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Fuel and Purchased Power Costs
Witness: Todd W. Tarter
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Sponsoring Party: The Empire District
Electric Company
Case No.: ER-2021-0312
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**Before the Public Service Commission
of the State of Missouri**

Direct Testimony

of

Todd W. Tarter

on behalf of

The Empire District Electric Company

May 2021



**** DENOTES CONFIDENTIAL ****
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PUBLIC VERSION

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THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION
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1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. Todd W. Tarter. My business address is 602 S. Joplin Avenue, Joplin, Missouri.

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

5 A. I am employed by Liberty Utilities Service Corp. (“LUSC”) as Senior Manager,
6 Strategic Planning for the Liberty Central Region which includes The Empire District
7 Electric Company (“Empire” or “Company”).

8 **Q. Please describe your educational and professional background.**

9 A. I graduated from Pittsburg State University in 1986, with a Bachelor of Science Degree
10 in Computer Science. After graduation, I received a mathematics education
11 certification. I began my employment with Empire in May 1989. During my tenure
12 with Empire, I have worked in the Corporate Planning, Strategic Planning, Information
13 Technology (“IT”), Planning and Regulatory, Electrical Procurement and Energy
14 Supply Services departments. My primary responsibilities during the early parts of my
15 career included work with the Company’s construction budget, load forecasts, sales
16 and revenue budgets, financial forecasts, fuel and purchased power projections, and IT
17 projects among others. In 2004, I was promoted to Manager of Strategic Planning
18 where I primarily worked with fuel and purchased power projections, energy efficiency
19 and integrated resource planning (“IRP”). In October 2016, I assumed the position of
20 Manager of Systems and Settlements where I was primarily responsible for market
21 settlements; the computer systems used by the Electrical Procurement department; load

1 forecasting; load research; transmission congestion hedging; and fuel and purchased
2 power projections. In December 2019, I was promoted to Senior Manager, Strategic
3 Planning where I continue to work with load forecasting, load research, transmission
4 congestion hedging, and fuel and purchased power projections.

5 **Q. Have you previously testified before the Missouri Public Service Commission or**
6 **any other regulatory agency?**

7 A. Yes. I have testified on behalf of Empire before the Missouri Public Service
8 Commission (“Commission”), the Kansas Corporation Commission, the Oklahoma
9 Corporation Commission, and the Arkansas Public Service Commission. The case
10 references are attached to this testimony as **Schedule TWT-1**.

11 **Q. What is the purpose of your Direct Testimony in this proceeding?**

12 A. The primary purpose of this testimony is to discuss the fuel adjustment clause (“FAC”)
13 base factor proposal for this case and discuss how it was developed. My Direct
14 Testimony also discusses the proposed base rate cost levels for natural gas firm
15 transportation; the Plum Point Purchased Power Agreement (“PPA”) demand charge;
16 and the revenues received from a capacity sale to the Missouri Joint Municipal Electric
17 Utility Commission (“MJMEUC”) on behalf of the Southwest Missouri Power Electric
18 Pool (“SWMPEP”). These are three fuel and purchased power (“F&PP”) related costs
19 and revenues that do not run through the Company’s current FAC.

20 **Q. Are you sponsoring any schedules with your testimony?**

21 A. Yes. This testimony contains the following attached schedules:

- 22 • Schedule TWT-1, Case References;
- 23 • Confidential Schedule TWT-2, Summary of Fuel and Purchased Power for
24 the FAC Base Factor Model Run; and

- 1 • Confidential Schedule TWT-3, Summary of FAC Base Factor Calculation
2 (with a list of FAC base factor components).

3 **II. F&PP EXPENSE FOR BASE RATES AND THE FAC BASE FACTOR**

4 **Q. What is the Company proposing for fuel recovery in this case?**

5 A. Empire is recommending the continuation of its FAC, to include the current 95%/5%
6 sharing mechanism. Empire is also recommending a new FAC base factor developed
7 with a computer production cost model run using current fuel, purchased power, market
8 revenue, transmission costs, and all the other cost components of the proposed FAC
9 base which will be further discussed in this testimony.

