

Exhibit No.:
Issues: Class Cost of Service
Witness: Hong Hu
Sponsoring Party: MO PSC Staff
Type of Exhibit: Direct Testimony
Case No.: ER-2004-0570
Date Testimony Prepared: September 27, 2004

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

FILED³

DEC 28 2004

DIRECT TESTIMONY

OF

Missouri Public
Service Commission

HONG HU

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2004-0570

Jefferson City, Missouri
September 2004

Exhibit No. 49
Case No(s) ER-2004-0570
Date 12-06-04 Rptr XF

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

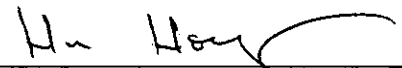
In The Matter Of The Tariff Filing Of The)
Empire District Electric Company To)
Implement A General Rate Increase For)
Retail Electric Service Provided To)
Customers In Its Missouri Service Area)

Case No. ER-2004-0570

AFFIDAVIT OF HONG HU

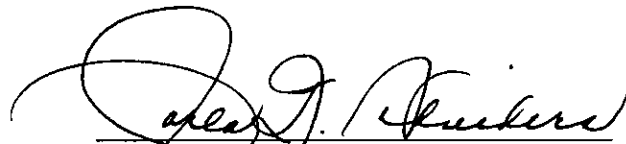
STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Hong Hu, of lawful age, on her oath states: that she has participated in the preparation of the following Direct Testimony in question and answer form, consisting of 14 pages of Direct Testimony to be presented in the above case, that the answers in the following Direct 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.



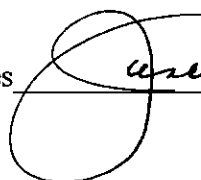
Hong Hu

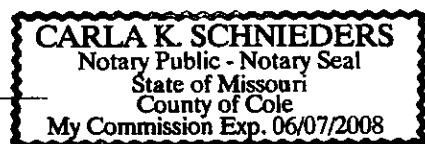
Subscribed and sworn to before me this 24th day of September, 2004.



Notary Public

My commission expires

 June 7, 2008



1
2
3
4

TABLE OF CONTENTS

I.	Class Cost Of Service Study – A Brief Introduction	2
II.	Staff's Class Cost Of Service Study	4

1 A. The purpose of my Direct Testimony is to present the Staff's Class Cost of
2 Service (CCOS) study results.

3 **I. Class Cost Of Service Study – A Brief Introduction**

4 Q. What is the main purpose of performing a CCOS Study?

5 A. The main purpose of a CCOS Study is to determine the relative class cost
6 responsibility for each customer class by allocating total costs or revenue requirement in
7 a reasonable manner. The total costs of a utility include its expenses plus a reasonable
8 return on its rate base. A CCOS study estimates how well a customer class fulfills its
9 revenue responsibility by comparing its share of the total cost to the current revenue it
10 provides. CCOS study results also provide guidance for determining how rate elements
11 should be designed to collect revenues from customers within a class, depending on
12 customer usage levels and patterns. In other words, the overall goal of a CCOS study is
13 to match service received to the cost of providing that service, plus a reasonable return,
14 so that each customer is paying his/her/its "fair share".

15 Q. What was the general procedure followed by Staff in its CCOS study?

16 A. Staff used the procedure described in Chapter 2 of the National
17 Association of Regulatory Utility Commissioners (NARUC) ELECTRIC UTILITY
18 COST ALLOCATION MANUAL, January, 1992 (NARUC Manual). The CCOS studies
19 the Staff performs are embedded cost studies. The historical information required to
20 develop cost allocations, including the Company's plant investment, operating costs,
21 current revenues, and load information, are contained in the books and records
22 maintained by the Company, and are examined by the Staff's auditing and rate design
23 personnel. Once the relevant data are gathered, a CCOS study can be performed through

1 the following three primary steps: the functionalization, classification, and allocation of
2 costs.

3 Q. Please explain the first step of performing a CCOS study.

4 A. The first step of a CCOS study is functionalization. Functionalization of
5 costs involves categorizing plant investment and operation cost accounts by the type of
6 function with which an account is associated. Each major account was categorized by
7 whether the costs associated with that account were related to the utility's function of
8 production, transmission, distribution, or customer services and facilities; or, to some
9 combination of these functions.

