Issue: Annual ECA-ACA Filing
Witness: Jill M. Schwartz
Type of Exhibit: Direct Testimony
Sponsoring Party: Empire District Electric
Docket No. 18-EPDE-231-ACA
Date Testimony Prepared: January 2018

Before the Kansas Corporation Commission

Direct Testimony

Of

Jill M. Schwartz

In Support of the
Annual Energy Cost Adjustment ACA Filing

January 2018

****Denotes Confidential****

CONFIDENTIAL VERSION

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OF
JILL M. SCHWARTZ
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
KANSAS CORPORATION COMMISSION
DOCKET NO. 18-EPDE-231-ACA

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DIRECT TESTIMONY
OF
JILL M. SCHWARTZ
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
KANSAS CORPORATION COMMISSION
DOCKET NO. 18-EPDE-231-ACA

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Jill M. Schwartz and my business address is 602 South Joplin Avenue, Joplin, Missouri.

POSITION

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

A. I am employed by Liberty Utilities Services Corp. as the Senior Manager of Rates and Regulatory Affairs for Liberty Utilities Central Region, which includes The Empire District Electric Company ("Empire").

PURPOSE

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

A. My testimony will support Empire's request to the Kansas Corporation Commission ("Commission") for an order approving the Annual Cost Adjustment ("ACA") factor submitted to the Commission as part of Empire's approved Energy Cost Adjustment ("ECA") tariff.

Q. WHAT IS THE ACA PERIOD THAT IS ADDRESSED IN THIS TESTIMONY?

A. The historical ACA period discussed in this testimony refers to the twelve month period November 1, 2016 through October 31, 2017 ("ACA period"). This testimony will also

discuss the ECA projection for calendar year 2018. Finally, it will address a correction of an error made in the calculation of the ACA in 2016 and 2017.

BACKGROUND

Q. PLEASE PROVIDE A GENERAL BACKGROUND OF THE FILING AND WHY IT IS BEING MADE AT THIS TIME.

A. On October 4, 2005, Empire and the Staff of the Commission ("Staff") reached a settlement agreement in Docket No. 05-EPDE-980-RTS ("980 Docket"). One of the specific terms of the agreement reached with the Staff involved the implementation of an ECA for Empire's Kansas retail customers. Part of the terms of the ECA tariff approved by the Commission requires Empire to file an annual "true-up" of its Kansas energy costs. In this particular instance, Empire and Staff reached an agreement to make this annual ECA true-up as a formal application for approval with the Commission.

Q. PLEASE DESCRIBE EMPIRE'S ELECTRIC OPERATIONS.

A. Empire operates an integrated electric system that covers portions of four separate states, Kansas, Missouri, Oklahoma and Arkansas. Empire provides electric service in an area of approximately 10,000 square miles in the southwest corner of Missouri and the adjacent corners of Kansas, Oklahoma, and Arkansas. Empire's operations are regulated by the utility regulatory commissions of these four states as well as the Federal Energy Regulatory Commission ("FERC"). The service area contains 119 incorporated communities in 21 counties in the four-state area. Empire was incorporated in 1909 as a Kansas corporation. On March 16, 2016, Empire, Liberty Sub Corp. ("LSC") and Liberty Utilities (Central) Co. ("LU Central") (collectively referred to herein as "Joint

Applicants") filed a Joint Application and supporting testimony pursuant to K.S.A. 66-101, *et seq*., and other applicable statutes and orders issued by the Commission, seeking Commission approval of the acquisition by LU Central of all of the common stock of Empire and for other related relief (the "Transaction").[1] On December 22, 2016 the Commission issued its Order Granting Joint Motion To Approve The Unanimous Settlement Agreement and Approval Of The Joint Application. On January 1, 2017 Liberty Utilities announced the completion of the acquisition and merger of Empire.

Q. PLEASE BREIFLY DESCRIBE THE SOUTHWEST POWER POOL INTEGRATED MARKETPLACE ("SPP IM").

A. The SPP IM is a full-scale energy market consisting of a day-ahead market, real-time balancing market and transmission congestion market. The SPP IM was active during the entire ACA period. Within the SPP IM, SPP not only commits and dispatches generation to serve load, but also acts as a consolidated balancing authority in order to effectively operate a market-based reserve market. The expected result of the SPP IM is a more efficient commitment and dispatch of regional generation and operating reserves across the SPP footprint, resulting in anticipated shared savings among pool members.

