Exhibit No.:
Issue: FAC, FAC Base, Fuel Inventory
Witness: Todd W. Tarter
Type of Exhibit: Rebuttal Testimony
Sponsoring Party: Empire District Electric
Case No. ER-2016-0023
Date Testimony Prepared: April 2016

Before the Public Service Commission
Of the State of Missouri

Rebuttal Testimony

of

Todd W. Tarter

April 2016

SERVICES YOU COUNT ON

Empire Exhibit No. 21
Date 6-2-16 Reporter KF
File No. ER-2016-0023

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TODD W. TARTER
ON BEHALF OF
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION
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REBUTTAL TESTIMONY OF
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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. Todd W. Tarter. My business address is 602 S. Joplin Avenue, Joplin, Missouri.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. The Empire District Electric Company ("Empire", "EDE" or "Company"). My title is Manager of Strategic Planning.

Q. ARE YOU THE SAME TODD W. TARTER THAT EARLIER PREPARED AND FILED DIRECT TESTIMONY IN THIS RATE CASE BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION ("COMMISSION") ON BEHALF OF EMPIRE?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. In my rebuttal testimony, I will comment on the Commission Staff's ("Staff") modeling of the fuel and purchased power ("FPP") expense level for setting the base FPP cost, as proposed in the direct testimony of Staff witness Ms. Kimberly K. Bolin and Staff's Rate Design and Cost of Service Report. I will also respond to the direct testimony of Office of the Public Counsel ("OPC") witness Ms. Lena Mantle regarding the continuation of Empire's fuel adjustment clause ("FAC"). I will further provide fuel inventories updates.

II. RESPONSE TO STAFF FAC BASE FACTOR

Q. WHAT IS EMPIRE'S POSITION ON ENERGY COST RECOVERY IN THIS CASE?

A. Empire is recommending the continuation of its FAC, to include the current 95%/5% sharing mechanism and an updated FAC base factor. In the direct filing Empire presented the results of a computer model run using then current fuel, power, and transmission costs, and all the cost components of the proposed FAC base. These are the same cost components, with updated values, as those contained in the Company's current FAC base. Empire also provided all of the filing requirements for the continuation of a FAC as required by the Commission's Rules.

Q. PLEASE SUMMARIZE STAFF'S POSITION ON ENERGY COST RECOVERY IN THIS CASE BASED ON ITS DIRECT FILING.

A. Staff is also recommending the continuation of the FAC, to include the current 95%/5% sharing mechanism and a revised base factor. Staff also requests that Empire continue to provide monthly information as Empire agreed to in the Revised Stipulation and Agreement in Case No. ER-2014-0351.

Q. HAVE YOU REVIEWED STAFF'S FPP MODEL OUTPUT, BASE FACTOR PROPOSAL, AND RELATED WORKPAPERS?

A. Yes. Moreover, these issues were discussed during the recent technical conference in this case.

Q. HOW DOES STAFF'S FAC BASE FACTOR VALUE PER MWH COMPARE WITH EMPIRE'S?

A. Staff's FAC base factor calculation in direct assumed that Riverton Unit 12 operated as a

142 megawatt ("MW") simple cycle natural gas unit. Empire's modeling in direct assumed that Riverton Unit 12 would be a 250 MW combined cycle natural gas unit. Due to this significant difference, it is difficult to compare the Staff and Empire proposed FAC base factors at this point in the rate case process. It is my understanding that Staff will model Riverton Unit 12 as a 250 MW combined cycle unit during the true-up process. Empire will be able to comment on the Staff FAC base factor at that time.

Q. DO YOU HAVE ANY CONCERNS ABOUT THE MODELING AND ASSUMPTIONS THAT STAFF USED TO DEVELOP ITS PROPOSED FAC BASE FACTOR?

A. Yes. Aside from the Riverton Unit 12 issue discussed above, I found four primary areas of concern with Staff's initial FPP analysis. I will refer to these as: (1) the Staff model approach; (2) the generation mix resulting from Staff's dispatch model; (3) the State Line Combined Cycle ("SLCC") heat rate in Staff's model; and (4) the values of renewable energy credits ("RECs") and air quality control system ("AQCS") consumables that Staff used to calculate its initial FAC base factor.

