

**BEFORE THE STATE CORPORATION COMMISSION  
OF THE STATE OF KANSAS**

In the Matter of the Application of The Empire )  
District Electric Company for Approval of its ) Docket No. 23-EPDE-547-ACA  
Annual Cost Adjustment (“ACA”) Filing )

**NOTICE OF FILING OF STAFF’S  
REPORT AND RECOMMENDATION (PUBLIC)**

COMES NOW, the Staff of the State Corporation Commission of the State of Kansas (Staff and Commission, respectively), and files its Report and Recommendation regarding the Application of the Empire District Electric Company (“Empire”) requesting approval of its annual Energy Cost Adjustment (“ACA”). Because the Staff Report and Recommendation contains confidential commercial information pertaining to Empire’s practices to procure fuel and purchased power, as well as its participation in the Southwest Power Pool Integrated Marketplace, Staff has elected to file both a confidential and a public version of the Report and Recommendation in accordance with K.S.A 66-1220a.

Staff has thoroughly investigated Empire’s Application, supporting testimony, and exhibits. Staff recommends that the Commission approve Empire’s ACA factor of \$0.00111 per kWh to recover \$255,611 of under-recovered fuel and purchased power expenses from retail customers during the ACA period. Staff will continue to monitor Empire’s performance and participation in the Integrated Marketplace and will provide periodic updates to the Commission regarding this issue as often as desired.

WHEREFORE, Staff submits its Report and Recommendation for Commission review and consideration and for such other relief as the Commission deems just and reasonable.

Respectfully submitted,

*/s/ Carly R. Masenthin* \_\_\_\_\_

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Andrew J. French, Chairperson  
Dwight D. Keen, Commissioner  
Annie Kuether, Commissioner

Laura Kelly, Governor

**REPORT AND RECOMMENDATION  
UTILITIES DIVISION**

**CONFIDENTIAL VERSION**

\*\*    \*\* Denotes Confidential Information

**TO:** Andrew J. French, Chairperson  
Dwight D. Keen, Commissioner  
Annie Kuether, Commissioner

**FROM:** Jaren Dolsky, Auditor  
Tim Rehagen, Senior Auditor  
Chad Unrein, Chief of Accounting and Financial Analysis  
Justin Grady, Deputy Director of Utilities  
Jeff McClanahan, Director of Utilities

**DATE:** July 9, 2024

**SUBJECT:** Docket No. 23-EDPE-547-ACA – In the Matter of the Application of The Empire District Electric Company for Approval of its Annual Energy Cost Adjustment (“ACA”) Filing.

**EXECUTIVE SUMMARY:**

The Empire District Electric Company (Empire) filed an Application requesting approval of its annual Energy Cost Adjustment (ACA). Empire is requesting an ACA factor of \$0.00111 per kWh in order to recover \$255,611 of under-recovered fuel and purchased power expenses from retail customers during the ACA period ending October 31, 2022. Staff conducted an audit of Empire’s Application, as discussed below, and recommends approval of Empire’s requested 2022 ACA factor.

**BACKGROUND:**

On December 21, 2022, Empire filed an Application requesting approval of its ACA. Attached as Appendix A, Schedules 1-3 to the Application is the annual calculation of the over/under recovery of energy costs for the Energy Cost Adjustment (ECA) year ending October 31, 2022. Appendix A, Schedule 2 shows a cumulative under-recovery of 2022 ECA costs in the amount of \$255,611. Based on this under-recovery, Empire calculated an ACA factor of \$0.00111 per kWh to be charged to Kansas customers. Charlotte T. Emery, Senior Director of Rates and Regulatory Affairs for Liberty Utilities’ Central Region, provided testimony describing the attachments included in the Application, the impact of the Southwest Power Pool (SPP) Integrated Marketplace (IM) on the ECA off-system profit factor, and the 2023 ECA energy cost forecasts. Todd W. Tarter, Senior Manager, Strategic Planning for Liberty Utilities’ Central Region, provided testimony describing

the impact of the SPP IM on Empire's operations. Mr. Tarter also discusses Empire's fuel and purchased power procurement process.

On March 1, 2014, SPP implemented the Integrated Market (IM).<sup>1</sup> The IM is a regional day-ahead energy and operating reserve market featuring the following major functions:

- Day-ahead energy and operating reserve markets;
- Day-ahead and intra-day Reliability Unit Commitment processes;
- Real-time balancing market;
- Price-based, co-optimized energy and operating reserve procurement;
- Market-based congestion management processes including Transmission Congestion Rights and Auction Revenue Rights;
- Multi-day reliability assessment to manage the commitment of long-start resources; and
- Market Monitoring and Mitigation with an internal Market Monitoring Unit.<sup>2</sup>

With the operation of the IM, Empire sells energy and operating reserves produced from its company-owned generating resources to SPP in the Day-Ahead (DA) and Real-Time Balancing Market (RTBM) and it purchases the energy and operating reserves it needs to serve its native load obligations on a daily basis. Revenues and expenses from the IM are recorded in FERC accounts allowed to be recovered under Empire's ECA tariff; therefore, Staff's ACA audit includes a review of Empire's participation in the SPP IM. Staff monitors Empire's monthly market activity and performs a yearly review of controls, procedures, and performances as part of the annual ACA audit.

## **ANALYSIS:**

### **Traditional Fuel and Purchased Power Review**

Staff solicited formal discovery requests and e-mail correspondence to Empire based on its documentation supporting its Application and Attachment A, Schedules 1-3. Historically, Staff has met with Empire either in person or virtually to conduct a review of Empire's coal and transportation contracts. However, because of the retirement of the Asbury coal plant in March 2020, a review of Empire's coal and transportation contracts is no longer necessary.

