BEFORE THE
TENNESSEE REGULATORY AUTHORITY

PREPARED DIRECT TESTIMONY
OF
DAVID A. HEINTZ

IN RE:
CHATTANOOGA GAS COMPANY
DOCKET NO. 06-00175

I. Introduction

Q. Please state your name and business address.

A. My name is David A. Heintz. My business address is 313 Boston Post Road West, Suite 210, Marlborough, Massachusetts 01752.

Q. By whom are you employed and in what capacity?

A. I am an Assistant Vice President at Concentric Energy Advisors ("CEA"), a management consulting firm.

Q. What has been the nature of your work in the utility consulting field?

A. I have over twenty-five (25) years of experience in the utility industry, the last eight years of which have been as a consultant. I have provided studies, advice, and expert testimony to numerous clients in the regulated utility sector in matters pertaining to costing and pricing, cost-of-service studies, tariff development, and regulatory planning. Further background information summarizing my education and work experience is included in Appendix A to my testimony.

Q. Have you testified previously before the Tennessee Regulatory Authority ("TRA") or other utility regulatory commissions?

A. I have not previously testified before the TRA, but I have previously testified as an expert on utility ratemaking and regulatory issues before the regulatory commissions in several other jurisdictions as listed in Appendix A.

II. Purpose of Testimony

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

A. I am sponsoring the class cost-of-service study relied on by Chattanooga Gas Company ("CGC" or "the Company") in this proceeding as one tool in the design of proposed rates.

III. List of Exhibits Sponsored in Testimony

Q. What Exhibits are you sponsoring in the proceeding?

A. I am sponsoring the following Exhibits:

DAH-1: Class Cost of Service Summary
DAH-2: Minimum System Study
DAH-3: Allocation Factors
DAH-4: Account Detail

IV. Cost-of-Service Study Principles

Q. What is the purpose of a Cost-of-Service Study ("COSS")?

A. A COSS provides a measure of the cost responsibility of the various rate classes based on cost-causation principles. An allocated study is necessary to develop the cost responsibility for individual rate classes, because many of the costs are common and are incurred to serve all classes of customers. Identification of the costs caused by each rate class provides a guide for allocating the base-revenue

requirement to the various classes and for designing rates to achieve the assigned base-revenue responsibility.

Q. Please describe the process used in performing a COSS.

A. A COSS is generally described as a three-step process. The first step is functionalization where the plant investment costs and operating expenses are categorized by the operational functions with which they are associated, *e.g.* gathering, storage, transmission, distribution, and customer service. Generally, a company's system of accounts provides the data in a fashion which facilitates this step.

The second step is classification where the functional cost elements are classified by the factor of utilization most closely matching cost causation, *e.g.* customer, demand, and commodity.

Customer costs are a function of the number of customers served and continue to be incurred whether or not the customer has consumption. Customer costs may include capital costs associated with minimum size distribution mains, services, meters, regulators as well as customer service and accounting expenses.

Demand costs are those that are incurred due to the customer's peak load requirements such as distribution mains, or more localized distribution facilities which are designed to satisfy individual customer maximum demands. Demand costs vary with the quantity or size of the plant and are fixed in nature and do not vary with the number of customers or the amount of commodity that customers receive.

Commodity costs are those that vary in relation to the volume or quantity of gas used by the customer. Costs related to gas supply are classified as commodity-related to the extent they vary with the amount of gas purchased by the company for its sales service customers.

The final step in a COSS is the allocation of the functionalized and classified costs to the various rate classes. This is accomplished through direct assignment, the use of external allocation factors, and internal factors. Direct assignment relates to the specific identification and isolation of plant and/or expenses that are

incurred exclusively to serve a specific customer or group of customers. Direct assignment best reflects the cost causative characteristics of serving individual customers or groups of customers and is done on the basis of special studies whenever the necessary data is available. External allocation factors, *e.g.* volumes, number of customers, or peak usage, are developed from the company's records. Internal factors are developed from previously allocated costs, *e.g.* using allocated plant costs to allocate depreciation expenses.

