

EXHIBIT

Exhibit No.:

212

Issue(s):

Witness/Type of Exhibit:

Sponsoring Party:

Case No.:

Cost of Service Study

Busch/Direct

Public Counsel

GR-2004-0209

DIRECT TESTIMONY

OF

JAMES A. BUSCH

FILED²

JUL 13 2004

Missouri Public
Service Commission

Submitted on Behalf of the Office of the Public Counsel

MISSOURI GAS ENERGY

CASE NO. GR-2004-0209

(Rate Design)

April 22, 2004

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

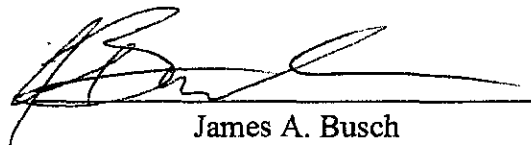
In the matter of Missouri Gas Energy's tariffs)
to implement a general rate increase for natural)
gas service.) Case No. GR-2004-0209

AFFIDAVIT OF JAMES A. BUSCH

STATE OF MISSOURI)
)
COUNTY OF COLE) ss


James A. Busch, of lawful age and being first duly sworn, deposes and states:

1. My name is James A. Busch. I am the Public Utility Economist for the Office of the Public Counsel.
2. Attached hereto and made a part hereof for all purposes is my direct testimony consisting of pages 1 through 11 and Schedules JAB-RD1 and JAB-RD2.
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.


James A. Busch

Subscribed and sworn to me this 22nd day of April 2004.

KATHLEEN HARRISON
Notary Public - State of Missouri
County of Cole
My Commission Expires Jan. 31, 2006


Kathleen Harrison, Notary Public

My commission expires January 31, 2006.

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

2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

10
11
12
13
14
15
16
17
18
19
20
21
22
23

11
12
13
14
15
16
17
18
19
20
21
22
23

13
14
15
16
17
18
19
20
21
22
23

14
15
16
17
18
19
20
21
22
23

15
16
17
18
19
20
21
22
23

16
17
18
19
20
21
22
23

19
20
21
22
23

20
21
22
23

1 concerning the customer charge for residential class. Please see Public Counsel
2 witness Barbara Meisenheimer's testimony for Public Counsel's rate design
3 recommendation.

4 **CLASS COST OF SERVICE STUDY**

5 Q. What is the primary purpose of a class cost of service study?

6 A. The primary purpose of a class COS study is to provide an estimate of the cost of
7 providing service to each of the customer classes, and is to be used as a guide for
8 setting rates to the extent allowed by other rate design objectives such as
9 affordability.

10 Q. What are the primary steps in a class COS study?

11 A. There are three primary steps in performing a class cost of service study. These
12 steps include the functionalization, classification, and allocation of costs.

13
14 Functionalization of costs means categorizing accounts according to the type of
15 function with which an account is associated. Accounts are categorized as being
16 related to Production, Transmission, Distribution, Customer Accounts,
17 Administrative and General, etc., depending on the natural gas local distribution
18 company (LDC) functions that they are a part.

19
20 Once costs have been functionalized, they are classified as being customer
21 (related to the number of customers), demand (related to the portion of peak
22 usage), or "other" costs, depending on the classification with which they are
23 associated. For example, customer records and collection expense, meter plant,

1 and meter reading expense are considered customer-related, since company
2 expenditures in these areas are related to the number of customers that it serves.
3 These expenses, although dependent to some extent on a customer's size, will be
4 incurred for each customer whether or not the customer uses any natural gas so it
5 would not be reasonable to classify them as being commodity-related.

6
7 Allocation factors are then developed to distribute a reasonable share of
8 jurisdictional costs to each customer class. Allocation factors are based on ratios
9 that reflect the proportion of total units (total number of customers, total annual
10 throughput, etc.) attributable to a certain customer class. Applying these ratios to
11 the appropriate cost categories produces an estimated cost for which each class is
12 responsible.

