Exhibit No.:	_____
Issue:	Class Cost of Service Study
Witness:	F. Jay Cummings
Sponsoring Party:	Missouri Gas Energy
Case No.:	GR-2009-_____
Date Testimony Prepared:	April 2, 2009

MISSOURI PUBLIC SERVICE COMMISSION

MISSOURI GAS ENERGY

CASE NO. GR-2009-_____

DIRECT TESTIMONY OF

F. JAY CUMMINGS

Jefferson City, Missouri

April 2, 2009

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DIRECT TESTIMONY OF F. JAY CUMMINGS

CASE NO. GR-2009-_____

APRIL 2, 2009

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is F. Jay Cummings. My business address is 3625 North Hall Street, Suite 750, Dallas, Texas 75219.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am a Senior Economist with Ruhter & Reynolds, Inc., Consulting Economists.

Q. PLEASE SUMMARIZE YOUR EDUCATION AND EXPERIENCE.

A. I have a B.A. degree with a major in economics from Colgate University and a Ph.D. in economics from the University of Virginia. For the past seven years, I have provided regulatory support services to the energy industry, primarily the natural gas sector, as a Senior Economist with Ruhter & Reynolds (September 2005 - present), as an Executive Consultant with R. J. Covington Consulting, LLC (March 2003 - August 2005), and as a Principal with Navigant Consulting, Inc. (October 2001 - February 2003). Prior to joining Navigant Consulting, I was employed by Southern Union Company ("Southern Union"). I joined Southern Union in 1991 as Southern Union Gas' Director of Rates and Regulatory Affairs and became Vice President later that year. When my regulatory responsibilities for Southern Union expanded to include its Missouri properties in 1994, I became Vice President, Pricing and Economic Analysis, a position I held until leaving Southern

Union in 2001. I was responsible for Southern Union's regulatory matters pertaining to its gas distribution properties in all of the states in which it operated.

Prior to joining Southern Union, I was employed by the Arizona Corporation Commission, the state's utility regulatory agency, in the Utilities Division as Chief, Economics and Rates Section (1985); Chief, Economics and Research Section (1985 - 1988); and Assistant Director (1988 - 1991). From 1973 through 1985, I was on the economics faculties of George Mason University (1973 - 1975) and the University of Texas at Dallas (1975 - 1985). My teaching and research focused on applied microeconomic analyses, which resulted in professional journal publications and conference and seminar presentations. I have submitted testimony in regulatory proceedings in Arizona, Arkansas, Massachusetts, Missouri, Oklahoma, Texas, and Washington.

1. PURPOSE AND SUMMARY OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I have been retained by Missouri Gas Energy ("MGE" or "Company") to prepare and support the results of a class cost of service study consistent with the Company's revenue requirement in its general rate case filing with the Missouri Public Service Commission ("Commission").

Q. HAVE YOU PREVIOUSLY PREPARED ANY CLASS COST OF SERVICE STUDIES?

A. Yes. I have prepared a number of class cost of service studies since 1991 on behalf of CenterPoint Energy Arkansas Gas, Missouri Gas Energy, Southern Union Gas Company, and Texas Gas Service Company for various service areas in which these utilities operate.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.

A. To meet MGE's revenue requirement and the cost to serve each customer class, a substantial increase in current Residential ("RES") revenue is required, a relatively small Small General Service ("SGS") revenue increase is needed, and relatively small Large General Service ("LGS") and Large Volume Service ("LVS") revenue decreases are indicated. The cost of service study based on MGE's revenue requirement, explained in the remainder of my testimony, is summarized in Schedule FJC-1 as supported by Schedule FJC-2 through Schedule FJC-7.

2. PURPOSE AND STRUCTURE OF A COST OF SERVICE STUDY

Q. WHAT IS A CLASS COST OF SERVICE STUDY?

A. As the term is used in this testimony, a class cost of service study fully allocates a company's revenue requirement to each customer class. The company's operating expenses, depreciation, taxes, and required return that are combined to determine its cost of service, or revenue requirement, are distributed to each customer class based

on cost causation principles. This type of study is frequently termed a fully-allocated cost of service study.

Q. WHY IS A FULLY-ALLOCATED COST OF SERVICE STUDY OFTEN PREPARED TO ACCOMPANY A GENERAL RATE CASE FILING?

A. Cost of service study results provide a useful guide or starting point in distributing a company's overall revenue requirement to its customer classes because equity considerations suggest that each customer class should pay the cost to the serve the class. Other factors may also be considered in developing class revenue allocation recommendations and resulting class rate designs. Company witness Russell Feingold provides testimony on MGE's recommended class revenue allocation and rate design.

Q. PLEASE DESCRIBE THE STEPS INVOLVED IN PREPARING A COST OF SERVICE STUDY.

A. There are three steps involved in preparing a cost of service study: functionalization, classification, and allocation. In the functionalization step, elements of the cost of service are broken down according to the functions that they perform. For a gas utility, production and storage, transmission, and distribution are the functions generally used in the functionalization stage of the study.

The production and storage function includes the costs of gas wells, gas field lines, and gas processing plants. Transmission costs involve the cost of facilities and related expenses associated with delivering gas from production and storage areas

to city gates, or the points at which the gas enters a utility's distribution system. Distribution costs refer to costs and expenses associated with delivering gas from city gates to end use customers and providing associated services such as meter reading, billing, and customer service.