V. Class Cost of Service Study

Q. Please explain how you developed the class Cost-of-Service Study.

A. The class COSS is a Microsoft Excel© based model using data from the Company's books and records and its exhibits in this filing, for the historical period, *i.e.* the twelve months ending December 31, 2005, as adjusted for the "Attrition Period", the twelve months ending December 31, 2007. A summary of the results of the COSS are shown in Exhibit DAH-1 and are explained more fully below. This COSS analyzes the costs associated with two functions; storage and distribution, reflecting the major operational functions of the Company. Costs were classified as demand, customer, or commodity.

Q. What rate classes were used in the development of the COSS?

A. The COSS shows the allocation of costs to five firm rate schedules:

R-1	Residential
R-4	Multi-Family
C-1	C&I General
C-2/T-3	Large C&I General
I-1/T-2	Large Volume Firm

The C-2 rate class, Large C&I General, is a new rate schedule. The need for this new rate class is explained in the testimony of Company Witness Daniel Nikolich.

Q. How have you treated the Interruptible Customers?

A. The interruptible customers have not been assigned costs because of the nature of their service, i.e. that it can be interrupted by the company when necessary. The base revenue received from the interruptible customers is treated as a revenue credit and allocated to the firm rate classes. This costing treatment is consistent with the Company's present and proposed base revenue sharing arrangement.

Q. How was the Company's storage plant investment treated in the COSS?

A. The Company's storage plant investment represents the Company's investment in LNG facilities which are used to meet the peak demands on the system. Therefore, these costs were classified as demand related and allocated on peak demand basis.

Q. How was the Company's distribution plant investment classified?

A. Investment in accounts 380 (services), 381 (meters), 382 (meter installation), 383 (house regulators), 385 (industrial measuring & regulation), and 386 (property on customer premises) were classified as customer-related costs. Investment in accounts 375 (structures and improvements), 377 (compressor station equipment), 378 (general measuring and regulating equipment), and 379 (city gate measuring and regulating equipment) were classified as demand. With the exception of account 376 (distribution mains) the remaining distribution plant investment was classified on an internal factor based on the directly classified plant.

Q. How were the costs of Distribution Mains treated in the COSS?

A. It is widely accepted that distribution mains (Account 376) are installed to meet both system peak load requirements and to connect customers to the Company's system. There are two cost factors that influence the level of distribution mains installed by a company in expanding its gas distribution system. First, the size of the main (i.e. the diameter) is directly influenced by the sum of the peak period gas demands of the system customers. Second, the total installed footage of distribution mains is influenced by the need to expand the distribution system grid

to connect new customers to the system. Therefore, to ensure that the rate classes that cause the incurrence of this plant investment or expense are charged with its cost, distribution mains should be allocated to the rate classes on both the basis of peak-load requirements and the number of customers within each of the classes of service.

Q. What methods are used to determine the customer-cost component of distribution mains?

A. The two most commonly used methods for determining the customer-cost component are the zero-intercept method and the minimum-system method. Under the zero-intercept method, a customer-cost component is developed through regression analysis of the unit costs and diameters of the various sized distribution mains to determine the unit cost associated with a zero inch diameter distribution main.

The minimum-system method, which is used in the COSS presented here, determines the customer-cost component based on the costs associated with installing a system consisting of the smallest practical size pipe.

The Company provided a listing of installed distribution mains by size (diameter), material type, and footage. This information was analyzed to determine the smallest commonly installed size pipe. The current installed cost for this pipe type was applied to the total installed distribution main footage to compute a minimum-system cost. A system-replacement cost was determined for each pipe type and size using current installed costs, or the best available information. The ratio of the minimum-system cost to the system-replacement cost is the customer component of distribution mains. This analysis yielded a customer component of 35.8% and is attached as Exhibit DAH-2.

Q. Please describe the allocation process used in the COSS.

A. The allocation process started with the allocation of the rate base plant accounts. As explained above, the plant accounts were designated as either demand-related or customer-related. Demand-related investment generally was allocated using a

peak-demand-allocation factor made up of Dedicated Design Day Capacity ("DDDC") and contract demands. DDDC values were calculated for the Residential (R-1), Multi-Family (R-4), C&I General (C-1), and Large C&I General (C-2) classes. Contract demand values were used for the Industrial sales and transport (I1/T2, I1/T2 & T1) and the large C&I transportation class (T-3).

Q. What is the DDDC?

A. The DDDC is a measure of a customer's demand under design day conditions and is calculated individually for each customer and summed to the rate class level. The process of calculating the DDDC is explained more fully in the testimony of Company Witness Philip Buchanan.

