Exhibit No.:
Issue(s): Unit Availability and Hawthorn 5 Explosion
Witness: Eve A. Lissik
Type of Exhibit: Rebuttal
Sponsoring Party: MoPSC Staff
Case No.: EC-99-553

ON BEHALF OF THE

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

REBUTTAL TESTIMONY

OF

EVE A. LISSIK

GST STEEL COMPLAINT RESPECTING KANSAS CITY POWER & LIGHT COMPANY

CASE NO. EC-99-553

Jefferson City, Missouri

February 28, 2000

REBUTTAL TESTIMONY

OF

EVE A. LISSIK

GST STEEL COMPLAINT RESPECTING

KANSAS CITY POWER & LIGHT COMPANY

CASE NO. EC-99-553

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

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

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by the Missouri Public Service Commission (Commission) as Utility Engineering Supervisor in the Electric Department.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE?

A. My educational background and work experience are presented in Schedule 1.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to present the Missouri Public Service Commission's Staff (Staff) position concerning the allegations raised by GST Steel Company (GST Steel) about Kansas City Power & Light Company's (KCPL) operation and maintenance of its generation, transmission and distribution system.

Q. PLEASE BRIEFLY DESCRIBE GST STEEL'S ALLEGATIONS.

A. In his direct testimony on page 1, lines 1 through 2 and lines 12 through 18, GST Steel Witness Mr. Jerry N. Ward states:

"GST Steel experienced repeated service disruptions and increased electricity costs in 1998 and 1999 as a result of a series of KCPL distribution and generation problems...KCPL for some years has been reducing the costs associated with operations, maintenance and capital replacements. KCPL's actions have resulted in a lack of management attention to the actual operation of the power plants, with a resultant significant increase in the unavailability of their units. The atmosphere thus created is typified by the reliability problems GST has experienced and the boiler explosion at Hawthorn 5 in February of 1999. The boiler explosion occurred because KCPL failed to exercise reasonable care..."

Mr. Ward raises two very serious allegations against KCPL in these statements.

1. KCPL's reductions in the cost of operations, maintenance and capital expenditures of their facilities have caused a concomitant reduction in the availability of KCPL's generation units.
2. The explosion of the boiler at Hawthorn 5 is a result of KCPL's cost reductions and of KCPL's reduced attention to the details of power plant management.

GST Steel alleges that these two factors have caused it to experience increased energy charges as a result of terms of its special contract with KCPL.

Q. PLEASE SUMMARIZE THE STAFF'S POSITION WITH REGARD TO THESE TWO ALLEGATIONS.

A. Even though the Staff believes that the evidence presented by GST Steel is not conclusive, the Staff considers these allegations raised by GST Steel to be very serious. The declining availability of KCPL's generating units and the unavailability of Hawthorn 5 due to the boiler explosion could have an adverse effect on all of KCPL's ratepayers, not just GST Steel. All ratepayers could be harmed by declining generating unit availability because anytime a low-cost baseload unit is out of service, its power must be replaced. Most often, the low cost power is replaced by power from a higher cost generating unit (either its own or someone else's). Thus, anytime a baseload unit is out of service, all ratepayers may have to share the increased cost of replacement power. Currently, KCPL is in a rate case/complaint case moratorium as a result of the Commission's approval of a Stipulation And Agreement in Case No. ER-99-313.

That being said, the Staff makes the following two recommendations to the Commission:

1. Should the Commission determine that there is a strong but not conclusive basis for GST Steel's allegation of declining unit availability, the Commission should order a formal Staff investigation on the operation and maintenance of KCPL's generation, transmission and distribution facilities.
2. The Commission should delay any decision in this case respecting Hawthorn 5 pending the outcome of the Staff's independent investigation and final report on the boiler explosion at Hawthorn 5 (Case No. ES-99-581) after KCPL and its insurance carriers complete their own investigation.

The rest of my testimony will address why the Staff is making these two recommendations to the Commission.

Q. PLEASE EXPLAIN WHY THE STAFF HAS NOT INITIATED ITS OWN INVESTIGATION OF THE OPERATION AND MAINTENANCE OF KCPL'S GENERATION, TRANSMISSION AND DISTRIBUTION FACILITIES.

A. To conduct such an investigation of KCPL's system would require a significant amount of time and Staff resources, and would probably also require that the Staff obtain the assistance of an engineering consulting firm. Also, most of the Electric Department Staff are currently involved in two mergers of Missouri electric utilities, UtiliCorp United, Inc. (UtiliCorp) and St. Joseph Light & Power Company (Case No. EM–2000-292) and UtiliCorp and Empire District Electric Company (Case No. EM-2000-369). Moreover, the Staff expects KCPL to make a major effort to answer GST Steel's allegations in this case. The Staff believed that the appropriate course of action was to seriously review GST Steel's and KCPL's cases and look to the Commission for an indication of what the Commission might want from the Staff.

BACKGROUND

Q. PLEASE BRIEFLY DESCRIBE THE NATURE OF GST STEEL'S POWER SUPPLY ARRANGEMENT WITH KCPL.

A. GST Steel is a manufacturing facility that produces grinding balls and rods for the mining industry, and also carbon wire rods. GST Steel utilizes electric arc furnaces in its manufacturing processes. These furnaces use extremely large amounts of electrical energy. GST Steel is thus the largest single point retail customer (i.e., largest customer taking service at one location) on KCPL's system.

Historically and currently, GST Steel has been treated as if no adequate tariff for GST Steel's unique load and usage requirements exists. Thus, GST Steel purchases all of

its electricity from KCPL, pursuant to a special contract. Staff witness Dr. Michael S. Proctor discusses the nature of this contract in his rebuttal testimony.

Q. PLEASE BRIEFLY DESCRIBE THE NATURE OF THE DIFFICULTIES THAT GST STEEL ASSERTS IT IS EXPERIENCING WITH KCPL SERVICE.

A. GST Steel contends that since January 1998, it has experienced numerous shutdowns of its operations because of KCPL's failure to deliver reliable electric service, resulting in lost revenues of approximately $1.2 million. In addition, GST Steel also asserts that it is experiencing increases in power costs because of the declining reliability and increasing forced outage rates of KCPL's generation units. GST Steel states that as a result of the boiler explosion at Hawthorn 5, it will bear a majority of the costs associated with replacing Hawthorn 5's low-cost power.

