MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

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

FILE NO. EO-2020-0059

March 1, 2018 through August 31, 2019

Jefferson City, Missouri
February 28, 2020

** Denotes Confidential Information **

*** Denotes Highly Confidential Information ***

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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). Since then, the Commission has approved continuation of Empire's FAC with modifications in its orders in Empire's subsequent general rate cases, Case Nos. ER-2010-0130, ER-2011-0004, ER-2012-0345, ER-2014-0351 and ER-2016-0023.

Commission Rule 20 CSR 4240-20.090(11) and Missouri Revised Statute Section 386.266.5(4) require that the Commission's Staff ("Staff") conduct prudence reviews of an electric utility's FAC no less frequently than every 18 months. In this eighth prudence review of Empire's FAC for the period March 1, 2018 through August 31, 2019, Staff analyzed items affecting Empire's total fuel costs, purchased power costs, net emission costs, transmission costs, off-system sales revenues, and interest for the twentieth, twenty-first, and twenty-second six-month accumulation periods of Empire's FAC. Staff's previous Empire FAC prudence reviews are listed in Table 1:

Table 1

Prudence Review	File Number	Review Period
First	EO-2010-0084	September 1, 2008 through August 31, 2009
Second	EO-2011-0285	September 1, 2009 through February 28, 2011
Third	EO-2013-0114	March 1, 2011 through August 31, 2012
Fourth	EO-2014-0057	September 1, 2012 through February 28, 2013
Fifth	EO-2015-0214	March 1, 2013 through February 28, 2015
Sixth	EO-2017-0065	March 1, 2015 through August 31, 2016
Seventh	EO-2018-0244	September 1, 2016 through February 28, 2018

In evaluating prudence, Staff reviews whether a reasonable person making the same decision would find both the information the decision-maker relied on and the process the decision-maker employed were 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 instead 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 on or the decision-making process employed was imprudent, then Staff examines whether the imprudent decision caused any harm to customers. Only if an imprudent decision resulted in harm to Empire's customers will Staff recommend a disallowance.

Staff analyzed a variety of items in examining whether Empire prudently incurred the fuel and purchased power costs associated with its FAC tariff sheets. Based on its review, Staff identified no incidence or evidence of imprudence by Empire in the items Staff examined for the period of March 1, 2018 through August 31, 2019.

Table 2 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, 2018 through August 31, 2019 including the tariff sheets applicable to calculation of the Fuel Adjustment Rates[1] ("FAR") for the twentieth, twenty-first, and twenty-second accumulation period ("AP")[2] covered by the Fuel and Purchase Power Adjustment Clause Rider FAC for the same period:

Table 2

September 14, 2016 through August 31, 2019
Original Sheet No. 17u
Original Sheet No. 17v
Original Sheet No. 17w
Original Sheet No. 17x
Original Sheet No. 17y
Original Sheet No. 17z
Original Sheet No. 17aa
Original Sheet No. 17ab
4th Revised Sheet No. 17ac
5th Revised Sheet No. 17ac
6th Revised Sheet No. 17ac
7th Revised Sheet No. 17ac

Staff Expert/Witness: Dana E. Eaves

[1] Fuel Adjustment Rate Filing, File No. ER-2020-0093.
[2] Accumulation periods: AP 20; March 2018 – August 2018, AP 21; September 2018 – February 2019, and AP 22; March 2019 – August 2019.

II. INTRODUCTION

A. Prudence Standard

In *State ex rel. Associated Natural Gas Co. v. Public Service Com'n of State of Mo*., the Western District Court of Appeals stated the Commission defined its prudence standard 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 expenditure, then the applicant has the burden of dispelling these doubts and proving the questioned expenditure to have been prudent.
>
> In the same case, the PSC noted that this test of prudence should not be based upon hindsight, but upon a reasonableness standard: [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.
>
> 954 S.W.2d 520, 528-29 (Mo. App. W.D., 1997) (citations omitted).

In reversing the Commission decision in that case, the Court did not criticize the Commission's definition of prudence, but held, in part, that to disallow a utility's recovery of costs from its customers based on imprudence, the Commission must determine the detrimental impact of that imprudence on the utility's customers, *Id*. at 529-30. This is the prudence standard Staff has followed in this review.

Staff Expert/Witness: Dana E. Eaves

B. General Description of Empire's FAC

Empire's FAC requires that it accumulate its Total Energy Cost ("TEC")[3]; defined generally as variable fuel, purchased power, transmission and net emissions costs less

[3] Total Energy Costs are equal to fuel costs (FC) plus costs of purchased power (PP) plus net emissions allowances (E) minus off-system sales revenue (OSSR) as defined on Empire's 4th Revised Sheet No. 17aa (For service on and after September 14, 2016).

off-system sales revenue and renewable energy credit revenue during the six-month accumulation periods. Each six-month accumulation period is followed by a six-month recovery period ("RP")[4] during which ninety-five percent (95%) of the over- or under-recovery of TEC during the previous six-month accumulation period relative to the Base Energy Cost ("B") amount[5] is returned to or collected from customers as part of a decrease or an increase of the FAC Fuel and Purchased Power Adjustment ("FPA") per kWh rate, which is the FAR for each accumulation period. Because the total amount charged through the FAR rarely, if ever, will exactly match the required offset, Empire's FAC is designed to true-up[6] the difference between the revenues billed and the revenues authorized for collection during recovery periods including interest at Empire's short-term interest rate. Any disallowance the Commission orders as a result of a FAC prudence review shall include interest at Empire's short-term interest rate and will be accounted for as an adjustment[7] item when calculating the FPA for a future recovery period.

Staff Expert/Witness: Dana E. Eaves

C. Staff Review and Reconciliation of FERC Accounts

Staff has reviewed all Federal Energy Regulatory Commission ("FERC") accounts related to Empire's FAC for this review period. FERC accounts subject for this FAC review are 411 Gains and Losses from Disposition of Allowances, 447 Sales for Resale, 456 Other Electric Revenues, 501 Fuel, 509 Allowances, 547 Fuel, 555 Purchased Power, 565 Transmission by Others.

Staff created independent work papers which are based on three separate sources provided by Empire. These work papers were created to review and reconcile the FERC Accounts in Table 3 below and included in the calculation of the components of the TEC presented in Table 4.