Q. Why were contract demands used for the Industrial rate classes rather than DDDC's?

A. For the industrial customers the measure of the Company's responsibility to serve is the customer's contract demand. The Company has no obligation to meet the customer's demand beyond this level and it therefore is the appropriate demand allocation factor.

Q. Were there any demand related rate base items that were not allocated on the basis of DDDC's?

A. Yes. CGC purchases underground storage service which enables CGC to serve its customers during the winter heating season. Included as part of rate base is the 13-month average of the balances CGC maintains in storage. Because these amounts relate to the customers' winter season demands, they have been allocated on the customers' winter season (November to March) volumes.

Two minor items, CGC's deferred rate case expense and accounts receivable, were allocated on the basis of firm base revenue.

Q. How were the customer related plant accounts allocated?

A. Customer-related plant accounts were allocated based on the number of customers, weighted and unweighted, or on the basis of special studies.

Q. What special studies were performed?

A. Special studies were performed to analyze the costs related to meters and services. For meters, the Company provided data showing the number of meters and type by rate class and a current unit cost. Using this information, an average meter cost was determined for each rate class and a factor developed based on the average meter cost for each rate class to the average residential meter cost. This factor was used to weight the number of customers in each rate class to develop the allocation factor for meters and meter related costs.

A similar process was followed to develop the service-cost allocation factor. For services, the Company provided the current cost of services based type of material and length for each rate class. For the Commercial class, the cost, type, and length were based on a review of actual installations during the past two years. For the multi-family and large-volume classes, these costs were based on actual installation costs.

Special studies also were performed to determine the proper allocation of Contributions in Aid of Construction (CIAC), customer deposits, and the uncollectible reserve.

Q. Did the meter and service studies show any cost differential between the small and large C&I customers?

A. Yes. As noted above, in this case the CGC is proposing to split the existing C&I class into a small (C-1) class and a large (C-2) class. The results of the meter and service studies show that there are clear differences in the costs incurred for small and large customers. The meter study showed that the average cost for a C-1 customer is $78, whereas the cost for a C-2 customer is $760. The meter cost for a C-1 customer is more comparable to that of a residential customer ($56) than it is to a C-2 customer.

Similarly, the services study showed that the average cost for a C-1 customer is $671 compared to $3,756 for a C-2 customer. Again, the C-1 cost is more comparable to that of a residential customer ($322) than a C-2 customer. The results of these studies support CGC's proposal to separate the C&I General rate class into two separate classes.

Q. How were the remaining rate base accounts allocated?

A. The remaining rate base accounts were allocated on the basis of internal factors developed from the directly allocated costs. For example, distribution land and land rights and other property were allocated on the basis of the directly assigned distribution plant and general plant was allocated on the basis of the directly assigned storage distribution plant. A complete listing of the external and internal allocation factors used in the COSS is shown in Exhibit DAH-3.

Q. How were the expense accounts allocated?

A. In general, the allocation of the expense accounts followed the allocation of the plant accounts to which they relate. For example, Account 874, Mains and Services expenses, was allocated on an internal factor which combined the allocated mains (Account 376) and services (Account 380). Similarly, Account 878, Meter and House Regulator expense, was allocated on an internal factor which combined the allocated meters (Account 381) and house regulator (Account 383). Supervisory and miscellaneous expenses were allocated on internal factors reflecting the directly allocated costs.

Uncollectible expenses were allocated to the residential and small commercial classes based on information supplied by CGC. The costs associated with the proposed conservation program have been allocated to the residential (R-1) and small C&I class (C-1) based planned spending levels proposed in the case and supported by Company Witness Daniel Nikolich.

Q. How were Administrative & General ("A&G") expenses allocated?

A. A&G expenses were allocated on internally generated plant, labor, and O&M expenses, except for Regulatory Commission Expenses (Account 928). Regulatory Commission Expenses relate to the amortization of deferred rate-case expenses from the previous rate case and were allocated on the basis of revenue.

Q. How was depreciation expense allocated?

A. Depreciation expense was allocated on internally generated factors based on the related plant. For example, storage depreciation expense was allocated based on the treatment of total storage plant.

