

Exhibit No.:
Issue(s): Load Research
Witness: Lena M. Mantle
Type of Exhibit: Rebuttal
Sponsoring Party: MoPSC Staff
Case No.: EM-2000-369

**ON BEHALF OF THE
MISSOURI PUBLIC SERVICE COMMISSION
UTILITY OPERATIONS DIVISION**

REBUTTAL TESTIMONY

OF

LENA M. MANTLE

FILED²
JUN 21 2000
Missouri Public
Service Commission

**UTILICORP UNITED INC. AND
THE EMPIRE DISTRICT ELECTRIC COMPANY**

CASE NO. EM-2000-369

Jefferson City, Missouri

June, 2000

Rebuttal Testimony of
Lena M. Mantle

1 hourly class loads from all of the regulated utilities in Missouri. I have used load
2 research data and hourly class loads from the Empire District Electric Company (EDE),
3 St. Joseph Light and Power Company (SJLP) and Missouri Public Service (MPS), a
4 division of UtiliCorp United Inc. (UCU), in rate design cases and in rate increase/excess
5 earning cases.

6 Q. What is the purpose of your rebuttal testimony?

7 A. The purpose of my testimony is to explain the detriment to EDE ratepayers
8 that will occur if the load research program of EDE is not maintained at its current quality
9 level. To that end, I recommend that, if the Commission does not approve the merger of
10 UCU and SJLP but does approve the merger of UCU and EDE, the Commission order
11 UCU to:

- 12 • continue to treat the EDE service territory separately from the MPS service
13 territory for load research purposes;
- 14 • maintain EDE's load research program at its current standard of timeliness
15 and quality;
- 16 • provide hourly class load data, selected individual customer hourly load
17 research data for the EDE service territory, and the checks and balances
18 performed on that data, to the Staff on an on-going basis;
- 19 • improve MPS's current load research program to match the current EDE
20 standards of timeliness and quality; and
- 21 • provide hourly class load data, selected individual customer hourly load
22 research data, and the checks and balances performed on that data for the MPS
23 service territory, to the Staff on an on-going basis.

Rebuttal Testimony of
Lena M. Mantle

1 If the Commission approves the merger of UCU and SJLP, adopts my
2 recommendations regarding load research programs found in my rebuttal testimony in
3 Case No. EO-2000-292 and also approves the merger of UCU and EDE, I recommend the
4 Commission order UCU to:

- 5 • continue to treat the EDE and SJLP service territories separately from the
6 MPS service territory for load research purposes;
- 7 • improve EDE's load research program to SJLP's current standard of
8 timeliness and quality; and
- 9 • provide hourly class load data, selected individual customer hourly load
10 research data for the EDE service territory, and the checks and balances
11 performed on that data, to the Staff on an on-going basis.

12 Q. How does your testimony filed in this merger application compare to the
13 testimony you filed earlier concerning the same issue in the UCU/SJLP merger
14 application, Case No. EM-2000-292?

15 A. This testimony is similar to the testimony on the load research issue that I
16 filed in UCU/SJLP merger application. However, there are differences between EDE's
17 and SJLP's load research programs and, therefore, the testimony and recommendations
18 contained within are not identical.

19 Q. How is your testimony organized?

20 A. My testimony contains four sections. The first section, entitled General
21 Nature and Importance of Load Research Programs, is general information on load
22 research programs. The next three sections relate to EDE, SJLP and UCU/MPS load
23 research programs. These sections are entitled Areas of Excellence in the Load Research

1 Program of EDE, Role of the EDE Load Research Program Within UCU, and
2 Recommendations Relating to Load Research Programs. This last section also includes
3 explanations of the recommendations.
4

5 GENERAL INFORMATION ON LOAD RESEARCH PROGRAMS

6 Q. What is load research?

7 A. "Load research" refers to a program designed to obtain hourly electric load
8 data for use in calculating hourly class loads. For customer classes whose members are
9 not routinely metered on an hourly basis such as the residential customers, the program
10 requires the performance of a number of distinct tasks, such as determining a statistical
11 sampling of customers within each customer class, installing interval data recorders
12 (meters) on the premises of these selected customers, collecting and analyzing the hourly
13 usage data recorded by the special metering, and using statistical techniques to estimate
14 hourly electric load data for each customer class from the data collected on the sampled
15 customers. "Load research data" is the term used to describe the hourly data collected
16 from customers that are specifically a part of the load research program. Class load data
17 is the term that describes the hourly electric load data for each customer class, which is
18 estimated from the load research data.