10 Q. Please explain the second step of performing a CCOS study.

11 A. The second step is to separate the functionalized costs into classifications
12 based on the components of utility service being provided. In addition, some costs can be
13 identified as logically incurred to serve a particular customer or customer group. For
14 example, costs in each of the distribution accounts can be classified as demand related
15 (costs that vary with KW demands) or customer related (costs that vary with the number
16 and type of customer served), and primary (utilized by both customers taking service at
17 the primary voltage and customers taking service at the secondary voltage) or secondary
18 (utilized by only customers taking service at the secondary voltage). Another example is
19 that certain plant investments can be identified as exclusively serving a special contract
20 customer, and thus can be directly assigned.

21 Q. Please explain the third step of performing a CCOS study.

22 A. The third step of performing a CCOS study is called allocation. After
23 costs have been properly classified, the analyst chooses allocation factors that will

1 allocate a reasonable share of jurisdictional costs to each customer class. Allocation
2 factors are based on ratios that represent the proportion of total units (total number of
3 customers, total annual energy consumption, etc.) attributable to a certain customer class.
4 These ratios are then used to calculate the proportions of various cost categories for
5 which a class is responsible.

6 **II. Staff's Class Cost Of Service Study**

7
8 Q. What was the source of the data used in Staff's CCOS study?

9 A. The Empire Electric District Company (EDE) provided revenues and costs
10 by major FERC account for the test year ending December 31, 2001, updated to June 30,
11 2002, to various Missouri Public Service Commission Staff (Staff) witnesses as found in
12 the Staff Accounting Schedules filed on September 20, 2004.

13 Class level revenue and load data were prepared by Staff witness Ms. Janice
14 Pyatte, and other staff members under Ms. Pyatte's supervision from the information
15 provided by EDE. I used these sources for the data input into Staff's CCOS study.

16 Q. What customer classes are used in the Staff's study?

17 A. Empire currently has the following rate schedules: Residential Service
18 (RG), Commercial Service (CB), Small Heating Service (SH), General Power Service
19 (GP), Large Power Service (LP), Electric Furnace Primary Service (PF), Feed Mill and
20 Grain Elevator Service (PFM), Total Electric Building Service (TEB), and Special
21 Transmission Service Contract: Praxair (SC-P). Due to the fact that customers in the CB
22 and SH rate codes as well as the GP and TEB rate codes have similar characteristics, the
23 Staff has combined CB and SH rates into the Small General Service (SGS) class, and the
24 GP and TEB rate codes into the Large General Service (LGS) class.

1 The only PF customer that the Company had has ceased operations; therefore, the
2 PF class is not included in the Staff's CCOS study. In addition, the number of customers
3 in the PFM rate class and other special rate classes, such as lighting, is so small that the
4 Staff believes that the data currently available regarding those customers is not accurate
5 enough to produce any meaningful results for those classes. Therefore, those classes
6 were not included in the Staff's CCOS study. The revenues from these classes were used
7 as an offset against costs directly assigned to these classes, and the residual was applied
8 against the revenue requirements of the classes that were included in the Staff's CCOS
9 study.

10 Q. What is the revenue requirement in this study?

11 A. For purposes of its CCOS study, Staff used Staff's mid-point test year
12 overall revenue requirement, i.e., a \$7.4 million decrease in margin revenue requirement
13 for EDE's total revenue requirement. This number corresponds to the \$11,983,480
14 overall revenue requirement increase including the Interim Energy Charge (IEC). The
15 class cost-of-service study results were also calculated on a revenue neutral basis.

16 Q. Please describe the Functionalization step of the Staff's study.

17 A. We have functionalized all plant accounts and expense accounts into the
18 following categories:

19 **The production function** consists of generating plants where energy resources
20 such as natural gas and coal are converted to electricity. It also includes cost of fuel and
21 labor to operate these plants. As illustrated in the graph attached as Schedule 2,
22 generation facilities are the first link in the chain in providing electricity to customers.

1 **The transmission function** moves electricity at a very high voltage, from
2 generating plants over long distances to local service areas. Electricity is transferred at
3 high voltages to minimize the current flow and thus the amount of electrical energy
4 converted to heat in the wires, and thereby to lessen energy loss and the risk of fire. The
5 transmission function consists of costs for high voltage lines and transmission
6 substations, and labor to operate and maintain these facilities. Transmission lines
7 typically consist of large steel or wood structures and wires.

8 **The distribution function** converts high voltage power from the transmission
9 system into lower primary voltage and delivers it to large industrial complexes, and
10 further converts it into even lower secondary voltage power which then be delivered into
11 homes for lights and appliances. Distribution is the final link in the chain built to deliver
12 electricity to the customers' homes or businesses. A utility's distribution plant includes
13 distribution substations, poles, wires, transformers and meters, as well as service and
14 labor expenses incurred for the operation and maintenance of these distribution facilities.

