FIFTH PRUDENCE REVIEW OF COSTS RELATED TO THE FUEL ADJUSTMENT CLAUSE FOR THE ELECTRIC OPERATIONS OF THE EMPIRE DISTRICT ELECTRIC COMPANY

March 1, 2013 through February 28, 2015

MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

FILE NO. EO-2015-0214

Jefferson City, Missouri
August 2014

****<u>Denotes Highly Confidential Information</u>****

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Appendix A

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Prudence Review of Costs Report

I. Executive Summary

The Missouri Public Service Commission ("Commission") first authorized a Fuel Adjustment Clause ("FAC") for The Empire District Electric Company ("Empire" or "Company") in the Company's 2008 general rate case (Case No. ER-2008-0093). The Commission subsequently approved continuation of Empire's FAC with modifications in the Company's 2010, 2011, 2012, and 2015 general rate cases, File Nos. ER-2010-0130, ER-2011-0004, ER-2012-0345, and ER-2014-0351, respectively.

Missouri statute Section 386.266.4(4) RSMo (Supp. 2009) and Commission Rule 4 CSR 240-20.090(7) require prudence reviews of an electric utility's FAC no less frequently than at eighteen-month intervals. In this prudence review, Staff reviewed, analyzed and documented items affecting Empire's fuel and purchased power costs, net emission allowances, and off-system sales and renewable energy credit ("REC") revenues for its FAC's tenth, eleventh, twelfth and thirteenth six-month accumulation period which began March 1, 2013, and ended February 28, 2015 ("Review Period").

In evaluating prudence, Staff reviews whether a reasonable person would find both the information the decision-maker relied on and the process the decision-maker employed when making the decision under review was reasonable based on the circumstances at the time the decision was made, i.e., without the benefit of hindsight. The decision actually made is disregarded, and the review is an evaluation of the reasonableness of the information the decision-maker relied on and the decision-making process the decision-maker employed. If either the information relied upon or the decision-making process employed was imprudent, then Staff examines whether the imprudent decision caused any harm to ratepayers. Only if an imprudent decision resulted in harm to ratepayers will Staff recommend a refund.

Staff analyzed a variety of items in examining whether Empire prudently incurred the fuel and purchased power costs, net emission allowances and off-system sales and REC revenues associated with its FAC. Based on its review, Staff found no evidence of imprudence by Empire for the items it examined for the period of March 1, 2013 through February 28, 2015.

II. Introduction

A. General Description of Empire's FAC

Table 1 identifies Empire's Commission-approved FAC tariff sheets which were applicable for service provided by Empire to its customers during the period of March 1, 2013 through February 28, 2015:

Table 1

March 1, 2013 through March 31, 2013	April 1, 2013 through February 28, 2015
1st Revised Sheet No. 17h	9th Revised Sheet No. 17
1st Revised Sheet No. 17i	3rd Revised Sheet No. 17a
1st Revised Sheet No. 17j	3rd Revised Sheet No. 17b
	7th Revised Sheet No. 17c
	3rd Revised Sheet No. 17d

Empire's Commission-approved FAC in effect during the Review Period allowed the Company to recover from its ratepayers 95% of its prudently incurred variable fuel, purchased power and net emission allowance costs less off-system sales revenues and less renewable energy credits[1] revenues above the base energy cost amount,[2] and to return to ratepayers 95% of any reduction of those costs below the base energy cost amount. Empire accumulates costs during six-month accumulation periods.[3] Each six-month accumulation period is followed by a six-month recovery period[4] where 95% of the over/under fuel cost recovery amount during the six-month accumulation period relative to the base energy cost amount is recovered from, or returned to, ratepayers by an increase, or decrease, in the Fuel Adjustment Rate ("FAR"). Adjustments to the FAR are designed to offset that over/under fuel cost recovery amount by the end of the six-month recovery period. E mpire's FAC is also designed to true-up the difference between the revenues billed and the revenues authorized for collection during recovery periods, with monthly interest applied. Any disallowance the Commission orders as

[1] Variable fuel, purchased power and net emission allowance costs net off-system sales revenues and renewable energy credit revenues are defined on: 1) The Empire District Electric Company, P.S.C. Mo. No. 5, Sec. 4 1st Revised Sheet No 17i and 17j for service on and after June 15, 2011 and prior to April 1, 2013, and 2) The Empire District Electric Company, P.S.C. Mo. No. 5 Sec. 4 2nd Revised Sheet No 17a and 17b for service on and after April 1, 2013.

[2] The base energy cost amount is defined as factor B on: 1) The Empire District Electric Company, P.S.C. Mo. No. 5 Sec. 4 1st Revised Sheet No 17i for service on and after June 15, 2011, and prior to April 1, 2013, and 2) The Empire District Electric Company, P.S.C. Mo. No. 5 Sec. 4 2nd Revised Sheet No. 17b for service on and after April 1, 2013.

[3] See The Empire District Electric Company P.S.C.Mo.No. 5, Sec. 4, 1st Revised Sheet No. 17h.

[4] Ibid.

a result of prudence reviews shall include interest at the Company's short-term interest rate[5] and will be accounted for as a true-up item in conjunction with a filing for a change to the FAR of the FAC.

