MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

CLASS COST-OF-SERVICE
AND
RATE DESIGN

THE EMPIRE DISTRICT GAS COMPANY

CASE NO. GR-2009-0434

Jefferson City, Missouri
November 2009

** <u>Denotes Highly Confidential Information</u>

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CLASS COST-OF-SERVICE AND RATE DESIGN REPORT

I. Executive Summary

Staff conducted a Class Cost-of-Service ("CCOS") study in this case and allocated costs to the customer rate classes of the Empire District Gas Company ("EDG" or "Company"). Staff recommends no shift of cost between the classes. Staff computed peaks as part of its computation of the Staff CCOS calculation.

Staff recommends straight fixed variable rate design for EDG's residential and Small Volume Firm-Small customers, but proposes three alternative rate designs. Staff also supports the combination of the North & South districts with the Northwest district, and EDG's proposed changes to existing rate classes, but does not support the magnitude of increase or Straight Fixed Variable ("SFV") rate design for these other customers.

Staff supports most of EDG's proposed tariff changes, as modified, so long as the Company is able to provide the number of occurrence data it has been unable to provide to date, however, Staff is opposed to the Company's increase in late payment charge. Staff supports the Company's changes to its transportation tariff, as modified.

Staff Expert: Thomas A. Solt

II. Class Cost-of-Service

A. Fundamental concepts of LDC Class Cost-of-Service

Cost-of-Service: total costs, prudently incurred by a utility in providing services to its customers in a particular jurisdiction.

Cost-of-Service Study: a study that analyzes total company costs, adjusts them in accordance with regulatory principles (annualizations and normalizations), allocates these costs to the relevant jurisdiction, and compares the allocated costs to the revenues the utility is generating from its retail rates, off-system sales, and other revenues. The results of a cost-of-service study are expressed in terms of additional revenue required for the utility to recover its cost-of-service.

Class-Cost-of-Service Study: a quantitative analysis of the costs incurred by a utility to serve its various classes of customers. A Staff CCOS study consists of these steps: a) costs are categorized (functionalized) based upon the specific role they play in the operations of a local distribution company (LDC); b) costs are classified by whether they are customer related, demand related, or energy related; and, c) functionalized/classified costs are allocated to customer classes. The sum of all allocated costs to a customer class is called that class' cost-of-service.

The cost-of-service of each customer class is compared to the annualized, normalized revenues the utility collects from each class through its rates, plus each class' allocated share of revenues from off-system sales and other revenues. The results of a CCOS are expressed in terms of additional revenue required from each class for the utility to recover its cost of serving that class.

Relationship between Cost-of-Service and CCOS: conceptually, class cost of service is a breakdown of cost-of-service. A cost-of-service study determines what portion of total company costs is attributable to the retail jurisdiction; a CCOS study determines what portion of retail costs is attributable to each customer class.

Cost Allocation: a procedure by which common or joint costs are apportioned among customers or classes of customers.

Cost Functionalization: the grouping of rate base and expense accounts according to the specific function they play in the operations of an LDC. The most aggregated functional categories are production, storage, transmission, distribution, and other costs.

Customer Class: a group of customers with similar characteristics (usage patterns, conditions of service, usage levels, etc.) that are identified for the purpose of setting rates for gas service.

Rate Design: (1) a process used to determine the rates for a gas utility once total cost-of-service is known; (2) characteristics such as rate structure, rate values and availability that define a rate schedule and provide the instructions necessary to calculate a customer's gas bill.

Rate Design Study: while a CCOS study focuses on the revenue responsibility of customer classes, a rate design study focuses on the equitable pricing of the individual customers within each class and sending the proper price signal to customers. The rate design process attempts to recover costs in each time period (e.g., summer/winter or on-peak/off-peak) from each rate component for each customer in a way that equates the cost of providing service with the amount the customer is billed in accordance with the rate schedule.

Rate Schedule: one or more tariff sheets that describe the availability requirements and prices applicable to a particular type of retail gas service. A customer class used in a CCOS study may consist of one or more rate schedules.

Rate Structure: rate structure is composed of the various types of monthly prices charged for the utility' products. At the most basic level there are: a) charges of a fixed dollar amount to be paid each month irrespective of the amount of the product taken, designed to collect the costs of providing service that do not vary by customer usage; b) charges of a variable monthly dollar amount, that are described as a price per unit charged on the total units of the product consumed over the month, that are designed to collect the costs of providing service that do vary by customer usage; c) purchased gas adjustment (PGA) charges, which is a "pass-through" of gas costs; and d) demand charges, a price per unit charge for gas consumed over a 24-hour period of time. One criterion for setting rate structures has to do with how well the structure tracks costs. Another criterion deals with the ease or difficulty in administrating the rate, as well as the customer's understanding of how it works, i.e., what causes the customer to incur a higher or lower monthly bill.

Rate Values (Rates): the per-unit prices the utility charges to provide service to its customers. Rates are expressed as dollars per unit of volume (Ccf, Mcf) or per unit of energy (MMBtu, therm), etc.

Tariff: a document filed by a regulated entity with either a federal or state commission, listing the rates (prices) the regulated entity will charge to provide service to its customers as well as the terms and conditions that it will follow in providing service.

Units of Measurement:

Btu: British thermal unit.

MMBtu: one million Btus. One MMBtu is approximately the amount of energy contained in 1,000 Cf (or 1 Mcf) of natural gas, 83.3 pounds of coal, 10.917 gallons of propane, 8 gallons of gasoline, or 293.083 kWh of electricity.

Cf: a unit of volume of one cubic foot of natural gas, which contains approximately 1,000 Btus of energy.

Therm: 100,000 Btus of energy, approximately equal to the energy contained in 100 Cf of natural gas.

Staff Expert: Thomas M. Imhoff

B. General Description of the CCOS study filed in GR-2009-0355

The purpose of the Staff's CCOS study is to provide the Commission with a measure of relative class cost responsibility for the overall revenue requirements of EDG. For individual items of cost, the responsibility of a certain class of customers to pay that cost can be either directly assigned or allocated to customer classes using reasonable methods for determining the class responsibility for that item of cost. The results are then summarized so that they can be compared to revenues being collected from each class on current rates. The difference between a particular customer class' costs responsibility and the revenues generated by that customer class is the amount that class is either paying in excess of its costs (revenues greater than costs) or less than its costs (revenues are less than costs).

The annualized usage levels and customer bill counts for the Residential Service (RES), Small Commercial Firm Service (SCF), and Small Volume Firm Service (SVF) classes were provided by Staff witness Paula Mapeka, and those for the Interruptible (INT), Small Volume Transportation (SVT) and Large Volume Transportation (LVT), classes were provided by Staff witness Anne E. Ross. The class peak demand levels for RES, SCF, SVF, INT, SVT and LVT customers were provided by Staff witness Daniel I. Beck. All accounting information was developed using costs produced by the Auditing Department, which are based upon a test-year ending December 31, 2008, updated for known and measurable changes through June 30, 2009.

Staff Expert: Thomas M. Imhoff

C. Customer Classes

The Staff analyzed the costs and revenues of the following customer classes:

Residential Service (RES)
Small Commercial Firm (SCF)
Small Volume Firm (SVF)
Large Volume Firm (LVF)
Interruptible (INT)
Small Volume Transportation (SVT)
Large Volume Transportation (LVT)

These classes correspond to EDG's current customer classes. The RES class is available to residential customers for non-business, non-commercial or non-industrial use at a single point of delivery. The SCF class is comprised of those non-residential customers with usage through a single point of delivery consisting of not more than 5,000 Ccf per year. SVF customers are those non-residential customers with a single point of delivery whose usage is greater than 5,000, but not greater than 40,000 Ccf in a 12-month billing period. LVF customers are those whose usage at a single address or location the Company expects will exceed 40,000 Ccf in a 12-month billing period. INT customers are those whose usage at a single address or location the Company expects will exceed 40,000 Ccf in a 12-month billing period who can be interrupted at any time upon order of EDG. SVT customers are those non-residential customers with a single point of delivery whose usage is greater than 5,000, but not greater than 40,000 Ccf in a 12-month billing period. LVT customers are those whose usage at a single address or location the Company expects will exceed 40,000 Ccf a 12-month billing period. The SVF and SVT classes were combined in the Staff's CCOS due to the similarities between these two classes. The LVF and LVT were also combined for the same reasons as the SVF and SVT classes.

The Company's costs were first categorized into functional areas that are to be allocated in the same way. This is referred to as cost functionalization. The rate base and expense accounts are assigned to one of the following functional categories: Storage, Distribution Mains, Distribution Measuring and Regulating, Purchased Gas Related, Distribution Meters, Distribution Regulators, Distribution Services, Customer Related, Billing, Meter Reading, Assigned RES, SCF, and SVF/SVT, Assigned LVF/LVT & INT, and Revenue Related.

Those costs which cannot be directly assigned into any of these specific functional categories, are divided among several functions based upon some relational factor. For example, it is reasonable to assume that property taxes are related to gross plant costs and can therefore be functionalized in the same manner as gross plant costs.

The allocation factor for Distribution Mains, as well as those for Distribution Meters, Distribution Regulators, and Distribution Service Lines were determined by using the allocation factors developed by Staff witness Daniel I. Beck. Meter Reading costs were allocated using weighted customer numbers. Revenue Related costs were allocated based upon the Staff's annualized margin revenues.

The results of the Staff's CCOS studies for EDG are shown on Schedules TMI-2 and TMI-3. These CCOS studies are presented in terms of revenue requirements before any increase in the Company's respective revenue requirements. Based on these CCOS studies and Staff's analysis, Staff recommends that the Commission not make any revenue shifts among classes at this time.

Staff Expert: Thomas M. Imhoff

III. Allocations

A. Weather-Normalized Coincident Peak Day Demand

Staff determines weather-normalized coincident peak day demand by customer class. Staff calculates the estimated usage per firm customer by customer class based on Staff witness Manisha Lakhanpal's computed normally occurring monthly or winter season (December – February) coldest days. The estimated use per customer per day is based on the regression of monthly use per customer per day and monthly heating degree days ("HDD"). The daily peak is the highest daily load or draw of natural gas on a system and the demand is the amount of natural gas used on that day. Staff's estimates of each class customers' natural gas peak usage -- residential (Schedules KC-2.1 – KC-2.3), small commercial firm (Schedules

KC-2.4 – KC-2.6) and small volume firm service (Schedules KC-2.7 – KC-2.9) -- are at the time (coincident) of a utility's system daily peak.

Staff estimates weather-normalized coincident peak day class demands because these estimates determine the relative responsibility of the residential, small commercial firm, and small volume firm customers for that estimated single-day system peak. For cost-of-service studies, it is important to determine each class' contribution to the peak day responsibility.

Schedules KC-2.1 – KC-2.9 of this Report contain the estimated weather-normalized coincident peak day natural gas usage in hundreds of cubic feet ("Ccf") per customer by billing month and customer class for EDG's North, South, and Northwest geographic regions. This information was provided to Staff witness Daniel I. Beck of the Commission's Energy Department, Engineering Analysis Section for his calculation of total peak day demand across EDG's firm customer classes. Schedule 1-12 of this Report replaces Schedule 1-12 filed on October 20, 2009 in the Staff Report Cost of Service. The class was inadvertently titled SCF instead of SVF.

Staff Expert: Kim Cox

B. Distribution System Allocators

Staff used a Stand Alone / Integrated System allocation factor to allocate Distribution Mains. The Stand Alone component can be thought of as the cost to extend a main from one customer to the next, using a main extension the same diameter as that customer's service line. The Integrated System component is the remaining portion of distribution mains that serves all customers and accounts for approximately 60% of the costs.