Q. PLEASE EXPLAIN THE CLASSIFICATION STEP IN THE COST OF SERVICE STUDY.

A. This step of the cost of service study classifies each of the functionalized components of the cost of service. Typically-used cost classifications are customer-related, demand-related, commodity-related, and revenue-related costs.[1]

Customer costs are those costs that vary with the number of customers or customer locations served, whether or not any gas is used. Examples include the cost of a meter at a customer's premises and the portion of the cost of distribution mains associated with reaching customer locations. These costs are not dependent on the amount of gas used over the course of the year or at peak periods, but rather are incurred to provide customer access to gas service.

Demand costs are defined as those costs that depend on the maximum delivery requirements of the gas system, or the maximum "demand" placed on the system. Examples include the portion of the cost of mains associated with sizing the mains

[1] In the MGE cost of service study, a separate "revenue-related" classification category is not used. Rather, revenue-related cost of service elements as classified as customer-related. Then, in the allocation stage of the study, a separate customer allocation factor based on relative class revenues is developed and applied to these "revenue-related" elements. This approach achieves the same end result as using a "revenue-related" classification category in the classification step and allocating the revenue-related classified costs to classes based on relative customer counts in the allocation step of the study.

to meet peak loads and the cost of city gate measuring and regulating station equipment.

Commodity costs are defined as those costs that vary with the amount of gas that customers use. Purchased gas expenses and odorant expenses are examples of commodity-related costs.

Revenue-related costs are those costs that vary directly with the utility's gross revenue. Sales and other revenue-related taxes are examples of revenue-related expenses.

Q. DOES EACH OF THE COST OF SERVICE ELEMENTS FALL INTO A SINGLE CLASSIFICATION CATEGORY?

A. No. A number of cost of service elements involve more than one classification category. Several examples illustrate the need for and use of mixed classifications. The investment in mains is driven by the requirement to reach various customer locations and the need to meet the resulting load that these customers place on the system during peak periods. The investment in mains and associated expenses, thus, have both customer-related and demand-related components.

As a second example, Mains and Services Expense (Account 874) is a distribution operating expense related to activities associated with both mains and services. This expense is classified based on the classification of the combination of the

investment in mains and services, thus involving both customer-related and demand-related components.

Third, various capital and expense components support multiple elements of the cost of service and are classified based on a composite of the applicable elements. For example, Maintenance Supervision and Engineering Expense (Account 885) is incurred to support of a variety of maintenance activities. This expense is classified based on the composite classification of the maintenance expenses associated with mains, measuring and regulating station equipment, services, meters, and house regulators, *i.e.*, maintenance Accounts 887 through 893.

Q. PLEASE EXPLAIN THE ALLOCATION STEP IN THE COST OF SERVICE STUDY.

A. Each of the classified rate base and cost of service components is fully assigned to customer classes in the allocation step of the cost of service study. Typically customer classes are defined according to the rate schedule categories in the utility's tariff. Customer-related costs are distributed to customer classes based on relative customer locations or bill counts. Demand costs are assigned to classes based on relative class contributions to peak volumes. Commodity costs are distributed to classes based on each class' annual volumes relative to total annual volumes. Revenue-related costs are assigned to customer classes based on relative annual revenues.

After functionalizing each of the cost of service components, classifying the functionalized components, and allocating the classified components, the revenue requirement is entirely distributed to each of the customer classes. Comparing each class' allocated revenue requirement to the revenue, as adjusted, derived from the class during the test year shows whether a class' revenue falls short of or exceeds the revenue level required to meet the class' cost of service. By increasing the revenue for each class that has deficient revenue and reducing the revenue for each class that has excess revenue relative to the class' cost of service, each class' resulting rate of return will match the overall, required rate of return for the service area.

3. THE MGE COST OF SERVICE STUDY – FUNCTIONALIZATION

Q. PLEASE EXPLAIN THE FUNCTIONALIZATION STEP IN THE COST OF SERVICE STUDY PREPARED FOR THIS PROCEEDING.

A. The Company's cost of service elements are functionalized entirely as distribution. MGE's only production costs relate to purchased gas expenses. Purchased gas expenses are not included in the determination of the Company's revenue requirement because these costs are separately recovered through the provisions of the MGE's Cost of Gas Clause. MGE does not have any transmission plant or expenses. Thus, the entire cost of service in this case involves only the distribution function.

4. THE MGE COST OF SERVICE STUDY – CLASSIFICATION

Q. PLEASE EXPLAIN THE ORGANIZATION OF YOUR DISCUSSION OF THE CLASSIFICATION STEP OF THE STUDY.

A. I will begin with an explanation of the classification of rate base items, starting with the individual plant accounts and concluding with other rate base items. I then will explain the classification of the cost of service components. These components involve Distribution Operations Expenses, Distribution Maintenance Expenses, Customer Accounts Expenses, Customer Service Expenses, Sales and Advertising Expenses, Administrative and General Expenses, Depreciation and Amortization Expense, Taxes Other Than Income, Income Taxes, and Required Return.