13 Q. Which customer classes have you used?

14 A. I have utilized the following customer classes: Residential, Small General
15 Service, Large General Service, and Large Volume Service.

16 Q. On what data is your class COS study based?

17 A. I utilized the Missouri Public Service Commission Staff (Staff) Accounting
18 Schedules that Staff filed on April 15, 2004 in its non-rate design testimony in
19 this proceeding for the source of most of the financial data that I utilized in my
20 class COS study. I have also used certain customer numbers, volumes, and class
21 specific revenues developed by Staff. I also used data received from Missouri
22 Gas Energy in response to Public Counsel Data Requests. I also used the rate of
23 return recommendation of Public Counsel witness Travis Allen. My use of this

1 data is not an endorsement of either Staff's or MGE's methods. I used this
2 information because it was readily available and contains the level of detail
3 necessary to perform a class COS study.

4 ☐ **Rate Base accounts**

5 Q. Please discuss the way you allocated the various Gas Plant Accounts.

6 A. Intangible plant accounts were allocated on the basis of the composite cost of
7 service. This is because these accounts generally include costs of certain fees
8 paid to various governmental agencies plus other licenses and intangible property
9 necessary for MGE to be in business.

10 Q. Please continue.

11 A. Accounts in Distribution Plant were allocated in various ways. Accounts 374
12 through 376 (Land and Land Rights, Structures and Improvements, and Mains)
13 were allocated using the mains allocator that I developed. All of the costs
14 associated with these accounts (374 through 376) are related to the distribution
15 operation of the Company and are allocated on that basis. Accounts 378 and 379
16 (Measuring & Regulating Station Equipment) are related to regulating system gas
17 flow and are allocated based on annual throughput. Accounts 380, 381, 382, and
18 383 (Services, Meters, Meter Installation, and Regulators) were allocated based
19 on the services, meters, and regulators allocators, respectively. Account 385
20 (Electronic Gas Metering) was allocated to the large volume service class since
21 this class is the only class that uses electronic gas metering.

22 Q. How did you allocate general plant?

1 A. General plant accounts were allocated on the basis of each class' proportion of
2 total non-general net plant.

3 Q. With regard to the services, meters, meter installation, and regulators allocators,
4 have you accepted the Company's allocators?

5 A. Yes. Upon reviewing the workpapers provided to OPC, I have determined that
6 the allocators used by MGE for purposes of this proceeding are fair and
7 reasonable for allocating the costs of meters, services, meter installation, and
8 regulators to each class. Therefore, I adopted MGE's allocators for those
9 accounts.

10 ☐ **Mains Allocator**

11 Q. Please describe the mains allocator methodology you have utilized in this
12 proceeding.

13 A. The methodology is called the modified RSUM (relative system utilization
14 method) originally developed by Charles Laderoute in a paper presented at the
15 NARUC Biennial Regulatory Information Conference in 1988 and modified in a
16 paper presented by OPC economist Philip Thompson at the 1992 NARUC
17 Biennial Regulatory Information Conference. The modified RSUM allocation
18 takes into account economies of scale and the fact that all users benefit from the
19 system and should share in the cost. The basic idea is to identify the portion of
20 the capacity that corresponds to each month's demand, and then allocate the costs
21 that correspond to that capacity to the customers who use gas in that month that is
22 their portion of the system is used.

23 Q. Please describe the steps involved in developing the mains allocator.

1 A. First I sorted the peak demands Staff provided by total class demands in
2 descending order. This step is shown on page 1 in Schedule JAB-RD1.

3
4 Next, as shown on page 2 of Schedule JAB-RD1, I converted the peak day
5 demands into percentages of the maximum monthly peak day demand (see
6 column (3)). For example, the month with the greatest peak day demand,
7 January, would be 100%. The next highest month, December, would be 98.82%
8 (7,295,713/7,382,524). Then, I took the percentages of peak day and converted
9 them to percentages of total capacity costs by raising the capacity percentages to
10 an r th power (see column (4)). The r th power that I utilized is 0.3972. Public
11 Counsel witness Barbara Meisenheimer developed this power. Please refer to her
12 direct testimony for her discussion on how she arrived at this value.

