BEFORE THE
TENNESSEE REGULATORY AUTHORITY

PREPARED DIRECT TESTIMONY
OF
MARCIE H. SHIELDS

IN RE:
CHATTANOOGA GAS COMPANY
DOCKET NO. _____

Q. Please state your name, position, and business address.

A. Marcie H. Shields, Program Development Analyst II, Rates and Regulatory, AGL Services Company, 10 Peachtree Place NE, Atlanta, Georgia 30309.

Q. Have you provided an outline of your educational background and professional experiences?

A. Yes. Attachment A to this testimony contains a summary of my educational background and professional experience.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to support and describe the specific methods used to develop the normalization of billing determinates and base revenue for the test period ending June 30, 2009 and for the forecast of billing determinates and base revenue for the attrition period ending April 30, 2011 for Chattanooga Gas Company ("CGC" or "the Company"). The attrition period forecast is the base from which the requested base revenue increase of $2.6 Million has been determined.

Q. Are you including any exhibits in connection with your testimony?

A. Yes, the following exhibits have been included:

- Exhibit MHS-1 – Test Period Actual and Normalized Billing Determinates and Forecasted Attrition Period Billing Determinates and Base Revenue
- Exhibit MHS-2 – Graph of Chattanooga Gas Company Retail Gas Prices
- Exhibit MHS-3 – Graph of Chattanooga Gas Company Residential Use Per Customer Over Time
- Exhibit MHS-4 – Graph of Chattanooga Gas Company Commercial Use Per Customer Over Time
- Exhibit MHS-5 – Residential and Commercial Consumption Equations and Forecast Pro Graph of Fit of the Forecast Model
- Exhibit MHS-6 – Customer Growth by Class for the Test Period and Attrition Period
- Exhibit MHS-7 – 1979 to 2009 Normal Heating Degree Days

Q. Were these exhibits and related schedules prepared by you or under your direct supervision?

A. Yes.

Q. How is your testimony organized?

A. My testimony is organized in the following manner:

- **Section 1 – Attrition Period Base Revenues**
- **Section 2 – Forecasting Methods for Customers, Consumption, and Base Revenue**
- **Section 3 – Forecast of Other Revenues and Gas Cost Revenues**
- **Section 4 – Comparison of Attrition Period Revenue Requirement to Attrition Period Revenues**

Section 1 – Attrition Period Base Revenues

Q. Please summarize the results of CGC's attrition period forecast.

A. CGC's base revenue for the test period was $30.9 Million. When normalized for the most recent 30-year normal weather pattern and the expected natural gas prices for the 2010-2011 attrition period, normalized test period base revenue is $30.6 Million. CGC's forecast of normalized customers, usage, and base revenue for the attrition period is displayed in Exhibit MHS-1. The forecast of attrition period base revenue is $29.6 Million or $1 Million less than the normalized test period base revenue. The normalization of test period base revenue is summarized below along with attrition period base revenue:

Test Period Base Revenue	$30.9.M
Update 30-year Normal Weather Pattern and unbilled adjustments	$(0.3M)
Update Price Variable	$0.0M
Normalized Test Period Base Revenue	$30.6M
Update Growth	$(0.2M)
Conservation	$(0.7M)
Miscellaneous Revenues	$(0.1M)
Attrition Period Base Revenue	$29.6M

Q. What are the reasons for the decrease in attrition period base revenues?

A. The forecasted decline in total base revenue in the attrition period from the normalized test period levels can be attributed to lower expected growth in new customers and higher than normal attrition rates in the residential and commercial

customer classes. Additionally, the Company continues to experience an increase in declining use per customer due to continued efficiency gains in gas equipment and building weatherization.

Q. What are the new customer growth and attrition rates for the attrition period?

A. The forecasted attrition period residential new customer growth is expected to be 0.7% or 396 customers. Commercial new customer growth is expected to be 1.5% or 120 customers. Annual Residential customer attrition rates are forecast at 1.2% or 648 customers during the attrition period. Commercial customer attrition rates are forecast at 2.8% or 232 customers. For industrial customers, plant closings and reduced plant operating hours have been offset by the addition of one large industrial customer. These changes in customers are anticipated to yield approximately the same revenues during the attrition period as in the test period.

Q. How has average use per customer declined for CGC since its 2006 rate case?

A. Residential consumption has declined 5% since 2006 and 17% since 2000. Commercial consumption has declined 9% since 2006 and 14% since 2000. Customer consumption is expected to decline an additional 3% for Residential and 6% for Commercial from the test period to the attrition period. Exhibits MHS-3 and MHS-4 provide a visual look at these downward consumption trends. While conservation of natural gas resources results in a lower total gas bill for the customer and better management of the environment and natural energy resources, it has a negative impact on the ability of the Company to recover the fixed costs of its distribution system. Under current rate design, the respective

interests of the customer, the environment, and the Company are not aligned. Therefore, the Company is proposing an Alignment and Usage Adjustment ("AUA") that will better align the interests of the customer, the environment, and the Company. This proposal will be addressed in the testimony of Witness Daniel Yardley.

Section 2 – Forecasting Methods for Customers, Consumption, and Base Revenue

Q. Please discuss CGC's method for forecasting demand and base revenues for the attrition period.

A. Customers, usage, and base revenue are forecast using a multi-step process for each of the customer classes CGC serves. First, each customer is classified in one of the following classes of service: Residential R-1, Multi-Family R-4, Small General Service Commercial C-1, Medium General Service Commercial C-2, Low Volume Transport T-3, or Industrial.

Q. Please continue.

A. The next stage of the process includes four steps. First, consumption equations are developed that model the use per customer ("UPC") for the Residential R-1 and Commercial customer classes by normalizing forecasted weather and expected gas prices. These commercial customer classes include the Small General Service Commercial C-1, Medium General Service Commercial C-2, and the Low Volume Transport T-3 classes. The consumption for the Multi-Family

R-4 and industrial classes are forecasted on an individual customer basis by reviewing historical monthly consumption data and adjusting for any known future changes in demand. Second, the estimated number of customers billed for each class is determined. Third, a consumption forecast for each class is calculated by applying the normalized UPC referred to in step one to the estimated number of customers billed in each class. Finally, a base-revenue forecast is generated by applying the class consumptions, along with other billing determinants, including customer service charges, to the existing rate structure.