Q. PLEASE EXPLAIN WHY GST STEEL BELIEVES IT WILL BEAR A MAJORITY OF THE COSTS ASSOCIATED WITH REPLACING THE POWER LOST AS A RESULT OF THE BOILER EXPLOSION AT HAWTHORN 5.

A. Hawthorn 5 is a low cost, coal-fired baseload generating unit with a capacity of 479 MW. The explosion of the boiler on February 17,1999, left this unit inoperable. Usually, anytime a low-cost generating unit is forced out of service, it is replaced by either a more expensive unit or by more expensive purchased power. Because of the nature of GST Steel's special contract with KCPL, GST Steel claims that anytime one of KCPL's units is forced out of service and is replaced with a more expensive source of power, GST Steel, immediately experiences this increased cost of power.

Q. WHAT ACTION DID GST STEEL REQUESTING FROM THE COMMISSION?

A. Basically, GST Steel asked that the Commission:

1. Conduct a formal investigation into the overall adequacy, reliability and prudence of KCPL's power supply;
2. Require KCPL to utilize insurance proceeds received as a result of the Hawthorn 5 explosion to offset the associated costs of replacement power charged to all customers, including GST Steel.

Q. WHAT IS THE STAFF'S RESPONSE TO GST STEEL'S REQUEST TO THE COMMISSION?

A. I will address the testimony presented by GST regarding the reliability and adequacy of KCPL's power supply, particularly with respect to the subjects of reductions in expenditures respecting KCPL's power system, declining generating unit availability and the Hawthorn 5 boiler explosion. Staff witness Dr. Michael S. Proctor will address GST Steel's request that the insurance proceeds of the Hawthorn 5 boiler explosion be used as an offset to the increased costs experienced by GST Steel as a result of the replacement power that KPL had to purchase.

Q. WHAT ARE THE SOURCES OF INFORMATION THAT THE STAFF USED IN PREPARING ITS RECOMMENDATIONS?

A. The Staff reviewed the data requests and responses exchanged between GST Steel and KCPL, publicly available information, such as FERC Form 1s, GST Steel's special contract with KCPL, GST Steel's workpapers, and previous cases.

KCPL'S COST REDUCTIONS

Q. ON WHAT DOES GST STEEL BASE ITS ASSERTION THAT KCPL HAS REDUCED ITS OPERATIONS, MAINTENANCE AND CAPITAL EXPENDITURES?

A. GST Steel cites the following as the basis of its contentions in regard to KCPL's cost reductions:

1. KCPL's overall annual maintenance expenditures for its entire system have decreased from over $81 million in 1992 to just under $71 million in 1998 (KCPL FERC Form 1, 1992 to 1998);
2. KCPL's steam[1] operations expenditures decreased from approximately $138.3 million in 1993 to approximately $126.4 million in 1998 (KCPL FERC Form 1, 1993 to 1998);
3. KCPL's steam maintenance expenses decreased from about $39.5 million in 1993 to $32.6. million in 1998 (KCPL FERC Form 1, 1993 to 1998);
4. KCPL has reduced their forecasted 5 year capital expenditures from $191.6 million in 1994 to $81.2 million in 1999 (Exhibit 4 of the Direct Testimony of GST Steel witness Jerry N. Ward).

Q. WHAT IS THE STAFF VIEW OF THESE COST REDUCTIONS?

[1] In this context steam operations and maintenance expenses refer to those expenses required to operate KCPL's coal-fired (not nuclear, gas or oil) baseload generation units. Steam is produced in coal-fired boilers to run the turbine generations.

A. A decrease in overall maintenance expenses of $10 million, even with the existence of aging generation, transmission, and distribution facilities, does not, by itself, mean that KCPL is negatively impacting generation unit and system reliability. Maintenance expenses could decrease for any number of reasons including lower net generation, the existence of new units requiring less maintenance, more efficient utilization of maintenance resources, etc.

KCPL's decreases in steam operations and maintenance expenditures of over $20 million, more than twice the reduction in overall maintenance expenditures, coupled with the boiler explosion at Hawthorn 5, merit further analysis. A decrease in 5 year forecasted capital expenditures, especially in lieu of the restructuring of competitive markets for wholesale power, could be expected as utilities replace long-term capital expenditures with the short-term purchased power.

Q. DID STAFF PERFORM ANY INDEPENDENT ANALYSIS RELATED TO KCPL'S COST REDUCTIONS?

A. Yes. The Staff believed it was important to review KCPL's operations and maintenance expenses for production (primarily steam and nuclear, not oil or gas fired), transmission and distribution facilities to try to determine the cause of KCPL's decrease in overall maintenance expenses. The results are presented in the following schedules:

Schedule 2 KCPL FERC Form 1 Production (Operation & Maintenance) Expenses

Schedule 3 KCPL FERC Form 1 Steam Expenses: Operations & Maintenance

Schedule 4 KCPL FERC Form 1 Nuclear Expenses: Operations & Maintenance

Schedule 5 KCPL FERC Form 1 Transmission Expenses: Operations & Maintenance

Schedule 6 KCPL FERC Form 1 Distribution Expenses: Operations & Maintenance

In these Schedules, Staff presents not only KCPL's reported operations, maintenance and total expenses for production, transmission and distribution facilities, but also normalizes these expenses to MWhs sold and electric plant in service because all of these expenses are a function of energy sales and facilities.

Q. WHAT ARE THE MOST SIGNIFICANT FINDINGS OF THE STAFF'S ANALYSIS?

A. At the outset, it should be understood that examination of data obtained from FERC Form 1s gives only a broad overview of KCPL's operation. The Staff used these data because this information is cited in Mr. Ward's direct testimony. Clearly, the opportunity for a more in-depth analysis would be required before any final conclusions concerning KCPL's operations could be drawn. That being said, the Staff would point out the following observations distilled from its analysis:

1. In the period from 1993 through 1998, KCPL's production expenses (Schedule 2) increased, while KCPL's steam production expenses decreased (Schedule 3).
2. During that same period, 1993 through 1998, the percentage of production expenses for steam operations and maintenance decreased from two-thirds of total production expenses to less than half of total production expenses. (Schedule 2).

Staff found no other significant trends in its analysis of this basic information.

