

MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

**TENTH PRUDENCE REVIEW OF COSTS
RELATED TO THE FUEL ADJUSTMENT CLAUSE
FOR THE ELECTRIC OPERATIONS
OF
THE EMPIRE DISTRICT ELECTRIC COMPANY,
d/b/a LIBERTY (EMPIRE)**

FILE NO. EO-2023-0087

March 1, 2021 through August 31, 2022

*Jefferson City, Missouri
February 2023*

**** 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, d/b/a Liberty (Empire) (“Liberty (Empire)” or “Company”) in the Company’s 2008 general rate case (Case No. ER-2008-0093). Since then, the Commission has approved continuation of Liberty (Empire)’s FAC with modifications in its orders in Liberty (Empire)’s subsequent general rate cases, Case Nos. ER-2010-0130, ER-2011-0004, ER-2012-0345, ER-2014-0351, ER-2016-0023, ER-2019-0374, and ER-2021-0312.

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 tenth prudence review of Liberty (Empire)’s FAC for the period March 1, 2021 through August 31, 2022, Staff analyzed items affecting Liberty (Empire)’s total fuel costs, purchased power costs, net emission costs, transmission costs, off-system sales revenues, and interest for the twenty-sixth, twenty-seventh, and twenty-eighth six-month accumulation periods of Liberty (Empire)’s FAC. Staff’s previous Liberty (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
Eighth	EO-2020-0059	March 1, 2018 through August 31, 2019
Ninth	EO-2021-0281	September 1, 2019 through February 28, 2021

1 In evaluating prudence, Staff reviews whether a reasonable person making the same
2 decision would find both the information the decision-maker relied on and the process the
3 decision-maker employed were reasonable based on the circumstances at the time the
4 decision was made, *i.e.*, without the benefit of hindsight. If either the information relied upon
5 or the decision-making process employed was imprudent, then Staff examines whether the
6 imprudent decision caused any harm to customers. Only if an imprudent decision resulted in
7 harm to customers, will Staff recommend a disallowance. However, if an imprudent decision
8 did not result in harm to the Company’s customers, then Staff may further evaluate the
9 decision-making process, and may recommend changes to the Company’s business practice
10 going forward.

11 Staff analyzed a variety of items in examining whether Liberty (Empire) prudently
12 incurred the fuel and purchased power costs associated with its FAC tariff sheets. Based on its
13 review, Staff identified no incidence or evidence of imprudence by Liberty (Empire) in the
14 items Staff examined for the period of March 1, 2021 through August 31, 2022. However, Staff
15 addresses its concern with the ** [REDACTED] ** plant outage in Section VIII. (3).

16 Table 2 identifies Liberty (Empire)’s Commission-approved FAC tariff sheets which
17 were applicable for service provided by Liberty (Empire) to its customers during the period of
18 March 1, 2021 through August 31, 2022 including the tariff sheets applicable to calculation of
19 the Fuel Adjustment Rates¹ (“FAR”) for the twenty-sixth, twenty-seventh, and twenty-eighth
20 accumulation period (“AP”)² covered by the Fuel and Purchase Power Adjustment Clause Rider
21 FAC for the same period:

22 **Table 2**

March 1, 2021 through May 31, 2022	June 1, 2022 through August 31, 2022
Original Sheet No. 17i	1st Revised Sheet No. 17i
Original Sheet No. 17j	1st Revised Sheet No. 17j
Original Sheet No. 17k	1st Revised Sheet No. 17k
Original Sheet No. 17l	1st Revised Sheet No. 17l
Original Sheet No. 17m	1st Revised Sheet No. 17m
Original Sheet No. 17n	1st Revised Sheet No. 17n
Original Sheet No. 17o	1st Revised Sheet No. 17o
Original Sheet No. 17p	1st Revised Sheet No. 17p
3rd Revised Sheet No. 17q	5th Revised Sheet No. 17q
4th Revised Sheet No. 17q	

23
24 *Staff Expert: Brooke Mastrogiannis*

¹ Fuel Adjustment Rate Filings, File Nos. ER-2022-0095, ER-2022-0274 and ER-2023-0122.

² Accumulation periods: AP 26; March 2021 – August 2021, AP 27; September 2021 – February 2022, and AP 28; March 2022 – August 2022.

1 **II. INTRODUCTION**

2 **A. Prudence Standard**

3 *In State ex rel. Associated Natural Gas Co. v. Public Service Com'n of State of Mo.*, the
4 Western District Court of Appeals stated the Commission defined its prudence standard
5 as follows:

6 [A] utility's costs are presumed to be prudently incurred....
7 However, the presumption does not survive “a showing of
8 inefficiency or improvidence... [W]here some other participant in
9 the proceeding creates a serious doubt as to the prudence of
10 expenditure, then the applicant has the burden of dispelling these
11 doubts and proving the questioned expenditure to have been
12 prudent.

13
14 In the same case, the PSC noted that this test of prudence
15 should not be based upon hindsight, but upon a reasonableness
16 standard: [T]he company's conduct should be judged by asking
17 whether the conduct was reasonable at the time, under all the
18 circumstances, considering that the company had to solve its
19 problem prospectively rather than in reliance on hindsight. In effect,
20 our responsibility is to determine how reasonable people would have
21 performed the tasks that confronted the company.

22 954 S.W.2d 520, 528-29 (Mo. App. W.D., 1997) (citations omitted).

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

28 *Staff Expert: Brooke Mastrogiannis*

29 **B. General Description of Liberty-Empire’s FAC**

30 Liberty (Empire)’s FAC requires that it accumulate its Total Energy Cost (“TEC”)³;
31 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) minus renewable energy credits (REC) as defined on Liberty (Empire)’s 1st Revised Sheet No. 17o (For service on and after June 1, 2022).

1 off-system sales revenue and renewable energy credit revenue during the six-month
2 accumulation periods. Each six-month accumulation period is followed by a six-month
3 recovery period (“RP”)⁴ during which ninety-five percent (95%) of the over- or under-recovery
4 of TEC during the previous six-month accumulation period relative to the Base Energy Cost
5 (“B”) amount⁵ is returned to or collected from customers as part of a decrease or an increase of
6 the FAC Fuel and Purchased Power Adjustment (“FPA”) per kWh rate, which is the FAR
7 for each accumulation period. Because the total amount charged through the FAR rarely,
8 if ever, will exactly match the required offset, Liberty (Empire)’s FAC is designed to true-up⁶
9 the difference between the revenues billed and the revenues authorized for collection during
10 recovery periods including interest at Liberty (Empire)’s short-term interest rate. Any
11 disallowance the Commission orders as a result of a FAC prudence review shall include interest
12 at Liberty (Empire)’s short-term interest rate and will be accounted for as an adjustment⁷ item
13 when calculating the FPA for a future recovery period.

14 *Staff Expert: Brooke Mastrogiannis*

15 **C. Staff Review and Reconciliation of FERC Accounts**

16 Staff has reviewed all Federal Energy Regulatory Commission (“FERC”) accounts
17 related to Liberty (Empire)’s FAC for this review period. FERC accounts subject for this FAC
18 review are 411 Gains and Losses from Disposition of Allowances, 447 Sales for Resale,
19 456 Other Electric Revenues, 501 Fuel, 506 and 548 Air Quality Control Systems (“AQCS”),
20 509 Allowances, 547 Fuel, 555 Purchased Power, and 565 Transmission by Others.

21 Staff created independent work papers that are based on three separate sources provided
22 by Liberty (Empire), as further explained below. These work papers were created to review and
23 reconcile the FERC Accounts in Table 3 below and included in the calculation of the
24 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 Liberty (Empire)’s 1st Revised Sheet No. 17i (For service on and after June 1, 2022).

⁶ True-up of FAC is defined on Liberty (Empire)’s 1st Revised Sheet No. 17o and 17p (For service on and after June 1, 2022).

⁷ See line item 10 on Liberty (Empire)’s 4th Revised Sheet No. 17q (For service on and after June 1, 2022).

1 Liberty (Empire) provided its monthly General Ledger to Staff through its response to
2 Staff Data Request No. 0026, which provided the detail of all accounting transactions for the
3 expenses and revenues encompassed in the TEC in Table 4. Staff sorted the General Ledger by
4 each account reflected in the FERC Accounts listed in Table 3:

5 **Table 3**

Account Name	FERC Account Number
Fuel used for Steam	501
AQCS Consumables	506 and 548
Fuel/Natural Gas	547
Short-Term Purchased Power Costs	555
Long-Term Purchased Power Contracts	555
Transmission Expense	565
Net Emission Allowances	411 and 509
REC Revenue	456
Off System Sales Revenue	447

6
7 Staff sorted these transactions in ascending order by the corresponding Minor account
8 number assigned to each Major account number listed in Table 3.