[4] Recovery periods are: June through November for each immediately preceding September through February accumulation period; and December through May for each immediately preceding March through August accumulation period.
[5] "Base Energy Cost" (B) as defined on Empire's Sheet No. 17u (For service on and after September 14, 2016).
[6] True-up of FAC is defined on Empire's Sheet No. 17aa & 17ab (For service on and after September 14, 2016).
[7] See line item 10 on Empire's 7th Revised Sheet No. 17ac (For service on and after September 14, 2016).

Empire provided its monthly General Ledger and General Journal to the Staff through its responses to Staff Data Request Nos. 0029 and 0053, which provided the detail of all accounting transactions for the expenses and revenues encompassed in the TEC in Table 4. Staff sorted the General Ledger by each account reflected in the FERC Accounts listed in Table 3:

Table 3

Account Name	FERC Account Number
Fuel used for Steam	501
AQCS Consumables	506
Fuel/Natural Gas	547
Short-Term Purchased Power Contracts	555
Long-Term Purchased Power Contracts	555
Transmission Expense	565
Net Emission Allowances	411 and 509
REC Revenue	456
Off System Sales Revenue	447

Staff sorted these transactions in ascending order by the corresponding Minor account number assigned to each Major account number listed in Table 3.

The transactions and totals for each FERC account by month and year from the General Ledger were compared to the accounts included in the TEC Monthly Reports and FAC FAR filings. In addition to verifying that the total dollar amounts from these three accounting sources are equal, Staff reviewed expense and revenue transactions to identify any unusual dollar amounts, improperly categorized amounts, or categories of cost or revenue which are not allowed in the FAC's definition of TEC.

Staff Expert/Witness: Dana E. Eaves

D. Staff Regulatory Accounting Summary

Staff analyzed the TEC based on the transactions in the FERC accounts related to the calculation of the TEC from three different sources: the General Ledger, the Monthly Reports, and the FAR work papers provided by Empire. Staff analyzed, reviewed and was able to reconcile these three individual sources to each other based on the individual line items categorized by FERC Accounts that captured Fuel Costs, Costs of Purchased Power, Off-System Sales Revenues for the TEC.

Staff Expert/Witness: Dana E. Eaves

E. Participation with Regional Transmission Organizations and Self-Commit

As part of this review, Staff reviewed Empire's participation in Regional Transmission Organizations (RTOs). Empire participates in Southwest Power Pool[8] ("SPP") and Mid-Continent Independent System Operator ("MISO"). The Staff reviewed a wide variety of Empire's practices and procedures related to the RTOs, specifically SPP. Empire directly participates in SPP's Day Ahead Market and Real-time Market. At a high level these markets allow Empire to offer-in and - if cleared in the market - to sell the energy it generates to SPP. In turn Empire must purchase back from SPP the energy needed to serve its native load. The practices and procedures related to these transactions are highly technical and complex. Empire was required to develop specialized front and back office[9] practices and procedures to manage the large amounts of data associated with its market participation. Empire utilizes specialized software[10] to manage key components of the bid-to-settlement trading cycle and analysis modes for the Day-Ahead Market and Real-time Market bidding. These processes and software include robust capabilities for settling and disputing a wide range of market transactions. Empire uses this software to verify and shadow complex RTO charge codes and invoices and to customize contract settlements.

As a result of Staff's understanding and experience with these practices and processes, Staff found that Empire is managing its participation in these markets effectively and maintains appropriate procedures and processes to account for the financial and operational results of participation in SPP.

[8] SPP is a regional transmission organization that provides electric power across all or parts of 14 U.S. states. SPP assures consumers have an unbiased regional grid management and open access to the transmission facilities under SPP's functional supervision.

[9] Front Office: A blanket term that refers to the portion of a company that deals with outside entities in its daily functions of buying, selling and trading of energy. Back Office: A blanket term that refers to the portion of a company made up of administration, accounting and settlement functions in support of the selling, buying and trading of energy.

[10] Power Cost, Inc. (PCI), PCI GenManager®.

Staff also reviewed Empire's self-commit practices of its electric generation fleet as part of a continuation of File Nos. EW-2019-0370[11] and EW-2020-0035[12]. For the review period Empire's current strategy in the Day-Ahead market is ** ____________________________ ____ ________ .[13] ** Staff found for this review period Empire did not use a self-commit status in the dispatching of its thermal generation units except for times when the units were brought back from an outage or testing purposes.

Staff Expert/Witness: Dana E. Eaves

III. TOTAL ENERGY COSTS

The Empire FAC definition of Total Energy Costs includes three components of costs – fuel costs ("FC"), costs of purchased power ("PP") and net emissions allowance costs ("E"), and two components of revenue – off-system sales revenues ("OSSR") and Renewable Energy Credit Revenues ("REC"). Table 4 is a breakdown of Empire's fuel costs, costs of purchased power, net emissions allowance costs, off-system sales revenues and renewable energy credit revenues for the period of March 1, 2018 through August 31, 2019:

Table 4

Component		Summary
Generation	(FC)	$ 205,510,421
Fuel - AQCS	(FC)	$ 2,500,578
Native Load Costs	(PP)	$ 199,830,305
Transmission Costs	(PP)	$ 8,918,884
Net of Emission Allowances	(E')	$ (10,522)
EMPIRE Sales	(OSSR)	$ (213,281,584)
Renewable Energy Credit Revenues	(REC)	$ (192,593)
Total Energy Cost	(TEC)	$ 203,275,488

Staff Expert/Witness: Dana E. Eaves

[11] EW-2019-0370, "Order Opening An Investigation of Missouri Jurisdictional Generation Self-Commitments and Self-Scheduling".
[12] Empire's company-specific analysis.
[13] EW-2020-0035, "Appendix A – Staff's Analysis of The Empire District Electric Company, page 1".