B. Prudence Standard

In *State ex rel. Associated Natural Gas Co. v. Public Service Commission of State of Missouri*,[6] the Western District Court of Appeals summarized the Commission's prudence standard by quoting the Commission as follows:

> [A] utility's costs are presumed to be prudently incurred… . However, the presumption does not survive "a showing of inefficiency or improvidence."…[W]here some other participant in the proceeding creates a serious doubt as to the prudence of an expenditure, then the applicant has the burden of dispelling these doubts and proving the questioned expenditure to have been prudent… .
>
> …[T]he company's conduct should be judged by asking whether the conduct was reasonable at the time, under all the circumstances, considering that the company had to solve its problem prospectively rather than in reliance on hindsight. In effect, our responsibility is to determine how reasonable people would have performed the tasks that confronted the company. (Citations omitted).

The Court did not criticize the Commission's definition of prudence. However, it added that, to disallow a utility's recovery of costs from its ratepayers based on imprudence, the Commission must determine the detrimental impact of that imprudence on the utility's ratepayers.[7]

This is the prudence standard Staff has followed in this prudence review.

The Staff reviewed for prudence the areas identified and discussed below for Empire's tenth, eleventh, twelfth and thirteenth accumulation period.

III. Fuel Costs, Costs of Purchased Power and Off-System Sales Revenues

The Empire FAC includes two major components of costs – fuel costs and costs of purchased power with adjustments for firm transportation costs and capacity charges not allowed in the FAC- and three components of revenues to offset the costs– off-system sales revenues, REC revenues, and net emission allowances. Table 2 is a breakdown of Empire's

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[5] 4 CSR 240-20.090(7)(A).

[6] 954 S.W.2d 520, 528-29 (Mo. App. W.D. 1997).

fuel costs, costs of purchased power, off-system sales and REC revenues and net emission allowances for its FAC for the period of March 1, 2013, through February 28, 2015:

Table 2: FAC Costs and Revenues

		Costs or Revenues	Percent of Component	Percent of CF & CPP
Fuel Cost (FC)				
Coal	$	110,562,707	50%	22%
Natural Gas	$	114,500,200	52%	23%
Less : Firm Transportation	$	(13,168,246)	-6%	-3%
Fuel Oil	$	4,882,675	2%	1%
Tires	$	91,031	0%	0%
Air Quality Control Systems	$	2,905,880	1%	1%
Total CF	**$**	**219,774,247**	100%	45%
Purchased Power (PP)				
Purchased Power Costs	$	103,617,268	38%	
Less : Capacity Charges	$	(9,586,249)	-4%	
Native Load Cost	$	178,574,229	66%	
Total PP	**$**	**272,605,247**	100%	55%
Total FC & PP	**$**	**492,379,494**		100%
***less* Off-System Sales Revenue/Empire District Electric Sales**	**$**	**179,563,406**		
***plus* Net Emission Allowances**	**$**	**589**		
less REC Revenues	**$**	**1,695,491**		
Total Energy Cost	**$**	**311,121,186**		

A. Utilization of Generation Capacity and Station Outages

1. Description

The purpose of this section is to provide an overview of Empire's available supply-side and demand response resource, review the process of which generating units are selected to satisfy native load requirements and to present Staff's prudency review of Empire's planned outages during the Review Period. Empire receives most of its energy for retail sales from its own generating stations, jointly owned generating stations and long term power purchases as indicated in Table 3, attached as Attachment 1, at the start of 2015.[8]

[7] *Ibid* at 529-30.

[8] Empire response to DR 0054 capacity adjusted to reflect power plant retirements as noted.

During the period March 1, 2013 through February 28, 2015, Empire had 8.4 MW of available interruptible load from three customers.[9] During this period, a single curtailment event was called on February 6, 2014, and approximately 800 kW of interrupted load from two contracted interruptible customers was curtailed.[10] The event also included approximately 14.1 MW of voluntary one-time curtailments from 50 customers for a total of approximately 14.9 MW that was curtailed for two hours.[11]

Empire's principal electric base-load generating station is the coal-fired Asbury 1 station which has 203 megawatts of capacity and had plant retrofit modifications during this Prudence Review Period to comply with the EPA Mercury and Air Toxics Standards (MATS) requirements. The retrofit modifications consisted of installing a pulse jet fabric filter (bag house), circulating dry scrubber and powder activated carbon injection system. Asbury 1 Air Quality Control Systems (AQCS) project met in service criteria on December 15, 2014. The addition of this air quality control equipment at Asbury 1 also required the retirement of Asbury Unit 2, a small steam turbine that was used for peaking purposes, in December of 2013.[12] The Riverton Natural Gas Unit 12 conversion to a combined-cycle configuration was initiated on October 23, 2013[13] with a scheduled completion date of mid-2016.[14] The foundation work is complete and all major equipment is on site.

During the reporting period prior to March 1, 2014, Empire participated in the Southwest Power Pool ("SPP") Energy Imbalance Service (EIS) market, which dispatched generation to meet forecasted load and capacity requirements per the SPP and National Energy Reliability Council (NERC) guidelines. Empire now participates in the SPP Integrated Marketplace (IM) that went live on March 1, 2014, creating one consolidated balancing authority in SPP.[15] As part of the IM, Empire and other SPP members submit generation offers to sell power and bids to purchase power into and from the SPP market, with