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

15 *Staff Expert: Brooke Mastrogiannis*

16 **D. Staff Regulatory Accounting Summary**

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

23 *Staff Expert: Brooke Mastrogiannis*

1 **E. Participation with Regional Transmission Organizations**

2 As part of this review, Staff reviewed Liberty (Empire)'s participation in Regional
3 Transmission Organizations ("RTOs"). Liberty (Empire) participates in Southwest Power
4 Pool⁸ ("SPP").⁹ Staff reviewed a wide variety of Liberty (Empire)'s practices and procedures
5 related to SPP. Liberty (Empire) directly participates in SPP's Day Ahead Market and
6 Real-Time Market. At a high level, these markets allow Liberty (Empire) to offer-in and - if
7 cleared in the market - to sell the energy it generates to SPP. In turn, Liberty (Empire) must
8 purchase back from SPP the energy needed to serve its native load. The practices and
9 procedures related to these transactions are highly technical and complex. Liberty (Empire) was
10 required to develop specialized front and back office¹⁰ practices and procedures to manage the
11 large amounts of data associated with its market participation. Liberty (Empire) utilizes
12 specialized software¹¹ to manage key components of the bid-to-settlement trading cycle and
13 analysis modes for the Day-Ahead Market and Real-time Market bidding. These processes and
14 software include robust capabilities for settling and disputing a wide range of market
15 transactions. Liberty (Empire) uses this software to verify and shadow complex RTO charge
16 codes and invoices and to customize contract settlements.

17 As a result of Staff's understanding and experience with these practices and processes,
18 Staff found that Liberty (Empire) is managing its participation in the market effectively and
19 maintains appropriate procedures and processes to account for the financial and operational
20 results of participation in the RTO. During the Review Period, there were no instances of
21 recovery for penalties associated with RTO services or refunds or credits.

22 *Staff Expert: Cynthia M. Tandy*

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 Liberty (Empire) also has minority ownership in Plum Point plant, which is in the MISO RTO and decisions on production are made by the majority owners.

¹⁰ 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.

¹¹ Adapt2 Solution was implemented in 2018 and replaced the previous software PCI.

III. TOTAL ENERGY COSTS

The Liberty (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 4¹² is a breakdown of Liberty (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, 2021 through August 31, 2022:

Table 4

Component		Summary
Generation	(FC)	\$ 283,320,049
Fuel - AQCS	(FC)	\$ 1,595,695
Native Load Costs	(PP)	\$ 104,125,357
Transmission Costs	(PP)	\$ 7,340,316
Net Emission Allowances	(E)	\$ (10)
EMPIRE Sales	(OSSR)	\$ (124,549,422)
Renewable Energy Credit Revenues	(REC)	\$ (907,221)
Total Energy Cost	(TEC)	\$ 270,924,765

Staff Expert: Brooke Mastrogiannis

A. Fuel Risk Management Policy

1. Description

** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹² Table 4 reflects Total Energy Costs for this review period and does not reflect the removal of extraordinary costs deferred from Accumulation Period 26 and Accumulation Period 27, for SPP resettlements. This was a total of \$15,011,877 was removed from Liberty (Empire)’s FAC and included in the Securitization Case No. EO-2022-0040. Every table hereafter will include the total energy costs and will not reflect the removal of extraordinary costs deferred.

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED] ¹³ **
6 *** [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED] ¹⁴
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED]
26 [REDACTED]
27 [REDACTED]

¹³ Data Request Response 0070 in EO-2021-0281.
¹⁴ Data Request Response 0070.2 and 0070.5 in EO-2021-0281.

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED] ¹⁵
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED] ¹⁶ [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED] ¹⁷
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED] ***

¹⁵ Data Request Response 0069.

¹⁶ Data Request Response 0070.2 in EO-2021-0281.

¹⁷ Data Request Response 0069.

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Table 5 - Highly Confidential

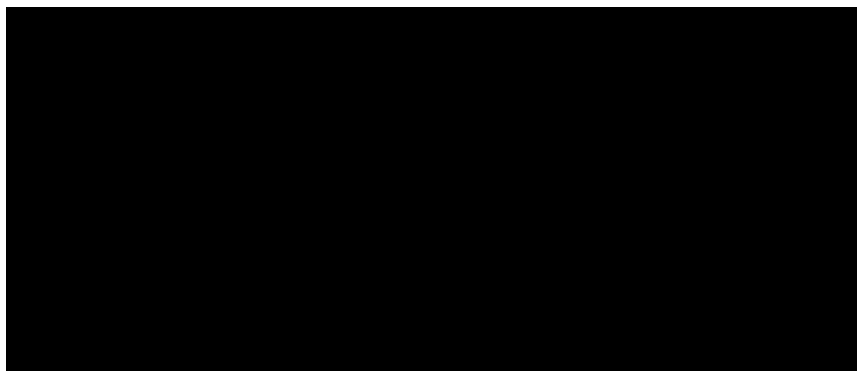

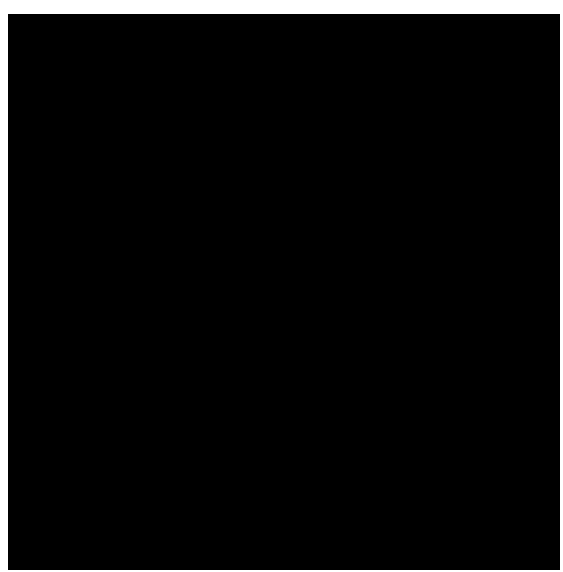


Table 6 - Highly Confidential



*** [Redacted line]

[Redacted line]

[Redacted line]

[Redacted line]

[Redacted line]

[Redacted line]

[Redacted line]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]^{18.} [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED] ***

17 Staff has reviewed the new policy along with extensive data provided by Liberty
18 (Empire) including prices paid per DTh for both the fixed physical purchases and monthly index
19 purchases as compared to the Southern Star Central Gas Day Daily (“SSC-GDD”). Staff points
20 out that market conditions and exposures have changed significantly since Storm Uri, and
21 Liberty (Empire) experienced periods of decreased liquidity of local natural gas supply during
22 perceived high need seasons. This caused prices for the daily/spot purchases to have increased
23 significantly, along with Liberty (Empire) being unable at times to enter into counterparty fixed
24 physical purchases or monthly index purchases. Staff is still of the opinion that Liberty
25 (Empire)’s new RMP helps mitigate risk and volatility for Liberty (Empire)’s natural gas
26 requirements, and the market exposures experienced during this review period were outside the
27 control of Liberty (Empire). Hedging is a safeguard measure to mitigate risk. The primary risk
28 here is market volatility of natural gas. However, it is not cost free and in general it elevates the
29 variable cost of operation in the defined period of time. This is done as a risk mitigation measure
30 to avoid spot market pricing exposure and provide budget consistency for forecasting purposes.

¹⁸ A Dekatherm (“DTh”) is equivalent to an MMBtu.

1 **2. Summary of Cost Implications**

2 If Liberty (Empire) does not manage its risk management strategies prudently, fuel costs
3 that are collected from customers through Liberty (Empire)'s FAC could be significantly
4 increased.

5 **3. Conclusion**

6 Staff did a thorough review of Liberty (Empire)'s risk management strategies and the
7 provided financial results of its natural gas hedging associated with Liberty (Empire)'s past
8 policy and practices. Staff reviewed the changes Liberty (Empire) made to its processes and
9 procedures related to natural gas purchases, specifically transitioning from financial hedging
10 instruments to fixed physical purchases and monthly index physical purchases. Although
11 market conditions could change, which could result in an updated RMP, Staff did not find any
12 prudence issues with Liberty (Empire)'s new policy and practices during this review period.

13 **4. Documents Reviewed**

- 14 a. Liberty (Empire)'s response to Staff Data Request Nos. 0070, 0070.2, and
15 0070.5 in Case No. EO-2021-0281;
16 b. Liberty (Empire)'s response to Staff Data Request Nos. 0027, 0030, 0031, 0045,
17 0047, 0069, 0069.1, and 0079; and,
18 c. Phone conversations with Aaron Doll.