Q. PLEASE DESCRIBE HOW THE SPP IM IMPACTS EMPIRE'S OPERATIONS.

A. As a member of SPP, the SPP IM has changed the way that Empire does business. Empire now submits its generation into the SPP market on a daily basis and the SPP market determines the most economical and reliable solution for providing energy to

[1] Docket No. 16-EPDE-410-ACQ, Joint Application (March 16, 2016).

customers. When the SPP IM went live on March 1, 2014, it created one consolidated balancing authority in SPP. Prior to the SPP IM; there were several balancing authorities within SPP. In the past Empire functioned as a balancing authority and dispatched its generators to serve its native load, while buying and selling energy when it was economical to do so, mostly through bilateral contracts. Since the SPP IM began, Empire now purchases energy from the market to serve native load, sells generation into the market, and receives revenue from selling its generation into the market.

Q. PLEASE GENERALLY DESCRIBE EMPIRE'S ELECTRIC SYSTEM OPERATING CHARACTERISTICS.

A. Empire is somewhat different than many of the other electric utilities in Kansas as it generally has dual (winter/summer) system peaks almost equal to each other. This situation is very unusual in the state of Kansas where most, if not all, of the other utilities are strongly summer peaking. Empire's system peak was recorded in December at 1,113 megawatts ("Mw") for the ACA year. In the past eight years Empire has logged its annual peak during the winter season three times and the summer season five times. The following table displays the actual Empire peak demands by month for the twelve-months ending October 2017 along with the Native Load in megawatt-hours ("Mwh") for each month.

Month	Peak-Mw	Percent of Annual Peak	Native Load-Mwh
Nov-16	708	64%	376,306
Dec-16	1,113	100%	493,389
Jan-17	1,027	92%	479,226
Feb-17	870	78%	376,756
Mar-17	849	76%	401,672
Apr-17	657	59%	358,694
May-17	804	72%	389,435
Jun-17	936	84%	450,870
Jul-17	1,075	97%	535,175
Aug-17	966	87%	465,483
Sep-17	984	88%	422,354
Oct-17	798	72%	397,454
Total			5,146,814

This winter/summer peak relationship also affects fuel procurement and power plant operation because Empire must be able to bid in enough resources into the SPP IM in order to cover its load.

Q. PLEASE DESCRIBE THE MAKEUP OF EMPIRE'S SUPPLY-SIDE RESOURCES.

A. With the advent of the SPP IM, Empire purchases energy from the market to serve native load, sells generation into the market, and receives revenue from selling its generation into the market. Therefore, the energy provided to the market from Empire's generation resources will not necessarily match Empire's native load energy requirements for the same time period since the native load requirement is now purchased from the SPP market. Empire's supply-side resources for the ACA true-up period ending October 2017 are illustrated in the table below.

Unit/Purchase	Rated Capacity	Actual Generation Mwh	Energy Cost TME October 2017 ($000) (A)	Average Cost/Mwh	Fuel Type
Asbury	198	1,080,111	$ 25,809.90	$ 23.90	Coal
Iatan 1-2	191	1,275,393	$ 19,193.97	$ 15.05	Coal
Plum Point (own)	50	240,977	$ 5,393.06	$ 22.38	Coal
Riverton 10-12	276	913,776	$ 20,205.03	$ 22.11	Natural Gas
Energy Center 1-4	262	165,423	$ 6,161.82	$ 37.25	Natural Gas
State Line	389	1,451,531	$ 31,698.03	$ 21.84	Natural Gas
Ozark Beach	16	30,404	$ -	N/A	Hydro
Plum Point PPA	50	246,045	$ 9,429.64	$ 38.32	Coal
Wind Farms	54	810,550	$ 29,671.03	$ 36.61	Wind
Total	1486	6,214,210	$ 147,562.49	$ 23.75	

(A) This is the cost of Empire's resource generation for November 2016 through October 2017 and excludes the cost of gas transportation, WR auxiliary charges, purchased power agreement ("PPA") demand charges, environmental costs, the cost of consumables and SPP IM costs and revenues.

Q. PLEASE DESCRIBE THE RATE STRUCTURES EMPIRE OPERATES UNDER IN ARKANSAS, OKLAHOMA AND MISSOURI.

A. All three states use historical test years to establish base electric rates in a manner similar to the process used in Kansas. In addition, Arkansas, Oklahoma and Missouri use adjustment mechanisms to pass through changes in fuel and energy costs to retail customers.