4.1. PLANT-IN-SERVICE ACCOUNTS

Q. PLEASE EXPLAIN THE CLASSIFICATION OF THE MAJOR PLANT-IN-SERVICE ACCOUNTS.

A. There is a conceptual similarity in the classification of five major plant categories – Distribution Mains (Account 376), Services (Account 380), Meters (Account 381), Meter Installations (Account 382), and House Regulators (Account 383). These plant items comprise approximately 97 percent of total distribution plant and 86 percent of total plant-in-service. As a gas distribution utility builds its system of mains to reach its customers, its mains must be constructed simply to reach customers regardless of the amount of gas that they use, *i.e.*, the customer-related component of the investment, while the sizing of the mains depends on the expected

usage of the customers during peak periods, *i.e.*, the demand-related component of the investment. Similarly, a "minimum" size meter, regulator, and service must be installed at each customer's location in order to make service available to the customer, *i.e.*, the pure customer-related cost. The sizing of services, meters, and regulators may vary across customer classes to meet typical class load requirements. As a result, the customer-related portion of the investment in mains and the investment in services, meters, meter installations, and regulators is not simply related to customer counts. As explained in Section 4.1.2, weighted customer factors are developed for meters, meter installations, regulators, and services to account for facility sizing considerations across customer classes.

4.1.1 THE CLASSIFICATION OF MAINS

Q. HOW IS THE MAINS INVESTMENT SPLIT BETWEEN THE CUSTOMER COST COMPONENT AND THE DEMAND COST COMPONENT?

A. A separate study provides the basis for splitting these costs between the customer component and the demand component. Two types of studies are typically used to derive the split between customer costs and demand costs. The first is known as a minimum system study. The second is labeled zero-intercept analyses.

In a minimum system study, the cost of the footage of mains actually in place is calculated as if all of these mains were of a selected minimum size. This minimum system cost is considered the customer-related cost. The customer-related

percentage of the mains investment is the ratio of the cost of the minimum system to the cost of the system of mains in place, based on actual footage and main sizes.

In zero-intercept analyses, rather than basing the customer cost component on a selected minimum pipe size, the customer cost component is derived from the results of regression analyses in which the relationship between the cost per foot of mains in the system and the size of the mains is statistically determined. The estimated cost of a zero-inch main is determined by using a zero value for the size variable(s) in the selected regression equation. Multiplying this estimated zero-inch cost per foot by the actual number of feet in the system yields the cost of the statistically-based zero-inch mains system. The customer-related percentage of the mains investment is the ratio of the cost of the zero-inch mains system to the cost of the system of mains in place, based on actual footage and main sizes.

The customer-related percentage of mains determined in either a minimum system study or zero-intercept analyses is used to classify the booked mains investment. Multiplying the percentage by the booked mains investment yields the customer cost portion of the investment. The difference between the total booked investment and the customer cost portion is considered the demand cost component of the investment. This difference, or the investment above that required to reach customer locations, is associated with the investment related to installing mains of various sizes to meet customer demands.

Q. WHICH APPROACH DO YOU USE TO SPLIT THE MAINS INVESTMENT BETWEEN CUSTOMER-RELATED AND DEMAND-RELATED COMPONENTS?

A. I have prepared and will discuss the results of both minimum system studies and zero intercept analyses. I use the results of my zero-intercept analyses in the MGE cost of service study. The Commission endorsed the zero-intercept methodology in MGE's 2004 general rate case, the last MGE case in which the Commission addressed the mains classification issue. In its Report and Order in this case (Docket No. GR-2004-0209), the Commission concluded:

> The zero-intercept method used by MGE recognizes that when a main is built to reach a customer, a certain portion of the cost of the main will be incurred no matter how much gas the customer uses. Thus the cost of a zero inch main would be the customer-related portion of the cost of the main. The extra cost derived from installing larger mains, mains that are large enough to meet peak demand, would be the demand-related portion of the cost of the main … Public Counsel's method, by treating all mains costs as demand related, ignores the fact that unless mains are constructed, at a cost, customers would not have access to the gas distribution system… MGE's zero-intercept method recognizes the different nature of these costs and is a preferable method.[2]

Clearly, the Commission has determined that a portion of the mains investment should be classified as customer-related and a portion of the investment should be classified as demand-related. Both zero-intercept and minimum system methodologies are consistent with this determination.[3]

[2] Missouri Public Service Commission, *Report and Order,* Case No. GR-2004-0209, issued September 24, 2004, pages 50, 51, and 52.

[3] In accepting the zero-intercept mains classification method in Case No. GR-2004-0209, the Commission was not presented with recommendations that required a choice between the use of minimum system studies and zero-intercept analyses. The Commission did, however, reject a methodology that does not classify any portion of the mains investment as customer-related.

Q. PLEASE DESCRIBE THE DATA USED IN YOUR ANALYSES TO CLASSIFY THE MAINS INVESTMENT.

A. In preparing the analyses, cost data for the various sizes and compositions of mains must be assembled. One source of data is historical, per books information. While this data is readily available, its use may produce unreasonable or unstable results. Unless the vintages of pipe are relatively uniform across pipe sizes, the zero-intercept statistical analyses of the relationship between pipe cost and size is questionable, at best, in using per books data.[4] In the case of MGE's booked cost analyses, for example, the statistically-determined cost per foot of a zero-inch plastic pipe is more than five times greater than the cost per foot for a zero-inch steel pipe. This counter-intuitive result is due to the fact that the average vintage of plastic pipe is 1995, while the average vintage for steel is 1963.[5] Simply put, an original cost data series does not provide a consistent basis on which to perform analyses to classify distribution mains.