19 Q. Why is it important that each electric utility company have an on-going load
20 research program?

21 A. Overall, a load research program helps the utility understand how its
22 customers use energy. Without such data, specialized load analyses could not be
23 performed and certain types of rates could not be billed.

Rebuttal Testimony of
Lena M. Mantle

1 For most customers, the current practice of measuring electricity use is on a
2 monthly basis because monthly data is used for billing customers. However, the monthly
3 data does not provide much useful information about the way in which the customer's
4 usage varies over shorter periods of time. A load research program fills this "information
5 gap" by collecting hourly data on specific customers and uses statistical methods to
6 estimate hourly use by classes of customers.

7 Q. What is load research data used for?

8 A. In response to data requests, both MPS and EDE listed numerous current
9 uses for sample customer load data. Among the uses mentioned were load analyses such
10 as transformer/equipment sizing, outage or usage monitoring, power quality studies, and
11 power factor determination.

12 The other major use for individual load research data was for billing purposes.
13 The existence of load research data allows customers to be billed for hourly electricity
14 use (real time pricing), for billing by time-of-day periods, and for the monitoring of
15 curtailable customers during curtailment periods.

16 Q. What is class load data used for?

17 A. Among the uses that were mentioned in the data request responses I received
18 from MPS and EDE were resource planning, forecasting, line extension policies, and
19 customer and utility impacts from electric end-uses. In the regulatory arena, class load
20 data is used for weather normalization of class sales and weather normalization of hourly
21 class loads that are used to develop class cost-of-service study allocations. Because the
22 most obvious cost characteristic of an electric utility company is that the cost of

1 generating electricity varies by the hour (or even shorter intervals), hourly class data
2 allows the allocation of costs to the customer classes and the seasons of the year.

3 Q. Will load research data and class load data still be valuable in the event the
4 electric utility industry is restructured in Missouri?

5 A. Yes. If anything, the value of load research data and class load data will
6 increase in a restructured environment. It will be valuable to both the generation provider
7 and to the distribution utility. To be most efficient, the generation provider needs to have
8 an accurate estimate of the hourly load it will need to provide electricity to meet. This
9 estimated loads will be based on the type customers of that generation supplier has and
10 the forecasted weather. Accurate, service-area specific load profiles for various weather
11 conditions can only be developed through high-quality load research data. It will be vital
12 for the distribution utility to know what hourly loads were served and what was actually
13 used by the customer in the reconciliation process between the provider of electricity and
14 the distribution company. The better the load research data, the better the load profiles
15 and the smaller the difference.

16
17 AREAS OF EXCELLENCE IN EDE'S LOAD RESEARCH PROGRAM

18 Q. Why do you believe that load research programs of SJLP and EDE are better
19 than the load research program of MPS?

20 A. I sent out extensive data requests to SJLP, EDE and UCU/MPS regarding
21 four aspects of their load research programs, namely:

- 22 • sample design;
- 23 • collection, management and editing of load research data;

Rebuttal Testimony of
Lena M. Mantle

- 1 • estimation of hourly class loads from load research data; and
- 2 • utilization of load research data and class load data within the utility company.

3 My review of the responses to the information requests was consistent with my
4 working experience. Namely, that SJLP has an excellent load research program and
5 EDE has a better load research program than MPS in two areas that are very important to
6 a user of class load data, such as me. The two areas that SJLP and EDE excel in are
7 timeliness and quality. A major factor for excellence is the quality control in the
8 implementation and administration of the load research programs at SJLP and EDE.

9 Q. What do you mean by timeliness?

10 A. By timeliness, I am referring to the ability of a company to provide relatively
11 current class load data on demand. In the data requests that I sent, EDE and SJLP
12 reported that as of December 1999, the most current class load data available was from
13 August 1999 (four months old) for EDE and October 1999 (two months old) for SJLP.
14 For MPS the most current data available was from December 1997 (two years old).
15 UCU's policy, as stated in a data request response, is to only estimate class load data for
16 MPS on an "as needed" basis.

17 The timeliness of the development of class load data is also important to the
18 quality of the results. If class loads are developed on a timely basis, errors can be found
19 and corrected while it is still relatively easy to check and, if necessary, correct the
20 information that is used as inputs into the development of the class loads. If the
21 development of class loads takes place two years after the data was collected it is much
22 more difficult, and sometimes impossible, to find out what caused the problem in the
23 hourly class loads, let alone to correct it.