10 **Q. Has the Company prepared the minimum filing requirements (“MFRs”) for an
11 FAC continuation request?**

12 A. Yes. Please see the Direct Testimony of Empire witness Zachary Quintero for a listing
13 of these MFRs and where each item may be found.

14 **Q. Are there other Company witnesses that address FAC issues?**

15 A. Yes. For additional information on the FAC issues, please see the Direct Testimony of
16 Empire witnesses Aaron J. Doll and Charlotte T. Emery. Mr. Doll discusses Southwest
17 Power Pool (“SPP”) net transmission charges, the MJMEUC power purchase
18 agreement on behalf of SWMPEP (hereafter referred to as the MJMEUC agreement),
19 and certain cost and revenue components related to the new wind resources (e.g.,
20 Paygo, tax equity distributions, production tax credits (“PTC”), and renewable energy
21 credits (“RECs”)). Additionally, Mr. Doll addresses any FAC tariff language changes
22 proposed by the Company. The FAC proposals contained in Mr. Doll’s Direct
23 Testimony for pertinent cost/revenue components were incorporated into the proposed
24 FAC base factor for this case. Related to the FAC components, Ms. Emery’s testimony

1 addresses the respective pro-forma adjustments which reflect the impact that the
2 proposed FAC base factor has on the cost of service. In addition, her testimony
3 discusses the Company's proposal for the recovery of the extraordinary fuel and
4 purchased power costs related to Winter Storm Uri (weather event in February, 2021).

5 **Q. Briefly describe the purpose on an FAC base factor.**

6 A. According to the Company's current FAC Rider Tariff, the FAC base factor is the base
7 energy cost divided by net generation in kilowatt-hours ("kWh") as determined by the
8 Commission in the last general rate case. The base energy cost is the F&PP costs net
9 of fuel-related revenues determined by the Commission to be included in the FAC that
10 are also included in the revenue requirement used to set base rates in a general rate
11 case. As Empire's FAC is currently designed, the FAC base factor has not changed
12 since the last general rate case. However, as prescribed by the tariff language, the
13 actual prudently incurred FAC eligible costs are compared to the FAC base energy
14 costs on a periodic basis.

15 As a simple illustration: if prudently incurred FAC eligible costs are higher than
16 the base, then the Company is allowed to collect the additional amount from Missouri
17 retail customers (less any sharing mechanism) via the FAC rider. Likewise, if the
18 prudently incurred FAC eligible costs are lower than the base, the Company would
19 return the additional amount to Missouri retail customers (less any sharing mechanism)
20 through the FAC rider. The design of an FAC can vary and the details are provided in
21 the FAC Tariff.

22 **Q. What is Empire proposing as an updated FAC base factor for this case?**

23 A. Empire has analyzed the net F&PP cost level and other eligible FAC costs and revenues
24 for base rates in this case, with the help of a computer production cost model described

1 later in my testimony. Based on this normalized approach, Empire proposes to update
2 the FAC base factor to \$0.01011 per kWh in this proceeding. The total company base
3 energy cost proposal is \$52,400,026.

4 **Q. How does the proposed FAC base factor compare to the Company's existing FAC**
5 **base factor?**

6 A. The existing FAC base factor, established in Case No. ER-2019-0374, is \$0.02338 per
7 kWh. The Company's proposal for this case is a decrease of \$0.01327 per kWh or
8 about a 56.7% decrease. A summary of the model run to help rebase the FAC is attached
9 as Confidential Schedule TWT-2.

10 **Q. What is the primary driver of the decrease in the proposed FAC base factor?**

11 A. The primary driver that significantly reduces the proposed FAC base factor is the
12 Company's generation mix transformation, specifically the introduction of about 600
13 megawatts ("MW") of new wind resources to the Company's generation mix. These
14 new resources are described later in this testimony.