[9] This resource is available through The Interruptible Service Rider Program that is intended as a load shedding strategy to be used where system peak demand exceeds available capacity or extreme energy prices are expected.
[10] Empire response to Staff data request 0012.
[11] Ibid.
[12] Direct testimony of Empire witness Brad Beecher, page 5, lines 6-8, Empire Rate Case ER-2014-0351.
[13] http://www.energy-business-review.com/news/empire-district-starts-riverton-plants-combined-cycle-expansion-231013
[14] Empire 2014 Annual report.
[15] Direct testimony of Empire witness Todd Tarter, page 19, lines 21-22, Empire Rate Case ER-2014-0351

the SPP serving as a centralized dispatch of SPP members' generation resources.[16] The SPP then matches offers and bids based upon operating and reliability considerations. It is expected that 90% – 95% of all next day generation needed throughout the SPP footprint will be cleared through this IM for each market participant and is settled in various time increments.[17] When Empire sells more generation to the market than they purchase, based on the prescribed time increments, the net sale is included as part of electric revenues.[18] When Empire purchases more generation from the market than they sell, based on the prescribed time increments, the net purchase is recorded as a component of fuel and purchased power costs.[19] The net financial effects of these IM transactions are included in Empire's fuel adjustment mechanism.[20]

The SPP IM also provides a tool to mitigate exposure to market price fluctuations due to transmission congestion through financial instruments called transmission congestion rights (TCR) that provide the opportunity to hedge congestion exposure in the day-ahead market.[21] Empire purchases energy from the SPP IM to serve native load and sells generation into the SPP IM. The expectation is to realize a more efficient commitment and dispatch of generation and operating reserves across the SPP footprint. The major change resulting from the transition from the SPP EIS to the IM is that SPP will also control unit commitments.[22]

Typical economic dispatch[23] order of Empire's supply-side generation units is Iatan 2 (base load), Iatan 1 (base load), State Line Combined Cycle (intermediate), Plum Point (base load), Energy Centers 3 and 4 (peaking), Asbury 1 (base load), Riverside 8 (peaking), State Line Combustion Turbine (peaking), Riverside 12 (intermediate/peaking), Energy Center 1 and 2 (peaking), Riverside 10 (peaking), Riverside 9 (peaking), and Riverside 11 (peaking).

The economic dispatch order is primarily determined by selecting the units that produce energy at the lowest overall cost. The order changes depending on the relative costs

[16] Empire 2014 Annual report
[17] Ibid.
[18] Ibid
[19] Ibid
[20] Ibid
[21] Direct testimony of Empire witness Todd Tarter, page 20, lines 1-8, Empire Rate Case ER-2014-0351
[22] Empire response to DR 0011.
[23] Based upon the current natural gas and coal prices and at the time of this report of approximately $3.00/MMBTu. And $10/ton respectively.

of fuel—generally gas prices versus coal process. Thus, lower or higher natural gas prices may move the gas-fired plants up and down the economic dispatch order.[24]

The actual dispatch order is determined based upon the economic dispatch order and other factors, which include actual plant output (derating,[25] wind farm output, etc.), whether the plant is a base load or a peaking unit, SPP and NERC guidelines, ancillary services requirements, reliability considerations, environmental conditions, plant ramp rates and outages.

Ozark Beach output is dependent upon water availability, and the wind farms' production is not subject to dispatch except for times of curtailment based upon transmission congestion.

Empire supplements their on-system generation capacity with purchases of capacity and energy from other entities to meet native load requirements, SPP capacity margin requirements (12%) and National Electric Reliability Council (NERC) rules.

Empire has long-term "must take or pay" purchased power contracts with the 150 megawatt capacity Elk River wind farm and the 105 megawatt capacity Meridian Way wind farm. These wind farms typically provide more, but also highly variable, energy than the forecasted aggregate capacity of 15 megawatts per the SPP capacity rating guidelines.[26] The wind farm megawatt output is directly dependent on the wind speed, which varies normally from highs during the night time to lows during the day. This supply profile is troublesome, because it is not in alignment with typical electrical load profiles that peak during the day and are at their lowest at night. For electric utilities with a high percentage of base load "must run" units, this can result in situations of negative energy cost. But on the other hand, during periods of normal load or high load, the wind energy is very price-competitive.

Empire has been successful in integrating this wind energy, due to accurate and timely weather forecasts that are used to predict in advance wind farm output and the availability of

[24] For example, spot prices for natural gas below $3.75 will make will make the State Line combined cycle (CC) more economical than Asbury and gas prices below $2/MMBtu will make the State Line CC more economic than Iatan units 1 and 2.

[25] Actions taken by generating station operators to reduce the electrical energy output to a value below the rated nameplate maximum output.

[26] SPP guidelines classifies wind power as an intermittent, non-firm resource and therefore Empire forecasts 7 megawatts of capacity for Elk River and 8 megawatts of capacity for Meridian way.

gas-fired generation that can be quickly brought on line to compensate for any decrease in wind farm energy production.

Empire has placed their transmission facilities under the Federal Regulatory Commission (FERC) regulated open access tariffs that provide wholesale buyers and sellers of electricity the opportunity to procure transmission services at the same rates that the utilities provide to themselves. Empire's transmission systems consists of approximately 22 miles of 345 kV lines, 441 miles of 161 kV lines, 745 miles of 69 kV lines and 81 miles of 34.5 kV lines.[27] Empire's distribution system consisted of approximately 6,862 miles of lines.[28]

Generating station outages are classified as either scheduled outages, forced outages or partial outages (derating). Both planned outage and maintenance outages are scheduled. A planned outage is scheduled well in advance, being a predetermined duration and occurring only once or twice a year.

A maintenance outage is an outage that could be deferred beyond the end of the next weekend, but which must be taken before the next planned outage. A forced outage is an outage that cannot be deferred beyond the next weekend. A partial outage or derating is a condition that exists that requires the station or unit to be limited to an energy output below its maximum capacity.