Q. Is this the traditional manner in which CGC has developed its forecast?

A. Yes. The basic forecasting methods described here were employed by CGC in its 1998, 2004, and 2006 base rate proceedings. These methods are reviewed monthly through activities such as variance analyses and the quarterly budgeting and forecasting process. This is an evolutionary process with the goal of continually improving forecast performance in which the methods are adjusted when required to increase accuracy. New techniques are evaluated and are incorporated into the forecast models when they demonstrate improved forecast accuracy.

Q. How were the consumption equations referred to in step one developed for the Company's various customer classes?

A. For the Residential and Commercial classes, the Company employed statistical regression techniques to correlate historical consumption with actual heating degree days, natural gas retail price, and a time trend factor to develop models of gas usage per customer. In the residential regressions, a cubic spline term was

also used to develop models of gas usage per customer. The relationships between usage and actual heating degree days and between usage and price were the factors with the largest impact on usage for the Residential class. For the Commercial class of customers, the relationships between usage and actual heating degree days had the largest impact on usage.

Q. Please describe the relationship between each of the factors referred to above – heating degree days, natural gas retail price, and time trend.

A. These factors impact customer usage in various ways. By quantifying the historical relationship between usage and these factors, a more accurate forecast of usage can be made. The most obvious factor affecting usage is weather (number of heating degree days). However, the retail price of natural gas and time trends also impact customer usage.

Q. How does weather impact customer usage?

A. Heating degree days measure how cold the weather is when usage occurs. Usage has a direct relationship with the number of heating degree days. As the number of heating degree days increases, natural gas used by customers also increases. Exhibit MHS-7 provides the heating degree days from 1979-2009.

Q. How does the retail price of natural gas impact customer usage?

A. The price of natural gas has an inverse relationship to the use of natural gas. As the price of natural gas increases, customers often take measures to reduce consumption to lower their bill. Some customers simply lower their thermostat during cold weather to lower their consumption, while some supplement their energy needs with alternative sources such as electric, kerosene, or wood.

Conversely, when the price of natural gas decreases, customers are less likely to lower their thermostat and opt for comfort over reduced bills. These actions result in lower or higher gas usage, depending on the trend of natural gas prices over time. It is therefore important in the modeling process to establish the historical relationship between usage and price. Exhibit MHS-2 provides a graph of retail natural gas prices from January 2000 - August 2009.

Q. What is a time trend factor?

A. The time trend factor simply takes into account the long-term declines in UPC due to normal efficiency gains. The useful life of a typical natural gas appliance is approximately 25 years for a natural gas furnace and approximately 12 years for a natural gas water heater. Over time, as the life of the equipment expires, consumers replace less efficient natural gas equipment with new, more efficient models, therefore lowering their natural gas usage. Homeowners may also add insulation and weather stripping to make their home more efficient. Newer homes and businesses added to the system have more efficient natural gas equipment installed, lowering the average UPC on CGC's system. This results in a decline in average UPC over time.

Q. What is a cubic spline term?

A. As temperatures exceed 55^{o}F, usage per heating degree day drops until the base load temperature is reached. The cubic spline term is used to adjust for the increasing drop in usage that occurs at warmer temperatures above 55^{o}F. This adjustment provides a more accurate forecast for Spring and Fall usage ("shoulder months") when there is considerable variability between warm and cold weather.

The models for forecasting UPC for the Residential R-1 class take into account the cubic spline term. The commercial model does not use the cubic spline term as clear consumption drops were seen at 55^{o}F and 72^{o}F.

Q. Please describe how the volumes are forecasted for customer classes that utilizes block rates?

A. The amount of usage forecasted in each of the blocks for Residential R-1 and Medium General Service Commercial C-2 class is determined by taking the average of the historical years then allocating the attrition period volumes to each of the blocks based on the historical averages.

Q. Were these factors then used to develop consumption equations?

A. Yes. Models incorporating these factors were developed based on 116 months (over 9 years) of historical consumption, temperatures, and price data, from January 2000 through August 2009. From these models, the consumption equations that are used to develop monthly average UPC for the Residential and Commercial classes were derived. The consumption equations can, in their most basic form, be broken into a base-use component (non-temperature sensitive) and a heat-use component (temperature sensitive). Review of the output statistics, use of holdout periods (i.e., segmenting the dataset into two periods and using one subset to develop a model and the other to evaluate equation performance), and validation through "backcasting" (i.e., comparing actual historical results to the fitted values generated by the statistical model) demonstrated the accuracy of the regression models selected. Please see Exhibit MHS-5 for the consumption

equations that were developed and graphs of the validations of the models through backcasting.

Q. For the attrition period, how was the number of customers in each class developed?

A. The number of customers by class for the attrition period was developed as follows:

- The actual number of customers by class that were billed as of August 2009 was determined and used as the base starting point upon which new customer growth was added.

- A monthly forecast of new customers by class was developed from historical trends as well as coordination with the Marketing and Sales Departments.

- A seasonal pattern of changes in the number of active and inactive customers was developed from historical customer count data.

- A percentage of attrition (i.e., loss of customers due to building demolition, switch to use of alternative source of energy, business failures, etc.) was developed from historical trends as well as coordination with the Marketing and Sales Departments as well as from historical customer count data.

- The aggregate number of customers by class by month was developed by adding the monthly growth projections, seasonal changes in customer patterns, and monthly attrition projections to the August 2009 starting point. Exhibit MHS-6 presents the monthly number of customers by class used to develop the normalized consumption and base revenues.

Q. How was consumption developed for the customer classes?

A. Consumption by class for the Residential and Commercial class of customers was developed by multiplying the projected number of customers billed in the class for each month by the UPC for the month. The usage per customer was developed by applying the consumption equation for the month with an input of expected natural gas prices and updated 30-year normal heating degree days for that month and multiplying by the number of average meter read days in the month.

Q. How were expected natural gas prices developed?

A. The wholesale futures price of natural gas during the attrition period, as reported by NYMEX on October 22, 2009, was used as the basis to project retail price. Monthly wholesale futures prices from May 2010 through April 2011 were increased by the historical average difference between wholesale and retail prices to project retail price.

Q. What heating degree day pattern was applied to the consumption equations?

A. To develop a normalized consumption forecast for those classes where consumption equations were employed, it was necessary to develop a normal heating degree day pattern for each day of the year. Heating degree days are the difference between a base 65^{o}F temperature and the average temperature for a day when that daily average is below the base temperature. The base 65^{o}F heating degree day pattern that was employed is presented in Exhibit MHS-7. It is based on 30 years of daily weather data (July 1, 1979 through June 30, 2009) as measured by the National Oceanic and Atmospheric Administration ("NOAA") for Chattanooga's Lovell Field. This weather distribution then is adjusted for the

Company's meter reading schedule. Exhibit MHS-7 provides the 1979-2009 normal heating degree days.

