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Service Commission

SURREBUTTAL TESTIMONY

OF

JOHN A. ROBINETT

Submitted on Behalf of the Office of the Public Counsel

EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. EO-2017-0065

July 28, 2017

OPC Exhibit No. 11
Date 8-24-17 Reporter AF
File No. EO-2017-0065

In the Matter of the Sixth Prudence
Review of Costs Subject to the
Commission-Approved Fuel Adjustment
Clause of The Empire District Electric
Company

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

A circular notary seal for the State of Missouri. The outer ring contains the text "NOTARY PUBLIC" at the top and "STATE OF MISSOURI" at the bottom, separated by small stars. The center of the seal contains the words "NOTARY" and "SEAL" stacked vertically, also flanked by small stars.

My Commission expires August 23, 2017.

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**SURREBUTTAL TESTIMONY
OF
JOHN A. ROBINETT
THE EMPIRE DISTRICT ELECTRIC COMPANY
CASE NO. EO-2017-0065**

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

2 **A.** John A. Robinett, PO Box 2230, Jefferson City, Missouri 65102.

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

4 **A.** I am employed by the Missouri Office of the Public Counsel ("OPC") as a Utility
5 Engineering Specialist.

6 **Q.** Are you the same John A. Robinett that filed direct and rebuttal testimony on behalf
7 of the OPC in this proceeding?

8 **A.** Yes.

9 **PURPOSE**

10 **Q.** What is the purpose of your surrebuttal testimony?

11 **A.** In my direct testimony, OPC recommended the Commission require its Staff in its FAC
12 prudence audits to conduct a review of each generating unit's heat rates. Commission
13 Staff witness Mr. J Luebbert provided rebuttal testimony that Staff is not opposed to
14 including a section in future fuel adjustment clause ("FAC") prudence review reports
15 dedicated to heat rates of generating units.¹ He then proceeds to provide testimony
16 describing the limited review that Staff conducted on heat rates in this prudence review
17 and the "appropriateness" of baseline heat rates. My surrebuttal testimony responds to

¹ Luebbert Rebuttal, pg 4

1 the rebuttal testimony of the Commission's Staff witness Mr. J Luebbert regarding Staff's
2 limited heat rate review and baseline heat rates.

3 **STAFF REVIEW OF HEAT RATES**

4 **Q. It has been established that an increasing heat rate could be an indicator of decreased**
5 **efficiencies with a generating unit. Staff witness J Luebbert stated in his rebuttal**
6 **testimony that Staff reviewed the monthly heat rate information provided by Empire.**
7 **Did Staff identify any increasing heat rates for specific units (excluding any outliers)**
8 **for the review period?**

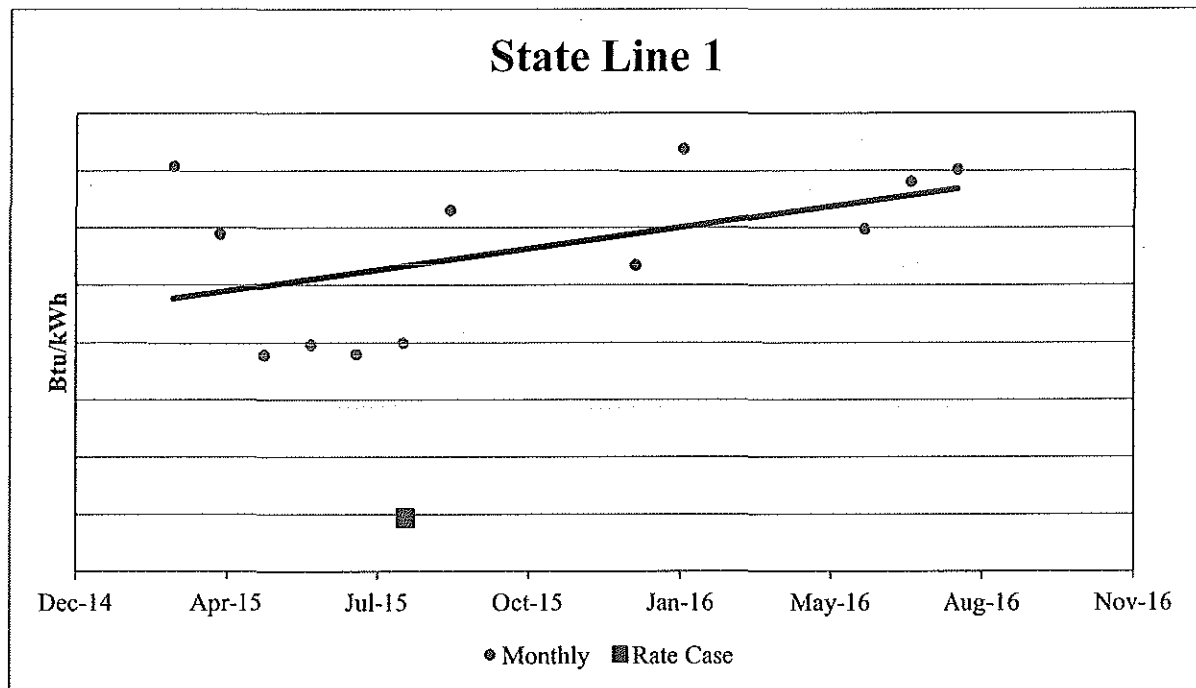
9 **A. No, Staff did not identify increasing heat rates for specific units as indicated at page 4 lines 7**
10 **through 9 of Mr. Luebbert's rebuttal. Once outliers were excluded, Staff did not identify any**
11 **increasing heat rates for specific units.**