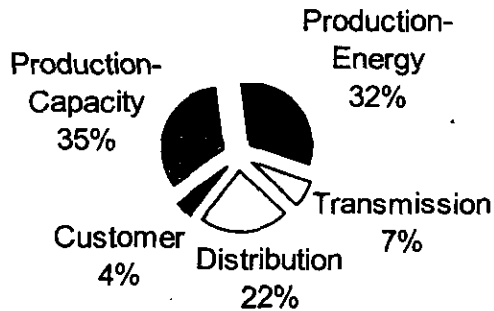
15 **The customer function** includes labor expenses incurred for billing and customer
16 services.

17 The pie chart below shows the relative percentage of the costs for each of these
18 functions.

FUNCTIONALIZED COSTS

Total Missouri

Case No. ER-2004-0570



1
2

3

Q. Please describe the Classification step of the Staff's study.

4

5

A. The functionalized costs were further classified into the following categories:

6

Production – Energy

7

Production – Capacity

8

Transmission – Capacity

9

Distribution – Substations – Primary demand

10

Distribution – Feeder Lines – Primary demand

11

Distribution – Overhead Lines & Poles – Primary customer

12

Distribution – Overhead Lines & Poles – Secondary customer

13

Distribution – Underground Lines & Conduits – Primary customer

14

Distribution – Underground Lines & Conduits – Secondary customer

15

Distribution – Lines, Poles, & Conduits – Primary demand

16

Distribution – Lines, Poles, & Conduits – Secondary demand

1 Distribution – Transformers – Secondary customer
2 Distribution – Transformers – Demand
3 Distribution – Customer Installations
4 Distribution – Services
5 Distribution – Meters
6 Customer – Customer Deposits
7 Customer – Meter Reading
8 Customer – Billing, Customer Sales & Services
9 Assigned – Special Contract
10 Assigned – Large Power
11 Assigned – LGS/LPS/SC Classes
12 Assigned – RES/SGS Classes
13 Revenue Related
14 Excess Facility
15 Lighting
16

17 Q. Why is Production Plant classified into two different categories?

18 A. Production Plant includes the cost of land, structures and equipment used
19 in connection with power generation. Both demand and energy characteristics of a
20 system's loads are important determinants of production plant costs. Specifically, fuel
21 expenses and purchased power cost are directly related to the amount of electricity sold,
22 and are thus classified as energy related. The costs of generation facilities are directly
23 related to a utility's generation capacity, which is determined through the utility's system
24 planning, when many factors including both load factor and demand are considered, and
25 are thus classified as capacity related.

1 Q. How was Production – Energy cost allocated?

2 A. Because production-energy costs are determined by loads throughout the
3 year, each class's contribution to total energy sold was used to allocate production-energy
4 costs.

5 Q. How was Production – Capacity cost allocated?

6 A. Since different types of generating units (base, intermediate, and peaking)
7 have different operational and cost characteristics, utilities attempt to build the amounts
8 and types of generating units that provide flexibility to match supply to demand in every
9 hour throughout the year at the lowest possible cost. A reasonable allocator must be able
10 to reflect this principle. In previous cases, the Commission accepted the Time of Use
11 (TOU) method as the most reasonable method for allocating the production costs of
12 serving various customer classes. However, the Staff did not have sufficient resources
13 to develop such TOU allocators in this case. Therefore, it was decided that the
14 Production-capacity costs should be allocated on the basis of the 12-month non-
15 coincident peak (NCP) average and peak allocators, which are a reasonably close
16 approximation to the more accurate TOU allocators.

17 Q. How was Transmission Plant allocated?

18 A. The transmission plant is generally considered to be an extension of the
19 production plant. It can be used as a substitute for generation facilities to provide reliable
20 service throughout the year including periods of scheduled maintenance, and can be used
21 to minimize the cost of generation facilities through the sales or purchase of power. The
22 planning and operation of transmission plant is inexorably linked to the production plant,
23 with the major factors that drive production costs tending also to drive transmission costs.

1 Therefore, Transmission Plant costs can be equitably allocated on the same basis as the
2 Production Plant. Accordingly, the same 12-month NCP average and peak allocators that
3 were used for Production-capacity were also used to allocate Transmission-capacity
4 costs.

5 Q. Why is distribution function classified into primary and secondary
6 categories?

7 A. An electric utility's distribution system includes a primary (higher
8 voltage) system and a secondary (lower voltage) system. Some industrial customers and
9 research centers require higher voltage or stricter voltage regulation than can be provided
10 by the secondary distribution system, thus they receive services at the high voltage side
11 of the transformer. In other words, the cost of the secondary portion of the distribution
12 system is incurred only to serve the customers who take service at the secondary voltage
13 level, while the cost of the primary portion of the distribution system is incurred to serve
14 all customers.