Q. WHY DOES THE STAFF BELIEVE THAT THESE TWO OBSERVATIONS ARE SIGNIFICANT?

A. Very large changes in expenditure patterns may be an indication of significant changes in overall management focus. The above two observations appear to be large enough to warrant concern with KCPL's operation of its steam plants, particularly with respect to steam plant performance.

DECLINING UNIT AVAILABILITY

Q. WOULD YOU PLEASE ADDRESS GST STEEL'S ALLEGATIONS CONCERNING THE DECLINING AVAILABILITY OF KCPL'S GENERATION UNITS.

A. GST Steel presents the following information to support its allegations of declining unit availability.

1. SPP Generation Outage Report for the first quarter of 1998;
2. Exhibits 5 and 5A of GST Steel witness Jerry Ward's direct testimony showing KCPL's Unavailable Capability Due to Unplanned Outage and Derating at Time of Monthly Peak Demand for the years 1994 through 1998.
3. Hawthorn 5's equivalent forced outage rate for the years 1994 through 1998.

Q. WHAT IS THE STAFF'S VIEW RESPECTING RESPONSE TO THE INFORMATION?

A. It is difficult to draw any conclusions from the SPP Generation Outage Report for the first three months of 1998 because it only presents a brief "snapshot" of KCPL operations. When considering the data presented in Mr. Ward's testimony regarding KCPL's unavailable capacity due to unplanned outages and deratings at the time of

monthly peak demand, the Staff finds that the increase in unavailable capacity from 2064 MW in 1994 to 4608 MW in 1998 to be significant. Although the Staff examined workpapers supporting GST Steel's direct testimony, the Staff was unable to find the following information concerning these outages.

1. What units were unavailable and why?
2. When did the monthly peak occur?
3. What was the magnitude of the monthly peak?

Without this basic information, Staff is unable to formulate any conclusions regarding GST Steel's claim of the declining availability of KCPL's generating units.

The increase in Hawthorn 5's equivalent forced outage rate from 7.1% in 1994 to 33.52% in 1998 is certainly significant, but does not provide evidence supporting GST Steel's claim of decreasing unit availability as a whole, because GST Steel provides no other information on any of KCPL's other generating units.

Q. DID THE STAFF PERFORM ITS OWN ANALYSIS OF THE AVAILABILITY OF KCPL'S GENERATING UNITS?

A. Yes. For each of KCPL's baseload generating stations (Montrose, Hawthorn 5, Iatan, LaCygne 1 and 2 and Wolf Creek), Staff analyzed three (3) parameters for an indication of declining generating unit availability:

1. Net Peak Demand: the maximum capacity at which the unit operated for a specific time period.
2. Capacity Factor: the ratio of average generation to net peak demand for a specific time period.
3. Percent of Time Off Line: the percent of time the unit was not available for generation.

An indication of declining unit availability could appear in these data as a decrease in net peak demand, a decrease in capacity factor or an increase in percent of time each unit is off line, over time. Staff found none of these indications. The only concern the Staff had was an increase in the percent of time Hawthorn 5 was off line in 1998. However, in that same year the unit's capacity factor was higher than in all previous years except 1997. These data are presented in Schedule 7.

HAWTHORN 5 EXPLOSION

Q. WOULD YOU PLEASE ADDRESS THE EXPLOSION OF THE BOILER AT HAWTHORN 5 IN FEBRUARY OF 1999?

A. The Staff is currently conducting its own limited investigation of this incident in Case No. ES-99-581 and is presently waiting for the results of KCPL's and its insurance carriers' investigation. Because the investigation by KCPL and its insurance carriers is ongoing, it would be too speculative for the Staff to attempt to address any theories surrounding the cause of this accident at this time.

SUMMARY OF CONCLUSIONS & RECOMMENDATIONS

Q. BASED ON THE EVIDENCE PRESENTED BY GST STEEL, IN ITS DIRECT TESTIMONY WHAT ARE YOUR CONCLUSIONS AND RECOMMENDATIONS?

A. The Staff believes that while GST Steel's allegations are serious, the case presented by GST Steel and further developed by the Staff is inconclusive. More information is needed to determine whether or not GST Steel's allegations have merit. Therefore, at this time the Staff reiterates the two recommendations to the Commission stated earlier.

1. Should the Commission determine that there is a strong, but not conclusive basis for GST Steel's allegation of declining unit availability, the Commission should order a formal Staff investigation on the operation and maintenance of KCPL's generation, transmission and distribution facilities.
2. The Commission should delay any decision in this case pending the outcome of the Staff's independent investigation and final report of the boiler explosion at Hawthorn 5 (Case No. ES-99-581).

Q. DOES THIS CONDLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

Kansas City Power & Light
Total Production Expenses
Source: FERC Form 1

Year	1998	1997	1996	1995	1994	1993
Production Operation	N/A	N/A	N/A	N/A	N/A	N/A
Production Maintenance	N/A	N/A	N/A	N/A	N/A	N/A
Total Production O&M Expense	$318,359,132	$304,624,951	$299,086,200	$291,030,127	$274,562,978	$272,698,345
Total MWh Sold	17,002,408	15,986,675	16,537,627	16,064,779	16,381,265	15,137,551
Production Electric Plant in Service	$2,189,890,033	$2,185,496,052	$2,159,617,786	$2,138,631,359	$2,139,926,431	$2,121,940,267
Total Production O&M / MWh Sold	$18.72	$19.05	$18.09	$18.12	$16.76	$18.01
Total Production O&M / Electric Plant in Service	0.1454	0.1394	0.1385	0.1361	0.1283	0.1285

Note: This information is not available, as one component, Other Production O&M, is not split in this manner in the FERC Form 1.

Schedule 2-1

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

GS Technology Operating Company, Inc.,	)	
Doing business as GST Steel Company,	)	
Complainant,	)	Case No. EC-99-553
v.	)	
Kansas City Power & Light Company,	)	
Respondent.	)	

AFFIDAVIT OF EVE A. LISSIK

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Eve A. Lissik, of lawful age, on her oath states: that she has participated in the preparation of the foregoing written testimony in question and answer form, consisting of 13 pages of testimony to be presented in the above case; that the answers in the attached written testimony were given by her; that she has knowledge of the matters set forth in such answers; and that such matters are true to the best of her knowledge and belief.