19 *Staff Expert: Brooke Mastrogiannis and Krishna L. Poudel, PhD*

20 **B. Fuel Costs (Coal Plants)**

21 **1. Description**

22 Liberty (Empire) is required to account for fuel costs contained within FERC¹⁹
23 Account 501 used in the production of steam for the generation of electricity per its
24 Fuel Adjustment Rider Tariff. Staff reviewed Liberty (Empire)'s fuel costs associated with
25 Liberty (Empire)'s generation facilities, which are comprised of coal and natural gas generation
26 units. Staff has summarized these fuel costs in Confidential Table 7:

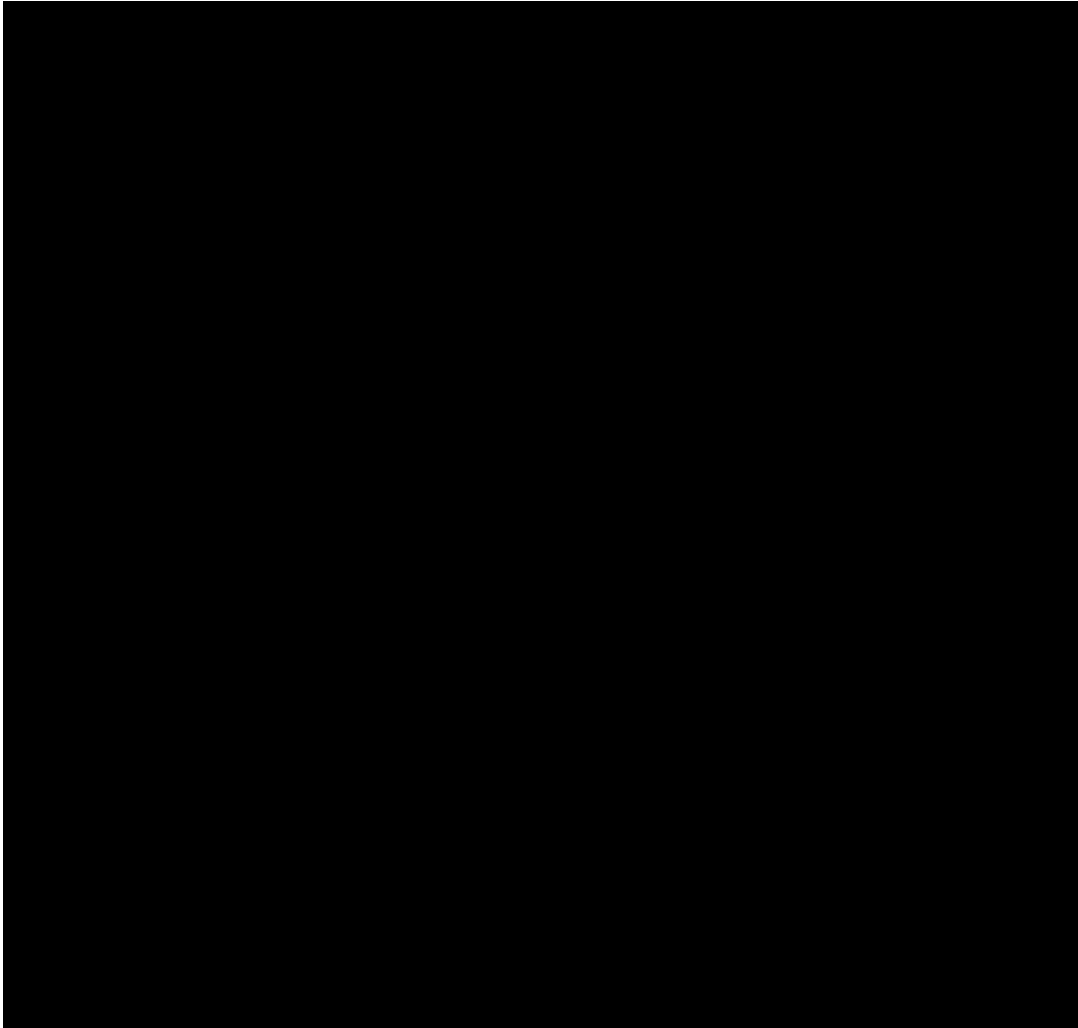
¹⁹ Federal Energy Regulatory Commission, Uniform System of Accounts ("FERC Account").

Table 7 - Confidential

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5 For the review period, ** [REDACTED] ** or 12.23% of Liberty (Empire)'s total fuel
6 costs were associated with the generation of electricity from its coal-fired generation facilities.
7 During the review period Liberty (Empire) generated 27.8% of its electricity with its coal-fired
8 generation facilities and burned ** [REDACTED] ** tons of coal which translates to an average price
9 of ** [REDACTED] ** per ton including transportation/freight and other rail charges. Staff reviews
10 public sources in an effort to determine the reasonableness of prices paid by Liberty (Empire)
11 for its coal supply. Staff monitors U.S. Energy Information Administration ("EIA") and

1 CME Group for past and future market prices, supply forecasts and other market trends.²⁰
2 Staff finds that the prices paid by Liberty (Empire) appear to be consistent with market prices
3 in effect during the review period.

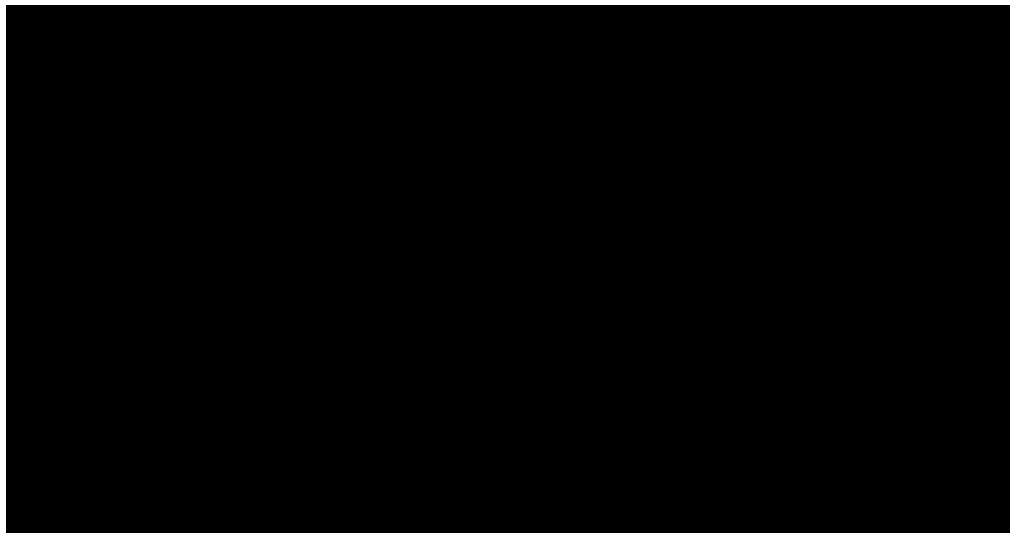
4 Also contained within FERC Account 501 and reviewed during this review is fuel oil
5 costs. The total fuel oil costs for the review period was ** [REDACTED] **. The fuel oil burned
6 only accounts for about 0.22% or ** [REDACTED] ** kWh of total kWhs generated by Liberty
7 (Empire). Fuel oil is used as a support fuel (startup and/or burn stabilization) in the production
8 of steam with the coal and natural gas fired generation facilities.

9 Liberty (Empire) maintains ** [REDACTED] ** short and long-term coal purchase contracts, and
10 ** [REDACTED] ** rail transportation contract. The counterparties for the contracts are shown below in

11 Table 8:

12 **Table 8 – Confidential**

13 **



14 **

15
16 Staff reviewed Liberty (Empire)'s 2019 Energy Risk Management Policy that was in
17 effect during the review period. Staff has also reviewed Liberty (Empire)'s Solid Fuel
18 Procurement Guidelines and concludes that Liberty (Empire) has complied with its stated
19 objectives.

²⁰ EIA Quarterly Coal Report, EIA Average Price of U.S. Coal, EIA Coal Markets 2021, CME Group Coal Futures Quotes.

1 **2. Summary of Cost Implications**

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

5 **3. Conclusion**

6 Staff identified no imprudence by Liberty (Empire) in its purchase of coal and
7 transportation contained in FERC Account 501 for the prudence review period.

8 **4. Documents Reviewed**

9 a. Liberty (Empire)'s response to Staff Data Request Nos. 0001, 0002, 0007, 0008,
10 0009, 0015, 0022, 0023, 0024, 0026, 0029, 0032, 0033, 0034, 0035, 0036, 0037, 0039, 0043,
11 0045, 0053, 0067, and 0067.1; and,

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

13 *Staff Expert: Brooke Mastrogiannis*

14 **C. Air Quality Control Systems (“AQCS”) Chemicals**

15 **1. Description**

16 For the review period, ** [REDACTED] **, or .64%, of Liberty (Empire)'s total fuel costs
17 is associated with FERC Account 506 and 548. This account includes expenses associated with
18 AQCS materials used to reduce emissions as a result of burning fossil fuels in Liberty
19 (Empire)'s generation facilities.

