Exhibit No.:
Issue(s): *Fuel Adjustment Clause*
Witness: *Brooke Mastrogiannis*
Sponsoring Party: *MoPSC Staff*
Type of Exhibit: *Direct Testimony*
Case No.: *ER-2024-0261*
Date Testimony Prepared: *July 21, 2025*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

ENERGY RESOURCES DEPARTMENT

DIRECT TESTIMONY

OF

BROOKE MASTROGIANNIS

THE EMPIRE DISTRICT ELECTRIC COMPANY,
d/b/a Liberty

CASE NO. ER-2024-0261

Jefferson City, Missouri
July 2025

DIRECT TESTIMONY

OF

BROOKE MASTROGIANNIS

THE EMPIRE DISTRICT ELECTRIC COMPANY,
d/b/a Liberty

CASE NO. ER-2024-0261

Q. Please state your name and business address.

A. My name is Brooke Mastrogiannis, and my business address is Missouri Public Service Commission, 200 Madison Street, Jefferson City, Missouri 65102.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Public Service Commission ("Commission") as a Utility Regulatory Audit Supervisor.

Q. Have you previously filed testimony in cases before the Commission?

A. Yes. Schedule BM-d1, attached to my cost of service direct testimony filed on July 2, 2025, includes an updated case participation list.

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to suggest changes to the Fuel Adjustment Clause ("FAC") related to the new Large Load Customer Service ("LLCS") tariff. Staff witness Sarah L.K. Lange will address the LLCS tariff as a whole and how it affects Empire's[1] load.

[1] The Empire District Electric Company, d/b/a Liberty ("Empire").

FAC CHANGES RELATED TO LLCS TARIFF

Q. Once an LLCS customer has been recognized in a future rate case, would any costs or expenses be avoided by Empire if that customer leaves the system or reduces its load?

A. Yes. Empire would no longer incur the wholesale energy and transmission expense associated with service to that customer. Changes in those expenses are generally socialized to all customers on the basis of energy through the operation of the FAC.

To prevent an unreasonably disproportionate amount of changes in wholesale energy expense associated with the LLCS customer, Staff recommends that Empire's FAC be modified to incorporate a mechanism similar to the "N Factor" that was utilized in the Ameren Missouri FAC associated with its service to Noranda.[2] Specific language of this term should be developed through collaboration with Empire and other parties, but the general approach is outlined below.

Q. What would this modification to the FAC look like if a LLCS customer leaves the system?

A. If a LLCS customer leaves the system after a rate case and the FAC base factor has already been calculated reflecting that customer's normalized usage, it would be reasonable to adjust the FAC calculation so that other customers do not unreasonably benefit from the significant reduction in wholesale energy expense that results. To do so, a Line 6 should be added to the FAC calculation on FAC tariff sheet 17q to incorporate a new

[2] In Case No. ER-2016-0130, on January 12, 2016, the Signatories filed a Non-Unanimous Stipulation and Agreement under which they agreed that an amount in dispute arising from the calculation of an adjustment triggered by Noranda Aluminum, Inc.'s ("Noranda") load changes (an adjustment commonly referred to as the "N Factor") would not be included in the Fuel Adjustment Rate ("FAR") called for by the Company's FAC. An adjustment is triggered if the actual metered kWh sales for either Service Classification 13(M) or 12(M) is equal or greater than 40,000,000 kWh (the normalized monthly kWh billing determinant that was established in Case No. ER-2014-0258).

adjustment for LLCS customers. The adjustment is calculated by subtracting the FAC Base factor (in $ per kWh) from the actual average wholesale energy expense (in $ per kWh). That amount is then multiplied by the difference in actual LLCS customer kWh during the accumulation period from normalized LLCS customer kWh. Schedule BM-CCOS-d1, attached under the "N Factor" example, includes a more detailed example of this calculation based on a hypothetical customer and future rate case scenario.

Q. What information would be necessary to perform this calculation?

A. The normalized energy and the normalized wholesale energy expense would be needed. To avoid disputes when calculations must be made on a tight turn-around in an FAC adjustment case, the following information should be retained from each rate case:

1. A normalized monthly kWh for each LLCS customer, preferable with underlying hourly values,

2. Normalized hourly locational marginal prices for load. If individual load nodes are developed for each customer, those values should be utilized, otherwise, the Empire load values should be used,

3. Normalized monthly values of other expenses included in the FAC that are used to determine the base factor, such as transmission expenses, which vary with Empire's total Missouri jurisdictional load or peak demand.

