Exhibit No.:
Issues: Steam Metering, Customer Billing Practices, and Accounting Reporting of Steam Utility System Losses
Witness/Type of Exhibit: Tooey, Direct
Sponsoring Party: Missouri Public Service Commission
Company: Kansas City Power and Light Company
Case No.: HO-86-139

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY DIVISION

DIRECT TESTIMONY

OF

EDWARD A. TOOEY

Jefferson City, Missouri
February, 1987

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the matter of the investigation of steam service rendered by Kansas City Power & Light Company.	)))	Case No. HO-86-139

AFFIDAVIT OF EDWARD A. TOOEY

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Edward A. Tooey, of lawful age, on his oath states: That he has participated in the preparation of the attached written testimony and attached appendices/schedules in question and answer form, consisting of __ pages of testimony to be presented in the above case, that the answers in the attached written testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.

E A Tooey III
Edward A. Tooey

Subscribed and sworn to before me this 23rd day of February, 1987.

Joyce C. Neuner
Notary Public

My Commission expires June 18, 1989

Joyce C. Neuner, Notary Public
Osage County, State of Missouri
My Commission expires June 18, 1989

PREPARED TESTIMONY

OF

EDWARD A. TOOEY

KANSAS CITY POWER & LIGHT COMPANY

CASE NO. HO-86-139

Q. Please state your name and business address.

A. Edward A. Tooey, Kansas City, Missouri.

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

A. I am employed by the Missouri Public Service Commission (Commission) as a Regulatory Auditor.

Q. Please describe your educational background.

A. I graduated from the University of Missouri - Columbia in May, 1978, with a Bachelor of Science Degree in Business Administration, with a Functional Major in Accounting.

Q. What has been the nature of your duties while in the employ of this Commission?

A. I have, under the direction of the Chief Accountant, Utility Division, assisted with audits and examinations of books and records of utility companies operating within the State of Missouri with regard to proposed rate increases and compliance with Commission orders.

Q. Have you previously filed testimony before this Commission?

A. Yes. Schedule 1 is a list of the cases in which I have participated.

Q. With reference to Case No. HO-86-139, have you made an examination of the books and records of Kansas City Power & Light Company (KCPL or Company) with regard to the proposed rate increase?

A. Yes, with the assistance of other members of the Commission Staff.

Q. What is the purpose of your testimony?

A. My testimony will address Kansas City Power & Light Company's steam utility system maintenance, particularly as it relates to steam metering (both at the customer premises and at other points in the distribution system) as well as customer billing practices and financial reporting of steam utility system losses.

STEAM SYSTEM MAINTENANCE

Q. Did KCPL have an adequate utility steam system maintenance program prior to 1982?

A. No. Mr. Mandacina, Manager of Utility Steam Operations, reported to A. J. Doyle (KCPL's President, Chairman of the Board, and Chief Executive Officer) and J. R. Miller (Vice President, T&D Systems Operations) in correspondence dated January 14, 1983, that KCPL had not had a "comprehensive maintenance program" for many years. (Oligschlaeger Schedule 4-2)

Q. Why is it important to properly maintain the steam utility system?

A. Obviously KCPL's steam utility operation derives its revenues from delivering heat energy in the form of steam to the customer's premises. Maintenance or a lack thereof directly impacts the ability of the Company to both deliver its product in an economic manner and realize revenues from the delivery of that product. The failure to effectively deliver the product and the failure to meter the full amount of the delivery each have a definite "cost" to the Company. Proper system maintenance both maximizes delivery (by minimizing system steam losses) and maximizes receipts of revenue dollars from the product actually delivered.

Q. Please define steam losses and steam loss percentage.

A. Steam losses were defined by KCPL in its 1982 Long-Range Steam Heat Planning Study (Oligschlaeger Schedule 2-18) as the difference between steam sendout at the Grand Avenue Station and steam metered on the customer premises for billing. The difference between steam sendout and the total metered Mlbs. can be expressed either as an absolute number of Mlbs. or as a percentage of total steam sendout.