13 Q. Please explain the relationship between columns (3) and (4).

14 A. Column (4) associates the cost with the need for incremental capacity. For
15 example, column (3) shows that nearly 13.5% of the available capacity is needed
16 for base gas during July. This 13.5% of base capacity represents roughly 45.25%
17 of the total costs of the system. Likewise, nearly 53.5% of the capacity
18 requirements, as shown in the month of April, require approximately 78% of the
19 total costs. The remaining 46.5% of capacity accounts for approximately 22% of
20 the costs. Thus the winter system peaks should only be associated with
21 approximately 22% of the total cost.

22 Q. Please continue your step-by-step explanation.

1 A. Column (5), on page 2 of Schedule JAB-RD1, shows the incremental cost for
2 successive months from column (4). For example, July's percentage difference is
3 45.25% since it is the minimum peak month. August adds 1.53% in incremental
4 cost, which is calculated as the difference between 46.78% and 45.25%.

5
6 Next, column (6) depicts the number of months over which each cost increment
7 should be spread. For example, the peak month only occurs once, in January, and
8 should be assigned only in January. The minimum peak capacity occurs in each
9 month, and should be allocated then 12 times. Column (7) then divides each
10 month's additional cost increment by the amount of times the corresponding
11 capacity is realized. The January peak additional cost increment from column (5)
12 is 0.47%. It happens only one month out of the year. Thus 0.47% is divided by
13 one. A peak level equal to July's peak occurs in every month. Its cost increment
14 is thus spread to each month by dividing the 45.25% by 12.

15
16 Finally column (8) shows the sum of all cost increments that occur for a particular
17 month. For example, January is the sum of all monthly cost increments since it is
18 the month in which the overall system peak occurs. July, on the other hand,
19 exhibits only the base increment.

20 Q. Please continue.

21 A. Page 3 of JAB-RD1 contains two tables. The first table, which provides the class
22 peak day demands by month, was previously provided on page 1 of JAB-RD1.
23 The second table converts those class peaks to percentages of the sum of the peak

1 day demands for all the classes for each month. For example, in January, the
2 residential class peak is 58.64% of the overall system peak. However, in July, the
3 residential class peak is only 22.81% of the system peak in that month.

4 Q. Please explain page 4 of JAB-RD1.

5 A. The top table shows the product of each class' percent of monthly peaks and the
6 total cost increments that were developed on page 2, column (8) of JAB-RD1.
7 This result is the monthly share allocated to each class. For example, the
8 residential class' share of the January peak is 58.64%. January's incremental cost
9 is 14.25%. Multiplying these two percentages together is 8.35%. This represents
10 the residential class' share of January's incremental cost. Thus each customer
11 class' share of the usage in each month is weighted by the relative system
12 utilization for that month. Finally, these monthly class responsibilities are
13 summed to arrive at the appropriate allocator for transmission and distribution
14 mains for each class.

15 ☐ **Expenses allocators**

16 Q. Within Operation and Maintenance expense, how did you allocate gas distribution
17 expense?

18 A. I used the "expenses follow plant principle" for allocating most of the accounts in
19 this category. For example, the allocator that I applied to Mains plant (account
20 376) was also applied to Mains maintenance (account 887).

21 Q. Please explain the "expenses follow plant principle."

1 A. "Expenses follow plant" basically means that for any expense related to a
2 particular rate base component, the expense should be allocated in the same
3 manner as the rate base account.

4 Q. How did you allocate customer accounts expense?

5 A. Expenses within customer accounts were allocated based on allocators developed
6 to address customer accounts expense and meter reading expense. Uncollectible
7 expense was allocated based on the cost of service for each customer class.