Q. WHAT IS THE RELATIONSHIP OF THE SALES LEVELS WITHIN EACH OF THE JURISDICTIONS?

A. Missouri is, by far, the largest jurisdiction with over 82 percent of total sales made by Empire during the twelve months ended October 31, 2017. The following table displays the actual sales levels in the various jurisdictions.

Jurisdiction	Mwh Sales	Ratio
Wholesale	325,698	7%
Kansas	219,156	5%
Arkansas	172,469	4%
Oklahoma	149,109	3%
Missouri	3,981,973	82%
Total	4,848,406	100%

FUEL AND PURCHASED POWER PROCUREMENT PRACTICE SUMMARY

Q. HOW DOES EMPIRE ACQUIRE THE FUEL AND PURCHASED POWER USED TO SUPPLY ELECTRICITY TO ITS CUSTOMERS?

A. Empire's fuel and purchased power acquisition planning is performed using a three-step process. The steps in this process are:

- Long-term Integrated Resource Plan ("IRP")
- An annual and five-year business plan
- Updates to the annual and five-year business plans as conditions change

Q. PLEASE DESCRIBE THE IRP PROCESS.

A. Empire utilizes the IRP process to develop a long-term strategy to reliably serve its customers at the lowest reasonable cost while considering other factors such as risk, resource diversity, energy policy, legal mandates and rate impacts. This planning process uses Empire's entire load in all five of its jurisdictions. This formal IRP process has been in place since the early 1990's when Missouri implemented a formal IRP rule. Since that time Oklahoma and Arkansas have implemented IRP rules. Empire filed its most recent triennial IRP in Missouri on April 1, 2016. In accordance with the IRP filing schedule established in Oklahoma and Arkansas, Empire submitted the 2016 IRP in Arkansas in March 2017 and in Oklahoma in May 2017. Per its agreement with the

Staff, Empire provides a copy of the Executive Summary included in the IRP filed in Missouri to the Staff for its review and Empire's employees are made available to answer any questions the Staff may have regarding that Executive Summary. Empire plans its resources on a system-wide basis. The IRP process Empire uses results in a target list of future resources designed to serve Empire's projected usage and customer levels in all jurisdictions. The resource plan selected by Empire as a result of this process includes a diverse set of resources. The fundamental objective of the IRP process requires the utility to consider demand-side, supply-side and renewable resources on an equivalent basis and utilize the minimization of long-run utility costs as a primary criterion while also considering other factors such as risk, legal mandates, energy policy and rate impacts.

Q. PLEASE DESCRIBE ANY RECENT CAPACITY ADDITIONS TO EMPIRE'S GENERATING FLEET.

A. In general, the timing of capacity additions is driven in large part by future load growth and the environmental rules enacted by the United States Environmental Protection Agency (EPA) and how these rules affect the operations at Empire's existing generating units, especially the coal units. In order to comply with current environmental regulations, Empire is taking actions to implement its environmental compliance plan and strategy ("Compliance Plan"). As part of the Compliance Plan, Empire recently converted the gas-fired Riverton Unit 12 simple cycle combustion turbine to a combined cycle unit resulting in an additional 100 megawatts ("MW") of capacity. The Riverton 12 Combined Cycle began commercial operations on May 1, 2016. In addition, Empire

had previously retired about 104 MW of capacity at the Riverton site. On June 30, 2014, Riverton Unit 7 was officially retired from service. At the time of its retirement, Riverton Unit 7 was 64 years old. The unit was rated at 38 MW of capacity. It had operated as a small coal unit for many years before being transitioned to full operation on natural gas in September of 2012. Riverton Unit 8 (54 MW), another former coal unit transitioned to full operation on natural gas in September of 2012, along with Riverton Unit 9 (12 MW), a small combustion turbine that required steam from either Unit 7 or Unit 8 for start-up, were officially retired from service on June 30, 2015. At the time of retirement Unit 8 was 61 years old and Unit 9 was 51 years old. The Riverton Unit 12 conversion to combined cycle essentially replaced the capacity lost due to the retirements of Riverton Units 7, 8 and 9. These Riverton unit retirements are directly related to the enactment of new EPA rules and the age and size of the specific units involved. Riverton Unit 12 is a natural gas-fired Siemens V84.3A2 combustion turbine that was installed at the Riverton power plant in Riverton, Kansas in 2007. It was previously rated at 142 MW for the summer peak season and primarily used as a peaking unit. The Riverton combined cycle upgrade utilized existing site infrastructure and incorporated the existing Riverton Unit 12 combustion turbine as part of the combined cycle unit. A heat recovery steam generator ("HRSG") was installed along with a new steam turbine and a cooling tower to provide cooling water for the condenser. A new control room and control system was also installed to operate the unit. The completion of the Riverton 12 combined cycle conversion project created Empire's most efficient unit.