A. Fuel Risk Management Policy

1. Description

Empire has undertaken activities beginning on October 12, 2017 to review its Risk Management Plan ("RMP"). Empire's Risk Management Oversight Committee ("RMOC") issued a Request for Proposal ("RFP") to review its RMP. Empire entered into a contract with RMI Consulting ("RMI") on February 28, 2018 to conduct a review of Empire's RMP which included Empire's natural gas hedging practices. On September 19, 2018 RMI presented its review to Empire's RMOC. Also on this date the RMOC approved to suspend natural gas hedging activities under the current RMP until 11/1/2018 and began a stakeholder process regarding hedging activities. The RMOC, on 10/23/2018, approved suspending 2020 & 2021 hedging activities as included in the current RMP, discussed liquidating over-hedged natural gas positions and approved Winter Strip purchases (price and volumes for winter generation burn). The RMOC on 11/9 and 11/12, 2018 approved and began to liquidate over-hedged natural gas positions (unwinding of hedged contracts). On 2/22/19 the RMOC approved to suspend all hedging activities for the remainder of 2019, but the document has not been released. These actions Empire has taken have changed its natural gas purchase strategy significantly. As a result of Commissioner Rupp's *Order Regarding Empire Hedging Practices*, issued January 28, 2020, in Case No. ER-2019-0374, Mr. Aaron J. Doll provided testimony[14] which contains additional information comparing Empire's natural gas hedging practices with its present and past hedging practices. At a high level Empire is transitioning away from mitigating natural gas price risk with NYMEX futures contracts ("past plan"), which Empire has been utilizing over 20 years. Empire's current ("new") policy will rely on Forward Physical Index Contracts, floating price physical and/or other physical instruments as needed to help mitigate natural gas price risk. At the time of this report Empire was not able to provide Staff a physical copy of its new RMP. Staff's understanding of Empire's new policy consists of discussions with Empire, data request responses, emails and testimony provided by Aaron Doll. From this information provided by Empire it appears to Staff that these changes were implemented in an attempt to alleviate financial losses associated with Empire's previous natural gas hedging procedures and practices using financial hedging instruments.

[14] Case No. ER-2019-0374, Supplemental Hedging Testimony of Aaron J. Doll filed February 4, 2020.

Empire claims this new policy will allow more flexibility and will allow Empire to be more reactive to changing natural gas market trends while still allowing Empire to mitigate natural gas price risk. However, without Empire being able to provide its current RMP to Staff for review during this prudence review, Staff was only able to review the sources of data provided and Staff is basing its understanding of the changes solely on that information. It is Staff's intention to provide a thorough review of the new policy and procedures during its next FAC prudence review.

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 a thorough review of Empire's risk management strategies and provided financial results of its natural gas hedging associated with Empire's past policy and practices. Staff did not find any imprudent actions on the part of Empire in the administration, under past policies and practices, of its risk management strategies during the review period. Staff reviewed the changes Empire made to its processes and procedures related to fossil fuel purchases, specifically transitioning from financial hedging instruments to Forward Physical Index Contracts, floating price physical and/or other physical instruments. However, Staff is unable to express any prudency opinion on Empire's' new policy and practices during this review because of limited information that is available at this time.

4. Documents Reviewed

a. Empire's response to Staff Data Request Nos. 0045 and 0070; and,

b. Emails and phone conversations with Aaron Doll.

Staff Expert/Witness: Dana E. Eaves

B. Fuel Costs (Coal Plants)

1. Description

Empire is required to account for fuel costs contained within FERC account 501 used in the production of steam for the generation of electricity per its Fuel Adjustment Rider Tariff. Staff reviewed Empire's fuel costs associated with Empire's generation facilities which are comprised of coal and natural gas generation units. Staff has summarized these fuel costs in Table 5:

Table 5

Fuel Cost (Coal Plants)	**For the Period March 2018 through August 2019**	**Percentage of Total**
Fuel - Coal	$ 60,840,368	37.46%
Fuel - Tires	$ 87	0.00%
Operations Fuel Handling	$ 4,368,431	2.69%
Total Fuel Costs (Coal Plants)	$ 65,208,886	40.15%
Fuel Cost Oil		
Fuel - Oil	$ 3,936,145	2.42%
Total Fuel Costs Oil	$ 3,936,145	2.42%
Fuel Costs (Additives)		
Limestone	$ 360,105	0.22%
Ammonia	$ 216,397	0.13%
Powdered Activated Carbon	$ 32,094	0.02%
Total Fuel Costs (Additives)	$ 608,596	0.37%
Fuel Cost (Natural Gas Plants)		
Natural Gas	$ 84,258,260	51.88%
Natural Gas Transportation and Storage	$ 9,983,362	6.15%
Natural Gas Transportation Credits	$ (2,751,109)	-1.69%
(Gain)/Loss on Hedging	$ 1,150,710	0.71%
Fuel Costs (Natural Gas Plants)	$ 92,641,224	57.05%
Total Fuel Costs	$ 162,394,851	100.00%

For the review period, $60,840,368 or 37.46% of Empire's total fuel costs were associated with the generation of electricity from its coal-fired generation facilities. During the review period Empire generated 42% of its electricity with its coal-fired generation facilities and burned ** ____ **, tons of coal which translates to an average price of $** ____ ** per ton including transportation/freight and other rail charges. Staff reviews public sources as well as subscription services in an effort to determine the reasonableness of prices paid by Empire for its coal supply. Staff monitors U.S. Energy Information Administration (EIA) and

SNL Energy for past and future market prices, supply forecasts and other market trends.[15] Staff finds that the prices paid by Empire appears to be within current market prices.

Also contained within FERC account 501 and reviewed during this review is fuel oil. The total fuel oil costs for the review period was $3,936,145. The fuel oil burned only accounts for about .25% or ** ________ ** kWh of total kWhs generated. Fuel oil is used as a support fuel (startup and/or burn stabilization) in the production of steam with the coal and natural gas fired generation facilities.

During the review period Empire allowed the rail and coal contracts associated with the retirement of the Asbury generation facility to expire.

Empire maintains ** _ ** short and long-term coal purchase contracts, ** _ ** rail transportation contracts. The counterparties for the contracts are shown below in Table 6:

Table 6 – Highly Confidential

***

____________ ____	____________ ____
____________ ____________ ____________ ____ ____________ ____________ ____________ ____________ ____________ ____________ ____________ ____________	____________ ____________ ____________

***

Staff reviewed Empire's 2017 Risk Management Policy that was in effect during the review period. Empire's coal procurement strategy was not changed during the review period.