8 Q. How were Customer Service and Sales Promotion expense allocated?

9 A. Customer Service accounts were allocated on the basis of unweighted customer
10 numbers and Sales Promotion expenses was allocated based on my COS allocator.
11 I chose to use my COS allocator for Sales Promotion expenses since these costs
12 are incurred for the purpose of lowering the average margin cost (by increasing
13 sales) of providing service to customers in each of the customer classes. The
14 amount by which customers in each class benefit from a lower average cost will
15 be proportional to the share of overall costs of service per customer that they are
16 responsible for incurring.

17 Q. How did you allocate Administrative and General (A & G) expenses?

18 A. I divide these expenses into three categories. I allocated Property Insurance
19 expense (account 924) on the basis of net plant since this expense is linked to the
20 amount of plant that the Company requires in order to serve each customer class.
21 Injuries and Damages and Employee Pensions and Benefits (accounts 925 and
22 926) are both payroll related expenses so they were allocated on the basis of the
23 amount of payroll expense that I had previously allocated to each class. All

remaining A & G accounts represent expenditures that support the Company's overall operation, so I have allocated them on the basis of each class's share of total Company COS.

Q. How did you allocate property and payroll taxes?

A. Property taxes were allocated on the basis of the amount of total plant that I had previously allocated to each class. Payroll taxes were allocated on the basis of the amount of payroll expenses that I had previously allocated to each class.

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

A. These taxes are allocated on the basis of rate base since a utility company's income taxes are a function of the size of its rate base, and thus a class should contribute revenues for income taxes in accordance with the proportion of rate base that is necessary to serve it.

☐ **Class Cost of Service results**

Q. What are the results of your study?

A. The resulting class shifts indicated by my study are summarized in Table 1.

TABLE 1

	Residential	Small General Service	Large General Service	Large Volume Service
Class Shifts	\$ (9,629,017)	\$ 1,722,075	\$ (786,070)	\$ 8,693,013
% Change	-9.82%	5.96%	-28.09%	80.93%

This table shows that on a revenue neutral basis, the residential class would receive a decrease of 9.82%, and the large volume service class would receive an 80.93% increase. Schedule JAB-RD2 summarizes Public Counsel's overall cost of service study.

1 ☐ **Customer Charge**

2 Q. What is Public Counsel's recommendation concerning the customer charge for the
3 residential class?

4 A. Public Counsel recommends that the residential customer charge remain
5 unchanged.

6 Q. Does Public Counsel have a recommendation concerning the customer charge for
7 the small general service, large general service class, or the large volume service
8 class?

9 A. Not at this time.

10 Q. Does this conclude your direct testimony?

11 A. Yes it does.

OFFICE OF THE PUBLIC COUNSEL
Missouri Gas Energy
Case No. GR-2004-0209

	Residential	Small General Service	Large General Service	Large Volume Service	Total
Jan	4,328,785	1,570,099	133,446	1,350,194	7,382,524
Feb	4,109,551	1,504,180	147,897	1,295,675	7,057,303
Mar	3,204,395	1,187,521	123,821	1,133,615	5,649,352
Apr	2,133,445	798,086	79,921	938,141	3,949,593
May	1,248,972	468,206	82,290	781,088	2,580,556
Jun	535,553	210,895	71,896	649,260	1,467,604
Jul	228,655	110,590	19,419	643,821	1,002,485
Aug	278,069	122,283	19,331	670,522	1,090,205
Sep	1,171,257	362,349	27,296	790,110	2,351,012
Oct	1,895,863	587,887	37,373	907,266	3,428,389
Nov	3,002,757	1,041,356	76,727	1,099,762	5,220,602
Dec	4,313,503	1,530,668	116,829	1,334,713	7,295,713
Annual	26,450,805	9,494,120	936,246	11,594,167	1,473,155