Q. DOES EMPIRE HAVE PLANS FOR ANY CAPACITY ADDITIONS AND/OR RETIREMENTS IN THE NEAR FUTURE?

A. Empire has recently filed for approval from the four state utility commissions of its proposed Customer Savings Plan. Under the proposed plan, Empire seeks to add up to 800 MW of new wind generation by 2020 and the retirement of its Asbury Coal Plant in 2019.[2]

Q. HOW DOES THE SECOND STEP OF THE PLANNING PROCESS WORK?

A. In addition to the long range planning, Empire conducts annual financial and operational planning, which is used to develop a five-year business forecast. This planning process includes detailed load forecast, detailed generation unit modeling, detailed O&M and capital budget planning, and revenue forecast. This plan is used to assess many things including the ability to raise capital, debt and equity, and the near term impact on the overall cost of service. The detailed generation unit modeling developed in this phase of the planning process is used as the primary source of information for the development of the fuel and purchased power procurement plan.

Q. ARE THE ANNUAL AND FIVE-YEAR BUSINESS PLANS ADJUSTED TO REFLECT CHANGES IN THE BUSINESS ENVIRONMENT?

A. Yes. The annual and five-year business plans are periodically refined to take into account changes since the plans were initially developed. Empire considers changes in such things as weather, number of customers, fuel prices, purchased power prices, plant

[2] KCC Docket No. 18-EDPE-184-PRE.

outages, rail transportation delays, and coal availability. As these refinements are made to the near term forecasts, Empire adjusts its fuel procurement plans as necessary.

EXISTING SUPPLY-SIDE RESOURCES

Q. PLEASE DESCRIBE EMPIRE'S SUPPLY-SIDE RESOURCES IN GREATER DETAIL.

BASE LOAD FACILITIES

A. During the ACA period Empire owned coal-fired generation resources at three locations: (1) the Asbury generating station located near Asbury, Missouri; (2) the jointly-owned Iatan generating station located near Weston, Missouri (12 percent share) and (3) the jointly-owned Plum Point generating station located near Osceola, Arkansas (7.52 percent share).

Empire's Asbury unit is a 198 Megawatt ("MW") primarily coal-fired plant which became operational in 1970. A second small 14 MW unit was added in 1986, but it was retired from service as planned at the end of 2013, during the recent environmental retrofit project. During this environmental retrofit, Empire installed a scrubber, fabric filter, and powder activated carbon injection system at the Asbury plant (collectively referred to as the Asbury air-quality control system or AQCS). The Asbury AQCS entered service on December 15, 2014. Additionally, during Asbury's fall 2014 outage, during which the tie-in of the new AQCS was performed, the Asbury Unit turbine's inner cylinders and rotors were replaced. These components utilize a newer design, increasing efficiency and capacity. A Selective Catalytic Reduction (SCR) system went into service on this unit in early 2008. Originally, Asbury was designed as a mine-

mouth plant that burned a high Btu coal from a mine located near the unit. In 1990, in response to the Clean Air Act of 1990, Asbury began burning a blend of approximately 90 to 95 percent lower Btu western coal from Wyoming and 5 to 10 percent of a higher Btu bituminous coal. The coal for the Asbury coal unit is purchased under a mixture of coal contracts of varying terms and conditions. In the last few years Empire has been burning Tire Derived Fuel ("TDF") at Asbury to take advantage of a NOx exemption for units burning TDF in Missouri.

Iatan 1 is a large 708 MW coal unit operated by Kansas City Power & Light ("KCPL"). Empire owns 12 percent or 85 MW of this unit. On a variable cost basis, this unit is one of Empire's lowest cost fossil fueled energy resources along with Iatan 2 and Plum Point the newest coal units added to Empire's portfolio. The Iatan 1 unit is a base load resource, and Empire does not have the primary responsibility for fuel procurement for this generating unit. Iatan 2, which KCPL declared to be in commercial service at the end of December 2010, is an 850 MW coal unit. Empire owns 12 percent or around 105 MW of this unit. Like Iatan 1, Empire is not directly responsible for fuel procurement for this unit.