Outages taken at any of the generating units have an impact on how much Empire will pay for fuel and purchased power and, if planned during peak load demand times, has the potential result of Empire paying more for fuel and purchased power cost than it would have paid if the outage were planned during forecasted low load times. Periodic planned outages are required to maintain each generating unit in peak operating condition to minimize forced or maintenance outages that could occur during peak load demand or periods of high replacement energy costs, typically in the summer months of June through August.

As an example, the planned outages for the Asbury generating station are scheduled annually for approximately three to four weeks in the spring to coincide with mild or moderate weather conditions and low energy load forecast to minimize the amount of

[27] Empire 2014 Annual report
[28] Ibid.

replacement power required. Every fifth year, the planned outage is extended to six weeks to allow boiler and turbine inspections. When the Asbury station is out of service, the Company typically experiences increased purchased power and fuel expenditures associated with the replacement power that flows through its FAC.

During a routine plant inspection of the Ozark Beach Hydro Electric unit in January 2014, a problem with one of the four generator stators was discovered that required an outage to rewind the generator stator. The repair was completed and the unit put back in service.

Staff examined the planned outages and their timing to determine if they were prudent. An example of an imprudent outage would be scheduling a planned outage of a large base loaded coal unit during a time of peak load. Empire has little or no control over the timing of maintenance or forced outages of the generating stations it owns and operates, which are the result of unforeseen events, such as the previous referenced Ozark Beach Hydro Electric generator stator rewind outage. The Company has no control over the timing of outages to generating stations it does not operate, and, therefore, these units are excluded from Staff's review for planned outages.

2. Summary of Cost Implications

An imprudent planned outage could result in Empire purchasing expensive spot power or running its more expensive gas units to meet demand. Thus, Empire may purchase more natural gas than necessary and, consequently, have higher fuel costs.

3. Conclusion

Staff did not find any evidence of imprudent planned outages by Empire during the time period examined in this review.

4. Documents Reviewed

   a. Empire's responses to Staff Data Requests 3, 4, 5, 6, 10, 11, 12, 16, 18, 20, 22, and 54;
   b. Monthly Outage data submitted by Empire in compliance with Rule 4 CSR 240-3.190;
   c. Empire's 2014 Annual Report;
   d. Staff's Report Cost of Service for the Empire rate case, Case No. ER-2014-0351;

f. Direct Testimonies of Todd W. Tarter and Brad P. Beecher, August, 2014 Empire Rate Case No. ER-2014-0351; and

g. The Southwest Power Pool website: http://www.spp.org .

Staff Expert: Randy S. Gross

B. Risk Management

1. Description

Empire's risk management strategies encompass a wide range of activities. The Company's *Energy Risk Management Policy*[29] ("RMP") identifies the following types of risk this policy addresses:

- Operations risk;
- Market risk; and
- Counterparties/credit risk.

Empire's risk management strategies are directly controlled by the guidelines contained in its RMP. The policy objectives are given in the RMP as follows:

OBJECTIVES

** ______________________________ **

** ______________________________ **

OBJECTIVE #1

** ______________________________ **

** ______________________________

[29] The Empire District Electric Company Energy Risk Management Policy, January 14, 2014.

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OBJECTIVE #2

** ____________________ **

** ____________________ **

Fuel Adjustment Clause

** ____________________ **

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** ____________________ **

Empire's Fuel Adjustment Clause (FAC) acts as a risk mitigation tool. Although perhaps not intended to be its primary purpose, the FAC does mitigate fuel price volatility for customers, as well as allow Empire a timelier and more complete recovery of its fuel costs.

OPERATIONS RISK

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MARKET RISK

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COUNTERPARTIES/CREDIT RISK

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2. Summary of Cost Implications

If Empire does not manage its risk management strategies prudently, fuel costs that are collected from customers through Empire's FAC could be increased.

3. Conclusion

Staff did not find Empire acted imprudently in the administration of its risk management strategies.

4. Documents Reviewed

a. Empire's responses to Staff Data Request 47.

Staff Expert: Matthew J. Barnes

[30] Appendix X Article 7; SPP Credit Policy

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C. Natural Gas Costs

1. Description

A total of $114,500,200 of Empire's fuel costs were associated with natural gas used in Empire's generation of electricity. This amount includes Empire's natural gas fuel costs for all generating stations producing electrical energy for retail sales and off-system sales, and various miscellaneous charges such as firm transportation service charges and other miscellaneous fuel handling expenses. Firm transportation service charges are not allowed in Empire's FAC. Empire's firm transportation service charges for the Review Period were $13,168,246. For the Review Period, Empire's net natural gas costs were $101,331,954.

The Company's hedge strategy for natural gas used for the generation of electricity is described in the Empire's response to Staff's Data Request 0047, which includes Empire's Energy Risk Management Policy, January 14, 2014. Page 10 through page 11 of this document describes Empire's natural gas hedging strategy:

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During the Review Period, Empire experienced a hedging loss on natural gas derivatives of $5,157,947. This represents approximately five percent of Empire's total natural gas cost of $114,500,200 hedged during the Review Period.

2. Summary of Cost Implications

If the Commission found Empire was imprudent in its purchasing decisions relating to natural gas, ratepayer harm could result from increased fuel costs flowing through its FAC to its customers.

3. Conclusion

Staff found no indication of imprudence associated with Empire's purchases of natural gas for the Prudence Review Period.

4. Documents Reviewed

a. Empire's responses to Staff Data Request Nos. 0001 and 0047; and

b. Empire's General Ledger.