Staff audited Empire's actual fuel costs for the following months: March, April, June, and July 2022.<sup>3</sup> For these months, Staff conducted an audit of the Application that consisted of:

- Testing the accuracy of the monthly Settlement Computations;
- Ensuring the actual cost adjustment computed by the utility reflects the actual over/under recoveries and the actual sales to Kansas jurisdictional customers;
- Ascertaining that the actual fuel and purchased power costs recovered through the ECA are actual costs supported by vendor invoices and general ledger entries;

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<sup>1</sup> See FERC, *Order on Compliance Filing*, January 29, 2014, Docket Nos. EL12-1179 and EL13-1173; [http://elibrary.ferc.gov/idmws/file\\_list.asp?accession\\_num=20140129-3063](http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20140129-3063).

<sup>2</sup> *Southwest Power Pool, Inc.*, 141 FERC ¶ 61,048 (2012) (October 2012 Order).

<sup>3</sup> Staff typically audits four months out of the ACA year. The four months usually consist of at least two months from the summer cooling season.

- Verifying that the ECA factor used to calculate the customer's bill agrees with the calculation that the Company files with the Commission; and
- Ensuring the ACA balance reflects the elimination of the gains/losses associated with financial instruments used to hedge the cost of natural gas and the sales of excess natural gas during the twelve-month ACA period ending October 31, 2022.

During this portion of Staff's audit, Staff found no material irregularities from its audit of the information provided.

### SPP Integrated Marketplace Review

As referenced in the Background Section, Staff's ACA audit includes a review of Empire's participation in the SPP IM during 2022. Staff issued formal discovery requests to document Empire's processes and procedures involving its day-to-day operations within the SPP IM.

The objectives of Staff's audit of Empire's participation in the IM were as follows:

1. Review Empire's process and control procedures in place to validate the accuracy of SPP invoices and statements.
2. Examine Empire's management of market performance and operational risk within the SPP IM.
3. For the months being audited in this year's ACA audit, evaluate whether Empire has accurately accounted for Kansas's actual share of IM revenue and costs pursuant to the provisions of the current ACA tariff.
4. Examine Empire's all-in ECA cost calculation and determine whether Empire's participation in the SPP IM is providing benefits to Empire's Kansas ratepayers.

### Processes & Control Procedures

To examine Empire's control procedures including the verification of its SPP IM billing statements, Staff issued formal discovery requests based on the SPP audit findings and the review of fuel and purchased power expenses detailed in Docket No. 22-EPDE-261-ACA (22-261 Docket).

Through discovery, Staff requested that Empire review its software applications for interacting with the SPP IM and discuss their functionality. In early 2018, Empire implemented the Adapt2 Solutions (Adapt2) software suite as its Application Programmable Interface following its acquisition by Liberty Utilities. Empire continued to use the interface for all its marketplace interactions with the SPP IM in 2022. Empire stated Adapt2 provided increased functionality allowing for advanced data analytics with more sophisticated bid and offer templates while lowering Empire's software maintenance costs. Empire developed and implemented an in-house application that communicates with SPP's Outage Application Program Interface every five minutes looking for an Out of Merit Energy (OOME) status on Empire's generation resources. Any OOME's for Empire's resources get logged to a database and displayed in a PowerApp accompanied by an audible tone for traders monitoring the app, which improves the monitoring process and ease of notification.

As part of the audit, Empire provided Staff with documentation of its workflows for submitting generation offers and bidding in its load in the day-ahead and real-time balancing markets. In its confidential response to KCC Data Request No.14, Empire provided Staff with detailed work flow charts that documented Empire's processes, procedures, and controls encompassing its SPP marketplace activity and its trading process flow. In previous audits, Staff has examined Empire's processes for shadow settlement, verification of settlement statements, and booking the monthly activity into the general ledger. Empire uses its shadow settlement system and meter data to verify SPP IM activity independently and compares the resulting solution against the SPP settlement statements. The SPP settlement statements contain all of Empire's net revenue and charges related to its market activities for the operating day by charge type. If the shadow settlement calculation deviates from the SPP invoice, Empire reviews the internal shadow settlement calculation and meter data and, if necessary, files a dispute in the SPP marketplace portal.

Staff found that Empire has robust control procedures in place to verify the accuracy of the settlement statements and invoices it receives from SPP for its activity in the IM. Additionally, Empire has a comprehensive process in place to verify meter data with internal and external counterparties and with SPP. Furthermore, Empire has a defined process in place to submit and monitor disputes with SPP.

#### Managing Market Performance and Operational Risk

Empire's actual processes, forecasting models, and strategies for managing its day-to-day market performance and operational risks are complex and highly confidential. Empire's market data and company policies are available upon request if the Commission desires to review the discovery and policy documents.

Staff issued multiple discovery requests to perform an evaluation of Empire's performance tracking and risk mitigation strategies. Performance tracking and risk mitigation drive overall market performance and minimize the operating costs that are passed on to utility ratepayers. The operators' ability to capture incremental market sales when market prices support a unit's operation can offset a unit's production costs. Additionally, an operator can elect to purchase power when wholesale energy prices are low, minimizing its own production costs and energy output during uneconomic operating periods. Empire's transactions for the purchase or sale of energy and operating reserves primarily occur within the SPP IM. Empire may, however, contract bilaterally with other counter-parties if an opportunity presents itself within the market. While Empire did not execute any new bilateral contracts with external parties in 2022, it maintains a purchase power agreement with the Missouri Joint Municipal Electric Utility Commission (MJMEUC), which Empire operates under SPP's methodology for Combined Interest Resources.

