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Witness: James C. Watkins
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MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

REBUTTAL TESTIMONY

OF

JAMES C. WATKINS

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2001-299

Jefferson City, Missouri
May, 2001

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Q. Please state your name and business address.

A. My name is James C. Watkins and my business address is Missouri Public Service Commission, 200 Madison Street, P. O. Box 360, Jefferson City, Missouri 65102.

Q. Are you the same James C. Watkins who filed direct testimony on the issue of customer class cost of service in this case on April 10, 2001?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony in this case?

A. The purpose of my rebuttal testimony is to address the appropriate allocation of production capacity costs, both in regard to the overall allocation methodology and in particular to the treatment of interruptible loads.

Q. Have you compared the results of the customer class cost-of-service studies filed by the other parties to the results of Staff's study?

A. Staff witness Janice Pyatte compares the results of the studies filed by the parties in relation to their rate design proposals in her rebuttal testimony.

Q. To what do you attribute the difference between the results of the various studies?

A. Almost all of the difference is due to the choice of production and transmission allocators. The Staff allocated these costs based on the "Time-of-Use" allocation methodology. The Office of the Public Counsel (OPC) allocated capacity costs based on an "Average & Peak" allocation methodology, not to be confused with "Average & Excess", and energy costs on class contribution to sales. The OPC's methodology represents an approximation of the "Time-of-Use" methodology, as is evidenced by the similarity in the results of the Staff's and the OPC's studies.

Both Empire and Praxair use a version of the "Average & Excess" method of allocating capacity costs, and class contribution to sales to allocate energy costs.

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

A. "Average & Excess" is an innocuous sounding and misleading name for the "Peak Responsibility" method of allocating capacity costs. In using this method, it is each class's demand in a single hour of the year that is the sole 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.

Q. How does Praxair's witness Mr. Maurice Brubaker describe the "Average & Excess" method?

A. On lines 11-12 on page 4 of Mr. Brubaker's direct testimony, he states:

> Average and excess is one of a family of methods which incorporates a consideration of both the maximum rate of use and the duration of use.

However, he goes on to state:

> The more energy a class uses in proportion to its average demand—that is, the higher the load factor—the more likely that the class peak demand will be coincident with the system peak demand. . . . Thus, the "average" component of the A&E method reflects the greater probability that a high

load factor customer will contribute to the system peak. The "excess" component, on the other hand, is a measure of the "peakiness" or variability in usage.

Q. Is Mr. Brubaker claiming in these statements that the A&E method is anything other than a "Peak Responsibility" method?

A. No. Mr. Brubaker's statements are offered in support of the "Peak Responsibility" method, not as a criticism of that method. He is merely pointing out that using "class non-coincident peak demand," the maximum load of a customer class, which does not necessarily occur at the same hour that the system peak is established, as the measure of peak responsibility, instead of "class coincident peak demand," is likely to increase the amount of costs that are allocated to the higher load factor industrial customers.

Q. Can you offer any proof that "Average & Excess" is just another name for "Peak Responsibility?"

A. Yes. One way of proving that the two methods are identical is to calculate the percentage of capacity costs that are allocated to each class by each of these methods, then compare the results to verify that they are identical. This proof is shown in Schedule 1.

Another way to prove that the two methods are identical is with a mathematical proof, whereby it is shown that the formula for allocating costs by one method reduces to the formula for allocating costs by the other method. This proof is shown in Schedule 2.

Q. Is the "Peak Responsibility" method, or the equivalent "Average & Excess" method, a reasonable method for allocating Company's capacity costs to the customer classes?

A. No. Only a cost allocation methodology which gives weight to both class peak demands (amount of capacity) and class energy consumption (type of capacity) 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. 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 contains the following discussion by the Commission:

> The main concern of the Commission is to determine which theory most reasonably reflects the causation of production costs on the UE system. As stated earlier, the Commission has accepted in prior decisions, and again accepts, the TOU method as the most reasonable method for allocating the production costs of serving the various classes. The Commission thinks that Staff's position concerning causation is the most accurate and reasonable concerning the UE system. The Commission finds the evidence in this case supports the adoption of the TOU method. To adopt a ["Peak Responsibility"] method, one must first accept the contention that UE only builds new capacity to meet peak demand. The Commission cannot accept this. It is obvious Callaway was built to meet both base load and peak demand, and its cost should be shared on that basis. The Callaway plant is the first plant in UE's loading order and UE will operate the Callaway plant as long as possible year-round. (Pages 148-149).

Q. Is there an additional problem with the allocation methodology employed by Praxair's witness Maurice Brubaker?

A. Yes. The customer class cost-of-service study prepared by Mr. Brubaker allocates generating capacity costs to Praxair based only on that portion of its load which is firm (300 kW). (Brubaker direct, page 9, lines 18-19).

Q. Why is this a problem?

A. Praxair, like other interruptible customers, utilizes Empire's generating capacity throughout the year to provide its energy needs. In fact, in 1999 Praxair utilized 8,409 kW of Empire's generating capacity at the time of system peak. (Company witness David W. Gibson, direct testimony, Section N-Schedule 2, row "TEB", column "peak month Aug". It should be noted that Empire has verified that there are errors in the labeling of the rows in this table.)

To allocate generation capacity costs, including not only generating plant, but general overhead costs as well, to only the firm portion of a customer's load is unreasonable. The Commission has approved avoided-cost based interruptible credits for each of the electric utilities in Missouri. Under this scheme, costs are allocated to the entire load; then avoided-cost credits are paid to those customers that are willing to have their loads interrupted when called upon. The level of the credits is based on the costs that are saved by the utility by not having to provide power to interruptible customers at the time they are interrupted.