Plum Point is a large 665 MW base load coal unit located in Northeastern Arkansas. Empire owns 7.52 percent or around 50 MW of Plum Point. In addition, Empire has entered into a long-term purchased power contract for 50 MW from this unit. This unit went into commercial operation in August 2010. Empire is not directly responsible for the coal procurement at Plum Point.

INTERMEDIATE AND PEAKING RESOURCES

Empire owns natural gas-fired resources at three locations: (1) the Riverton generating station located in Riverton, Kansas; (2) the Energy Center facility located near La Russell, Missouri; and (3) the State Line generating plant facility located in Jasper County, Missouri near the Kansas state line.

For the ACA period, with the previously mentioned Riverton unit retirements, there were two gas turbines and a combined cycle unit at Riverton with a total capacity of about 283 MW. As mentioned earlier, Riverton 12 was converted to a combined cycle unit and began commercial operation May 1, 2016, with a capacity of 250 MW, but it operated as a simple cycle unit during the first half of the ACA period with a capacity of 142 MW. The other two gas units at the Riverton plant are small units, approximately 16.5 MW each, and typically only run during extreme peak conditions.

Empire has four gas-fired turbines at the Energy Center generation facility. Two of these units have capacity ratings in excess of 80 MW each, and are approximately 13,000 Btu/Kwh machines that were completed in 1978 and 1981. They also tend to operate only during the summer on-peak hours, but due to their ability to burn fuel oil as a back-up fuel, they can also operate during extreme winter conditions for economic or gas transportation curtailment reasons. Empire also has two 49 MW FT8 twin pack aero-derivative units at the Energy Center. The FT8 units have full load heat rates of around 10,500 Btu/Kwh. The FT8 units also have quick start capability and are typically on line at full load in less than 10 minutes. These units are used primarily for two purposes, peaking and load balancing.

The State Line facility consists of State Line unit 1 and the jointly-owned State Line combined cycle. State Line 1 is a 94 MW 1995 vintage combustion turbine with a full load heat rate of approximately 12,000 to 13,000 Btu/Kwh. Empire operates the 499 MW State Line combined cycle unit which is jointly owned with Westar Generation Inc. Empire has a 60 percent ownership share in the combined cycle unit, or about 297 MW, while Westar's ownership share is 40 percent. It is a two by one ("2X1") unit consisting of two gas turbines and one steam turbine. The unit has the ability to operate in 1X1 mode (one gas turbine and the steam turbine) or 2X1 mode (two gas turbines and the steam turbine).

OTHER RESOURCES

Empire also owns and operates the Ozark Beach hydro facility located near Forsyth, Missouri. It has a capacity of about 16 MW and has averaged about 43,688 MWh's of annual output over the past three years. The output of this unit is limited by the water released upstream from Table Rock Lake by the Corp of Engineers and the level of water maintained by the Corp of Engineers on Bull Shoals Lake, which is downstream from the Ozark Beach facility.

At the end of 2005, Empire began receiving output from the 150 MW Elk River Wind Project located in Butler County, Kansas via a purchased power agreement ("PPA"). Empire has a contractual commitment to purchase 100 percent of the output from this project for 20 years. Near the end of 2008, Empire began receiving output from 105 MWs of the Meridian Way Wind Project located in Cloud County, Kansas.

This is also a 20-year PPA. The energy from both of these wind farms are purchased at a fixed annual cost per Mwh established by contract.

SPOT ENERGY PURCHASES

As mentioned earlier, the SPP IM began on March 1, 2014. Prior to the advent of the SPP IM, Empire participated in the Energy Imbalance Service ("EIS") market to identify energy purchase and sale opportunities to lower energy costs. An Empire energy trader would contact potential counterparties, compare opportunities and develop alternatives. When determining spot market purchase or sale opportunities, Empire energy traders accounted for generation and transmission constraints. Since Empire is a member of the SPP and is a network transmission service customer of SPP, this enabled opportunities for network purchases and sales.

The start of the SPP IM ended the EIS market. Bilateral deals may still be made with counterparties and imports and exports with counterparties outside of SPP may still take place; but the SPP IM has fundamentally changed the amount of traditional non-contract purchases Empire formerly referred to as "spot energy purchases." With the SPP IM in place, native load energy is purchased from the SPP market. Empire energy traders now submit hourly demand bids and generation offers to SPP on a day-ahead basis, analyze opportunities for the most efficient procurement of energy for load, monitor the real-time balancing market, hedge transmission congestion on a market based approach (via the Transmission Congestion Rights or TCR market) and make operating reserve offers to the market.