From an operational perspective, Empire relies on a number of forecasting techniques, its own seasonal operational history in the SPP IM, and back-end market performance analysis in order to manage the demand of its system, resource availability, cost of fuel, variable operating and maintenance costs, and congestion cost exposure, all of which ultimately drive the all-in costs of the ACA. The availability of wind resources and the cost of natural gas can significantly impact the overall costs of wholesale energy in the SPP IM. When SPP IM scarcity events occur, such as the Winter Storm Uri event in February of 2021 or the Winter Storm Elliott event in December of 2022, the SPP IM marginal energy price increases exponentially due to the price and availability

of natural gas coupled with a reduction in generation availability, resulting from the below-zero temperatures. While some of these scarcity events fall outside of the normal operator's control, Empire's operational planning and forward-looking natural gas purchasing strategies allow the utility to actively manage its generation assets, procure load to serve its customers, and manage the strategic risks of operating in the SPP IM.

In its audit, Staff inquired on Empire's management of daily load purchases and generation costs in the SPP IM. Empire utilizes wind and weather forecasts and its past operational history to project its daily retail load and adjust its demand bidding strategies as congestion concerns arise. Empire will actively update and manage its generation offers to recover its fuel and variable operations and maintenance expenses to recover its costs in accordance with the SPP IM Protocols. In 2022, Empire's formula for calculating its generation offer curves were consistent with its approach in prior rate periods.

In its response to KCC Data Request No. 18, Empire discussed its management of variable operating and maintenance (VOM) costs in its generation offers. In its response, Empire stated, "the majority of the VOM costs captured in generation offers are associated with Long Term Service Agreements (LSAs) for plant maintenance." Empire is required to submit its LSA contracts to the SPP Market Monitoring Unit (MMU) to have the costs included in the mitigated offer calculation via the maintenance adder. For generation units that do not have a contracted LSA, Empire reflects these variable costs through adders in its "Cost Plus" offer. Empire's Cost Plus adders are limited based on SPP's market power thresholds documented in the SPP IM Protocols. Therefore, Empire utilizes sufficient adders and multipliers to cover anticipated costs without subjecting the units to increased risk of its units being mitigated.

With regard to its generation profitability, Empire employs an internal production cost model to monitor the profitability of units in the SPP IM. The model includes numerous inputs from DA revenue from sales and ancillary services, TCR revenue, DA demand bid expenses, and real-time generation outputs and ancillary production, estimated production costs, calculated real-time load and estimated make whole payments. This model is updated daily and used to construct month-end management reports. These management reports provide checks against market settlement data and fuel and purchase power expenses recorded by Empire's plants. Empire's model views the DA and RTBM as a complete revenue stream rather than separating the two markets, which improved accuracy in tracking the profitability of its generating units.

Empire may use virtual transactions<sup>4</sup> to manage its wind generating resources in the SPP IM. The virtual instruments are used to hedge risks and volatility in the RTBM. Empire has documented its strategy for managing its power and natural gas commodity risk in its Risk Management Policy and maintains a Trading Authorization Policy for employees involved in sales and procurement of power and natural gas. While the details of Empire's strategies are confidential due to their competitive and market-sensitive nature, Staff was provided a copy of both policies for review in its confidential response to KCC Data Request No. 14. Staff has found that Empire developed strategies to manage market risks (including risks of recovery of variable O&M costs and fuel cost

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<sup>4</sup> Virtual transactions are DA market instruments that settle financially and have no physical energy backing. These transactions are a proposal by a Market Participant to buy or sell energy at a specified price, Settlement Location and period of time in the DA and settles at the Settlement Location and period of time at the market price in the RTBM.

changes) and evaluate the on-going profitability of its generation portfolio to be successful in the SPP IM.

### Congestion Management

For the management of its congestion hedging portfolio, Empire uses a software product from YES Energy to provide comprehensive ISO market data and visual analysis tools to help develop its strategies for congestion hedging. Empire's analysts also use internal tools to monitor daily TCR value, marginal congestion costs, and SPP auction clearing prices. The data helps evaluate its portfolio positions and potential sales of existing TCR positions, as well as provides management with portfolio performance. In its discovery responses, Empire discussed its evaluation processes for ARR by analyzing source and sink pairings along its native paths. Empire will nominate only source-sink pairings that have demonstrated consistently favorable values from a historical perspective. For favorable pairings, Empire will generally self-convert these ARRs into TCRs, unless the nomination would cause Empire to be over-hedged along a native path. Additionally, Empire may forego self-conversion of the ARRs and place protected bids against the awarded ARR in the monthly TCR auction. Empire's decision to monetize certain ARR pathways came down to a few different factors. The primary factor was annual "foreign-path" awards that were awarded in round three of the annual auction based on recommendations from ACES Power, a consultant that assisted Empire with the annual process. The other factor that Empire considered in its decision to self-convert the ARR stemmed from either transmission or generator outages that increased the risk of carrying those source-sink pairs into the operating month. According to its response to KCC Data Request No. 16, Empire self-converted a larger portion of its ARRs and was awarded 41%. The remaining ARR awards (roughly 59%) were monetized either with a protective bid process or allowing them to settle with the market.

As part of the performance audit, Staff requested Empire provide an analysis of its congestions costs and TCR revenue generated from its TCR portfolio. In 2022, Empire's congestion cost exposure in the day-market totaled \$85.2 million, while the revenue generated from its TCR positions totaled \$86.9 million. When compared to the 2021 ACA filing, Empire experienced significant increases in both the TCR revenue and its total congestion costs in 2022. For 2021, Empire's congestion cost totaled \$25.1 million while the revenue generated from its TCR portfolio totaled \$32.5 million. In 2022, Empire was able to hedge 102% of its total realized DA congestion costs for its load, with its TCR portfolio producing a net benefit of \$1,696,594 (inclusive of Empire's ARR close-out and uplift). In comparison, Empire hedged 129.4% of its congestions costs in 2021, producing a net benefit of \$7,376,443 from its TCR portfolio.