Staff estimated the length of main required to extend the system to each customer by analyzing data from a random sample of customers in each customer class together with

Geographical Information System data. Staff then reviewed the installed cost per foot estimates for services used by the Company. However, the results using Company data appeared unreasonable, in that the resulting installed costs per foot for a one inch diameter service was more than the cost for a two or four inch service. Therefore, Staff used, as a proxy, its estimated installed cost per foot calculated for the pending Missouri Gas Energy ("MGE") rate case, docketed as Case No. GR-2009-0355; $7.56 per foot for one inch, $12.68 per foot for two inch and $18.94 per foot for 4 inch service lines.

Staff calculated the total Stand Alone component cost using its calculations of the length of main required per extension, the installed costs per foot of service, and customer numbers per class. Staff then used total current cost of mains data provided by the Company and computed the Stand Alone Component for the system. The Stand Alone cost component was then allocated to each of the classes using the same length and cost data. The Integrated System component was allocated using peak day demands.

For the allocation of meters and service lines, a weighted customer allocator was used. For all allocators, the Residential Class is assumed to have a weight of 1 and the other classes typically had values greater than or equal to 1. Data from the Company was used to develop the weights for meters, and would typically be used to develop weights for service line costs. However, due to the concerns regarding the Company-provided service line costs, Staff used service weights that were developed in the pending MGE case. Since MGE does not have the same customer classes, the MGE weights of 1.00 for Residential, 0.98 for SGS, 4.43 for LGS, and 8.24 for LVS were applied to EDG's seven classes based on the relative size of their typical service diameter. Given the importance of the service line costs, Staff maintains that the parties to this case should work together to resolve the apparent discrepancy that exists with service line costs during the prehearing conference.

Staff Expert: Daniel I. Beck

IV. Rate Design

A. Staff's Recommendations regarding Residential Rate Design

EDG's current and proposed non-gas rate structure for Residential customers is as follows:

Residential	Current		Proposed
North/South (N/S) District	Monthly Fixed Charge	$ 9.50	$ 30 per month
	Volumetric Charge (per Ccf)	$ 0.27370	
Northwest (NW) District	Monthly Fixed Charge	$ 7.00	$ 30 per month
	Volumetric Charge (per Ccf)	$ 0.26540	

EDG has proposed that a Straight Fixed Variable ("SFV" or Delivery Charge) Residential rate structure be instituted for the Residential class, that this charge be set at $30 per month, and that the North & South ("N/S") district and Northwest ("NW") district fixed charge be set at the same level. The customers' gas costs would be recovered through the per-unit PGA charge.

Staff supports SFV rate design because it is cost-justified, fair, transparent, and provides an accurate price signal to EDG's current Residential customers, and prospective customers who are determining the level and type of energy-related investments for their home. Staff's class cost-of-service study results indicate that the Residential customers in both districts are currently underpaying their cost-of-service; however, Staff is not recommending any revenue shifts between customer classes in this case. Staff proposes that the percentage increase in Residential customer revenues be the same as the overall percentage increase in the Company's non-gas revenue requirement in this case. Staff supports setting the Delivery Charge for the N/S and NW districts at the same level. Finally, Staff proposes three variations of the Straight Fixed-Variable rate design for collecting EDG's non-gas revenue requirement from this class.

Staff supports a SFV rate design for EDG's Residential customers.

With an SFV rate design, each Residential customer pays a single fixed monthly charge, which is the same for all customers. This charge is the same for all Residential customers. The Company has proposed that this charge be set at a uniform level year-around, and presents as an alternative proposal that the charge be set lower in the summer.

For the following reasons, Staff believes that the Delivery Charge rate design is an excellent rate design for Residential customers. Later in this report, Staff describes three variations of this rate design that the Commission should consider.

Collection of the Residential customers' cost-of-service in a fixed monthly Delivery Charge is an equitable, accurate, and reasonable way to recover costs from the customers in this class. This rate design reflects the fact that a difference in the cost of serving two Residential customers is not driven by the size of the customer's load. It is inappropriate to collect these costs on that basis.

While Staff is aware that any LDC is going to have a few mansions in its Residential customer class, huge Residential customers are the exception, rather than the rule. The majority of customers in the Residential class fall within a relatively small band of usage, and Staff is not aware of any studies or analyses that demonstrate that a difference of a few hundred Ccf per year creates a difference in the costs incurred to serve two customers with similar load characteristics. Any difference in the cost to serve two Residential customers is more likely driven by factors other than customer usage, such as distance from the transmission pipeline, customer density in the EDG service territory, the terrain in the customer's geographical area, and the frequency with which the customer contacts the utility. Traditionally, we do not attempt to charge individual Residential customers different amounts to reflect these factors, and Staff does not propose that we begin doing so now; furthermore, the level of volumes used by a Residential customer does not reflect or accurately collect any difference in the customer's cost-of-service due to the effect of these other important variables.

The SFV rate design more closely aligns the Company's and customers' interests regarding conservation, and enables EDG to actively promote conservation without harming their shareholders because revenues from the Residential customer class no longer depends on Residential customers' usage. At the current time, EDG's level of cost recovery and profit are directly tied to the amount of natural gas its customers use. Lower usage leads to lower revenues for EDG, so the Company has no incentive to educate or assist its customers regarding conservation measures; in fact, by doing so, the Company is harming its shareholders by lowering its ability to recover its cost of service. Staff witness Henry E. Warren discussed the Company's efficiency proposals in the Staff's Cost of Service Report.

The SFV rate design provides an appropriate price signal to prospective customers, which provides some level of protection to current customers. When a new customer hooks up to the EDG system, there are costs involved – both immediate and long-term. As discussed above, these costs are not driven by the amount of gas used by the individual Residential customers, but instead area a function of many variables.

For example, to serve a customer who requests service from EDG, the utility must provide pipe to connect the customer to its distribution main and the transmission pipeline, and must install metering and other equipment for these customer. Staff is not aware of any evidence that shows that this cost investment varies based on whether the customer's usage reflects barbecuing a steak or heating a home. The smallest equipment is sufficient to serve the load generated by existing Residential end uses, such as space- or water-heating, gas fireplaces or barbecues, clothes dryer, pool heater, and cooking stove, or any combination of these appliances or equipment.

While Residential customers have a very limited number of possible end uses, they have the ability to change either their level or type of end use gas consumption at any time, making it impossible to predict exactly the level of usage that each individual household is going to 'need' from the local distribution system in the future. The financial consequence of EDG 'missing the mark' in making the investment needed to serve its current and anticipated customer base is significant – for example, even if it was possible to exactly size a main to meet expected future demand, it would be very expensive to dig up and install a new main if a

Residential customer's usage increased or decreased in the future. Thus, even in the long-term, the investments that EDG makes to serve its Residential customers will not exactly reflect the amount of gas each customer uses.

The cost of serving a Residential customer is dependent upon many factors, as noted above. Hooking up a customer who is unlikely to pay their cost of service will result in intraclass subsidization,

The SFV rate design provides an appropriate price signal to current customers, thus allowing them to make informed energy-related decisions regarding their level and mixture of energy investments and usage. Customers who are choosing their mix of fuels and investments will receive accurate and predictable information about natural gas usage that will assist them in their decision-making process.

Staff proposes that the percentage increase in Residential customer revenues be equal to the percentage increase in the Company's non-gas revenue requirement in this case.

EDG has not sought a rate increase in almost five years, and the impact of this rate increase is sizeable. Staff's class cost-of-service studies indicate that the Residential customers are contributing less than their cost of service, and that it would be cost-justified to increase the amount collected from these customers before determining their share of the rate increase.

Staff believes, however, that economic conditions preclude a movement toward the cost of service calculated in Staff's study, and recommends that Residential class revenues be increased by the percentage that EDG's total non-gas revenues are increased.

Staff recommends that Residential non-gas rates for the N/S and NW Districts be set at the same level.

The districts currently have similar non-gas volumetric rates, but a $2.50 monthly customer charge difference. Combining the non-gas rates in the districts will result in a percentage increase to Residential customer bills in the NW District that is slightly higher than the increase to the N/S Residential customers; this increase, however, will be less than the increase found to be appropriate in the Staff's class cost-of-service study. In addition, the Staff's accounting schedules show that, in total, the NW District needs a 29% increase, while the N/S District needs a 15% increase. Since the NW District rates are currently lower, the combination of these two districts is appropriate.

Staff recommends that the Commission consider alternative SFV rate designs

EDG's two districts have two of the three lowest Residential customer charges, as shown in the table, below.

	Residential Customer Charge
Empire District Gas – NW District	**$ 7**
Laclede – Fidelity Natural Gas	**$ 8**
Empire District Gas – N/S District	**$ 9.50**
Southern Missouri Gas	**$ 10**
Missouri Gas Utility	**$ 15**
Union Electric Company	**$ 15**
Laclede Gas Company	**$ 15.50**
Note – Missouri Gas Energy and Atmos Energy Corporation a Straight Fixed-Variable Residential rate design.	

Using the Staff's revenue requirement and billing determinants, the Staff determined that there are three possible rate design recommendations. Note that *for all three alternatives*, the gas costs associated with the individual customer's usage will be collected in a flat volumetric PGA rate. Gas costs are not an issue in this case.

Alternative 1 – collect all Residential class revenues in a uniform fixed charge of approximately $ 28.50 per month year-round. This rate design has the advantage of transparency, and best matches the Company's revenue stream with its fixed investments and costs. The year-round increase in the fixed charge will be noticeable to customers in the non-heating months, and even customers that benefit on an annual basis might not understand that the higher summer bills are balanced by lower winter non-gas bills. If this option is chosen, it will be important to provide clear customer education on the rate design.

Alternative 2 – collect all Residential customer revenues in a Delivery Charge that is lower in May-October than in the winter months of November-April. For example, the customers could pay a customer charge of $15.50 in the six non-winter months, and a fixed charge of approximately $42.25 in the winter months.

This rate design will result in fewer customer complaints in the summer months – an issue to which the Commission has recently appeared to be quite sensitive. As with Alternative 1, there will have to be a strong effort made to educate customers regarding the rate design.

Alternative 3 – collect a $15.50 customer charge year round. A small amount of non-gas revenue could be collected from Residential customers in the non-Winter months. The remainder of the class' non-gas cost of service would be collected in the first 30 Ccfs in the winter months. After this level of usage is exceeded, the customer would not pay any additional non-gas costs.

This partial SFV rate design would be less transparent to customers, although the effect would be roughly the same as Alternative 2 – the bulk of the class' non-gas costs would be collected in what is essentially a fixed charge for any customer who uses 30 Ccf or more in the cold-weather months. The disadvantage of this rate design is the complexity associated with establishing a rate – weather-normalized volumes will be necessary, as will calculating a frequency distribution for the Residential class – but the difficulty in explaining a customer's bill to them will also be troublesome. Furthermore, while the customers' exposure to weather related risk would be limited to their usage in the first 30 Ccf, the Company would still be exposed to weather risk, especially in the shoulder months of November, March, and April. This increased risk might have an effect on the Company's rate of return.

Staff has examined the three alternatives, and believes that Alternatives 1 and 2 provide the greatest overall benefit to Residential customers and the Company. In addition to the transparency and cost/revenue matching inherent to some extent in both designs, the degree of revenue stability provided should remove any disincentive for the Company to actively design and promote customer conservation programs, and this should be a necessary component.

Staff Expert: Anne E. Ross

B. Staff's Recommendations regarding Small Commercial Firm Sales Class Restructuring and Rate Design

The following table shows EDG's proposed changes in the non-gas rate for the Company's existing Small Commercial Firm Service class, which contains non-Residential customers with annual usage less than 5,000 Ccf.

