**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 Annual Energy Cost Adjustment ("ACA") Filing.	))))	Docket No. 20-EPDE-242-ACA

**NOTICE OF FILING STAFF'S REPORT AND RECOMMENDATION
REDACTED VERSION**

Commission Staff of the State Corporation Commission of the State of Kansas ("Staff" and "Commission" respectively), submits its Notice of Filing Staff's Report and Recommendation ("Report") and states as follows:

Staff's Report recommends the Commission approve Empire's request for an annual Energy Cost Adjustment (ACA) factor of ($0.00111) per kWh in order to return $257,295 of over-recovered fuel and purchased power expenses to retail customers during the ACA period ending October 31, 2019.

Additionally, Staff performed an evaluation of Empire's self-commitment practices and decisions to self-commit its coal-fired generation during the 2019 year. Staff did not find any imprudence in Empire's management of the self-commitment of its coal fleet.

WHEREFORE, Staff requests the Commission consider its Report and Recommendation, and for any other further relief as the Commission deems just and reasonable.

Respectfully submitted,

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REPORT AND RECOMMENDATION
UTILITIES DIVISION

REDACTED VERSION
** [redacted] ** Denotes Confidential Information

TO: Chair Andrew J. French
Commissioner Dwight D. Keen
Commissioner Susan K. Duffy

FROM: Brad Hutton, Auditor
Tim Rehagen, Senior Auditor
Chad Unrein, Senior Managing Auditor/FERC Affairs Specialist
Andria Jackson, Deputy Chief of Revenue Requirements, Cost of Service and Finance
Justin Grady, Chief of Revenue Requirements, Cost of Service and Finance
Jeff McClanahan, Director of Utilities

DATE: June 21, 2021

SUBJECT: Docket No. 20-EPDE-242-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 requests an ACA factor of ($0.00111) per kWh in order to return $257,295 of over-recovered fuel and purchased power expenses from retail customers during the ACA period ending October 31, 2019. Staff conducted audits of Empire's Application and its Southwest Power Pool (SPP) Integrated Market (IM) activity. As part of its audit, Staff evaluated the market performance of Empire's coal units during periods of self-committed operation in the SPP IM. The confidential findings are detailed in the Analysis Section of this report. Based on Staff's market performance review, Staff found that Empire's coal units produced day-ahead energy margins in nearly all of the operating months in 2019. As such, Staff is not recommending any disallowances based on its review and recommends approval of Empire ACA factor as by Empire requested in its Application.

BACKGROUND:

On December 4, 2019, 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, 2019. Appendix

A, Schedule 2 shows a cumulative over-recovery of 2019 ECA costs of $257,295. Based on this over-recovery, Empire calculated an ACA factor of ($0.00111) per kWh to be charged to Kansas customers. Gregory Tillman, Senior Manager of Rates and Regulatory Affairs for Liberty Utilities Central Region, provided testimony describing the attachments included in the Application, the impact of the SPP IM on the ECA off-system profit factor, and the 2020 ECA energy cost forecasts. Todd Tarter, Manager of Market Settlements and Systems for Liberty Utilities' Central Region, provided testimony describing the impact of the SPP IM on Empire's operations. Additionally, Mr. Tarter discussed Empire's fuel and purchased power procurement process.

On March 1, 2014, SPP implemented the Integrated Market (IM).[1] 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 Auction Revenue Rights (ARRs) and Transmission Congestion Rights (TCRs);
- Multi-Day Reliability assessment to manage the commitment of long-start resources; and
- Market Monitoring and Mitigation with an internal Market Monitoring Unit.[2]

With the implementation 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 purchases the energy and operating reserves it needs to serve its native load obligations on a daily basis. Empire's revenues and expenses generated in the SPP IM are recorded to certain FERC accounts and recovered under Empire's ECA tariff. At the launch of the SPP IM in 2014, Staff expanded the scope of the ACA audit to include a review of Empire's participation in the SPP IM. Staff monitors and reviews Empire's monthly market activity and performs a yearly review of Empire's controls, procedures, and performance in the annual ACA audit.