15 **Q. Please describe the FAC base factor changes that are being proposed in this case,**
16 **aside from updating the costs, prices, and revenues to current levels.**

17 A. Empire's existing Missouri retail FAC base factor took effect on September 16, 2020.
18 Aside from updating the costs, prices and revenues to current levels, there are some
19 other changes that impact the Company's updated FAC base factor proposal. First, the
20 Company's model has updated the resource generation mix and the accompanying
21 costs and revenues appropriate for this case. Secondly, the Company is proposing to
22 modify the level of transmission expense eligible for the FAC for this case. Third, the
23 variable energy sales related to the MJMEUC power purchase agreement is proposed
24 to flow through the FAC. As previously mentioned, please refer to Mr. Doll's Direct

1 Testimony for more information on these items, including the reasons behind these
2 proposals. These proposals have been incorporated into the FAC base factor
3 calculation supported in this testimony.

4 **Q. What generation mix changes were made for the FAC base factor modeling?**

5 A. Since the last Missouri general rate case, Case No. ER-2019-0374, the Asbury coal unit
6 has been retired and removed from the FAC base factor modeling. The model now
7 contains the addition of nearly 600 MW of new wind resources for which the Company
8 received Certificates of Convenience and Necessity from the Commission in Case No.
9 EA-2019-0010. These wind resources became commercially operational during the
10 first and second quarters of 2021. The three new wind farms that comprise this nearly
11 600 MW are Neosho Ridge (301 MW), located in Neosho County, Kansas; and two
12 Missouri projects, Kings Point (149.4 MW) and North Fork Ridge (149.4 MW) located
13 in Barton, Dade, Lawrence and Jasper counties.

14 For more information on the new wind projects, please see the Direct Testimony
15 of Company witness Shaen Rooney. All of the Company generating resources used in
16 the modeling can be seen in Confidential **Schedule TWT-2** (the Summary of Fuel and
17 Purchased Power report for the FAC base factor model run).

18 **Q. Please further describe the MJMEUC Power Purchase Agreement mentioned**
19 **earlier in this testimony.**

20 A. Empire entered into a five-year power purchase agreement (“PPA”) with MJMEUC for
21 a capacity and energy sale beginning June 1, 2020 and ending May 31, 2025 for two
22 Missouri municipal customers, the city of Monett and the city of Mount Vernon which
23 formed the Southwest Missouri Power Electric Pool (also known as SWMPEP). The
24 capacity sale is based on a “slice of Empire system” approach, with a total capacity sale

1 of 78 MW during the PPA period. The MJMEUC PPA also enables MJMEUC to
2 receive payment from SPP for energy sold into the market from Empire resources that
3 are allocated to MJMEUC by this agreement. MJMEUC will pay Empire for the
4 capacity and for their allocated portion of the fuel costs, startup costs, an additional
5 amount per unit of energy and some transmission costs as described by the agreement.

6 **Q. Please summarize the FAC cost/revenue components contained in the proposed**
7 **FAC base factor calculation for this case.**

8 A. The cost and revenue components of the proposed FAC base factor calculation are
9 summarized in Confidential Schedule TWT-3 attached to this testimony. Net F&PP
10 (without purchased demand or natural gas firm transportation charges) is the sum of
11 fuel and purchased power energy netted with market revenues. Fuel is comprised of a
12 generating unit's fuel to operate, including start-up fuel, natural gas commodity
13 charges, natural gas losses at the cost of natural gas, and other fuel related costs (such
14 as the "undistributed and other" and the "unit train" cost categories).

15 Purchased power energy costs are comprised of the energy costs from Empire's
16 PPAs (Plum Point PPA, Elk River Wind PPA and the Meridian Way Wind PPA), plus
17 Plum Point PPA operation and maintenance ("O&M") costs. The new wind projects
18 have some costs associated with them, as described in the Direct Testimony of Empire
19 witness Aaron J. Doll.