Class of Service	Current		Proposed
Small Commercial Firm – N/S District	Monthly Fixed Charge	$17.40	$64 per month
	Volumetric Charge (per Ccf)	$ 0.27370	
Small Commercial Firm – NW District	Monthly Fixed Charge	$13.50	$64 per month
	Volumetric Charge (per Ccf)	$ 0.25000	

While Staff agrees that an annual usage of 5,000 Ccf is an appropriate requirement for a class composed of very small, non-Residential customers, and that a SFV rate design is appropriate for this customer group, Staff proposes that the increase in revenues collected from these customers be the same as the overall increase resulting from this rate case. Staff believes that it would be acceptable to charge the same rate(s) to customers in the N/S and NW districts. Furthermore, Staff recommends that these customers be billed using the same rate structure as is instituted for the Residential customer.

Staff Expert: Anne E. Ross

C. Staff's Recommendations regarding Small Volume Firm Sales Rate Class Restructuring and Rate Design

EDG proposes that the customers in its current Small Volume Firm Service rate class be reclassified into two classes based on annual usage - Small Commercial Firm Service – Medium and Small Commercial Firm Service – Large. The current and proposed rates are shown in the table below.

	Current	Proposed	
Class of Service	Small Volume Firm Sales - Small	Small Commercial Firm Sales - Medium	Small Commercial Firm Sales - Large
Annual Usage Thresholds (Ccf)	5,000 - 40,000	5,000 – 20,000	20,000 – 40,000
Monthly Fixed Charge – N/S	$ 50	$ 110	$ 200
Volumetric Charge (per Ccf) – N/S	$ 0.22790	$ 0.11000	$ 0.11000
Monthly Fixed Charge – NW	$ 40	$ 110	$ 200
Volumetric Charge (per Ccf) – NW	$ 0.22500	$ 0.11000	$ 0.11000

Staff believes that it is acceptable to group customers in this manner, but recommends that the rates in each of the 'new' classes be set to collect the same percentage increase as the overall non-gas percentage increase resulting from this case. This would be accomplished by determining the share of current revenues contributed by the customers in each of the proposed rate classes, and applying the percentage increase to those revenues.

While a higher fixed charge is supported by Staff, customer charge increases of the magnitude proposed by the Company may create rate shock, and we do not believe that they should be raised to this level.

Staff believes that it would be acceptable to charge the same rate(s) to customers in the N/S and NW districts.

Staff Expert: Anne E. Ross

D. Staff's Recommendation regarding Rate Design for the Large Volume Firm Sales and Large Volume Interruptible Sales Service classes.

The following table shows EDG's proposed changes to the non-gas rate for the Company's existing Large Volume Firm & Large Volume Interruptible Sales Service classes, which contain non-Residential customers with annual usage greater than 40,000 Ccf.

Class of Service		Current	Proposed
Large Volume Firm & Interruptible Sales – N/S District	Monthly Fixed Charge	$ 215	$ 400
	Volumetric Charge (per Ccf)	$ 0.02885	$ 0.02000
	Demand Charge (per Ccf)	$ 0.40	$ 0.60
Large Volume Firm & Interruptible Sales – NW District	Monthly Fixed Charge	$ 200	$ 400
	Volumetric Charge (per Ccf)	$ 0.04850	$ 0.02000
	Demand Charge (per Ccf)	$ 0.40	$ 0.60

Staff recommends that the increase in the revenues from this customer should be the same as the overall percentage increase in the Company's non-gas revenues resulting from this proceeding.

While a higher fixed charge is a concept that the Staff supports in many cases, customer charge increases of the magnitude proposed by the Company are troublesome, and we do not believe that they should be raised to this level.

Staff believes that it would be acceptable to charge the same rate(s) to customers in the N/S and NW districts.

Staff Expert: Anne E. Ross

E. Staff's Recommendations regarding Small Volume Transportation Rate Class Restructuring and Rate Design

EDG's proposes that the customers in its current Small Volume Firm Service rate class be reclassified into two classes based on annual usage - Small Commercial Firm Service – Medium and Small Commercial Firm Service – Large. The current and proposed rates are shown in the table below.

	Current	Proposed		
Class of Service	Small Volume Firm Transportation	Small Volume Firm Transportation - Small	Small Volume Firm Transportation - Medium	Small Volume Firm Transportation - Large
Annual Usage Criterion (Ccf)	5,000 - 40,000	Less than 5,000	5,000 – 20,000	20,000 – 40,000
Monthly Fixed Charge – N/S	$ 50	$ 75.50 (inc. meter admin fee)	$ 121.50 (inc. meter admin fee)	$ 211.50 (inc. meter admin fee)
Volumetric Charge (per Ccf) – N/S	$ 0.22790	N/A	$ 0.11000	$ 0.11000
Monthly Fixed Charge – NW	$ 40	$ 75.50 (inc. meter admin fee)	$ 121.50 (inc. meter admin fee)	$ 211.50 (inc. meter admin fee)
Volumetric Charge (per Ccf) – NW	$ 0.22500	N/A	$ 0.11000	$ 0.11000

Staff believes that it is acceptable to group customers in this manner, but recommends that the rates in each of the 'new' classes be set to collect the same percentage increase as the overall non-gas percentage increase resulting from this case. This would be accomplished by determining the share of current revenues contributed by the customers in each of the proposed rate classes, and applying the percentage increase to those revenues.

While a higher fixed charge is supported by Staff, Staff does not support the level of customer charge increase proposed by the Company.

Staff Expert: Anne E. Ross

F. Staff's Recommendations regarding Large Volume Transportation Rate Design

The following table shows EDG's proposed changes in the non-gas rate for the Company's existing Large Volume Firm & Interruptible Transportation Service class, which contains non-Residential customers with annual usage greater than 40,000 Ccf.

Class of Service		Current	Proposed
Large Volume Firm & Interruptible Transportation – N/S District	Monthly Fixed Charge	$ 215	$ 411.50 (inc. meter admin fee)
	Volumetric Charge (per Ccf)	$ 0.02885	$ 0.02000
	Demand Charge (per Ccf)	$ 0.40	$ 0.60
Large Volume Firm & Interruptible Transportation – NW District	Monthly Fixed Charge	$ 200	$ 411.50 (inc. meter admin fee)
	Volumetric Charge (per Ccf)	$ 0.04850	$ 0.02000
	Demand Charge (per Ccf)	$ 0.40	$ 0.60

As with EDG's other rate classes, Staff recommends that the increase in the class' revenues should be the same as the overall percentage increase in the Company's non-gas revenues resulting from this proceeding, and that the same non-gas rates be charged in both districts.

Staff Expert: Anne E. Ross

V. Miscellaneous Tariff Issues

A. Transportation Tariff

EDG is proposing a re-write of its transport tariff. The transport tariff is applicable to those customers, usually larger industrial or institutional customers, who buy gas from a supplier other than EDG, but use EDG's system to take delivery of the gas behind the city gate. Staff analyzed the proposed transport tariff, and its examination included the following areas of substantive change from EDG's currently effective transport tariff:

- A new Daily Charge to assign a charge for injection, transportation, and withdrawal costs (collectively referred to as "storage" costs) associated with daily imbalances to the customers that under-or over-nominate gas purchased from a supplier other than EDG.
- A new requirement for telemetry equipment, to measure daily imbalances, applicable to all customers, but schools are exempt from having to buy telemetry equipment.
- An increase in the Balancing Service Charge from $.0075 to $0.025 per-Ccf of gas transported and limiting this tariff provision to schools who are exempt from the telemetry requirement.
- A new dual index pricing system, with two prices – the lowest price for over-nominations and highest price for under-nominations - for each pipeline.
- Other miscellaneous issues transportation tariff.

Daily Charge for Imbalances

A customer over-nominates or under-nominates when the transport customer's actual consumption of gas either is less than, or exceeds, respectively, the volume of gas delivered to EDG's system. While over/under-nominations are not totally avoidable, the transport customer, or its agent, has the greatest control over the amount of gas it orders for delivery to EDG's system. When transport customers under-nominate or over-nominate, EDG needs to maintain the system's balance. If the system as a whole is either long or short on gas, EDG incurs storage costs. These costs include charges related to injection of gas into storage, withdrawal of gas from storage, and the cost of transporting the gas to or from the storage facility.

Based upon information provided by EDG, EDG has not incurred "daily balancing penalties" from the supplying pipelines. If incurred, EDG's current tariff is designed to flow these penalties through to transport customers who contributed to EDG's out-of-balance condition.[1]

Under EDG's current tariff, transport customers are required to "cash out" net imbalances at the end of each month. This monthly treatment of imbalances allows transport customers an opportunity to eliminate any cumulative imbalances of units of gas occurring during the month.

The cash out process does nothing to recover storage costs incurred due to given daily imbalances, when those imbalances are settled up. This monthly cash out process only addresses the gas commodity itself, but not the daily costs associated with transporting and storing the long and short gas on a daily basis

Currently, storage costs are assigned 100% to EDG's firm customers, even though transport customers are also causing EDG to incur some of these costs. The current tariff fails to recover from transport customers any costs associated with sending gas to storage (transportation), placing gas into storage (injection), removing gas from storage (withdrawal), and sending gas back over EDG's network when needed (transportation). EDG proposes to establish a mechanism to redistribute storage costs among all classes of customers utilizing storage or causing EDG to incur storage charges. Under EDG's proposal, the incremental storage costs attributable to transport customer imbalances will be recovered through the new daily imbalance charge.

[1] This is referred to as a Balancing Charge in EDG's currently effective tariff. This is separate and distinct from the Balancing Service for schools discussed elsewhere in this Report.

Staff supports EDG's Daily Charge proposal. The various pipelines supplying gas into EDG's system charge EDG every time EDG injects or withdraws gas into the pipeline's storage.

These costs vary by pipeline, and vary by volume of gas involved. Beyond these incremental costs, there are sunk costs related facilities that EDG leases to transport and store gas. On a given day, when transport customers over- or under-nominate gas, EDG is required to use storage facilities and incur storage-related costs. EDG provided Staff the following cost of storage, per dekatherm, by pipeline.

PEPL	1.1399
SS	1.3459
ANR	1.097

These amounts represent both the cost and value associated with pipeline transportation and injections and withdrawals into storage, per dekatherm, on EDG's system. They reflect both variable and fixed costs. These amounts do not reflect all possible charges, and are subject to FERC jurisdiction.

EDG is proposing a 10% daily threshold for over- or under-nominations, which Staff supports as reasonable. It is unreasonable to expect an exact match between daily nominations and actual usage by the transport customer, but great variances are generally within the transport customer's control. Staff does not consider the 10% level to be unreasonable.

Staff supports the $1.25 per-Mcf Daily charge as reasonable and as an equitable way of recovering from transport customers the portion of storage-related costs attributable to transport customers.

Telemetry Requirement

EDG is proposing to require telemetry equipment for all transport customers, except for schools specifically exempted by state statute.[2] Telemetry is necessary to measure daily imbalances for assessment of the Daily Charge.

The installation of telemetry equipment can cost between $1100 and $3000. In addition, EDG has proposed a Meter Administration fee of $11.50 per month, per meter. Staff supports EDG's proposed telemetry requirement as reasonable.

Balancing Service

Under EDG's proposal, schools exempt from the telemetry requirement, are required to participate in a balancing service[3]. EDG's balancing service, currently available at $0.0075 per Ccf, will no longer be offered to non-school transport customers. EDG has priced its proposed school-only balancing service at $0.025 per Ccf.

EDG asserts that its proposed increase in the balancing fee from $.0075 to $0.025 per Ccf is done in an attempt to properly assign transportation costs, storage costs, and fuel loss more equitably between firm and transport customers. According to EDG, the current charge of $0.0075 per Ccf does not cover the value of this transportation and storage service. EDG offers the justification that the proposed fee of $0.025 per Ccf represents 20 percent of the proposed Daily Charge of $.125 per Ccf and is applied to all of the actual volumes transported. The Daily Charge is only applied to delivered imbalances of greater than 10 percent of the daily nominated amount.