As part of the 2018 ACA Audit Report, Staff provided the Commission with a study analyzing Empire's self-commitment strategies for managing its coal units in the SPP IM. Numerous regulatory studies have been conducted on the self-commitment of coal fired-generating units and their market effects on wholesale energy markets. The self-commitment of coal-fired generating units has the potential to suppress wholesale market pricing, displace lower cost regional energy providers, and raise the regional production costs to serve load. This occurs when self-committed units circumvent the economic unit commitment process and reorder the "merit-based" dispatch system that are responsible for driving the market's efficiency. Staff's study provided a comprehensive overview of the impacts self-commitment can have on altering the pricing and investment signals that market participants rely on for short-term and long-term decision-making. Finally, Staff explored the operational and market strategies for managing the self-commitment of its coal fired generation and reviewed the market performance of its coal fleet across a three-year

[1] *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.

[2] *Southwest Power Pool, Inc.,* 141 FERC ¶ 61,048 (2012) (October 2012 Order).

study period. The purpose of the market performance review was to determine if ratepayers were negatively impacted by the self-commitment practices of regulated utilities.

Based on its review, Staff found that Empire's volume of self-committed energy and number of self-committed hours trended downward across the three-year study period. Additionally, Empire's wholesale revenue exceeded the short-run marginal costs of operating the coal units, when viewed in aggregate. These margins contribute to the fixed cost recovery of operating Empire's coal fleet, which are passed on to utility customers through rate case applications. In Kansas, the wholesale revenue produced by Empire's generating units offset the fuel, variable production costs, and purchase power expense to serve Kansas retail load. After analyzing Empire's market strategies and unit performance, Staff concluded its investigation finding that Kansas ratepayers were not harmed by Empire's self-commitment strategies for managing its coal units. Thus, Staff did not recommend any disallowances for the uneconomic dispatch of Empire's coal units.

Following up on last year's report, Staff constructed a market performance template to review the self-commitment of Empire's coal units as part of its yearly audit of SPP market activity in annual ACA reports. The self-commitment/market performance review will be considered confidential due to Empire's market data containing information for services rendered in a competitive wholesale energy market. Staff's performance review will include the following market activity for each coal unit.

- DA Production Margin: calculated as the total DA revenue for energy and operating reserve products less the short-run production costs recoverable in mitigated offers.
- DA Energy Margin from Self-Committed Coal Units: calculated by multiplying the self-committed energy times the difference in the average market price for energy received during the unit's self-commitment less the average short-run production costs recoverable in mitigated offers.
- Historical analysis of volume of self-committed energy (Megawatt-hours or MWh).
- Historical analysis of number of self-committed operating hours.

ANALYSIS:

Traditional Fuel and Purchased Power Review

Staff issued formal discovery requests and e-mail correspondence to Empire, which requested documentation supporting its Application and Attachment A, Schedules 1-3. Staff performed the majority of its audit in-house using the information gathered through this process. Once the desk audit was complete, Staff met with Empire via teleconference. This meeting allowed Staff to question Empire's responses to discovery requests and review Empire's coal and rail transportation contracts. Staff notes that Empire personnel were open and forthcoming when answering questions and provided the requested supporting documentation. Staff audited Empire's actual fuel costs for the following months: March, April, June and July 2019.[3]

[3] 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.

For each month, Staff conducted an audit of the Application that consisted of the following:

- 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;
- 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, 2019.

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

<u>SPP Integrated Marketplace Review</u>
As referenced in the Background Section, Staff expanded the ACA audit to include the review of Empire's participation in the SPP IM during 2019. 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' 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.
5. Analyze the market performance of Empire's coal units and review trends in the volume of self-committed MWhs and number of hours Empire's coal units were self-committed in the SPP IM.