20 **2. Summary of Cost Implications**

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

24 **3. Conclusion**

25 Staff found no evidence of imprudence associated with Liberty (Empire)'s AQCS
26 purchases for the prudence review period.

1 **4. Documents Reviewed**

2 a. Liberty (Empire)'s response to Staff Data Request Nos. 0001, 0002, 0026,
3 0026.1, 0053, 0071, 0071.1, and 0076.

4 *Staff Expert: Brooke Mastrogiannis*

5 **D. Fuel Costs (Natural Gas Plants)**

6 **1. Description**

7 Liberty (Empire) accounts for the natural gas and natural gas transportation
8 capacity costs used in its generation facilities in FERC Account 547. For the review period,
9 ** [REDACTED] **, or 84.95%, of Liberty (Empire)'s total fuel costs is associated with FERC
10 Account 547. The total natural gas cost recorded in FERC Account 547 is comprised of several
11 components. The natural gas commodity cost is ** [REDACTED] ** with transportation costs
12 of ** [REDACTED] **, transportation credits of ** [REDACTED] ** and natural gas hedging
13 expense (gains)/losses²¹ of ** [REDACTED] **. Page 8, Section III.A of this report addresses
14 the change to Liberty (Empire)'s hedging policies.

15 Liberty (Empire)'s natural gas generation facilities are combustion turbine generators
16 ("CTGs") and combined cycle ("CC") units (*see* Highly Confidential Table 10).
17 Liberty (Empire)'s CTGs are used as peaking units which means they are used generally when
18 demand for electricity increases to a point baseload units cannot meet that demand. Liberty
19 (Empire)'s Stateline CC by nature is more efficient than the CTG units in Liberty (Empire)'s
20 generation fleet, and, therefore, less expensive to operate. During the review period, Liberty
21 (Empire)'s CTGs consumed ** [REDACTED] ** million cubic feet of natural gas which translates
22 to an average of ** [REDACTED] ** per MMBtu.

23 Southwest Power Pool (SPP) dispatches these units when needed in the market.
24 However, Liberty (Empire) must still ensure these CTG's have adequate fuel to operate and are
25 maintained properly and reliably for when they are called upon by SPP.

26 The following table identifies Liberty (Empire)'s peaking generating units that burn
27 natural gas:

²¹ Losses occur when actual market prices are lower than the futures and swaps purchases, and gains occur when the actual market prices are higher than the futures and swaps purchases.

Table 9

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

2. Summary of Cost Implications

If Staff determined that Liberty (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 Liberty (Empire)'s natural gas commodity purchases for the prudence review period. See Section III.A for a discussion of Liberty (Empire)'s hedging practices.

4. Documents Reviewed

a. Liberty (Empire)'s response to Staff Data Request Nos. 0001, 0002, 0007, 0016, 0026, 0027, 0028, 0028.1, 0030, 0031, 0039, 0045, 0053, 0067, 0067.1, 0069, and 0069.1; and,

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

Staff Expert: Brooke Mastrogiannis

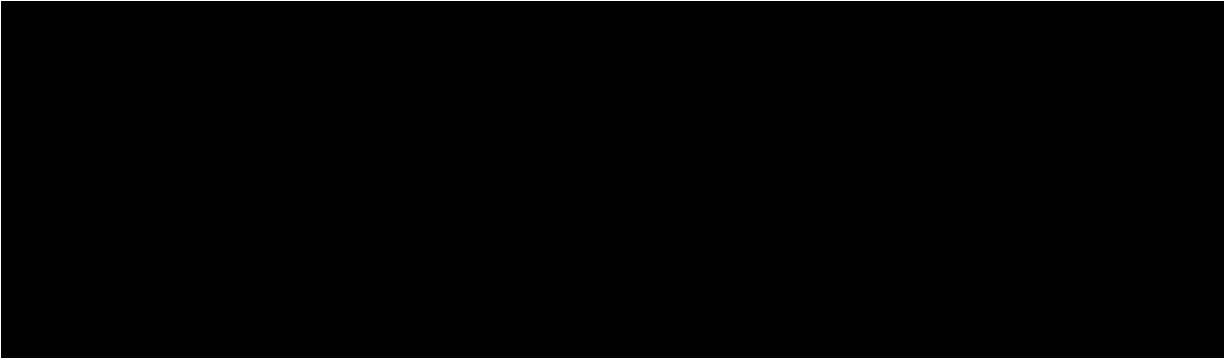
E. FERC Account 555 - Purchased Power – Long Term Variable Contracts

1. Description

For the period March 1, 2021, through August 31, 2022, Staff reviewed all long term contracts and the Renewable Resource Energy Purchase Power Agreement (“PPA”) by and between Elk River Windfarm, LLC (“Elk River PPA”) and Liberty (Empire), and Cloud County Wind Farm, LLC (“Cloud County PPA”)²² and Liberty (Empire). Staff also reviewed for the review period the purchased power agreement between Plum Point Energy Associates, LLC (“Plum Point PPA”) and Liberty (Empire). The details associated with each PPA is provided in the following Highly Confidential Table 10:

²² Liberty (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.

Table 10 – Highly Confidential



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.

However, given that the Elk River PPA and the Cloud County PPA are creating ** [redacted] ** and additional purchased power wind contracts could put ratepayers at greater risk, Staff suggests this risk could be addressed more

1 reasonably through risk mitigation or risk sharing through the FAC in Liberty (Empire)'s next
2 general rate case.

3 **2. Summary of Cost Implication**

4 If Liberty (Empire) was imprudent by purchasing energy to meet its demand at a cost
5 that exceeded Liberty (Empire)'s cost to generate that energy itself, at the time Liberty (Empire)
6 entered into those PPAs, customer harm could result from that imprudence through an increase
7 in FAC charges. Since the time these contracts were entered into, SPP has developed a complete
8 integrated market place which has positively influenced market energy prices, and additional
9 low cost wind resources have entered the market.

10 **3. Conclusion**

11 Staff has identified no evidence of imprudence related to these long-term PPAs and is
12 not recommending a disallowance related to this ** [REDACTED] ** issue at this time. However as
13 mentioned above, Staff will continue to monitor these long-term PPAs and reserves the right to
14 raise this issue in the next general rate case.

15 **4. Documents Reviewed**

- 16 a. Liberty (Empire)'s responses to Staff Data Request Nos. 0001, 0022, 0023,
17 0026, 0044, 0062, 0063, 0066, 0066.1, 0072, and 0072.1;
- 18 b. Testimony of William L. Gipson, Case No. ER-2008-0093;
- 19 c. Work papers for Liberty (Empire) FAR filings in File Nos. ER-2022-0095,
20 ER-2022-0274, and ER-2023-0122; and,
- 21 d. Liberty (Empire) FAC Monthly Reports.

22 *Staff Expert: Cynthia M. Tandy*

23 **F. FERC Account 447 – Off-System Sales Revenue (“OSSR”) and** 24 **FERC Account 555 - Purchased Power Costs (“PP”)**

25 **1. Description**

26 For the period March 1, 2021, through August 31, 2022, Liberty (Empire) received
27 ** [REDACTED] ** in total OSSR. In Case No. ER-2021-0312 the Commission in its *Order*
28 *Approving Stipulations and Agreements* on March 9, 2022, approved the *Fourth Partial*
29 *Stipulation and Agreement (unopposed), with Ex. A (FAC Accounts) and Ex. B (FAC Tariff*

1 *Sheets*), with an effective date of June 1, 2022. Within this Exhibit A was a list of updated
2 subaccounts to be included in the FAC, these are accounts 447849 (SPP IM Revenue – Wind),
3 447851 (MJMEUC Revenue) and 447861 (MJMEUC Revenue-FAC). This increased the total
4 OSSR by over \$25.7 million from June through August 2022.

5 Liberty (Empire)’s Day-Ahead strategy consists of all generation units being offered to
6 the market on a daily basis unless the unit is on an outage. Combined Interest Resources are
7 offered in by the majority owner. Liberty (Empire) owns a minority share in Iatan and Iatan 2,
8 so since they are not the majority owner, Liberty (Empire) does not make the decision of the
9 offer status for Iatan or Iatan 2.

10 Liberty (Empire) also only owns a minority share of Plum Point. Plum Point is located
11 in MISO, not SPP, and Liberty (Empire) is the only owner of Plum Point in SPP. The majority
12 owner makes the decisions regarding unit operation²³.

13 Liberty (Empire) is the majority owner of State Line Combined Cycle. Therefore,
14 Liberty (Empire) does make the decisions regarding the offer status into the SPP IM for State
15 Line Combined Cycle.