[2] Section 393.310 RSMo provides, in pertinent part: 4. The tariffs [pursuant to this law] shall, at a minimum: (3) Not require telemetry or special metering, except for individual school meters over one hundred thousand therms annually.

[3] School customers **voluntarily** obtaining telemetric measuring equipment are not subject to the balancing service requirement.

Staff considers this analysis reasonable, and supports EDG's proposed modifications and limitations of its balancing service as reasonable. In addition, Staff recommends that EDG extend the availability of the balancing service to address certain transitional issues, as discussed elsewhere in this Report.

Dual Index Pricing

EDG's current tariff contains pipe-line specific index prices. The three pipe lines, PEPL, SSCP, and ANR, each have specific prices for pricing out gas as part of the cash-out process. For each pipe line, the index point currently being used is uniform whether EDG is buying gas or selling gas. EDG proposes to establish a dual index for each pipeline. Under a dual index, two prices – one for over-nominations and one for under-nominations - would be utilized for each pipeline. When EDG is buying gas, the lowest posting for the month is used. When EDG is selling gas, the highest posting for the month is used.

The proposed tariff language is as follows:

> The "spot" market prices on each of the pipelines shall be determined using the Natural Gas Week posting for Southern Star on the South, Panhandle Eastern on the North and ANR on the Northwest. When Receipts exceed Deliveries, the lowest posting in Natural Gas Week for the applicable month shall be used as the "spot" price. When Deliveries exceed Receipts, the highest posting in Natural Gas Week for the applicable month shall be used as the "spot" price.

EDG's daily imbalance charge proposal is an effort to curtail over/under-nominations to the greatest extent possible, and to recover for costs from customers who generated them. The use of a dual index sends the proper price signal to the transport customer, and does so to a greater degree than does a single-index methodology. The dual-index methodology is more likely to appropriately charge transport customers for their imbalances. Dual-index pricing increases the likelihood that the firm customers are not economically harmed by transport customers who engage in cash-out transactions.

Since the transport customer has the greatest control over when over/under nominations occur, this dual-point pricing sends the proper message to those in control, that they should take corrective action concerning imbalances.

To add clarification, Staff recommends that the publisher of Natural Gas Week, Energy Intelligence Group, Inc., be identified in EDG's reference to the publication. Staff supports EDG's proposed use of dual index pricing, as published in Natural Gas Week, under this tariff provision as reasonable.

Other Miscellaneous Transportation Tariff Issues

Financing of Telemetry

EDG proposes the following language to implement the installation and use of telemetry equipment:

> 4. The Company will offer financing for a Customer for telemetry equipment for periods up to 90 days interest free. The Company will offer financing with interest at a rate of prime plus 1% to a Customer to pay for the installation of telemetry equipment for a period of more than 90 days, but not more than 12 consecutive months. The telemetry equipment and any other improvements made by the Company shall remain the property of the Company, and will be maintained by the Company. (Page 44)

Staff supports this proposal as reasonable.

Ownership of Telemetry

While the transport customer is obligated to pay for telemetry equipment – either "up front" or over the first 12-months of service, the title to telemetry equipment remains with EDG.

Staff would recommend that either the tariff or the contract have language that clearly sets forth the ownership of telemetry equipment remains with EDG. Ownership of telemetry equipment should remain with EDG; however, it should be excluded from EDG's rate base as Customer Contributed Property. EDG has responsibility for maintenance of the equipment

Transport Customer PGA Charges

EDG proposes the following language concerning applicability of the PGA to transport customers:

> 5. PGA Charges: Customers shall be charged the appropriate system's ACA, Refund, **TOP and TC** factors as listed on Company's PGA tariff sheets. **New Customers** or Customers electing Transportation Service shall be charged the appropriate ACA charges for a period of one-year after changing service to Transportation Service. A true-up of ACA balances shall take place after one year of charges. After true-up, these ACA charges shall terminate. (Emphasis Added)

The reference to TOP and TC (Take or Pay and Transitional Costs, respectively) is unnecessary and should not be included. Staff recommends this language be expunged from the proposed tariff wherever it is present.

Staff recommends that the reference to "New Customers," those customers, who neither had contract service nor sales before, should be removed from this provision. These customers will have neither paid too little nor too much into the previous year's PGA, and it is unreasonable to require these customers to either pay additional costs related to gas that they did not purchase, or to receive credits for overpayments that they did not make.

Staff does support, as reasonable, EDG's proposal to hold firm customers who become transportation customers responsible for the preceding twelve month ACA period

Energy Seller Certification Requirement

EDG proposes the following language concerning a taxing requirement related to Commission-certified energy sellers:

> 7. Taxes: Service received under this tariff shall be conducted through energy sellers who have received certification from the Missouri Public Service

> Commission pursuant to 4 CSR 240-45.010 in compliance with Sections 393.297 through 393.301, RSMo.

In the past, the Commission has dismissed applications for certification as an energy seller because gas marketers are not authorized to transfer the title of gas to EDG's transport customers downstream of the city gate.[4] Based on this Commission guidance, Staff recommends that all provisions referencing requirement for certification as an energy seller be removed from EDG's tariff.

Transitional Issues

To more effectively implement the re-write of the transport tariff, Staff recommends the availability of EDG's proposed Balancing Service be expanded to accommodate the following timing issues:

1. EDG will require some time to install all of the telemetry equipment required under the transport tariff. During the period where the tariff requires telemetry equipment, but EDG has yet to install it, Staff recommends that EDG allow transport customers to subscribe to the Balancing Service, in lieu of applying the Daily Charge.
2. EDG proposes the following tariff clause:

> Aggregation Pool: All small volume transportation customers must belong to an Aggregation Pool. Small Volume Customers **may only begin transportation service or return to sales service on either May 1 or October 1 of each calendar year.** (Emphasis Added)

For customers who choose to return to sales classification due to this rewrite of the tariff, Staff recommends that there be a sufficient interval before enforcing the above tariff provision, for that request to be accommodated. If EDG can not immediately accommodate

[4] See Docket Number GA-2009-0384, ORDER DISMISSING APPLICATION, and Case No. GO.-2004-0195, ORDER CLOSING CASE.

such a request, such customers should not be forced to buy telemetry equipment in the interim. During the first year of the effectiveness of these tariffs, if EDG can not safely accommodate such a request to return to the sales classification, Staff recommends that EDG allow the customer to subscribe to the Balancing Service, in lieu of applying the Daily Charge.

Changes in Insurance Requirements

Currently, EDG's tariff states the following:

> Security: All Aggregators shall provide Company with security for aggregator's performance hereunder in the form of a letter of credit or a performance bond in the amount of $250,000.00 no later than ten (10) days prior to the date gas first flows to one or more of aggregator's end-users. Company reserves the right to periodically review the sufficiency of said security and, if deemed necessary as a prudent business practice, may require an increase in such amount.

EDG is proposing the above language be replaced with:

> Security Performance: The Aggregator or Marketer shall upon request of the Company agree to maintain a cash deposit, surety bond, irrevocable letter of credit, corporate guarantee or such other financial instrument satisfactory to Company in order to assure the Aggregator's or Marketer's performance of its obligations under the Aggregator or Marketer Agreement. In determining the level of the deposit, bond, or other surety to be required of the Aggregator or Marketer, **the Company, in its sole discretion**, shall consider such factors, including, but not limited to, the following: the volume of natural gas to be transported on behalf of an Aggregation Pool, the general credit worthiness of the Aggregator or Marketer, and the Aggregator's or Marketer's prior credit record with the Company, if any. In the event that the Aggregator or Marketer defaults on its obligations under this rate schedule, the Company shall have the right to use such cash deposit, or proceeds from such bond, irrevocable letter of credit, or other financial instrument to satisfy the Aggregator's obligation hereunder. The Company reserves the right to recalculate the charges and bill the appropriate Aggregator Pool Customers directly as though no Aggregation Pool arrangement existed. Specific terms and conditions regarding credit requirements shall be included in the Aggregator's or Marketer's Agreement. (Emphasis Added)

Staff supports some portions of this proposed language as reasonable, but cannot support other portions as reasonable. Since potential losses could exceed the $250,000 limit of coverage presently in the tariff, EDG should be allowed to set the amount of the "insurance" (meaning the wide range of coverage listed in the tariff clause) to an amount commensurate with the reasonable perceived risk of the operation.

Staff is concerned that the reservation of the right to set the surety requirement to "the Company, in its sole discretion" is unreasonable. This language gives EDG too much discretion in setting the amount of surety required, and could be used to limit EDG's competition regarding its firm customers. However, insufficient coverage requirements are detrimental to firm customers paying PGA rates who would be asked to absorb any losses, not the EDG stockholders. Therefore, setting the coverage requirement commensurate with potential loss is important.

To address these concerns, Staff recommends tariff language as follows, Staff modifications in *italic typeface*:

> 24. Security Performance: The Aggregator or Marketer shall upon request of the Company agree to maintain a cash deposit, surety bond, irrevocable letter of credit, corporate guarantee or such other financial instrument *satisfactory to cover a reasonable assessment of risk of each particular situation. Factors* that shall be incorporated into this assessment of risk may include such factors, including, but not limited to, the following: the volume of natural gas to be transported in behalf of an Aggregation Pool, the general credit worthiness of the Aggregator or Marketer, and the Aggregator's or Marketer's prior credit record with the Company, if any. In the event that the Aggregator or Marketer defaults on its obligations under this rate schedule, the Company shall have the right to use such cash deposit, or proceeds from such bond, irrevocable letter of credit, or other financial instrument to satisfy the Aggregator's obligation hereunder. The Company reserves the right to recalculate the charges and bill the appropriate Aggregator Pool Customers directly as though no Aggregation Pool arrangement existed. Specific terms and conditions regarding credit requirements shall be included in the Aggregator's or Marketer's Agreement. *Proceeds from insurance payments or bonds payable in the event of a default*

*shall flow through the Company's PGA **to the degree necessary** to safeguard sales customers from negative repercussion of a contract customer's default.*

This proposed language gives EDG the flexibility necessary to set an amount commensurate with perceived risk, but is not so discretionary as to give EDG the absolute power to impose insurance requirements of such a magnitude as to discourage competition.

Draft Contract

Staff has not yet received a draft of the proposed transport customer contract. Staff reserves the right to address that contract, when supplied, in further rounds of testimony.

Staff Expert: Michael J. Ensrud

B. Other Miscellaneous Tariff Issues

<u>NonResidential Customer Deposit Retention Policy</u>

EDG's current tariff provides that security deposits from nonresidential customers may be refunded by Company after the customer has established satisfactory credit for a minimum period of thirty-six (36) months. (Page R-8) EDG has proposed to change this provision to require that deposits from non-residential customers may be retained as a guarantee of payment of final bills. This new language is a change in procedure. EDG has asserted that the change being proposed will reduce future uncollectables, and Staff finds this conclusion to be reasonable. Staff believes the change will eventually impact uncollectables, and, thereby, benefit residual ratepayers.

Staff proposes that this new tariff language include a provision that only new customers taking service after the effective date of the tariff are subject to this requirement. Further, non-delinquent customers, who have already been refunded their initial deposits, should not be subject to a new deposit. Because the magnitude of the effect on uncollectables of this policy will not occur for several years, Staff does not recommend a revenue adjustment at this time.