Q. Did KCPL believe that reducing steam utility operations system losses was key to revitalizing the Downtown steam heat system?

A. Yes. Numerous documents obtained in a review of KCPL steam utility files develop the concept that a key indicator of the health of the steam system was the steam loss (or "unaccounted for") percentages. Reference to many of these documents is contained in Staff witness Oligschlaeger's testimony. The earliest reference to loss percentages and a plan of attack to address these losses dates from early 1982. In February, 1982, Mr. Mandacina, KCPL's then newly assigned Manager of Utility Steam Operations, reported to the first Utility Steam Operations "Board of Directors" meeting on what had been accomplished in the first two weeks of a "concentrated effort" to review Steam Operations. In addressing Steam Department losses, this concentrated review included Grand Avenue Station and desuperheating station metering, steam transmission/distribution losses, and customer metering and usage. (Oligschlaeger Schedule 13) In addition, steam utility system loss percentage goals were set and subsequently revised downward as the goals were met year by year.

Q. What are the causes of steam losses?

A. Generally the causes of losses can be attributed to steam metering, distribution losses other than metering, and financial reporting. Staff witnesses Oligschlaeger, Bernsen and Fuller address

overall steam losses. This testimony addresses metering specifically as a contributor to overall steam losses.

Q. How could you compare the "cost" to the Company of steam losses before steam reaches the customer premises to the "cost" to the Company resulting from under-metering steam deliveries at the customer premise?

A. The "cost" of steam system losses to KCPL before the steam reaches the customer premises is generally equivalent to the cost of fuel needed to generate the lost steam, while the "cost" of not metering customer usage is equal to the amount of revenues not billed. Stated another way the "costs" are approximately $5.00 per Mlb. for distribution system losses occurring before the customer premises versus approximately $9-12 per Mlb. for delivered but unmetered Mlbs. These are approximate current figures.

Q. How are you using the term "cost" in the preceding testimony?

A. The term "cost" in this instance refers only to the potential effect on Company earnings of not addressing system losses. The term as I am using it does not include corresponding costs such as capital and maintenance expenditures which would likely be required to address these system losses. The $5 and $9-12 figures given represent reference points in determining whether the capital and maintenance expenditures required to reduce system losses are cost-justified.

Q. Did KCPL believe that metering contributed to excessive steam system losses?

A. Yes. In a document dated September 21, 1981, obtained in response to Staff Data Information Request No. 403 (Oligschlaeger Schedule

14), Leon Boyce of KCPL indicated, "[m]etering is a problem both at customer and GAS [Grand Avenue Station]."

Also, the 1982 KCPL Long-Range Steam Heat Planning Study indicated the following in this regard:

> System steam losses have increased substantially over the past four years. Until 1978, losses (measured as the difference between steam sendout at Grand Avenue and steam metered on the customer premises for billing) generally were between 10% and 20%. In the last four years, losses have steadily increased to between 30% and 40%. The decline in load levels, aging steam distribution system, and metering problems have contributed to this increase.
>
> [Emphasis added.]

(Oligschlaeger Schedule 2-18)

Q. Why is it important to accurately meter not only steam delivered to the customer premises, but also the Grand Avenue Station sendout and sendout from the two desuperheating plants?

A. Accurate metering is necessary to enable the Company to isolate as accurately as possible the source of steam losses; hence, both be in a position to identify the specific maintenance activities necessary to correct the losses as well as the probable cost effectiveness of the specific maintenance activity. For example, if losses were isolated to a segment of the transmission and distribution system other than the meter at the customer premises, the "return" on an expended maintenance dollar may be less than if the losses were isolated and attributed to unmetered usage by the customer. As discussed previously, the "cost" to the Company of lost steam is generally less if it occurs other than in the metering at the customer premises. Additionally, the cost of identifying and correcting inaccurate meters should be significantly less than digging up underground pipe in search of a known or anticipated leak. This is not to imply that the Company should not be concerned with steam leaks in the

underground distribution system, only that accurate metering is necessary to prioritize maintenance expenditures. Of course, if a steam leak causes damage to property, the "cost" of that leak to KCPL would be greater than the approximate $5 per Mlb. as previously indicated and would enter into any decision as to the priority of maintenance efforts.