<u>Processes & Control Procedures</u>
In order to examine Empire's control procedures including the verification of its SPP IM billing statements, Staff issued formal discovery requests based on its SPP audit findings and the review of fuel and purchased power expenses detailed in Docket No. 19-EPDE-216-ACA (19-216 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 2019. 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.

As part of the audit, Empire provided Staff with documentation of its workflows for submitting generation offers and bidding in load demand in the day-ahead and real-time balancing markets. In response, Empire provided Staff with detailed work flow charts that documented Empire's processes, procedures, and controls encompassing the marketplace activity. 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.

Market Performance and Operational Risk

Staff issued discovery requests to evaluate Empire's performance tracking and risk mitigation strategies. Performance tracking and risk mitigation can help drive market performance in the SPP IM and minimizes the costs 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's ability to purchase power when wholesale energy prices are low can minimize a unit's production costs and avoid unit production during uneconomic operating periods. The actual accounting processes, calculations, and strategies are complex and highly confidential; however, Empire's market information is available upon request if the Commission desires to review Empire's market strategies.

Staff issued formal discovery requests regarding Empire's strategy for offering its generating resources into the IM and bidding for the daily load necessary to serve customers. Empire will bid in its projected day-ahead load and adjust its bids if congestion concerns arise. Staff examined Empire's practices for developing and updating fuel costs and variable operating and maintenance costs associated with developing its resource offers. Empire developed a 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 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 continues to use virtual transactions[4] 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 found that Empire has developed strategies that allow it to manage risks (including risks of recovery of variable O&M costs and fuel cost changes) and evaluate profitability to be successful in the IM.

For congestion management, 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 their portfolio positions, evaluate potential sales of existing TCR positions, as well as provide management with portfolio performance. In its discovery responses, Empire discussed its evaluation processes for ARRs by analyzing source and sink parings 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. In 2019, Empire self-converted 100% of its awarded ARRs into TCRs; however, Empire attempted to sell awarded ARRs in the January TCR auction.

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 2019, Empire's congestion cost exposure in the day-market totaled $13.9 million while the revenue generated from its TCR positions (net of the ARR close-out and uplift adjustments) totaled $14.5 million in 2019. When compared to the 2018 ACA filing, Empire experienced significant reductions in both its TCR revenue and its total congestion costs during 2019. For 2018, Empire's congestion cost totaled $19.0 million while the revenue generated from its TCR portfolio (net of the ARR close-out and uplift adjustments) totaled $19.9 million. While Empire's net congestion revenue decreased slightly year-over-year, Empire's total TCR portfolio hedged roughly 104% of its total congestion costs in both years. Empire actively manages its monthly TCR positions and evaluates its congestion exposure to determine if monthly auction purchases are necessary to close any gaps between awarded TCRs and planned day-ahead positions. While Empire has been active in monthly TCR auctions in prior ACA years, Empire did not purchase any additional TCRs via the SPP monthly TCR auctions in 2019. Empire's Long-term TCRs (LTCR) positions contributed

[4] 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.

roughly 60% of its total congestion hedge while the remaining 40% portion was attributable to self-converted TCRs.

In Staff's evaluation, Empire has developed strategies for evaluating 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 theses costs with its TCR portfolio. The strategies employed by Empire appear to be successful as Empire's TCR positions hedged 104.1% of its total congestion costs and netted $575,293 in TCR revenue in 2019.

Considering all of the above, Staff finds that Empire diligently managed the risks and profitability associated with the IM during 2019 and is taking the steps necessary to be successful in the IM.

ACA Audit of Revenues and Costs

Prior to the go-live date of the IM, Staff implemented 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.[5] 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 day-ahead 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

[5] 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.

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.

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 Empire's ACA Application for the sample months audited.