Q. HOW ARE THE NEAR TERM, ONE AND FIVE-YEAR FUEL REQUIREMENTS DETERMINED?

A. Empire utilizes a chronological dispatch model known as PROSYM to develop a least cost hourly dispatch to serve its customers. Empire utilizes this model under a license agreement it has with the model's owner ABB. The PROSYM model takes into account coal prices, natural gas prices, market power prices, generating plant efficiencies, generating plant outages and many of the other characteristics of the Empire's generation resources and develops a least cost dispatch using price curves to simulate the SPP IM. The model output includes the projected Mwh generation from each generating resource, projected fuel usage, revenues from sales into the SPP IM, and the cost to purchase Empire's native load requirements. Monthly reports are generated from this output and are used to develop plans for the acquisition of the fuel required to operate the generating units.

COAL AND FREIGHT

Q. WHAT APPROACH DOES EMPIRE USE TO PURCHASE ITS COAL REQUIREMENTS?

A. Empire conducted a competitive coal acquisition process and selected several suppliers to meet the majority of its western coal requirements for Asbury. Empire's western coal is delivered under transportation contracts with Burlington Northern and Kansas City Southern. Empire also has a train lease to supplement deliveries and additional lease trains can be obtained as needed. Empire also has a train lease to supply its portion of the Plum Point railcars. All of the western coal used at the Asbury site is delivered to

Empire's Asbury facility. Empire procures a majority of its bituminous coal (higher Btu) requirements on a competitive basis.

NATURAL GAS AND RELATED TRANSPORTATION

Q. PLEASE DESCRIBE HOW EMPIRE ACQUIRES ITS NATURAL GAS REQUIREMENTS.

A. All of Empire's natural gas-fired generation resources are located on the Southern Star Central Gas Pipeline ("SSCGP"). Empire currently has over 75,000 MMBtu/day firm production zone capacity and more than 85,000 MMBtu/day market zone capacity. If natural gas transportation is not available, most of Empire's simple cycle gas turbines have the ability to operate on fuel oil. Empire acquires physical natural gas on both a long-term monthly basis and daily basis. Typically these physical purchases are competitively bid when possible. If a particular long term physical gas request is very limited in terms of responding suppliers, the price quoted by the supplier is compared to the prices available on the NYMEX as adjusted for delivery on SSCGP to ensure that the price quoted by the physical supplier is competitive.

MANAGING PRICE VOLATILITY OF NATURAL GAS

Q. HOW HAS EMPIRE'S MANAGEMENT CHOSEN TO MANAGE NATURAL GAS PRICE VOLATILITY?

A. Empire works diligently to mitigate the price volatility associated with changes in natural gas pricing. Empire developed and implemented a Risk Management Policy (RMP) during 2001 to manage this volatility. The RMP outlines the instruments available for use to help manage volatility. In general terms, Empire's RMP allows the

use of NYMEX Futures, Swaps, and Physical purchases to help manage price volatility. The RMP includes a minimum annual quantity of natural gas whose price must be established in advance through either a financial instrument and/or physical gas contract. For example, Empire has currently established the price on the following quantities of natural gas for the upcoming calendar years (as of October 31, 2017).

Year	Hedge Percentage	Dekatherms	Average Price
2018	61%	9,705,006	$ 2.99
2019	39%	6,840,000	$ 2.63
2020	21%	3,340,000	$ 2.79
2021	12%	2,000,000	$ 2.90

Source: October 31, 2017 Natural Gas Position Report

2016 PROCUREMENT PLAN FOR 2017

Q. PLEASE DESCRIBE THE STATUS OF THE NATURAL GAS PROCUREMENT PROCESS AT THE BEGINNING OF THE CURRENT ACA PERIOD.

A. Empire's RMP called for the price of a minimum of 60% of its expected 2017 natural gas usage to be established by December 31, 2016. As of December 31, 2016, Empire had ** ** MMBtu of its 2017 calendar year natural gas requirements either physically purchased at a fixed price or financially hedged out of a total expected natural gas requirement of ** ** MMBtu. The ** ** MMBtu represented about 61% of Empire's anticipated 2017 natural gas requirement, and carried an average cost of $** **/MMBtu. Of the ** ** MMBtu, a total of ** ** MMBtu was to be purchased under physical contracts and ** ** MMBtu was hedged using financial instruments. The financial instruments used were a combination of NYMEX contracts and associated basis swaps or swap transactions with Over the

Counter ("OTC") counterparties. After burning the natural gas it has physically purchased, Empire will buy its additional physical gas requirements on an intra-month daily or weekly basis on a competitive basis to balance the system natural gas requirements.