12 **Q. Did Staff provide any workpapers or analysis to support this claim?**

13 **A. No.**

14 **Q. Did OPC perform any analysis that differs from Staff's claim?**

15 **A. Yes. OPC plotted the monthly heat rate data provided by Empire in response to Staff Data**
16 **Request No. 0022. OPC then plotted a trend line related to the data for each generating unit**
17 **in Excel. The following is just one example of the data for the 18 month FAC prudence**
18 **review period.**



As clearly shown in this graph, there is an upward trend in the monthly heat rates. The heat rate for the following generators in the 18 month review period showed a trend of increasing heat rates when the highest and lowest heat rates were removed from data: Riverton 12 combustion turbine, Iatan 1, Plum Point, Energy Center Units 3 & 4, State Line combined cycle, and State Line combustion turbine.

Q. Is it concerning to you that Mr. Luebbert claims the Staff studied Empire's generating unit heat rates but found no upward trend?

A. Yes. While Empire's generating units are not increasing their monthly heat rates at a rapid pace, the data clearly shows the heat rates are increasing, contrary to Staff's claim. Increasing heat rates are one indicator of a decrease in a unit's efficiency, so the Staff's unsupported claim that they found no increasing trend, when the data clearly shows an

² Vertical axis values removed to avoid making graph highly confidential

1 increasing trend, is concerning to ratepayers relying upon the Staff's FAC prudence review
2 analysis.

3 **Q. Mr. Luebbert states in his rebuttal testimony that he does not believe analyzing heat**
4 **rates "for units that are utilized infrequently is a useful metric in the Staff prudence**
5 **review reports because the data is typically scattered and unreliable for use as an**
6 **efficiency metric due to limited utilization of these types of units."**³ **Do you agree?**

7 **A. No. In fact, his testimony supports OPC's position that Staff should review heat rate data**
8 **from before the prudence review period, and not limit its review to the 18-month review**
9 **period. Riverton 10 is the best example where monthly review of the 18 months period is**
10 **insufficient. For the 18 month review period, only three heat rates were experienced. Of**
11 **those three, Staff indicated in response to Data Request No. 0062.1:**

12 *Given that there are only three monthly data points for heat rates from Riverton 10,*
13 *and two of those monthly data points include unscheduled outages and minimal in-*
14 *service hours, the data provided cannot be used to determine any trend in heat rates*
15 *for this unit.*

16 As shown in Schedule JAR-D-2 HC attached to my direct testimony, since the Commission
17 granted the FAC to Empire, Riverton 10 has 17 monthly heat rates reported. Of the 17
18 months, two months in the current review period are marked as outliers according to Staff's
19 response to Data Request No. 0062.1. However, as indicated by Staff in response to Data
20 Request No. 0062.1 and Mr. Luebbert's testimony, Staff did not rely on any heat rate data