16 *** [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED] ***²⁴

21 Since Liberty (Empire) participates in the SPP IM, it offers in all of its available
22 generation, and Liberty (Empire) is then paid for the generation it produces based on a
23 locational marginal price. Thus, Liberty (Empire) sells energy from its generation resources
24 into the market and purchases energy from the market to serve native load. Liberty (Empire)
25 records those PP transactions in FERC Account 555, and for the review period the PP costs
26 were ** [REDACTED] **. There were no new RFPs or agreements entered into by
27 Liberty (Empire) for capacity sales or purchases during the review period. Liberty (Empire)’s
28 OSSRs and PP once netted for the review period showed OSSR to be ** [REDACTED] **.

²³ Staff Data Request No. 0070.
²⁴ Staff Data Request No. 0070.

1 **2. Summary of Cost Implications**

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

6 **3. Conclusion**

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

9 **4. Documents Reviewed**

10 a. Liberty (Empire)'s response to Staff Data Request Nos. 0020, 0021, 0022, 0023,
11 0026, 0044, 0056, 0062, 0063, 0066, 0070, and 0072;

12 b. Work papers for Liberty (Empire) FAR filings in File Nos. ER-2022-0095,
13 ER-2022-0274, and ER-2023-0122;

14 c. Liberty (Empire)'s FAC Monthly Reports; and,

15 d. OPC Data Requests 8000, 8000.1 and 8000.2 from FAR filing ER-2023-0122.

16 *Staff Expert: Cynthia M. Tandy*

17 **G. Transmission Costs**

18 **1. Description**

19 For the Review Period, ** [REDACTED] **, or ** [REDACTED] **, of Liberty (Empire)'s total
20 fuel cost, cost of purchased power, transmission costs and net emission costs, was associated
21 with transmission service costs.

22 There were two tariffs in effect during this Review Period: The Original Sheet No. 17k
23 and 17l, applicable for service on and after September 16, 2020, defines transmission service
24 costs as:

25 Transmission service costs reflected in FERC Account Number 565:

26 A. Thirty-four percent (34%) of SPP costs associated with
27 Network Transmission Service:

28 i. SPP Schedule 2 – Reactive Supply and
29 Voltage Control from Generation or Other
30 Sources Service;

- 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.

The second and most up to date tariff, 1st Revised Sheet No. 17k and 17l, applicable for service on and after June 1, 2022, defines transmission service costs as²⁵:

Transmission service costs reflected in FERC Account Number 565:

A. Nineteen point three nine percent (19.39%) of SPP costs associated with Network Transmission Service:

- i. SPP Schedule 2 – Reactive Supply and Voltage Control from Generation or Other Sources Service;
- 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, Liberty (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 for March 1, 2021 through May 31, 2022 and 19.39% of the SPP transmission service costs were included for June 1, 2022 through August 31, 2022. Staff also verified only 50% of the MISO transmission service costs were

²⁵ There was a tariff change due to Rate Case ER-2021-0312 Stipulation and Agreement.

1 included. Staff also verified the SPP Schedule 1a and Schedule 12 costs were removed from
2 transmission costs. Liberty (Empire)'s transmission costs during the Review Period was
3 ** [REDACTED] **.

4 **2. Summary of Cost Implications**

5 If Liberty (Empire) imprudently included transmission costs or more than 34% from
6 March 1, 2021 through May 31, 2022 and 19.39% from June 1, 2022 through August 31, 2022
7 of the SPP transmission service costs and more than 50% of the MISO transmission service
8 costs, ratepayer harm could result from increased FAC charges.

9 **3. Conclusion**

10 Staff found no indication Liberty (Empire)'s transmission costs were imprudent.

11 **4. Documents Reviewed**

- 12 a. Liberty (Empire)'s General Ledger;
- 13 b. Liberty (Empire)'s FAC tariff sheets;
- 14 c. Liberty (Empire)'s FAC Monthly Reports;
- 15 d. Liberty (Empire)'s responses to Staff Data Request Nos. 0022, 0026, 0027,
16 0048, 0053, 0063, and 0064; and,
- 17 e. Work papers for Liberty (Empire) FAR filings in File Nos. ER-2022-0095,
18 ER-2022-0274, and ER-2023-0122.

19 *Staff Expert: Amanda C. Conner*

20 **H. Emission Allowances**

21 **1. Description**

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

28 The CSAPR requires Missouri to reduce its annual emissions of sulfur dioxide (SO₂)
29 and nitrous oxides (NO_x) to help downwind states attain the 24-hour National Ambient Air

1 Quality Standards (“NAAQS”). The CSAPR also requires Missouri to reduce ozone season
2 emissions of NO_x to help downwind states attain the 8-hour NAAQS.

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

8 On March 15, 2021, EPA finalized the Revised CSAPR Update reducing NO_x emissions
9 from power plants in twelve (12) states in the eastern United States by 17,000 tons in 2021
10 compared to projections without the rule. This ruling did not affect the current CSAPR Update
11 ruling in Missouri.

12 The primary mechanism of CSAPR is a cap-and-trade program that allows a
13 major source of NO_x and/or SO₂ to trade excess allowances when its emissions of a
14 specific pollutant fall below its cap for that pollutant. Originally, the EPA issued a model
15 cap-and-trade program for power plants, which could have been used by states as the
16 primary control mechanism under CAIR. This model, with modifications, had continued
17 under CSAPR.

18 The requirements of CSAPR, CSAPR Update and the State of Missouri requirements
19 were in effect for the entire Review Period from March 1, 2021 through August 31, 2022.
20 Missouri was part of the twenty-two (22) states that the Update affected, but per Staff’s review,
21 was not part of the recent March 15, 2021 ruling. Liberty-Empire units were in compliance
22 with the CSAPR, CSAPR Update and Missouri limits for both SO₂ and NO_x.

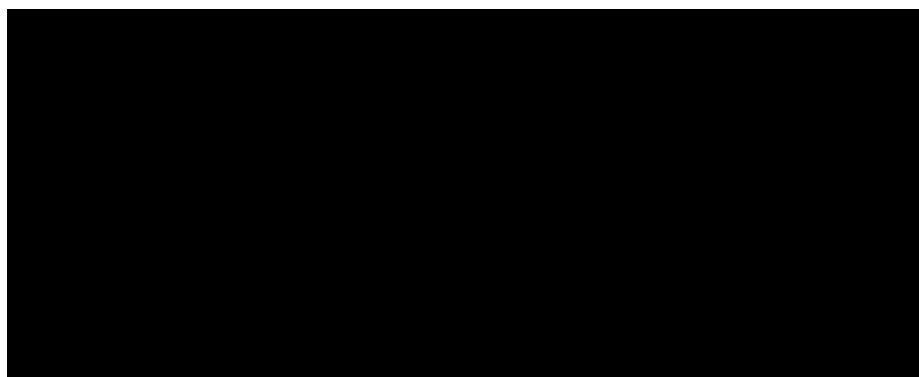
23 Liberty (Empire) aggressively initiated control equipment on nearly every fuel-burning
24 generating unit it owned. There are some units, such as water injection in turbines and low-NO_x
25 burners and over-fire air in boilers, which control emissions by preventing the formation of SO₂
26 and NO_x. Others, like selective catalytic reduction (SCR) systems for NO_x or oxidation catalysts
27 for carbon monoxide, neutralize chemical pollutants after they have been generated. Still others,
28 baghouses and electrostatic precipitators, for instance, capture emissions. The CSAPR and
29 CSAPR Update rules cause Liberty (Empire) to operate its control equipment and systems more
30 robustly to further reduce NO_x emissions. The cost of operating the controls is impacted by

1 commodity pricing of the chemicals and reagents used in the processes. These increases are
2 generally included in the market offerings of the units in the SPP Day Ahead Market and most
3 consumables are captured under the Company’s fuel adjustment charges.²⁶

4 Liberty (Empire) currently uses both the Acid Rain Program (“ARP”) and CSAPR
5 programs for SO₂ and NO_x. They receive CSAPR and ARP allowance allocations. Currently
6 one ton of SO₂ and NO_x emissions require one SO₂ or NO_x allowance to be retired under both
7 programs. Liberty (Empire) receives its emission allowances from the EPA on a yearly basis.
8 Liberty (Empire)’s 2021 and 2022 emission allowances by category for all plants are in
9 Table 11 below:

10 **Table 11 – Confidential**

11 **



12 **

13
14 These allowances have no cost and are booked at zero dollars. Gains from disposition of
15 emission allowances are recorded to FERC Account 254, and credited to FERC Account 411.
16 There were no sales or purchases of emissions during the Review Period.