15 Q. Why is the overhead and underground distribution function classified into
16 customer and demand categories?

17 A. The cost of distribution conductors is directly related to their size as well
18 as their length. Conductors are sized based on customers' demand. The length of a
19 conductor is determined by where the customers are located relative to the source of the
20 electricity they use. In other words, a portion of the conductor costs is not directly related
21 to the customers' demand and should be reasonably separated from the portion of the
22 conductor costs that varies directly with capacity or demand. The poles and underground
23 conduits are used to support the conductors and thus should receive the same treatment.

1 Q. How are the primary/secondary, and customer/demand split determined?

2 A. Former Staff witness Eve A. Lissik developed these splits based on
3 information provided by the Company. This information was used by the parties in cases
4 No. ER-95-279, ER-94-174 and EO-91-74. I have continued to use these results, because
5 there is no evidence to suggest any changes have occurred, and no more recent studies
6 have been performed.

7 Q. Why was class contribution to the sum of annual class peak demands used
8 to allocate the portion of substations, poles, and conductors related to primary demand?

9 A. Substations and primary conductors are sized to meet the diversified
10 demands of the customers. Diversity incorporates the fact that customers do not all peak
11 at the same time. However, since each substation serves a geographic area smaller than
12 the total service territory, system coincident peak demands are not appropriate. The class
13 peak demands incorporate the diversity within each class, but do not take that diversity
14 all the way to the total system.

15 Q. How was the portion of poles, conductors, and transformers costs related
16 to secondary demand allocated?

17 A. Secondary lines are sized to meet the diversified demands of the
18 secondary customers and therefore class contribution to the sum of annual non-coincident
19 class peak demands were used to allocate secondary poles, conductors, and conduits.
20 Line transformers serve an even smaller group of customers. Class peaks incorporate too
21 much diversity for allocating this cost, and customer maximum demand incorporates too
22 little since it accounts for none of the diversity between customers within these small
23 groups. Therefore, the Staff used class contribution to customer diversified demand at

1 secondary, which is a mix of the non-coincident class peak and customer maximum
2 demand, to allocate line transformer costs.

3 Q. Why was weighted customer used to allocate the customer portion of
4 poles, conductors, and conduits?

5 A. The weighted customer allocator is developed based on the number of
6 customers in each class, multiplied by a set of weights that approximately reflect
7 customer density for each customer class. I believe it is a reasonable way to allocate the
8 portion of costs of poles, conductors, and conduits that varies with length.

9 Q. How were costs associated with service lines allocated?

10 A. Costs of service lines were allocated on service-weighted customer
11 allocators, each of which is equal to customer numbers for each particular class
12 multiplied by the service weight. The weights used in the allocations reflect the cost of a
13 "typical" service by class.

14 Q. How were costs associated with meters allocated?

15 A. Cost of meters were allocated on meter weighted customer allocators,
16 which is equal to customer numbers for each class multiplied by the meter weight. The
17 weights used in the allocation reflect the current cost of installing a meter (or meters) for
18 each class of customer.

19 Q. Please discuss the methods that you used to classify and allocate expenses.

20 A. Expenses were directly assigned, if possible. For the expenses that could
21 not be directly assigned, classification of costs are made consistent with the principle that
22 "expenses follow plant," and the same allocators were applied to the expenses accounts as

1 those that were applied to the Production, Transmission, and Distribution Plant accounts
2 to which the expenses are related.

3 Q. Why was allocators based on weighted number of customers used to
4 allocate the cost of meter reading?

5 A. Since meter reading costs are related both to the number of customers and
6 customer density, these costs are allocated based on weighted customers, where the
7 weights reflect the relative cost of meter reading by class.

8 Q. What formed the basis for the allocation of uncollectible accounts, billing
9 and records, customer services, and sales promotion expenses?

10 A. The Staff allocated these costs on non-weighted customer numbers
11 because they vary with the number of customers and no special studies have been done to
12 determine what, if any, weighting would be the appropriate. A portion of customer
13 services and sales promotion expenses were assigned to the classes based on the
14 Company's assignments.

15 Q. How did you allocate property and payroll taxes?

16 A. I allocated property taxes on the basis of allocated total net plant, and
17 payroll taxes on the basis of allocated payroll expenses.

18 Q. How did you allocate state and federal income taxes?

19 A. These taxes were allocated on the basis of rate base since a utility
20 company's income taxes will be a function of the size of its rate base, and thus each class
21 should contribute revenues for income taxes in proportion with the amount of rate base
22 that is necessary to serve it.