³ Luebbert Rebuttal page 4 line 23 through page 5 line 3

1 outside of the prudence review period.⁴ It is unclear if Staff would consider any of the other
2 14 monthly heat rates for Riverton 10 as outliers. While Staff indicates it is not opposed to a
3 historical review of “monthly heat rates”, Staff’s response to Data Request No. 0062.1
4 clearly states Staff only looked at the review period; “Staff did not rely on any heat rate data
5 outside of the prudence review period.” This testimony is inconsistent with Mr. Luebbert’s
6 admission that “increased monthly heat rates over time can be an indicator that the
7 efficiency of the unit has decreased” and that a “useful metric for heat rate analysis is to
8 view the trend of heat rates over time.”⁵ OPC agrees with Mr. Luebbert that analyzing heat
9 rates over a broader period of time is appropriate for helping to determine if a unit’s
10 efficiencies are declining. This is why it is important for the Staff not to restrict its review to
11 a narrow eighteen-month window.

12 **BASELINE HEAT RATES**

13 **Q. Mr. Luebbert quotes a Commission order declining to establish a baseline heat rate for**
14 **KCPL in Case No. ER-2016-0258 and states Mr. Robinett has not demonstrated**
15 **support for establishing baseline heat rate for Empire’s generating units in this case.**
16 **What support can you offer to show baseline heat rates have been established for**
17 **Empire’s generation units?**

18 **A. OPC raised the issue of baseline heat rates in KCPL’s rate case because it was the first**
19 **general rate increase case since KCPL was granted an FAC. For every other electric utility,**
20 **after being granted an FAC, Staff reviewed heat rate testing data and procedures. Empire’s**
21 **request for an FAC was granted in File No. ER-2008-0093, and in File No. ER-2011-0004,**

⁴ *Id.*, pg 4

⁵ *Id.*, pp. 3, 6.

1 Staff witness Leon Bender stated the following at page 101 of the Staff Report Cost of
2 Service filed February 23, 2011:

3 *Empire filed the results of their heat rate testing with their work papers in this case,*
4 *and the Staff reviewed the results of those tests. The test results and associated data*
5 *appear to be reasonable. There are now baseline heat rate testing results for all of*
6 *Empire's generating plants to which future heat rate test results can be compared as*
7 *a measure of the change of efficiency of the plant.* (Emphasis added)

8 Ameren Missouri's request for an FAC was granted in File No. ER-2008-0318; in File No.
9 ER-2011-0028, Staff witness Leon Bender stated at page 122 of the Staff Report Revenue
10 Requirement Cost of Service filed February 8, 2011:

11 *Staff Reviewed heat rate testing results of Ameren Missouri's generating units. The*
12 *test results and associated data appear to be reasonable. There are now base line*
13 *heat rate testing results for all of Ameren Missouri's generating plants to which*
14 *future heat rate test results can be compared as a measure of change of efficiency of*
15 *the plant.* (Emphasis added)

16 KCP&L – Greater Missouri Operations Company's ("GMO") request for an FAC was
17 granted in File No. ER-2007-0004, and in its next general rate increase case, File No. ER-
18 2009-0090, Staff Witness Lena M. Mantle stated at page 144 of the Staff Report Cost of
19 Service filed February 13, 2009:

1 *GMO's heat rate and/or efficiency testing results are the baseline against which to*
2 *measure the future efficiency of the units. Staff has reviewed the results of the*
3 *completed heat rate efficiency tests on the following units: Sibley 1, 2, and 3;*
4 *Greenwood 1, 2, 3, and 4; Ralph Green 3; South Harper 1, 2, and 3; Lake Road 2, 3*
5 *,and 5; Lake Road boiler 8; and Jeffrey Energy Center 1. The test methodologies*
6 *utilized were consistent with the plan approved in Case No. EO-2008-0156. Test*
7 *results and associated data appear reasonable. Heat rate and/or efficiency testing is*
8 *still scheduled for Nevada; KCI 1 and 2; Lake Road 1, 4, 6, and 7; Lake Road*
9 *boilers 1, 2, 3, 4, and 5; Jeffrey 2 and 3, and Iatan 1.*

10 It is important to note that each of these Staff witnesses held professional engineer licenses;
11 Mr. Bender in Texas and Ms. Mantle in Missouri. As explained in the above-quoted
12 testimonies, baseline heat rates and all other historical heat rate tests provides the
13 Commission and the Staff with a basis for comparing future heat rate tests to determine
14 whether the efficiencies of the generating units have declined over time.

