Exhibit No.:
Issues: Class Cost of Service

Witness: Hong Hu
Sponsoring Party: MO PSC Staff
Type of Exhibit: Rebuttal Testimony
Case No.: ER-2004-0570
Date Testimony Prepared: November 4, 2004

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

REBUTTAL TESTIMONY

OF

HONG HU

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2004-0570

Jefferson City, Missouri
November 2004

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 Rebuttal Testimony in question and answer form, consisting of 7 pages of Rebuttal Testimony to be presented in the above case, that the answers in the following Rebuttal 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.

H. Hong
Hong Hu

Subscribed and sworn to before me this 3rd day of November, 2004.

Dawn L. Hake
Notary Public

DAWN L. HAKE
Notary Public – State of Missouri
County of Cole
My Commission Expires Jan 9, 2005

My commission expires

REBUTTAL TESTIMONY

OF

HONG HU

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2004-0570

Q. Please state your name and business address.

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

Q. Are you the same Hong Hu that previously filed direct testimony in this case?

A. Yes, I am.

Q. What is the purpose of this testimony?

A. The purpose of my Rebuttal Testimony is to present the Staff's response to the class cost of service (CCOS) studies and direct testimonies provided by Empire District Electric Company (Empire or Company), the Office of Public Counsel (OPC) and the Industrial Customers: Explorer Pipeline Company and Praxair (Industrial).

Q. Please compare the results of the CCOS studies of the parties.

A. The CCOS study results of the parties can be found at the following pages: OPC's results appear on Schedule BAM Updated RD DIR-1.1 of supplemental direct testimony of Barbara Meisenheimer. Company's results appear on page 1, Section N, Schedule 1 of Kelly Walters' direct testimony. The Industrials filed comments on the Company's CCOS study, but did not file an independent CCOS study. The results of the Staff's updated CCOS study can be found on Schedule 1 of my direct testimony that was

filed on October 4, 2004. Table 1 shows the approximate percentages of total cost of service allocated to the Residential, Small General Service (SGS), Large General Service (LGS), Special Contract and the Large Power classes in each party's CCOS study and each class's current percentage of revenues.

Table 1. CCOS Percentages and Class Revenue Percentages

	Residential	SGS	LGS	Large Power	Special Contract	Total
Staff	48.19%	12.19%	25.22%	13.28%	1.12%	100.00%
OPC	46.18%	11.89%	26.72%	13.98%	1.23%	100.00%
Company	51.54%	12.20%	23.50%	11.86%	0.91%	100.00%
Revenue	46.14%	12.97%	26.76%	13.11%	1.02%	100.00%

As shown in the above table, generally, all parties found that the small general service class (including commercial, and small heating rate codes) and the large general service class (including general power and total electric building rate codes) are contributing more revenues than their class cost of service. OPC's results show that the residential class is approximately at cost of service. The Staff's and the Company's results indicate that the residential class is contributing somewhat less revenue than its cost of service. For the large power class and the special contract class, OPC's study and the Staff's study show that these two classes are paying somewhat less revenue than their class cost of service while the Company study shows the opposite.

Q. Can you draw any conclusions from this comparison?

A. While all of the parties are not very far apart with regard to the SGS and LGS, the results of their studies differ with regard to the Residential, Special Contract and Large Power classes.

Q. Do you have any opinions as to why there is disparity among different parties' study results?

A. One of the reasons for the disparity of the different results is that different parties have included different amounts of fuel cost in their studies. The Staff's CCOS study was based on an EMS run that only included base fuel costs because the CCOS study was only used to determine the class revenue responsibility with regard to permanent rates, excluding the interim energy charge. A higher fuel cost amount would likely to shift cost allocation away from the Residential class, thus making its revenue closer to its cost in the Staff's study. This effect is shown in the OPC's study, which utilized the Staff's EMS run with a higher base fuel cost.

Another important reason that parties have different results is how production and transmission costs are allocated in different studies. The Company has utilized the average and excess (A&E) method, while the Staff and OPC has utilized the average and peak (A&P) method. Total production and transmission costs make up three-fourths of the total company's cost. It is not surprising that the differences in this set of allocators will have a major impact on the final results of the study. I have experimented by substituting the Company's allocator for the Staff's own allocator, and including all fuel cost in the study. The Staff's CCOS study in that case produces a result that is very similar to the Company's result.

Q. What is the implication of your comparison of the allocators for production and transmission costs?

A. If the Commission determines that the Staff's A&P allocator is more reasonable than the A&E method, then it would follow that the Staff's CCOS result should be accepted as the most reasonable study.