Staff has reviewed the various components of Empire's coal supply strategy, and concludes that Empire has complied with its stated parameters.

[15] 2018 EIA Coal Price Report, CME Natural Gas Futures forecast pricing, SNL Coal Mine Production Summary, Average price of coal delivered to end user, EIA short-term forecasts and EIA real prices.

2. Summary of Cost Implications

If Empire was imprudent in its purchasing decisions relating to the purchase of coal and transportation, customer harm could result from such imprudence through an increase in Empire customer FAC charges.

3. Conclusion

Staff identified no imprudence by Empire in its purchase of coal and transportation contained in FERC account 501 for the prudence review period.

4. Documents Reviewed

a. Empire's response to Staff Data Request Nos. 0001, 0002, 0007, 0009, 0014, 0016, 0018, 0023, 0024, 0025, 0026, 0027, 0030, 0034, 0035, 0036, 0037, 0039, 0043, 0044, 0045, 0046, 0047, 0049, 0051, 0058 and 0065; and,

b. Market research: https://www.eia.gov and http://www.cmegroup.com.

Staff Expert/Witness: Dana E. Eaves

C. Air Quality Control Systems ("AQCS") Chemicals

1. Description

For the review period, $608,596 or .37% of Empire's total fuel costs is associated with FERC Account 506. This account includes expenses associated with AQCS materials used to reduce emissions as a result of burning fossil fuels in Empire's generation facilities.

2. Summary of Cost Implications

If Staff determined that Empire was imprudent in its purchasing decisions relating to AQCS materials costs, customer harm could result from that imprudence by an increase in FAC charges.

3. Conclusion

Staff observed or found no evidence of imprudence associated with Empire's AQCS purchases for the prudence review period.

4. Documents Reviewed

a. Empire's response to Staff Data Request Nos. 0001, 0002, 0013, 0038, 0040, 0041 and 0056.

Staff Expert/Witness: Dana E. Eaves

D. Fuel Costs (Natural Gas Plants)

1. Description

Empire accounts for the natural gas and natural gas transportation capacity costs used in its generation facilities in FERC account 547. For the review period, $92,641,224 or 57% of Empire's total fuel costs is associated with FERC Account 547. The total natural gas cost recorded in FERC account 547 is comprised of several components. The natural gas commodity cost is $84,258,362 with transportation costs of $9,983,362, transportation credits of $2,751,109 and natural gas hedging expense (gains)/losses of $1,150,710. Page 8, section A of this report addresses the change to Empire's hedging policies and the resulting loss issue.

Empire's natural gas generation facilities are combustion turbine generators ("CTGs") and combined cycle ("CC") units (see Table 7). Empire's CTGs are used for peaking units which means they are used generally when demand for electricity increases to a point baseload units can't meet that demand. Empire's Stateline CC by nature is more efficient than the CTG units in Empire's generation fleet, and, therefore, less expensive to operate. During the review period, Empire's CTGs consumed ** ________ ** million cubic feet of natural gas which translates to an average of $**____ ** per MMBTU.

Southwest Power Pool (SPP) dispatches Empire's generation fleet, which in effect decreases Empire's dispatching control over these facilities other than ensuring the units are operational. Even if SPP did not dispatch these units Empire still must ensure these combustion turbines have adequate fuel to operate.

The following table identifies Empire's peaking generating units that burn natural gas:

Table 7

Energy Center 1, 2, 3, and 4; Combustion Turbine
Riverton 10, 11, and 12; Combustion Turbine
State Line Unit 1;
State Line Combined Cycle ("CC")

2. Summary of Cost Implications

If Staff determined that Empire was imprudent in its purchasing decisions relating to natural gas commodity, reservation, transportation, storage, and hedging costs, customer harm could result from that imprudence by an increase in FAC charges.

3. Conclusion

Staff observed no indication of imprudence associated with Empire's natural gas commodity purchases for the prudence review period. See Section III for a discussion of Empire's hedging practices.

4. Documents Reviewed

a. Empire's response to Staff Data Request Nos. 0001, 0002, 0007, 0014, 0016, 0017, 0018, 0021, 0024, 0025, 0026, 0028, 0029, 0031, 0032, 0039, 0041, 0042, 0043, 0045, 0046, 0047, 0049, 0050, 0054, 0057, 0058, 0065 and 0070; and,

b. Market research: https://www.eia.gov, http://www.cmegroup.com and https://platform.mi.spglobal.com.

Staff Expert/Witness: Dana E. Eaves

E. FERC Account 555 - Purchased Power – Long Term Variable Contracts

1. Description

For the period March 1, 2018, through August 31, 2019, Staff reviewed the Renewable Resource Energy Purchase Agreement by and between Elk River Windfarm, LLC, and Empire ("Elk River PPA") and Cloud County Wind Farm, LLC ("Cloud County PPA")[16]. The Elk River PPA is a ** ____________ ** that expires ** ________________ ** and provides a capacity of ** ___ ** MW and energy purchases for the review period of ** ____ ** MWhs at a contract price of $** ____ ** per MWh with a total cost of $** ________ ** and revenue associated with sales of $** ________ ** which resulted in a net ** ___ ** of $** ________ ** for the review period. The Cloud County PPA is a ** ____________ ** that expires ** ________________ ** and provides a capacity of ** ___ ** MW and energy purchases for the review period of ** ____ ** MWhs at a contract price of $** ____ ** per MWh for the First-Half Contract Price and $** ____ ** per MWh for the Second-Half[17] Contract Price with a total cost of $** ________ ** and revenue associated with sales of $** ________ ** which resulted in a net ** ___ ** of $** ________ ** for the review period.

[16] Empire operates under the Cloud County Wind Farm purchased power agreement, however they refer to this PPA as "Meridian Way" under their monthly reporting since this contract purchases energy from their Meridian Wind Farm.

[17] ** ____ **

Staff also reviewed for the review period the purchased power agreement between Plum Point Energy Associates, LLC ("Plum Point PPA") and Empire. The Plum Point PPA represents Empire's ownership interest in the generation facility sourced from the Plum Point coal-fired plant, with the delivery date of August 1, 2010. The Plum Point provides a capacity of ** ____ ** MW and energy purchases for the review period of ** ____ ** MWhs at a contract price of $** ____ ** per MWh with a total cost of $** ________ ** and revenue associated with sales of $** ________ ** which resulted in a net ** ____ ** of $** ____ ** for the review period.