Q. PLEASE COMPARE THE EMPIRE AND STAFF FPP MODELING APPROACHES IN THIS CASE.

A. I do not have access to the Staff model, but I have reviewed the model output and I discussed the modeling methodology with Staff at the technical conference. Based on that review, it is my understanding that Staff and Empire are both attempting to model the Southwest Power Pool Integrated Marketplace ("SPP IM") in order to calculate the net fuel and purchased power expense to include in this case. At a high level, in the SPP IM approach, all of Empire's native load would be supplied from the market at locational

marginal prices. Empire would bid in its resources to the SPP market, and, if requested to run by SPP, Empire would sell generation into the market and receive revenue from the SPP market. The net FPP cost would be the cost to serve native load from the SPP IM market, plus the cost of Empire's FPP to generate for the market, minus revenue received from the SPP IM market sales. Staff is using one set of market prices in its model to try to accomplish this task, while Empire is using multiple sets of market prices to recognize the different pricing points for the different locations of its generating resources and load. Empire's dispatch model is substantially calculating the resource generation costs, the costs to serve native load from the market, and the revenues received from sales into the market. It is my understanding that Staff's dispatch model is calculating only the resource generation costs. The costs to serve native load from the market and the revenues received from sales into the market are being handled outside the Staff model with a post model run analysis. Based on my discussions with Staff, its modeling process cannot determine the revenues that individual Empire resources receive. As a result, individual resource margin cannot be determined to check for reasonableness. In contrast, Empire's model does calculate and report costs, revenues, and margin for each generating resource. Additionally, during the period that Empire transitioned its model approach to account for operation in the SPP IM, Empire tested with various sets of market prices, considered the relationships of market parameters (e.g., the correlation of natural gas prices with market prices, native load costs and margins) and worked with the Empire Supply Management Department to assess the reasonableness of the model results.

Q. PLEASE CONTINUE TO EXPLAIN THE DIFFERENCES BETWEEN EMPIRE'S AND STAFF'S FPP MODELING APPROACHES.

A. The SPP IM has been in place since March 2014, so it is still a relatively new market to attempt to model. A limited amount of actual data is available at this time, and the roughly two years of data that we do have contains the impacts of actual weather and market conditions. I think that as time goes by, modelers will continue to gather actual market history to further enhance their models. While Staff has made improvements in modeling the SPP IM since Empire's last rate case, they still appear to be in a transition phase. I am not sure if Staff has considered the market correlations in its modeling that I mentioned earlier, and given the generation levels yielded by Staff's dispatch model for Empire's resources (which cannot determine the revenues that individual resources receive), it does not appear that Staff's model has been refined enough to produce reasonable results. Further, at a high level, based on discussions at the technical conference, my greatest concern is associated with Staff's method of calculating revenues for energy sold into the SPP market.

Q. PLEASE EXPLAIN YOUR CONCERNS WITH THE OVERALL GENERATION LEVELS ASSOCIATED WITH EMPIRE'S RESOURCES IN THE STAFF MODEL?

A. As a possible result of the Staff modeling methodology concerns that I described earlier, I question the Staff's generation mix for Empire's resources. For example, the Staff model produced very high generation levels for coal resources (even in a period of low natural gas prices), no generation for the older and larger simple cycle natural gas units, and low generation levels for the aero-derivative combustion turbine natural gas units. These levels of output are inconsistent with the manner that these units have actually operated in the SPP IM. A comparison of coal generation is provided below.

Actual Period/Model	Coal Generation (MWh)	Coal Capacity Factor
Year 2014	2,681,842	62.70%
Year 2015	2,757,003	64.50%
12-Months Ended Mar-2016	2,851,531	66.70%
Empire Model	3,010,600	70.40%
Staff Model	3,507,957	82.10%

Actual Source: Empire Summary of Fuel & Purchased Power Report

The following table shows selected simple cycle natural gas unit output. These units tend to be higher cost resources that operate more during peak conditions. A review of Staff's supporting work papers shows that some of Empire's larger simple cycle units did not run at all in Staff's modeling. Specifically, the Staff model shows no generation coming from Energy Center Units 1 and 2 and State Line Unit 1. I have reviewed several years of recent data and have not found any twelve month period during which these units did not run at all.

