calculation of normalized hourly prices because they do not represent an individual hourly price. Rather, they represent an *average* price for the entire period of the sale. For example, a block

sale which covers 16 consecutive hours and has a fixed price of $38/MWh does not contain enough information to determine a separate price each hour; it represents only the average price for the entire 16-hour period. When using the average value for the entire time period, the hours that should have low prices are overstated and the hours that should have high prices are understated. This is illustrated by Schedule TDF-SR10 attached to this testimony.

Looking at Schedule TDF-SR10, you can see that the MISO DA-LMP for hour 4 was $19.50/MWh, but the block price was $38/MWh – an overstatement of $18.50/MWh. Conversely, the MISO DA-LMP for hour 20 was $55.71/MWh, but the block price was $38/MWh – an understatement of $17.71/MWh. The goal of normalizing the prices is to arrive at a normalized *hourly* price that is reflective of the price in each hour that can be expected when rates are in effect. This is very important because normalized *hourly* prices are used in both the Company's and the Staff's models to simulate the dispatch of the Company's generation, which in turn determines an important component of NBFC and overall net fuel costs used to set rates. A method that uses block sales will not produce reliable hourly market prices, and will distort the modeling results.

Q. The third concern you mentioned involved the improper mixing of DA and RT-LMPs. Please address the distortion that occurs when combining DA and RT-LMPs as part of an effort to determine a normalized hourly power prices.

A. Another problem with the Staff's method arises from the use of both RT prices and DA prices. As mentioned previously, the RT market is a market that is used for balancing deviations between actual and day-ahead cleared loads and actual and day-ahead cleared generation. Since the RT prices are the result of deviations of load and generation, the prices can vary significantly from the DA prices. Large differences between RT and DA prices typically

occur when the MISO system is stressed and deviations in either load or generation occur. For example, during the winter, when the DA load forecast is high, and the actual load comes in even higher than the DA forecast (e.g., the operational day is much colder than anticipated), the RT prices can be substantially higher due to the use of more expensive units to serve the additional real time load. Higher cost units are used to supply the RT load increase because the less expensive units were already committed to the DA market and were used to set the DA prices, thus leaving only the more expensive units to supply the additional load and to set RT prices.

When the RT price is significantly higher than the DA price, AmerenUE is usually limited in its ability to take advantage of the higher RT price because it has already committed its excess generation to sales in the DA market. In fact, when actual hourly loads come in higher than the projected load forecast, AmerenUE may actually have to purchase power to serve its customers, rather than sell power, because its units were already committed in the DA market. A good example of this occurred on December 16, 2008, during the hour ending 12 (11 – 12 a.m.). The DA forecast for that hour was 5,803 MW and the DA-LMP was $58.03/MWh. However, the actual load came in at 6,570 MW and the RT-LMP was more than three times the DA-LMP ($184.37/MWh). Consequently, AmerenUE was a net purchaser when the RT market was high. Including this RT price, as Staff has done, to set a normalized power price results in an inflated normalized power price, which is what we are seeing in the Staff's results after Ms. Maloney's adjustment was made.

Q. Can the Staff's method be easily corrected to develop normalized hourly power prices?

A. No, it can't. However, it is unnecessary to correct that process because there exists reliable, transparent market data that is readily available regarding the MISO market. In

fact, as I noted earlier, the Staff used that reliable, transparent market data in the Company's last rate case.

Q. Do you believe the concerns that you express about Ms. Maloney's correction can be resolved with the Staff?

A. Yes, I do. I have worked closely with the Staff on production cost issues in previous rate cases and successfully resolved those issues, thus I would expect to be able to resolve the issues in this case. This is one area where the Staff and Company have cooperated to ensure that modeling is correct, and I believe both parties will work together to address this issue as well.

Q. Does this conclude your surrebuttal testimony?

A. Yes, it does.

Example of APL purchase being used to support off-system sales

Purchase

Date	4/8/2008		
Company:	APL		
Hr	MW	$	$/MWH
01			
02			
03			
04			
05			
06			
07	165	$2,233	$13.54
08	165	$2,233	$13.54
09	165	$2,233	$13.54
10	165	$2,233	$13.54
11	165	$2,233	$13.54
12	165	$2,233	$13.54
13	165	$2,233	$13.54
14	165	$2,233	$13.54
15	165	$2,233	$13.54
16	165	$2,233	$13.54
17	165	$2,233	$13.54
18	165	$2,233	$13.54
19	165	$2,233	$13.54
20	165	$2,233	$13.54
21	165	$2,233	$13.54
22	165	$2,233	$13.54
23			
24			