In its response to KCC Data Request No. 17, Empire provided a breakdown of its TCR management process and congestion hedging portfolio. Empire evaluates its congestion cost exposure to determine if its monthly TCR auction purchases are necessary to close any gaps between awarded TCRs and planned day-ahead positions. A revenue breakdown of Empire's TCR portfolio and the percentage of revenues the congestion product contributed to the TCR portfolio includes: Long-term TCR (LTCR) positions totaled \$43.4 million and accounted for 50.9% of the portfolio revenue; self-converted TCR positions totaled \$28.7 million and accounted for 33.7% of the portfolio revenues; non-converted ARRs totaled \$11.2 and accounted for 13.1% of the portfolio revenues; and the TCR closeout process provided \$3.6 million and accounted for 4.2% of the congestion portfolio revenues.



Based on Staff's review, Empire developed the necessary market strategies for evaluating its market performance and managing the risks of operating in the SPP IM. Empire tracks the past performance of DA and RTBM for its generation units and has a defined strategy for bidding in its load. Empire has software solutions and market strategies in place to evaluate its congestion exposure and appropriately hedge these costs with its TCR portfolio. The strategies employed by Empire appear to be successful as Empire's TCR positions hedged 102% of its total congestion costs and netted approximately \$1.7 million in TCR revenue in excess of its congestion costs in 2022.

Considering all of the above, Staff finds that Empire diligently managed the risks and profitability associated with the IM during 2022 and is taking the steps necessary to be successful in the IM.

#### ACA Audit of Revenues and Costs

Staff utilizes a monthly review process to monitor the IM activity of the three vertically integrated, investor-owned electric utilities in the State of Kansas. This process involves the submission of monthly financial reports (Monthly Activity Report) to the Kansas Corporation Commission's Utilities Division that details each utility's operations in the SPP IM.<sup>5</sup> The Activity Reports provide a summary-level view of how the electric utility is faring in the marketplace and detail all SPP IM activity by charge-type. For example, Staff can view at a glance the amount of MWhs and average price of day-ahead or real-time asset energy Empire sold into the IM. Likewise, the Activity Reports summarize the energy and operating reserve products Empire purchased from the IM for the month, the MWhs associated, and the net dollar impact of those products. The Activity Reports allow Staff to monitor utility performance in the SPP IM, track trends in the wholesale energy market, and serve as a useful audit tool during the ACA audit. Finally, these reports provide the foundation for reconciling the monthly IM charges from SPP settlement statements and invoices to the journal entries recorded in the Company's general ledger. This data ties back to Empire's ACA Application and true-up of the over/under recovery of actual costs.

In addition to the Monthly Activity Report, Staff receives a monthly report from each Kansas-jurisdictional electric utility detailing any virtual transactions undertaken in the SPP DA market (Monthly Virtual Transaction Report). Staff reviews these reports to ensure that only virtual transactions with a legitimate hedging basis are recovered from Kansas ratepayers.

During Staff's audit of Empire's participation in the IM, Empire provided Staff with a reconciliation that documented and verified all Empire IM activity for the audited months. This reconciliation relied on the SPP IM Monthly Activity Report discussed above, weekly SPP settlement statements, and a reconciliation spreadsheet prepared by Empire that tied net general ledger accounting data for the month back to the corresponding settlement statement and the Monthly Activity Report. Staff verified the weekly settlement invoices and compared the invoice totals with those in the invoice reconciliation spreadsheet. Staff also verified Empire's IM purchase and sales amounts were as presented in the Monthly Activity Report.

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<sup>5</sup> Empire and Evergy Metro each voluntarily agreed to the reporting requirements originally approved by the Commission for Westar Energy in Docket No. 14-WSEE-208-TAR (14-208 Docket). See items 15 and 16 in Attachment A of the Order Approving Tariff Revisions issued on February 25, 2014, in the 14-208 Docket.

In Staff's review of Empire's IM revenue and costs, Staff determined that the SPP settlement statements and the Monthly Activity Reports were accurately reported on Empire's general ledger and tied to its ACA Application for the sample months audited.

#### Analysis of All-in Fuel Cost

In each of the previous ACA audits, Staff presented a Kansas retail all-in fuel or total ECA cost calculation. The calculation includes the production fuel costs, purchased power expense, and emission allowances, less revenues generated from its SPP IM activity. This net total then is apportioned to Kansas based on delivered MWh. Staff used this metric for performance tracking to guide discovery requests and determine underlying trends or cost drivers that impact market performance. Outside factors, such as SPP wholesale energy prices and Kansas demand for energy, can drive changes in the total ECA costs passed on to its Kansas-jurisdictional ratepayers. In 2021, Empire's all-in ACA costs totaled \$18.1 million (apportioned to Kansas) with the removal of \$11.2 million of extraordinary costs of Winter Storm Uri, resulting in a normalized ACA costs of \$6,878,302. In 2022, Empire's ACA eligible costs totaled \$9,436,849, which represents a year-over-year decrease of \$2,558,547 or 37.2% when compared against the 2021 ACA costs with the impact of Winter Storm Uri removed. During this period, Empire's total kWh delivered to Kansas was 230,397,570 kWh, which equated to a decrease of 0.8% year-over-year.