Q. How was consumption developed for the remaining classes?

A. For classes that were forecast by individual customer (Multi-Family R-4, F1/T2, F1/T2 + T1, I1, T1, and Special Contracts), the monthly consumption for the class represents the aggregate of the individual customer forecasts. The forecast by individual customer was prepared by reviewing historical monthly consumption data and adjusting for future known changes in demand resulting from customer expansions and contractions and customer loss.

Q. How were base revenues for the attrition period developed?

A. The base revenues shown on Exhibit MHS-1 were developed by applying the forecasted, normalized consumption and number of customers billed by class for the attrition period to a model of the existing rate structure of the Company's tariff.

Q. Were changes made to the structure of the forecast models that were used in the 2006 rate case?

A. No changes were made to the structure of the forecast models for the Residential class of customers. As stated above, new techniques are evaluated continually in an attempt to improve forecast accuracy. In order to improve the performance of the models of the Commercial class of customers, the following structural changes were made: Heating degree day temperatures of 55^{o}F and 72^{o}F were used in place of the 65^{o}F and cubic spline knot that was used in the 2006 forecast models. These changes were made to better reflect the different usage patterns of

the Small General Service Commercial C-1 versus the Medium General Service Commercial C-2 class of customers. Next, an updated 30-year normal heating degree day distribution was used to derive attrition period base revenues. By updating the weather data to the most recent 30-year period available (1979 - 2009), usage and base revenue projections will more likely reflect the most recent 30-year trend in weather. Next, Weather Normalization Adjustment ("WNA") factors were updated using the new weather pattern and usage forecast. By updating WNA factors, customers' bills will reflect the level of charges experienced at normal weather. Lastly, the customer count forecast is based on actual number of customers as of August 2009 and includes growth in residential and commercial accounts. These growth forecasts have been tempered by including the higher level of losses currently being experienced due to attrition. This combination of growth and attrition results in a net change of customers that is more reflective of system growth.

Q. Is the forecast model being filed as part of this proceeding?

A. Yes. The entire forecast model is being filed as part of the Minimum Filing Guidelines 25 and 34.

Section 3 – Forecast of Other Revenues and Gas Cost Revenues

Q. Please list the sources of other revenue.

A. Other Revenue items include revenue from turn-ons, meter sets, returned checks, reconnects, late payment fees, and damage billing.

Q. Please explain procedures used to calculate revenue associated with these charges.

A. Revenues associated with charges for turn-ons, returned checks, reconnects, and damage billing were all forecasted in the same manner. Revenues were projected based on the same amounts as the test period. The company does not anticipate any major changes from the test period. For late payment revenue, the historical percentage of late payment revenue, as compared to base revenue, was calculated then multiplied by the five percent late payment penalty as stated in the CGC Tariff. The same percentage was applied to forecasted attrition period base revenue to forecast late payment revenue. Meter set revenues were calculated by adding a base number of meter sets for replacements, re-sets, etc. for existing customers using a rollover of revenues from the prior year to new meter sets for new customers forecasted for the attrition period.

Q. How were Purchase Gas Adjustment ("PGA") revenues projected?

A. The NYMEX wholesale futures price as of October 22, 2009 was adjusted to estimate PGA rates for the attrition period. The projected PGA rates for each class were applied to forecasted sales volumes to produce the PGA revenue.

Q. What were the results of the attrition period base revenue and revenue forecast under current rates?

A. Total base revenue for the attrition period under current rates is projected to be $29.6 Million, with total revenue (including gas costs) of $88.3 Million. Please see column 7 of Exhibit MHS-1 for a summary of attrition period base revenue under current rates.

Section 4 – Comparison of Attrition Period Revenue Requirement to Attrition Period Revenues

Q. What is the Company's base revenue requirement for the Attrition period?

A. As discussed in the testimony of Witness Ronald Hanson, the Company proposes an Attrition period base-revenue requirement of approximately $32.2 Million.

Q. Are existing rates sufficient to recover the base revenue requirement?

A. No. The comparison of projected attrition period base revenue under current rates to the projected attrition period revenue requirement yields a base revenue deficiency of $2.6 Million. The proposed rates to recover the attrition period base revenue requirement are discussed in the testimony of Witness Daniel Yardley.

Q. Does this complete your testimony?

A. Yes, it does.

MARCIE H. SHIELDS

Educational Background and Professional Experience

Ms. Marcie H. Shields is an employee of AGL Resources' wholly-owned subsidiary, AGL Services Company and has served as a Program Development Analyst since September 2006. Ms. Shields is responsible for providing regulatory support for Atlanta Gas Light Company (AGLC), Chattanooga Gas Company (CGC), Florida City Gas (FCG), Elizabethtown Gas (ETG), Virginia Natural Gas (VNG), and Elkton Gas. Her duties include preparing monthly variance analysis for AGLC, CGC, and FCG, forecasting customers, consumption, and base revenue, preparing the quarterly and annual budgets for AGLC, CGC, and FCG, managing the AGLC and CGC Dedicated Design Day Capacity (DDDC) annual calculation and review, as well as managing FCG's Rate and Revenue annual reclassification. Ms. Shields manages the company's Customer Data Warehouse and works closely with Marketing creating tracking mechanisms for programs as well as providing demographic and segmentation analysis.

Ms. Shields received a B.A. in Business Marketing from Radford University, Virginia, in 2001. Prior to moving to Atlanta, Ms. Shields worked as an Operations Analyst for the U.S. Army Center of Military History. In this capacity, she contributed to the development of guidelines, policies, and procedures for Army-wide implementation. She developed executive information papers and briefings regarding the status of the future National Museum of the United States Army (NMUSA) and tracked budget expenses for the new museum.

