Exhibit No.:	_____
Issue(s):	Cost of Service; Rate Design
Witness/Type of Exhibit:	Hong Hu/Rebuttal
Sponsoring Party:	Public Counsel
Case No.:	GR-99-315

REBUTTAL TESTIMONY

OF

HONG HU

Submitted on Behalf of the Office of the Public Counsel

LACLEDE GAS COMPANY

Case No.: GR-99-315

August 5, 1999

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the matter of Laclede Gas Company's)
tariff to revise natural gas rate schedules.) Case No. GR-99-315

AFFIDAVIT OF HONG HU

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Hong Hu, of lawful age and being first duly sworn, deposes and states:

1. My name is Hong Hu. I am a Public Utility Economist for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my rebuttal testimony consisting of pages 1 through 11 and Schedules REB HH-1 and REB HH-2.

3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

Hu Hong

Hong Hu

Subscribed and sworn to me this 5th day of August, 1999.

Mary S. Koestner, Notary Public

My Commission expires August 20, 2001.

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REBUTTAL TESTIMONY

OF

HONG HU

LACLEDE GAS COMPANY

CASE NO. GR-99-315

Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

A. Hong Hu, Public Utility Economist, Office of the Public Counsel, P. O. Box 7800, Jefferson City, Missouri 65102.

Q. HAVE YOU TESTIFIED PREVIOUSLY IN THIS CASE?

A. Yes, I submitted direct testimony on the issues of class COS study and rate design.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is: (1) to re-file the results of Public Counsel's class COS study to reflect the correction of some mistakes in the previous filed study; and (2) to present Public Counsel's response to the COS study and rate design recommendations filed by Laclede Gas Company (Laclede or the Company), the Public Service Commission Staff (Staff), and the Missouri Industrial Energy Customers (MIEC).

Q. PLEASE DESCRIBE THE CHANGES IN YOUR CLASS COS STUDY RESULTS AND YOUR RATE DESIGN RECOMMENDATION.

A. The results of my revised class COS study are shown in schedule REB HH-1. The overall results are essentially unchanged from the previously filed study. However, my analysis in the revised study shows that customer-related costs attributable to the residential class that should be recovered through the customer charge are $9.66. Therefore, I am now recommending reducing the Company's residential customer charge from its current level of $12.00 to $10.00.

Q. HOW DOES YOUR RECOMMENDED RESIDENTIAL CUSTOMER CHARGE COMPARE TO THAT OF OTHER MISSOURI GAS COMPANIES?

A. Schedule HH REB-2 shows a comparison of residential customer charges of all Missouri gas companies. Laclede currently has the highest residential customer charge in Missouri. If the Commission accepts my recommended $2.00 reduction, Laclede's residential customer charge would still be one of the highest in the state.

Response to Laclede Gas Company

Q. WHAT IS THE COMPANY'S RECOMMENDATION REGARDING THE CUSTOMER CHARGE FOR THE RESIDENTIAL RATE CLASS?

A. In page 6, line 27 through page 7 line 5, the Company witness Michael T. Cline recommended increasing the customer charge for residential customers by $0.50 to $12.50. Mr. Cline indicated that this increase is supported by the results of the

Company's study which showed that the average customer-related cost for the General Service class is $12.99.

Q. IN YOUR OPINION, DOES THE COMPANY'S STUDY INCLUDE SOME COSTS THAT SHOULD NOT BE RECOVERED THROUGH A CUSTOMER CHARGE?

A. Yes. After examination of the Company's workpapers, I found out that the Company has included in its customer-related cost study a portion of the A&G expenses such as A&G salaries, general supplies & expenses, injuries & damages and safety, pensions & group insurance, regulatory commission fees, rent, miscellaneous and property insurance, as well as uncollectible expenses and supervision & engineering expenses. Public Counsel believes that these costs should not be recovered through a customer charge.

Q. PLEASE EXPLAIN WHY THESE COSTS SHOULD NOT BE RECOVERED THROUGH A CUSTOMER CHARGE.

A. As defined in the NARUC Gas Distribution Rate Design Manual, the basis for the customer charge is that there are certain fixed costs that each customer should bear whether any gas is used at all. Examples of such costs are those associated with service lines, regulators, meters, recurring meter reading expenses and the administrative costs of servicing the account.[1] For instance, if a residential customer does not use gas in a particular month, the Company still incurs meter reading cost because somebody is sent to read the meter of that customer. Some of the costs Laclede seeks to include in its calculation of customer-related costs are not properly included in this category of costs. They are not fixed costs that

[1] Gas Distribution Rate Design Manual, Prepared by NARUC Staff Subcommittee on Gas, June 1989, p12.

each customer should bear even if the customer does not use any gas at all. Therefore, these costs should not be recovered through a customer charge.