23 Q. Please describe the results of Staff's CCOS Study.

A. Schedule 3.1 and 3.2 shows the results of Staff's CCOS Study on a revenue neutral basis and the Staff's recommended revenue requirement, respectively. Our results show that on a revenue neutral basis, the Residential class is providing approximately 5% less operating revenues than the costs of serving that class, while the nonresidential classes are providing approximately 4.5% more operating revenue than the cost of serving them. The class specific information is provided in Schedule 3.1 and 3.2, and is summarized below in Table 1 and 2.

Table 1 – CCOS Indicated Revenue Neutral Class Revenue Deficiencies

	TOTAL	Residential	SGS	LGS	LPS	SC (Praxair)
Revenue Deficiency	0	5,397,926	(1,960,871)	(4,021,879)	341,213	243,612
%	0.00%	4.88%	-6.28%	-6.29%	1.12%	10.06%

Table 2 – CCOS Indicated Class Revenue Deficiencies at Staff

Recommended Mid Point ROR (8.09%)

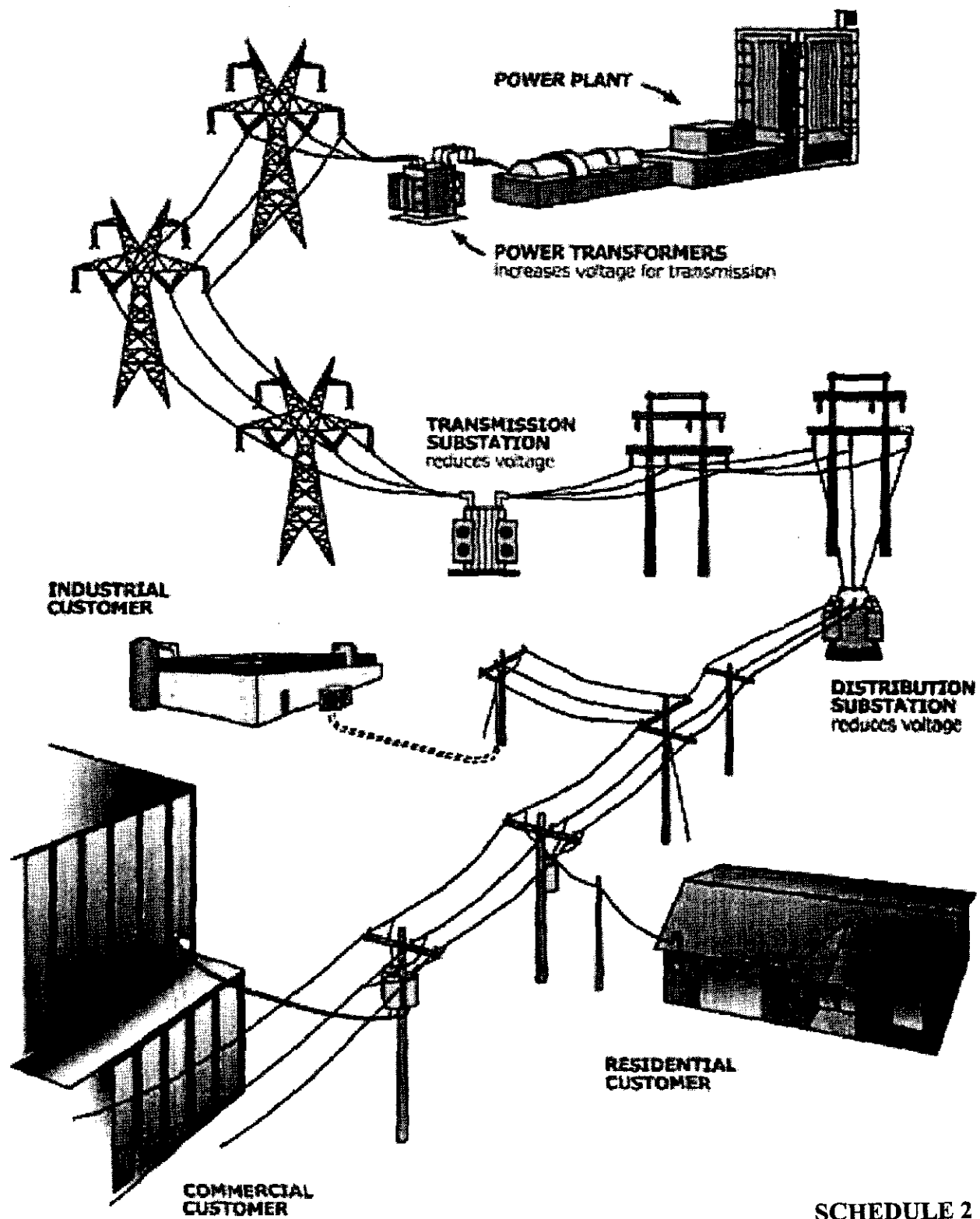
	TOTAL	Residential	SGS	LGS	LPS	SC (Praxair)
Revenue Deficiency	(7,194,368)	1,832,858	(2,895,474)	(5,796,535)	(516,423)	180,206
%	-2.96%	1.66%	-9.27%	-9.07%	-1.69%	7.44%