Eve A. Lissik

Subscribed and sworn to before me this 28th day of February, 2000.

Notary Public

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

My commission expires

PROFESSIONAL CREDENTIAL OF EVE A. LISSIK

Education

- B.S. Biology, Syracuse University, 1977
- Ph.D. Engineering, Cornell University, 1989

Professional Licenses and Affiliations

- Licensed Professional Engineer (Mechanical) in Missouri, E-28354
- Missouri Society of Professional Engineers
- National Society of Professional Engineers
- National Association of Regulatory Utility Commissioners (NARUC) Strategic Issues Subcommittee

Testimony filed before the Missouri Public Service Commission

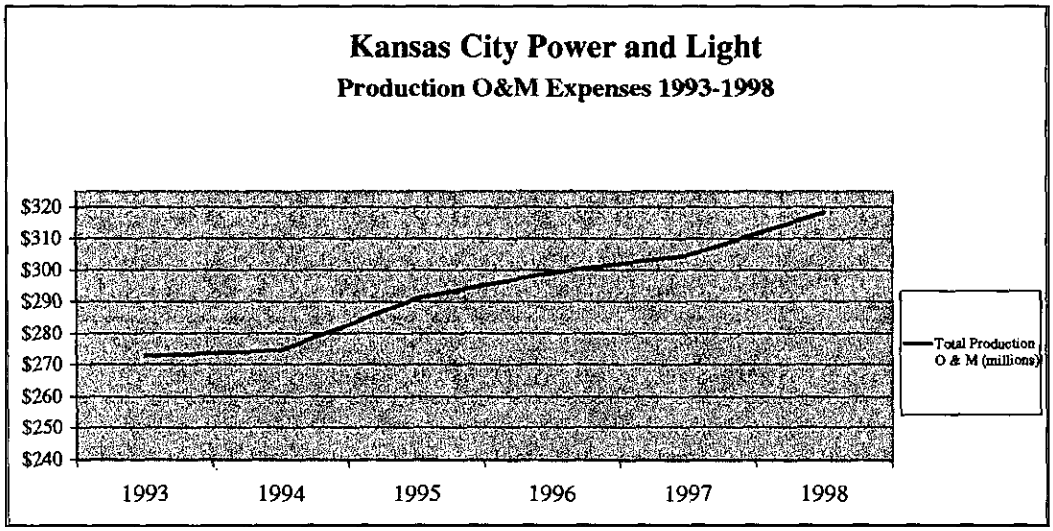
- KPL Gas Service Company, Case No. GR-90-50, March 22, 1990 Cost of Service and Rate Design
- Laclede Gas Company, Case No. GR-90-120, June 15, 1990 Cost of Service and Rate Design
- Associated Natural Gas Company, Case No. GR-90-152, September 17, 1990 Cost of Service and Rate Design
- UtiliCorp United Inc., Case No. GR-90-192, September 11, 1990 Cost of Service and Rate Design
- Laclede Gas Company, Case No. GR-92-165, July 17, 1992 Cost of Service and Rate Design
- United Cities Gas Company, Case No. GR-93-47, February 11, 1993 Cost of Service and Rate Design
- St. Joseph Light & Power Company, Case no. GR-93-42, February 19, 1993 Cost of Service and Rate Design
- Missouri Public Service, Case No. GR-93-172, May 28, 1993 Cost of Service and Rate Design
- Empire District Electric Company, Case Nos. ER-94-174 & EO-91-74, May 20, 1994 Cost of Service and Rate Design
- Laclede Gas Company, Case No. GR-94-220, July 1, 1994 Cost of Service and Rate Design
- Empire District Electric Company, Case No. ER-95-279, September 8, 1995 Cost of Service and Rate Design

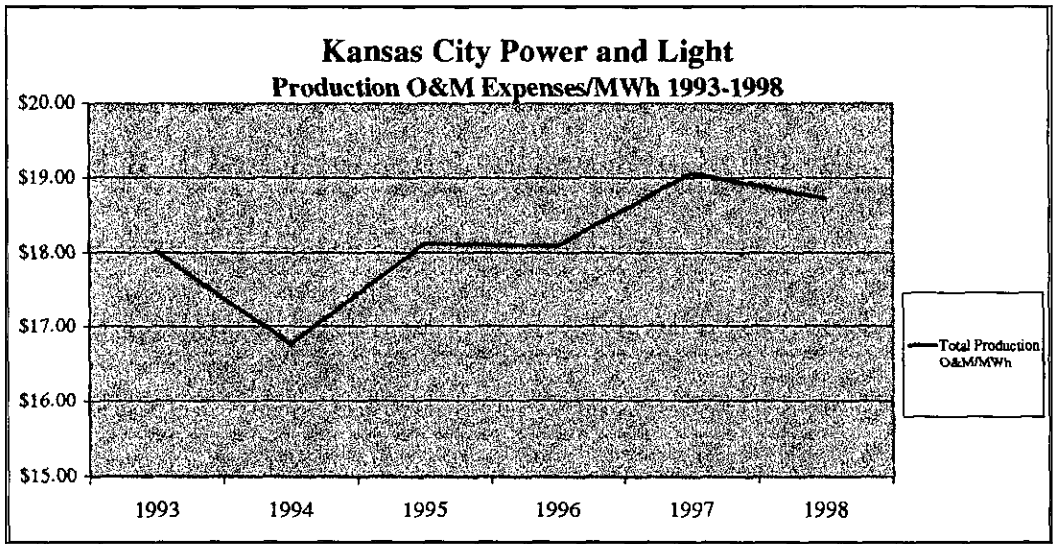
Testimony filed before the Federal Energy Regulatory Commission