Q. WAS THE COMPANY'S STUDY DESIGNED TO DETERMINE THE CUSTOMER-RELATED COST FOR THE RESIDENTIAL CLASS?

A. No. The Company's study only derives an average customer-related cost for the entire GS class. It is apparent that within the GS class, residential customers and C&I customers have widely varying usage levels and usage patterns, and there are obvious difference in customer-related costs for the C&I customers and residential customers. For example, the Company's sample shows that the average cost of a residential meter is about $73 and the average cost of a C&I meter is around $700, almost 10 times that of a residential meter. Public Counsel's study shows that customer-related costs that should be covered from a customer charge are $9.66 and $40.37 for residential class and C&I class, respectively. Even if we disregard the inappropriateness of certain costs included in the Company's study, a $12.99 average GS customer-related cost can not support the Company's proposal of a $12.50 residential customer charge.

Q. NOW LETS TURN TO THE RESULTS OF COMPANY'S COS STUDY. WHAT COS STUDY RESULTS DID COMPANY WITNESS R. LAWRENCE SHERWIN PRESENT IN HIS DIRECT TESTIMONY?

A. On page 10, lines 18 through 23 of his direct testimony, Mr. Sherwin stated that his study "shows that the General Service rates are producing revenues in excess of allocated costs, while the Large Volume, Interruptible and Firm and Basic Transportation Service rates are producing revenues which are less than allocated costs."

Q. HOW DID THE COMPANY RECOMMEND THAT ITS PROPOSED REVENUE INCREASE BE ALLOCATED TO EACH RATE CLASS?

A. In line 19 through 23 on page of his testimony, Company witness Michael T. Cline recommended increasing the non-gas revenues in each rate class by a uniform percentage.

Q. DOES THIS APPEAR TO BE CONSISTENT WITH THE COMPANY'S COS STUDY RESULTS?

A. No. The Company's COS study results showed that the GS class is producing more revenue than its allocated costs and the other classes are producing less revenue than their allocated costs. According to the Company's COS study, the GS class should receive a lower percentage increase (if not a decrease) in its revenue requirement than the other classes.

Q. WHY DID THE COMPANY CHOOSE A RATE DESIGN THAT IS NOT CONSISTENT WITH ITS COS STUDY?

A. In the Company's responses to Public Counsel Data Requests No. 732 and 733, the Company indicated that it believes that, in general, rates should be set at cost of service. However, the Company chose not to set its rates at cost of service because it believes that "allocating the Company's rate increase on an equal percentage basis preserves the relative non-gas revenue responsibility of each rate schedule."

Q. IS PRESERVING CURRENT CLASS REVENUE RESPONSIBILITY A VALID FACTOR IN RATE DESIGN?

A. No. Public Counsel believes that other than the class COS study, there are many important factors that we need to consider in rate design such as affordability, equity, rate impact, etc. In some cases, it is important to preserve the "continuity-between-tariffs" feature of the existing rate design for non-residential classes in order to continue to provide customers with an orderly transition from one rate schedule to another as the customer's size and load factor grow, as well as to ensure the Company a reasonable opportunity to collect the Commission approved revenue requirement. Not moving dramatically farther away from the current class revenue responsibility may be a desirable result because of the considerations such as equity, and rate impact. However, simply to preserve current class revenue responsibility for the sake of itself should never be the goal of a rate design. In fact, it is contradictory to the purpose of a COS study. Simply because the GS class is currently bearing a heavier burden of cost recovery than other classes, it is not a reason that it should be forced to continue to do so in the future.

Response to The Staff

Q. WHAT ARE THE CUSTOMER CHARGES SHOWN BY THE STAFF'S CLASS COS STUDY FOR THE RESIDENTIAL AND C&I CLASSES?

A. The customer charges developed by the Staff's class COS study for the residential and C&I classes are $10.89 and $21.87, respectively. The Staff and Public Counsel are the only two parties who treated the residential class and the C&I class separately in their class COS studies. Although different in magnitude, both

the Staff and Public Counsel studies indicated bigger differences in customer charges for these two classes than the current Company tariff as well as the Company's rate design proposal. This again confirms my belief that any residential rate design recommendations that are made without the important information provided by a class COS study that treats residential customers as a totally separate class should be treated with great skepticism. Also, it clearly indicates that the Company's proposal of $12.50 and $13.80 customer charges for these two classes are inappropriate.

Q. THE STAFF'S COS STUDY INDICATES THAT THE RESIDENTIAL CLASS REVENUE IS LESS THAN ITS ALLOCATED COST OF SERVICES AND THE C&I CLASS REVENUE IS MORE THAN ITS ALLOCATED COST OF SERVICES. SINCE THIS IS THE OPPOSITE OF THE RESULT OF THE PUBLIC COUNSEL STUDY, CAN YOU EXPLAIN THE DIFFERENT RESULTS?