Two alternative cost bases can be used to resolve these historical cost problems. One alternative is to use current engineering cost data based on today's pipe costs, loadings, and installation costs of various sizes and compositions of pipe. While such data does require certain judgments, especially since some main types may no

[4] Use of historical cost data can also produce unusual results in minimum system studies. For example, if the booked cost of a selected minimum size main is heavily influenced by recently constructed facilities, while a somewhat larger size main is of an much older and less costly vintage, the calculated customer-portion of the mains investment may seem unreasonably high. And, if a second analyst chose the somewhat larger size, older vintage main as the minimum pipe size, the resulting customer-related portion of the mains investment would be vastly lower.

[5] Average vintage is the footage-weighted average of the year of installation for each pipe composition.

longer be installed, it does offer a consistent data series that lends itself to the type of statistical analyses required to conduct a zero-intercept study.

Alternatively, booked cost data can be adjusted with the Handy-Whitman Index of Public Utility Construction Costs ("Handy-Whitman") for each pipe composition. While Handy-Whitman indices provide a reasonable method for adjusting cost data that is not comparable due to age distribution differences, it does not remove anomalies, if any, in the underlying data resulting from unusually high cost or low cost installations. The influence of any such unusual installations, however, diminishes for pipe sizes that have greater installed footage that was installed over a number of years. My mains classification studies in this case are based on Handy-Whitman adjusted cost data.

Q. PLEASE EXPLAIN THE RESULTS OF YOUR ZERO-INTERCEPT ANALYSES.

A. I examined the relationship between the current installed cost per foot and pipe size based on separate regression analyses for each pipe composition and based on single regression analyses in which variables are included to isolate pipe composition effects. As expected, the best statistical fit explaining the cost-size relationship is not linear. In other words, the cost per foot does not vary proportionately with pipe size across all pipe sizes. Among the regressions tested, the best fit regression is the one that contains statistically-significant explanatory

variables, *i.e.*, each variable significant with at least a 99 percent confidence level, and the highest explanatory power.[6]

The ratio of the cost of a zero-inch system with footages installed to the cost of the system as configured is 38.41 percent. In other words, the customer-related portion of mains is 38.41 percent, and the demand-related portion is 61.59 percent.[7] This classification of mains is used in the cost of service study.

If a minimum system approach based on Handy-Whitman adjusted costs were used to classify distribution mains, the customer-related portion of mains would range

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[6] Both quadratic and logarithmic-linear regression forms are tested. A quadratic regression is of the form: Cost Per Foot = a + b Size + c Size^2. The logarithmic-linear regression is of the form: ln(Cost Per Foot) = a + b Size or ln(Cost Per Foot) = a + b Size + c Size^2, where ln is the natural logarithm of the parenthesized variable. In this form, the estimated cost of the zero-inch pipe, *i.e.,* zero Size, is e^a, where e ≈ 2.7182818284. When Size is zero, ln(Cost Per Foot) = a and Cost per foot = e^a as demonstrated below:

ln(Cost Per Foot) = a when Size = 0
ln(Cost Per Foot) = a ln(e) because ln(e)=1
ln(Cost Per Foot) = ln(e^a)
Cost Per Foot = e^a

In the quadratic form, Cost per Foot = a when Size is zero.

The term "explanatory power," as used here, reflects the portion of the variation in cost per foot explained by the variables in the regression. This measure, called the coefficient of determination or R^2, is the ratio of the variation in cost per foot explained by the regression divided by the total variation in cost per foot. The R^2 ranges from zero to one, with values closer to one indicating greater explanatory power of the regression.

[7] The best fit regression has the form: ln(Cost Per Foot) = a + b Size + c Size^2 + d Steel + e Plastic, where d has values of one and zero for steel pipe and for other pipe compositions, respectively, and e has values of one and zero for plastic pipe and for other pipe compositions, respectively. This regression results in the 38.41 percent customer factor. The R^2 for this regression is 0.92.

Separate regression analyses for each pipe composition were also conducted. The best-fit regressions were also logarithmic-linear forms with R^2's of 0.83, 0.91, and 0.94 for the plastic, cast iron, and steel regression equations, respectively. The resulting customer factor is 41.32 percent based on these regression results. This customer factor could be reasonably used in the study.

Although not suggested as the basis for the mains classification factor, zero-intercept analyses using booked, or original cost, data were also prepared. The best fit regressions, having R^2's of 0.78, 0.78, and 0.83 and all variables significant with at least a 90 percent confidence level, result in a customer factor using the best-fit regressions of 38.20 percent. The conceptual difficulty in using original cost data in such analyses is explained earlier in the section of my testimony

from 44.92 percent to 48.93 percent, depending on the minimum size pipe selections.

4.1.2 THE CLASSIFICATION OF REMAINING PLANT ACCOUNTS

Q. PLEASE EXPLAIN THE CLASSIFICATION OF METERS, METER INSTALLATIONS, HOUSE REGULATORS, AND SERVICES.

A. Each of these plant items is required to provide access to gas service at the customer's premises. As a result, these plant items are classified as customer-related. Much like mains, however, the sizing of the facilities for specific customers is related to customer load requirements. Larger meters, services, and house regulators are required to serve larger customers. The consequences of those sizes are recognized in the allocation step of the cost of service study through the development of weighted customer allocation factors that are applied to these accounts. The weighted factors capture the sizing differences among facility installations for various customer classes based on the current costs of these facilities installed to serve the average customer in each class.