Q. Does this conclude your Direct Testimony?

A. Yes.

Testimony Filed before the Missouri Public Service Commission
Witness: Hong Hu

Company	Case
Aquila, Inc. d/b/a Aquila Networks-MPS	ER-2004-0034 & HR-2004-0024
The Empire District Electric Company	ER-2002-424
Union Electric Company d/b/a AmerenUE	EC-2002-1
UtiliCorp United, Inc. d/b/a Missouri Public Service	ER-2001-672
Laclede Gas Company	GR-2001-629
The Empire District Electric Company	ER-2001-299
Missouri Gas Energy	GR-2001-292
St. Louis Country Water Company	WR-2000-844
Union Electric Company d/b/a AmerenUE	GR-2000-512
Missouri-American Water Company	WR-2000-281 & SR-2000-282
Laclede Gas Company	GR-99-315
St. Joseph Light & Power Company	ER-99-247 & EC-98-573
Laclede Gas Company	GR-98-374
Missouri Gas Energy	GR-98-140
Union Electric Company d/b/a AmerenUE	GR-97-393
Union Electric Company	EO-96-15
St. Joseph Light & Power Company	EC-98-573
McDonald County Telephone Company	TR-98-347
Lathrop Telephone Company	TR-98-345



SCHEDULE 2

STAFF CLASS COST-OF-SERVICE RESULTS

(Revenue Neutral)