<u>Increase to the "Late Payment Charge –All Other Rates"</u>

EDG is proposing a change in its "Payment Charge –All Other Rates" from the current rate of 0.5% per-month to a new rate of 5.0% per-month. (Page R-53.) Such a policy will increase the interest penalty by ten-fold over the existing rate being charged and increase the amount revenue generated from $23,633 to $236,335 annually. During the test year, 2729 customers paid the existing Late Payment. Of those 2729 customer who paid the charge one or more times, 50 customers paid the late payment each of the twelve months. (See response to DR 134.9)

Empire's proposed 5% charge lacks support for an increase of this magnitude. Staff recommends the Payment Charge-All Other Rates remain at the current tariffed rate of 0.5%.

<u>Excess Flow Valves</u>

EDG is proposing to eliminate from its tariff charges for the installation of excess flow valves ("EFV"). Historically, EFVs were installed at the customer's option, and the specific charge for the installation of the EVF was included in EDG's tariffs. However, U.S. Department of Transportation - Pipeline and Hazardous Materials Safety Administration issued an Advisory Bulletin on June 5, 2008, strongly encouraging the installation of an EFV anytime a LDC installs a complete new lead or replaces a complete lead, and Staff's Gas Safety department has recommended that all Missouri LDC's adopt this practice.

Given what EDG has done, it is unclear how EDG plans on recovering the cost of EFV in an environment where EFVs are no longer a customer option.

If EDG plans on charging for Excess Flow Valves separate from other components of an installation, its tariff should reflect such intent, and the tariff needs to reflect a policy of customer-specific billing.

If its policy is to treat EFVs just as a component of an installation (subject to those provisions), and no customer-specific billing is desired for this unique component, then EDC's "Charges for extension requests" (Tariff Page R-54) needs to incorporate a reference to EFV costs being part of the allowance.

In its present form, EDG fails to clarify its method of recovery. In its present condition, Staff would oppose any attempt to direct bill customers. Staff recommends one method or the other be set forth in EDG's tariff.

Interest Rate on Customer Deposits

EDG proposes to change the date for determining the interest rate on customer deposits from 1% above the prime rate published in the Wall Street Journal on the **first** business day of December of the prior year, to 1% above the prime rate published in the Wall Street Journal on the **last** business day of December of the prior year. This change in date is being done for administrative ease, by bringing the gas tariff into conformity with Empire's electric tariff. Staff has no objection to EDG's proposal to change this date.

Instrument Leak Surveys

EDG's tariff requires the company to conduct annual instrument leak surveys of the buried piping. EDG is proposing to change frequency of these surveys from an annual basis to a "periodic" basis. Commission Rules specify the frequency of instrumental leak surveys. Leakage surveys in business districts must be conducted at intervals not exceeding fifteen months, but at least once each calendar year in accordance with 4 CSR 240-

40.030(13)(M)2.A.). Leak detection surveys must be conducted outside of business districts at intervals not exceeding fifteen months, but at least once each calendar year for unprotected steel pipelines and not exceeding thirty-nine months, but at least once each third calendar year for all other pipelines in accordance with 4 CSR 240-40.030(13)(M)2.B.

Staff proposes that EDG modify this provision as follows:

> C. The customer shall be solely responsible for the maintenance of all piping and all other gas equipment on the premise which is owned by the customer and not specifically stated as the responsibility of Company within these Rules, except that Company shall be responsible for conducting **periodic (as required by Commission Rules)** instrument leak surveys over the buried piping. (Emphasis Added) (Page R 27)

This language makes it clear that not all instrumental leak surveys need take place annually, as under the current language, but still binds EDG to comply with Commission Rules that prescribe specified time periods for conducting instrumental leak surveys.

Miscellaneous Charges

With the exception of the Meter Testing, there is a common problem associated with EDG's miscellaneous services that are proposed for rate increases. For Reconnection Charges and Collection Charges, Staff has requested appropriate billing data that allows Staff to calculate the revenue impact of those rate increases. While EDG has responded in most cases, the responses are insufficient to allow Staff to perform traditional revenue impact calculations. Therefore, Staff is further pursuing the needed billing information.

While Staff believes rates should generally cover underlying costs, it is paramount that those resulting rate increases be imputed toward the revenue requirement. If EDG lacks billing data that allows Staff to impute the resulting revenue increase, then Staff recommends the proposed rate increase be rejected – even if the result is a rate that is below underlying cost.

If EDG lacks the data necessary to perform revenue imputation, Staff recommends that the Commission direct EDG to collect such data on a going-forward basis for future rate cases.

Reconnections

EDG is proposing to increase the Reconnection Charge by $10.00, from $30.00 to $40.00. EDG has provided Staff with cost information for the following elements: 1) a direct cost of labor, 2) "loadings" to the labor rates, and 3) vehicle costs. The connection-only underlying cost (for all reported elements) amounts to $40.33 per-occurrence. (Response to DR 134.1)

Staff recommends the cost of a disconnection be added to the cost of a reconnection when establishing a cost-based charge. To have a reconnection, there must first be a disconnection of service. A disconnection is a unique activity that generates its own set of costs that are separate and apart from the reconnection costs. Staff proposes to add disconnection costs to reconnection costs in order to make the Reconnection Charge fully cost-based. By incorporating the cost of a disconnection into a Reconnection Charge, those who generated the disconnection charge are paying the full cost that they generated.

Staff recommends that EDG's reconnection charges should be:

During Normal Hours:	$81.00
After Business Hours:	$168.00[5]

Meter Testing Charges

[5] The fact that a Reconnection took place in "After Business Hours" does not mean a premium should be attached to the Disconnect component of costs – even if EDG experienced premium costs by "after hours" disconnect. Therefore, the initial disconnect is priced at $40.33 & the "After Business Hours" connection is priced at $127.28 – for a total cost of $167.61.

EDG proposes a $65.00 meter testing charge per-occurrence – an increase of $40.00 from the existing tariffed rate of $25.00. Staff tentatively accepts EDG's cost representation, although EDG considered only two cost components in its calculation: a labor component of $41.63, and a shipping component of $22.50 for total underlying costs of $64.13 per-meter. (Response to DR 134.1)

Staff recommends EDG's $65.00 rate for Meter Testing be approved.

Staff received billing data information from EDG on October 27. Although Staff has not yet had the opportunity to thoroughly review that information, Staff's preliminary estimate is that the change to the Meter Testing rate will have a $160.00 revenue impact.

Collection Charge

EDG proposes to leave its collection charge at $25.00. Staff proposes that the Collection Charge rate should be raised to reflect the cost of providing this service. EDG supplied data indicates a collection trip costs on average of $40.33 during normal business hours. (See Responses to DR 134.1 & DR 171)

Staff's recommendation is to raise the collection rate to $41.00 – a $16.00 increase over the existing rate.

Staff Expert: Michael J. Ensrud

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Empire District Gas Company and Its Tariff Filing to Implement a General Rate Increase for Natural Gas Service	))))	Case No. GR-2009-0434

AFFIDAVIT OF THOMAS M. IMHOFF

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

Thomas M. Imhoff, employee of the Staff of the Missouri Public Service Commission, being of lawful age and after being duly sworn, states that he has participated in the preparation of the accompanying Staff Report on pages 1 – 6, and the facts therein are true and correct to the best of his knowledge and belief..

Thomas M. Imhoff

Thomas M. Imhoff

Subscribed and sworn to before me this 3rd day of November, 2009.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

SUSAN L. SUNDERMEYER
My Commission Expires
September 21, 2010
Callaway County
Commission #06942086

Susan L. Sundermeyer

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Empire District Gas Company and Its Tariff Filing to Implement a General Rate Increase for Natural Gas Service	))))	Case No. GR-2009-0434

AFFIDAVIT OF KIM COX

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Kim Cox, employee of the Staff of the Missouri Public Service Commission, being of lawful age and after being duly sworn, states that she has participated in the preparation of the accompanying Staff Report on pages 6-7, and the facts therein are true and correct to the best of her knowledge and belief..

Kim Cox
Kim Cox

Subscribed and sworn to before me this 3rd day of November, 2009.

NOTARY PUBLIC
NOTARY SEAL
STATE OF MISSOURI

SUSAN L. SUNDERMEYER
My Commission Expires
September 21, 2010
Callaway County
Commission #06942086

Susan L Sundermeyer
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Empire District Gas Company and Its Tariff Filing to Implement a General Rate Increase for Natural Gas Service	))))	Case No. GR-2009-0434

AFFIDAVIT OF DANIEL I. BECK

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

Daniel I. Beck, employee of the Staff of the Missouri Public Service Commission, being of lawful age and after being duly sworn, states that he has participated in the preparation of the accompanying Staff Report on pages 7-9, and the facts therein are true and correct to the best of his knowledge and belief..

Daniel I Beck
Daniel I. Beck

Subscribed and sworn to before me this 3rd day of November, 2009.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

SUSAN L. SUNDERMEYER
My Commission Expires
September 21, 2010
Callaway County
Commission #06942086

Susan L Sundermeyer
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Empire District Gas Company and Its Tariff Filing to Implement a General Rate Increase for Natural Gas Service	))))	Case No. GR-2009-0434

AFFIDAVIT OF ANNE E. ROSS

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

Anne E. Ross, employee of the Staff of the Missouri Public Service Commission, being of lawful age and after being duly sworn, states that she has participated in the preparation of the accompanying Staff Report on pages 9-19, and the facts therein are true and correct to the best of her knowledge and belief..

Anne E. Ross
Anne E. Ross

Subscribed and sworn to before me this 3rd day of November, 2009.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

SUSAN L. SUNDERMEYER
My Commission Expires
September 21, 2010
Callaway County
Commission #06942086

Susan L. Sundermeyer
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Empire District Gas Company and Its Tariff Filing to Implement a General Rate Increase for Natural Gas Service	))))	Case No. GR-2009-0434

AFFIDAVIT OF MICHAEL J. ENSRUD

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

Michael J. Ensrud, employee of the Staff of the Missouri Public Service Commission, being of lawful age and after being duly sworn, states that he has participated in the preparation of the accompanying Staff Report on pages 19-35, and the facts therein are true and correct to the best of his knowledge and belief..

Michael J. Ensrud
Michael J. Ensrud

Subscribed and sworn to before me this 3rd day of November, 2009.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

SUSAN L. SUNDERMEYER
My Commission Expires
September 21, 2010
Callaway County
Commission #06942086

Susan L. Sundermeyer
Notary Public

Thomas M. Imhoff

Present Position:

I am Rate & Tariff Examination Supervisor in the Energy Department, Operations Division of the Missouri Public Service Commission.

Educational Background and Experience:

I attended Southwest Missouri State University at Springfield, Missouri, from which I received a Bachelor of Science degree in Business Administration, with a major in Accounting, in May 1981. I began employment with the Commission in October, 1981. In May 1987, I successfully completed the Uniform Certified Public Accountant (CPA) examination and subsequently received the CPA certificate. I am currently licensed as a CPA in the State of Missouri. Schedule 1 is a listing of cases that I have filed testimony in.

Daniel I. Beck, P.E.
Supervisor of the Engineering Analysis Section of the Energy Department
Utility Operations Division

Missouri Public Service Commission
P.O. Box 360
Jefferson City, MO 65102

I graduated with a Bachelor of Science Degree in Industrial Engineering from the University of Missouri at Columbia. Upon graduation, I was employed by the Navy Plant Representative Office in St. Louis, Missouri as an Industrial Engineer. I began my employment at the Commission in November, 1987, in the Research and Planning Department of the Utility Division (later renamed the Economic Analysis Department of the Policy and Planning Division) where my duties consisted of weather normalization, load forecasting, integrated resource planning, cost-of-service and rate design. In December, 1997, I was transferred to the Tariffs/Rate Design Section of the Commission's Gas Department where my duties include weather normalization, annualization, tariff review, cost-of-service and rate design. Since June 2001, I have been in the Engineering Analysis Section of the Energy Department, which was created by combining the Gas and Electric Departments. I became the Supervisor of the Engineering Analysis Section, Energy Department, Utility Operations Division in November 2005.