When Staff reviews PPAs for prudency it reviews transactions that occurred during the review period. Staff also considers the circumstances at the time these contracts are entered into between the parties. In the Direct Testimony of William L. Gipson in Case No. ER-2008-0093, he describes the reasons securing long-term purchase power contracts attempts to mitigate energy and fuel price risk:

> Q. WITH REGARD TO THE FAC, IS EMPIRE UNDERTAKING ANY STEPS TO MITIGATE THE INCREASES IN FUEL COSTS, ESPECIALLY NATURAL GAS?
>
> A. Yes. Empire is working to control the volatility associated with fuel costs through the use of a natural gas hedging program which has been in place since 2001. In addition, Empire began receiving wind energy from the Elk River Wind Farm in October 2005, and Empire has recently signed a contract with Horizon Wind Energy to purchase 100 percent of the output from a new wind farm, Meridian Way Wind Farm, located near Concordia, Kansas. The new wind farm is expected to come on line in January 2009. These tools aid in mitigating price volatility, mitigate our natural gas exposure and provide price stability for Empire and our customers. As indicated, however, Empire is still exposed to increased fuel cost risk and thus has requested an FAC.

Since the time these contracts were entered into, natural gas prices have lowered and stabilized. SPP has developed a complete integrated market place which has positively influenced market energy prices and additional low cost wind resources have entered the market.

2. Summary of Cost Implication

If Empire was imprudent by purchasing energy to meet its demand at a cost that exceeded Empire's cost to generate that energy itself, customer harm could result from that imprudence through an increase in FAC charges.

3. Conclusion

Staff has identified that these PPAs mentioned above in total are creating a ** ________ ____________________ ** compared to the revenue received; Staff notes these are long-term PPAs and the performance of these contracts should be viewed on a long-term basis and not just from the results during this Review Period. Staff has identified no evidence of imprudence related to these long-term PPAs and is not recommending a disallowance related to this ** ___ ** issue at this time.

4. Documents Reviewed

a. Empire's responses to Staff Data Request Nos. 0001, 0002, 0011, 0019, 0021, 0027, 0043, 0051, 0053, 0054, 0064, 0065 and 0068; and,

b. Empire's responses to Staff Data Request No. 0023 in File No. EO-2018-0244.

Staff Expert/Witness: Brooke Mastrogiannis

F. FERC Account 447 – Off-System Sales Revenue ("OSSR") and FERC Account 555 - Purchased Power Costs ("PP")

1. Description

For the period March 1, 2018, through August 31, 2019, Empire received $** ________ ** in total OSSR. Empire's Day-Ahead strategy consists of all generation units being offered to the market on a daily basis unless the unit is on an outage. Jointly owned units are offered in by the majority owner[18]. Since Empire participates in SPP, it offers in all of its generation, and everything that is cleared in the market by SPP, is sold and produces revenue. In turn Empire must purchase back from the market its electricity needs to serve its retail customers. Empire records those PP transactions in FERC account 555, and for the review

[18] Data Request No. 0062.

period the PP costs were $** ________ **. Empire's OSSRs and PP once netted[19] for the review period showed OSSR to be $** ________ **.

2. Summary of Cost Implications

Empire's revenues from off-system sales and ancillary services are offset against total fuel, purchased power and net emissions allowance costs. If Empire was imprudent, either because it did not maximize or did not make off-system sales and ancillary services, customers could be harmed by that imprudence through an increase in FAC charges.

3. Conclusion

Staff identified no indication of imprudence related to off-system sales revenue or purchased power costs for the prudence review period.

4. Documents Reviewed

a. Empire's response to Staff Data Request Nos. 0001, 0002, 0019, 0022, 0027, 0043, 0053, 0054 and 0062; and,

b. Empire's FAR filings and Monthly Reports during the review period.

Staff Expert/Witness: Lisa Wildhaber and Brooke Mastrogiannis

G. Transmission Costs

1. Description

For the Review Period, $8,918,884 or 4.39[20]% of Empire's total fuel cost, cost of purchased power, transmission costs and net emission costs, was associated with transmission service costs. The Original Sheet No. 17x, applicable for service on and after September 14, 2016 defines transmission service costs as:

> Transmission service costs reflected in FERC[21] Account Number 565:
>
> A. Thirty-four percent (34%) of SPP costs associated with Network Transmission Service:
>
> i. SPP Schedule 2 – Reactive Supply and Voltage Control from Generation or Other Sources Service;

[19] Starting May 2019 Empire began reporting in the FAR filings the net data from the General Ledger and Integrated Market Monthly Worksheet instead of the Summary of Fuel and Purchased Power ("SFPP") Reports. This change did not affect the overall netting of OSSR and PP for the Review Period.
[20] This percentage is derived from dividing the total transmission costs over the total energy costs in Table 4.
[21] Federal Energy Regulatory Commission, Uniform System of Accounts ("FERC Account").

ii. SPP Schedule 3 – Regulation and Frequency Response Service; and
iii. SPP Schedule 11 – Base Plan Zonal Charge and Region-wide Charge.

B. Fifty percent (50%) of Mid-Continent Independent System Operator ("MISO") costs associated with:
i. Network transmission service;
ii. Point-to-point transmission service;
iii. System control and dispatch; and
iv. Reactive supply and voltage control.

For calculating Transmission service costs, Empire implemented a process whereby total transmission expenses were tabulated and then costs not allowed in the FAC were removed. Staff reviewed the transmission costs over the Review Period to verify only 34% of the SPP transmission service costs were included as well as verifying only 50% of the MISO transmission service costs were included. Empire's transmission costs during the Review Period are $8,918,884.10.

2. Summary of Cost Implications

If Empire imprudently included Transmission costs or more than 34% of the SPP transmission service costs and more than 50% of the MISO transmission service costs, ratepayer harm could result from increased FAC charges.

3. Conclusion

Staff found no indication Empire's transmission costs were imprudent during the Review Period.