CHATTANOOGA GAS COMPANY
Pro Forma Revenue Calculations

	[1] Test Period Actual Billing Determinants	[2] Normalization & Conservation Adjustment	[3] Normalized	[4] Growth Adjustment	[5] Attrition Period Billing Determinates	[6] Current Rates	[7] Attrition Period Current Margin
OTHER REVENUE							
Reconnect Charges							
Reconnection	1,963			(8)	1,955	$50.00	$97,737
Seasonal Reconnects	205			5	210	$50.00	$10,520
Service Establishment							
Turn Ons	7,394			1,794	9,188	$15.00	$137,820
Meter Sets	1,214			(413)	801	$25.00	$20,030
Returned Check	749			(5)	745	$20.00	$14,890
Late Payment						5%	$333,228
Service Work							$0
Damage Billing							$89,302
Miscellaneous							$1
Total Other Revenue							$703,527

CHATTANOOGA GAS COMPANY
Pro Forma Revenue Calculations

	[1] Test Period Actual Billing Determinants	[2] Normalization & Conservation Adjustment	[3] Normalized	[4] Growth Adjustment	[5] Attrition Period Billing Determinates	[6] Current Rates	[7] Attrition Period Current Margin
FIRM BASE MARGIN							
Residential							
Winter Bills	324,122			(2,450)	321,672	$12.00	$3,860,060
Summer Bills	314,820			(1,215)	313,605	$10.00	$3,136,047
Winter therms Step 1	7,957,930	(430,068)	7,527,862	(60,162)	7,467,700	$0.25444	$1,900,082
Winter therms Step 2	6,466,140	(252,386)	6,213,754	(48,884)	6,164,870	$0.17547	$1,081,750
Winter therms Step 3	16,877,910	(207,982)	16,669,928	(127,598)	16,542,330	$0.15354	$2,539,909
Total Winter	31,301,980	(890,436)	30,411,544	(236,644)	30,174,900		$5,521,741
Summer therms Step 1	3,429,180	81,337	3,510,517	(13,237)	3,497,280	$0.18425	$644,374
Summer therms Step 2	658,880	34,983	693,863	(2,543)	691,320	$0.13160	$90,978
Summer therms Step 3	486,040	24,546	510,586	(1,876)	508,710	$0.03948	$20,084
Total Summer	4,574,100	140,867	4,714,967	(17,657)	4,697,310		$755,435
Total Residential	35,876,080	-749,569	35,126,511	-254,301	34,872,210		$13,273,283
Multi-Family Housing (R-4)							
Winter Units Bills	1,110			0	1,110	$6.00	$6,660
Summer Units Bills	1,110			0	1,110	$6.00	$6,660
Winter therms	64,066	(1,310)	62,756	0	62,756	$0.21768	$13,661
Summer therms	19,164	285	19,448	0	19,448	$0.19350	$3,763
Total Multi-Family Housing (R-4)	83,230	-1,026	82,204	0	82,204		$30,744

CHATTANOOGA GAS COMPANY
Pro Forma Revenue Calculations

	[1] Test Period Actual Billing Determinants	[2] Normalization & Conservation Adjustment	[3] Normalized	[4] Growth Adjustment	[5] Attrition Period Billing Determinates	[6] Current Rates	[7] Attrition Period Current Margin
Commercial C-1							
Winter Bills	40,322			(759)	39,563	$29.00	$1,147,330
Summer Bills	38,390			(313)	38,077	$25.00	$951,914
Winter therms Step 1							
Winter therms Step 2							
Winter therms Step 3							
Winter therms Step 4							
Total Winter	7,354,947	(775,005)	6,579,942	(138,427)	6,441,514	$0.1858	$1,196,898
Summer therms Step 1							
Summer therms Step 2							
Summer therms Step 3							
Summer therms Step 4							
Total Summer	1,590,659	(45,502)	1,545,157	(12,987)	1,532,171	$0.1459	$223,528
Commercial C-1	8,945,606	-820,507	8,125,099	-151,414	7,973,685		$3,519,670
Commercial C-2							
Winter Bills	9,650			(206)	9,444	$75.00	$708,300
Summer Bills	9,660			(216)	9,444	$75.00	$708,300
Demand Units (Dths)	349,066				317,076	$5.50000	$1,743,918
Winter therms Step 1	12,943,143	(1,348,843)	11,594,300	(276,299)	11,318,000	$0.18744	$2,121,446
Winter therms Step 2	1,880,601	(196,587)	1,684,014	(40,145)	1,643,869	$0.17109	$281,249
Winter therms Step 3	2,558,217	(273,054)	2,285,163	(54,611)	2,230,552	$0.16666	$371,744
Winter therms Step 4	1,117,341	(112,225)	1,005,116	(23,852)	981,264	$0.08623	$84,614
Total Winter	18,499,301	-1,930,708	16,568,593	-394,907	16,173,686		$2,859,054
Summer therms Step 1	4,375,113	(49,332)	4,325,781	(97,829)	4,227,952	$0.14717	$622,228
Summer therms Step 2	433,579	(8,102)	425,477	(9,695)	415,782	$0.11683	$48,576
Summer therms Step 3	623,503	(7,016)	616,487	(13,942)	602,545	$0.10892	$65,629
Summer therms Step 4	112,697	673	113,370	(2,520)	110,850	$0.08623	$9,559
Total Summer	5,544,892	-63,777	5,481,114	-123,985	5,357,129		$745,991
Total Commercial C-2	24,044,193	-1,994,486	22,049,707	-518,893	21,530,815		$6,765,563
Commercial T-3							
Winter Bills	172			8	180	$75.00	$13,500
Summer Bills	164			16	180	$75.00	$13,500
Demand Units (Dths)	32,248				32,248	$5.50000	$177,362
Winter therms Step 1	495,525	1,027	496,552	23,048	519,600	$0.18744	$97,394
Winter therms Step 2	279,496	2,204	281,700	13,000	294,700	$0.17109	$50,420
Winter therms Step 3	836,508	(3,015)	833,493	38,907	872,400	$0.16666	$145,394
Winter therms Step 4	560,986	(26,078)	534,908	26,092	561,000	$0.08623	$48,375
Total Winter	2,172,515	-25,862	2,146,653	101,047	2,247,700		$341,583
Summer therms Step 1	432,889	(13,622)	419,267	42,233	461,500	$0.14717	$67,919
Summer therms Step 2	206,857	(6,838)	200,019	20,181	220,200	$0.11683	$25,726
Summer therms Step 3	478,604	(8,497)	470,107	46,693	516,800	$0.10892	$56,290
Summer therms Step 4	148,098	(2,047)	146,051	14,449	160,500	$0.08623	$13,840
Total Summer	1,266,448	-31,004	1,235,444	123,556	1,359,000		$163,775
Total T-3	3,438,963	-56,866	3,382,097	224,603	3,606,700		$709,720