1 Q. What do you mean by quality control?

2 A. By quality control, I am referring to the ease with which the class load data
3 that the utility company supplies to users, such as the Staff, pass "sanity checks." EDE
4 and SJLP employees routinely subject their estimate of hourly class loads to a number of
5 quality checks to see if the results seem "reasonable." By contrast, in past cases,
6 UCU/MPS has supplied me with class load data that contained obvious errors and, due to
7 the delay in the development of the class loads and the absence of "sanity checks," the
8 reasons for the errors were difficult and expensive to determine. This made it necessary
9 for me to change the method that I normally use to compensate for the bad class load data
10 received from UCU/MPS. This "fix-up" process took considerable time away from my
11 assigned analysis and compromised the analysis itself.

12 Q. Is there anything else that has led you to the conclusion that currently EDE
13 and SJLP have better research programs than MPS?

14 A. Yes. I have found the employees at EDE and SJLP very concerned with the
15 quality of EDE's class loads and receptive to ferreting out reasons for errors. When the
16 Staff has found errors, they have always listened, investigated and either corrected the
17 loads or told us why the errors occurred. In contrast, the response from UCU to the
18 Staff's request to have errors checked was that it would require an additional expense to
19 have it checked out. The Staff received no definite answers from UCU as to why the
20 errors were in the data and UCU made no attempt to correct the data.

21
22 ROLE OF THE EDE LOAD RESEARCH PROGRAM WITHIN UCU

23 Q. What is the UCU plan for the EDE load research program after the merger?

1 A. The UCU/EDE transition team has recommended that UCU hire an
2 additional load research technician.

3 Q. What is your professional opinion about this recommendation?

4 A. The recommendation that UCU hire an additional load research technician is
5 preferable to the alternative UCU's current method of estimating MPS's class loads.
6 Currently, UCU's has a contract with Quantum Consulting to collect and provide the
7 same standard reporting to UCU for MPS. The problems associated with Quantum
8 Consulting's work for UCU/MPS in the load research area were further addressed in the
9 rebuttal testimony I filed in Case No. EO-2000-292. However, the Staff has no assurance
10 that adopting the option of hiring a load research technician will result in a continuation
11 of the timely availability of EDE class load data or the receptive responses to the Staff's
12 questions regarding load research. UCU's current policy of only estimating class hourly
13 loads on an "as needed" basis and the poor quality of the MPS class hourly loads would
14 not be acceptable for the EDE division, if the UCU/EDE merger application is approved.

15
16 RECOMMENDATIONS RELATING TO LOAD RESEARCH PROGRAMS

17 Q. Would you repeat your recommendations to the Commission in this case
18 regarding the EDE and MPS load research programs?

19 A. I recommend that, if the Commission does not approve the merger of UCU
20 and SJLP but does approve the merger of UCU and EDE, the Commission order UCU to:

- 21 • continue to treat the EDE service territory separately from the MPS service
22 territory for load research purposes;

Rebuttal Testimony of
Lena M. Mantle

- 1 • maintain EDE's load research program at its current standard of timeliness
2 and quality;
- 3 • provide hourly class load data, selected individual customer hourly load
4 research data for the EDE service territory, and the checks and balances
5 performed on that data, to the Staff on an on-going basis;
- 6 • improve MPS's current load research program to match the current EDE
7 standards of timeliness and quality; and
- 8 • provide hourly class load data, selected individual customer hourly load
9 research data, and the checks and balances performed on that data for the MPS
10 service territory, to the Staff on an on-going basis.

11 If the Commission approves the merger of UCU and SJLP, adopts my
12 recommendations regarding load research programs found in my rebuttal testimony in
13 Case No. EO-2000-292, and also approves the merger of UCU and EDE, I recommend
14 that the Commission order UCU to:

- 15 • continue to treat the EDE and SJLP service territories separately from the
16 MPS service territory for load research purposes;
- 17 • improve EDE's load research program to SJLP's current standard of
18 timeliness and quality; and
- 19 • provide hourly class load data, selected individual customer hourly load
20 research data for the EDE service territory, and the checks and balances
21 performed on that data, to the Staff on an on-going basis.

Rebuttal Testimony of
Lena M. Mantle

1 Q. Why are you recommending that, for load research purposes, UCU treat the
2 EDE and SJLP service territories separately from the MPS service territory?

3 A. As I understand this proposed merger, the EDE, SJLP and the MPS service
4 territories will maintain their current rate schedules and will be regulated as separate
5 divisions of UCU. If load research data is not collected separately for each division, the
6 hourly class loads will not be representative of the classes of any of the three divisions.

7 Q. Why are you recommending that UCU supply the Staff with class load data
8 and selected individual customer load research data on an on-going basis?