4. Documents Reviewed

a. Empire's General Ledger;

b. Empire's responses to Staff Data Request Nos. 0001, 0002, 0027, 0045, 0043, 0048, 0054, 0062, 0066 and 0069; and,

c. FAR and other supporting work papers in this case.

Staff Expert/Witness: Brooke Mastrogiannis

H. Emission Allowances

1. Description

The Cross-State Air Pollution Rule ("CSAPR") is a ruling by the United States Environmental Protection Agency ("EPA") that requires a number of states, including Missouri, to reduce power plant emissions that contribute to ozone and/or fine particle pollution in other states. The CSAPR replaced EPA's 2005 Clean Air Interstate Rule ("CAIR"), following the direction of a 2008 court decision that required EPA to issue a replacement regulation. CSAPR implementation began on January 1, 2015.

The CSAPR requires Missouri to reduce its annual emissions of sulfur dioxide (SO_2) and nitrous oxides (NO_X) to help downwind states attain the 24-hour National Ambient Air Quality Standards ("NAAQS"). The CSAPR also requires Missouri to reduce ozone season emissions of NO_x to help downwind states attain the 8-hour NAAQS.

On September 7, 2016, the EPA revised the CSAPR ozone season NO_X program by finalizing an update to CSAPR for the 2008 ozone NAAQS, known as the CSAPR Update. The CSAPR Update ozone season NO_X program largely replaced the original CSAPR ozone season NO_X program starting May 1, 2017. The CSAPR Update will further reduce summertime NOx emissions from power plants in the eastern U.S.

The primary mechanism of CSAPR is a cap-and-trade program that allows a major source of NOx and/or SO_2 to trade excess allowances when its emissions of a specific pollutant fall below its cap for that pollutant. Originally, the EPA issued a model cap-and-trade program for power plants, which could have been used by states as the primary control mechanism under CAIR. This model, with modifications, had continued under CSAPR.

The requirements of CSAPR, CSAPR Update and the State of Missouri requirements were in effect for the entire Review Period from March 1, 2018 through August 31, 2019. Missouri was part of the twenty-two (22) states that the Update affected and per Staff's review, Empire units were in compliance with the CSAPR, CSAPR Update and Missouri limits for both SO_2 and NO_x.

Empire aggressively initiated control equipment on nearly every fuel-burning generating unit owned by Empire. There are some units, such as water injection in turbines and low-NO_x burners and over-fire air in boilers that control emissions by preventing their formation. Others, like selective catalytic reduction (SCR) systems for NO_x or oxidation catalysts for carbon monoxide, neutralize chemical pollutants after they have been generated. Still others, baghouses and electrostatic precipitators, for instance, capture emissions. Empire also converted the Asbury Power Plant to a lower sulfur coal from Wyoming along with conversion of boilers at Riverton from coal fuel to natural gas and eventually plans to retire both plants.[22] The CSAPR and CSAPR Update rules caused Empire to operate its SCR systems more robustly to further reduce NO_x emissions.

Empire currently uses both the Acid Rain Program ("ARP") and CSAPR programs for SO_2 and NO_x. They receive CSAPR and ARP allowance allocations. Currently one ton of SO_2 and NO_x emissions require one SO_2 or NO_x allowance to be retired under both programs. Empire receives its emission allowances from the EPA on a yearly basis. Empire's 2019 emission allowances by category for all plants are the following:

	2019 (in tons)
ARP SO2	11,742
CSAPR SO2	5,780
CSAPR NOx Annual	2,193
CSAPR NOx Ozone Season	1,365

These allowances have no cost and are booked at zero dollars. Gains from disposition of emission allowances are recorded to FERC account 254, and credited to FERC account 411. No gains were recognized in this Review Period as there were no sales of emissions.

The cost associated with the SO_2 premiums, net of discounts, and the revenues from gains on the sale of SO_2 emission allowances have been included in Empire's Fuel Adjustment Clause. During the Review Period, Empire showed one prior period adjustment in the General Ledger, but there were no sales of surplus CSAPR SO_2 or NO_x allowances.

Empire does not currently need to purchase emission allowances. Staff reviewed the work papers supporting the fuel and purchase power costs for load and off-system sales for

[22] See response to Data Request No. 0013.

accumulation periods 20, 21 and 22 and also the FAC monthly reports as required by 20 CSR 4240-20.090(5).

Based on its review of Empire's responses to Staff Data Request 0013, 0026, 0038, 0040, 0041, 0042, 0046 and 0056, Staff found that Empire has appropriate practices and processes in place to effectively manage its emission allowances to meet the annual requirements during this Review Period either through generation or purchase power contracts.

2. Summary of Cost Implications

If Empire imprudently used, purchased, sold or banked its SO_2 and NOx allowances, customer harm could result from an increase in Empire's FAC charges.

3. Conclusion

Staff observed no indication of imprudence associated with Empire's management of its emission allowances during the prudence review period.

4. Documents Reviewed

a. Empire's responses to Staff Data Request Nos. 0013, 0026, 0038, 0040, 0041, 0042, 0046 and 0056; and,

b. Work papers for Empire FAR filings in File Nos. ER-2019-0095, ER-2019-0301, and ER-2020-0093.

Staff Expert/Witness: Cynthia M Tandy

IV. RENEWABLE ENERGY CREDIT REVENUE

1. Description

The Missouri Renewable Energy Standard ("RES")[23] 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 that percentage over time to at least fifteen percent (15%) by 2021.[24] For this Review Period, the percentage for renewable energy resources requirement was 10%. Commission rule 20 CSR 4240-20.100 Electric Utility Renewable Energy Standard Requirements, which first

[23] Section 393.1025 RSMo. and Section 393.1030.1(3), RSMo. Supp. 2018.
[24] 20 CSR 4240-20.100(1)(R).

became effective September 30, 2010[25], 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). Renewable energy resources produce electrical energy and are wind; solar sources; dedicated crop grown for energy production; cellulosic agricultural residues; plant residues; methane from landfills, from agricultural operations or wastewater treatment; thermal sources; clean and untreated wood sources; hydropower with rating of ten (10) megawatts or less; fuel cells using hydrogen produced by one of the above named electrical energy sources, and other sources of energy that become available after November 4, 2008.