Q. PLEASE EXPLAIN THE CLASSIFICATION OF THE REMAINING DISTRIBUTION PLANT ACCOUNTS.

A. The classification of Account 376 and Accounts 380 through 383 is explained above. Measuring and Regulating Station Equipment-General (Account 378) and Measuring and Regulating Station Equipment-City Gate (Account 379) are

classified as demand-related. Electronic Gas Measuring (Account 385) is classified as customer-related, but is assigned only to the LVS class in the allocation step of the study. The remaining distribution plant accounts are Land and Land Rights (Account 374) and Structures and Improvements (Account 375). Because the assets in these accounts are used to support other distribution plant that requires land and improvements, these plant items are classified based on the combined classification of Mains (Accounts 376) and Measuring and Regulating Station Equipment (Accounts 378 and 379).

Q. PLEASE EXPLAIN THE CLASSIFICATION OF GENERAL PLANT AND INTANGIBLE PLANT.

A. General Plant (Account 389 through Account 398), other than Communications Equipment-AMR (Account 397.1), is classified based on the classification of total distribution plant. Account 397.1 is classified as customer-related, but is allocated to all classes other than the LVS class in the allocation step of the study.

Intangible plant consists of Accounts 301 through 303. Organization (Account 301) and Franchises and Consents (Account 303) are classified based on total non-intangible plant. The remaining intangible plant account, *i.e.*, Miscellaneous Intangible (Account 303), consists of computer software. Those software items that are entirely customer-related are classified as customer costs, while the remaining software items are classified based on total non-intangible plant.

4.2 DEPRECIATION RESERVE AND WORKING CAPITAL

Q. YOU HAVE EXPLAINED THE CLASSIFICATION OF THE PLANT-IN-SERVICE ACCOUNTS. HOW IS THE DEPRECIATION RESERVE ASSOCIATED WITH THESE PLANT ACCOUNTS CLASSIFIED?

A. The depreciation reserve for individual plant accounts is classified in the same manner as the classification of the corresponding plant accounts. For example, the reserve for distribution mains is split between customer and demand classifications in the same portion as the split for plant Account 376 (Mains). The Corporate reserve is classified based on total general plant, and Retirement Work in Progress Not Classified is classified based on total non-intangible plant.

Q. PLEASE EXPLAIN THE CLASSIFICATION OF OTHER RATE BASE ITEMS.

A. Customer Deposits are classified as customer-related and, in the allocation step, residential deposits are directly assigned to the RES class with the remainder allocated to other classes based on non-residential deposits held by the Company. Customer Advances are classified based on the combined classification of the mains and services accounts.

Accumulated Deferred Income Taxes-SLRP is classified based on the relative mains and services plant totals underlying the SLRP deferrals. Accumulated Deferred Income Taxes-Other, Net Cost of Removal, and Materials and Supplies are classified based on the classification of total plant. Gas Inventory is classified

as demand-related. Prepayments and Cash Working Capital are classified based on the classification of total operating expenses.

4.3 DISTRIBUTION OPERATIONS AND MAINTENANCE EXPENSES

Q. WHAT ACCOUNTS COMPRISE DISTRIBUTION OPERATIONS AND MAINTENANCE EXPENSES?

A. Distribution Operations Expenses consist of Account 870 through Account 881. Distribution Maintenance Expenses consist of Account 885 through Account 894.

Q. PLEASE EXPLAIN THE CLASSIFICATION OF THE DISTRIBUTION OPERATIONS AND MAINTENANCE EXPENSE ACCOUNTS.

A. The classification of a number of these accounts parallel the classification of related plant accounts or combinations of related plant accounts, after first removing odorant expense where applicable. Odorant expense, which is separately classified as commodity-related, was recorded in several operations and maintenance accounts during the test year.[8] The parallel classification of operations and expense accounts and corresponding plant accounts is shown below:

Acct.	Description	Corresponding Plant
874	Mains & Services Expenses	Mains (376) and Services (380) combined
875	Distribution Reg. Station Expense	Measuring & Reg. Station Exp.-General (378)

[8] During the test year, more than one-half of the odorant expense was recorded in maintenance expense Account 889, with the remainder booked in operations expense Accounts 875, 880, and 881. Odorant expense included in these accounts is removed prior to application of the classification factors discussed below.

Acct.	Description	Corresponding Plant
877	Measuring & Reg. Station Exp.- City Gate	Measuring & Reg. Station Exp.- City Gate (379)
878	Meter & House Regulator Exp.	Meters (381) and Regulators (383 and 385) combined
887	Maintenance of Mains	Distribution Mains (376)
889	Main. of Measuring & Reg. Station Exp.- General	Measuring & Reg. Station Exp.- General (378)
891	Main. of Measuring & Reg. Station Exp.- City Gate	Measuring & Reg. Station Exp.- City Gate (379)
892	Maintenance of Services	Services (380)
893	Mains of Meters & House Regulators	Meters (381) and House Regulators (383) combined

Load Dispatch (Account 871) is classified as a commodity cost. Operations expense Account 876 (Measuring and Regulating Station Equipment - Industrial) and maintenance expense Account 890 (Maintenance of Measuring and Regulating Station Equipment – Industrial) are classified as customer-related and are allocated to the LGS and LVS classes in the allocation step of the study. Customer Installation Expenses (Account 879) are classified as customer-related.

The remaining operations expense accounts – Operation Supervision and Engineering (Account 870), Other Expenses (Account 880), and Rents (Account 881) – are classified based on the total of all other distribution operations expense accounts, *i.e.*, Account 871 through Account 879. The remaining maintenance expense accounts – Maintenance Supervision and Engineering (Account 885), Maintenance of Structures and Improvements (Account 886), and Maintenance of Other Equipment (Account 894) – are classified based on the total of all other distribution maintenance expense accounts, *i.e.*, Account 887 through Account 893.