I am a Registered Professional Engineer in the State of Missouri. My registration number is E-26953.

Anne E. Ross

EDUCATION

Bachelor of Science – Business Administration
University of Missouri, Columbia, MO – May 1986

Master of Science – Business Administration
University of Missouri, Columbia, MO – May 1989

PROFESSIONAL EXPERIENCE

Missouri Public Service Commission
Regulatory Economist II
September 1989 – Present

Member – Missouri Weatherization Policy Advisory Committee
2004 - Present

EMPIRE DISTRICT GAS COMPANY
CASE NO. GR-2009-0434

Summary of Cases in which prepared testimony was presented by:
THOMAS M. IMHOFF

Company Name	Case No.
Terre-Du-Lac Utilities	SR-82-69
Terre-Du-Lac Utilities	WR-82-70
Bowling Green Gas Company	GR-82-104
Atlas Mobilfone Inc.	TR-82-123
Missouri Edison Company	GR-82-197
Missouri Edison Company	ER-82-198
Great River Gas Company	GR-82-235
Citizens Electric Company	ER-83-61
General Telephone Company of the Midwest	TR-83-164
Missouri Telephone Company	TR-83-334
Mobilpage Inc.	TR-83-350
Union Electric Company	ER-84-168
Missouri-American Water Company	WR-85-16
Great River Gas Company	GR-85-136
Grand River Mutual Telephone Company	TR-85-242
ALLTEL Missouri, Inc.	TR-86-14
Continental Telephone Company	TR-86-55
General Telephone Company of the Midwest	TC-87-57
St. Joseph Light & Power Company	GR-88-115
St. Joseph Light & Power Company	HR-88-116
Camelot Utilities, Inc.	WA-89-1
GTE North Incorporated	TR-89-182
The Empire District Electric Company	ER-90-138
Capital Utilities, Inc.	SA-90-224
St. Joseph Light & Power Company	EA-90-252
Kansas City Power & Light Company	EA-90-252
Sho-Me Power Corporation	ER-91-298
St. Joseph Light & Power Company	EC-92-214
St. Joseph Light & Power Company	ER-93-41
St. Joseph Light & Power Company	GR-93-42
Citizens Telephone Company	TR-93-268
The Empire District Electric Company	ER-94-174
Missouri-American Water Company	WR-95-205
Missouri-American Water Company	SR-95-206
Union Electric Company	EM-96-149
The Empire District Electric Company	ER-97-81
Missouri Gas Energy	GR-98-140
Laclede Gas Company	GR-98-374
Laclede Gas Company	GR-99-315
Atmos Energy Corporation	GM-2000-312
Ameren UE	GR-2000-512
Missouri Gas Energy	GR-2001-292
Laclede Gas Company	GT-2001-329
Laclede Gas Company	GR-2001-629

Missouri Gas Energy	GT-2003-0033
Aquila Networks – L&P	GT-2003-0038
Aquila Networks – MPS	GT-2003-0039
Southern Missouri Gas Company, L.P.	GT-2003-0031
Fidelity Natural Gas, Inc.	GT-2003-0036
Atmos Energy Corporation	GT-2003-0037
Laclede Gas Company	GT-2003-0032
Union Electric Company d/b/a Ameren UE	GT-2003-0034
Laclede Gas Company	GT-2003-0117
Aquila Nerworks MPS & L&P	GR-2004-0072
Missouri Gas Energy	GR-2004-0209
Missouri Pipeline Company & Missouri Gas Company	GC-2006-0491
Atmos Energy Corporation	GR-2006-0387
Laclede Gas Company	GR-2007-0208
Missouri Gas Utility Company	GR-2008-0060
TriGen-Kansas City Energy Group	HR-2008-0300
Laclede Gas Company	GT-2009-0056
Missouri Gas Energy	GR-2009-0355

List of Cases in which prepared testimony was presented by:
DANIEL I. BECK

Company Name	Case No.
Union Electric Company	EO-87-175
The Empire District Electric Company	EO-91-74
Missouri Public Service	ER-93-37
St. Joseph Power & Light Company	ER-93-41
The Empire District Electric Company	ER-94-174
Union Electric Company	EM-96-149
Laclede Gas Company	GR-96-193
Missouri Gas Energy	GR-96-285
Kansas City Power & Light Company	ET-97-113
Associated Natural Gas Company	GR-97-272
Union Electric Company	GR-97-393
Missouri Gas Energy	GR-98-140
Missouri Gas Energy	GT-98-237
Ozark Natural Gas Company, Inc.	GA-98-227
Laclede Gas Company	GR-98-374
St. Joseph Power & Light Company	GR-99-246
Laclede Gas Company	GR-99-315
Utilicorp United Inc. & St. Joseph Light & Power Co.	EM-2000-292
Union Electric Company d/b/a AmerenUE	GR-2000-512
Missouri Gas Energy	GR-2001-292
Laclede Gas Company	GR-2001-629
Union Electric Company d/b/a AmerenUE	GT-2002-70
Laclede Gas Company	GR-2001-629
Laclede Gas Company	GR-2002-356
Union Electric Company d/b/a AmerenUE	GR-2003-0517
Missouri Gas Energy	GR-2004-0209
Atmos Energy Corporation	GR-2006-0387
Missouri Gas Energy	GR-2006-0422
Union Electric Company d/b/a AmerenUE	GR-2007-0003
The Empire District Electric Company	EO-2007-0029/EE-2007-0030
Laclede Gas Company	GR-2007-0208
The Empire District Electric Company	EO-2008-0043

Missouri Gas Utility, Inc.	GR-2008-0060
The Empire District Electric Company	ER-2008-0093
Union Electric Company d/b/a AmerenUE	ER-2008-0318
Kansas City Power & Light Company	ER-2009-0089
KCP&L Greater Missouri Operations Company	ER-2009-0090
Missouri Gas Energy	GR-2009-0355

Anne E. Ross

CASE PARTICIPATION

Case Number	Company Name	Testimony Issues
GR-90-50	Kansas Power and Light	Class Cost-of-Service
GR-90-120	Laclede Gas Company	Class Cost-of-Service
GR-90-152	Associated Natural Gas	Class Cost-of-Service
GR-90-198	Missouri Public Service	Class Cost-of-Service
GR-91-249	United Cities Gas Company	Class Cost-of-Service
GR-91-291	Kansas Power and Light	Class Cost-of-Service
GR-92-165	Laclede Gas Company	Class Cost-of-Service
GR-93-42	St. Joseph Light and Power	Class Cost-of-Service
GR-93-47	United Cities Gas Company	Class Cost-of-Service
GR-93-172	Missouri Public Service	Class Cost-of-Service
GR-93-240	Western Resources	Class Cost-of-Service
GR-94-0220	Laclede Gas Company	Class Cost-of-Service
GA-94-0127	Tartan Energy Company	Reviewed Application
GR-95-0160	United Cities Gas Company	Class Cost-of-Service
GR-96-0193	Laclede Gas Company	Class Cost-of-Service
GR-96-0285	Missouri Gas Energy	Class Cost-of-Service
GR-99-0042	St. Joseph Light and Power	Class Cost-of-Service
GR-2002-0356	Laclede Gas Company	Class Cost-of-Service, Large Customer Analysis
GR-2003-517	AmerenUE	Class Cost-of-Service, Large Customer Analysis, Low-Income Customer Assistance
GR-2004-0072	Aquila Networks	Class Cost-of-Service, Large Customer Analysis, Low-Income Customer Assistance
GR-2004-0209	Missouri Gas Energy	Class Cost-of-Service, Large Customer Analysis, Low-Income Customer Assistance
GR-2005-0284	Laclede Gas Company	Class Cost-of-Service, Large Customer Analysis, Low-Income Customer Assistance
GR-2006-0387	Atmos Energy Corporation	Large Customer Analysis, Rate Design, Customer Conservation Programs
GR-2006-0422	Missouri Gas Energy	Large Customer Analysis, Rate Design, Customer Conservation Programs
GR-2007-0003	AmerenUE	Large Customer Analysis, Rate Design, Customer Conservation Programs

Case Number	Company Name	Testimony Issues
GR-2007-0208	Laclede Gas Company	Large Customer Analysis, Rate Design, Low-Income Customer Assistance
GR-2008-0060	Missouri Gas Utilities	Rate Design, Low-Income Customer Assistance, Customer Conservation Programs
HR-2008-0030	Trigen – Kansas City	Large Customer Annualization
ER-2009-0089	Kansas City Power & Light Company	Low-Income Customer Assistance
ER-2009-0090	KCP&L Greater Missouri Operations Company	Low-Income Customer Assistance
GR-2009-0355	Missouri Gas Energy	Large Customer Annualization & Weather Normalization, Rate Design

Empire District Gas Company North South
TEST YEAR ENDED DECEMBER 31, 2008
CASE NO. GR-2009-0434
COST - OF - SERVICE RESULTS

	TOTAL	RESIDENTIAL	GENERAL SERVICE	INTERRUPTIBLE	SMALL VOLUME	LARGE VOLUME
RATE BASE	46,070,149	$28,182,312	$5,235,129	$1,052,508	$3,655,841	$7,944,358
REQUESTED RETURN	8.08%	8.08%	8.08%	8.08%	8.08%	8.08%
RETURN ON RATE BASE	3,724,771	2,278,540	423,260	85,095	295,575	642,301
O & M EXPENSES	9,187,078	6,474,439	954,087	118,534	611,286	1,008,732
DEPRECIATION EXPENSE	3,926,765	2,542,334	447,676	72,390	297,250	567,114
TAXES OTHER THAN INCOME	810,074	541,717	89,626	13,115	59,207	106,409
INCOME TAXES	1,253,648	766,889	142,457	28,641	99,482	216,180
TOTAL EXPENSES	15,157,565	10,325,379	1,633,845	232,680	1,067,225	1,898,435
TOTAL C-O-S	18,882,336	12,603,919	2,057,106	317,775	1,362,800	2,540,737
OTHER REVENUES	183,215	164,480	18,735	0	0	0
REQUIRED MARGIN REVENUE	18,699,121	12,439,439	2,038,370	317,775	1,362,800	2,540,737
CURRENT MARGIN REVENUES	16,252,100	10,365,849	2,174,381	296,078	1,771,762	1,844,030
ZERO REVENUE INCREASE PLUG	-2,447,021	-1,627,861	-266,747	-41,585	-178,340	-332,488
16,435,315						
C-O-S MARGIN REVENUES @ 0%	16,252,100	10,811,578	1,771,623	276,190	1,184,460	2,208,249
REVENUE ABOVE (BELOW) COS	$0	-$445,730	$402,759	$19,888	$587,302	-$564,218
PERCENTAGE INCREASE (DECREASE) @ 0% INCREASE	0.00%	4.30%	-18.52%	-6.72%	-33.15%	34.32%
CLASS SHARE OF COST-OF-SERVICE MARGIN REVENUES	100.00%	66.52%	10.90%	1.70%	7.28%	13.59%

The *Empire District Gas Company*
TEST YEAR ENDED DECEMBER 31, 2008, Updated through June 30, 2009
CASE NO. GR-2009-0434
COST - OF - SERVICE RESULTS - NW District