20 The market revenues are the revenues received from selling energy into the
21 Southwest Power Pool Integrated Marketplace ("SPP IM" or "market"). Native load
22 cost, or the cost of energy to serve Empire's customers, is the cost of energy purchased
23 from the SPP IM plus ancillary and other charges, offset by net ARR/TCR revenue.
24 Other FAC offsets include net renewable energy credits ("RECs") and the removal of

1 fuel related administration and labor and net sales to MJMEUC from the previously
2 mentioned power purchase agreement. Other FAC eligible costs include net emission
3 allowances; net metering credits; the consumables used by the generating plants'
4 environmental equipment (e.g., ammonia, limestone, powder activated carbon); and
5 FAC eligible transmission charges.

6 **Q. Please briefly describe the modeled fuel and purchased power expense process that**
7 **Empire developed for this case.**

8 A. Empire considered all eligible FAC cost components and updated all annualized and
9 normalized model assumptions (including the aforementioned changes to the
10 generation mix) from its last Missouri general rate case (Case No. ER-2019-0374) on
11 a total company basis. Empire utilized its production cost model to simulate the SPP
12 IM approach to calculate a net F&PP cost level.

13 Within the model, Empire resources were dispatched against price curves with
14 their dispatched generation sold into the SPP market with these resources receiving
15 revenue based on the market approach. Also, within the model, the cost of Empire's
16 native load was supplied from the SPP market and not from the cost of Empire's
17 generating resources. Multiple sets of hourly market prices were utilized, and the
18 market prices were correlated to the natural gas price within the model. This level of
19 F&PP expense was developed by running the hourly production cost computer model
20 using normalized sales levels, normalized outage data, and projected fuel and
21 purchased power prices. Other F&PP cost/revenue components that are eligible for the
22 FAC were normalized and added outside the model. Please refer to Confidential
23 **Schedule TWT-2** for a Summary of F&PP report for the FAC base factor model run.

1 **Q. What production cost model did Empire use for its review of the ongoing level of**
2 **F&PP expenses for this case?**

3 A. This level of F&PP expense was developed by running the hourly production cost
4 computer model known as EnCompass. EnCompass is a planning tool developed by
5 Anchor Power Solutions. Empire has used EnCompass for F&PP budgeting and other
6 special studies during the past three budget cycles. According to the model developer,
7 EnCompass optimizes individual utilities or portfolios of assets using full operational
8 details of power plants and complex contracts along with forecasted power prices. By
9 utilizing Mixed Integer Programming, the software determines the best combination of
10 resources to commit and the appropriate dispatch levels for each interval of the
11 operating day. In addition to minimum uptime and downtime requirements,
12 EnCompass can also cap the number of starts and shutdowns, and recognize costs and
13 fuel requirements for hot, warm, and cold starts and shutdowns. Heat rates and dispatch
14 costs are set for the minimum operating level, as well as any number of blocks up to
15 maximum capacity. Any number of fuels may be defined for a resource, and
16 EnCompass will utilize the least-cost fuel, subject to minimum and maximum limits.

17 **Q. How were the natural gas price forecast and multiple sets of nodal market price**
18 **forecasts obtained?**

19 A. The natural gas prices and the associated sets of nodal market prices used in the FAC
20 base factor modeling were provided by Horizons Energy, a consulting firm that was
21 contracted by the Company to provide input data for the EnCompass model.

22 **Q. What was the annual weighted average price of natural gas used in the FAC base**
23 **factor modeling?**

1 A. The weighted average price of natural gas yielded from the FAC base factor modeling
2 was about \$2.09/MMBtu.

3 **Q. Was the net cost of natural gas hedging included in the FAC base factor**
4 **calculation?**

5 A. No. Natural gas hedging was not considered in the FAC base factor modeling for this
6 case. In other words, only the projected spot market prices mentioned earlier were
7 utilized. This is consistent with the approach the Company used in the last Missouri
8 rate case filing (Case No. ER-2019-0374).

9 **Q. Since the new wind resources were not fully operational at the time the FAC base**
10 **factor proposal was calculated, and have very limited generation history at the**
11 **time of this filing, how were the wind profiles developed?**

12 A. The wind profiles used in the EnCompass model are from data provided by
13 Underwriters Laboratories (UL, LLC), an independent engineering firm, based on wind
14 data that was collected at the wind farm sites.