Empire delivered an all-in fuel and purchase power costs of \$0.04096 per kWh, which resulted in a 38.23% increase, when compared to the 2021 ACA costs of \$0.02963 per kWh with the exclusion of Winter Storm Uri's costs. When compared against Empire's costs of Winter Storm Uri in 2021, Empire's all-in ACA costs per kWh of \$0.4096 for 2022, represents a reduction of 47.7% from the \$0.07813 per kWh in 2021. The primary driver for the impact in the ACA costs was the elevated price of natural gas and purchase power throughout the SPP region in 2021 and 2022.

#### Empire – ECA Costs

Staff issued discovery requesting Empire to provide a cost analysis and to discuss drivers for the year-over-year ACA costs. In its response to KCC Data Request No. 28, Empire provided a narrative, confidential supporting workpapers, and management reports that analyzed the cost drivers of the year-over-year increase in Empire's fuel and purchase power costs. Empire's data was provided on a total company basis and included the impact of SPP's Winter Weather Event from Winter Storm Uri. In the analysis below, Staff discusses the cost drivers of Empire's ACA Application and its public response to KCC Data Request No. 28. Empire provided limited confidential data on natural gas and fuel pricing in its confidential workpaper: "YOY Fuel Costs – 2021 – 2022," due to the competitive nature of the SPP IM.<sup>6</sup>

As previously stated, Empire included the impact of the Winter Weather Event in February of 2021, which heavily skewed the market data for their fuel and purchase power costs and revenue from its generation sales into the SPP IM. In 2022, Empire's average cost for natural gas purchases

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<sup>6</sup> In the following section of the Report, Staff analysis includes confidential market data from Empire's workpaper entitled "YOY Fuel Costs – 2021-2022 Confidential.xls." This confidential workpaper contained Empire's SPP IM data for the fuel costs of its coal and natural gas generating units and native load costs for 2021 and 2022. Due to the confidential designation of Empire's workpaper, Staff has also provided SPP IM data for natural gas costs and wholesale energy prices contained in SPP's State of the Market Report for 2022, which is published yearly by SPP's Market Monitoring Unit.

was \*\* [REDACTED] \*\*, and its purchase power at its load nodes averaged \*\* [REDACTED] \*\*.

Empire's average price for natural gas and average load charge declined in 2022 in comparison to 2021, due to the impact of Winter Storm Uri; however, despite the decline, the cost remained higher than Empire's historical natural gas and average load costs prior to 2021. With the impact of Winter Storm Uri, Empire's average cost of natural gas was \*\* [REDACTED] \*\* in its 2021 ACA filing while its load charge averaged \*\* [REDACTED] \*\*.

On a total company basis, Empire's generation production costs was \$228.3 million in 2022, which decreased by \$53.8 million year-over-year from \$282.2 million in 2021. Empire's purchased power costs to serve its native load costs totaled \$13.6 million, while its generation accounted for \$46.4 million in net revenue from sales into the SPP IM. In total, Empire experienced a net decline of \$179.7 million in the all-in energy costs (fuel and purchase power, net of energy sales) on a total company basis with the inclusion of the impact of Winter Storm Uri. Empire's Kansas-jurisdictional customers were allocated roughly \$9.4 million in fuel and purchase power, net of generation sales.

### SPP Market Impact

In its State of the Market Report for 2022, the MMU addressed the impacts of increasing wind generation, make-whole payments, and resource adequacy challenges that continued to deepen in the SPP IM in 2022. While wind generation continues to play an increasing role in SPP's markets, it has also produced challenges, including variability and uncertainty of supply, out-of-market actions to ensure system reliability, higher make-whole payments, and increased negative prices.

As detailed in Staff's Report, the Winter Weather Event skewed many of the metrics when comparing 2022 market data to 2021 market data. When analyzing the year-over-year impact, the MMU conducted two sets of analysis for 2021: the first data set included the impact of Winter Storm Uri in 2021, while the second data set excluded Winter Storm Uri by omitting the entire month of February of 2021. Similar to the MMU's comparison, Staff provided a comparison of SPP's operating results in 2022 against SPP's operating results both including and excluding the impact of Winter Storm Uri in 2021.

Wholesale energy prices in SPP are indirectly tied to pricing fluctuations in the regional natural gas markets.<sup>7</sup> In its Annual State of the Market Report for 2022, the MMU explained that the average cost for natural gas price indexed at the Panhandle Eastern Pipeline market hub was \$5.83 per MMBtu, an increase of 69% in the average price of natural gas of \$3.44 per MMBtu in 2021 (excluding the impact of the month of February).<sup>8</sup> If SPP included the February 2021 data, the average price of natural gas on Panhandle Eastern Pipeline totaled \$4.96 per MMBtu in 2021.<sup>9</sup>

In 2022, the SPP IM day-ahead market prices averaged \$47.86 per MWh, which increased by 80% from the \$26.62 per MWh in 2021 with the exclusion of February's impact. With the inclusion of

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<sup>7</sup> The MMU has primarily used the Panhandle Eastern Pipeline as an index price in its Annual State of the Market Reports.

<sup>8</sup> See SPP Annual State of the Market Report for 2022, p. 2.

<sup>9</sup> See *id.*

the February 2021 data, day-ahead market prices averaged \$63.26 per MWh in 2021.<sup>10</sup> In 2022, SPP's real-time prices averaged \$43.24 per MWh with the impacts of Winter Storm Uri, increasing 75% from \$24.64 per MWh in 2021.<sup>11</sup> Inclusive of February 2021 data, SPP's real-time prices averaged \$36.62 per MWh in 2021.<sup>12</sup>

Regarding the impact of make-whole payments in 2022, the MMU stated:

For 2022, combined day-ahead and reliability unit commitment make-whole payments totaled just over \$465 million. Reliability unit commitment make-whole payments represented \$292 million, or 63 percent, of the total. Due to the Winter Weather event in 2021, SPP's day-ahead make-whole payments totaled \$978 million, with 93% of all make-whole payments occurring in February. After removing the impact of February's make-whole payments from the 2021, day-ahead make-whole payments increased from \$75 million to \$173 million in 2022, an increase of 130%. Reliability unit commitment make-whole payments for 2021 (without February) totaled \$116 million, compared to \$292 million in 2022, an increase of 152 percent.

