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Witness: Todd W. Tarter
Type of Exhibit: Direct Testimony
Sponsoring Party: Empire District Electric
Case No. ER-2011-0004
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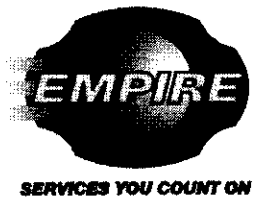
Before the Public Service Commission
Of the State of Missouri

Direct Testimony

of

Todd W. Tarter

September 2010



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OF
TODD W. TARTER
ON BEHALF OF
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. ER-2011-0004

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DIRECT 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" or "Company"). My title is Manager of Strategic Planning.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND FOR THE COMMISSION.

A. I graduated from Pittsburg State University in 1986 with a Bachelor of Science Degree in Computer Science. After graduation I received a mathematics education certification. I began my employment with Empire in May 1989. During my tenure with Empire I have worked in the Corporate Planning, Strategic Planning, Information Technology, and Planning and Regulatory departments. My primary responsibilities during this time have included work with the Company's construction budget, load forecasts, sales and revenue budgets, financial forecasts and fuel and purchased power projections, among others. In September 2004, I was promoted to my current position where I primarily work with fuel and purchased power projections and integrated resource planning.

Q. HAVE YOU EVER TESTIFIED BEFORE THIS OR ANY OTHER STATE UTILITY COMMISSION?

A. Yes. I testified on behalf of Empire on the topic of on-system fuel and purchased power

expense in Missouri Public Service Commission ("Commission") Cases No. ER-2006-0315, ER-2008-0093 and ER-2010-0130. I also testified on behalf of Empire in Kansas Corporation Commission Case No. 05-EPDE-980-RTS.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS CASE?

A. Empire is proposing that the Commission approve the continuation of a Fuel Adjustment Clause ("FAC") in this case. For a more detailed description of this request, please refer to the direct testimony of Empire witness W. Scott Keith. In conjunction with the FAC continuation, Empire has estimated the ongoing level of on-system fuel and purchased power ("FPP") costs as part of this case. The primary purpose of this testimony is to provide some of the forecasted data required for a Fuel Adjustment Clause ("FAC") continuation filing. My direct testimony will also describe Empire's review of the on-system FPP expense for this case. The on-system FPP expense values that I will be addressing can be grouped into the following categories: (1) normalized on-system FPP energy expense calculated with a production cost model; (2) solid fuel-related costs, such as unit train and undistributed and other costs associated with the normalized production cost model run; and (3) natural gas-related costs, such as firm transportation, commodity charge, storage costs, undistributed and other costs and natural gas losses that are associated with the normalized production cost model run. In connection with the normalized production cost run referenced above, I will describe the model, the modeling process, the results of the model run and I will discuss some of the key data inputs to the model.

Q. DOES THIS TESTIMONY ADDRESS ALL OF THE COSTS ASSOCIATED WITH AN FAC?

A. That depends on how the FAC coming out of this case is designed. The FPP expenses that

I will describe can be used to establish the base energy cost, but other cost items can be included in an FAC calculation as is the case with Empire's current FAC. For example, off-system sales margin, environmental costs (emissions costs and consumables used by environmental equipment) and renewable energy credits ("RECs") can be components of an FAC calculation and these other components are part of Empire's existing FAC. Please refer to the Direct Testimony of Empire witness W. Scott Keith for information about these items.

Q. ARE YOU PROVIDING ANY SUPPORTING INFORMATION FOR EMPIRE'S REQUEST TO CONTINUE THE FAC?

A. Yes. I am providing the following information as required by the various subparts of 4 CSR 240-3.161(3):

- Schedule TWT-1, which is a list of the supply-side and demand-side resources that the Company expects to use to meet its load for the next four (4) years (as required by 4 CSR 240-3.161(3)(P));
- Schedule TWT-2, which shows the expected dispatch (generation levels) of the supply-side resources that Empire expects to utilize for the next four (4) years and explains why these expected dispatch levels are appropriate (as required by 4 CSR 240-3.161(3)(P));
- Schedule TWT-3, which shows the expected heat rates for each supply-side resource that the Company expects to utilize for the next four (4) years (as required by 4 CSR 240-3.161(3)(P));
- Schedule TWT-4, which shows the fuel types utilized in each of Empire's supply-side resources (as required by 4 CSR 240-3.161(3)(P)); and

- Schedule TWT-5, which establishes the fact that Empire has in place a long-term resource planning process, which has among its objectives to minimize the overall delivered cost of energy and to provide reliable service to customers (as required by 4 CSR 240-3.161(3)(R)).