15 **Q. How were the variable revenues for the MJMEUC sale calculated for the FAC**
16 **base factor proposal?**

17 A. The variable revenues from the MJMEUC sale were calculated outside the model based
18 on the energy settlements described in schedule 3.2 of the PPA and the modeled results
19 for the specific generating resources described within the agreement.

20 **III. ADDITIONAL F&PP COSTS/REVENUES**

21 **Q. Are you sponsoring other F&PP related costs and revenues that do not flow**
22 **through the FAC?**

23 A. Yes. Consistent with Empire's last general rate case (ER-2019-0374) the cost of natural
24 gas firm transportation and the Plum Point PPA demand charge are two F&PP costs

1 that do not run through the FAC. Each of these total company costs were annualized
2 and based on contracted pricing for this filing.

3 A cost of \$8,898,159 for natural gas firm transportation and \$11,981,748 for
4 the Plum Point PPA demand charge have been included to set base rates for this rate
5 case filing. In addition, the 78 MW capacity sale to MJMEUC based on the power
6 purchase agreement will result in annual revenue of ** [REDACTED] ** for the duration
7 of the agreement.

8 **Q. Has there been any change to the natural gas firm transportation contracts since**
9 **Case No. ER-2019-0374?**

10 A. Yes. Effective June 1, 2020, the Company has a new contract with Southern Star
11 Central Pipeline for 25,000 dekatherms (“Dth”) of firm natural gas transportation. The
12 primary delivery location is the Energy Center generating facility which did not have
13 any firm natural gas transport capacity prior to this contract. Energy Center has
14 experienced significant cuts to its natural gas supply in recent years, restricting, or in
15 many cases, completely eliminating the Company’s ability to offer the units from this
16 plant into the SPP market on natural gas. The new capacity will allow Energy Center
17 units to be offered into the market on natural gas while lowering the risk of non-firm
18 cuts. Additionally, the new natural gas transport contract can also be used to
19 supplement the firm transportation to the State Line and Riverton Combined Cycle
20 plants. This new firm natural gas transportation contract also supports SPP capacity
21 accreditation for resource adequacy requirements. Section 7.1.5 of the SPP Planning
22 Criteria begins by stating that “assurance of having desired generating capacity
23 depends, in part, on the availability of an adequate and reliable fuel supply.”

1 **IV. CONCLUSION**

2 **Q. Please summarize your Direct Testimony.**

3 A. In this case, Empire is requesting the continuation of its FAC with a 95%/5% sharing
4 mechanism. In conjunction with the continuation of the current FAC, Empire has
5 estimated a current level of F&PP expenses/revenues in order to rebase the FAC, and
6 Empire is proposing an FAC base factor of \$0.01011 per kWh, or a total company
7 annual base energy cost proposal of \$52,400,026 (please refer to Confidential **Schedule**
8 **TWT-3**). This is a decrease of about 56.7% over the current \$0.02338 per kWh level.
9 The FAC base factor modeling considered significant changes to the Company's
10 generating resources including the retirement of the Asbury coal unit and the inclusion
11 of nearly 600 MW of new wind resources. The FAC base factor calculation also
12 includes a modification to the level of transmission expense eligible for the FAC (as
13 supported in the Direct Testimony of Empire witness Aaron J. Doll), net metering
14 credits as well as the anticipated variable revenues from the MJMEUC PPA. Further,
15 this testimony summarizes the FAC cost components considered in the FAC base factor
16 proposal and describes the computer model and the modeling process. Finally, this
17 testimony proposes updated base rate cost levels for the cost of natural gas firm
18 transportation, the Plum Point PPA demand charge, and revenues from a capacity sale
19 to MJMEUC, since these are F&PP costs/revenues that do not run through the FAC.

20 **Q. Does this conclude your Direct Testimony?**

21 A. Yes.

VERIFICATION

I, Todd W. Tarter, under penalty of perjury, on this 28th day of May, 2021, declare that the foregoing is true and correct to the best of my knowledge and belief.

/s/ Todd W. Tarter