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Witness: J Luebbert
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MISSOURI PUBLIC SERVICE COMMISSION
COMMISSION STAFF DIVISION
ENERGY RESOURCES DEPARTMENT

REBUTTAL TESTIMONY
OF

J LUEBBERT

~~Staff~~ Exhibit No. 203
Date 8-24-17 Reporter AF
File No. EO-2017-0065

THE EMPIRE DISTRICT ELECTRIC COMPANY
CASE NO. EO-2017-0065

Jefferson City, Missouri
June 2017

REBUTTAL TESTIMONY

OF

J LUEBBERT

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. EO-2017-0065

Q. Please state your name and business address.

A. My name is J Luebbert and my business address is Missouri Public Service Commission, P.O. Box 360, Jefferson City, MO 65102.

Q. What is your position at the Commission?

A. I am a Utility Engineering Specialist III in the Energy Resources Department, Commission Staff Division.

Q. Are you the same J Luebbert that contributed to the Public Service Commission Staff's ("Staff") *Staff's Sixth Prudence Audit Report ("Report") of Costs Subject to the Commission-Approved Fuel Adjustment Clause of The Empire District Electric Company* ("Empire" or "Company") which was filed on February 28, 2017?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my testimony is to address the Office of the Public Counsel witness John A. Robinett's direct testimony filed May 19, 2017, regarding Staff's review of heat rates and discussion of base line heat rates.

Heat Rate Review

Q. How is the monthly heat rate determined for a generating unit and why is it important?

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1 A. Monthly heat rate for a generating unit is a simple calculation of the total
2 volume of fuel burned for electric generation multiplied by the average heat content of that
3 volume of fuel divided by the total net generation of electricity in kilo-watt hours (kWh) over
4 the course of the calendar month. Heat rates are inversely related to the efficiency of the
5 generating unit. Increased monthly heat rates over time can be an indicator that the efficiency
6 of the unit has decreased or operating conditions of the generating unit have changed.

7 Q. OPC witness John A. Robinett indicated that there were several outliers
8 provided within the monthly heat rate data provided as part of Empire's response to Staff Data
9 Request 0022. Did Staff observe any outliers in monthly heat rates for generating units during
10 the prudence review period?

11 A. Yes. Given how the monthly heat rates are calculated, Staff could expect some
12 outliers to be present. This is especially true for those generating units that do not operate
13 continuously, units that operate as peaking stations, and units that have outages. Further,
14 monthly heat rates can vary greatly from month to month depending on operating conditions
15 including but not limited to load, hours of operation, shut downs and startups, unit outages,
16 derates, and weather conditions.

17 Q. Why didn't Staff raise any concern over the observed outliers in monthly heat
18 rates provided in response to Staff DR 0022?

19 A. Staff reviewed the monthly heat rate information provided in response to Staff
20 DR 0022 in the context of hours of monthly usage and outage hours as provided in Empire's
21 response to Staff DR 0014 and DR 0004, respectively. Several of the monthly heat rates that
22 showed a drastic increase from months prior coincided with outages, limited hours of
23 operation, or a combination of the two. Such monthly heat rates represent outliers which do

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1 not give a meaningful indication of the generating unit's efficiency, because the unit is not
2 operating under normal operating conditions.

3 Q. How are the monthly heat rates for generating units that Staff requested in DR
4 0022 useful in the FAC prudence review?

5 A. Increasing heat rates of specific units - which exclude any outliers - over time
6 may be an indication that a specific unit's efficiency is declining.

7 Q. Did Staff identify any increasing heat rates for specific units - which excluded
8 any outliers - for the prudence review period?

9 A. No.

10 Q. On page 1, lines 14-19, of his direct testimony, Mr. Robinett recommends that,
11 *"the Commission require its Staff in its FAC prudence audits, conduct a review of each*
12 *generating unit heat rates. The review should include heat rates from the previous and*
13 *current prudence audit periods and the heat rate test results supplied as FAC minimum filing*
14 *requirements in rate cases. Staff's prudence review report should include a section that*
15 *documents Staff's review and the findings from its review."* Please respond to Mr. Robinett's
16 recommendation.

17 A. While Staff is not opposed to including a section in future FAC prudence
18 review reports dedicated to heat rates of generating units, it should be noted that Staff's
19 Prudence Review Report has historically been a summary report that highlights major
20 findings of the prudence review. Staff limited the review of heat rates in this prudence review
21 to the time period of the prudence review period. Staff is not opposed to including historical
22 monthly heat rate data for base load and intermediate units in future prudence review reports.
23 However, Staff does not believe including this information for units that are utilized

1 infrequently is a useful metric in the Staff prudence review reports because the data is
2 typically scattered and unreliable for use as an efficiency metric due to the limited utilization
3 of these types of units.

4 Baseline Heat Rates

5 Q. Mr. Robinett refers to baseline heat rates in his direct testimony. Have baseline
6 heat rates been established for Empire?