		TOTAL	RESIDENTIAL	GENERAL SERVICE	INTERRUPTIBLE	SMALL VOLUME	LARGE VOLUME
RATE BASE		5,202,869	$3,082,383	$662,321	$0	$488,509	$969,645
REQUESTED RETURN		8.09%	8.09%	8.09%	8.09%	8.09%	8.09%
RETURN ON RATE BASE		420,651	249,211	53,549	0	39,496	78,396
O & M EXPENSES		1,589,966	1,131,688	200,557	0	104,656	153,066
DEPRECIATION EXPENSE		411,304	259,782	57,316	0	35,217	58,989
TAXES OTHER THAN INCOME		351,352	233,278	45,718	0	27,222	45,134
INCOME TAXES		140,999	83,533	17,949	0	13,239	26,278
TOTAL EXPENSES		2,493,621	1,708,281	321,541	0	180,333	283,466
TOTAL C-O-S		2,914,272	1,957,492	375,090	0	219,829	361,862
OTHER REVENUES		21,457	17,554	2,675		710	518
REQUIRED MARGIN REVENUE		2,892,815	1,939,938	372,415	0	219,119	361,344
CURRENT MARGIN REVENUES		2,230,141	1,247,632	328,312	0	295,047	359,150
ZERO REVENUE INCREASE PLUG		-662,674	-444,393	-85,311	0	-50,195	-82,776
	2,251,598						
C-O-S MARGIN REVENUES @ 0%		2,230,141	1,495,545	287,103	0	168,924	278,569
REVENUE ABOVE (BELOW) COS		$0	-$247,913	$41,209	$0	$126,123	$80,581
PERCENTAGE INCREASE (DECREASE) @ 0% INCREASE		0.00%	19.87%	-12.55%	#DIV/0!	-42.75%	-22.44%
CLASS PERCENT OF C-O-S REVENUES		100.00%	67.06%	12.87%	0.00%	7.57%	12.49%

THE EMPIRE DISTRICT GAS COMPANY
CASE NO. GR-2009-0434
REGRESSION ANALYSIS OF BILLING MONTH USAGE

DISTRICT: ***NORTH*** ***CLASS: Residential***

Billing Month	Customer Numbers	Total Ccf	Observed (U/D)	Actual (C*HDD/D)	Observed (U/C/D)	Actual (HDD/D)	Predicted (U/C/D)
Jan	8,268	1,165,180	37,678	292,066	4.5571	35.3248	4.6222
Feb	8,251	1,245,681	42,325	314,961	5.1297	38.1724	4.9749
Mar	7,960	1,166,128	37,068	268,332	4.6568	33.7100	4.4221
Apr	8,313	736,396	23,435	165,881	2.8191	19.9545	2.7182
May	7,761	321,219	10,829	74,431	1.3954	9.5904	1.4344
Jun	6,960	122,403	3,946	13,468	0.5669	1.9351	0.4862
Jul	6,034	78,354	2,535	30	0.4201	0.0050	0.2471
Aug	5,848	69,410	2,315	0	0.3959	0.0000	0.2465
Sep	6,132	74,105	2,417	5,658	0.3941	0.9226	0.3608
Oct	6,715	94,767	3,256	20,246	0.4850	3.0151	0.6200
Nov	7,722	317,867	10,960	98,330	1.4193	12.7338	1.8238
Dec	8,087	851,560	27,261	222,461	3.3709	27.5084	3.6540
	7,338	6,243,070					

Regression Output:		
Constant		**0.246489222**
Std Err of Y Est		0.204158911
R Squared		0.989153054
No. of Observations		12
Degrees of Freedom		10
X Coefficient(s)	**0.123870**	
Std Err of Coef.	0.004101927	
"t" Statistic(s)	30.1979879	

Coincident Peak Day Demand Estimate				
MONTH	MAX HDD	**Ccf/C/D**	CUSTOMERS	Ccf/DAY
Jan	65.99	8.4206	8,268	69,621
Feb	62.57	7.9965	8,251	65,979
Mar	48.08	6.2026	7,960	49,372
Apr	31.17	4.1069	8,313	34,141
May	16.98	2.3504	7,761	18,241
Jun	5.66	0.9478	6,960	6,597
Jul	0.82	0.3486	6,034	2,104
Aug	1.73	0.4610	5,848	2,696
Sep	16.83	2.3306	6,132	14,292
Oct	28.57	3.7859	6,715	25,423
Nov	45.86	5.9268	7,722	45,766
Dec	66.63	8.5001	8,087	68,741
WINTER	66.63	**8.5001**	8,202	69,718

THE EMPIRE DISTRICT GAS COMPANY

CASE NO. GR-2009-0434

REGRESSION ANALYSIS OF BILLING MONTH USAGE

DISTRICT: ***NORTHWEST*** ***CLASS: Residential***

Billing Month	Customer Numbers	Total Ccf	Observed (U/D)	Actual (C*HDD/D)	Observed (U/C/D)	Actual (HDD/D)	Predicted (U/C/D)
Jan	4,880	748,018	25,947	210,345	5.3170	43.1034	4.9854
Feb	4,832	749,025	26,366	218,706	5.4566	45.2819	5.2300
Mar	4,601	643,752	21,949	190,383	4.7704	41.3787	4.7899
Apr	4,846	434,907	14,233	124,076	2.9371	25.6039	3.0020
May	4,584	202,273	7,105	67,443	1.5500	14.7128	1.7676
Jun	4,216	75,839	2,380	18,937	0.5646	4.4916	0.6091
Jul	3,600	44,680	1,464	448	0.4067	0.1243	0.1141
Aug	3,502	42,048	1,354	100	0.3866	0.0285	0.1032
Sep	3,633	46,514	1,544	6,486	0.4249	1.7853	0.3024
Oct	3,929	62,918	2,047	19,132	0.5211	4.8694	0.6519
Nov	4,570	215,220	7,134	78,088	1.5610	17.0871	2.0367
Dec	4,710	520,290	16,936	157,886	3.5957	33.5214	3.8994
	4,325	3,785,484					

Regression Output:		
Constant		**0.100017490**
Std Err of Y Est		0.270491519
R Squared		0.983848587
No. of Observations		12
Degrees of Freedom		10
X Coefficient(s)	**0.113341**	
Std Err of Coef.	0.004592259	
"t" Statistic(s)	24.6807795	

Coincident Peak Day Demand Estimate				
MONTH	MAX HDD	**Ccf/C/D**	CUSTOMERS	Ccf/DAY
Jan	69.78	8.0084	4,880	39,081
Feb	67.93	7.7996	4,832	37,688
Mar	52.56	6.0567	4,601	27,867
Apr	34.82	4.0463	4,846	19,609
May	19.99	2.3662	4,584	10,847
Jun	8.09	1.0165	4,216	4,286
Jul	1.81	0.3055	3,600	1,100
Aug	4.21	0.5772	3,502	2,021
Sep	20.07	2.3748	3,633	8,628
Oct	32.07	3.7349	3,929	14,674
Nov	50.09	5.7768	4,570	26,400
Dec	70.60	8.1021	4,710	38,161
WINTER	70.60	**8.1021**	4,807	38,949

THE EMPIRE DISTRICT GAS COMPANY
CASE NO. GR-2009-0434
REGRESSION ANALYSIS OF BILLING MONTH USAGE

DISTRICT: ***SOUTH*** ***CLASS: Residential***

Billing Month	Customer Numbers	Total Ccf	Observed (U/D)	Actual (C*HDD/D)	Observed (U/C/D)	Actual (HDD/D)	Predicted (U/C/D)
Jan	25,798	3,311,594	107,808	911,962	4.1789	35.3501	4.2314
Feb	25,783	3,746,317	120,098	986,322	4.6580	38.2547	4.5515
Mar	24,914	3,183,764	107,039	855,529	4.2963	34.3393	4.1200
Apr	25,899	2,132,310	70,185	536,871	2.7100	20.7294	2.6199
May	24,405	1,085,249	35,361	246,120	1.4489	10.0848	1.4467
Jun	23,353	489,247	14,914	48,640	0.6386	2.0828	0.5647
Jul	22,036	309,221	10,629	21	0.4823	0.0009	0.3353
Aug	21,855	306,425	9,865	0	0.4514	0.0000	0.3352
Sep	22,102	314,557	10,180	20,824	0.4606	0.9422	0.4390
Oct	22,631	377,805	12,503	70,304	0.5525	3.1065	0.6776
Nov	24,490	989,720	34,522	320,693	1.4096	13.0949	1.7785
Dec	25,234	2,378,635	79,713	689,407	3.1589	27.3206	3.3464
	24,042	18,624,844					

Regression Output:		
Constant		**0.335178454**
Std Err of Y Est		0.167687240
R Squared		0.990807408
No. of Observations		12
Degrees of Freedom		10
X Coefficient(s)	**0.110217**	
Std Err of Coef.	0.003357180	
"t" Statistic(s)	32.8303580	

Coincident Peak Day Demand Estimate				
MONTH	MAX HDD	**Ccf/C/D**	CUSTOMERS	Ccf/DAY
Jan	65.99	7.6083	25,798	196,280
Feb	62.57	7.2310	25,783	186,437
Mar	48.08	5.6348	24,914	140,385
Apr	31.17	3.7701	25,899	97,642
May	16.98	2.2072	24,405	53,866
Jun	5.66	0.9592	23,353	22,401
Jul	0.82	0.4260	22,036	9,388
Aug	1.73	0.5261	21,855	11,497
Sep	16.83	2.1896	22,102	48,395
Oct	28.57	3.4845	22,631	78,858
Nov	45.86	5.3894	24,490	131,986
Dec	66.63	7.6791	25,234	193,775
WINTER	66.63	**7.6791**	25,605	196,624

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THE EMPIRE DISTRICT GAS COMPANY

CASE NO. GR-2009-0434

REGRESSION ANALYSIS OF BILLING MONTH USAGE

DISTRICT: ***NORTHWEST*** ***CLASS: SCF***

Billing Month	Customer Numbers	Total Ccf	Observed (U/D)	Actual (C*HDD/D)	Observed (U/C/D)	Actual (HDD/D)	Predicted (U/C/D)
Jan	671	224,210	7,747	29,032	11.5455	43.2672	10.1320
Feb	657	210,197	7,426	29,606	11.3031	45.0621	10.5445
Mar	643	175,414	5,908	26,435	9.1885	41.1120	9.6366
Apr	670	106,967	3,492	17,296	5.2115	25.8145	6.1203
May	626	46,629	1,660	9,394	2.6514	15.0059	3.6358
Jun	530	23,522	732	2,666	1.3803	5.0309	1.3430
Jul	434	14,799	484	53	1.1149	0.1211	0.2144
Aug	416	11,767	380	15	0.9139	0.0369	0.1950
Sep	421	12,725	427	628	1.0149	1.4907	0.5292
Oct	486	15,815	511	2,405	1.0519	4.9481	1.3239
Nov	621	55,533	1,835	10,455	2.9548	16.8352	4.0563
Dec	658	144,209	4,735	21,780	7.1955	33.1009	7.7951
	569	1,041,787					

Regression Output:		
Constant		**0.186565706**
Std Err of Y Est		0.882100292
R Squared		0.958911854
No. of Observations		12
Degrees of Freedom		10
X Coefficient(s)	**0.229860**	
Std Err of Coef.	0.015046378	
"t" Statistic(s)	15.2767535	

Coincident Peak Day Demand Estimate				
MONTH	MAX HDD	**Ccf/C/D**	CUSTOMERS	Ccf/DAY
Jan	69.78	16.2252	671	10,887
Feb	67.93	15.8016	657	10,382
Mar	52.56	12.2671	643	7,888
Apr	34.82	8.1899	670	5,487
May	19.99	4.7824	626	2,994
Jun	8.09	2.0452	530	1,084
Jul	1.81	0.6034	434	262
Aug	4.21	1.1544	416	480
Sep	20.07	4.8000	421	2,021
Oct	32.07	7.5583	486	3,673
Nov	50.09	11.6994	621	7,265
Dec	70.60	16.4151	658	10,801
WINTER	70.60	**16.4151**	662	10,867

