BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of an Investigation of Missouri Jurisdictional Generator Self-Commitments Into SPP and MISO Day-Ahead Energy Markets	)))	Case No. EW-2019-0370

RESPONSE TO COMMISSION ORDER

COMES NOW The Empire District Electric Company, a Liberty Utilities company ("Liberty-Empire"), and respectfully submits this response to the questions presented by the Commission in its *Order Accepting Staff's Report Regarding Its Investigation of Missouri Jurisdictional Generator Self-Commitments and Self-Scheduling, and Seeking Additional Information*, issued September 18, 2019.

a. What is their definition of "economic minimum" or "unit minimum?"

Southwest Power Pool ("SPP") Integrated Market ("IM") Protocols define Minimum Economic Capacity Operating Limit as, "A MW level at or above a Resource's Minimum Normal Capacity Operating Limit ("Min Econ Limit") used for energy dispatch at a minimum level during normal operating conditions," whereas Minimum Normal Capacity Operating Limit ("Min Norm Limit") is defined as, "The minimum MW level at which a Resource may operate continuously." Liberty-Empire, a Market Participant in the SPP IM, adheres to these definitions when formulating market offers.

b. How do they establish an "economic minimum" or "unit minimum?"

Liberty-Empire utilizes the same megawatt (MW) values for Min Econ Limit and Min Norm Limit even though not required by the IM. These lower limits are based on various factors such as ambient temperatures, current operating conditions, historical operational results, etc. Forcing units to operate at lower output jeopardizes the reliability of the unit.

c. What are the pros and cons of allowing self-committing up to that amount?

Pros. The pros, or benefits, of allowing generation operators to self-committing up to the Min Econ Limit of the generator includes allowing operators to continue to have the availability to maintain and test the generators, manage fuel inventory levels, and participate in market arbitrage.

Operators are required to perform maintenance and mandated testing on generators. Frequently, these processes require the generator to be online. Without the ability to self-commit the generators into the Real-Time Balancing Market (RTBM), these generators would have to wait to be committed by the market to perform the scheduled tasks. However, depending on the type of testing or maintenance, the unit may be required to be in a "Manual" dispatch rather than Dispatchable by the market engine. High Limit Capacity testing, requiring the unit at max output for the duration, or CEMS testing, requiring a structured energy output for the duration of the test would be examples of testing that would not allow the generator to be dispatched by the market engine. Certain maintenance tasks require third-party technicians or specialists on-site at the plant while the generator is online to complete. The ability to self-commit allows plant personnel to schedule these tasks without having to schedule around market commitments. Additionally, having the ability to self-commit the generator into the Day-Ahead market (DAMKT), generator owners are able to sell at least the Min Econ Limit in the DAMKT where pricing historically is less volatile, removing the price risk in the RTBM.

As mentioned in previous responses, self-committing up to the Min Econ Limit can provide inventory control. Generator operators with fuel delivery contracts that have limited flexibility in the amount of fuel that is delivered to plants do benefit from self-committing the generator to consume fuel and maintain a manageable fuel supply inventory. Without the ability

to self-commit these generators in either the DAMKT or the RTBM, less efficient generators could remain offline, increasing fuel inventories to an unsustainable amount.

With the RTBM focused on the reliability of the grid and minimizing commitment cost and less on lowering RTBM energy prices, generator owners are able to bring generation online via self-commit and generate additional revenue thereby lowering fuel costs to their customers. Additionally, there are benefits to self-committing a generator that has a de-commitment late in the operating day. For example, in the DAMKT a combined cycle generator receives a de-commitment based on the prior day forecasts. These forecasts change to the extent that the generator would be profitable. Yet due to the minimum down time required by the generator after coming offline, the generator would not be available to the market until later in the operating day. Self-committing the generator through its de-commitment period allows the generator to be available to the market for the start of the operating day. Another RT benefit of self-commitment is for entities that have a generator not able to satisfy a DAMKT commitment due to technical issues at the plant, can financially hedge the day-ahead commitment with the generation from another self-committed generator. If the owner doesn't self-commit the replacement generator, the owner is completely exposed to the price volatility of the RTBM to settle the imbalance left by the unfilled commitment.

Cons. Self-committing generation could have potential disadvantages, as self-commitments could lower the efficiency of the market under certain conditions. By taking the decision-making away from the market clearing engine and forcing certain generators online, generator owners could be increasing the marginal cost of the market and thus potentially increasing customer cost. However, this only occurs during intervals that the unit is uneconomical and may miss the larger picture of economics over the course of the run,

especially if a multi-day run is needed. SPP's Security Constraint Unit Commitment (SCUC), Security Constraint Economic Dispatch (SCED), and Simultaneous Feasibility Test (SFT) algorithms are limited to looking at shorter term forecasts and only run through the end of the current operating day. These processes that are responsible for RT commitments have difficulties evaluating longer multi-day commitments that bridge multiple operating days.

d. Why does the "economic minimum" or "unit minimum" vary?

As mentioned in part b above, Min Econ Limits and Min Norm Limits are based on various factors. One factor that has a daily affect is ambient temperatures. Natural gas units in particular are affected by varying ambient temperatures, resulting in lowering or raising minimum and maximum operating limits. Operational issues that cause de-rated maximums can also affect minimums of the unit. These issues vary depending on the type of the unit, but can affect the Min Econ Limit. Environmental control issues can also affect the Min Econ Limits. For example, units generating below a certain output may have difficulties controlling Nitrous Oxide (NOx) to acceptable levels. As mentioned in part c above, testing can affect Min Econ Limits. If the unit is scheduled to perform High-Limit Capacity testing, the Min Econ Limit could be increased to match Max Econ Limit effectively forcing a certain output for a period of time.

WHEREFORE, The Empire District Electric Company, a Liberty Utilities company, submits this Response to Commission Order.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that the above document was filed in EFIS on this 2nd day of October, 2019, with notice of the same sent to all counsel of record.

/s/ Diana C. Carter