17 The cost associated with the SO₂ premiums, net of discounts, and the revenues from
18 gains on the sale of SO₂ emission allowances have been included in Liberty (Empire)’s FAC.
19 During the Review Period, Liberty (Empire) indicated there were no sales of surplus SO₂ or
20 NO_x allowances.

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

²⁶ See response to Data Request No. 0013.

1 sales for accumulation periods 26, 27 and 28 and also the FAC monthly reports as required by
2 20 CSR 4240-20.090(5).

3 Based on its review of Liberty (Empire)'s responses to Staff Data Request and
4 information provided, Staff found that Liberty (Empire) has appropriate practices and processes
5 in place to effectively manage its emission allowances to meet the annual requirements during
6 this Review Period either through generation or purchase power contracts.

7 **2. Summary of Cost Implications**

8 If Liberty (Empire) imprudently used, purchased, sold or banked its SO₂ and NO_x
9 allowances, customer harm could result from an increase in Liberty (Empire)'s FAC charges.

10 **3. Conclusion**

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

13 **4. Documents Reviewed**

14 a. Liberty (Empire)'s responses to Staff Data Request Nos. 0001, 0013, 0025,
15 0026, 0037, 0040, 0040.1, 0041, 0042, 0044, 0046, 0055, and 0075; and,

16 b. Work papers for Liberty (Empire) FAR filings in File Nos. ER-2022-0095,
17 ER-2022-0274, and ER-2023-0122.

18 *Staff Expert: Cynthia M. Tandy*

19 **IV. RENEWABLE ENERGY CREDIT REVENUE**

20 **1. Description**

21 The Missouri Renewable Energy Standard ("RES")²⁷ requires all investor-owned
22 electric utilities in Missouri to provide at least two percent (2%) of their retail electricity sales
23 using renewable energy resources in each calendar year 2011 through 2013, and to increase that
24 percentage over time to at least fifteen percent (15%) by 2021.²⁸ For this Review Period,
25 the percentage for renewable energy resources requirement was 15%. Commission Rule
26 20 CSR 4240-20.100 Electric Utility Renewable Energy Standard Requirements, which first

²⁷ Section 393.1025 RSMo. and Section 393.1030.1(3), RSMo. Missouri Rev Stat (2021).

²⁸ Commission Rule 20 CSR 4240-20.100(1)(R).

1 became effective September 30, 2010²⁹, contains the definitions, structure, operations, and
2 procedures for implementing the RES.

3 The RES rule creates two categories of energy-generating resources: non-renewable
4 energy resources (including purchased power from non-renewable energy sources) and
5 renewable energy resources (including purchased power from renewable energy sources).
6 Renewable energy resources produce electrical energy and include:

- 7 • wind
- 8 • solar sources
- 9 • dedicated crop grown for energy production
- 10 • cellulosic agricultural residues
- 11 • plant residues
- 12 • methane from landfills, from agricultural operations or wastewater treatment
- 13 • thermal sources
- 14 • clean and untreated wood sources
- 15 • hydropower with rating of ten (10) megawatts or less
- 16 • fuel cells using hydrogen produced by one of the above named electrical
17 energy sources
- 18 • other sources of energy that become available after November 4, 2008, and
19 are certified as renewable by rule by the division.

20 Renewable energy resources are certified as renewable by the Missouri Division of
21 Energy. Once an energy resource is certified, it becomes capable of generating a Renewable
22 Energy Credit (“REC”), with one (1) REC representing one (1) megawatt-hour of electricity
23 that has been generated from the renewable energy resource.³⁰ These credits can be sold and/or
24 traded in the marketplace bundled with or without the energy that generated the REC.³¹
25 Revenues from the sale of RECs are recovered through the FAC as an off-set to fuel and
26 purchased power costs. This is compliant with Liberty (Empire)’s tariff sheets that were in
27 effect during the Review Period; the Original Sheet No. 17n, applicable to service on or after

²⁹ Amended effective November 30, 2015; Last amended effective October 30, 2019.

³⁰ Commission Rule 20 CSR 4240-20.100(1)(M).

³¹ Commission Rule 20 CSR 4240-20.100(3)(I).

1 September 16, 2020, along with the current tariff 1st Revised Sheet No. 17n, effective June 1,
2 2022, defines RECs as:

3 REC = Renewable Energy Credit Revenue reflected in FERC
4 Account 456 from the sale of Renewable Energy Credits that are
5 not needed to meet the Renewable Energy Standard.

6 Liberty (Empire) receives renewable energy from the following sources:

7 A. Owned Generation:

- 8 1) Ozark Beach Hydroelectric Project (Missouri based);
9 2) Wind: North Fork Ridge Wind Project; Neosho Ridge Wind Project
10 and Kings Point Wind Project;
11 3) Solar: Prosperity Community Solar Farm.

12 B. Two Purchased Power Agreements:

- 13 1) Elk River Windfarm, LLC (Kansas based); and,
14 2) Meridian Way I (Cloud County) Wind Farm, LLC (Kansas based).

15 C. Assigned Through Customer-Generated Solar Rebates and Tariff: Customer
16 Generated Solar Aggregated Assets 1-44 (not applicable to FAC).

17 During the review period, Liberty (Empire) generated more renewable energy than what
18 was required for the Missouri RES. Liberty (Empire) sold excess RECs that generated
19 *** [REDACTED] *** of REC revenue in FERC Account 456075 and 456215 during the Review
20 Period. All of the RECs sold during this Review Period were from wind sources.

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

26 In *The Empire District Electric Company REC Management Guidelines* provided in
27 Data Request No. 0059, it is Staff's opinion that Liberty (Empire) provides clear and concise
28 guidelines in regard to its Renewable Energy Credits. The Company appears to be following
29 those guidelines and providing the best return to its customers by selling the excess credits.

1 As part of these contracts, Liberty (Empire) receives RECs, which are credits issued
2 under the Center for Resource Solutions’ “green-e” program that certifies that one MWh of
3 electricity has been generated by a facility engaged in the production of renewable energy.
4 Liberty (Empire) did not allow any RECs to expire on any of these wind RECs, but used them
5 to meet the RES requirements during the review period, sold some of these RECs, or kept some
6 of them for future use for compliance or sale. Liberty (Empire) is certified to sell its RECs
7 through the Center for Resource Solutions. For the Review Period March 1, 2021 through
8 August 31, 2022, Liberty (Empire) used *** [REDACTED] *** of REC revenue to offset its fuel
9 and purchased power costs that flow through its FAC.

10 **2. Summary of Cost Implications**

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

13 **3. Conclusion**

14 Staff did not find evidence of imprudence in Liberty (Empire)’s management of its
15 RECs during the review period.

16 **4. Documents Reviewed**

- 17 a. *The Empire District Electric Company REC Management Guidelines;*
- 18 b. Liberty (Empire)’s FAC tariff sheets;
- 19 c. Liberty (Empire)’s 2021 Annual Renewable Energy Standard Compliance
20 Report;
- 21 d. Liberty (Empire)’s 2022 RES Compliance Plan;
- 22 e. Liberty (Empire)’s FAC Monthly Reports; and,
- 23 f. Liberty (Empire)’s responses to Staff Data Request Nos. 0001, 0026, 0044,
24 0050, 0050.1, 0059, 0060, 0060.1, and 0077.

25 *Staff Expert: Cynthia M. Tandy*

26 **V. INTEREST**

27 **1. Description**

28 For its FAC, based on Liberty (Empire)’s short-term debt borrowing rate,
29 Liberty (Empire) is required to calculate the monthly interest rate that is applied to the monthly
30 amount of its under-recovered, or over-recovered, net base energy costs. For the review period,

1 Liberty (Empire)'s primary source of short-term debt was its commercial paper program.
2 Each business day, Wells Fargo Securities, Liberty (Empire)'s commercial paper dealer,
3 provides indicative rates for Liberty (Empire) for tenors ranging from overnight out to three
4 months. These indicative rates change with the general level of short-term interest rates in the
5 U.S. economy. Effective September 2021, the debt method was switched to the Money Pool³²
6 for Liberty Utilities short-term interest rates. Liberty-Empire's short-term borrowing rate for
7 the review period averaged .70 percent (.70%). The interest amount is component "I" of
8 the FAC calculation. The total accumulation interest amount for the Review Period of March 1,
9 2021 through August 31, 2022 was \$405,901.

10 **2. Summary of Interest Implications**

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

15 **3. Conclusion**

16 Staff found no evidence Liberty (Empire) acted imprudently with regard to its monthly
17 interest rates and calculation of monthly interest amounts during the review period.

18 **4. Documents Reviewed**

- 19 a. Liberty (Empire)'s response to Staff Data Request Nos. 0026 and 0052;
- 20 b. Liberty (Empire)'s FAR Filings in Cases ER-2022-0095, ER-2022-0274, and
21 ER-2023-0122;
- 22 c. Liberty (Empire)'s interest calculation work papers in support of the interest
23 calculation amount on the under-recovered or over-recovered balance; and,
- 24 d. Liberty (Empire)'s Wells Fargo and Money Pool credit report.