Total Firm Base Revenue $24,298,980

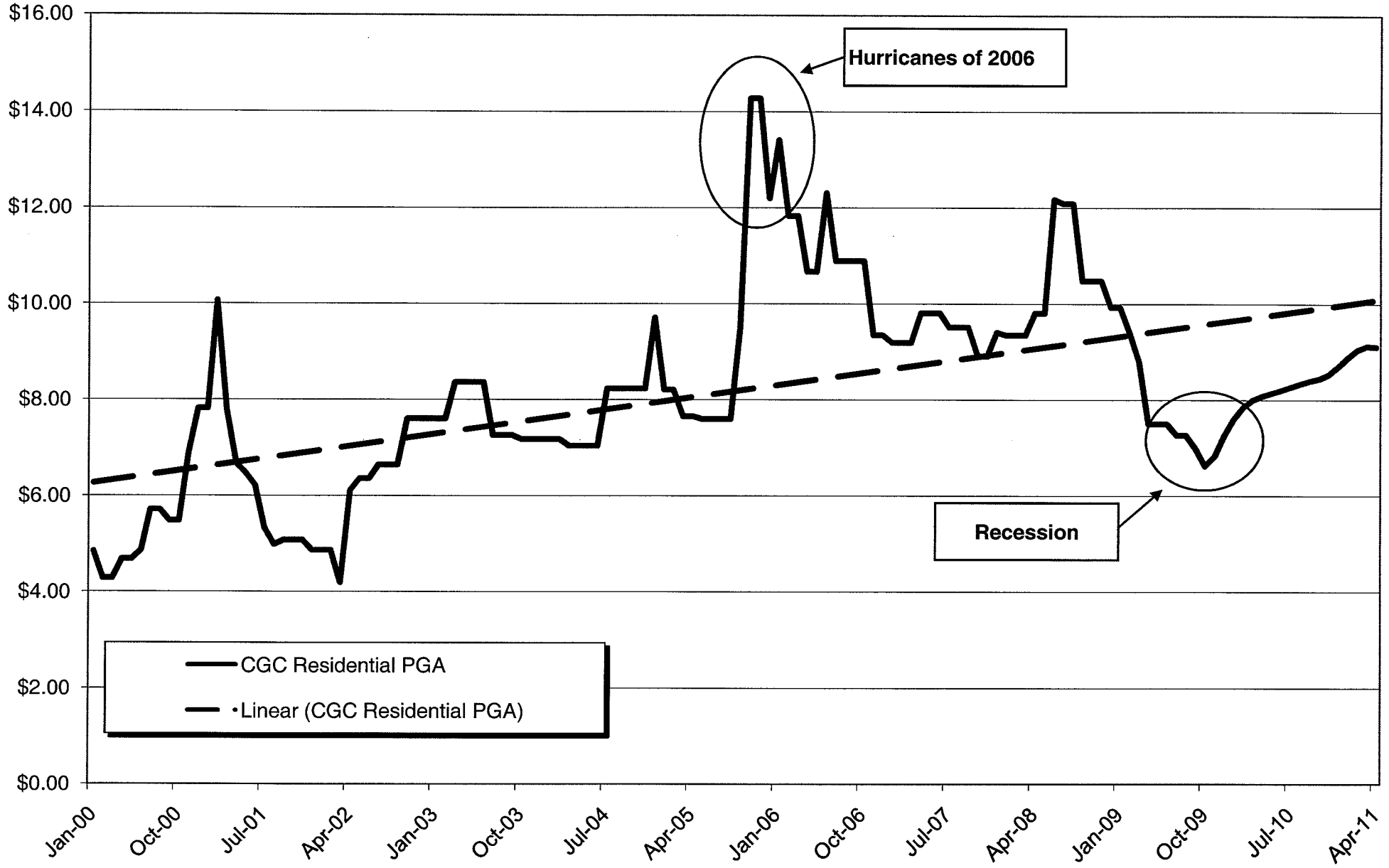
CHATTANOOGA GAS COMPANY
Pro Forma Revenue Calculations

	[1] Test Period Actual Billing Determinants	[2] Normalization & Conservation Adjustment	[3] Normalized	[4] Growth Adjustment	[5] Attrition Period Billing Determinates	[6] Current Rates	[7] Attrition Period Current Margin
INDUSTRIAL BASE REVENUE							
F1/T2 Industrial							
Bills	326			(2)	324	$300	$97,200
Demand Units (Dths)	113,923			573	114,496	$5.50	$629,726
Step 1 Dths	4,374,774			(21,974)	4,352,800	$0.08064	$351,010
Step 2 Dths	4,550,838			(25,438)	4,525,400	$0.06891	$311,845
Step 3 Dths	4,125,012			36,188	4,161,200	$0.03908	$162,620
Step 4 Dths	6,192,044			44,756	6,236,800	$0.02402	$149,808
Total F1/T2	19,242,668			33,532	19,276,200		$1,702,209
F1/T2 + T1 Industrial							
Bills	152			(8)	144	$300	$43,200
Demand Units (Dths)	31,992			0	31,992	$5.50	$175,956
Capacity Units (Dths)	53,876				53,876	$1.35	$72,733
Step 1 Dths	2,202,799			(111,599)	2,091,200	$0.08064	$168,634
Step 2 Dths	3,254,562			(119,462)	3,135,100	$0.06891	$216,040
Step 3 Dths	6,324,190			(15,390)	6,308,800	$0.03908	$246,548
Step 4 Dths	1,902,285			(20,785)	1,881,500	$0.02402	$45,194
Total F1/T2 + T1	13,683,836			-267,236	13,416,600		$968,305
I1 Industrial							
Bills	12			0	12	$300	$3,600
Step 1 Dths	180,000			0	180,000	$0.08064	$14,515
Step 2 Dths	240,769			14,031	254,800	$0.06891	$17,558
Step 3 Dths	89,782			(30,482)	59,300	$0.03908	$2,317
Step 4 Dths	0			0	0	$0.02402	$0
Total L1	510,551			-16,451	494,100		$37,991
T1 Industrial							
Bills	321			(9)	312	$300	$93,600
Capacity Units (Dths)	196,549				196,549	$ 1.35	$265,341
Step 1 Dths	4,130,779			120,521	4,251,300	$0.08064	$342,825
Step 2 Dths	5,161,672			280,828	5,442,500	$0.06891	$375,043
Step 3 Dths	9,623,015			897,885	10,520,900	$0.03908	$411,157
Step 4 Dths	9,815,838			1,927,062	11,742,900	$0.02402	$282,064
Total T1	28,731,304			3,226,296	31,957,600		$1,770,030
SS-1 Industrial							
Bills	15			(15)	0	$300	$0
Step 1 Dths	150,000			(150,000)	0	$0.08064	$0
Step 2 Dths	250,000			(250,000)	0	$0.06891	$0
Step 3 Dths	995,100			(995,100)	0	$0.03908	$0
Step 4 Dths	2,984,522			(2,984,522)	0	$0.02402	$0
Total SS-1	4,379,622			-4,379,622	0		$0