Q. ARE THE BENEFITS AND COSTS OF EMPIRE'S ENERGY RISK MANAGEMENT POLICY RECORDED ON THE GENERAL LEDGER?

A. Yes. The results of Empire's risk management policies, including the settlement of financial hedges, are reflected in the fuel expense accounts on the general ledger, namely accounts 501 and 547 in accordance with Generally Accepted Accounting Principles ("GAAP"). The gains/losses arising from the periodic settlement of the financial instruments have been eliminated from the Kansas ECA filing as have the gains/losses that arose from the periodic sale of excess natural gas during the ACA period. This is in accordance with an agreement reached with the Staff and approved by the Commission in Docket No. 07-EPDE-712-ACA ("712 Docket").

Q. WERE THE ATTACHMENTS TO THE ACA AMENDED APPLICATION PREPARED BY YOU OR PREPARED UNDER YOUR DIRECT SUPERVISION?

A. Yes. These attachments were prepared under my direct supervision.

Q. PLEASE DESCRIBE THE ATTCHAMENTS?

A. The main attachments to the ACA amended application, which supports the ACA, as filed, consist of 18 schedules which display the actual energy costs incurred by Empire during the ACA period beginning November 1, 2016 through October 31, 2017. In

addition, these attachments display the actual ECA revenue billed to the Kansas retail customers during the ACA true-up period to arrive at the (over)/under ACA recovery balance. Also included in the attached schedules is an analysis of the off-system sales profits, which have been fundamentally changed due to the introduction of the SPP IM, and have previously flowed through the ECA to the Kansas retail customers during the ACA period. The attached schedules also display a monthly energy cost forecast for calendar year 2018 as required by Empire's ECA tariff. This monthly forecast of 2018 energy costs was developed using the PROSYM model that was discussed earlier. This forecast included the exclusion of the effect of the financial instruments Empire had in place to hedge the price of natural gas for calendar year 2018 as required by the settlement approved by the Commission in the 712 Docket.

Q. DID EMPIRE CONSIDER THE SPP IM IN ITS 2018 ECA FORECAST?

A. Yes. Empire utilized the PROSYM model to simulate a market approach for this Kansas ECA forecast. PROSYM yields a forecast of the monthly resource generation and fuel requirements at each of the Company's power plants. It also provides a forecast of the monthly resource generation and costs associated with purchased power agreements. This generation from Empire resources is sold into the SPP IM. Monthly revenue from those sales and native load costs from market purchases are also products of the PROSYM model in order to arrive at a monthly net fuel and purchase power figure.

Q. PLEASE EXPLAIN HOW THE SPP IM HAS CHANGED THE OFF-SYSTEM PROFIT FACTOR IN THE CALCUALTION OF THE KANSAS ECA?

A. As mentioned earlier, the start of the SPP IM has changed the way Empire does business. Due to this fundamental change where Empire now purchases its native load requirement from the market and sells energy from its generating resources into the market, Empire has determined the off-system gross profit factor has become obsolete going forward.

With the SPP IM, any bilateral deals or import/export deals with counterparties will flow through the annual cost adjustment ("ACA") calculation rather than the off-system profit factor. Attachment A, Schedule 4, displays an analysis of the actual pass through of the Kansas share of actual off-system sales gross profit. As indicated, Empire passed through to its Kansas retail customers $0 of off-system sales gross profit during the ACA period ending October 31, 2017. Thus, there is no off-system sales gross profit that needs to be incorporated into the ACA factor for calendar year 2017. As indicated on Attachment A, Schedule 2, the combined energy cost under recovery of $184,544 and the excess recovery of off-system sales gross profit of $0 equate to an ACA factor of $0.00083/Kwh for calendar year 2018 as filed. This ACA factor is designed to remain constant for each month of calendar year 2018.

Q. WHAT WAS THE (OVER)/UNDER RECOVERY BALANCE AT THE END OF OCTOBER 2017 AS FILED?

A. As displayed on Attachment A, Schedule 2, to the Amended Application, there was an under recovery at October 31, 2017 of $184,544. The overall ACA balance has been adjusted to reflect the exclusion of the gains/losses associated with the financial

instruments used to hedge natural gas purchases during the ACA period and the gains/losses associated with any sale of excess natural gas.

Q. HOW DID THE INITIAL 2017 FORECAST OF KANSAS ECA ENERGY COSTS COMPARE TO THE ACTUAL KANSAS ECA ENERGY COSTS FOR THE CURRENT ACA PERIOD?