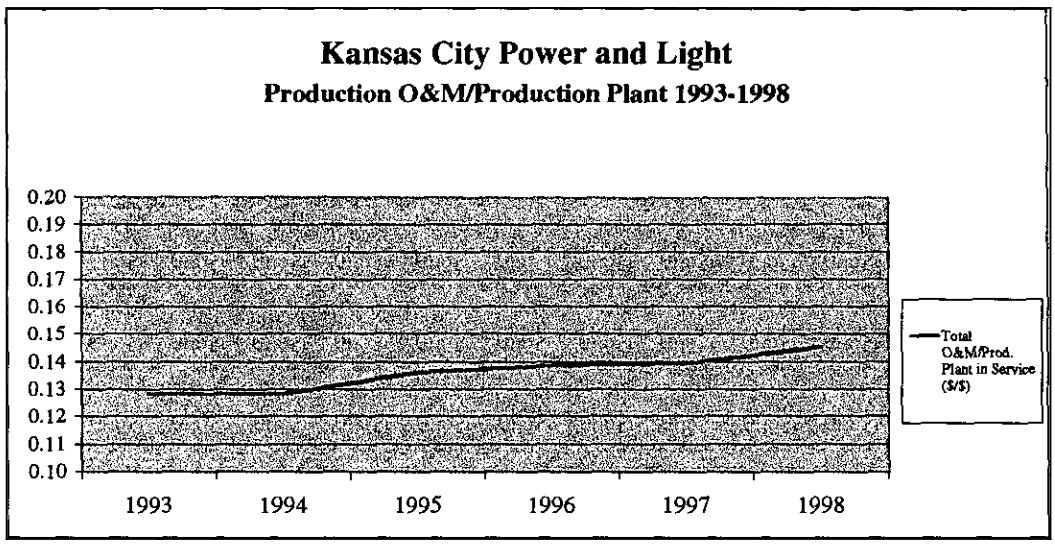
- Mississippi River Transmission Corporation, Case No. GR96-199, January 31, 1997 Depreciation

Other Related Regulatory Experience

- Principle: NARUC Executive Dialogue on Market Power, July 1998
- Principle: NARUC Executive Dialogue on Reliability, April 1999
- Principle: NARUC Comments to the FERC on Regional Transmission Organizations (Docket No. RM99-2-000)


Kansas City Power and Light
Production O&M Expenses 1993-1998
$320
$310
$300
$290
$280
$270
$260
$250
$240
1993
1994
1995
1996
1997
1998
Total Production O & M (millions)


Kansas City Power and Light
Production O&M Expenses/MWh 1993-1998
$20.00
$19.00
$18.00
$17.00
$16.00
$15.00
1993
1994
1995
1996
1997
1998
Total Production O&M/MWh


Kansas City Power and Light
Production O&M/Production Plant 1993-1998
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
1993
1994
1995
1996
1997
1998
Total O&M/Prod. Plant in Service ($/$)

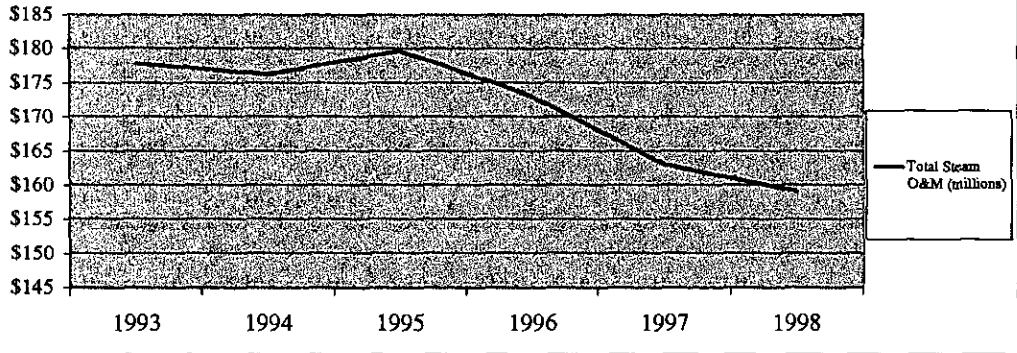
Kansas City Power & Light
Steam Production Expenses
Source: FERC Form 1

Year	1998	1997	1996	1995	1994	1993
Steam Operation	$126,408,970	$131,573,392	$140,582,906	$139,464,549	$141,538,899	$138,291,517
Steam Maintenance	$32,623,497	$31,384,384	$32,420,969	$40,225,808	$34,631,107	$39,498,412
% Steam Maintenance	20.51	19.26	18.74	22.39	19.66	22.22
Total Steam O&M Expense	$159,032,467	$162,957,776	$173,003,875	$179,690,357	$176,170,006	$177,789,929
Steam MWh Sold	11,505,443	11,432,628	12,268,600	11,105,256	12,150,011	N/A
Steam Production Plant in Service	$818,492,994	$811,228,820	$784,271,812	$773,733,894	$770,597,095	$763,762,064
Steam O&M/Steam MWh Sold	$13.82	$14.25	$14.10	$16.18	$14.50	N/A
Steam O&M/Steam Production Plant in Service	0.1943	0.2009	0.2206	0.2322	0.2286	0.2328
Total Production O&M	$318,359,132	$304,624,951	$299,086,200	$291,030,127	$274,562,978	$272,698,345
% Steam Production O&M	49.95	53.49	57.84	61.74	64.16	65.20