Renewable energy resources are certified as renewable by the Missouri Division of Energy. Once an energy resource is certified, it becomes a Renewable Energy Credit (REC), with one (1) REC representing one (1) megawatt-hour of electricity that has been generated from the renewable energy resource.[26] These credits can be sold and/or traded in the marketplace bundled with or without the energy that generated the REC.[27] Revenues from the sale of RECs are recovered through the FAC as an off-set to fuel costs. This is compliant to Empire's tariff sheet; the Original Sheet No. 17z, applicable to service provided on or after September 14, 2016, defines RECs as:

> REC = Renewable Energy Credit Revenue reflect in FERC Account 456 from the sale of Renewable Energy Credits that are not needed to meet the Renewable Energy Standard.

Empire receives renewable energy from three sources: ownership of the Ozark Beach Hydroelectric Project (Missouri based) and two purchased power agreements, one from Elk River Windfarm, LLC (Kansas based) and one from Cloud County Wind Farm, LLC (Meridian Way) (Kansas based). During the review period, Empire generated more renewable

[25] Amended effective November 30, 2015; Last amended effective October 30, 2019.
[26] 20 CSR 4240-20.100(1)(M).
[27] 20 CSR 4240-20.100(3)(I).

energy than what was required for the Missouri RES. Empire sold the excess RECs that generated $192,593[28] of REC revenue in FERC account 456 during the Review Period.

Empire began receiving wind energy from the Elk River Wind Farm in 2004. Additionally, Empire contracted to begin receiving wind energy from the Meridian Way Cloud County Wind Farm in 2007. In 2015, Empire began offering rebates for Missouri customers for qualifying solar installations in accordance with the Missouri RES and Empire's Solar Rebate Rider approved by the Commission.

In Empire's REC Guidelines[29] and its "2019 The Empire District Electric Company Renewable Energy Standard Compliance Plan", it is Staff's opinion that Empire provides clear and concise guidelines in regard to their Renewable Energy Credits. The Company appears to be following those guidelines and providing the best return to its customers by selling the excess credits.

As part of these contracts, Empire receives RECs, which are credits issued under the Center for Resource Solutions' "green-e" program that certifies 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. For the Review Period March 1, 2018 through August 31, 2019, Empire used $192,593 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.

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[28] ** **

[29] Data Request No. 0060.

4. Documents Reviewed

a. The Empire District Electric Company REC Management Guidelines;

b. Empire District Electric Company's 2019 Annual Renewable Energy Standard Compliance Plan;

c. Empire FAR work papers from File Nos. ER-2019-0095, ER-2019-0301 and ER-2020-0093;

d. Empire's responses to Staff Data Request Nos. 0050, 0060 and 0061; and,

e. Empire District Electric Company 2019-2021 RES Compliance Plan.

Staff Expert/Witness: Cynthia M. Tandy

V. 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, net base energy costs. Empire's primary source of short-term debt is its \$150 million commercial paper program which, prior to February 23, 2018, was supported by Empire's \$200 million bank credit facility. As of February 23, 2018, Empire's credit facility is supported by the \$500 million Liberty Utilities Company (parent company) bank credit facility. For the review period, all of Empire's needs for short-term debt were met via its commercial paper program. Each business day, Wells Fargo Securities, Empire's commercial paper dealer, provides indicative rates for Empire for tenors ranging from overnight out to three months. These indicative rates change with the general level of short-term interest rates in the U.S. economy. There were six months in this review period (September through December 2018, April 2019, and August 2019) that the Wells Fargo Securities were used for the short-term interest rate and the rest were based on Liberty Utilities short-term interest rates. Empire's short-term borrowing rate averaged for the review period was 2.49 percent (2.49%). The interest amount is component "I" of the FAC. The total accumulation interest amount for the Review Period of March 1, 2018 through August 31, 2019 was \$70,361.

2. Summary of Interest Implications

If 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.

4. Documents Reviewed

a. Empire's response to Staff Data Request No. 0052;

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 Wells Fargo and revolving credit report.

Staff Expert/Witness: Cynthia M Tandy

VI. UTILIZATION OF GENERATION CAPACITY

1. Description

Empire's generation consists of a mixture of Coal, Natural Gas/Oil, Wind (PPA), and Hydro generating stations as indicated in Confidential Attachment A.[30] Attachment A contains information such as the fuel type, accredited capacity, ownership, and expected retirement for Empire's fleet. Table 8 contains the MWh used by each generating unit and the percentage associated with that unit's overall MWh production. Table 9 contains the net-generation broken down by unit type for Empire's fleet. These tables illustrate how Empire's generation fleet is being called upon by SPP in actual operation throughout the Review Period from March 1, 2018 through August 31, 2019:

continued on next page

[30] Empire's Response to Staff Data Request No. 0016.

Table 8 – Confidential[31]

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Table 9 – Confidential[32]

Unit Type	Net Generation (MWh)	Percentage of Total Net Generation
Coal	** ________ **	** ____ **
Combined Cycle	** ________ **	** ____ **
Combustion Turbine	** ____ **	** ____ **
Total Natural Gas	** ________ **	** ____ **
Hydro/Pump Storage	** ____ **	** ____ **
Total MWh	** ________ **	** ____ **

Tables 8 and 9 Exclude wind PPA MWh (Elk River and Meridian Way)

[31] Empire's Response to Staff Data Request No. 0014.
[32] *Ibid.*

2. Summary of Cost Implications

Empire’s electricity generating units are dispatched in SPP’s day-ahead market as a function of each generating unit’s offered cost per kWh relative to the SPP Locational Marginal Price (“LMP”) at the unit node and subject to the unit’s operating characteristics and commitment status as provided by Empire. Empire's role in the dispatch decisions is to provide SPP with the necessary economic and operating parameters for each generation unit for inclusion in SPP's Security Constrained Economic Dispatch (SCED) algorithm. The algorithm is capable of clearing, dispatching, and pricing Energy, Operating Reserve, Up Ramp Capability, and Down Ramp Capability in a simultaneously co-optimized basis that minimizes Production Costs and Operating Reserve Costs while enforcing multiple security constraints. In order to perform proper optimization of commitment and dispatch calculations, SPP requires production cost data for generators to be provided in a three-part offer format: startup cost, no-load cost, and incremental energy cost.