9 A. The most straightforward answer is that such a requirement is the best way to
10 assure that this data is available for analysis when the Staff needs it. When a company,
11 such as UCU, determines that class loads will only be estimated when the company
12 determines they are "needed", the Staff's efforts to conduct independent investigations
13 are greatly hampered by the delays caused by the unavailability of timely data and the
14 added demands on the Staff to "fix" the data

15 In addition, editing load research data and estimating hourly class loads is a
16 lengthy and complex process. It is not a process that the Staff can accomplish on its own.
17 This is also the reason that the Staff wants each division to provide the results of a
18 standard set of checks and balances.

19 Q. Can such data be obtained by the Staff through the standard data request
20 process?

21 A. It is currently possible to obtain current class load data representing the SJLP
22 and EDE service territories within the 20 working days specified in the existing data
23 request process. In the past, when I have requested class load data from SJLP or EDE for

Rebuttal Testimony of
Lena M. Mantle

1 a time period for which class load data had not yet been developed (because of the lag
2 between collecting individual customer load research data and estimating class load data),
3 both SJLP and EDE provided whatever class load data was immediately available and
4 made the development of the additional data I requested a high priority project. In
5 addition, EDE employees are quick to investigate data problems that are discovered in the
6 course of my analysis.

7 My experiences in acquiring class load data for the MPS service territory has been
8 much different. The existing data request process between the Staff and MPS has not
9 worked well in this situation because, in essence, a request for class load data is a request
10 for data that the utility does not possess. MPS' response to such a data request can be to
11 either maintain that such data is unavailable (which, given the policy of only creating the
12 data on an as needed basis, is true) or create such data. The latter response is typical from
13 MPS but, while more cooperative to the Staff and intervenors, generally requires
14 considerably more time than 20 working days to accomplish.

15 Q. Will the detriment to the ratepayers of EDE end if load research data, class
16 hourly loads and checks and balances are sent to the Staff on a monthly basis?

17 A. No, it will not. The purpose of this recommendation is primarily to retain the
18 timeliness of EDE's load research program. I have also recommended that the current
19 standard of quality of EDE's load research program be maintained. In addition to
20 statistical standards, I am referring to the responsiveness of EDE's employees and a
21 commitment by the management of UCU to a quality load research program.

22 Q. You also recommend that UCU improve MPS's load research program.
23 Why?

Rebuttal Testimony of
Lena M. Mantle

1 A. As with any analysis, the better the input data, the better the output of the
2 analysis. The many current and futures uses of load research data within MPS will be of
3 better quality if the load research program is improved.

4 Q. Would insourcing the load research program by UCU take care of your
5 concerns?

6 A. While it is a much better option than outsourcing the load research program, I
7 still have some concerns with insourcing MPS's load research program. Currently EDE
8 utilizes two employees in its load research program. This is one employee more that the
9 transition team recommends UCU hire for load research. The UCU/SJLP transition team
10 recommended that UCU hire three employees to do both the UCU and SJLP load
11 research. (The role of the "transition teams" in the UCU/EDE merger is discussed in the
12 rebuttal testimony of the Staff witness Janis E. Fischer of the Accounting Department.)
13 Hiring one more technician will raise the total number of recommended employees
14 working on load research at UCU up from zero to four. My concern is that these four
15 employees will be required to not only continue EDE's and SJLP load research program
16 but, in addition, will have to take on MPS's load research program and the load research
17 programs of other UCU divisions. Currently, EDE and SJLP have a total of five
18 employees working full time on just the load research of these two companies. Asking
19 four employees to do the load research of EDE, SJLP and any other UCU divisions will
20 make it impossible to maintain the current timeliness and quality of EDE's load research
21 program.

22 If the Commission does not allow the merger of SJLP and UCU, this would
23 reduce the UCU load research staff to one load research technician. This one person

Rebuttal Testimony of
Lena M. Mantle

1 would not be able to meet the current standards of the EDE load research program, let
2 alone the load research programs of MPS and any other division of UCU.

3 Q. Can some standards be set for the quality of the load research programs of
4 both EDE and MPS?

5 A. Yes. There are some standards that can be set pertaining to the sampling of
6 customer classes and statistical accuracy of the load research data. The Staff and UCU
7 employees could work together to set these standards.

8 Q. Does this conclude your rebuttal testimony?

9 A. Yes, it does.

In the Matter of the Joint Application of)
 UtiliCorp United Inc. and The Empire)
 District Electric Company for Authority to)
 Merge The Empire District Electric Company) CASE NO. EM-2000-369
 with and into UtiliCorp United Inc., and,)
 in Connection Therewith, Certain Other)
 Related Transactions.)

[illegible]

Lena M. Mantle
Lena M. Mantle

Joyce C. Neuner
Notary Public
Joyce C. Neuner
Notary Public, State of Missouri
County of Osage
My Commission Exp. 06/18/2001