Schedule 3-1

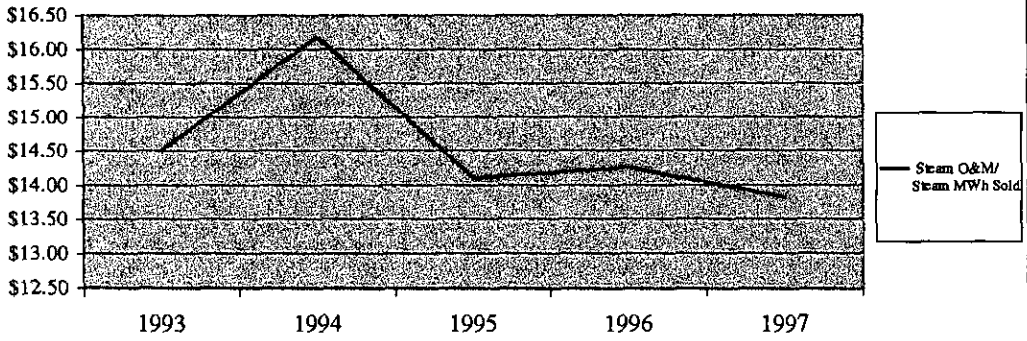
Kansas City Power and Light

Steam Production O&M Expenses 1993-1998



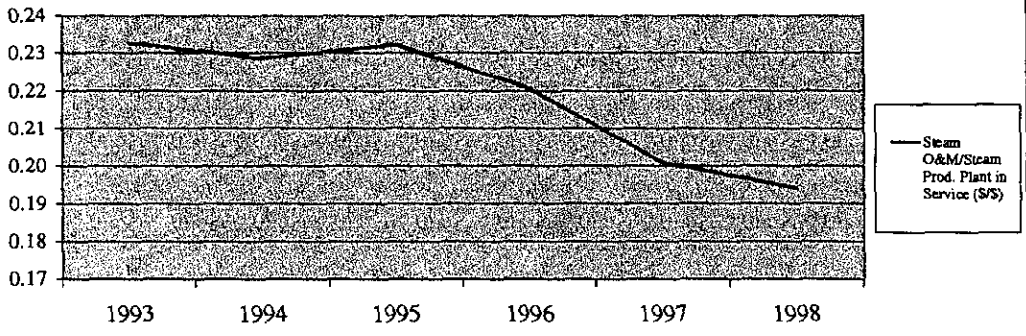
Kansas City Power and Light

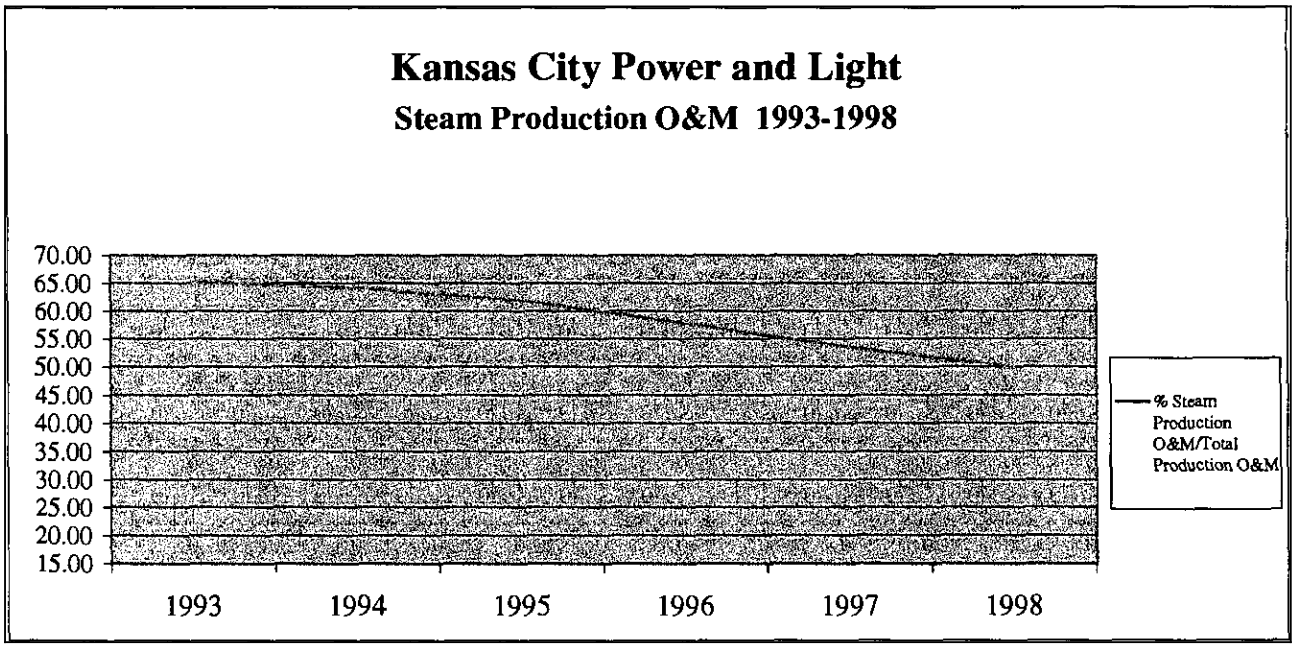
Steam Production O&M/Steam MWh 1993-1998

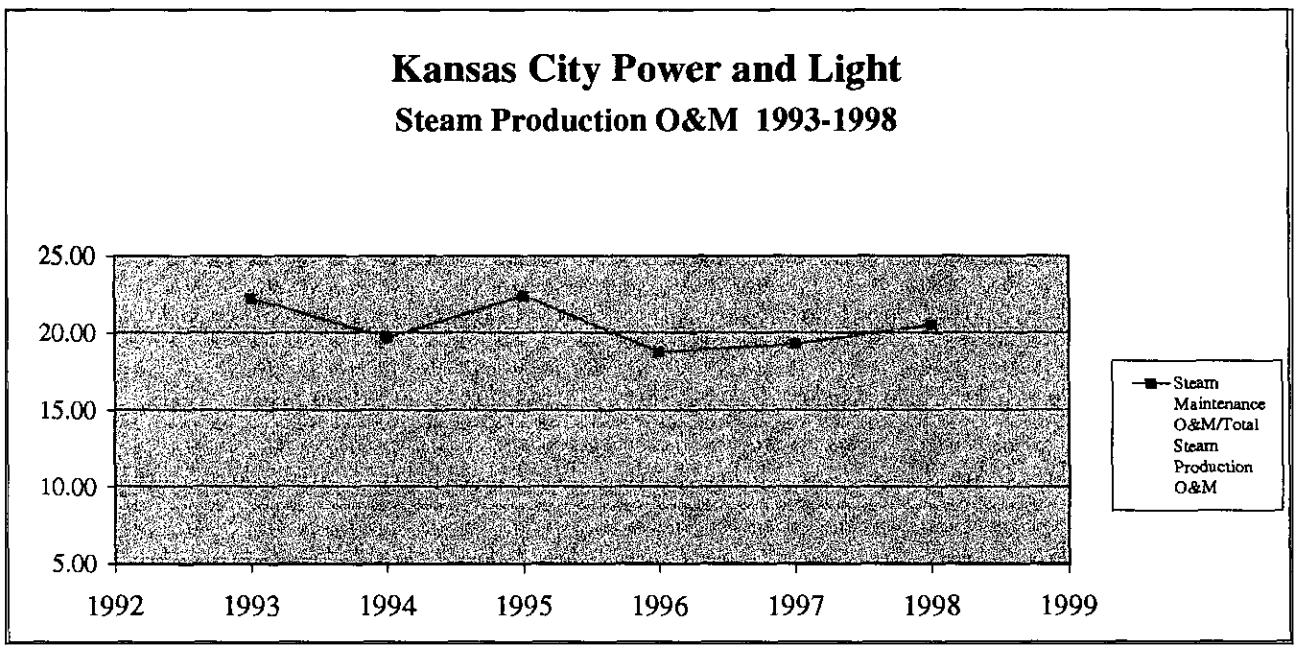


Kansas City Power and Light

Steam Production O&M/Steam Plant in Service 1993-1998




Kansas City Power and Light
Steam Production O&M 1993-1998
70.00
65.00
60.00
55.00
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
1993
1994
1995
1996
1997
1998
% Steam Production O&M/Total Production O&M