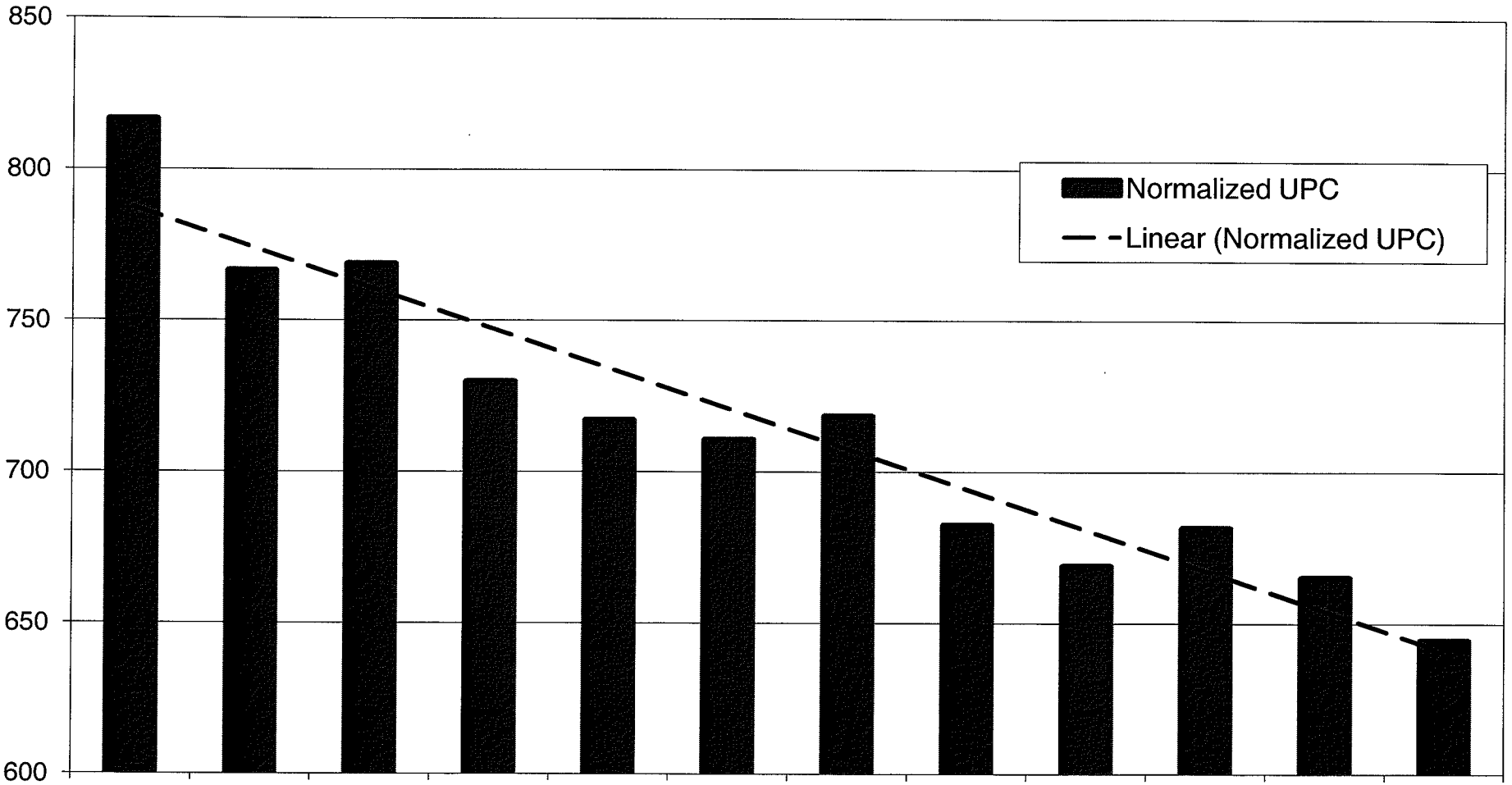
CHATTANOOGA GAS COMPANY
Pro Forma Revenue Calculations