Q. Are there other significant differences between the class cost-of-service studies filed by the parties in this case?

A. There are other differences between the studies; however, these differences do not become significant in this case because none of the parties have recommended that the sole basis for determining class revenue responsibility in this case should be the results of their class cost-of-service study.

Q. What action do you recommend that the Commission take with regard to customer class cost-of-service issues?

A. I recommend that the Commission find (1) that the "Average & Excess" peak responsibility method is not a reasonable method for allocating production and transmission costs, (2) that the Staff's "Time-of-Use" (TOU) allocation of production and transmission costs is the most reasonable method, (3) that generating capacity costs should be allocated to each class's entire load, not only to the firm load, and (4) that the Staff's customer class cost-of-service study is therefore the most reasonable study presented for the Commission to consider in this case.

I further recommend that the Commission order that any overall rate increase ordered by the Commission be applied in a manner consistent with the Staff's class cost-of-service study results as recommended in the direct testimony of Staff witness Janice Pyatte.

Q. Does this conclude your prefiled rebuttal testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

IN THE MATTER OF THE APPLICATION OF THE EMPIRE DISTRICT ELECTRIC COMPANY FOR A GENERAL RATE INCREASE.	))))	Case No. ER-2001-299

AFFIDAVIT OF JAMES C. WATKINS

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

James C. Watkins, of lawful age, on his oath states: that he has participated in the preparation of the foregoing written testimony in question and answer form, consisting of 6 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.

James C. Watkins

Subscribed and sworn to before me this 2nd day of May, 2001.

Notary Public

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

My commission expires

Comparison of "Average & Excess" to "Peak Responsibility"

Rate Class	NCP	**NCP %**	Energy	Energy %	Average Demand = A	A %	Excess Demand = E	E %	A x LF	E x (1-LF)	**A & E %**	A & E % - NCP %
RG	477,998	**49.67%**	1,677,744,098	41.43%	191,523	41.43%	286,475	57.28%	19.90%	29.77%	**49.67%**	0.00%
CB	100,930	**10.49%**	354,740,918	8.76%	40,496	8.76%	60,434	12.08%	4.21%	6.28%	**10.49%**	0.00%
SH	37,631	**3.91%**	127,841,278	3.16%	14,594	3.16%	23,037	4.61%	1.52%	2.39%	**3.91%**	0.00%
GP	147,618	**15.34%**	754,408,522	18.63%	86,120	18.63%	61,498	12.30%	8.95%	6.39%	**15.34%**	0.00%
PF	2,414	**0.25%**	2,138,632	0.05%	244	0.05%	2,170	0.43%	0.03%	0.23%	**0.25%**	0.00%
PRAX	8,084	**0.84%**	56,757,669	1.40%	6,479	1.40%	1,605	0.32%	0.67%	0.17%	**0.84%**	0.00%
TEB	71,242	**7.40%**	311,709,412	7.70%	35,583	7.70%	35,659	7.13%	3.70%	3.71%	**7.40%**	0.00%
PFM	613	**0.06%**	1,084,220	0.03%	124	0.03%	489	0.10%	0.01%	0.05%	**0.06%**	0.00%
LP	99,143	**10.30%**	719,814,000	17.77%	82,171	17.77%	16,972	3.39%	8.54%	1.76%	**10.30%**	0.00%
MS	58	**0.01%**	477,668	0.01%	55	0.01%	3	0.00%	0.01%	0.00%	**0.01%**	0.00%
Other Lighting	16,683	**1.73%**	43,143,855	1.07%	4,925	1.07%	11,758	2.35%	0.51%	1.22%	**1.73%**	0.00%
Total Retail	962,414	**100.00%**	4,049,860,272	100.00%	462,313	100.00%	500,101	100.00%	48.04%	51.96%	**100.00%**	0.00%

Missouri Retail Energy	4,049,860,272
Missouri Retail Demand	962,414
Missouri Load Factor	48.04%
1-Missouri Load Factor	51.96%

Schedule 1

MATHEMATICAL PROOF OF EQUIVALENCE OF "AVERAGE & EXCESS" AND "PEAK RESPONSIBILITY"

The following symbols are used:

a	class average demand
p	class peak demand
e	class excess demand = p - a
A	sum of the classes' average demands
P	sum of the classes' peak demands
E	sum of the classes' excess demands = P - A
LF	load factor = average demand/peak demand = A / P

The percent of capacity costs allocated to a class by the "Peak Responsibility" method is as follows:

p / P	the class contribution to the sum of the classes' peak demands.

The percent of capacity costs allocated to a class by the "Average & Excess" method is as follows:

[a / A * LF] + [e / E * (1 - LF)]	the class contribution to the sum of the classes' average demands is multiplied by the load factor and added to the class contribution to the sum of the classes' peak demands multiplied by one minus the load factor.
= [a / A * A / P] + [e / E * (1 - A / P)]	by substituting **A / P** for **LF**.
= [a / A * A / P] + [e / E * (P / P - A / P)]	by substituting **P / P** for **1**.
= [a / A * A / P] + [e / E * ((P - A) / P)]	by combining terms.
= [a / A * A / P] + [e / E * E / P]	by substituting **E** for **P -A** .
= [a / P] + [e / P]	by canceling the **A** and **E** terms.
= [a / P] + [(p-a) / P]	by substituting **(p - a)** for **e**.
= (a + p - a) / P	by combining terms.
= p / P	by combining terms,
	p / P is percentage of capacity costs allocated to a class by both the "Peak Responsibility" and "Average & Excess" methods.