In a given case, these values should be agreed to by Staff, OPC[3], and Empire and memorialized. However, if an amount cannot be agreed to, it should be determined by the Commission as part of that case.

[3] Office of the Public Counsel ("OPC").

Q. In the event there is a LLCS customer added to Empire's load, does this need to be accounted for in the FAC?

A. Yes. As it relates to the FAC, when a LLCS customer is added to Empire's load, it would create additional cost of energy for serving the new load, and additional rate revenue from serving the new load. Therefore, to avoid Empire over-recovering energy expenses by receiving revenue directly from the customer as well as through an increase in the FAC jurisdictional Total Energy Cost included in the FAC, there should be an adjustment in the FAC to reduce the additional cost of energy, which would reduce the level of new energy expense that is socialized through the FAC.

Q. What changes should be made to the FAC tariff sheets to mitigate the over-recovery associated with new LLCS load between rate cases?

A. Essentially, the FAC modification would be a reversal of the calculation described above. Line 6 of the FAC calculation should incorporate an adjustment to remove the difference between the product of the FAC Base factor (in $ per kWh) and the actual average wholesale energy expense (in $ per kWh) for serving that LLCS customer, then multiplied by the actual LLCS customer kWh. Schedule BM-CCOS-d1, attached as the "Reverse N Factor" example, includes a more detailed example of this calculation based on a hypothetical customer and future rate case scenario.

Q. What information should Empire be required to retain, in real time, to facilitate this adjustment in each applicable accumulation period?

A. The actual loads and wholesale energy expense will be needed. The actual wholesale energy expense (in dollars) divided by the actual load (in kWh) will produce the $/kWh value needed to calculate the dollar difference per kWh from the base factor.

The following information should be retained by Empire and provided in the applicable accumulation period filing:

1. Actual hourly kWh for each LLCS customer,

2. Actual hourly locational marginal prices for load. If individual load nodes are developed for each customer, those values should be utilized, otherwise, the Empire load values should be used,

3. Actual monthly values of other expenses included in the FAC, such as transmission expenses, which vary with Empire's total Missouri jurisdictional load or peak demand.

Q. Can you summarize what the above calculations do to the FAC base factor?

A. If a LLCS customer comes online after a rate case and the FAC base factor has already been calculated, the overall FAC base fuel and purchased power amount would increase. However, because the overall kWh would increase as well, the base factor would actually decrease for all customers.

Alternatively, if a large customer was already built into the revenue requirement and the FAC base factor, but then that large customer leaves the system, the increase in the FAC base fuel and purchased power amount that was already built in would have been spread over a smaller amount of energy. To account for this there would need to be an adjustment to the base factor for all customers.

Q. Are there any specific FAC tariff sheet changes that would need to be made to account for this in the event either of these two scenarios occur?

A. Yes. In Empire's proposed FAC tariff sheet 9th Revised Sheet No. 17q, there should be a new Line 6 added and Line 8 should be revised; starting from Line 6 through Line 8 it should read as:

6. LLCS Adjustment

7. Fuel Cost Recovery

8. Sum of Monthly {[(TEC – B) * J] – LLCS Adjustment} * .95

The whole tariff sheet is attached as Schedule BM-CCOS-d2 as an example. Also included in Schedule BM-CCOS-d2 is the FAC tariff sheet edits for the Voltage Adjustment Factors that were recommended by Staff witness Alan J. Bax in Direct Testimony filed on July 2, 2025.

Q. Does this conclude your direct testimony?

A. Yes it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Request of The Empire District Electric Company d/b/a Liberty for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in Its Missouri Service Area	)))))	Case No. ER-2024-0261

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 *Direct Testimony of Brooke Mastrogiannis*; 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 15th day of July 2025.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2029
Commission Number: 12412070