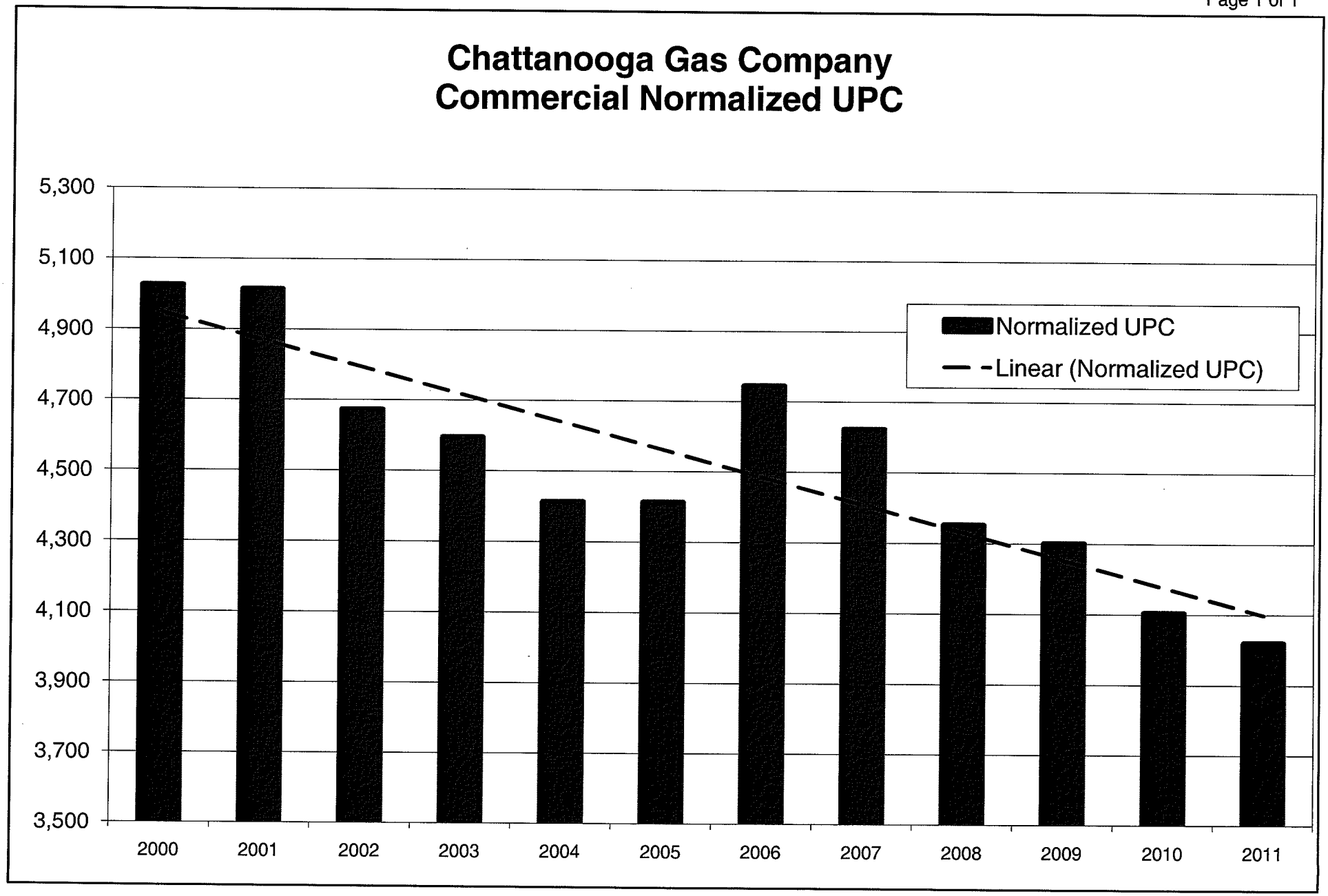
	[1] Test Period Actual Billing Determinants	[2] Normalization & Conservation Adjustment	[3] Normalized	[4] Growth Adjustment	[5] Attrition Period Billing Determinates	[6] Current Rates	[7] Attrition Period Current Margin
Special Contracts							
Customer 1							
Bills	12				12	$3,500	$42,000
Demand Units (Dths)	120				120	$ 5.50	$660
Dths	524,375			(13,555)	510,820	$0.03920	$20,024
							$62,684
Customer 2							
Bills	0				12	$0	$0
Demand Units (Dths)	0				0	$0	$0
Dths	0				300,000	$0.25000	$75,000
							$75,000
Total Special Contracts							$137,684
Total Industrial Margin							$4,616,219
Other - Rounding							$16
TOTAL MARGIN							$29,618,742

Chattanooga Gas Company
Retail Gas Price

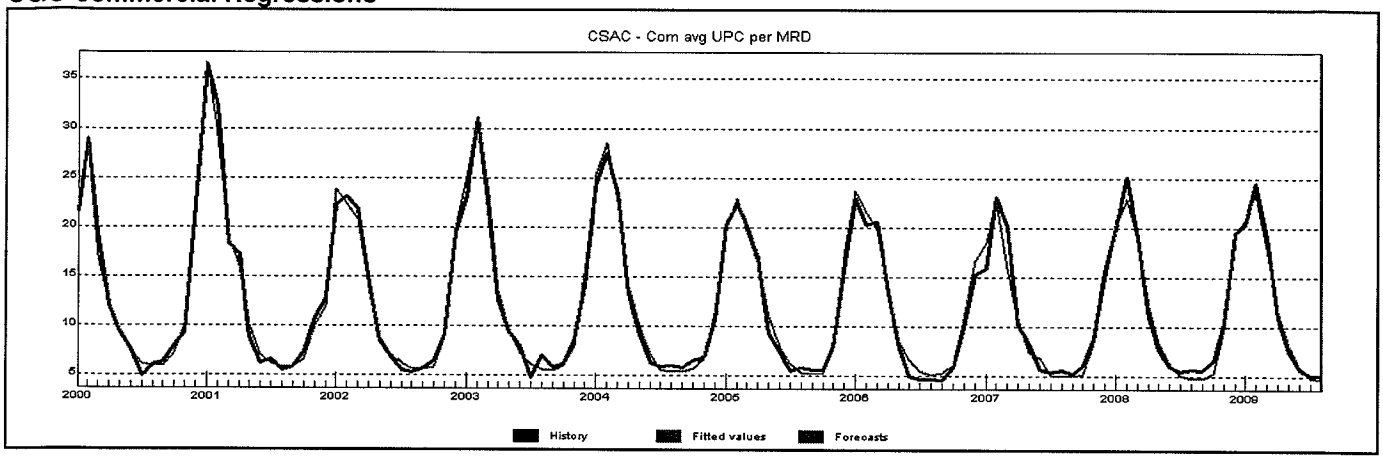


Chattanooga Gas Company
Residential Normalized UPC




Chattanooga Gas Company
Commercial Normalized UPC
5,300
5,100
4,900
4,700
4,500
4,300
4,100
3,900
3,700
3,500
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Normalized UPC
Linear (Normalized UPC)

CGC Commercial Regressions



Forecast Report for CSAC

Model Details

Dynamic regression
Regression(6 regressors, 0 lagged errors)

Term	Variables	Coefficient	Std. Error	t-Statistic	Percentile
CGCTRD	X_3	-0.011200	0.003509	-3.192	99.82%
CONSTANT	X_0	6.029000	0.267500	22.53	100.00%
SDD55MRD	X_6	0.998800	0.056240	17.76	100.00%
SDD72MRD	X_7	0.111200	0.029150	3.815	99.98%
TSDD	X_3*X_6	-0.001963	0.000551	-3.562	99.95%
SDD72MRD[-1]	X_8	0.164600	0.014600	11.27	100.00%

Within-Sample Statistics

Sample size	115	No. parameters	6
Mean	12.19	Std. deviation	7.5
Adj. R-square	0.98	Durbin-Watson	1.83
Ljung-Box(18)	39.8 P=1.00	Forecast error	1
BIC	1.11	MAPE	7.36
MAD	0.74		