A. The actual Kansas ECA average energy cost, including the natural gas transportation, for the twelve-months ending October 31, 2017 were higher than those originally forecast in the last ACA filing prepared roughly a year ago. The average energy cost was originally forecast as $23.84 per Mwh. The actual energy costs came in at $24.42 per Mwh, $0.58 per Mwh, or about 2.4% higher than the original forecast. In terms of overall eligible energy costs for Empire's Kansas jurisdiction, the ACA period energy costs were $5.4 million versus a budget of $6.0 million. The primary reasons for this differential in cost were due to lower than forecasted natural gas and market prices and milder weather.

Q. PLEASE DESCRIBE THE FORECAST OF ECA FACTORS FOR THE UPCOMING CALENDAR YEAR OF 2018.

A. Attachment A, Schedule 1, displays the forecast of the ECA factor for each month for calendar year 2018. This forecast combines the results of the (over)/under recovery of eligible energy costs and the Kansas ECA forecast of 2018 fuel and energy costs to arrive at a monthly forecast of 2018 Kansas ECA factors. As indicated, these factors range from a high of $0.02598 in November of 2018 to a low of $0.02241 in May of 2018. The forecast of energy costs for 2018 also incorporates Empire's current estimate of fuel prices excluding the impact of the financial instruments used to hedge Empire's

natural gas requirements for calendar year 2018 and the inclusion of the cost of air quality control consumables.

AMENDED APPLICATION

Q. CAN YOU EXPLAIN WHY EMPIRE FILED AN AMENDED APPLICATION AND REVISED SCHEDULES IN THIS DOCKET ON DECEMBER 28, 2017?

A. Yes. After preparing the original application for the ACA period November 1, 2016 through October 31, 2017, Empire discovered that the journal entries for the ACA refunds that were credited to customers due to the over-recovery of fuel costs in 2015 and 2016 were incorrectly recorded in 2016 and 2017 as revenue received on the general ledger and on the original reconciliation. The Amended Application and revised schedules filed with the Commission on December 28, 2017, reflect the corrected accounting entries.

Q. WHAT WAS THE NET IMPACT OF THE CORRECTION?

A. The net impact of the correction changed the over-recovered balance of $831,752 reflected in the original application filed on December 1, 2017, to an under-recovered balance of $184,544 for the ACA period ending October 31, 2017.

CONCLUSION

Q. DO THE ENERGY COSTS REFLECTED IN THE EMPIRE ACA, CONSTITUTE A FAIR, REASONABLE AND EFFECTIVE METHOD OF PROCURRING THE FUEL AND ENERGY REQUIREMENTS FOR THE COMPANY AND EMPIRE'S KANSAS ELECTRIC CUSTOMERS?

A. Yes, I believe it does, and the calculation of the ACA has been made in accordance with the Empire ECA tariff authorized by the Commission. It also reflects the actual results of a reasonable and effective management policy related to the operation of Empire's generating units and a structured approach to the acquisition of fuel for the generating units that has been in place for a number of years. The fuel acquired for the units was acquired in the competitive marketplace under competitive conditions. I believe approval of the ACA factor proposed by Empire for calendar year 2018 in its entirety is reasonable, prudent and in the public interest and would urge such action by the Commission.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes it does.

VERIFICATION OF JILL M. SCHWARTZ

STATE OF MISSOURI)
)ss:
COUNTY OF JASPER)

I, Jill M. Schwartz, being first duly sworn on oath, depose and state that I am the witness identified in the foregoing Direct Testimony of Jill M. Schwartz; that I have read the testimony and am familiar with its contents; and that the facts set forth therein are true and correct.

Jill M. Schwartz

SUBSCRIBED AND SWORN to before me this 31 day of January, 2018.

Notary Public

Appointment/Commission Expires:

ANGELA M. CLOVEN
Notary Public - Notary Seal
State of Missouri
Commissioned for Jasper County
My Commission Expires: November 01, 2019
Commission Number: 15262659

CERTIFICATE OF SERVICE

I hereby certify that a copy of the Direct Testimony of Jill M. Schwartz was sent via electronic mail, this 31st day of January, 2018, addressed to:

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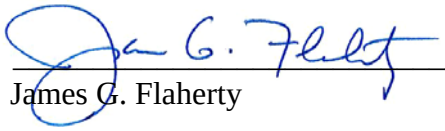

James G. Flaherty