Staff Expert: Matthew J. Barnes

D. Coal and Pet Coke Costs

1. Description

For the Review Period $110,562,707 of Empire's fuel costs was associated with the coal and pet coke used in the generation of electricity, including various miscellaneous charges, charges such as rail and other ground transportation service charges, other fuel handling expenses and costs of hedging coal prices. Empire's coal hedging strategy is to buy physical forward contracts for incremental coal purchases at a fixed price that escalates yearly.

2. Summary of Cost Implications

If the Commission found Empire was imprudent in its purchasing decisions relating to coal and pet coke, ratepayer harm could result from increased costs flowing through its FAC to its customers.

3. Conclusion

Staff found no indication of imprudence by Empire for its purchase of coal and pet coke.

4. Documents Reviewed

a. Empire's responses to Staff Data Request Nos. 0001, 0025, 0029, 0037 and 0038; and

b. Empire's General Ledger, Fuel Adjustment Rate filing, and other work papers to determine the amount that Empire paid for coal and pet coke as compared to the total cost of coal and pet coke that Empire claims it incurred during the Review Period.

Staff Expert: Matthew J. Barnes

E. Fuel Oil Costs

1. Description

For the Review Period $4,882,675 of Empire's cost of fuel was associated with fuel oil used in the generation of electricity. Empire's generating facilities use fuel oil for auxiliary boilers to produce steam, mostly during startups to achieve proper operational parameters. In response to Staff Data Request 0032, Empire indicated that, for the Review Period, it normally purchased fuel oil on the spot market from three different vendors. Empire also indicated that for the Review Period, the Company did not hedge any fuel oil.

2. Summary of Cost Implications

If the Commission found Empire was imprudent in its purchasing decisions relating to fuel oil, ratepayer harm could result from increased costs flowing through its FAC to its customers.

3. Conclusion

Staff found no indication of imprudence regarding Empire's decisions associated with fuel oil purchases for the Prudence Review Period.

4. Documents Reviewed

   a. Empire's General Ledger;

   b. Empire's responses to Staff Data Request Nos. 0001 and 0032; and

   c. Fuel Adjustment Rate filing and other supporting work papers in this review to determine the amount Empire paid for fuel oil as compared to the total cost of fuel oil Empire claims it incurred during its ninth accumulation period.

Staff Expert: Matthew J. Barnes

F. Tire Derived Fuel (TDF)

1. Description

For the Review Period, the Staff concluded that approximately $91,031 of the cost of fuel was associated with Tire Derived Fuel ("TDF") used in the generation of electricity. Asbury generating facility uses a blended coal mix (coal and TDF) in order to achieve proper operational parameters. The cost of TDF does include various miscellaneous charges such as rail and other ground transportation service charges and other miscellaneous fuel handling expenses. Staff found no indication of imprudence regarding costs associated with TDF contracts in place for the time period in this case.

2. Summary of Cost Implications

If it was found that Empire had been imprudent in its purchasing decisions relating to TDF, rate payer harm could result from an increase in FARs.

3. Conclusion

Staff found no indication of imprudence for the purchase of TDF for the four accumulation periods reviewed.

4. Documents Reviewed

a. Empire's response to Staff Data Request 0001; and
b. Fuel Adjustment Rate Filings.

Staff Expert: Matthew J. Barnes

G. Air Quality Control Systems

1. Description

For the Review Period $2,905,880 of Empire's fuel costs was associated with consumables used in the Company's AQCS. Empire incurs expenses for consumables used for its AQCS in its coal plants such as ammonia, lime, limestone, powder activated carbon, urea, sodium bicarbonate and trona.

2. Summary of Cost Implications

If the Commission found Empire was imprudent in its purchasing decisions relating to consumables used for its AQCS in its coal plants, ratepayer harm could result from increased costs flowing through its FAC to its customers.

3. Conclusion

Staff found no indication of imprudence by Empire for its purchase of consumables used for its AQCS in its coal plants for the Prudence Review Period.

4. Documents Reviewed
    a. Fuel Adjustment Rate filing; and
    b. Monthly FAC reports.

Staff Expert: Matthew J. Barnes

H. Purchased Power Agreements

1. Description

Empire had three long-term Purchased Power Agreements ("PPAs") in effect for the accumulation period reviewed. Staff reviewed the following PPAs for prudency:

a. A 20-year Renewable Resource Energy Purchase Agreement between The Empire District Electric Company and Elk River Windfarm, LLC (Empire began receiving power under this agreement in December 2005);

b. A 20-year Renewable Resource Power Purchase Agreement between Cloud County Wind Farm, LLC and The Empire District Electric Company (Empire began receiving power under this agreement in December 2008); and

c. A 30-year Purchased Power Agreement between Plum Point Energy Associates, LLC (coal-fired generating facility) and The Empire District Electric Company (Empire began receiving power under this agreement in September 2010).

2. Summary of Cost Implications

If the Commission found Empire was imprudent in entering into or administering its PPAs or in its purchases of additional power or capacity to meet its energy or demand requirements, ratepayer harm could result from increases costs in the FAC. By entering into the renewable energy wind contracts that exceed the Renewable Energy Resource Standard Requirements[31] Empire was exempt from the renewable energy portfolio requirements regarding solar energy. This issue was

[31] Notwithstanding any other provision of law, any electrical corporation as defined by subdivision 15 of section 386.020, RSMo, which, by January 20, 2009, achieves an amount of eligible renewable energy technology nameplate capacity equal to or greater than fifteen percent of such corporation's total owned fossil-fired generating capacity, shall be exempt thereafter from a requirement to pay any installation subsidy, fee, or rebate to its customers that install their own solar electric energy system and shall be exempt from meeting any mandated solar renewable energy standard requirements. Any disputes or denial of exemptions under this section may be reviewable by the circuit court of Cole County as prescribed by law. § 393.1050, RSMo. Supp. 2013.

challenged, and the section of law supporting EDE's exemption was repealed by the Missouri Supreme Court. The case has been remanded back to the Commission for further examination, and EDE has agreed to comply with the decisions of the court and the Commission on this issue.[32]

3. Conclusion

Staff found no evidence of imprudence related to Empire's long-term purchased power agreements.