A. After examining the Staff's workpapers, I believe that for the most part the difference between these two COS studies was driven by different meter allocators employed by the Staff and Public Counsel. The Staff indicated that its COS study is an updated version of previous COS study filed in Case No. GR-98-374, in which the meter allocator was estimated using a customer/demand split method based on data from another company. Public Counsel, on the other hand, derived its meter allocator based on a sample that the Company provided. I believe that the Public Counsel's meter allocator is more accurate because it is based on actual data of the Company being studied.

Q. WHAT IS THE IMPACT OF THE DIFFERENCE IN THE METER ALLOCATORS?

A. I have experimented revising the Staff's COS study by replacing its meter allocator by the one developed by Public Counsel. This exercise totally reversed the sign of the resulting revenue neutral class revenue deficiency for the residential class and the C&I class in the Staff's study. In fact, the result for these two classes in the revised Staff COS study came very close to the Public Counsel's recommendation for these two classes.

Response to MIEC

Q. IN PAGE 13, LINE 20 THROUGH PAGE 14, LINE 6, THE MIEC WITNESS DONALD E. JOHNSTONE STATED THAT HE ASSUMED A 100% LOAD FACTOR FOR THE INTERRUPTIBLE CLASS TO GIVE "BETTER RECOGNITION TO THE INTERRUPTIBLE NATURE OF THE SERVICE." HE FURTHER CLAIMED THAT "THE DEMAND ASSIGNED TO INTERRUPTIBLE CAPACITY SHOULD BE ZERO FOR THE PURPOSE OF DEFINING COST." DO YOU HAVE ANY COMMENTS ABOUT THIS?

A. Yes. Mr. Johnstone did not specify in this paragraph whether he was talking about coincident peak demand or non-coincident peak demand. Coincident peak demand is the demand of various classes of customers at the time of the system peak. Non-coincident peak demand is the actual peak of each class, regardless of the time of its occurrence. However, I believe that neither non-coincident peak demand nor coincident peak demand of the interruptible class of the Company should be zero.

Q. WHY SHOULDN'T THE NON-COINCIDENT PEAK DEMAND OF THE INTERRUPTIBLE CLASS BE ZERO?

A. Non-coincident peak demand is the actual peak, in other words, the maximum of class day demand. The class demand on any other non-peak day must be smaller than the non-coincident class peak demand. Not surprisingly, a zero non-coincident peak demand could only mean zero non-peak demand, and essentially, no usage. Since interruptible customers use gas from Laclede's distribution system, their peak non-coincident demand must be greater than zero.

Q. WHY SHOULDN'T THE COINCIDENT PEAK DEMAND OF THE INTERRUPTIBLE CLASS BE ZERO?

A. The argument for assigning zero coincident peak demand to the interruptible class is that the interruptible customers would be off the system during the system peak period because of the capacity constraints of the distribution system. However, in response to Public Counsel Data Request No. 726, Laclede has indicated that in the past five years the Company has never interrupted service to any customer due to distribution system capacity constraints. In other words, the interruptible customers have not been off the system during the system peak period. The coincident peak demand of the interruptible class of Laclede Gas Company should not be zero.

Q. IS A 100% LOAD FACTOR APPROPRIATE FOR THE INTERRUPTIBLE CLASS?

A. Public Counsel has not done its own load study. However, the Staff's load study seems to indicate that the load factor of the interruptible class is far less than 100%.

Q. WHAT WOULD ADOPTING A ZERO PEAK DEMAND AND A HIGH LOAD FACTOR FOR THE INTERRUPTIBLES IN THE COS STUDY ACCOMPLISH?

A. By adopting a zero peak demand or a very high load factor (and such a small peak demand) for the interruptible class, the Industrials would be able to reduce their share of the cost recovery responsibility. In fact, the interruptible class would receive no allocation of demand costs if zero peak demand is assigned to this class. In other words, the interruptible class would be getting a "free ride", to receive gas services without paying for their fair share of the costs.

Q. IN PAGE 14, LINE 7 THOUGH 22, MR. JOHNSTONE STATED THAT HE ADOPTED A 120% LOAD FACTOR FOR THE NON-FIRM GAS SUPPLY CUSTOMERS. DO YOU HAVE ANY COMMENT?

A. Yes. Load factor is defined as average load in a particular period as a percentage of peak load. Since the peak load is the maximum demand, average load is always smaller than the peak load. Therefore, load factor is always smaller or equal to one. A hypothetical 120% load factor is nonsensical. It reduces the cost recovery responsibility of the transportation customers without any sound theoretical basis for doing so.