EMPIRE DISTRICT ELECTRIC

CASE NO. ER-2004-0570

FUNCTIONAL CATEGORY/CLASSIFICATION			RES	SGS	LGS	LPS	SC	Other	TOTAL	% OF TOTAL
PRODUCTION	CAPACITY		\$39,982,327	\$9,927,035	\$25,351,421	\$13,675,014	\$1,225,819	\$0	\$90,161,617	34.93%
PRODUCTION	ENERGY		\$32,402,014	\$8,336,288	\$23,054,185	\$13,868,938	\$1,323,291	\$0	\$78,984,714	30.60%
TRANSMISSION	CAPACITY		\$8,354,353	\$2,074,265	\$5,297,209	\$2,857,410	\$258,138	\$0	\$18,839,373	7.30%
DISTRIBUTION	SUBSTATIONS	DEMAND	\$4,351,329	\$1,062,568	\$2,379,878	\$1,026,753	\$72,719	\$0	\$8,893,245	3.45%
DISTRIBUTION	LINES, POLES, AND CONDUITS	PRI. FEEDER - DEMAND	\$4,123,784	\$1,007,001	\$2,255,427	\$973,081	\$0	\$0	\$8,359,273	3.24%
DISTRIBUTION	LINES, POLES, AND CONDUITS	PRI. TAP - CUSTOMER	\$3,904,704	\$878,703	\$189,961	\$10,834	\$339	\$0	\$4,984,541	1.93%
DISTRIBUTION	LINES, POLES, AND CONDUITS	SEC. CUSTOMER	\$2,881,235	\$643,884	\$136,563	\$992	\$0	\$0	\$3,642,675	1.41%
DISTRIBUTION	LINES, POLES, AND CONDUITS	PRI. TAP - DEMAND	\$4,790,598	\$1,169,833	\$2,620,128	\$1,130,404	\$0	\$0	\$9,710,963	3.78%
DISTRIBUTION	LINES, POLES, AND CONDUITS	SEC. DEMAND	\$2,334,546	\$570,081	\$1,278,837	\$0	\$0	\$0	\$4,181,464	1.62%
DISTRIBUTION	TRANSFORMERS	SEC. CUSTOMER	\$3,543,534	\$1,122,777	\$238,289	\$0	\$0	\$0	\$4,904,579	1.90%
DISTRIBUTION	TRANSFORMERS	DEMAND	\$1,473,646	\$345,382	\$695,229	\$0	\$0	\$0	\$2,514,237	0.97%
DISTRIBUTION	CUSTOMER INSTALLATIONS		\$0	\$929,587	\$107,225	\$1,881	\$48	\$0	\$1,038,541	0.40%
DISTRIBUTION	SERVICES		\$4,305,098	\$1,057,709	\$686,689	\$0	\$0	\$0	\$6,049,496	2.34%
DISTRIBUTION	METERS		\$2,901,570	\$944,882	\$329,149	\$66,891	\$2,090	\$0	\$4,244,582	1.64%
	CUSTOMER DEPOSITS		(\$320,729)	(\$185,843)	(\$92,566)	\$0	\$0	\$0	(\$579,139)	-0.22%
	METER READING		\$1,714,703	\$385,872	\$83,419	\$4,757	\$149	\$0	\$2,188,900	0.85%
	BILLING, SALES, SERVICE		\$3,754,670	\$636,190	\$73,524	\$1,043	\$33	\$0	\$4,465,460	1.73%
	ASSIGNED LGS/LPS/SC		\$0	\$0	\$104,630	\$1,485	\$46	\$0	\$106,161	0.04%
	ASSIGNED RES/SGS		\$4,014,580	\$592,897	\$0	\$0	\$0	\$0	\$4,607,457	1.78%
	EXCESS FACILITY		\$85	\$2,788	\$257,948	\$580,445	\$684	\$0	\$821,948	0.32%
TOTAL			\$124,492,028	\$31,521,877	\$65,045,123	\$34,179,706	\$2,881,354	\$0	\$258,120,088	100.00%
%			48.23%	12.21%	25.20%	13.24%	1.12%	0.00%	100%	
RATE REVENUE			\$110,644,795	\$31,220,119	\$63,894,793	\$30,585,036	\$2,421,236	\$4,412,733	\$243,178,711	
Allocate Rate Revenues for Others			\$2,128,273	\$538,887	\$1,111,989	\$584,325	\$49,258	(\$4,412,733)	\$0	
NON RATE REVENUE			\$989,440	\$396,553	\$337,649	\$149,358	\$2,896	\$33,848	\$1,909,544	
Interruptible Credit			(\$152,065)	(\$37,756)	(\$96,419)	(\$52,010)	(\$4,662)	\$0	(\$342,912)	
OffSystem Revenue			\$5,452,917	\$1,353,881	\$3,457,508	\$1,865,042	\$167,181	\$0	\$12,296,529	
Excess Facility Revenue			\$0	\$3,220	\$342,677	\$696,075	\$864	\$0	\$1,042,837	
Sale of Emission			\$14,514	\$3,734	\$10,326	\$8,212	\$593	\$0	\$35,379	
Allocate Non Rate Revenues for Others			\$16,228	\$4,109	\$8,478	\$4,456	\$376	(\$33,848)	\$0	
TOTAL REVENUE			\$119,094,102	\$33,482,748	\$69,067,003	\$33,838,493	\$2,637,742	\$0	\$258,120,088	
%			48.14%	12.97%	28.76%	13.11%	1.02%	0.00%	100%	
REVENUE DEFICIENCY			\$5,397,926	(\$1,960,871)	(\$4,021,879)	\$341,213	\$243,612	\$0	\$0	
% CHANGE			4.88%	-6.28%	-6.29%	1.12%	10.06%	0.00%	0.00%	

STAFF CLASS COST-OF-SERVICE RESULTS

(At Staff MidPoint ROR 8.09%)