D. Suzie Mankin

Notary Public

"Reverse N Factor" to address Load Additions

	No Adjustment	With Adjustment		
BF	$ 0.0087	$ 0.0087	New LLCS kWh	438,000,000
Annualized Total kWh	2,590,320,000	2,590,320,000	New load expense per kWh	**0.03**
Total Co NBEC	$ 22,535,784	$ 22,535,784	LLCS Cost of Load	$ 13,140,000
TEC	$ 35,675,784	$ 35,675,784		
TEC - B	$ 13,140,000	$ 13,140,000		
Missouri jurisdictional factor	88.27%	88.27%	Difference between LLCS Energy Cost and Base Factor	$ 0.0213
(TEC - B) * J	$ 11,598,678	$ 11,598,678	LLCS kWh x Difference	$ 9,329,400
LLCS Adjustment		$ 9,329,400		
(TEC - B) * J - LLCS Adjustment		$ 2,269,278		
Sharing	0.95	0.95		
FPA	$ 11,018,744	$ 2,155,814.10		
New Missouri NSI	3,028,320,000	3,028,320,000		
FAR	**0.003638567**	**0.000711885**		
		19.56%		

"N Factor" to address Load Additions

	No Adjustment	With Adjustment		
BF	$ 0.0118	$ 0.0118	Avoided LLCS kWh	(438,000,000)
Annualized Total kWh	3,028,320,000	2,236,398,830	New load expense per kWh	**0.03**
Total Co NBEC	$ 35,675,784	$ 26,346,384	LLCS Cost of Load	$ (13,140,000)
TEC	$ 22,535,784	$ 13,206,384		
TEC - B	$ (13,140,000)	$ (13,140,000)		
Missouri jurisdictional factor	88.27%	88.27%	Difference between LLCS Energy Cost and Base Factor	$ 0.0182
(TEC - B) * J	$ (11,598,678)	$ (11,598,678)	LLCS kWh x Difference	$ (7,980,046)
LLCS Adjustment		$ (7,980,046)		
(TEC - B) * J - LLCS Adjustment		$ (3,618,632)		
Sharing	0.95	0.95		
FPA	$ (11,018,744)	$ (3,437,700.87)		
New Missouri NSI	2,590,320,000	1,798,398,830		
FAR	**-0.004253816**	**-0.001911534**		
		44.94%		

THE EMPIRE DISTRICT ELECTRIC COMPANY d.b.a. LIBERTY

P.S.C. Mo. No. 6 Sec. 4 9th~~8th~~ Revised Sheet No. 17g

Canceling P.S.C. Mo. No. 6 Sec. 4 8th~~7th~~ Revised Sheet No. 17g

For ALL TERRITORY

FUEL & PURCHASE POWER ADJUSTMENT CLAUSE
RIDER FAC
For service on and after XX-XX-XX~~June 1, 2024~~

	Accumulation Period Ending		February 29
1	Total Energy Cost (TEC) = (FC + PP + E – OSSR - REC)		~~44,959,460~~
2	Net Base Energy Cost (B)	-	~~22,134,262~~
	2.1 Base Factor (BF)		~~0.00870~~
	2.2 Accumulation Period NSI (S_{AP})		~~2,544,168,000~~
3	(TEC-B)		~~22,825,199~~
4	Missouri Energy Ratio (J)		~~88.34~~[1]
5	Sum of Monthly (TEC - B) * J		~~20,225,385~~[2]
6	LLCS Adjustment		
7~~6~~	Fuel Cost Recovery	*	~~95.00%~~
8~~7~~	Sum of Monthly {[(TEC - B) * J] – LLCS Adjustment} * 0.95		~~19,214,115~~
9~~8~~	Deferred Amount		~~0~~
10~~9~~	True-Up Amount (T)	+	~~(2,010,080)~~
11~~0~~	Prudence Adjustment Amount (P)	+	~~0~~
12~~1~~	Interest (I)	+	~~556,397~~
13~~2~~	Fuel and Purchased Power Adjustment (FPA)	=	~~17,760,433~~
14~~3~~	Forecasted Missouri NSI (S_{RP})	÷	~~2,327,319,265~~
15~~4~~	Current Period Fuel Adjustment Rate (FAR)	=	~~0.00763~~
16~~5~~	Current Period FAR_{PRIM} = FAR x VAF_{PRIM}		~~0.00796~~
17~~6~~	Current Period FAR_{SEC} = FAR x VAF_{SEC}		~~0.00811~~
18~~7~~	VAF_{PRIM} = 1.0534~~429~~		~~1.0429~~
19~~8~~	VAF_{SEC} = 1.0748~~625~~		~~1.0625~~
20	VAF_{TRANS} = 1.0376		

Case No. ER-2024-0261
Schedule BM-CCOS-d2