II. REVIEW OF OF ON-SYSTEM FUEL AND PURCHASED POWER EXPENSE FOR BASE RATES

Q. WHAT LEVEL OF ON-SYSTEM FUEL AND PURCHASED POWER EXPENSE IS EMPIRE PROPOSING IN THIS CASE?

A. Empire has developed an on-system FPP cost level for base rates with a computer production cost model that will be discussed in this testimony. On an average cost basis, Empire estimates that ongoing FPP cost is slightly higher than the average costs developed by the Staff and agreed to by the parties in Case No. ER-2010-0130. However, after reviewing the cost comparison, Empire has elected not to rebase the FAC in its direct filing. Instead, Empire's filing utilizes the variable FPP base cost established in Case No. ER-2010-0130.

Q. IN EMPIRE'S LAST RATE CASE (CASE NO. ER-2010-0130), EMPIRE'S POSITION REGARDING THE FAC BASE WAS THAT IT SHOULD BE ADJUSTED IN THIS CASE (THE IATAN 2 CASE). WHY IS EMPIRE NOT REBASING FPP EXPENSE AT THIS TIME?

A. In Case No. ER-2010-0130 Empire's position was not to rebase FPP until the Iatan 2 case. However, the FPP was rebased in Case No. ER-2010-0130. The new rates from Case No. ER-2010-0130 just recently went into effect, and because this case so closely follows Case No. ER-2010-0130 efforts are being made to limit the issues and streamline the rate case

process as much as possible. Please refer to the direct testimony of Empire witness Kelly S. Walters for more information on this topic. However, since Empire did examine the on-system FPP costs with a production cost model for this case, it will be described in this testimony.

Q. PLEASE DESCRIBE THE ON-SYSTEM FUEL AND PURCHASED POWER EXPENSE LEVEL THAT EMPIRE DEVLOPED WITH ITS PRODUCTION COST MODEL.

The model run presented in this testimony is being provided as Empire's review of the ongoing level variable on-system FPP expense. The model run, which utilized the ongoing mix of generating resources including Plum Point and Iatan 2, produced a total company on-system FPP expense, excluding demand charges, of $163,510,921. This is based on a projected net system energy requirement of 5,400,342 MWh. On an average basis, this equals an average cost of $30.28 /MWh (excluding purchase demand charges). A cost summary from this model run is provided as Schedule TWT-6.

Q. HOW WAS THIS LEVEL OF FUEL AND PURCHASED POWER EXPENSE ESTIMATED?

A. This ongoing level of FPP expense was developed by running the hourly production cost computer model known as PROSYM using normalized sales levels, growth, weather and outage data, and projected fuel and purchased power costs.

Q. COULD YOU BRIEFLY DESCRIBE THE PROSYM MODEL?

A. The PROSYM model is a chronological computer model that dispatches resources to meet demand requirements on an hourly basis. The model commits resources based on fuel costs, unit start-up costs, and variable operation and maintenance ("O&M") costs after

accounting for operational characteristics of a utility system that may override economic dispatch. Empire has been using chronological production costing models for projection purposes since 1991. Empire has used the PROSYM model in its six previous rate case filings in Missouri.

III. UNIT DATA USED IN THE MODEL

Q. ARE THERE ANY NEW GENERATING UNITS USED IN THE MODEL RUN OF ESTIMATED FPP COSTS THAT SHOULD BE NOTED?

A. Yes. Empire has a 7.52% ownership share of the new Plum Point coal-fired generating unit. This is approximately a 50-megawatt ("MW") share. It was included in the model run at a 50 MW level for the full annual run. This unit met in-service criteria on August 12, 2010. In addition, a purchase power agreement ("PPA") from this unit was also included in the model run, but it will be discussed further in the purchased power section of this testimony. The model run also assumes a full year of operation from Empire's share of the Iatan 2 coal-fired generating unit. Kansas City Power & Light Company is the majority owner-operator of the coal-fired Iatan 2 unit; Empire's share of the unit is 12% (approximately 102 MW).

Q. PLEASE PROVIDE AN OVERVIEW OF THE DATA USED FOR MODELING EMPIRE'S GENERATING UNITS.

A. Data for Empire's generating units are shown in Schedule TWT-7. These data include each unit's rated capacity, maximum capacity, minimum capacity, heat rate curve information, ramp rate, forced outage rate information, mean repair time, minimum down time, minimum up time, fuel ratio, start-up fuel requirements and associated cost, and variable O&M. The normalized outage schedule is provided in Schedule TWT-8.