Kansas City Power and Light
Steam Production O&M 1993-1998
25.00
20.00
15.00
10.00
5.00
1992
1993
1994
1995
1996
1997
1998
1999
Steam Maintenance O&M/Total Steam Production O&M

Kansas City Power & Light
Nuclear Production Expenses
Source: FERC Form 1

Year	1998	1997	1996	1995	1994	1993
Nuclear Operation	$57,084,313	$53,292,621	$48,061,195	$49,357,450	$44,754,303	$43,511,242
Nuclear Maintenance	$16,467,606	$17,316,483	$17,940,062	$15,336,894	$14,897,957	$14,548,097
% Nuclear Maintenance	22.39	24.52	27.18	23.71	24.97	25.06
Total Nuclear O&M	$73,551,919	$70,609,104	$66,001,257	$64,694,344	$59,652,260	$58,059,339
Nuclear MWh Sold	4,888,272	3,962,235	3,856,274	4,729,216	4,008,623	N/A
Nuclear Production Plant in Service	$1,328,928,759	$1,331,851,522	$1,332,789,862	$1,322,416,831	$1,326,848,733	$1,315,702,446
Nuclear O&M/Nuclear MWh Sold	15.05	17.82	17.12	13.68	14.88	N/A
Nuclear O&M/Nuclear Production Plant in Service	0.0553	0.0530	0.0495	0.0489	0.0450	0.0441
Total Production O&M	318,359,132	304,624,951	299,086,200	291,030,127	274,562,978	272,698,345
% Nuclear Production O&M	23.10	23.18	22.07	22.23	21.73	21.29

Schedule 4

Kansas City Power & Light
Transmission Expenses
Source: FERC Form 1

Year	1998	1997	1996	1995	1994	1993
Transmission Operation	$8,528,799	$8,100,711	$6,410,484	$4,847,208	$4,770,326	$4,444,303
Transmission Maintenance	$939,161	$1,347,139	$1,360,968	$1,643,393	$1,669,820	$2,043,157
% Transmission Maintenance	9.92	14.26	17.51	25.32	25.93	31.49
Total Transmission O&M	$9,467,960	$9,447,850	$7,771,452	$6,490,601	$6,440,146	$6,487,460
Total MWh Sold	17,002,408	15,986,675	16,537,627	16,064,779	16,381,265	15,137,551
Transmission Electric Plant in Service	$221,114,608	$217,874,805	$215,461,228	$207,650,767	$195,776,818	$188,401,786
Transmission O&M/MWh	$0.5569	$0.5910	$0.4699	$0.4040	$0.3931	$0.4286
Transmission O&M/Transmission Plant in Service	0.0428	0.0434	0.0361	0.0313	0.0329	0.0344

Schedule 5

Kansas City Power & Light
Distribution Expenses
Source: FERC Form 1

Year	1998	1997	1996	1995	1994	1993
Distribution Operation	$18,218,568	$17,275,870	$17,805,512	$17,853,425	$19,450,472	$21,769,547
Distribution Maintenance	$17,625,765	$17,682,858	$15,857,443	$16,824,838	$17,570,695	$18,601,432
% Distribution Maintenance	49.17	50.58	47.11	48.52	47.46	46.08
Total Distribution O&M	$35,844,333	$34,958,728	$33,662,955	$34,678,263	$37,021,167	$40,370,979
Total MWh Sold	17,002,408	15,986,675	16,537,627	16,064,779	16,381,265	15,137,551
Distribution Electric Plant in Service	$1,013,231,578	$967,079,221	$969,614,341	$923,458,134	$884,253,794	$846,979,276
Distribution O&M/MWh	$2.1082	$2.1867	$2.0355	$2.1587	$2.2600	$2.6669
Distribution O&M/Distribution Plant in Service	0.0354	0.0361	0.0347	0.0376	0.0419	0.0477

Schedule 6

Summary of Relevant Plant Statistics for KCPL's Base Load Generating Units

Year	1998	1997	1996	1995	1994
Name	MONTROSE	MONTROSE	MONTROSE	MONTROSE	MONTROSE
Type	Coal/Oil	Coal/Oil	Coal/Oil	Coal/Oil	Coal/Oil
Year Originally Constructed	1958	1958	1958	1958	1958
Year Last Unit Installed	1964	1964	1964	1964	1964
Total Installed Capacity (MW)	563	563	563	563	563
Net Peak Demand (MW)	515	513	495	488	480
Net Generation (KWh)	2,518,328,000	2,792,461,100	2,460,889,120	2,380,121,800	2,568,280,900
Average Capacity (MW)	309	331	303	272	293
Capacity Factor	60.07%	64.50%	61.22%	55.78%	61.08%
Plant Hours Connected to Load	8,140	8,439	8,121	8,744	8,760
% of Time Off-line	7.08%	3.66%	7.29%	0.18%	0.00%
Average Number of Employees	136	140	142	143	146
Maintenance Expenses	6,493,760	6,141,037	10,030,627	8,268,423	9,049,129
Supervision and Engineering	1,140,044	198,056	413,010	482,021	622,381
Structures	340,207	412,160	1,035,837	356,469	964,676
Boiler or Reactor Plant	4,351,748	5,074,898	6,446,782	4,634,032	6,257,572
Electric Plant	644,811	440,157	2,121,253	2,551,220	794,541
Miscellaneous	16,950	15,766	13,745	244,681	409,959
Expenses per Net KWh	0.0153	0.0164	0.0185	0.0181	0.0167