Units which are self-committed in normal operation, may be offered into the SPP market as economic when returning from an outage, (and before the unit has been restarted) by the Trade Floor[33], based upon its knowledge and experience, and upon review of next day market conditions. By doing so, the SPP day-ahead market process is used to determine when it is economical to return the unit to service. This mitigates the risk of restarting the unit in a non-profitable period without incurring additional stress on the units such as that which would be expected to occur with unit cycling (as the unit was already off line for the outage).[34]

The units are must run during periods of expected profitable operation, and allowed to cycle off as a function of the SPP day-ahead market when market prices are expected to be below incremental operating costs for an extended period. Given that the SPP markets do not optimize unit operations beyond the next day in their day-ahead algorithms, not “must running” each unit in actual operations would result in frequent cycling of the unit, in excess of those levels identified by plant operating management as reasonable for a facility of its age. The methodology employed by the Trade Floor balances additional costs concerns with frequent cycling and the economic impact of operating the unit in low price periods.

[33] The Trade Floor is Empires department that is responsible for the day-to-day trading of energy and other services into the market and other third parties.
[34] Empire’s Response to Staff Data Request No. 0062.

3. Conclusion

Staff did not observe any evidence of imprudent utilization of generation resources during this prudence review.

4. Documents Reviewed

a. Empire's responses to Staff Data Request Nos. 0004, 0005, 0006, 0014, 0016 and 0062.

Staff Expert/Witness: Jordan Hull

VII. HEAT RATES

1. Description

Heat rates of generating units are an indicator of each unit's performance. A heat rate is a calculation of total volume of fuel burned for electric generation multiplied by the average heat content of that volume of fuel for a given time period divided by the total net generation of electricity in kilowatt hours (kWh) for that same time period.

2. Summary of Cost Implications

Heat rates are inversely related to the efficiency of the generating unit. Increasing heat rates of specific units over time may indicate that a specific unit's efficiency is declining. Heat rates can vary greatly depending on operating conditions including but not limited to load, hours of operation, shut downs and startups, unit outages, derates, and weather conditions. Therefore, a good indication of unit performance for frequently used units is an analysis of the trend of heat rates over time. A permanent increase in monthly heat rates is commonly the result of a decrease in a generating unit's efficiency. This typically occurs when additional emissions reduction equipment is added to the exhaust of the generating unit. Continued utilization of units with sustained elevated heat rates could result in Empire incurring higher fuel costs per unit of electricity generated than it would otherwise have incurred. If Empire was imprudent in response to the ongoing trend of a unit's heat rate, ratepayer harm could result from an increase in the fuel costs that are collected through Empire's FAC charges.

*** ____

____

[35].

***

3. Conclusion

In reviewing the monthly heat rates of the Empire's generating units, Staff found no indication that Empire acted imprudently during the review period.

4. Documents Reviewed

a. Empire's responses to Staff Data Request No. 0020; and,

b. Heat rate test data submitted by Empire in compliance with Rule 20 CSR 4240-3.190.

Staff Expert/Witness: Jordan Hull

VIII. PLANT OUTAGES

1. Description

Outages occurring at any of the generating units can have an impact on how much Empire pays for fuel and purchased power and could result in Empire paying more for fuel and purchased power cost than is necessary. Empire is required by the North American Electric Reliability Corporation ("NERC") to submit data for every outage in accordance with Generating Availability Data System ("GADS") data reporting instructions effective January, 2012. Generating unit outages generally can be classified as scheduled outages, forced outages, or partial outages (derating).

Staff examined the outages of Empire's generation fleet and the timing of these outages to determine if the outages were imprudently taken. Any planned outage during peak load demand times or a period of high replacement energy prices has the potential result of Empire paying more for fuel and purchased power costs than it would have paid if the outage was

[35] Turbine Blade Fouling- Fouling of compressor blades is an important mechanism leading to performance deterioration in turbines over time. Fouling is caused by the adherence of particles to airfoils and annulus surfaces. Particles that cause fouling are typically smaller than 2 to 10 microns. Smoke, oil mists, carbon, and sea salts are common examples.

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 prices. Empire has little or no control over the timing of maintenance or forced outages of the generating stations it owns and operates when such outages are the result of unforeseen events; therefore, these types of outages are not included as a part of this prudence review.

2. Summary of Cost Implications

An imprudent outage could result in Empire purchasing expensive spot market energy or running its more expensive units to meet demand and could result in customer harm through an increase in customer FAC charges.

3. Conclusion

Staff did not observe any evidence of imprudent outages during the time period examined in this prudence review.

4. Documents Reviewed

a. Liberty- Empires responses to Staff Data Requests Nos. 0004, 0005, 0006 and 0055; and,

b. Monthly Outage data submitted by Empire in compliance with Rule 20 CSR 4240-3.190.

Staff Expert/Witness: Jordan Hull

ATTACHMENT A

HAS BEEN DEEMED

CONFIDENTIAL

IN ITS ENTIRETY

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Eighth Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2020-0059

AFFIDAVIT OF DANA E. EAVES

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW DANA E. EAVES and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing, *Staff Report - Eighth Prudence Review*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Dana E. Eaves

DANA E. EAVES

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 27th day of February 2020.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Eighth Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2020-0059

AFFIDAVIT OF JORDAN HULL

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW JORDAN HULL and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing, *Staff Report - Eighth Prudence Review*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Jordan Hull

JORDAN HULL

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 27th day of February 2020.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Eighth Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2020-0059

AFFIDAVIT OF BROOKE MASTROGIANNIS

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW BROOKE MASTROGIANNIS and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing, *Staff Report - Eighth Prudence Review*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Brooke Mastrogiannis

BROOKE MASTROGIANNIS

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 27th day of February 2020.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Eighth Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2020-0059

AFFIDAVIT OF CYNTHIA M. TANDY

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW CYNTHIA M. TANDY and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing, *Staff Report - Eighth Prudence Review*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

CYNTHIA M. TANDY

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 27th day of February 2020.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Eighth Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2020-0059

AFFIDAVIT OF LISA WILDHABER

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW LISA WILDHABER and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing, *Staff Report - Eighth Prudence Review*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Lisa Wildhaber

LISA WILDHABER

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 27th day of February 2020.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin

Notary Public