Q. How were taxes other than income taxes allocated?

A. These taxes were allocated based on the nature of the tax. Payroll taxes were allocated on a labor basis, property taxes were allocated on a plant basis, and gross receipts taxes were allocated on a total-revenue basis. The net worth and franchise taxes were allocated on rate base.

Q. How were the Company's interruptible rate classes accounted for in the COSS?

A. As noted above, instead of allocating costs to interruptible service, the base revenue from these services was treated as a credit to the costs of service. The base revenue first was allocated between I-1 and the other classes on the basis of demand. The overall base revenue was allocated to the other classes (R-1, R-4, C-1 and C-2) and then was allocated on the basis of throughput.

Q. Have you prepared a summary of the results of the cost of service study?

A. Yes. Exhibit DAH-1 consists of five pages of summary output from the model. Page 1 of this exhibit shows the earned return for the Company as a whole and by rate class under existing rates.

Exhibit DAH-1, page 2, shows the distribution of the overall base-revenue requirement at equalized rates of return and the resulting base-revenue deficiency by rate class. The overall base-revenue deficiency of $5.8 million has been

distributed to the various rate classes as explained in the testimony of Company Witness Daniel Nikolich.

Page 3 of this exhibit shows the functionalized rate base and page 4 shows the functionalized base-revenue requirement. Page 5 is a unit-cost analysis by rate class and classification, i.e. demand, customer, and commodity. This unit cost analysis is used as a guide for the determination of the proposed rates.

Q. Please discuss the results of the COSS.

A. These results at current rates are summarized in Table 1 below. Overall, at the current base revenue, the Company is earning an overall return of 5.37% on its rate base. The residential (R-1) and C&I General (C-1) classes are earning less than the overall rate of return, 2.09% and 4.59%, respectively, while the other rate classes are currently earning above the system average rate of return. This would suggest that at current rates the residential and small C&I class are being subsidized by the other rate classes and should receive a larger share of the base-revenue increase.

Table 1 – Summary of Cost of Service Results at Current Rates

RATE SCHEDULE	RATE BASE	OPERATING INCOME	RATE OF RETURN
Residential (R-1)	$63,446,291	$1,317,299	2.09%
Multi-Family (R-4)	$98,798	$10,464	10.66%
C&I General (C-1)	$12,485,618	$569,418	4.59%
Large C&I General (C-2)	$25,966,209	$3,297,943	12.49%
Large Volume Firm (I-1)	$6,239,236	$615,974	9.88%
Total	$108,236,153	$5,811,098	5.37%

Q. What is the return by class at proposed rates?

A. The returns by class at proposed rates are shown on Exhibit DAH-1, page 2 and in Table 2 below. Based on the proposed distribution of the base-revenue deficiency, the returns for the Residential and C&I General class have increased

but are still below the overall company return of 8.64%. As more fully explained by Company Witness Daniel Nikolich, it was not possible to move both of these classes to the full rate of return without unacceptable impacts on the customers. Consequently, the other classes (R-4, C-2 and I-1) will continue to subsidize the R-1 and C-1 classes.

Table 2 – Summary of Cost of Service Results at Proposed Rates

RATE SCHEDULE	RATE BASE	OPERATING INCOME	RATE OF RETURN
Residential (R-1)	$63,446,291	$3,423,507	5.43%
Multi-Family (R-4)	$98,798	$9,660	9.84%
C&I General (C-1)	$12,485,618	$1,059,196	8.54%
Large C&I General (C-2)	$25,966,209	$4,219,717	15.99%
Large Volume Firm (I-1)	$6,239,236	$634,978	10.19%
Total	$108,236,153	$9,347,058	8.64%

Q. Please explain Exhibit DAH-4.

A. Exhibit DAH-4 provides an account-level detail of the classification and allocation of costs to various rate schedules.

Q. Does this complete your testimony at this time?

A. Yes.

David A. Heintz
Assistant Vice President

Mr. Heintz is an Assistant Vice President who has over 20 years of experience working with regulated rates and tariffs at both the federal and state levels. He also provides clients with analyses of natural gas projects, markets and issues. Mr. Heintz's areas of expertise include cost of service, allocation and rate design, tariff terms and conditions, rate case preparation and regulatory issues.