EMPIRE DISTRICT ELECTRIC

CASE NO. ER-2004-0570

FUNCTIONAL CATEGORY/CLASSIFICATION			RES	SGS	LGS	LPS	SC	Other	TOTAL	% OF TOTAL
PRODUCTION	CAPACITY		\$38,581,320	\$8,579,185	\$24,463,091	\$13,195,833	\$1,182,866	\$0	\$87,002,294	34.87%
PRODUCTION	ENERGY		\$32,368,581	\$8,327,686	\$23,030,398	\$13,854,628	\$1,321,926	\$0	\$78,903,218	31.44%
TRANSMISSION	CAPACITY		\$7,870,348	\$1,054,094	\$4,890,318	\$2,691,867	\$241,297	\$0	\$17,747,924	7.07%
DISTRIBUTION	SUBSTATIONS	DEMAND	\$4,122,320	\$1,006,644	\$2,254,626	\$972,715	\$68,892	\$0	\$8,425,198	3.36%
DISTRIBUTION	LINES, POLES, AND CONDUITS	PRI. FEEDER - DEMAND	\$3,920,657	\$957,399	\$2,144,330	\$925,130	\$0	\$0	\$7,947,517	3.17%
DISTRIBUTION	LINES, POLES, AND CONDUITS	PRI. TAP - CUSTOMER	\$3,713,623	\$835,703	\$180,665	\$10,303	\$322	\$0	\$4,740,616	1.89%
DISTRIBUTION	LINES, POLES, AND CONDUITS	SEC. CUSTOMER	\$2,722,652	\$612,698	\$129,949	\$944	\$0	\$0	\$3,466,243	1.38%
DISTRIBUTION	LINES, POLES, AND CONDUITS	PRI. TAP - DEMAND	\$4,551,917	\$1,111,548	\$2,489,586	\$1,074,084	\$0	\$0	\$9,227,136	3.68%
DISTRIBUTION	LINES, POLES, AND CONDUITS	SEC. DEMAND	\$2,219,011	\$541,868	\$1,213,647	\$0	\$0	\$0	\$3,974,526	1.58%
DISTRIBUTION	TRANSFORMERS	SEC. CUSTOMER	\$3,336,437	\$1,057,158	\$224,343	\$0	\$0	\$0	\$4,617,938	1.84%
DISTRIBUTION	TRANSFORMERS	DEMAND	\$1,387,521	\$325,177	\$854,597	\$0	\$0	\$0	\$2,367,296	0.94%
DISTRIBUTION	CUSTOMER INSTALLATIONS		\$0	\$878,731	\$101,359	\$1,589	\$45	\$0	\$981,724	0.39%
DISTRIBUTION	SERVICES		\$4,109,637	\$1,009,687	\$655,512	\$0	\$0	\$0	\$5,774,836	2.30%
DISTRIBUTION	METERS		\$2,829,959	\$921,583	\$321,028	\$65,240	\$2,039	\$0	\$4,139,826	1.65%
	CUSTOMER DEPOSITS		(\$267,931)	(\$148,884)	(\$63,101)	\$0	\$0	\$0	(\$519,915)	-0.21%
	METER READING		\$1,708,818	\$384,547	\$63,133	\$4,741	\$148	\$0	\$2,161,387	0.87%
	BILLING, SALES, SERVICE		\$3,736,658	\$633,138	\$73,172	\$1,038	\$32	\$0	\$4,444,039	1.77%
	ASSIGNED LGS/LPS/SC		\$0	\$0	\$104,268	\$1,480	\$48	\$0	\$105,791	0.04%
	ASSIGNED RES/SGS		\$4,033,634	\$595,714	\$0	\$0	\$0	\$0	\$4,629,348	1.84%
	EXCESS FACILITY		\$80	\$2,808	\$241,260	\$524,192	\$639	\$0	\$768,779	0.31%
TOTAL COST OF SERVICE			\$120,925,243	\$30,586,263	\$63,272,177	\$33,323,784	\$2,818,253	\$0	\$250,925,719	100.00%
%			48.19%	12.19%	25.22%	13.28%	1.12%	0.00%	100%	
RATE REVENUE			\$110,644,795	\$31,220,119	\$63,894,793	\$30,585,036	\$2,421,236	\$4,412,733	\$243,178,711	
Allocate Rate Revenues for Others			\$2,126,569	\$537,684	\$1,112,693	\$566,026	\$49,561	(\$4,412,733)	\$0	
NON RATE REVENUE			\$989,440	\$396,553	\$337,649	\$149,358	\$2,896	\$33,648	\$1,909,544	
Interruptible Credit			(\$152,065)	(\$37,758)	(\$96,419)	(\$52,010)	(\$4,662)	\$0	(\$342,912)	
OffSystem Revenue			\$5,452,917	\$1,353,881	\$3,457,508	\$1,865,042	\$167,181	\$0	\$12,296,529	
Excess Facility Revenue			\$0	\$3,220	\$342,677	\$896,075	\$864	\$0	\$1,042,837	
Sale of Emission			\$14,514	\$3,734	\$10,326	\$6,212	\$593	\$0	\$35,379	
Allocate Non Rate Revenues for Others			\$16,215	\$4,101	\$8,484	\$4,469	\$378	(\$33,648)	\$0	
TOTAL REVENUE			\$119,092,385	\$33,481,737	\$69,067,712	\$33,840,207	\$2,638,047	\$0	\$258,120,088	
%			46.14%	12.97%	26.76%	13.11%	1.02%	0.00%	100%	
REVENUE DEFICIENCY			\$1,832,858	(\$2,895,474)	(\$5,795,535)	(\$516,423)	\$180,206	\$0	(\$7,194,368)	
% CHANGE			1.66%	-9.27%	-9.07%	-1.69%	7.44%	0.00%	-2.96%	