4.4 CUSTOMER ACCOUNTS, CUSTOMER SERVICE, AND SALES AND ADVERTISING EXPENSES

Q. PLEASE EXPLAIN THE CLASSIFICATION OF CUSTOMER ACCOUNTS.

A. Supervision (Account 901), Meter Reading (Account 902), Customer Records and Collection (Account 903), Uncollectibles Accounts (Account 904), and Miscellaneous Customer Accounts (Account 905) are classified as customer-related. As explained in Section 5, simple customer counts are not used to allocate Account 903 and 904, an approach that also requires development of a separate allocation factor for Accounts 901 and 905 based on the allocation of the combination of Accounts 902 through 904 in the allocation step of the study.

Q. PLEASE EXPLAIN THE CLASSIFICATION OF CUSTOMER SERVICE EXPENSES AND SALES AND ADVERTISING EXPENSES.

A. Customer Service Expenses – Customer Assistance (Account 908) and Informational and Instructional Advertising (Account 909) – are classified as customer-related costs. Sales and Advertising Expenses, comprised of Demonstrating and Selling (Account 912), Advertising (Account 913), and Miscellaneous Sales Promotion (Account 916), are also categorized as customer costs. As explained in Section 5, simple customer counts are not used to allocate Account 912, an approach that also requires development of a separate allocation factor for Miscellaneous Sales (Account 915) based on the combined allocation of Accounts 912 and 913.

4.5 ADMINISTRATIVE AND GENERAL AND DEPRECIATION AND AMORTIZATION EXPENSES

Q. PLEASE EXPLAIN THE CLASSIFICATION OF ADMINISTRATIVE AND GENERAL EXPENSES.

A. Administrative and General Expenses consist of Account 920 through Account 932. The following accounts are categorized based on the classification of Operating Expenses Other Than Administrative and General Expenses (excluding Taxes Other Than Income):

Account No.	Description
920	Administrative and General Salaries
921	Office Supplies and Expenses
922	Administrative Expenses Transferred
923	Outside Services Employed
925	Injuries and Damages
926	Employee Pensions and Benefits
930	Miscellaneous General Expenses

Property Insurance (Account 924) is classified based on the total plant classification. Regulatory Commission Expense (Account 928) is classified as customer-related and allocated based on relative class revenues in the allocation step of the study. Rents (Account 931) are classified based on the total distribution plant classification, and Maintenance of General Plant (Account 932) follows the classification of general plant.

Q. PLEASE EXPLAIN THE DEPRECIATION AND AMORTIZATION EXPENSE CLASSIFICATION.

A. Each of the Depreciation and Amortization Expense components is classified in the same manner as the corresponding plant account that is being depreciated. Amortization-SRLP is classified based on the relative mains and services plant totals underlying the SLRP deferrals being amortized. Amortization – Software (Account 303) is classified in the same manner as the classification of plant Account 303. Amortization – Infinity Software is classified based on total non-intangible plant. Amortization-Net Cost of Removal is classified based on the total plant, consistent with the treatment of the Net Cost of Removal included as an Other Rate Base Item.

4.6 TAXES, INTEREST ON CUSTOMER DEPOSITS, AND REQUIRED RETURN

Q. PLEASE DESCRIBE HOW TAXES OTHER THAN INCOME ARE CLASSIFIED.

A. Payroll Taxes and Other are classified in the same manner as Operating Expenses, exclusive of Taxes Other Than Income, *i.e.*, the sum of Distribution Operations and Maintenance, Customer Accounts, Customer Services, Sales and Advertising, Administrative and General Expenses, and Depreciation and Amortization Expense. Ad Valorem taxes are classified based on total plant.

Q. HOW IS INTEREST ON CUSTOMER DEPOSITS CLASSIFIED?

A. Interest on Customer Deposits is classified as customer-related and, in the allocation step, residential deposit interest is directly assigned to the RES class with the remainder allocated to other classes based on non-residential deposits held by the Company.

Q. HOW ARE INCOME TAXES AND THE REQUIRED RETURN CLASSIFIED?

A. Income Taxes are classified based on total rate base. The Required Return, or the required rate of return multiplied by rate base, also reflects the classification of rate base.

5. THE MGE COST OF SERVICE STUDY – CLASS ALLOCATION

5.1 CUSTOMER COST ALLOCATION FACTORS

Q. PLEASE EXPLAIN HOW THE CUSTOMER-RELATED PORTION OF THE VARIOUS RATE BASE COMPONENTS IS ALLOCATED TO THE CUSTOMER CLASSES.

A. Detail on the class allocations of customer-related costs of the rate base components is shown in Schedule FJC-5. The allocation of the rate base components to customer classes ultimately affects the allocated cost of service because both the required return and income tax components of the cost of service are allocated to classes based on the allocation of rate base.

The customer-related portion of plant Account 303 (Miscellaneous Intangible), plant Account 376 (Mains), and the plant reserve for Mains are allocated based on relative customer counts. Plant Account 385 (Electronic Gas Metering) and the associated plant reserve are assigned to the LVS class, and Account 397.1 (Communications Equipment-AMR) and the associated plant reserve are allocated to all customers except the LVS class. Several rate base accounts are allocated based on weighted customer counts, as explained earlier in my testimony. These accounts are plant Accounts 380 (Services), 381 (Meters), 382 (Meter Installations), and 383 (House Regulators) and the associated plant reserve for each account.