	Residential	Small General Service	Large General Service	Large Volume Service	Total
Jan	4,328,785	1,570,099	133,446	1,350,194	7,382,524
Dec	4,313,503	1,530,668	116,829	1,334,713	7,295,713
Feb	4,109,551	1,504,180	147,897	1,295,675	7,057,303
Mar	3,204,395	1,187,521	123,821	1,133,615	5,649,352
Nov	3,002,757	1,041,356	76,727	1,099,762	5,220,602
Apr	2,133,445	798,086	79,921	938,141	3,949,593
Oct	1,895,863	587,887	37,373	907,266	3,428,389
May	1,248,972	468,206	82,290	781,088	2,580,556
Sep	1,171,257	362,349	27,296	790,110	2,351,012
Jun	535,553	210,895	71,896	649,260	1,467,604
Aug	278,069	122,283	19,331	670,522	1,090,205
Jul	228,655	110,590	19,419	643,821	1,002,485

OFFICE OF THE PUBLIC COUNSEL

Missouri Gas Energy

Case No. 2004-0209

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total	Months % of Highest Peak	% of Cost to Satisfy	% Cost Increment in Month over Prev	No. Months w/increment	Increment/Months Occuring	Sum Cost Increments Occuring each Month
Jan	7,382,524	100.00%	100.00%	0.47%	1	0.47%	14.25%
Dec	7,295,713	98.82%	99.53%	1.30%	2	0.65%	13.78%
Feb	7,057,303	95.59%	98.23%	8.31%	3	2.77%	13.13%
Mar	5,649,352	76.52%	89.92%	2.78%	4	0.69%	10.36%
Nov	5,220,602	70.72%	87.14%	9.14%	5	1.83%	9.66%
Apr	3,949,593	53.50%	78.00%	4.26%	6	0.71%	7.83%
Oct	3,428,389	46.44%	73.74%	7.87%	7	1.12%	7.12%
May	2,580,556	34.95%	65.87%	2.39%	8	0.30%	6.00%
Sep	2,351,012	31.85%	63.48%	10.84%	9	1.20%	5.70%
Jun	1,467,604	19.88%	52.64%	5.86%	10	0.59%	4.50%
Aug	1,090,205	14.77%	46.78%	1.53%	11	0.14%	3.91%
Jul	1,002,485	13.58%	45.25%	45.25%	12	3.77%	3.77%

OFFICE OF THE PUBLIC COUNSEL

Missouri Gas Energy

Case No. GR-2004-0209

	Residential	General Service	Interruptible	Transportation	Total
Jan	4,328,785	1,570,099	133,446	1,350,194	7,382,524
Dec	4,313,503	1,530,668	116,829	1,334,713	7,295,713
Feb	4,109,551	1,504,180	147,897	1,295,675	7,057,303
Mar	3,204,395	1,187,521	123,821	1,133,615	5,649,352
Nov	3,002,757	1,041,356	76,727	1,099,762	5,220,602
Apr	2,133,445	798,086	79,921	938,141	3,949,593
Oct	1,895,863	587,887	37,373	907,266	3,428,389
May	1,248,972	468,206	82,290	781,088	2,580,556
Sep	1,171,257	362,349	27,296	790,110	2,351,012
Jun	535,553	210,895	71,896	649,260	1,467,604
Aug	278,069	122,283	19,331	670,522	1,090,205
Jul	228,655	110,590	19,419	643,821	1,002,485

	Residential	General Service	Interruptible	Transportation	Total
Jan	58.64%	21.27%	1.81%	18.29%	100%
Dec	59.12%	20.98%	1.60%	18.29%	100%
Feb	58.23%	21.31%	2.10%	18.36%	100%
Mar	56.72%	21.02%	2.19%	20.07%	100%
Nov	57.52%	19.95%	1.47%	21.07%	100%
Apr	54.02%	20.21%	2.02%	23.75%	100%
Oct	55.30%	17.15%	1.09%	26.46%	100%
May	48.40%	18.14%	3.19%	30.27%	100%
Sep	49.82%	15.41%	1.16%	33.61%	100%
Jun	36.49%	14.37%	4.90%	44.24%	100%
Aug	25.51%	11.22%	1.77%	61.50%	100%
Jul	22.81%	11.03%	1.94%	64.22%	100%