The increase in make-whole payments can be attributed to higher gas prices overall for 2022. An additional driver for the increase in reliability unit commitment make-whole payments was for manual capacity commitments in the real-time market to meet ramping needs. The increase in capacity commitments was primarily caused by two factors. First, the increase in generation outages reduced the availability of capacity to meet uncertainty of both supply and demand. Second, the higher level of wind penetration on the system has increased the overall level of uncertainty in the market.<sup>13</sup>

Finally, the MMU's noted its concerns with the impact of negative pricing intervals in the SPP day-ahead and real-time markets in its State of the Market Reports, primarily driven by wind resources output when the SPP IM demand for energy is low. The MMU noted that wind generation has accounted for 92% of capacity additions over the last three years. In 2022, wind generation as a percentage of total generation represented 38% of SPP's total generation production, compared to 35% percent of total generation production in 2021.<sup>14</sup> With the increase in wind generation, the frequency of SPP's negative pricing remain a concern for the MMU.<sup>15</sup> The day-ahead market resulted in a slight decrease in negative pricing intervals from 7.7% in 2021 to 7.1% of all market intervals in 2022.<sup>16</sup> The RTBM market experienced an increase in negative pricing intervals from 14.8% in 2021 to 15.2% of all market intervals in 2022.<sup>17</sup>

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<sup>10</sup> See SPP Annual State of the Market Report for 2022, p. 133.

<sup>11</sup> See *id.*

<sup>12</sup> See *id.*

<sup>13</sup> See *id.*, p. 7.

<sup>14</sup> See *id.*, p. 5.

<sup>15</sup> See *id.*, p. 10.

<sup>16</sup> See *id.*, p. 147.

<sup>17</sup> See *id.*, p. 148.

### SPP IM Benefit to Kansas Ratepayers

In its evaluation of Empire's participation in the SPP IM and the benefit it provided to Kansas customers in 2022, Staff relied on SPP's calculation of the regional marketplace benefit and Empire's analysis of the SPP IM benefit in its simulation model. Staff requested SPP provide an update of its regional SPP IM benefit calculation for the current year and from the inception of the SPP IM in 2014. Based on SPP's analysis, the SPP IM provided a net regional benefit of \$2.3 billion from its energy and regulation markets in 2022, and roughly \$7.96 billion in regional benefits since its inception. This information suggests Empire's participation in the SPP IM has produced some benefits to Kansas ratepayers in 2022.

Staff issued formal discovery requesting Empire provide an analysis examining the estimated benefit/savings produced by the SPP IM Consolidated Balancing Authority versus the costs to serve retail customers with the Company's generating units and reasonable access to wholesale markets. In response, Empire provided a simulation model. The model estimates the net cost of fuel and purchase power to supply Empire's native load using its generation resources and then, compares the simulation results to its operating results under the SPP IM. Unit availability, cost of fuel, renewables output, and actual load are inputs to the model, and the results were analyzed and adjusted to include cost that would be present in both scenarios. The results showed that Empire's participation in the SPP IM reduced costs by an estimated \*\* [REDACTED] \*\* in 2022.<sup>18</sup>

The primary driver of the ECA increase was related to Empire's exposure to natural gas as a fuel source for energy production. During Winter Storm Uri, electric utilities and natural gas distributors drained their storage reserves to provide service during the winter event. This lingering market impact raised natural gas prices throughout the year of 2021 as utilities replenished gas reserves prior to the 2021 – 2022 winter season. In addition, the invasion of Ukraine by Russia in early 2022 caused a rush for European nations to replace the gas that used to be supplied by Russia, causing a worldwide spike in natural gas prices which ultimately affected gas prices in the United States as well, with domestic purchasers competing against Liquefied Natural Gas (LNG) exports that were in high demand in Europe. It's also possible that the heightened focus of regulators and utilities to secure longer term and firmer supplies of gas in the wake of Winter Storm Uri put upward pressure on natural gas prices during 2022. During periods of high natural gas prices, Empire's coal, wind and hydro resources generate higher production margins that help to offset some of the increases in natural gas costs and purchase power expense that Empire incurs to serve its Kansas customers.

Based on Staff's review of the available market data from SPP's calculation of the regional SPP IM benefit and Empire simulated model comparing SPP's operation as a single balancing authority against the modeled impact of serving customers with its own generation, the market data suggests

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<sup>18</sup> See Empire's confidential response to KCC Data Request No. 20. Empire's estimation of cost savings from the SPP IM were modeled using an energy marketing modeling software. Empire's analysis focused on benefits resulting from the consolidation of SPP into a single balancing authority, which is only a small part of the SPP IM. The estimated cost savings calculation is not meant to be a comprehensive analysis of Empire's benefits from participation in the SPP IM.

that the SPP IM is benefiting Empire’s Kansas customers. In addition, Empire has demonstrated an overall decline in its all-in ECA costs per kWh by 24.34% from 2013 through 2020. These resources will continue to provide significant benefit in a low price natural gas market. Staff discussed the SPP market dynamics of natural gas and purchase power that resulted in significant impacts to Empire’s 2021 and 2022 ECA filings. Based on Empire’s model of the SPP benefit that occurred in 2022, and the overall decline in Empire’s all-in ACA costs that occurred between 2013 and 2020, the analysis suggests that the SPP IM is benefiting Empire’s Kansas customers.