Consistent with the classification of corresponding rate base components, a number of the customer-related rate base elements are allocated based on the composite of the customer-related components of several other elements. Composite factors are developed for Total Non-Intangible Plant, Total Distribution Plant, Total Plant, Distribution Plant Accounts 376 through 379, Distribution Plant Accounts 376 and 380, the depreciation reserve for applicable plant account combinations, Accumulated Deferred Income Taxes – SLRP, and Operating Expenses. The Customer Deposit factor reflects direct assignment of residential deposits to the RES class with the remainder allocated to other classes based on non-residential deposits held by MGE.

Q. PLEASE EXPLAIN HOW THE CUSTOMER-RELATED PORTION OF THE VARIOUS COST OF SERVICE ELEMENTS ARE ALLOCATED TO THE CUSTOMER CLASSES.

A. Details on the class allocations of the customer-related costs of the cost of service elements is shown in Schedule FJC-6. Relative customer counts for the RES, SGS, LGS, and LVS classes are applied to the customer-related portion of Maintenance of Mains (Account 887), Meter Reading Expense (Account 902), Customer Assistance (Account 908), and Informational and Instructional Advertising (Account 909), and Advertising Expense (Account 913), the depreciation expense related to Account 376 (Mains), and Amortization – Software (Account 303).

Other elements are allocated based on relative counts in one or more of the customer classes, *i.e.*, operations expense Account 876 (Measuring and Regulating Station Equipment – Industrial) and maintenance expense Account 890 (Measuring and Regulating Station Equipment – Industrial) based on LGS and LVS customers, depreciation expense for Account 385 (Electronic Gas Measurement) based on LVS customers, depreciation expense for Account 397.1 (Communications Equipment-AMR) based on customers in all classes expect the LVS class.

Other expense accounts are based on weighted customer counts, as explained earlier in my testimony. These accounts are Mains and Services Expense (Account 874), Meters and House Regulators Expense (Account 878), Customer Installation Expense (Account 879), Maintenance of Services (Account 892), Maintenance of

Meters and House Regulators (Account 893), and the associated depreciation expenses for each underlying plant account.

Consistent with the classification of a number of cost of service elements, many of which correspond to the treatment of various rate base elements, the customer-related cost of the following cost of service elements involve composites of the customer-related portions of other accounts: Supervision and Engineering (Account 870); Other Expenses (Account 880); Rents (Account 881); Maintenance Supervision and Engineering (Account 885); Maintenance of Structures and Improvements (Account 886); Maintenance of Other Equipment (Account 894), Customer Assistance Supervision (Account 901), Miscellaneous Customer Accounts (Account 905), Miscellaneous Sales (Account 915), Administrative and General Expenses other than Regulatory Commission Expense (Accounts 920-932 other than Account 928); depreciation expense for Land and Land Rights (Account 374), Structures and Improvements (Account 375), and General Plant accounts (Accounts 390-398); Amortization – SLRP; Amortization - Infinity Software, Amortization - Net Cost of Removal; Taxes Other than Income (Account 408); Required Return; and Income Taxes.

Q. PLEASE EXPLAIN HOW CUSTOMER-RELATED COSTS ASSOCIATED WITH THE REMAINING COST OF SERVICE ELEMENTS ARE ALLOCATED TO CUSTOMER CLASSES.

A. Customer Accounts and Collections Expense (Account 903) is allocated based on the average of customer counts, the test year number of service orders, and the test

year number of pay agreements by class. Uncollectible Accounts Expense (Account 904) is allocated based on net write-offs by class over of the last three years.

Demonstrating and Selling (Account 912) expense is allocated to customer classes based on the Company's estimate of the percentage of time the sales group devotes to each customer class. Interest on Customer Deposits is allocated to classes based on direct assignment to the RES class with the remainder allocated to other classes based on non-residential deposits held by the Company. Account 928 (Regulatory Commission Expense) is allocated to customer classes based on relative total revenues, *i.e.*, total margin plus cost of gas.

5.2 DEMAND AND COMMODITY COST ALLOCATION FACTORS

Q. PLEASE EXPLAIN THE DEVELOPMENT OF THE DEMAND ALLOCATION FACTORS.

A. Demand-related costs are generally allocated to classes based on relative contributions to MGE's system peak. The exceptions are the Gas Inventory Factor the Rate Base Factor.

Q. PLEASE EXPLAIN THE GAS INVENTORY DEMAND FACTOR.

A. Gas Inventory is included in rate base as a 13-month average of the cost of gas held in storage. The Gas Inventory Demand Factor is based on each class' incremental winter month usage above its average non-winter month usage. This factor serves

as a proxy for the class' relative contribution to the need for holding gas inventories.

Q. WHY IS A SEPARATE RATE BASE FACTOR NEEDED?

A. The Rate Base Factor is used to allocate the Required Return and Income Taxes to customer classes. A separate allocation factor is needed because two demand allocation factors, *i.e.*, the Peak Demand Factor and Gas Inventory Demand Factor, are used to allocate the demand costs of various rate base items.