Q. Have steam leaks caused property damage?

A. Yes. Notes of a September 16, 1986 Steam Department meeting indicate that KCPL has paid "numerous" damage claims from steam leaking into buildings. Also, in 1984, leaking steam caused damage to Southwestern Bell and Western Union underground cables. (Schedule 3-3)

Q. How did Mr. Mandacina view the importance of customer premises meter reading and maintenance?

A. In correspondence to steam utility operations personnel dated August 1, 1983, Mr. Mandacina asserted, "[t]otal revenue is a direct function of proper meter reading and maintenance. If we are not accurately billing the customer for what he uses, we will [lose] money." Also, he said, "remember, each Mlb lost represents a potential loss of over $11.00 in revenue!" (Schedule 4-1)

Q. What did the Company do to increase the accuracy of its steam metering?

A. Correspondence from Mr. Mandacina to Messrs. Doyle and Miller, dated January 14, 1983, indicated the following in this regard:

> Although less than a year has elapsed since the emphasis began on the steam operations side of the Company, it now seems an appropriate time to report what has been accomplished, and what yet needs to be achieved. The major highlights of the steam renaissance are presented here.
>
> . . .
>
> Enhanced meter maintenance, installation of reliable flowmeters, and a qualified technician recently transferred to steam work have all contributed to the development of a

> much more reliable and accurate metering program. A daily monitoring and reporting of steam and condensate transferred from Grand Avenue [Station] into the system began early in the year. These procedures will be refined as needed. The installation of new [replacement] flow meters in the two desuperheating stations will provide a means to sectionalize the steam flow on the distribution system, and better analyze our loss situation.

(Oligschlaeger Schedule 4-1)

Q. What did KCPL do to "better analyze the loss situation" as referred to above?

A. According to correspondence to R. A. Timm (Director, Internal & Support Services), dated March 18, 1983, Mr. Mandacina indicated a new computer-generated report would be used for "tracking the condensate flow into each desuperheating station and the low pressure and 105 lb. output steam lines," made possible by the new (replacement) meters installed in both desuperheating stations. Mr. Mandacina also indicated:

> The [computer-generated report] format is consistent with the daily report format used by the Grand Avenue Station to report steam and condensate sent to us. A simple MAPPER program will be needed to generate this report and track the totals on a monthly basis. By maintaining the data in two rids, we will be able to "call up" any particular day from past history and obtain a day or month-to-date comparision with Grand Avenue information. This will allow us to analyze our steam distribution line losses as we have discussed for the last year.

(Schedule 5)

Also, Mr. Mandacina indicated in correspondence to Steam Department personnel dated September 22, 1983, that the metering on the Number 1 heat line from Grand Avenue Station was not reliable and that it would be replaced by November 1983. (Schedule 6-2)

Q. What did the Company do to enhance metering of steam usage at the customer premises?

A. In February, 1982, the Company identified a list of 30 customers whose 1981 steam usage indicated potential steam losses were

occurring and that further investigation would be warranted. (Schedule 2-1)

In addition, Mr. Mandacina indicated in correspondence to Steam Department personnel dated July 21, 1982, that the Steam Department would schedule by August 20, 1982, the overhaul of all condensate meters on a two-year cycle and that formal maintenance, recordkeeping and reporting schedules would be established. (Schedule 8-4)

Also, in correspondence to F. L. Branca (Manager, System Planning Administration), dated September 1, 1982, Mr. Mandacina reported that in addition to month-end steam meter readings, the meter readers would inspect customer facilities for possible steam leaks. To deter condensate diversions, the meter readers would also read the meters sometime in the middle of each month on a staggered basis. Mr. Mandacina also reported at this time that:

> The facilities of the customers who use steam all year have been inspected. At least 15 locations have been identified to have condensate leaks, diversions or faulty meters. These problems will be fixed by the heating season, and could represent as much as 15,000 M lbs per year.