15 **Q. Are there any other critical filings related to heat rates that the Commission should be**
16 **aware of?**

17 **A.** Yes. In Case No. ER-2014-0258 Commission Staff and Ameren Missouri filed a *Non-*
18 *Unanimous Stipulation and Agreement Regarding Heat Rate-Related Testing Issues* on
19 January 9, 2015. The stipulation and agreement states:

20 *I. 4 CSR 240.3.161(2)(P) and 4 CSR 240.3.161(3)(Q) address heat rate testing*
21 *requirements for utilities with fuel adjustment clauses ("FAC").*

2. *The signatories agree that the intention of these rule provisions was to ensure that heat rate tests are conducted on generating units at least every two years, and that results of heat rate was available so that the heat rates of the units can be monitored and evaluated in connection with FAC-related proceedings, including prudence reviews and rate case filings where a utility seeks to continue or modify its FAC."*

Q. Did Staff review heat rate testing results provided in general rate cases during the prudence review in the present case?

A. No, as indicated by Staff in response to Data Request No. 0062.1 "Staff did not rely on any heat rate data outside of the prudence review period."

Q. Mr. Luebbert states: "OPC provides no definition for or insight into what would constitute a "baseline" heat rate for Empire. Nor does OPC provide any proof that the baseline heat rates would be a useful metric." ⁶ What is your response?

A. OPC does not and is not seeking baseline heat rates for Empire because they have already been set in ER-2011-0004 by Staff. This case is different from Case No. ER-2016-0285 in that base line or base level heat rate testing results have already been establish for Empire. In Case No. ER-2016-0285 OPC sought the determination that the heat rate test results supplied by KCPL in that case be considered as the base line or base level efficiencies for future comparisons for unit declines in efficiency. Staff did not state that the heat rate testing results supplied by KCPL in Case No. ER-2016-0285 were the

⁶ Luebbert Rebuttal page 7 lines 6-9

1 baseline heat rate test results. As discussed above, Staff clearly stated KCPL GMO,
2 Ameren Missouri, and Empire have base line heat rate testing results, respectively, that:

3 *"There are now base line heat rate testing results for all of Ameren Missouri's*
4 *generating plants to which future heat rate test results can be compared as a*
5 *measure of change of efficiency of the plant"*⁷.

6 *"There are now baseline heat rate testing results for all of Empire's generating*
7 *plants to which future heat rate test results can be compared as a measure of the*
8 *change of efficiency of the plant."*⁸

9 *"GMO's heat rate and/or efficiency testing results are the baseline against which to*
10 *measure the future efficiency of the units."*⁹

11 **Q. Do you agree with Mr. Luebbert that there is "little value in comparing heat rates for**
12 **generating units to one static heat rate test result."?**

13 **A.** No. I agree with Staff's statement in its comments provided regarding heat rate testing
14 when the FAC rules were written:

15 COMMENT: Commenters assert that minimum equipment performance
16 standards are needed to encourage efficient operations and maintenance and avoid
17 the automatic pass through of extraordinary insured or controllable costs (such
18 costs are not caused by fuel price changes in any event). The PSC Staff agrees
19 that equipment performance standards should be a part of these rules and has

⁷ ER-2011-0028 Staff Report Revenue Requirement Cost of Service filed February 8, 2011 pg. 122