OFFICE OF THE PUBLIC COUNSEL

Missouri Gas Energy
Case No. GR-2004-0209

	Residential	General Service	Interruptible	Transportation	Total
Jan	8.35%	3.03%	0.26%	2.61%	14.25%
Dec	8.15%	2.89%	0.22%	2.52%	13.78%
Feb	7.64%	2.80%	0.28%	2.41%	13.13%
Mar	5.87%	2.18%	0.23%	2.08%	10.36%
Nov	5.56%	1.93%	0.14%	2.04%	9.66%
Apr	4.23%	1.58%	0.16%	1.86%	7.83%
Oct	3.94%	1.22%	0.08%	1.89%	7.12%
May	2.90%	1.09%	0.19%	1.82%	6.00%
Sep	2.84%	0.88%	0.07%	1.92%	5.70%
Jun	1.64%	0.65%	0.22%	1.99%	4.50%
Aug	1.00%	0.44%	0.07%	2.40%	3.91%
Jul	0.86%	0.42%	0.07%	2.42%	3.77%
Total	52.99%	19.09%	1.98%	25.94%	100.00%

	Residential	General Service	Interruptible	Transportation	Total
Allocators	52.99%	19.09%	1.98%	25.94%	100.00%

OFFICE OF THE PUBLIC COUNSEL

Class Cost of Service Study

Missouri Gas Energy

Case No. GR-2004-0209

TOTAL COST OF SERVICE SUMMARY

	TOTAL	Residential	Small General Service	Large General Service	Large Volume
1 O & M Expenses	66,882,947	41,798,129	15,839,284	979,315	8,266,218
2 Depreciation Expenses	22,476,857	14,558,157	4,476,729	290,977	3,150,994
3 Taxes	20,107,885	12,661,111	4,131,516	284,430	3,030,827
4					
5 TOTAL - Expenses and Taxes	109,467,689	69,017,398	24,447,529	1,554,722	14,448,040
6					
7 Current Revenue (non-gas)					
8 Rate Revenue (non-gas)	140,485,626	98,057,993	28,887,810	2,798,695	10,741,128
9 Late Payment Charges	1,148,304	722,802	250,200	16,451	158,851
10 Other Revenue	3,516,962	2,213,759	766,298	50,385	486,520
11					
12 TOTAL - Current Revenues	145,150,892	100,994,555	29,904,307	2,865,531	11,386,500
13 Current Revenue Percentage	100.00%	69.58%	20.60%	1.97%	7.84%
14					
15 OPERATING INCOME	35,683,203	31,977,157	5,456,778	1,310,809	(3,061,540)
16					
17 TOTAL RATE BASE	504,358,631	315,923,278	101,716,859	7,411,188	79,307,306
18					
19 Implicit Rate of Return (ROR)	7.07%	10.12%	5.36%	17.69%	-3.86%
20					
21 PSC Recommended Rate of Return	7.290%	7.290%	7.290%	7.290%	7.290%
22					
23 Recommended Operating Income With					
24 Equalized (OPC) Rates of Return	36,767,744	23,030,807	7,415,159	540,276	5,781,503
25					
26 Class COS at OPC's Recommended Rate of Return	146,235,433	92,048,205	31,862,689	2,094,997	20,229,543
27 Revenue Percentage	100.00%	62.95%	21.79%	1.43%	13.83%
28 Add'l taxes needed + true-up	1,667,333	1,049,506	363,289	23,887	230,651
29 Allocation of Difference Between Current					
30 Revenue and Recommended Revenue	2,751,874	1,732,173	599,596	39,424	380,682
31					
32 Margin Revenue Required to Equalize					
33 Class ROR - Revenue Neutral	145,150,892	91,365,538	31,626,382	2,079,460	20,079,512
34 Revenue Percentage	100.00%	62.95%	21.79%	1.43%	13.83%
35					
36 Rev. Neutral Shift to Equalize Class ROR	0	(9,629,017)	1,722,075	(786,070)	8,693,013
37 Rev. Neutral Shift Percentage to Equalize Class ROR		-9.82%	5.96%	-28.09%	80.93%