<u>Analysis of All-in Fuel Cost</u>

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, emission allowances, less revenues generated from its SPP IM activity, which is then, apportioned to Kansas based on delivered MWh. Staff used the 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. For the 2019 ACA year, Empire's ECA eligible costs (apportioned to Kansas) totaled $5,625,083, which represented a year-over-year increase of $269,576 or 5.03%. During this period, Empire's total KWh delivered to Kansas decreased by 0.8%. The total Kansas fuel and purchased power per kWh totaled $0.02418, which represented a year-over-year increase of 5.86%.

Staff issued discovery requests asking Empire to provide a cost analysis and discuss drivers for the year-over-year increase. In its confidential response to KCC Data Request No. 25, Empire provided a narrative, supporting workpapers, and management reports that analyzed the cost drivers of the ACA calculation. Due to the competitive nature of the market data, Staff will provide a confidential analysis section discussing the cost drivers of the ACA below.

** [redacted] **

Historically, SPP wholesale energy prices are indirectly tied to changes in the regional natural gas markets.[7] In its Annual State of the Market Report for 2019, the MMU explained that the average cost for natural gas (indexed at the Panhandle Eastern Pipeline market hub) totaled $1.93/MMBtu

[6] *See* Empire's confidential response to KCC Data Request No. 25.

[7] The MMU has primarily used the Panhandle Eastern Pipeline as an index price in its Annual State of the Market Reports.

in 2019, down $0.66/MMBtu from 2018.[8] For 2019, SPP's day-ahead prices averaged $22.04/MWh, down about 12 percent year-over-year, and real-time prices averaged $20.84/MWh, down about 15 percent year-over-year.[9] In addition to the decline in natural gas prices, the MMU noted that wind generation as percent of load increased steadily year-over-year, driving up the percentage of intervals with negative prices in both the DA and RTBM.[10] In 2019, the day-ahead market resulted in negative pricing in slightly less than two percent of all asset owner intervals, which is up from one percent in 2018.[11] The RTBM market experienced an increase in negative pricing intervals from just over three percent of all market intervals in 2018 to just under seven percent in 2019.[12] These market factors are consistent with the analysis presented by Empire.

While Empire's total ECA eligible costs increased year-over-year, Staff has generally observed a decline in Empire's fuel costs since the start of the SPP IM in 2014. As detailed in the above analysis, market factors can drive changes in the total fuel costs from year-to-year. Staff found that Empire provided a detailed analysis of the cost drivers for the 2019 ACA, and Empire's analysis is consistent with the SPP IM data presented in the Annual State of the market report.

SPP IM Benefit to Kansas Ratepayers

In order to evaluate whether Empire's participation in the IM provided benefits to its Kansas customers in 2019, 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 provided an updated calculation of the regional benefit produced by the SPP IM in 2019 and from the inception of the SPP IM in 2014. Based on SPP's analysis, the SPP IM provided a net regional benefit of $776 million from its energy and regulation markets in 2019, and roughly $3.48 billion in regional benefits from its inception. This information suggests Empire's participation in the SPP IM has produced some benefits to Kansas ratepayers in 2019.

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 by participating in the IM, Empire reduced costs by an estimated ** [redacted] ** in 2019.[13]

Staff has not performed a comprehensive review of the benefits and costs derived from Empire's participation in the various components of the SPP IM. Staff's analysis focused on short-run

[8] *See* the SPP Annual State of the Market Report for 2019, page 133.
[9] *See Id.*
[10] *See Id.*
[11] *See Id.,* page 150.
[12] *See Id.,* page 150.
[13] 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.

marginal costs of generating and transmitting power to serve Empire's load. In this review, Staff has observed a decline in Empire's all-in costs to serve its load since the implementation of the SPP IM. Based on the available data from SPP, the modeled results performed by Empire, and a decline in Empire's ECA costs since the start of the SPP IM, Staff's analysis suggests that the SPP IM is benefitting Empire's Kansas customers.