Self-commitment Review of Empire’s Generation Units

In Empire’s prior ACA filing, Docket No. 22-EPDE-261-ACA, Staff performed a comprehensive review of Empire’s operational strategies for managing the self-commitment of its coal units and evaluated the market performance of the units. For prior periods, Staff incorporated a performance review of Empire’s coal units and their use of self-commitment in its yearly audit of SPP market activity. Staff chose to forgo conducting this analysis for the 2022 rate year for a few reasons. First and foremost, Empire is not the operator of these units and only has a minority stake in the generation produced at Iatan 1, Iatan 2, and Plum Point. The following table provides a breakdown of its ownership interest.

<b>EMPIRE COAL GENERATION FACILITIES: Ownership Interest &amp; Name-Plate Capacity</b>				
<b>Generation Facility</b>	<b>Ownership</b>	<b>Ownership Percentage</b>	<b>2021</b>	<b>2022</b>
Iatan	Co-owned	12%	210.47	210.47
Plum Point	Co-owned	7.52%	50.00	50.00
Plum Point	PPA	7.52%	50.00	50.00
Data: FERC Form 1				

As a minority owner, Empire does not have direct operational control over the unit commitment decisions of its Iatan and Plum Point coal units. Following SPP’s implementation of Revision Request No. 266, Evergy and Empire elected to register Iatan as a Combined Interest Resource (CIR), allowing the market clearing engine to clear each Iatan unit as a single resource, and then, post market revenue allocations to be dispersed to each share in settlements based on its designated ownership percentages. When Iatan is bid into the market as a CIR by Evergy Metro, Empire receives its proportional share of its revenue and costs based on its 12% ownership percentage. The revenue allocations would be posted through new billing determinants and the addition of two new charge types<sup>19</sup> to effectuate the allocation of settlement dollars for the units registered as CIRs based on the designated ownership percentages for the unit. Due to the change in SPP IM data reporting, Staff was not able to obtain a breakdown of Empire’s self-commitment data for Iatan 1 and Iatan 2, following the implementation of CIR reporting in August 1, 2020.

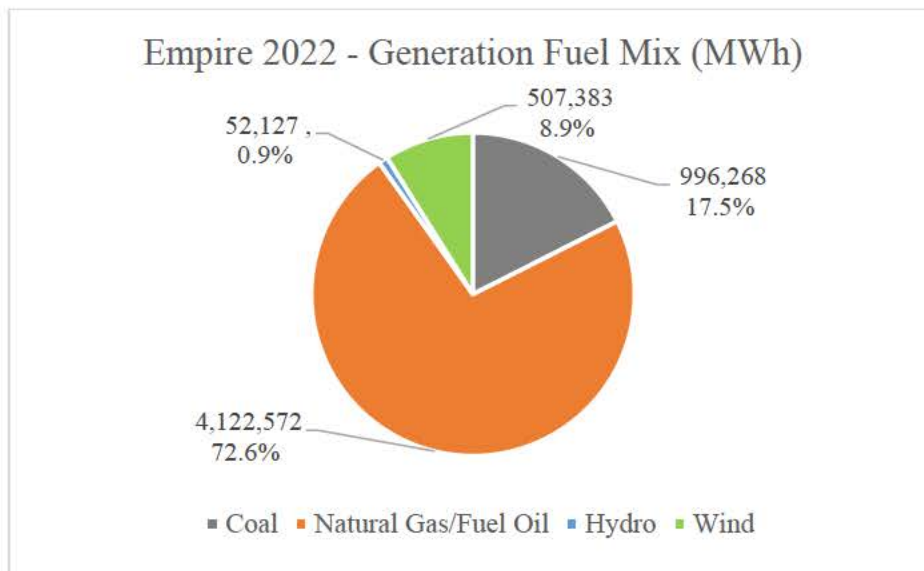
<sup>19</sup> SPP’s new charge types include: Day-Ahead CIR Adjustment Amount (DACirAdjDlyAmt) and Real-time CIR Adjustment Amount (RtCirAdjDlyAmt).

As it relates to the operation of Plum Point, Empire’s share of Plum Point is entirely self-committed in the SPP market to avoid any situations that could occur with clearing Plum Point in the MISO and SPP IM. Due to the resource serving this dual market role, Empire will self-schedule Plum Point rather than allow the market to clear the resource in each market, respectively.

Furthermore, Staff started its self-commitment review in a low price SPP IM environment with the majority of coal resources being self-committed by the utility. Throughout Staff’s yearly audits, Staff found that the Kansas utilities were actively following market pricing signals provided by the SPP IM, allowing their coal units to cycle when revenues could not support their operations and purchasing low cost power from other market resources. Staff’s analysis regularly found that the utilities were generating a contribution margin at each of their generation resources when the data was viewed in aggregate. The margins at the units supported the fixed recovery of the asset and provided a hedge against high natural gas prices, increasing its coal generation when the units resulted in a more economic option for utility ratepayers.

### Empire Fuel Mix

In response to KCC Data Request No. 24, Empire provided its fuel mix for its generation production for 2022, which Staff compiled into the following pie chart of its generation output in 2022.