Actual Period/Model	EC 1-2 & SL 1 Generation (MWh)
Year 2014	19,263
Year 2015	30,201
12-Months Ended Mar-2016	27,128
Empire Model	21,600
Staff Model	0

Actual Source: Empire Summary of Fuel & Purchased Power Report

The next table displays generation for Energy Center Units 3 and 4. These FT8 Twin- Pac aero-derivative units are currently rated at 49 MW each. The units have quick start capability and are typically on line at full load in less than 10 minutes. These units are used primarily for peaking and load balancing. As shown in the table, the Staff model did

not capture the level of output typically seen from these units.

Actual Period/Model	EC 3-4 Generation (MWh)
Year 2014	105,889
Year 2015	81,751
12-Months Ended Mar-2016	60,176
Empire Model	101,900
Staff Model	17,932

Actual Source: Empire Summary of Fuel & Purchased Power Report

Q. PLEASE DISCUSS THE SLCC HEAT RATE CONCERNS THAT YOU HAVE IDENTIFIED WITH STAFF'S MODELING.

A. After examining the Staff's work papers, it was apparent that the average heat rate that Staff's model produced for SLCC was lower than actual historical observations. SLCC, of which Empire has a 297 MW share, is an important unit in Empire's resource portfolio. By using a low heat rate, which is a measure of the unit's efficiency (the heat required to generate a kilowatt hour of energy); the Staff model has significantly underestimated the cost of energy generated by this unit. The following table shows some historical heat rates for SLCC, along with the heat rates yielded by Empire's and Staff's models in this case to date.

Actual Period/Model	SLCC Heat Rate (Btu/kWh)
Year 2014	7,502
Year 2015	7,386
12-Months Ended Mar-2016	7,408
Empire Model	7,314
Staff Model	6,882

Actual Source: Empire Fuel Report

Q. PLEASE EXPLAIN YOUR CONCERNS WITH THE RENEWABLE ENERGY CREDITS ("RECS") VALUE IN STAFF'S FAC BASE FACTOR CALCULATION.

A. Empire currently sells a portion of the RECs from the Elk River and Meridian Way wind farm purchases on the open market, and flows the revenue from these REC sales through the FAC as an offset to energy costs. Staff did not update the REC value from the last Empire rate case when it calculated its initial FAC base factor.

Q. PLEASE EXPLAIN YOUR CONCERNS WITH THE AIR QUALITY CONTROL SYSTEM ("AQCS") CONSUMABLE VALUE IN STAFF'S FAC BASE FACTOR CALCULATION.

A. The AQCS consumables are a component of Empire's existing FAC. The environmental equipment at the generating stations consumes certain materials which facilitate air quality control functions. These materials include ammonia, lime, limestone, and powder activated carbon. Staff's FAC base factor in this case includes the same consumable level from Empire's last rate case. During the true-up run, Staff should update the consumable level. If Staff's true-up run includes Riverton Unit 12 as a combined cycle unit, then Staff should consider the increase in consumables cost caused by this unit.

III. RESPONSE TO OPC WITNESS LENA MANTLE

Q. PLEASE SUMMARIZE THE OPC'S POSITIONS ON THE FAC IN THIS CASE BASED ON OPC WITNESS LENA MANTLE'S DIRECT TESTIMONY.

A. OPC recommends the discontinuation of Empire's FAC.

Q. WHAT WERE OPC'S REASONS FOR RECOMMENDING THE DISCONTINUANCE OF EMPIRE'S FAC?

A. Based on OPC's direct testimony, OPC recommends the discontinuation of Empire's FAC

because Empire allegedly did not show magnitude and volatility of the costs and revenues it proposes to include in the FAC (page 3 of OPC witness Mantle's testimony).

Q. ARE THERE OTHER AREAS THAT MS. MANTLE CLAIMS THAT EMPIRE'S FAC CONTINUATION REQUEST IS DEFICIENT?

A. OPC witness Mantle claims that Empire did not meet the filing requirements for an FAC in accordance with 4 CSR 240-3.161. Specifically, Ms. Mantle asserts that Empire was deficient with 4 CSR 240-3.161(3) (H) and (I) because Empire did not provide, in her opinion, a complete explanation of each cost and revenue it is proposing for recovery in the FAC. She acknowledges that Empire included a much more detailed list of costs and revenues than it had in past cases, where Empire was not found to be in violation of 4 CSR 240-3.161 and continuance of the FAC was approved by the Commission. Still, OPC continues in its attempt to use what Ms. Mantle claims as a filing deficiency as one of the reasons to discontinue Empire's FAC.