⁸ ER-2011-0004 Staff Report Cost of Service filed February 23, 2011 pg. 101

⁹ ER-2009-0090 Staff Report Cost of Service filed February 13, 2009 pg. 144

1 included in the proposed rules requirements to develop generating unit efficiency
2 testing and monitoring procedures. Staff will, as a result of receiving this data,
3 have the ability to monitor each electric utilities' power plants in terms of their
4 capability to efficiently convert fuel to electricity. Any observed reductions over
5 time may be an indication of the utility's need to implement programs to improve
6 efficiency. Staff views this as a very important and necessary detail since the
7 efficiency of each electric utility's power plants directly relates to each electric
8 utility's fuel and purchased power costs.¹⁰ (Emphasis added)

9 The Commission Staff more recently stated the importance of the heat rate review in a
10 *Non-Unanimous Stipulation and Agreement Regarding Heat Rate-Related Testing Issues*
11 in File No. ER-2014-0258 filed January 9, 2015. It states at paragraph 2:

12 2. The Signatories agree that the intention of these rule provisions was to ensure
13 that heat rate tests are conducted on generating units at least every two years, and
14 that results of heat rate testing was available so that the heat rates of the units can
15 be monitored and evaluated in connection with FAC-related proceedings,
16 including prudence reviews and rate case filings where a utility seeks to continue
17 or modify its FAC. (Emphasis added)

18 As was shown on Schedule JAR-d-2 HC attached to my direct testimony and supplied as
19 a work paper in this case, I plotted all three of the heat rate testing results that were
20 supplied by Empire in its general rate proceedings and also included the entirety of the

¹⁰ Final Order of Rulemaking, 4 CSR 240.20.090, Case No. EX-2006-0472, page 13-14, issue date September 21, 2006

1 simplified monthly heat rate data since Empire was granted an FAC (January 2009 –
2 August 2016).

3 **Q. Does OPC agree with Mr. Luebbert's statement on the appropriateness of comparing**
4 **one static heat rate test result?**

5 A. I agree, but that's not what OPC is proposing. OPC is proposing that using the heat rate
6 test results provided in the general rate cases and monthly heat rate information from
7 January 2009 to August 2016 as OPC did in this prudence case, provides much more
8 information regarding the changes in efficiencies of the generation plants. However, this
9 is certainly not the case from the review that Staff says it performed in this case.

10 **Q. Does OPC agree with Mr. Luebbert's claim that heat rate testing results are only**
11 **appropriate as a "baseline" until the next case that heat rate testing results are**
12 **provided?**

13 A. No. The Business Dictionary defines baseline as:

14 Clearly defined starting point (point of departure) from where
15 implementation begins, improvement is judged, or comparison is made.

16 It is the baseline heat rates set in ER-2011-0004 which comparisons can and should be
17 made. By defining the heat rates provided in each rate case as a "new" baseline,
18 comparisons and judgments on declines in efficiencies cannot be made.

19 **Q. In your analysis, did you compare heat rates to a fixed value heat rate for each**
20 **generating unit in perpetuity as Mr. Luebbert claims on page 6 lines 1 through 2?**

1 A. No. OPC plotted all of the data that it had at its disposal for a historical analysis which
2 included results of three heat rate tests per facility with exception of Riverton 12 Combined
3 Cycle. The heat rates provided in the last three rate cases were examined as well as the
4 monthly heat rate calculations provided. The conversion of Riverton 12 to a combined
5 cycled was completed at the end of Empire's last rate case ER-2016-0023. There were no
6 heat rate tests results in that case and for the review period there are four monthly heat rate
7 data points.

8 **Q. Did OPC find any indications of imprudence in the historical monthly heat rate data?**

9 A. Not at this time. While a review of heat rates may not necessarily reveal imprudence with
10 regard to power plant maintenance, and at this point in my analysis it has not, a future
11 dramatic change in the heat rates could indicate a change in maintenance practices that
12 would need to be further investigated.

13 **Q. What is OPC's recommendation?**

14 A. OPC recommends the Commission direct its Staff in its FAC prudence audits to conduct a
15 review of each generating unit's heat rates. The review should include heat rates from the
16 previous and current prudence audit periods and the heat rate test results supplied as FAC
17 minimum filing requirements in rate cases. Staff's prudence review report should include a
18 section that documents Staff's review and the findings from its review.

19 **Q. Does this conclude your surrebuttal testimony?**

20 A. Yes, it does.