7 A. No. Mr. Robinett refers to testimony of Staff witness Leon Bender in File No.
8 ER-2011-0004. On page 101 of the Staff Report Cost of Service in ER-2011-0004, Staff
9 witness Leon Bender states in lines 25-29 "*Empire filed the results of their heat rate testing*
10 *with their work papers in this case, and the Staff reviewed the results of those tests. The test*
11 *results and associated data appear to be reasonable. There are now base line heat rate*
12 *testing results for all of Empire's generating plants to which future heat rate test results can*
13 *be compared as a measure of the change of efficiency of the plant.*" The test results reviewed
14 by Staff witness Leon Bender were the first heat rate tests provided to Staff in compliance
15 with 4 CSR 240-3.161(3)(Q). It was appropriate at the time of his testimony to refer to these
16 test results as baseline heat rate test results because there was no other heat rate test data to
17 compare heat rate test results against. However, the term baseline is not defined or mentioned
18 anywhere in 4 CSR 240-3.161. Furthermore, there is not an established method to calculate
19 or determine what the "baseline" heat rate should be for each generating unit. While the heat
20 rate test data provided in Case No. ER-2011-0004 is appropriate to use as a "baseline" for
21 comparison to heat rate test data provided in the following rate case, Case No. ER-2012-0345,
22 the appropriateness of using this data as a "baseline" ended once there were multiple data sets
23 for heat rate test results. There is little value in comparing heat rates for generating units to

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1 one static heat rate test result. This would result in comparing heat rates to a fixed value heat
2 rate for each generating unit in perpetuity. A more useful metric for heat rate analysis is to
3 view the trend of heat rates over time. Increasing heat rates of specific units over time may be
4 an indication that a specific unit's efficiency is declining. A permanent increase in monthly
5 heat rates is commonly the result of a decrease in a generating unit's efficiency whenever
6 additional emissions reduction equipment is added to the backend of the generating unit.

7 Q. Has the issue of establishing baseline heat rate testing results been raised by
8 OPC prior to this case?

9 A. OPC did not raise the issue of establishing baseline heat rate testing results in
10 the most recent Empire general rate case, Case No. ER-2016-0023, or the most recent Empire
11 FAC Prudence review case, File No. EO-2015-0214. However, OPC did raise this issue in the
12 most recent Kansas City Power & Light general rate case, Case No. ER-2016-0285. On page
13 34 of the May 13, 2017 Report and Order for Case No. ER-2016-0285, the Commission
14 issued its decision on the topic of requiring baseline heat rates for generating units:

15 *"The Commission concludes that KCPL has complied with the pertinent*
16 *Commission rules. OPC asks the Commission to direct the parties to create*
17 *baseline heat rates for each of KCPL's generating units. OPC provides no*
18 *definition for or insight into what would constitute a "baseline" heat rate nor does*
19 *OPC provide any proof that baseline heat rates would be a useful metric. Perhaps*
20 *a rulemaking case would be an appropriate forum to explore OPC's proposal. But,*
21 *the Commission will decline to impose those requirements on KCPL in this case."*

22 Q. Has Mr. Robinett demonstrated support for establishing baseline heat rate
23 testing results for Empire's generating units in his direct testimony of this case?

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1 A. No. On page 4 of his direct testimony, Mr. Robinett cites discussion on the
2 importance of heat rate/efficiency testing plans from the Commission's Report and Order in
3 Case No. ER-2008-0318. However, that Report and Order does not contain any reference to
4 the term "baseline." Staff does not disagree that heat rate/efficiency testing is important, but
5 disagrees with OPC regarding the value of establishing baseline heat rate testing results for
6 Empire's generating units. Just as the Commission opined in the Kansas City Power & Light
7 rate Case No. ER-2016-0285, OPC provides no definition for or insight into what would
8 constitute a "baseline" heat rate for Empire. Nor does OPC provide any proof that baseline
9 heat rates would be a useful metric.

10 Q. Does this conclude your rebuttal testimony?

11 A. Yes, it does.

12

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

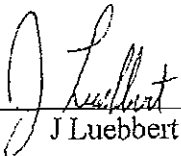
In the Matter of the Sixth Prudence Review of)
Costs Subject to the Commission-Approved) Case No. EO-2017-0065
Fuel Adjustment Clause of The Empire District)
Electric Company)

AFFIDAVIT OF J LUEBBERT

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

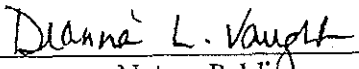
COMES NOW, J Luebbert and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Rebuttal Testimony; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.



J Luebbert

Subscribed and sworn to be this 21st day of June, 2017.



Notary Public

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: June 28, 2019
Commission Number: 15207377

CASE PROCEEDING PARTICIPATION

J LUEBBERT

Case Number	Company	Issues
EO-2016-0228	Ameren Missouri	Utilization of Generation Capacity, Plant Outages, and Demand Response Program
ER-2016-0179	Ameren Missouri	Heat Rate Testing
ER-2016-0285	Kansas City Power & Light Company	Heat Rate Testing
EO-2017-0065	Empire District Electric	Utilization of Generation Capacity and Station Outages