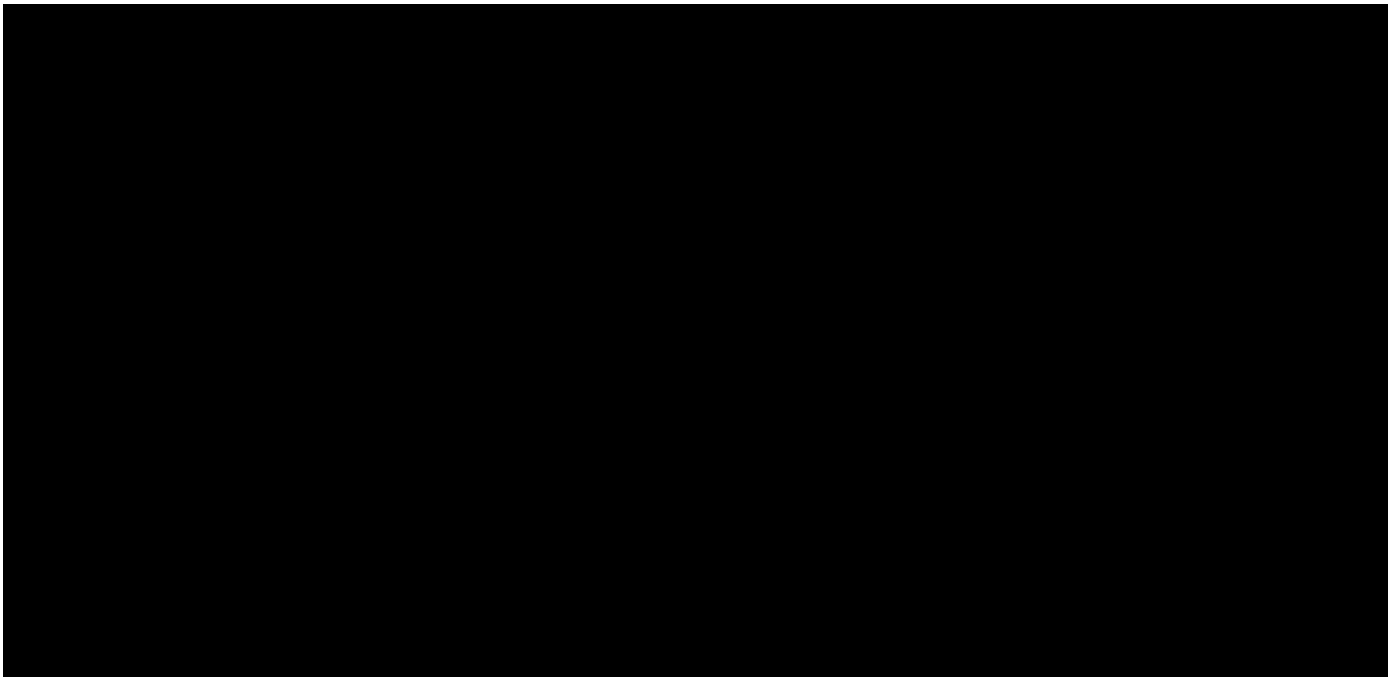


As detailed in the graph of Empire’s generation portfolio, the majority of Empire’s generation production was produced by natural gas and fuel oil, with its generation supply consisting of: 72.6% natural gas and fuel oil, 17.5% coal, 8.9% wind generation, and nearly 1% from hydro generation in 2022. With a generation portfolio heavily tilted towards natural gas, Empire’s exposure to natural gas price volatility resulted in a higher impact to its fuel purchases of natural gas and its wholesale power purchases needed to serve load. Compared to its 2021 ACA fuel mix, Empire’s natural gas exposure increased from 67% of its fuel mix in 2021 to 72.6% in 2022. The increase in natural gas production was offset by a decline in its coal output from 22.9% of its fuel mix in 2021 to 17.5% in 2022. Empire’s generation mix from wind and hydro resources held steady year-over-year, accounting for 10% of Empire’s generation mix.



### Generation Costs & Purchase Power Expense

In a confidential response to KCC Data Request No. 19, Empire provided a workpaper that provided operating data for its generation costs, generation revenues, and margins produced at each of its generating units for 12-month ending December 31, 2022.



As discussed previously in the Report, Empire's generation costs are driven by the cost of fuel and VOM, with the units being cleared through the SPP IM unit commitment and market clearing processes. Empire's generation costs and SPP IM revenues were driven by higher market prices for energy with natural gas generation setting the marginal energy price. As seen in the table, Empire produced energy and operating reserve margins in excess of its generation costs for its units. The energy margins provide an offset to the purchase power costs needed to serve Empire's retail customer load.

Empire's purchase power costs to serve its Kansas retail load totaled \$35.9 million in 2022, up 2.1% from \$35.2 million in 2021. Empire provided Kansas retail customers with 230.3 million kWh in 2022, which was a reduction of under 1% from the 232.1 million kWh in 2021. Empire's all-in ACA costs totaled \$0.04096 per kWh, an increase of 38.2% when compared against Empire's ACA costs with the deferment of Winter Storm Uri costs in 2021. The primary driver for the impact in the ACA costs was the elevated price of natural gas and purchase power throughout the SPP region in 2021 and 2022. Empire's generation portfolio favors natural gas generation and low cost renewable resources, which has historically benefitted its customers when regional natural gas and marginal energy prices remain low in the SPP IM.

Considering all of the above, Staff finds that Empire managed the risks of operating in the SPP IM and managed its fuel costs, VOM expenses of its generation assets, and purchase power costs that are passed on to Kansas retail customers in the ACA.



**RECOMMENDATION:**

Staff recommends that the Commission approve Empire's ACA factor of \$0.00111 per kWh to recover \$255,611 of under-recovered fuel and purchased power expenses from retail customers during the ACA period. Staff will continue to monitor Empire's performance and participation in the IM and will provide periodic updates to the Commission regarding this issue as often as desired.

## CERTIFICATE OF SERVICE

23-EPDE-547-ACA

I, the undersigned, certify that a true and correct copy of the above and foregoing Notice of Filing of Staff's Report and Recommendation (Public) was served via electronic service this 31st day of July, 2024, to the following:

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*/s/ Ann Murphy*

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