THE EMPIRE DISTRICT GAS COMPANY
CASE NO. GR-2009-0434
REGRESSION ANALYSIS OF BILLING MONTH USAGE

DISTRICT: ***SOUTH*** ***CLASS: SCF***

Billing Month	Customer Numbers	Total Ccf	Observed (U/D)	Actual (C*HDD/D)	Observed (U/C/D)	Actual (HDD/D)	Predicted (U/C/D)
Jan	2,846	738,428	24,249	100,890	8.5205	35.4496	8.4760
Feb	2,865	876,058	27,783	108,853	9.6973	37.9939	9.0362
Mar	2,759	722,018	24,584	95,298	8.9106	34.5407	8.2758
Apr	2,863	440,206	14,306	59,847	4.9967	20.9037	5.2731
May	2,675	200,130	6,560	27,842	2.4525	10.4084	2.9622
Jun	2,130	87,119	2,680	5,153	1.2581	2.4190	1.2031
Jul	1,682	61,345	2,133	4	1.2681	0.0022	0.6709
Aug	1,641	62,875	2,018	0	1.2300	0.0000	0.6704
Sep	1,662	64,628	2,074	1,441	1.2480	0.8671	0.8614
Oct	1,818	71,049	2,349	5,810	1.2921	3.1960	1.3741
Nov	2,591	164,118	5,769	33,488	2.2266	12.9249	3.5163
Dec	2,787	493,373	16,255	75,220	5.8324	26.9897	6.6132
	2,360	3,981,347					

Regression Output:		
Constant		**0.670420434**
Std Err of Y Est		0.654218431
R Squared		0.965591119
No. of Observations		12
Degrees of Freedom		10
X Coefficient(s)	**0.220188**	
Std Err of Coef.	0.013144121	
"t" Statistic(s)	16.7517952	

Coincident Peak Day Demand Estimate				
MONTH	MAX HDD	**Ccf/C/D**	CUSTOMERS	Ccf/DAY
Jan	65.99	15.2004	2,846	43,260
Feb	62.57	14.4466	2,865	41,390
Mar	48.08	11.2578	2,759	31,060
Apr	31.17	7.5326	2,863	21,566
May	16.98	4.4102	2,675	11,797
Jun	5.66	1.9171	2,130	4,083
Jul	0.82	0.8519	1,682	1,433
Aug	1.73	1.0518	1,641	1,726
Sep	16.83	4.3752	1,662	7,272
Oct	28.57	6.9621	1,818	12,657
Nov	45.86	10.7675	2,591	27,899
Dec	66.63	15.3419	2,787	42,758
WINTER	66.63	**15.3419**	2,833	43,458

THE EMPIRE DISTRICT GAS COMPANY
CASE NO. GR-2009-0434
REGRESSION ANALYSIS OF BILLING MONTH USAGE

DISTRICT: NORTH **CLASS: SVF**

Billing Month	Customer Numbers	Total Ccf	Observed (U/D)	Actual (C*HDD/D)	Observed (U/C/D)	Actual (HDD/D)	Predicted (U/C/D)
Jan	82	154,574	5,028	2,881	61.3143	35.1391	64.9545
Feb	82	172,634	5,792	3,188	70.6328	38.8738	70.4326
Mar	86	171,366	5,495	2,851	63.8975	33.1524	62.0404
Apr	83	100,427	3,134	1,627	37.7639	19.6024	42.1651
May	81	52,770	1,812	736	22.3711	9.0910	26.7469
Jun	77	31,285	1,010	127	13.1161	1.6499	15.8322
Jul	70	32,851	1,037	0	14.8156	0.0021	13.4152
Aug	68	26,463	894	0	13.1440	0.0000	13.4121
Sep	71	31,358	1,031	76	14.5244	1.0731	14.9862
Oct	74	46,160	1,592	230	21.5105	3.1138	17.9795
Nov	78	86,477	2,965	1,048	38.0103	13.4367	33.1211
Dec	82	151,191	4,834	2,323	58.9526	28.3303	54.9673
	78	1,057,556					

Regression Output:		
Constant		**13.412122623**
Std Err of Y Est		3.422520115
R Squared		0.978717605
No. of Observations		12
Degrees of Freedom		10
X Coefficient(s)	**1.466810**	
Std Err of Coef.	0.068399900	
"t" Statistic(s)	21.4446246	

Coincident Peak Day Demand Estimate				
MONTH	MAX HDD	**Ccf/C/D**	CUSTOMERS	Ccf/DAY
Jan	65.99	110.2057	82	9,037
Feb	62.57	105.1840	82	8,625
Mar	48.08	83.9411	86	7,219
Apr	31.17	59.1253	83	4,907
May	16.98	38.3251	81	3,104
Jun	5.66	21.7170	77	1,672
Jul	0.82	14.6214	70	1,023
Aug	1.73	15.9526	68	1,085
Sep	16.83	38.0917	71	2,705
Oct	28.57	55.3247	74	4,094
Nov	45.86	80.6751	78	6,293
Dec	66.63	111.1481	82	9,114
WINTER	66.63	**111.1481**	82	9,114

THE EMPIRE DISTRICT GAS COMPANY
CASE NO. GR-2009-0434
REGRESSION ANALYSIS OF BILLING MONTH USAGE

DISTRICT: *NORTHWEST* *CLASS: SVF*

Billing Month	Customer Numbers	Total Ccf	Observed (U/D)	Actual (C*HDD/D)	Observed (U/C/D)	Actual (HDD/D)	Predicted (U/C/D)
Jan	60	119,846	4,120	2,680	68.6750	44.6594	66.9073
Feb	56	105,656	3,934	2,517	70.2426	44.9376	67.2512
Mar	51	92,578	3,047	1,949	59.7368	38.2178	58.9480
Apr	61	71,472	2,351	1,421	38.5478	23.2959	40.5100
May	56	35,726	1,270	689	22.6823	12.3095	26.9349
Jun	52	24,733	784	146	15.0675	2.8012	15.1861
Jul	48	22,586	717	5	14.9462	0.0987	11.8468
Aug	48	23,275	765	1	15.9332	0.0137	11.7417
Sep	49	22,388	762	119	15.5429	2.4371	14.7362
Oct	58	29,961	941	338	16.2254	5.8228	18.9197
Nov	58	58,907	1,959	1,137	33.7685	19.6023	35.9460
Dec	60	100,004	3,263	2,190	54.3882	36.5026	56.8286
	55	707,132					

Regression Output:		
Constant		11.724835018
Std Err of Y Est		2.835932489
R Squared		0.985164105
No. of Observations		12
Degrees of Freedom		10
X Coefficient(s)	1.235631	
Std Err of Coef.	0.047950322	
"t" Statistic(s)	25.7689912	

Coincident Peak Day Demand Estimate				
MONTH	MAX HDD	Ccf/C/D	CUSTOMERS	Ccf/DAY
Jan	69.78	97.9420	60	5,877
Feb	67.93	95.6650	56	5,357
Mar	52.56	76.6646	51	3,910
Apr	34.82	54.7475	61	3,340
May	19.99	36.4304	56	2,040
Jun	8.09	21.7163	52	1,129
Jul	1.81	13.9653	48	670
Aug	4.21	16.9274	48	813
Sep	20.07	36.5246	49	1,790
Oct	32.07	51.3521	58	2,978
Nov	50.09	73.6130	58	4,270
Dec	70.60	98.9629	60	5,938
WINTER	70.60	**98.9629**	59	5,806

THE EMPIRE DISTRICT GAS COMPANY
CASE NO. GR-2009-0434
REGRESSION ANALYSIS OF BILLING MONTH USAGE

DISTRICT: ***SOUTH*** ***CLASS: SVF***

Billing Month	Customer Numbers	Total Ccf	Observed (U/D)	Actual (C*HDD/D)	Observed (U/C/D)	Actual (HDD/D)	Predicted (U/C/D)
Jan	315	561,022	18,566	11,195	58.9409	35.5404	57.8282
Feb	322	623,764	19,791	12,188	61.4638	37.8523	60.7046
Mar	306	543,887	18,442	10,636	60.2692	34.7566	56.8529
Apr	330	412,271	13,420	6,971	40.6670	21.1254	39.8931
May	311	249,295	8,149	3,311	26.2011	10.6475	26.8564
Jun	318	151,089	4,721	771	14.8471	2.4239	16.6246
Jul	309	126,139	4,375	0	14.1600	0.0012	13.6103
Aug	282	123,697	3,958	0	14.0370	0.0000	13.6088
Sep	285	127,963	4,091	208	14.3541	0.7312	14.5186
Oct	300	220,314	7,173	924	23.9098	3.0812	17.4424
Nov	312	211,517	7,403	3,941	23.7280	12.6328	29.3265
Dec	319	391,485	13,196	8,478	41.3652	26.5776	46.6766
	309	3,742,443					

Regression Output:		
Constant		**13.608819041**
Std Err of Y Est		3.457843260
R Squared		0.969819288
No. of Observations		12
Degrees of Freedom		10
X Coefficient(s)	**1.244199**	
Std Err of Coef.	0.069407944	
"t" Statistic(s)	17.9258876	

Coincident Peak Day Demand Estimate				
MONTH	MAX HDD	**Ccf/C/D**	CUSTOMERS	Ccf/DAY
Jan	65.99	95.7124	315	30,149
Feb	62.57	91.4529	322	29,448
Mar	48.08	73.4340	306	22,471
Apr	31.17	52.3843	330	17,287
May	16.98	34.7409	311	10,804
Jun	5.66	20.6533	318	6,568
Jul	0.82	14.6345	309	4,522
Aug	1.73	15.7638	282	4,445
Sep	16.83	34.5429	285	9,845
Oct	28.57	49.1605	300	14,748
Nov	45.86	70.6636	312	22,047
Dec	66.63	96.5118	319	30,787
WINTER	66.63	**96.5118**	319	30,755

THE EMPIRE DISTRICT GAS COMPANY
Case No. GR-2009-0434
WEATHER and DAYS NORMALIZATION

DISTRICT: ALL ***CLASS : SVF***

Normalized Sales per Customer

Billing Month	Ccf Actual	Ccf Adjustment	Ccf Normal	Customers	Normal Usage per Customer
Jan	835,442	-2,466	832,976	457	**1822.7039**
Feb	902,054	-26,883	875,171	460	**1902.5449**
Mar	807,831	-109,661	698,170	443	**1576.0050**
Apr	584,170	-52,542	531,628	474	**1121.5788**
May	337,791	-30,179	307,612	448	**686.6345**
Jun	207,107	-2,167	204,940	447	**458.4786**
Jul	181,576	3,456	185,032	427	**433.3308**
Aug	173,435	1,053	174,488	398	**438.4112**
Sep	181,709	-7,943	173,766	405	**429.0509**
Oct	296,435	20,523	316,958	432	**733.6984**
Nov	356,901	-8,925	347,976	448	**776.7320**
Dec	642,680	-39,822	602,858	461	**1307.7175**
	5,507,131	-255,557	5,251,574	442	11890.3562
		-4.64%			

Billing Month	DAYS Adjustment	HDD Adjustment	SUMMED Adjustment
Jan	0	-2,466	-2,466
Feb	0	-26,883	-26,883
Mar	0	-109,661	-109,661
Apr	0	-52,542	-52,542
May	0	-30,179	-30,179
Jun	-231	-1,936	-2,167
Jul	1,338	2,119	3,456
Aug	592	461	1,053
Sep	-231	-7,713	-7,943
Oct	0	20,523	20,523
Nov	0	-8,925	-8,925
Dec	0	-39,822	-39,822
	1,467	-257,024	-255,557
	0.03%	-4.67%	-4.64%