Schedule 7-1

Year	1998	1997	1996	1995	1994
Name	HAWTHORN 5	HAWTHORN 5	HAWTHORN 5	HAWTHORN 5	HAWTHORN 5
Type	Coal/Gas	Coal/Gas	Coal/Gas	Coal/Gas	Coal/Gas
Year Originally Constructed	1969	1969	1969	1969	1969
Year Last Unit Installed	1969	1969	1969	1969	1969
Total Installed Capacity (MW)	515	515	515	515	515
Net Peak Demand (MW)	478	480	474	492	482
Net Generation (KWh)	1,861,708,000	2,325,666,000	2,375,094,000	1,917,632,830	2,221,236,000
Average Capacity (MW)	313	317	303	309	291
Capacity Factor	65.51%	66.11%	63.89%	62.88%	60.30%
Plant Hours Connected to Load	5,945	7,329	7,843	6,199	7,643
% of Time Off-line	32.13%	16.34%	10.47%	29.24%	12.75%
Average Number of Employees	105	109	117	115	118
Maintenance Expenses	9,588,422	8,353,546	6,375,775	15,071,441	7,251,318
Supervision and Engineering	327,473	289,757	12,983	871,174	576,215
Structures	546,816	789,020	998,863	1,096,214	1,219,714
Boiler or Reactor Plant	7,224,726	6,582,945	4,438,669	8,493,369	4,070,479
Electric Plant	1,308,855	691,794	835,999	4,343,008	1,173,926
Miscellaneous	180,552	30	89,261	267,676	210,984
Expenses per Net KWh	0.0161	0.0143	0.0148	0.0218	0.0169

Year	1998	1997	1996	1995	1994
Name	IATAN	IATAN	IATAN	IATAN	IATAN
Type	Coal/Oil	Coal/Oil	Coal/Oil	Coal/Oil	Coal/Oil
Year Originally Constructed	1980	1980	1980	1980	1980
Year Last Unit Installed	1980	1980	1980	1980	1980
Total Installed Capacity (MW)	508	508	508	508	508
Net Peak Demand (MW)	495	483	473	479	476
Net Generation (KWh)	3,235,381,600	3,085,002,590	3,213,022,280	3,161,721,950	3,318,426,000
Average Capacity (MW)	414	399	379	389	394
Capacity Factor	83.68%	82.65%	80.18%	81.31%	82.68%
Plant Hours Connected to Load	7,811	7,728	8,472	8,118	8,432
% of Time Off-line	10.83%	11.78%	3.29%	7.33%	3.74%
Average Number of Employees	76	80	83	84	87
Maintenance Expenses	38,564,664	4,133,707	7,050,273	5,199,654	4,486,009
Supervision and Engineering	199,839	97,821	44,268	209,759	236,782
Structures	374,433	367,289	586,015	704,726	724,020
Boiler or Reactor Plant	3,072,460	3,188,527	3,096,998	3,481,810	2,410,249
Electric Plant	11,353	472,947	3,233,239	694,511	830,082
Miscellaneous	34,906,579	7,123	89,753	108,848	284,876
Expenses per Net KWh	0.0108	0.0112	0.0109	0.0111	0.0112

Year	1998	1997	1996	1995	1994
Name	LA CYGNE	LA CYGNE	LA CYGNE	LA CYGNE	LA CYGNE
Type	Coal/Oil	Coal/Oil	Coal/Oil	Coal/Oil	Coal/Oil
Year Originally Constructed	1973	1973	1973	1973	1973
Year Last Unit Installed	1977	1977	1977	1977	1977
Total Installed Capacity (MW)	810	810	810	810	810
Net Peak Demand (MW)	671	672	667	688	700
Net Generation (KWh)	3,773,710,000	3,184,126,000	4,216,302,000	3,636,593,000	4,039,037,000
Average Capacity (MW)	481	449	546	418	471
Capacity Factor	71.67%	66.87%	81.82%	60.73%	67.34%
Plant Hours Connected to Load	7,847	7,086	7,726	8,704	8,569
% of Time Off-line	10.42%	19.11%	11.80%	0.64%	2.18%
Average Number of Employees	129	134	137	140	146
Maintenance Expenses	12,254,251	12,692,740	11,718,238	11,627,816	13,775,978
Supervision and Engineering	508,355	140,490	97,582	460,145	594,462
Structures	1,138,341	1,007,002	1,296,069	1,303,330	1,293,526
Boiler or Reactor Plant	8,873,340	8,666,033	9,616,954	8,228,831	9,682,518
Electric Plant	1,707,765	2,847,175	624,980	1,028,740	1,370,897
Miscellaneous	26,450	32,040	82,653	606,770	834,575
Expenses per Net KWh	0.0136	0.0153	0.0136	0.0150	0.0147

Schedule 7-4

Year	1998	1997	1996	1995	1994
Name	WOLF CREEK	WOLF CREEK	WOLF CREEK	WOLF CREEK	WOLF CREEK
Type	Nuclear/Oil	Nuclear/Oil	Nuclear/Oil	Nuclear/Oil	Nuclear/Oil
Year Originally Constructed	1985	1985	1985	1985	1985
Year Last Unit Installed	1985	1985	1985	1985	1985
Total Installed Capacity (MW)	581	581	581	581	581
Net Peak Demand (MW)	567	566	565	562	561
Net Generation (KWh)	4,888,272,000	3,962,235,000	3,856,274,000	4,729,216,000	4,008,623,000
Average Capacity (MW)	558	548	548	548	534
Capacity Factor	98.42%	96.89%	97.03%	97.56%	95.25%
Plant Hours Connected to Load	8,760	7,225	7,034	8,625	7,502
% of Time Off-line	0.00%	17.52%	19.70%	1.54%	14.36%
Average Number of Employees	547	447	454	462	473
Maintenance Expenses	16,467,604	17,316,484	17,940,062	15,336,891	14,897,957
Supervision and Engineering	4,013,139	4,351,517	4,311,392	2,791,987	3,670,800
Structures	1,647,996	2,065,202	1,739,951	1,622,885	1,838,734
Boiler or Reactor Plant	8,117,693	6,407,746	6,971,142	7,930,000	4,807,593
Electric Plant	1,559,790	3,615,289	3,856,523	1,994,166	3,510,479
Miscellaneous	1,128,986	876,730	1,061,054	997,853	1,070,351
Expenses per Net KWh	0.0116	0.0174	0.0165	0.0000	0.0143