Q. What is the "Average & Excess" method?

A. Conceptually speaking, the "Average & Excess" method splits capacity costs into two portions based upon a system's load factor. The "base" portion of the costs is allocated to each customer class according to their share of total average demand. The "excess" portion of the costs is allocated to each class according to their share of total "excess demand", i.e. the difference between the peak demand and the average demand of each class. It has been proven that this method is equivalent to a "Peak Responsibility" method of allocating capacity costs, if the excess demand portion is allocated with a coincident peak allocation factor. Using non-coincidental demand to allocate the excess demand portion would produce a result that is not identical with the peak responsibility method. However, the results of these two methods are often very close.

Q. Is the "Average & Excess" method a reasonable method for allocating production capacity costs to the customer classes?

A. No. In using this method, it is each class's demand in one or a few hours of the year that is the determinant of the capacity costs allocated to each class. The demands in every other hour are ignored and usage throughout the year plays no role. Only a cost allocation methodology that gives weight to both peak demands (amount of capacity) and energy consumption (type of capacity), such as the methodology that the Staff used in its study, could be considered reasonable. The allocation of the cost of a

generating unit should be based on the demands in every hour that the capacity of that unit is utilized to serve load.

Q. Why is the Staff's allocation methodology for the production and transmission costs more reasonable than the A&E method?

A. The Staff believes a time-of-use (TOU) methodology and the Average and Peak method are more appropriate methods to allocate capacity costs. TOU methodology is fair because it allocates total system costs in accordance with the hour-by-hour usage made of the system by the different customer classes. In a TOU methodology, the production and transmission costs are allocated to the hours of the year that each resource is actually running. This kind of allocation methodology is equitable because every customer, large or small, residential or industrial, receives exactly the same cost allocation as every other customer taking service in any given hour. It is only the difference in the timing of usage for each class that results in differences in the costs allocated to the classes for the entire year. The twelve-non-coincident peak (12NCP) Average and Peak method is a reasonable proxy to the TOU method. This method basically allocates production and transmission costs to all months in accordance with the monthly system relative usage by different customer classes. In addition, an annual energy usage factor is also used to account for the energy supply need in addition to the monthly peak demand need. Based on my experiences in previous cases, this method generally produces close approximations to the TOU allocators.

Q. In page 25, lines 1 to 8 of her Direct Testimony, Ms. Kelly Walters explained her rationale of why the Company used an Average and Excess allocation method to allocate demand-related plants and expenses. Do you have any comments?

A. Yes. I do not agree with Ms. Walters' statement that Empire is "a summer peaking system" and that "Empire's generation design and planning is oriented largely toward meeting summertime peaks." According to Ms. Walters herself, Empire's winter peak is approximately 80-90% of the summer peak. One of the characteristics that distinguish Empire from other Missouri electric utility companies is that Empire has proportionally more winter electric heating customers and has generally been viewed as a duel peak system. In fact, in 10 out of the 12 months the system peak is above 70% of the maximum system peak; and in 6 out of the 12 months, the system peak is above 80% of the maximum. Considering the fact that system planning considers both peak demand loads and energy loads, as well as maintenance capacity, in determining the need for additional generation capacity and the most cost-effective type of capacity to be added to the system, a reasonable method to allocate the capacity-related cost should consider all hours when the system is utilized, unlike the Average and Excess method, which inappropriately attributes all cost to a few hours when customers' usage peaks.

Q. In page 25 lines 11 to 12 of her Direct Testimony, Ms Kelly Walters stated that an Average and Excess allocation method "allocates a portion of plant according to peak and a portion according to energy or load duration." Do you agree?

A. No. The Average and Excess method allocates plant only according to demand. It is the Average and Peak method that allocates a portion of plant according to peak and a portion according to energy.

Q. Has the Commission previously addressed the issue of production and transmission allocations?

A. The Commission's Report And Order in Union Electric Case Nos. EO-85-17 and ER-85-160, pages 154-155, contains the following discussion by the Commission:

> ...The Commission has indicated in recent cases that it believes the TOU [time of use] cost of service study most closely reflects cost causation of a utility's production and transmission facilities. Staff presented the same method to the Commission in Case No. ER-81-364 involving Arkansas Power & Light Company (AP&L), issued April 20, 1982. In that case, the Commission was presented with the same question of which theory properly reflected cost causation, TOU or CP. The Commission adopted the TOU/AP method. The Commission also adopted the TOU over the CP method of allocating costs in Case No.EO-78-161, which involved Kansas City Power & Light Company....The Commission considers its reasoning from the AP&L case to be supported by the evidence in this case. The Commission reaffirms its position that costs are caused by the utilization of the system each hour, and the proper method of allocating these costs is on an hourly basis. Here, as in AP&L, there is no hourly load data, so Staff's study utilizing TOU monthly data and AP [average and peak] allocation within the month is found to most closely approximate the more preferable hourly TOU...

Q. Does this conclude your rebuttal testimony?

A. Yes.