4. Documents Reviewed

a. Empire's Responses to Staff Data Request Nos. 0001, 0007, 0017, 0018, 0020, and 0023, in File No. EO-2015-0214;

b. Empire's Responses to Staff Data Request No. 0253 in File No. ER-2010-0130; and

c. Staff Cost of Service Report in File No. ER-2014-0351.

Staff Expert: David Roos

I. Purchased Power Costs

1. Description

Purchased Power Costs is a component of Empire's FAC, and is reflected as the "Purchased Power Costs," or "PP," listed on Empire's FAC 3rd Revised Sheet No. 17a. As described in Section III A above, the SPP IM went live March 1, 2014.[33] Empire is both a member and market participant of SPP. The revenue from the energy that Empire sells into the IM is referred to as "Off-System Sales Revenue/Empire" and is discussed in Section J: Off-System Sales Revenue. The amount of energy that Empire buys from the IM to meet native load is referred to as "Native Load Cost" and is a component of purchased power costs.

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[32] P. 4, "Empire District Electric Company 2015 Annual Renewable Energy Standard Compliance Plan", April 15, 2015.

[33] The Integrated Marketplace will determine which generating units should run the next day for maximum cost-effectiveness, provide participants with greater access to reserve electricity, improve regional balancing of supply and demand, and facilitate the integration of renewable resources. The Integrated Marketplace will include: A Day-Ahead Market with transmission Congestion Rights, a Reliability Unit Commitment process, a Real-Time Balancing Market (replacing the current Energy Imbalance Service Market), the incorporation of price-based Operating Reserves procurement, and in addition, the current Balancing Authorities (16) within the SPP footprint will combine to form a Consolidated Balancing Authority. http://www.spp.org/section.asp.

As shown on Table 2, Native Load Costs and Off-System Sales Revenue/Empire tend to off-set each other. This off-set is a result of Empire serving its native load through the IM.

For the Review Period, Staff reviewed both the prices and the amounts Empire paid for purchased power under the PPAs listed in Section H and the prices and amounts of the energy purchases Empire made in SPP's EIS market and IM. Empire had purchased power costs of ** ___________ ** less capacity charges of ** _________ ** that are not allowed in Empire's FAC, and a native load cost ** ___________ ** for total purchased power costs of ** ___________ ** during the Review Period.

The two 20-year wind energy PPAs mentioned in the preceding section are "take-or-pay" contracts, (i.e., Empire has to pay for the energy whether it is needed or not), which is a standard component for wind PPAs and, in addition to the electricity; include the associated renewable energy credits ("RECs"). The RECs can be "retired" (i.e., used to comply with Commission Rule 4 CSR 240-20.100 Electric Utility Renewable Energy Resource Standard Requirements) any time within a three-year period after generation. Empire did not retire any of its wind RECs to meet the RES requirements during the Review Period. Instead, some RECs were sold and some were carried forward for future compliance. Empire's management of its RECs is further discussed in the Renewable Energy Credit Section of this report.

The wind PPAs are long-term contracts, and must be viewed in light of the long-term needs of the Company and the fact that generation resources can only be added in amounts greater than what is needed in the short-term to minimize the costs and risks over the long-run. Empire's 30-year PPA with Plum Point Energy Associates, LLC is not a "take-or-pay" contract, so Empire pays only for the energy it buys. Plum Point is a coal-fired generating facility, and coal-fired generating facilities have been shown to provide low-cost base load energy over the long term.

In addition to the long-term PPAs discussed above, prior to March 1, 2014, Empire purchased hourly energy from the SPP EIS market to meet its short-term energy needs. Since March 1, 2014, Empire has met its short term energy needs by purchasing hourly energy from the SPP IM.

2. Summary of Cost Implications

If the Commission found Empire was imprudent in its long-term PPAs or by purchasing additional energy to meet its demand at a rate above which Empire could generate energy itself, ratepayer harm could result from increased costs flowing through its FAC to its customers.

3. Conclusion

Staff found no evidence Empire acted imprudently with regard to its PPAs and purchases of hourly energy from the SPP EIS during the period of this review.

4. Documents Reviewed:

a. Empire's responses to Staff Data Request Nos. 0001, 0002, 0004, 0010, 0011, 0016, 0017, 0018, 0021, 0024, and 0054 in File No. EO-2015-0214; and

b. Purchased power data submitted by Empire in compliance with Rule 4 CSR 240-3.190.

Staff Expert: David Roos

J. Off-System Sales Revenue

1. Description

Off-system sales revenue is a component of Empire's FAC, and is reflected as the "Revenue from Off-System Sales," or "OSSR," listed on Empire's FAC 3rd Revised Sheet No. 17b. As described in Section III A above, the SPP went live March 1, 2014, with the SPP Integrated Marketplace,[34] and Empire is both a member and market participant of SPP. Empire is still responsible for (1) economically offering its generation in SPP's day-ahead and real-time markets, (2) prudently controlling its fuel costs, (3) prudently managing its long-term resource planning, and (4) prudently making bilateral off-system sales. Empire had off-system sales revenues of $179,563,406 during the Review Period.