Performance Review of Empire's Coal Units

In the 19-216 Docket, 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. Staff plans to incorporate a performance review of Empire's coal units in its yearly audit of SPP market activity. As part of the discovery process, Staff issued a performance template requesting monthly market data for Empire's coal units in 2019. In this Report, Staff evaluates the market performance of Empire's unit by analyzing the short-run production margins generated by Empire DA energy and operating reserve market activity. Next, Staff analyzes the DA energy margins of Empire coal units during the unit's self-commitment in the SPP IM. The calculation relies on the DA energy revenue compared against the short-run production margins recoverable under SPP's mitigated offer guidelines. Mitigated offers are intended to capture incremental production costs, including the appropriate application of opportunity costs, for the unit providing services in the SPP energy or operating reserve markets.[14] Market participants are required to submit a mitigated offer curve in accordance with the market protocols.[15] The MMU evaluates mitigated offers to determine if the production costs qualify for recovery. Finally, Staff will analyze trends in market activity including the DA energy margins, the volume of self-committed energy, and the number of hours the units were self-committed from 2017 – 2019.

Empire's Coal Generation Facilities

For reference, Staff provided a table of Empire's coal generation facilities, its ownership interest in each facility, and the nameplate capacity of the facility provided in the FERC Form 1 Report. Staff would note that Empire has full control of its bidding practices for the Asbury coal unit, which is solely owned by Empire. As a minority owner, Empire does not have direct operational control over the unit commitment decisions at its Iatan and Plum Point units.

EMPIRE's COAL GENERATION FACILITIES: Ownership Interest & Name-Plate Capacity					
Generation Facility	**Ownership**	**Ownership Percentage**	**2017**	**2018**	**2019**
Iatan	Co-owned	12%	210.47	210.47	210.47
Plum Point	Co-owned	7.52%	50.00	50.00	50.00
Plum Point	PPA	7.52%	50.00	50.00	50.00
Asbury	Owned	100%	212.80	212.80	212.80
Data: FERC Form 1					

[14] SPP's mitigated offer guidelines can be found in Appendix G of the Integrated Marketplace Protocols.

[15] A market participant's offer may be mitigated when the market participant is found to have market power or when the offer exceeds SPP's conduct threshold and impact screening.

Performance Review and Self-Commitment Analysis of Empire's Coal Units

Empire's market activity contains data for competitive services provided in a wholesale energy market; therefore, Staff's market performance analysis will be considered confidential. For 2019, Staff aggregated Empire's monthly market data provided in Empire's confidential response to KCC Data Request No. 27. For prior year comparison data, Staff aggregated the monthly market activity from Empire's response to Staff discovery in the 19-216 Docket. Empire's monthly market data is contained in Schedules No. 1 through Schedule No. 4, which is attached as Confidential Appendix A of this Report.

For each schedule, Staff will provide a comparative analysis of year-over-year trends in the self-commitment of Empire's coal units. In last year's ACA Report, Staff did not include the calculation of Empire's Day-Ahead Production Margins found in Schedule No. 1. For Schedule No. 1, Staff provided Empire's monthly market activity for its coal units directly in the Report and omitted the year-over-year comparative analysis.

** [redacted]

[redacted]

[redacted]

16 The Schedule No. 1 table reproduces the monthly DA production margin found in Appendix A, Schedule No. 1.
17 *See* Appendix A: Schedule No. 2 for the monthly calculation of DA energy margins by coal unit.

[redacted]

[redacted]

[redacted]

[redacted]

[18] *See* Analysis Staff presented on Schedule No. 3 and Schedule No. 4.

[19] Empire primarily market-committed its Asbury unit during 2019. Asbury had limited self-committed production for a period of two hours in November of 2019; however, Empire omitted pricing data for its self-committed energy. Due to the limited nature of the market revenue and production costs, Staff chose to omit the data from Schedule 2.

[redacted]

[redacted]

[redacted]

[20] *See* Appendix A, Schedule No. 3 for Staff's monthly calculation of Empire's volume of self-committed MWhs for each coal unit.