(Schedule 7-1)

Q. What are "condensate diversions" and what are their effects?

A. As the energy from delivered steam is released into the customer premises, the steam condenses from a gas to a liquid state. The volume of the liquid (condensate) is measured by the condensate meter after it has passed through the customers' heating system. Any diversion (unintentional or otherwise) of the condensate before it is metered would result in undermeasuring and underbilling of the energy actually delivered.

Q. Do Steam Department financial statements reflect an increased emphasis on maintenance of meters and services after 1981?

A. Yes. Schedule 9 shows the reported level of maintenance related to meters and services (Account 414-644). As can be seen, there was a significant rise in these maintenance expenditures during 1982 and 1983 from earlier levels. The increased emphasis on meter maintenance was reflected in reported annual steam loss percentages as reflected in Schedule 1-4 of Staff witness Fuller's testimony.

BILLING AND COLLECTION

Q. Did Staff obtain documentation which indicates a lack of management attention to the steam utility system in the area of billing and collections in years prior to 1982?

A. Yes. A lack of management attention was apparent in the area of billing and collection for steam usage. Prior to 1982 there was no effective set of procedures to enforce collection of delinquent or partially paid steam bills.

In correspondence dated July 9, 1982, H. E. Johnson, KCPL's Manager of Credit and Collection, wrote to L. C. Rasmussen (Vice-President, Corporate Planning and Chief Financial Officer) that with the "inception of seasonal steam customers [customers who use steam for space heating purposes only], there has always been the problem of keeping steam customers current on their bills during the summer months." (Schedule 10-2) According to Mr. Johnson, the problem occurred when service was shut off in May of each year and was not needed again until the following September or October.

Mr. Johnson further indicated:

> With the service already shut-off, the Credit and Collection Department does not have the usual leverage of telling the customer he must pay and/or make arrangements or his service will be disconnected.
>
> These customers who do not pay know that, as in the past, nothing further can be done on the account until September

> or October. Therefore, these customers [do not respond to] our telephone calls and personal visits . . . and do not pay until the fall.
>
> A further complication has been these seasonal steam customers knowing our past pratices start in February or March each year and do not pay the full amount on their bills. This action has caused the amount that KCPL carries through the summer months to increase even greater.

(Schedule 10-2)

Q. Did Mr. Johnson propose a solution to this long-standing problem?

A. Yes. Mr. Johnson stated, "We in the Credit and Collection Department have reviewed this dilemma, and we believe we have a solution to this problem." (Schedule 10)

Q. What was the solution proposed by Mr. Johnson?

A. A new procedure for cutting off steam accounts was developed and utilized by KCPL. This procedure would be invoked if normal collection procedures failed. It involves sending a form letter to the customer which advises him that if his account remains unpaid after a specific number of days, his acccunt will be closed and a final bill issued. Also, according to Mr. Johnson:

> Any deposits, bonds, or financial guarantees will be forfeited and appropriate action taken to collect on same. If this becomes necessary, in order to have service restored, [the] customer will be required to re-apply for service, pay any and all outstanding balances in full, and re-establish their security deposit before service will be restored.
>
> [Original emphasis.]

(Schedule 10-2)

Q. Why is it important for a company to collect its revenues on a timely basis?

A. Proper cash management dictates that revenues are collected as expeditiously as possible. The company incurs costs in providing its

steam service for which its vendors expect timely payment. When payment to cover these costs is not received from the customer on a timely basis, any cash shortfall must be supplied by an alternate financing source.

Q. Did management address the problems relating to collection of delinquent steam bills in a timely manner?

A. No. The problem as addressed in 1982 was an ongoing problem which an attentive management would have addressed in a more timely fashion.

FINANCIAL REPORTING

Q. How would Staff depict the general status of steam utility system financial reporting prior to mid-1982?

A. Staff believes that the financial reporting efforts exhibited the same lack of management attention apparent in maintenance aspects of steam utility system operations prior to 1982.