[34] The Integrated Marketplace will determine which generating units should run the next day for maximum cost-effectiveness, provide participants with greater access to reserve electricity, improve regional balancing of supply and demand, and facilitate the integration of renewable resources. The Integrated Marketplace will include: A Day-Ahead Market with transmission Congestion Rights, a Reliability Unit Commitment process, a Real-Time Balancing Market (replacing the current Energy Imbalance Service Market), the incorporation of price-based Operating Reserves procurement, and in addition, the current Balancing Authorities (16) within the SPP footprint will combine to form a Consolidated Balancing Authority. http://www.spp.org/section.asp?pageID=143

2. Summary of Cost Implications

If Empire is imprudent in making off-system sales, ratepayer harm could result from a decrease in off-system sales revenues flowing through its FAC, which would result in higher FAC charges to its customers.

3. Conclusion

Staff found no evidence Empire was imprudent with regard to off-system sales.

4. Documents Reviewed

a. Monthly reports submitted in compliance with Rule 4 CSR 240-3.161(5);

b. Empire's response to Staff Data Request Nos. 0001 and 0002; and

c. Monthly outage data submitted by Empire in compliance with Rule 4 CSR 240-3.190

Staff Expert: Matthew J. Barnes

K. Emission Allowances

1. Description

In general, Empire used Emission allowances it had on hand to meet emission standards during the Review Period, and only a minimal amount of net emission costs flowed through the FAC during the Review Period, the following discussion is provided for background on this item.

Empire receives its emission allowances from the EPA on a yearly basis. These allowances have no cost, and, therefore, they are booked at zero cost. Gains from disposition of SO_2 allowances are credited to FERC account 254, with subsequent recognition of income in FERC 411. Since they are recorded at zero cost, there is no subsequent charge to expense, FERC account 509, as they are used. In addition, Empire did not purchase SO_2 allowances during the prudence Review Period.

Empire's Asbury, Riverton and Iatan I and II coal generating units collectively receive 11,723 SO_2 allowances per year. These units burn a blend of low sulfur Western coal (Powder River Basin), higher sulfur blend coal and/or petroleum coke and sometimes TDF at the Asbury unit. At the time of its last FAC prudence review, Empire found itself in a position where, although Empire receives allowances and continues to carry a surplus of allowances, that surplus had rapidly decreased in the previous five years and was projected to continue to decrease to exhaustion sometime in mid-2012; however, this did not occur, due to the following:

a. Plum Point's allowances are now purchased/retired collectively by the Owner,[35] and Empire is billed its portion; and

b. Fuel transition from coal to natural gas in September 2012 of Riverton Units 7 and

c. The variations of the number of allowances used during the accumulation periods are a function of the tons of coal burned during the accumulation periods and the sulfur content of the coal.

2. Summary of Cost Implications:

There were $589 of net emission allowance costs during the Review Period. If the Commission found Empire was imprudent in its purchases of allowances, ratepayer harm could result from an increase in rates.

3. Conclusion

Based on the documents reviewed, Staff found no indication of imprudence.

4. Documents Reviewed:

a. Empire response to Staff Data Request Nos. 0042, 0043, 0044, 0046, and 0048.

Staff Expert: David Roos

L. Renewable Energy Credit Revenue

1. Description

The Missouri Renewable Energy Standard ("RES")[36] was adopted through a voters' ballot initiative (Proposition C) on November 4, 2008,[37] and requires all investor-owned electric utilities in Missouri to provide at least two percent (2%) of their retail electricity sales using renewable energy resources in each calendar year 2011 through 2013, and to increase

[35] Owners: Plum Point Energy Associates, Missouri Joint Municipal Electric Utility Commission, The Empire District Electric Co., East Texas Electric Cooperative, and Municipal Energy Agency of Mississippi Operator: NAES Corp.

[36]. § 393.1020 RSMo. Supp. 2013 and § 393.1030.1(1), RSMo. Supp. 2013
[37] § 393.1030,RSMo. Supp. 2013.

that percentage over time to at least fifteen percent (15%) by 2021.[38] Commission rule 4 CSR 240-20.100, which first became effective September 30, 2010, contains the definitions, structure, operations, and procedures for implementing the RES.

The RES rule creates two categories of energy-generating resources: non-renewable energy resources (including purchased power from non-renewable energy sources) and renewable energy resources (including purchased power from renewable energy sources).[39] Renewable energy resources produce electrical energy and are wind, solar sources, thermal sources, hydroelectric sources, photovoltaic cells and panels, fuel cells using hydrogen produced by one (1) of the above named electrical energy sources, and other sources of energy that become available after August 28, 2007. Renewable energy resources are certified as renewable by the Missouri Department of Energy (MODED). Once an energy resource is certified, it begins producing RECs, with one (1) REC representing one (1) megawatt-hour of electricity that has been generated from the renewable energy resource. These credits can be sold and/or traded in the market place bundled with or without the energy that generated the REC.[40] The cost of a REC (as a RES compliance cost) cannot be recovered through the FAC.[41] Revenues from the sale of RECs are recovered through the FAC as an off-set to fuel costs.