[redacted] **

Findings of the Market Performance Analysis

Staff's methodology of aggregating monthly self-commitment data and looking at the market performance of Empire's coal units is consistent with the approach utilities use to manage their coal operations in the SPP IM. In its 2018 ACA Report, Staff detailed the limitations of SPP's current unit commitment optimization in evaluating resources with long lead times and high start-up costs. Due to these limitations, electric utilities rely on their own forecasting methodologies and the forecasts published by SPP to determine if the projected revenue of a coal unit is likely to support the unit operations over the anticipated market window. If projected revenues exceed the unit's short-run marginal cost, a contribution margin is produced, which contributes to the fixed operating and maintenance cost recovery of the unit. As such, the operation of the unit is economically beneficial to ratepayers even though the net sales revenue may not cover the full operating costs of running the unit. For this reason, the fixed operating and maintenance costs are considered "sunk costs" in the near-term. As stated in last year's ACA report, Staff believes a contribution margin analysis is an appropriate measure for evaluating the market performance of

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[21] *See Id.,* Schedule No. 4 for Staff's monthly calculation of the number of operating hours Empire's coal units were self-committed in the SPP IM.

coal units in ACA proceedings. At its basic level, a contribution margin analysis provides a threshold determination of whether Empire's market strategies for the self-commitment of its coal units are providing value to ratepayers.

Empire continues to make substantial progress in the reduction of its self-committed energy volume and number of hours the units were self-committed in the SPP IM. The year-over-year reduction in self-commitment was the result of low wholesale energy prices in the SPP IM, resulting in reduced unit output and thinner DA energy margins. These findings are consistent with Empire's approach to managing unit commitment at its coal units. These strategies are detailed in the comprehensive review of its self-commitment practices presented in Staff's 2018 ACA Report. In aggregate, Empire's market strategies for managing its coal units have produced monthly contribution margins at its units that help support the fixed cost recovery of the assets. During self-committed operation, Empire's coal units produced day-ahead energy revenues in excess of the unit's production costs throughout the vast majority of operating months. Based on its performance audit, Empire's market strategies appear to be successful in generating a contribution margin when the units are self-committed; and therefore, Staff is not recommending any disallowances in Empire's 2019 ACA.

Staff notes that the possibility exists a different market strategy could increase the benefit to Empire's customers through the further maximization of off-system sales revenue and the minimization of fuel costs. However, it is also possible that a change in market strategy might cause customer harm through increased outage rates, decreased off-system sales revenue, increased operations and maintenance costs, shortened life of assets, increased outage frequency, decreased reliability, increased LMPs at the load node, and/or increased energy prices across the RTO's footprint. Any operational savings from cycling the coal units will need to be evaluated alongside any reductions in the unit's reliability or long-term increases in O&M expenses resulting from Empire's cycling efforts.

If Empire can accrue benefits for ratepayers by reducing the output of its coal units during uneconomic operating periods or operating its coal units seasonally, Staff's recommendation is that Empire should continue to explore these opportunities (even if this results in a reduction to the units' capacity factor). Maximizing the long-term value of each coal asset is in the best interest of Kansas ratepayers, and Empire should be free to purchase low cost power from market resources when market prices cannot support a coal unit's production costs. This could reduce the operating, maintenance, and capital maintenance costs at certain units resulting in increased ratepayer savings.

RECOMMENDATION:

Staff recommends that the Commission approve Empire's ACA factor of ($0.00111) per kWh. Staff will continue to monitor Empire's performance and participation in the IM and will provide period updates to the Commission regarding this issue as often as desired.

REDACTED APPENDIX A:
Market Performance Analysis of Empire's Coal Units
Schedules Nos. 1 – 4

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CERTIFICATE OF SERVICE

20-EPDE-242-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 Redacted Version was electronically served this 22nd day of June, 2021, to the following:

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