Q. TRANSPORTATION CUSTOMERS PURCHASE THEIR OWN GAS AND "ARE NOT AT TO RECEIVE GAS SALES SERVICE UNDER SYSTEM DESIGN CONDITIONS." DOES THAT MEAN "THE COST INCURRED TO PROVIDE [THE DEMAND] COMPONENT OF SERVICE IS THEREFORE ZERO"?

A. Absolutely not. The transportation customers still utilize the distribution system to transport the gas and there is no evidence that they don't share the system peak

usage. Thus the transportation class should be allocated a fair share of the costs of the distribution system.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

TOTAL COST OF SERVICE SUMMARY (000)		TOTAL	GS RESIDENTIAL	GS COM. & INDUSTRIAL	LARGE VOLUME	INTER-RUPTIBLE	FIRM	BASIC	LP	UMGL
1 O & M Expenses		103,217	74,178	22,802	1,715	224	1,584	2,686	25	4
2 Depreciation Expenses		21,666	15,646	4,504	385	50	397	676	5	1
3 Taxes		37,054	26,126	8,173	714	96	714	1,219	8	2
4										
5 TOTAL - Expenses and Taxes		161,937	115,951	35,479	2,814	370	2,695	4,582	38	8
6										
7 Current Revenue (non-gas)										
8 Rate Revenue (non-gas)		204,905	161,850	31,544	2,482	311	3,326	5,336	47	9
9 Late Payment Charges	20	3,020	2,153	663	55	7	52	89	1	0
10 Other Revenue (reverse S6.5)	20	(946)	(674)	(208)	(17)	(2)	(16)	(28)	(0)	(0)
11										
12 TOTAL - Current Revenues		206,979	163,329	32,000	2,519	316	3,362	5,397	47	9
13 Current Revenue Percentage		100.00%	78.91%	15.46%	1.22%	0.15%	1.62%	2.61%	0.02%	0.00%
14										
15 OPERATING INCOME		45,041	47,378	(3,480)	(295)	(54)	667	815	9	1
16		45,041								
17 TOTAL RATE BASE		512,132	359,703	113,793	10,326	1,421	9,877	16,873	104	33
18										
19 Implicit Rate of Return (ROR)		8.79%	13.17%	-3.06%	-2.85%	-3.80%	6.75%	4.83%	8.61%	4.08%
20										
21 OPC Recommended Rate of Return		8.34%	8.34%	8.34%	8.34%	8.34%	8.34%	8.34%	8.34%	8.34%
22										
23 Recommended Operating Income With										
24 Equalized (OPC) Rates of Return		42,712	29,999	9,490	861	119	824	1,407	9	3
25		42,712								
26 Class COS at OPC's Recommended Rate of Return		204,649	145,950	44,970	3,675	488	3,519	5,989	47	11
27 Revenue Percentage		100.00%	71.32%	21.97%	1.80%	0.24%	1.72%	2.93%	0.02%	0.01%
28										
29 Allocation of Difference Between Current										
30 Revenue and Recommended Revenue	20	(2,329)	(1,661)	(511)	(42)	(6)	(40)	(69)	(1)	(0)
31		(2,329)								
32 Margin Revenue Required to Equalize										
33 Class ROR - Revenue Neutral		206,979	147,611	45,481	3,718	494	3,559	6,058	47	11
34 Revenue Percentage		100.00%	71.32%	21.97%	1.80%	0.24%	1.72%	2.93%	0.02%	0.01%
35		206,979								
36 Rev. Neutral Shift to Equalize Class ROR		(0)	(15,718)	13,482	1,198	178	197	661	0	2
37 Rev. Neutral Shift Percentage to Equalize Class ROR			-9.71%	42.74%	48.27%	57.28%	5.93%	12.39%	0.53%	16.48%
38										
39 Recommended Revenue Neutral Shift = 1/2 indicated shift			(7,859)	6,741	599	89	99	331	0	1
40 OPC Recommended Revenue Neutral Shift Percentage			-4.86%	21.37%	24.13%	28.64%	2.97%	6.20%	0.26%	8.24%
41 Class Revenue Percentages After Rec. Rev. Neutral Shift			75.11%	18.72%	1.51%	0.20%	1.67%	2.77%	0.02%	0.00%

SUMMARY OF MISSOURI GAS COMPANY
RESIDENTIAL CUSTOMER CHARGES

Company	Customer Charge
Greeley Gas Company	$ 5.00
St. Joseph Light & Power Co.	$ 6.66
Associate Natural Gas Co.	$ 7.00
Fidelity Natural Gas Co.	$ 8.00
Ozark Natural Gas	$ 8.00
Union Electric Company	$ 8.00
Missouri Public Service	$ 9.00
Missouri Gas Energy	$ 9.05
Southern Missouri Gas Co.	$ 10.00
Laclede Gas Company	$ 12.00