Empire receives renewable energy from three sources: ownership of the Ozark Beach Hydroelectric Project and two purchased power agreements, one from Elk River Wind farm and one from Meridian Way Cloud County Windfarm. Empire used eligible Ozark Beach RECs generated in 2010 through 2014 to meet the Company's 2013 and 2014 RES requirements. During the Review Period, Empire also sold RECs associated with Elk River and Meridian Way wind farms that will not be used for RES compliance.

[38] However, the annual level of required renewable energy resources may be considered due to 4 CSR 240-20.100(5)(A) Retail Rate Impact. (A) The retail rate impact, as calculated in subsection (5)(B), may not exceed one percent (1%) for prudent costs of renewable energy resources directly attributable to RES compliance. The retail rate impact shall be calculated on an incremental basis for each planning year that includes the addition of renewable generation directly attributable to RES compliance through procurement or development of renewable energy resources, averaged over the succeeding ten (10)-year period, and shall exclude renewable energy resources owned or under contract prior to the effective date of this rule.

[39] 4 CSR 240-20.100(5)(B).

[40] 4 CSR 240-20.100(6)(B)(5)(J).

[41] 4 CSR 240-20.100(6)(A)(16).

Empire began receiving wind energy from the Elk River Windfarm in 2005. Additionally, Empire contracted to begin receiving wind energy from the Meridian Way Cloud County Windfarm in 2008. As part of these contracts, Empire receives RECs, which are credits issued under the Center for Resource Solutions' "green-e" program that certify that one MWh of electricity has been generated by a facility engaged in the production of renewable energy, such as wind, solar or biomass. Empire did not retire any of these wind RECs to meet the RES requirements during the Review Period. Instead, it sold some of these RECs and kept some of them for future use for compliance or sale. Empire is certified to sell its RECs through the Center for Resource Solutions. The Stipulation and Agreement in File No. ER-2010-0130 requires Empire to use revenues from selling RECs as an offset to its fuel and purchased power costs that flow through its FAC. From the time period March 1, 2013 through February 28, 2015, Empire used $1,695,491 of REC revenue to offset its fuel and purchased power costs that flow through its FAC.

2. Summary of Cost Implications

If the Commission found Empire was imprudent by not selling RECs when it had the opportunity to do so, ratepayer harm could result from decreased revenues in the FAC.

3. Conclusion

Staff did not find evidence of imprudence in Empire's management of its RECs during the Review Period.

4. Documents Reviewed:

a. Staff COS Report from Case No. ER-2012-0345;

b. Staff COS Report from Case No. ER-2014-0351;

b. Empire FAC work papers;

c. Empire's response to Staff Data Request Nos. 0001 and 0053;

d. Empire District Electric Company 2013 Annual Renewable Energy Standard Compliance Report; and

e. Empire District Electric Company 2014 Annual Renewable Energy Standard Compliance Report.

Staff Expert: David Roos

M. Interest

1. Description

For its FAC, based on Empire's short-term debt borrowing rate Empire is required to calculate the monthly interest rate that is applied to the monthly amount of its under-recovered, or over-recovered, fuel and purchased power costs. The monthly short-term debt borrowing rate for the Review Period is the interest rate for Empire's $200 million revolving credit facility that had a Commercial Paper credit rating of A-2 by Standard and Poor's[42] during the Review Period. Empire's short-term borrowing rate averaged 0.51 percent (0.51%) during the Review Period. The interest amount is component "I" of the FAC.

2. Summary of Interest Implications

If the Commission found Empire imprudently calculated the monthly interest amounts or imprudently used a short-term debt borrowing rate that did not fairly represent the actual cost of Empire's short-term debt, ratepayer harm could result from understated or overstated monthly interest amounts.

3. Conclusion

Staff found no evidence Empire acted imprudently with regard to its monthly interest rates and calculation of monthly interest amounts during the Review Period.

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[42] Standard and Poor's Ratings Direct, Empire District Electric Co., March 19, 2015.

4. Documents Reviewed

   a. Empire's response to Staff Data Request No. 0055;

   b. Empire's interest calculation work papers in support of the interest calculation amount on the under-recovered or over-recovered balance; and

   c. Empire's Standard and Poor's credit rating report.

Staff Expert: Matthew J. Barnes

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Fifth Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2015-0214

AFFIDAVIT OF MATTHEW J. BARNES

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Matthew J. Barnes, of lawful age, on oath states: that he participated in the preparation of the foregoing Staff Report, to be presented in the above case; that the information in the Staff Report was provided to him; that he has knowledge of the matters set forth in such Staff Report; and that such matters are true to the best of his knowledge and belief.

Matthew J Barnes

Matthew J. Barnes

Subscribed and sworn to before me this 31st day of August, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086

Susan L Sundermeyer

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Fifth Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2015-0214

AFFIDAVIT OF RANDY S. GROSS

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Randy S. Gross, of lawful age, on oath states: that he participated in the preparation of the foregoing Staff Report, to be presented in the above case; that the information in the Staff Report was provided to him; that he has knowledge of the matters set forth in such Staff Report; and that such matters are true to the best of his knowledge and belief.

Randy S. Gross

Subscribed and sworn to before me this 31st day of August, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086

Susan L Sundermeyer
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Fifth Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2015-0214

AFFIDAVIT OF DAVID C. ROOS

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

David C. Roos, of lawful age, on oath states: that he participated in the preparation of the foregoing Staff Report, to be presented in the above case; that the information in the Staff Report was provided to him; that he has knowledge of the matters set forth in such Staff Report; and that such matters are true to the best of his knowledge and belief.

David C. Roos

David C. Roos

Subscribed and sworn to before me this 31st day of August, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086

Susan L. Sundermeyer

Notary Public