Q. DID EMPRE MEET THE FILING REQUIREMENTS FOR AN FAC CONTINUATION FILING?

A. Yes. Empire designed its FAC continuation request to comply with the Commission's rule governing the fuel adjustment process, including the twenty (20) minimum filing requirements ("MFR") from 4 CSR 240.3.161 (3) (A)-(T). The filing of information on the magnitude and volatility of costs is not specified as part of the MFRs based on the existing Commission FAC rule (4 CSR 240.3.161 (3) (A)-(T)). Additionally, Empire was first granted an FAC in 2008, and the Commission has approved the continuation of the FAC in four subsequent cases. This current filing contains substantially the same, if not more information as was contained in all the prior filings.

Q. DOES EMPIRE'S FILING SHOW THE MAGNITUDE OF THE ENERGY COSTS?

A. Yes. From all the values filed in this case, parties to the case can deduce the magnitude of the costs and revenues involved.

Q. WHAT ABOUT ENERGY COST VOLATILITY?

A. The magnitude, uncertainty, and volatility of energy costs have been well established in past cases, including the case that established Empire's initial FAC. You may also refer to my rebuttal testimony from Empire's last rate case (ER-2014-0351) beginning at page 21.

Q. CAN YOU PROVIDE A MORE RECENT EXAMPLE OF ENERGY COST VOLATILITY?

A. Yes. Since Empire's FAC was implemented, Empire has made an FAC filing with the Commission every six months to establish an updated fuel adjustment rate ("FAR") for customer bills and to true-up under or over recovered costs from prior periods. Therefore, the Commission and other stakeholders are periodically updated about the FAC, including the magnitude and volatility of energy costs. In its last FAC filing made on April 1, 2016, due to mild winter weather and low natural gas and market power prices, Empire proposed to refund over four million dollars to Missouri retail customers with an updated FAR, which will be a credit on customer bills. Aside from the true-up amount, most of this variance occurred during just a six month period. Without an FAC in place, as Ms. Mantle would support, Missouri retail customers would have been denied this refund. Further, neither Empire nor its customers can control the weather, the natural gas market, or the SPP IM energy prices.

Q. MS. MANTLE ASSERTS THAT SINCE EMPIRE'S DIRECT FILING PROPOSED ONLY A 0.15% CHANGE FROM THE CURRENT FAC BASE, THEN COSTS

ARE NOT VOLATILE. HOW DO YOU RESPOND?

A. First, this case follows closely from Empire's last rate case. At the time that Empire first proposed a base amount for this case, the current FAC base had only been effective for about three months, so a minor change in an estimated base amount should not be surprising. Secondly, the generation portfolio reflected in the base estimate filed in this case, which includes Riverton Unit 12 as a combined cycle unit, is very different from the last case which included Riverton Unit 12 as a simple cycle unit. The current FAC base also represents a negotiated level from a global settlement. Consequently, it is difficult to draw meaningful conclusions by comparing these two levels. Finally, and perhaps most significantly, it is important to understand that we are discussing *base amounts*. This does not indicate that this is where energy costs will stabilize. A base is a prediction or estimation of what energy costs *might* be in the future. Attempts are made to establish an appropriate FAC base, but like any forecast it is inherently wrong. Future energy costs cannot be predicted with any degree of accuracy. Future energy costs will fluctuate above and/or below the base amount established in any rate case. Ms. Mantle supports the discontinuance of an FAC, which would place an estimate of all energy costs in base rates. This would create a situation where there are always winners and losers at every energy cost change. This approach is not fair to Empire and is not fair to Empire's customers. Even if costs seem to be stable at some point in time, the potential for dramatic cost changes exists. By and large, the energy costs in an FAC are uncertain and outside the Company's or its customers' control, but a properly designed FAC will work no matter how stable or unstable those costs and revenues become. Consequently, continuing the FAC is important to the Company, its shareholders, its customers, and the investment

community.

Q. ON PAGE 12 OF MS. MANTLE'S TESTIMONY, SHE CONTENDS THAT SCHEDULE TWT-10 FROM YOUR DIRECT TESTIMONY IS NOT CONSISTENT WITH YOUR WRITTEN TESTIMONY. HOW DO YOU RESPOND?