25 *Staff Expert: Cynthia M. Tandy*

³² Money Pool means a financial arrangement established by a parent or holding company of a regulated utility. It is administered by such parent company or a centralized service company affiliate, to (A) establishes a general purpose fund into which a member thereof may lend or borrow funds through the money pool on a short-term basis to or from affiliates, and/or (B) facilitate favorable interest rates for short-term borrowings or lending by affiliates who are members of the money pool. Liberty (Empire) moved from using a short-term debt summary with Wells Fargo to a Money Pool in September 2021.

VI. UTILIZATION OF GENERATION CAPACITY

1. Description

Liberty (Empire)’s generation consists of a mixture of Coal, Natural Gas/Oil, Wind (PPA), and Hydro generating stations as indicated in Table 12.³³ Table 12 contains the MWh used by each generating unit and the percentage associated with that unit’s overall MWh production. Table 13 contains the net-generation broken down by unit type for Liberty (Empire)’s fleet. These tables illustrate how Liberty (Empire)’s generation fleet is being called upon by SPP in actual operation throughout the Review Period from March 1, 2021 through August 31, 2022:

Table 12³⁴

UNIT	PRIMARY FUEL	MWh for the Period	Percentage
Riverton 10	Gas/Oil	0	0.00%
Riverton 11	Gas/Oil	27,638	0.03%
Riverton 12	Gas	1,99,321.63	24.80%
Energy Center 1	Gas/Oil	92,454	1.15%
Energy Center 2	Gas/Oil	77,465	0.09%
Energy Center 3	Gas/Oil	109,259	1.36%
Energy Center 4	Gas/Oil	117,176	1.46%
Ozark Beach	Hydro	60,794	0.76%
Iatan 1	Coal	454,505	6.4%
Iatan 2	Coal	777,502	10.96%
Plum Point (Ownership)	Coal	417,693	5.89%
State Line 1	Gas/Oil	189,791.87	2.36 %
State Line CC	Gas/Oil	2,779,568	34.62%
Kingspoint	Wind	316,080	3.94%
Neosho Ridge	Wind	273,835	3.41%
North Fork	Wind	341,052	4.25%
Prosperity	Solar	2,014.	0.03%
		8,028,151	100.00%

³³ Empire’s Response to Staff Data Request No. 0016.

³⁴ Liberty (Empire)’s Response to Staff Data Request No. 0014 and 0014.1.

Table 13³⁵

Unit Type	Net Generation (MWh)	Percentage of Total Net Generation
Coal	1,649,700	20.55%
Combined Cycle	4,770,891.63	59.43%
Combustion Turbine	613,783.87	7.65%
Total Natural Gas	5,384,675.50	67.07%
Hydro/Pump Storage	60,794	0.76%
Wind	930,967	11.59%
Solar	2,014.20	0.03
Total MWh	8,028,150.69	100%

Tables 12 and 13 exclude wind MWh for 2021 as Liberty Empire states this information is not available according to Data Request No. 0014.1.

2. Self – Commitment of Baseload Generation Facilities into SPP

During this FAC prudence review, Staff conducted a review of commitment status of Liberty (Empire)’s electric generation facilities into SPP in an effort to determine any negative impacts that might be occurring because of such actions. Liberty (Empire) has varied electric generation facilities that are designed to provide varying types of services to its customers. These generation facilities include coal, natural gas, hydro, and wind turbines. Each one of Liberty (Empire)’s generation facilities has its own distinct operating characteristics and requires specific operational guidelines to be followed as to maintain the reliability of the units as determined by Liberty (Empire)’s plant operations teams to determine optimal plant reliability and manufacturer operational guidelines. The SPP market allows participants to commit resources in different ways rather than have the market choose which units to run. SPP utilizes five resource offer commitment status designations³⁶ for its market participants (“MP”):

- 1. Market** – the resource is available for centralized unit commitment through its price sensitive (merit-based) price quantity offers.

³⁵ *Ibid.*

³⁶ SPP, Self-committing in SPP markets: Overview, impacts, and recommendations, December 2019, Page 5.

1 **2. Self** – the market participant is committing the resource through price
2 insensitive offers outside of centralized unit commitment.

3 **3. Reliability** – the resource is off-line and is only available for centralized unit
4 commitment if there is an anticipated reliability issue.

5 **4. Outage** – the resource is unavailable due to a planned, forced, maintenance,
6 or other approved outage.

7 **5. Not participating** – the resource is otherwise available but has elected not to
8 participate in the day-ahead market.

9 SPP Market participants have stated the following reasons for self-commitment:³⁷

- 10 • Testing – North American Electric Reliability Corporation (“NERC”) requirement
- 11 • Public Utilities Regulatory Policy Act (PURPA)
- 12 • Federal service exemptions
- 13 • Started by a different market
- 14 • Weather
- 15 • Long lead times
- 16 • Fuel contracts
- 17 • Other contracts
- 18 • Long minimum run times
- 19 • Commitment bridging
- 20 • Desire to reduce thermal damage to the unit due to starts and stops
- 21 • High startup costs

22 Some of these reasons are unavoidable and can require the resource to be offered in
23 self-commitment status. Testing the output of a plant, as periodically required by regulatory
24 agencies, is a frequent justification. “Some of the reasons, such as high start-up costs, fuel offer
25 through dollar-based offer parameters. Thermal damage due to start-ups and shutdowns and

³⁷ SPP, Self-committing in SPP markets: Overview, impacts, and recommendations, December 2019, Pages 7 and 8.

1 resulting major maintenance could be included in mitigated offers starting in April 2019. SPP
2 has seen a decline in self-committed generation over time and it is possible that perceptions of
3 economic justifications have changed over time.”³⁸

4 Staff analyzed data received from Liberty (Empire)³⁹ to determine the financial
5 impacts of the self-commit units as offered and cleared into the SPP Real-time market.
6 Combined Interest Resources (CIR): Iatan 1, Iatan 2, and Plum Point were not included in this
7 review as they are operated and offered into the market by the majority owner⁴⁰. Table 14
8 provides the summary of Staff’s review by generating unit for the period of March 1, 2021
9 through August 31, 2022. Staff reviewed the hourly real-time transactions that were deemed
10 self-commitment by taking the hourly real time energy cost and adding it to the hourly total
11 revenue for that same hour for the individual generating unit that was self-committed,
12 then compared the number of positive “In the Money” hourly transactions to the negative
13 “Out the Money” hourly transactions. Results are shown below in Table 14. Staff then took it
14 a step further to show the amount of revenue that corresponded to the “In vs Out” of money
15 transactions, as well as a net settlement (revenue) or total when adding the “In the Money”
16 to the “Out the Money” transactions, to show an overall revenue associated with
17 self-commitment. In the revenue portion of the table below a positive/negative sign convention
18 was used for revenues. i.e., Negative values = Revenues/Generation and Positive values =
19 Charges/Station Use.

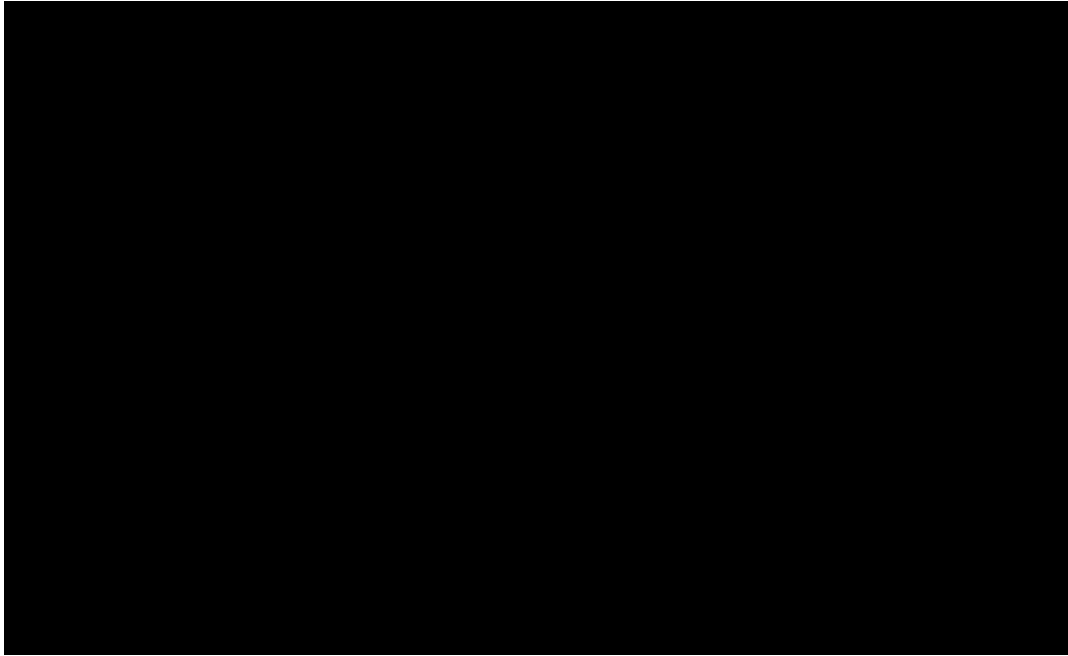
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21
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23
24 *(continued on next page)*

³⁸ *Id.*, Page 8.