IV. FUEL DATA USED IN THE MODEL

Q. BRIEFLY EXPLAIN THE BASIS FOR THE SOLID FUEL COSTS INCLUDED IN EMPIRE'S PRODUCTION COST MODEL.

A. All coal and petroleum coke prices are based on the expected 2011 delivered cost (initial and freight). The following solid fuel types were modeled: (1) Asbury western coal; (2) Asbury blend coal; (3) Riverton western coal; (4) Riverton petroleum coke; (5) Iatan western coal; and (6) Plum Point western coal:

Q. PLEASE EXPLAIN HOW THE FUTURE NATURAL GAS PRICES WERE DEVELOPED FOR USE IN THE MODEL.

A. The computer model includes the assumption that Empire's gas-fired units first burn natural gas from the Company's natural gas hedging efforts, and secondly from the spot natural gas market, if needed. All spot market natural gas prices are estimates for delivered prices to the Southern Star Central Gas Pipeline where Empire takes natural gas delivery. Both the hedged natural gas and spot market natural gas data that were utilized in the normalized model run are based upon the expected natural gas data for calendar year 2011. The 2011 data were taken from Empire's Natural Gas Position report dated July 23, 2010.

Q. WHAT WAS THE WEIGHTED AVERAGE NATURAL GAS PRICE FROM THE MODEL RUN?

A. In the PROSYM run, with the model utilizing a combination of the hedged and spot market natural gas fuel types, the weighted average price of the natural gas consumed by the generating units was about $5.70 /MMBtu.

V. PURCHASED POWER DATA IN THE MODEL

Q. BRIEFLY DESCRIBE HOW THE POWER PURCHASES WERE MODELED.

A. In the model, purchased power can be divided into the following categories: (1) 50 MW Plum Point PPA (a coal-fired contract purchase); (2) 150 MW Elk River Wind Farm PPA and 105 MW Meridian Way Wind Farm PPA (wind contract purchases); and (3) the wholesale power market, also referred to as spot purchases (non-contract purchases).

Q. PLEASE DESCRIBE HOW THE PLUM POINT PPA WAS MODELED.

A. As previously mentioned, Empire has an ownership portion and a PPA portion of the new Plum Point coal-fired unit. Both portions were modeled at 50 MW each for a total capacity from this facility of 100 MW. Since the ownership portion and PPA portion will both be sourced from the same unit, Plum Point was modeled as 100 MW so the ownership and PPA portions would retain the same random forced outage draws in the model. In the model, half of the energy is assigned to the ownership portion and half to the PPA portion. From the standpoint of on-system FPP costs, the 50 MW PPA portion does have some additional costs associated with it. The proportionate share of O&M costs, unit train costs and environmental emissions costs were added to the Plum Point 50 MW PPA contract purchase for the normalized on-system FPP cost estimate.

Q. PLEASE DESCRIBE HOW THE WIND FARM PURCHASES WERE MODELED.

A. The 150 MW Elk River and 105 MW Meridian Way PPAs were modeled as "must take" purchases with hourly load profiles. Elk River was modeled at around a 40% capacity factor while Meridian Way was modeled at around a 39% capacity factor. The energy prices used in the model for both of these contracts were based on the agreed to prices for 2011.

Q. WHAT PRICES WERE UTILIZED FOR THE SPOT OR NON-CONTRACT PURCHASED ENERGY?

A. The spot purchase data in the model represent a forecast of the 2011 wholesale power market. The data are comprised of 8,760 hourly prices. The prices used in the model were developed by Ventyx, a consulting company, using computer models that generate market price estimates for the Southwest Power Pool North region. The power prices used in the model are those forecasted for year 2011, utilizing the same estimate of spot market prices for natural gas from Empire's Natural Gas Position Report dated July 23, 2010.

VI. OTHER FUEL RELATED COSTS

Q. BRIEFLY DESCRIBE THE OTHER FUEL RELATED COSTS THAT ARE INCLUDED IN THE ESTIMATE OF TOTAL COMPANY ON-SYSTEM FUEL AND PURCHASED POWER EXPENSE OF $163,510,921 OR $30.28 /MWH.

A. The other fuel related costs, in addition to the energy costs from the PROSYM model, are: (1) solid fuel related costs, such as unit train and undistributed and other costs; and (2) natural gas related costs, such as firm transportation, storage costs, commodity charge, undistributed and other costs and natural gas pipeline losses.

Q. PLEASE DESCRIBE ANY PURCHASED POWER DEMAND CHARGES.

A. Although it is not included in the base energy cost component, there is a monthly demand charge for the 50 MW Plum Point PPA. By contract this **_____ _____**of the contract. The annualized value of **_____** that has been utilized in this case represents a four-year average of the demand charges (2011-2014). A four-year average for 2011-2014 was used because that is the period of time that rates from this case are expected to be in place.

Q. PLEASE LIST THE OTHER SOLID FUEL RELATED EXPENSES.

A. The other solid fuel related expenses include undistributed and other costs at the coal-fired

facilities, unit train lease, unit train maintenance, unit train depreciation and unit train property taxes.