A. I do not agree with this assertion. This appears to be a misinterpretation of my direct testimony. I think this confusion, which is understandable given the labeling on the schedule, may simply be a matter of how costs are categorized. However, my written testimony did explicitly list the cost components that I was referring to as "other energy cost components." The only "other energy cost component" that I did not mention was net emission allowances since it had a value of zero. After stating that the proposed FAC base factor was higher than the existing base factor by $0.00004 per kWh or about 0.15%, I continued to further explain the issue in my direct testimony. On page 17, lines 10-18 of my direct testimony, I fully explained the calculation that Ms. Mantle references, as restated below:

> However, the net FPP expense is actually lower in the proposal by about 1.2% due in part to the inclusion of the new Riverton Combined Cycle unit. On Schedule TWT-10, the net FPP expense that I am referring to, is comprised of native load costs from the SPP market and all fuel and purchased power costs to generate the energy sold into the SPP market, as offset by the revenue received for the energy sold into the SPP market and ARR/TCR. The lower net FPP expense, however, is more than offset by increases in the other energy cost components such as consumables, which now includes ammonia for the new

Riverton Combined Cycle unit, and a portion of RTO transmission costs and a reduction in REC credits.

I am including Rebuttal Schedule TWT-1 to help clarify these calculations and the resulting percentages that Ms. Mantle questioned.

Q. WHAT IS YOUR RESPONSE TO OPC'S RECOMMENDATION TO DISCONTINUE THE EMPIRE FAC?

A. I do not agree with the OPC proposal. Completely eliminating the FAC would deny Empire the means to recover prudently incurred energy costs and maintain the opportunity to earn a fair return. This would also remove the assurance that customers neither over-paid nor under-paid for these costs. It would also send a negative message to investors and credit rating agencies which could eventually harm Empire and its customers. The OPC proposal sponsored by Ms. Mantle to discontinue the Empire FAC is not in the public interest and should therefore be rejected.

VI. FUEL INVENTORY

Q. HAVE YOU REVIEWED STAFF'S FUEL INVENTORY CALCULATIONS IN THIS CASE?

A. Yes, I have.

Q. DO YOU AGREE WITH STAFF'S FUEL INVENTORY VALUES FOR USE IN THIS CASE?

A. Not at this time. Staff used the results from its fuel model in this case to determine the inventory levels for coal. Staff modeled the Plum Point coal-fired unit at the 100 megawatt ("MW") level to account for 50 MW of Empire ownership and 50 MW that Empire receives via a PPA. It appears that Staff used the entire 100 MW to determine the

appropriate Plum Point coal inventory. By doing this, Staff overestimated the fuel inventory cost since it should have only considered the ownership portion. It is my understanding that Staff will correct this issue. Empire may accept the Staff corrected fuel inventory levels, pending the outcome of Staff's true-up model run in this case.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

Rebuttal Schedule TWT-1

		Current FAC Base Total Company	From Direct Filing Proposed FAC Base Total Company		
A	**Total Eligible For FAC Base**	$ 142,303,060	$ 142,766,027		
	Other Energy Costs (Not part of net F&PP):				
	AQCS Consumables	$ 1,523,679	$ 2,142,688		
	Net Emission Allowances	$ -	$ -		
	RTO Transmission	$ 5,054,101	$ 5,861,084		
	Renewable Energy Credits (REC)	$ (1,162,426)	$ (495,617)		
B	**Total of Other Energy Costs (Not part of net F&PP)**	$ 5,415,354	$ 7,508,155		
				Difference	**% Change**
A-B	**Net F&PP Costs (Excluding Other Energy Costs)**	$ 136,887,706	$ 135,257,872	$ (1,629,834)	-1.2%
	Total MWh	5,302,880	5,311,098		
	Base Cost per MWh	26.84	26.88	$ 0.04	0.15%

AFFIDAVIT OF TODD W. TARTER

STATE OF MISSOURI)
) ss
COUNTY OF JASPER)

On the 25th day of April, 2016, before me appeared Todd W. Tarter, to me personally known, who, being by me first duly sworn, states that he is Manager of Strategic Planning of The Empire District Electric Company and acknowledges that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

Todd W. Tarter

Subscribed and sworn to before me this 25th day of April, 2016.

ANGELA M. CLOVEN
Notary Public - Notary Seal
State of Missouri
Commissioned for Jasper County
My Commission Expires: November 01, 2019
Commission Number: 15262859

Notary Public

My commission expires: 11/01/2019.