Q. Why is it important to insure financial reports are as accurate and informative as possible?

A. As Mr. Mandacina told steam utility system personnel in correspondence dated September 30, 1982, accurate and informative financial reports would provide a "more realistic picture of our steam situation." (Schedule 11)

Q. What did KCPL do in 1982 to insure a more realistic picture of steam utility operations?

A. The Company took steps to more accurately identify and account for Company-use steam. Also, the Monthly Operating Report format was modified to include billing adjustments and unbilled steam sales. In this regard, Mr. Mandacina reported the following to Messrs. Doyle and Miller in correspondence dated January 14, 1983:

> The method of reporting steam usage, billing adjustment and "unaccounted for" steam has been completely revised on page 40 of the Monthly Financial Operating Report. The new format provides an accurate means of accounting for all the steam used each month.
>
> . . .
>
> [These] efforts, together with many newly implemented ancillary procedures, have succeeded in providing a definite increase in the profitability of the steam business.

(Oligschlaeger Schedule 4)

Q. What are unbilled steam sales?

A. Unbilled steam sales represent an estimate of the Mlbs. of steam used by the customer in the period from his last meter-read date to the end of the financial reporting period.

Q. Did previous reporting procedures and formatting provide accurate information to report users?

A. No. Mr. Mandacina indicated in correspondence dated July 21, 1982 that, "[t]he present format does not provide a real indication of actual steam 'losses'." (Schedule 8-3)

Also, in this regard, Mr. Mandacina indicated in a June 16, 1983 correpondence to J. R. Miller of KCPL that:

> The attached bar graph helps depict the continuous fluctuations in system losses. The Accounting Department reporting method created some of the problems, such as the August 1981 Report which indicated a total System Input of 43,651 Mlbs but losses of 55,351 Mlbs! The reporting for January and February, 1982 is also obviously inaccurate. I believe this has been remedied by the new format in the monthly financial report, which we began using in August 1982.

(Schedule 12-1)

CONCLUSIONS

Q. What conclusions have you reached as a result of your investigation?

A. The KCPL steam utility system suffered from a lack of management attention in years prior to 1982. The lack of a comprehensive maintenance program resulted in high levels of steam losses and lost revenues. Without an adequate steam metering maintenance program, the Company could not readily isolate and identify the source and magnitude of the losses in order to mitigate their financial impact, nor could the Company have formulated a plan of addressing these losses.

The areas of billing and collection and financial reporting were affected by management's lack of attention to its steam utility system prior to 1982. Overall, the steps taken by management as described in this testimony could and should have been undertaken years earlier. Once KCPL dedicated its efforts toward improving its maintenance procedures, improvements in the steam loss percentages followed closely. There is no reason, however, why these efforts could not have been in place all along. All of the above factors impacted adversely the profitability of the steam business, particularly before 1982.

Q. Does this conclude your direct testimony?

A. Yes, it does.

LIST OF CASES FILED
BY
EDWARD A. TOOEY

COMPANY NAME	CASE NUMBER
St. Joseph Light & Power Company	ER-80-53
The Gas Service Company	GR-80-173
United Telephone Company	TR-80-235
St. Joseph Light & Power Company	ER-81-43
The Gas Service Company	GR-81-155
United Telephone Company	TR-81-302
Rich Hill-Hume Gas Company	GR-81-332
Missouri Public Service Company	ER-82-39
Missouri Public Service Company	WR-82-50
The Gas Service Company	GR-82-151
Missouri Public Service Company	GR-82-194
Missouri Water Company - Lexington Division	WR-82-279
Missouri Public Service Company	ER-83-40
The Gas Service Company	GR-83-225
Missouri Water Company - Independence Division	WR-83-352
Rich Hill-Hume Gas Company	GR-84-24
Kansas City Power & Light Company	ER-85-128 & EO-85-185
KPL-Gas Service Company	GR-86-76

SCHEDULE 1-1