Q. PLEASE DESCRIBE THE NATURAL GAS FUEL RELATED EXPENSES.

A. The natural gas fuel related expenses include the costs associated with firm natural gas transportation service, commodity charges, storage costs and natural gas pipeline losses. Empire's firm gas transportation is based on the three contracts TA-0907, TA-8251 and TA-8385. The commodity charge estimates are based on a rate of $0.0181 /MMBtu. The interstate pipeline natural gas losses are based on a natural gas loss rate of 2.63%. The natural gas storage costs represent the annualized cost of a storage contract Empire recently entered into with the Southern Star Central Pipeline ("Southern Star"). This will be the first real natural gas storage opportunity Empire has had on Southern Star.

Q. PLEASE FURTHER DESCRIBE THE NATURAL GAS STORAGE.

A. Beginning in April 2011 Empire has the ability to store about one billion cubic feet (BCF) of natural gas on the Southern Star system. Natural gas can be injected into the Southern Star storage system, held in storage, and then withdrawn at a later time when it is needed for generation. The ability to store natural gas will have both risk management (mitigate price volatility) and operational (volume) benefits for Empire. Natural gas can be injected into storage when prices are low and withdrawn from storage during periods of higher seasonal market prices. Storage can also help with volume risk. For example, if natural gas has been arranged for delivery during a period of expected high use, but the weather turns mild and the natural gas is not needed, the natural gas can then be stored for later use instead of being sold to the market.

Q. PLEASE DESCRIBE THE COSTS ASSOCIATED WITH NATURAL GAS

STORAGE.

A. First, there is a reservation charge associated with natural gas storage. This charge remains the same regardless of how much natural gas is ultimately injected or withdrawn from storage. A second charge is associated with how much natural gas is kept in storage. This charge is rendered on a MCF basis using the ending daily balance of natural gas in storage. A third charge is associated with injecting the natural gas into storage. This injection fee is also charged on a MCF basis. Finally, there are natural gas storage losses to contend with. A small percentage of the natural gas that is put into storage (typically in the range of 1% to 2% annually) will be lost.

Q. HOW DID YOU QUANTIFY NATURAL GAS STORAGE COSTS FOR PURPOSES OF YOUR FPP COST ESTIMATE?

A. For the purpose of the estimate of annualized FPP expenses presented in this testimony, the annual natural gas storage reservation fee of $1,135,150 was included. Since the model run is based on normal weather and there is a perfect match between gas requirements and gas usage in the model there are no storage injections or withdrawals considered in the model.

VII. SUMMARY

Q. PLEASE PROVIDE A SUMMARY OF YOUR DIRECT TESTIMONY.

A. In this case Empire is requesting the continuation of its FAC. The schedules attached to this testimony provide some of the data required for the FAC's continuation. In conjunction with the continuation of the current FAC, Empire has estimated the level of 2011 timeframe on-system FPP expenses. Empire has simulated a dispatch of its generation system using the PROSYM production cost model to determine an estimate of annualized and normalized total company FPP expense. Based on this model run, Empire has

estimated annual FPP costs of $163,510,921 or $30.28 /MWh excluding purchase demand charges and other non-fuel items, such the sale of renewable energy credits, air quality control consumables, etc.

Q. HOW DOES THIS ESTIMATED COST LEVEL COMPARE TO THE AVERAGE BASE ENERGY COSTS BUILT INTO EMPIRE'S EXISTING MISSOURI RATES AND EMPIRE'S EXISTING MISSOURI FAC?

A. The average energy costs built into Empire's current base rates (excluding purchase demand charges and other non-fuel items, such the sale of renewable energy credits, air quality control consumables, etc.) equals $29.78 MWh. The comparable estimate of future average energy costs presented in this testimony for the 2011 timeframe equals $30.28 per MWh, an increase of $0.50 per MWh or approximately 1.7 percent. Given the size of this differential, the focus on limiting issues and streamlining the rate case process, and the complications associated with implementing changes to the FAC base in the tariff sheets themselves and the attendant billing complications, Empire has elected to continue to use the base FPP costs from Case No. ER-2010-0130 for the filing in this case

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, at this time.

AFFIDAVIT OF TODD W. TARTER

STATE OF MISSOURI)
) ss
COUNTY OF JASPER)

On the 21st day of September, 2010, before me appeared Todd W. Tarter, to me personally known, who, being by me first duly sworn, states that he is the 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 21st day of September, 2010.

Notary Public

My commission expires: 10-30-10.

VICKI L. KRAMER-GIBSON
Notary Public - Notary Seal
STATE OF MISSOURI
Jasper County - Comm#06482169
My Commission Expires Oct. 30, 2010