Sale

Date	4/8/2008		
Company	EES		
Hr	MW	$	$/MWH
01			
02			
03			
04			
05			
06			
07	165	$12,210	$74.00
08	165	$12,210	$74.00
09	165	$12,210	$74.00
10	165	$12,210	$74.00
11	165	$12,210	$74.00
12	165	$12,210	$74.00
13	165	$12,210	$74.00
14	165	$12,210	$74.00
15	165	$12,210	$74.00
16	165	$12,210	$74.00
17	165	$12,210	$74.00
18	165	$12,210	$74.00
19	165	$12,210	$74.00
20	165	$12,210	$74.00
21	165	$12,210	$74.00
22	165	$12,210	$74.00
23			
24			
		Average	$74.00

4/8/2008	
MISO DA LMP	
Hr	
01	
02	
03	
04	
05	
06	
07	$74.11
08	$71.53
09	$71.41
10	$73.36
11	$73.63
12	$71.81
13	$72.89
14	$71.49
15	$57.88
16	$55.58
17	$56.46
18	$50.63
19	$48.09
20	$69.26
21	$72.25
22	$48.26
23	
24	
Average	$64.92

Example of a Block Sale included in Staff's data base used to calculate hourly power prices

Company:	MPS			
Date	Hr	MW	Revenue	Price
12/15/2008	01	100	$3,800	$38.00
	02	100	$3,800	$38.00
	03	100	$3,800	$38.00
	04	100	$3,800	$38.00
	05	100	$3,800	$38.00
	06	100	$3,800	$38.00
	07	100	$3,800	$38.00
	08	100	$3,800	$38.00
	09	100	$3,800	$38.00
	10	100	$3,800	$38.00
	11	100	$3,800	$38.00
	12	100	$3,800	$38.00
	13	100	$3,800	$38.00
	14	100	$3,800	$38.00
	15	100	$3,800	$38.00
	16	100	$3,800	$38.00
	17	100	$3,800	$38.00
	18	100	$3,800	$38.00
	19	100	$3,800	$38.00
	20	100	$3,800	$38.00
	21	100	$3,800	$38.00
	22	100	$3,800	$38.00
	23	100	$3,800	$38.00
	24	100	$3,800	$38.00
		Daily Avg.		$38.00

MISO DA LMP		
Date	Hr	Price
12/15/2008	01	$22.79
	02	$20.41
	03	$19.46
	04	$19.50
	05	$21.13
	06	$23.46
	07	$33.09
	08	$49.60
	09	$44.83
	10	$45.75
	11	$42.77
	12	$44.61
	13	$40.57
	14	$38.34
	15	$35.94
	16	$34.91
	17	$38.93
	18	$63.07
	19	$68.97
	20	$55.71
	21	$53.13
	22	$45.13
	23	$33.76
	24	$35.57
	Daily Avg.	$38.81

Hr	Difference MPS - DA LMP
01	$15.21
02	$17.59
03	$18.54
04	$18.50
05	$16.87
06	$14.54
07	$4.91
08	-$11.60
09	-$6.83
10	-$7.75
11	-$4.77
12	-$6.61
13	-$2.57
14	-$0.34
15	$2.06
16	$3.09
17	-$0.93
18	-$25.07
19	-$30.97
20	-$17.71
21	-$15.13
22	-$7.13
23	$4.24
24	$2.43

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE's Tariffs to Increase its Annual Revenues for Electric Service.	)	Case No. ER-2010-0036
	)	Tracking No. YE-2010-0054
	)	Tracking No. YE-2010-0055

AFFIDAVIT OF TIMOTHY D. FINNELL

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

Timothy D. Finnell, being first duly sworn on his oath, states:

1. My name is Timothy D. Finnell. I work in the City of St. Louis, Missouri, and I am employed by Ameren Services Company as Managing Supervisor, Operations Analysis.

2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony on behalf of Union Electric Company d/b/a AmerenUE consisting of 10 pages and Schedules TDF-SR 9 through TDF-SR 10, all of which have 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.

Timothy D Finnell
Timothy D. Finnell

Subscribed and sworn to before me this 5th day of March, 2010.

Mary Hoyt
Notary Public

My commission expires: 4-1-2010

Mary Hoyt - Notary Public
Notary Seal, State of
Missouri - Jefferson County
Commission #06397820
My Commission Expires 4/1/2010