Q. PLEASE EXPLAIN THE PEAK ALLOCATION FACTOR.

A. The peak demand allocation should reflect the contributions of customer classes to the Company's system peak because demand costs are incurred to serve loads on the peak day. Design day weather is used to calculate the Peak Factor. Design day weather conditions are used both in sizing of facilities, such as mains, to meet peak day consumption and in the Company's gas capacity decisions. MGE's design day is based on 80.4 heating degree days ("HDDs") in Kansas City and 75.5 HDDs in Joplin, based on Springfield weather.[9] To calculate peak day usage for each class, deliveries by class are estimated using the regression equation results that are used to adjust test year revenue for abnormal weather in this case for each rate class and geographic district, along with customers counts in January.

[9] Missouri Gas Energy, "Demand/Capacity Analysis," November 30, 2007, p. B-2.

Q. WHY DID YOU NOT CALCULATE THE PEAK FACTOR BASED ON RECENT, HISTORICAL WEATHER CONDITIONS?

A. Recent weather conditions do not necessarily reflect weather conditions that were considered in facility sizing decisions made a number of years ago for plant that remains in service today. In addition, the resulting Peak Factor may change substantially from one rate case to the next as weather conditions change in the intervening years even though peak cost responsibilities should not materially change over the short-term.

For example, it could be suggested that using peak deliveries in the past several years should be the basis for calculation of the Peak Factor. Review of the weather conditions on the five-highest delivery days in each of the last three winters, *i.e.*, a total of 15 daily deliveries, shows that the coldest day in Kansas City had 61 HDDs, and the coldest day in Joplin, based on Springfield weather, had 47 HDDs. One must, however, consider that (1) in the period from 1971 through 2000, there were 83 days in Kansas City with more than 61 HDDs and 256 days in Joplin with more than 47 HDDs, and (2) much of the Company's plant-in-service was installed between 1971 and 2000 and in earlier periods. This plant was certainly sized to meet peak loads expected to be incurred with weather that was much colder than 61 HDDs in Kansas City and 47 HDDs in Joplin. More than 42 percent of the footage of distribution mains, the largest plant-in-service account, was installed between 1971 and 2000, and more than 85 percent of the footage was installed before 2000. Ignoring the weather conditions in these time periods clearly produces a Peak Factor that is not related to the basis on which facility sizing decisions were made.

Furthermore, if weather next year happens to be extremely cold or extremely warm, the calculated Peak Factor in MGE's next rate case based on recent weather conditions could change substantially and lead to significant shifts in the allocation of demand-related costs among customer classes. These shifts result solely from including one more winter in the calculation of the Peak Factor, but the shifts do not reflect demand cost causation changes.

Q. PLEASE EXPLAIN THE COMMODITY ALLOCATION FACTOR.

A. A class' commodity allocation factor is its share of test year adjusted volumes for all customer classes.

6. THE MGE COST OF SERVICE STUDY RESULTS

Q. PLEASE DESCRIBE THE RESULTS OF THE COST OF SERVICE STUDY.

A. The cost of service study results are provided in Schedule FJC-1 through Schedule FJC-7. Schedule FJC-1 provides a summary of the results. Line 4 shows each class' cost of service, or revenue requirement, based on the classification and allocation methodology described above. Lines 1 through 3 provide the customer-related, demand-related, and commodity-related costs that total to cost of service for each class on Line 4.

To determine how much revenue must be recovered through recurring monthly charges from each class to meet the cost of service, service charge revenue, other utility revenue, and flex contract revenue is deducted from the cost of service. The

total of these other revenue sources is credited to customer classes based on each class' cost of service relative to the total cost of service. The resulting revenue credits are shown on line 5. Line 6 shows the cost of service net of these revenue credits. The study-indicated required revenue change for each class shown on line 8 is the difference between each class' cost of service after the revenue credits (line 6) and test year adjusted revenue (line 7).

Lines 9 through 11 provide revenue-to-cost ratios. A revenue-to-cost ratio of one indicates that a class' revenue matches the cost to serve the class. A ratio of less than one indicates that a class' revenue falls short of the cost to serve the class, and a ratio greater than one indicates that class revenue exceeds the cost to serve the class. At current revenues, the revenue-to-cost ratio of less than one for the system [line 10, column (b)] indicates that an overall revenue increase is required. The RES class is currently paying far less than its cost of service [line 10, columns (c)], the SGS class is paying slightly less than its cost of service at current revenue [line 10, column (d)], and the LGS and LVS classes are currently paying slightly more than the cost to serve these classes [line 10, columns (e) and (f)]. Line 11 demonstrates that each class pays its cost of service if the revenue changes shown on line 8 are assigned to each class.

Q. PLEASE EXPLAIN SCHEDULE FJC-2 THROUGH SCHEDULE FJC-4.

A. Schedule FJC-2 provides detail on the classification of individual plant accounts and other rate base items. Schedule FJC-3 shows the classification of the individual components of the cost of service, or revenue requirement. Schedule FJC-4

provides calculations of the classification factors used in Schedule FJC-2 and Schedule FJC-3.

Q. PLEASE EXPLAIN SCHEDULE FJC-5 THROUGH SCHEDULE FJC-7.

A. The allocation of each of the classified components of rate base to customer classes is provided in Schedule FJC-5. The allocation of each of the classified components of the cost of service to customer classes is shown in Schedule FJC-6. The components of the allocated cost of service before revenue credits shown on lines 485 through 488 of Schedule FJC-6 are carried forward to lines 1 through 4 of the Cost of Service Study Summary (Schedule FJC-1). Schedule FJC-7 develops the customer, demand, and commodity allocation factors applied in the allocation of the rate base (Schedule FJC-5) and the cost of service (Schedule FJC-6) components.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

. Yes.