³⁹ Staff Data Request No. 0061 in File No. EO-2023-0087.

⁴⁰ Staff Data Request No. 0070 in File No. EO-2023-0087.

Table 14 – Highly Confidential



Staff does not have the data to perform a detailed analysis as to what would have been the additional costs to the units due to high cost of restart, increases in Operations & Maintenance (“O&M”) cost and increased plant outages if Liberty (Empire) would have designated these units as “Economic” instead of “Self-Commit”. Staff is providing Highly Confidential Table 14 as actual financial results of Liberty (Empire)’s current practice of Self-Commit of its baseload generation units as described above. The overall findings from Table 14 revealed that 79% of Liberty (Empire)’s self-commitment hourly transactions had positive revenues associated with them.

Staff further explored this issue in Case No. EW-2019-0370. Some of the findings in that case were that “the utility responses indicate that the economic minimum for each unit is based upon the physical limitations of each plant at a given point in time. These physical limitations are highly variable among plants, are affected by a variety of factors, and can vary by hour. Many of the units in question were commissioned as base load units well before the day-ahead markets were formed. These base load coal units were not designed to be cycled frequently and doing so would likely increase the likelihood of outages, increase operations and maintenance expense, and reduce the reliability of the unit. Staff maintains that in order to fully

1 understand the economic impact of self-scheduling on a given unit’s profitability, an analysis
2 at the RTO level would need to be conducted. Due to the highly confidential nature of utilities’
3 market bidding strategies, it is highly unlikely that any party other than SPP or MISO have the
4 raw data, modeling software access, and resources to conduct such an extensive analysis of
5 market trends.”⁴¹

6 Staff has concerns regarding ** [REDACTED]

7 [REDACTED]
8 [REDACTED]. ** More detail
9 regarding the ** [REDACTED] ** outage is discussed in the plant outages section (Section VIII)
10 of this report.

11 3. Conclusion

12 Staff did not observe any evidence of imprudent utilization of generation resources
13 during this prudence review but maintains a concern regarding being able to utilize
14 ** [REDACTED] ** for generation.

15 4. Documents Reviewed

- 16 a. Liberty (Empire)’s responses to Staff Data Request Nos. 0014, 0016, 0061, and
17 0070;
18 b. SPP, Self-committing in SPP markets: Overview, impacts, and
19 recommendations, December 2019; and,
20 c. EW-2019-0370.

21 *Staff Expert: Jordan T. Hull*

22 VII. HEAT RATES

23 1. Description

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

⁴¹ EW-2019-0370, Staff’s Second Supplemental Report, Pages 1 and 2.

1 **2. Summary of Cost Implications**

2 Heat rates are inversely related to the efficiency of the generating unit. Increasing heat
3 rates of specific units over time may indicate that a specific unit’s efficiency is declining.
4 Heat rates can vary greatly depending on operating conditions including but not limited to load,
5 hours of operation, shut downs and startups, unit outages, derates⁴², and weather conditions.
6 Therefore, a good indication of unit performance for frequently used units is an analysis of the
7 trend of heat rates over time. A permanent increase in monthly heat rates is commonly the
8 result of a decrease in a generating unit’s efficiency. This typically occurs when additional
9 emissions reduction equipment is added to the exhaust of the generating unit. Continued
10 utilization of units with sustained elevated heat rates could result in Liberty (Empire) incurring
11 higher fuel costs per unit of electricity generated than it would otherwise have incurred.
12 If Liberty (Empire) was imprudent in response to the ongoing trend of a unit’s heat rate,
13 ratepayer harm could result from an increase in the fuel costs that are collected through
14 Liberty (Empire)’s FAC charges.

15 According to Data Request No. 0019, *** [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]

21 [REDACTED] ***

22 **3. Conclusion**

23 In reviewing the monthly heat rates of the Liberty (Empire)’s generating units, Staff
24 found no indication that Liberty (Empire) acted imprudently during the review period but will
25 continue to watch heat rates related to the ** [REDACTED] **.

⁴² Derate- to lower the rating of (a device), especially because of deterioration in efficiency or quality.

1 **4. Documents Reviewed**

- 2 a. Liberty (Empire)'s responses to Staff Data Request No. 0019; and,
3 b. Heat rate test data submitted by Liberty (Empire) in compliance with Rule 20
4 CSR 4240-3.190.

5 *Staff Expert: Jordan T. Hull*

6 **VIII. PLANT OUTAGES**

7 **1. Description**

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

14 Staff examined the outages of Liberty (Empire)'s generation fleet and the timing of
15 these outages to determine if the outages were imprudently taken. Any planned outage during
16 peak load demand times or a period of high replacement energy prices has the potential result
17 of Liberty (Empire) paying more for fuel and purchased power costs than it would have paid if
18 the outage was planned during forecasted low load times. Periodic planned outages are required
19 to maintain each generating unit in peak operating condition to minimize forced or maintenance
20 outages that could occur during peak load demand or periods of high replacement energy prices.
21 Liberty (Empire) has little or no control over the timing of maintenance or forced outages of
22 the generating stations it owns and operates when such outages are the result of unforeseen
23 events; therefore, these types of outages are not included as a part of this prudence review.

24 **2. Summary of Cost Implications**

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

1 Staff became aware of the ** [REDACTED] ** prolonged outage upon reviewing Staff's
2 Data Request No. 0005 in this case. Staff has a concern with ** [REDACTED]

3 [REDACTED]
4 [REDACTED]⁴³
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED] **

15 **3. Conclusion**

16 Staff believes the ** [REDACTED] ** issue would be more appropriately addressed in the
17 Company's next general rate case or some other docket rather than this prudence review. Staff
18 did not observe any further evidence of imprudent outages during the time period examined in
19 this prudence review.

20 **4. Documents Reviewed**

- 21 a. Liberty (Empire)'s responses to Staff Data Request Nos. 0004, 0005, 0006,
22 0054, and 0078; and,
23 b. Monthly Outage data submitted by Liberty (Empire) in compliance with Rule
24 20 CSR 4240-3.190.

25 *Staff Expert: Jordan T. Hull*

⁴³ Staff Data Request No. 0078 in File No. EO-2023-0087.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Tenth Prudence Review of)
Costs Subject to the Commission-Approved) File No. EO-2023-0087
Fuel Adjustment Clause of the Empire District)
Electric Company d/b/a Liberty)

AFFIDAVIT OF AMANDA C. CONNER

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

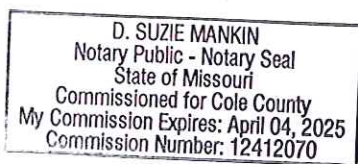
COMES NOW AMANDA C. CONNER and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff Report (Tenth Prudence Review)*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.


AMANDA C. CONNER

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 22nd day of February 2023.




Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Tenth Prudence Review of)
Costs Subject to the Commission-Approved) File No. EO-2023-0087
Fuel Adjustment Clause of the Empire District)
Electric Company d/b/a Liberty)

AFFIDAVIT OF JORDAN T. HULL

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

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

Further the Affiant sayeth not.




JORDAN T. 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 22nd day of February 2023.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070



Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI


In the Matter of the Tenth Prudence Review of)
Costs Subject to the Commission-Approved) File No. EO-2023-0087
Fuel Adjustment Clause of the Empire District)
Electric Company d/b/a Liberty)

AFFIDAVIT OF KRISHNA L. POUDEL, PhD

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW KRISHNA L. POUDEL, PhD and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Report (Tenth Prudence Review)*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.



KRISHNA L. POUDEL, PhD

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 22nd day of February 2023.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070



Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Tenth Prudence Review of)
Costs Subject to the Commission-Approved) File No. EO-2023-0087
Fuel Adjustment Clause of the Empire District)
Electric Company d/b/a Liberty)

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 (Tenth Prudence Review)*; and that the same is true and correct according to her best knowledge and belief.

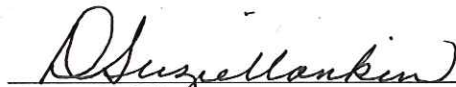
Further the Affiant sayeth not.


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 23rd day of February 2023.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070


Notary Public