

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

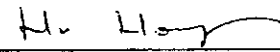
In The Matter Of The Tariff Filing Of The)
Empire District Electric Company To)
Implement A General Rate Increase For)
Retail Electric Service Provided To)
Customers In Its Missouri Service Area)

Case No. ER-2004-0570

AFFIDAVIT OF HONG HU

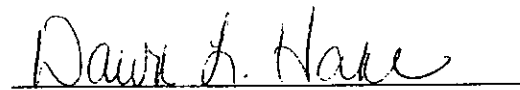
STATE OF MISSOURI)
) ss
COUNTY OF COLE)

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.



Hong Hu

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



Notary Public

My commission expires _____

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28
- 29

12

13

14

15

16

17

18

19
20
21
22

23

24
25
26
27
28
29

Rebuttal Testimony of
Hong Hu

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.

Rebuttal Testimony of
Hong Hu

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

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

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

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

Rebuttal Testimony of
Hong Hu

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

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

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

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

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

Rebuttal Testimony of
Hong Hu

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

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

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

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

Rebuttal Testimony of
Hong Hu

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

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

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

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

Rebuttal Testimony of
Hong Hu

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

4 ...The Commission has indicated in recent cases that it
5 believes the TOU [time of use] cost of service study most
6 closely reflects cost causation of a utility's production and
7 transmission facilities. Staff presented the same method to
8 the Commission in Case No. ER-81-364 involving
9 Arkansas Power & Light Company (AP&L), issued April
10 20, 1982. In that case, the Commission was presented with
11 the same question of which theory properly reflected cost
12 causation, TOU or CP. The Commission adopted the
13 TOU/AP method. The Commission also adopted the TOU
14 over the CP method of allocating costs in Case No. EO-78-
15 161, which involved Kansas City Power & Light
16 Company....The Commission considers its reasoning from
17 the AP&L case to be supported by the evidence in this case.
18 The Commission reaffirms its position that costs are caused
19 by the utilization of the system each hour, and the proper
20 method of allocating these costs is on an hourly basis.
21 Here, as in AP&L, there is no hourly load data, so Staff's
22 study utilizing TOU monthly data and AP [average and
23 peak] allocation within the month is found to most closely
24 approximate the more preferable hourly TOU...

25
26 Q. Does this conclude your rebuttal testimony?

27 A. Yes.