RELEVANT PROJECT EXPERIENCE

Regulatory Analysis, Ratemaking, Cost of Service

- Prepared a cost of service study for Puget Sound Energy and assisted in the development of a revenue decoupling mechanism.
- Prepared cost of service studies for Peoples Gas Light and Coke Company and North Shore Gas Company. Assisted in the development of a revenue decoupling mechanism for these companies.
- Performed a cost of service study for Arkansas Oklahoma Gas Corporation. Provided testimony on cost of service and rate design.
- Participated in the development of the revenue requirements for the gas and electric operating companies of a major mid-west utility.
- Participated in a review of the cost of service and rate design methodologies for the natural gas transmission affiliate of a Canadian Crown Corporation.
- Performed an electric cost of service and rate review for the City of Vero Beach, Florida.
- Performed a cost of service study for Chesapeake Utility Corporation, Delaware Division, and provided testimony on rate design issues.
- Performed cost of service and rate design studies integrating the rates and tariffs of Providence Gas Company and Valley Gas Company. Provide testimony on cost of service and proposed new rate designs for the integrated company.
- Performed cost of service study for an investor owned Canadian electric utility.
- Reviewed and provided support for the deferred purchased gas balances of a Louisiana local distribution company.
- Provided support and cost of service analysis for a Pennsylvania electric utility in a FERC complaint case.
- Assisted a Canadian marketing company in its intervention in Northern Border Pipeline Company FERC rate proceeding. Filed testimony on various cost-of-service and rate design issues.

- Assisted an Indiana local distribution company in the preparation of a general rate case and unbundling filing. Assisted in the development of the proposed unbundled services and tariffs.
- Assisted a New Jersey local distribution company with its initial filing under New Jersey's Electric Discount and Energy Competition Act.
- Assisted a major Southwest utility in the preparation of a cost of service and rate design study for filing with the regulatory commission.
- Reviewed and evaluated an electric cost-of-service and unbundling model for the Ontario Energy Board. This model is to be used by the municipal electric utilities in their filings to the Board.
- Assisted a group of Midwest local distribution companies served by Northern Natural Gas Company in a FERC rate proceeding. Filed testimony on various cost-of-service and rate design issues.
- Reviewed the rate harmonization proposal of a major Canadian gas utility for potential shortcomings alternative approaches.
- Responsible for the development, defense, implementation and administration of the Boston Gas Company's rates in rate cases and CGA filings. Prepared annual sales, revenue, margin and gas cost forecasts for budgeting and financial reporting. Directed the company's load research project. Represented the company in regulatory proceedings.
- Responsible for all aspects of United Gas Pipeline Company's rate department, including cost-of-service allocation and rate design, certificates and analysis of other pipeline FERC filings. Represented the company and supported its positions through testimony and negotiations with regulatory agencies, customers and intervenors.
- Responsible for the development of cost-of-service, allocation and rate design studies and filings for Consolidated Natural Gas Company. Analyzed supplier rate and certificate filings. Represented the company and supported its position in negotiations with regulatory agencies, customers and intervenors.
- Responsible for the development and support of FERC staff's position on allocation and rate design issues in pipeline rate and certificate filings.

Valuation and Appraisal

- Assisted in the preparation of a report to the FERC on appraised value and insurance recommendations in a certificate proceeding.

Market Analysis

- Assisted the Province of New Brunswick in the preparation of its Stage I document for the establishment of natural gas distribution within the Province.

Expert Witness Testimony Presentation

- Federal Energy Regulatory Commission
- New York State Public Service Commission
- Massachusetts Department of Telecommunications and Energy

- Pennsylvania Public Utility Commission
- New Jersey Board of Public Utilities
- State of Rhode Island and Providence Plantations Public Utility Commission
- Arkansas Public Service Commission

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2006 – present)
Assistant Vice President

Navigant Consulting (1998-2006)
Managing Consultant

Boston Gas Company (1993-1998)
Director, Rates and Revenue Analysis

United Gas Pipeline Company (1992-1993)
Director, Rates and Regulatory Affairs

Consolidated Natural Gas Company (1985-1992)
Manager, Regulatory Projects

Federal Regulatory Energy Commission (1979-1985)
Industry Economist, Allocation and Rate Design Branch

EDUCATION

M.B.A., University of Pittsburgh, Katz Graduate School of Business, 1989
B.S., Economics, Behrend College, Pennsylvania State University, 1978