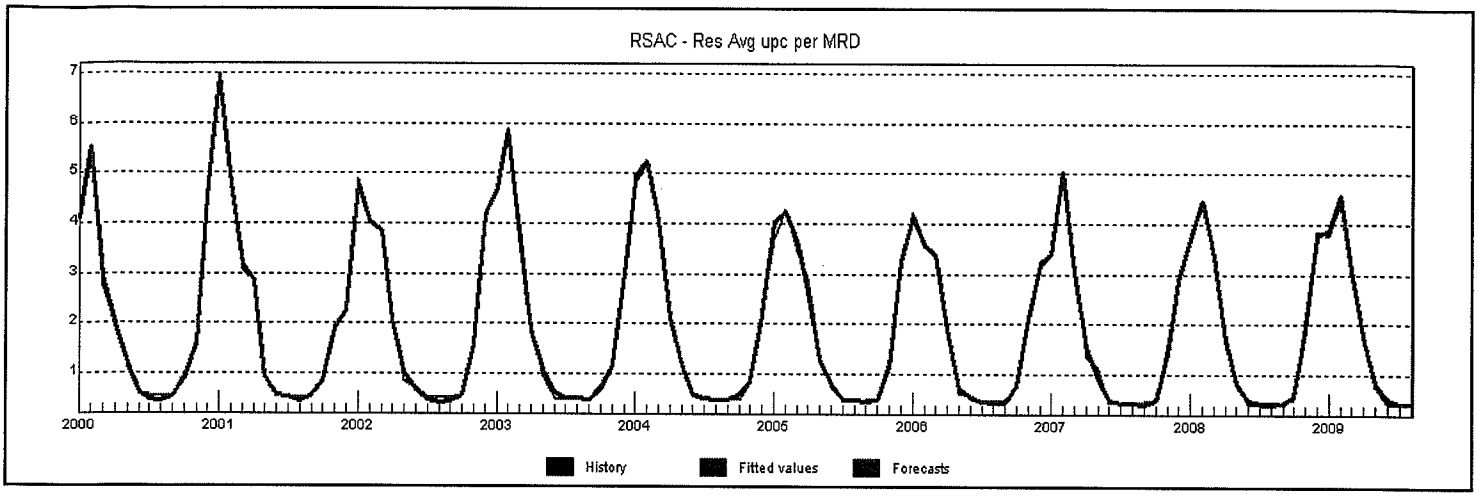
Equation Form

CSAC= CGCTRD*X3	Appliance Efficiency
+ CONSTANT*X0	Base Load
+ SDD55MRD*X6	Heat Load for Large Commercial
+ SDD72MRD*X7	Heat Load for Small Commercial
+ TSDD*X3*X6	Heating Equipment Efficiency Trend
+ SDD72MRD[-1]*X8	Seasonal Load
= CSAC	

Where:

CSAC	= Monthly Average Consumption per Average Number of Billing Days
X_0	= Base Load Usage per Day
X_3	= Linear time variable
CGCTRD	= Coefficient to capture the change in base load consumption over time
TREND SDD	= Coefficient to capture the change in heat sensitivity over time
SDD55MRD	= Coefficient to capture Increased Heating Sensitivity
X_6	= Billing Cycle Average Heating Degree Days based upon 55 degrees
SDD72MRD	= Coefficient to capture Heating Sensitivity
X_7	= Billing Cycle Average Heating Degree Days based upon 72 degrees
SDD72MRD[-1]	= Coefficient to capture Seasonal Heating Sensitivity Behavior
X_8	= Billing Cycle Average Heating Degree Days based upon 72 degrees lagged 1 month

CGC Residential Regressions



Forecast Report for RSAC

Model Details

Dynamic regression
Regression(7 regressors, 0 lagged errors)

Term	Variables	Coefficient	Std. Error	t-Statistic	Percentile
SDD65MRD	X_1	0.232600	0.004577	50.830	100.00%
Knot5565	X_2	0.000012	0.000002	6.449	100.00%
TSDD	X_3*X_1	-0.000175	0.000033	-5.339	100.00%
PSDD	X_4*X_1	-0.033820	0.005225	-6.474	100.00%
CGCTRD	X_3	-0.001534	0.000369	-4.151	99.99%
_CONST	X_0	0.178900	0.054070	3.309	99.87%
FEBMAY07	X_5	0.639800	0.050330	12.710	100.00%

Within-Sample Statistics

Sample size	115	No. parameters	7
Mean	1.91	Std. deviation	1.64
Adj. R-square	1	Durbin-Watson	2.3
Ljung-Box(18)	29.7 P=0.96	Forecast error	0.1
BIC	0.11	MAPE	5.66
MAD	0.07		

Equation Form

RSAC=	SDD65MRD*X1	Heat Load
	+ Knot5565*X2	Shoulder Months
	+ TSDD*X3*X1	Furnace Efficiency
	+ PSDD*X4*X1	Price Effect
	+ CGCTRD*X3	Appliance Efficiency
	+ _CONST*X0	Base Load
	+ FEBMAY07*X5	Prior Period Billing Adjustment
	= RSAC	

Where:

RSAC	= Monthly Average Consumption per Average Number of Billing Days
X_0	= Base Load Usage per Day
SDD65MRD	= Coefficient to capture Heating Sensitivity
X_1	= Billing Cycle Average Heating Degree Days based upon 65°
Knot5565	= Coefficient to capture the change in the drop in heating sensitivity at temperatures above 55°
X_2	= A discontinuous variable to account for the non-linear change in heating sensitivity above 55°
TREND SDD	= Coefficient to capture the change in heat sensitivity over time
X_3	= Linear time variable

CGCTRD	= Coefficient to capture the change in base load consumption over time
PRICE SDD	= Coefficient to capture the change in heat sensitivity with respect to price
X_4	= Inflation adjusted PGA lagged one month
FEBAPR07	= Coefficient to account for two offsetting prior period billing adjustments
X_5	= Offsetting one time adjustments for February and April 2007

Residential Customer Forecast

Test Period	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Customer Counts	**Jul 08**	**Aug 08**	**Sep 08**	**Oct 08**	**Nov 08**	**Dec 08**	**Jan 09**	**Feb 09**	**Mar 09**	**Apr 09**	**May 09**	**Jun 09**
Existing Customers												
New Growth												
Attrition												
Seasonal Change												
Net Customer Forecast	52,343	52,100	52,062	52,464	53,399	54,005	54,193	54,330	54,247	53,948	53,230	52,621

Attrition Period

		May 10	Jun 10	Jul 10	Aug 10	Sep 10	Oct 10	Nov 10	Dec 10	Jan 11	Feb 11	Mar 11	Apr 11
New Growth	396	29	30	28	25	33	42	41	38	40	28	28	34
Attrition	1.2%	-54	-54	-54	-54	-54	-54	-54	-54	-54	-54	-54	-54
		54.56603	54.56603	54.56603	54.56603	54.56603	54.56603	54.56603	54.56603	54.56603	54.56603	54.56603	54.56603

Attrition Period

Customer Counts		May 10	Jun 10	Jul 10	Aug 10	Sep 10	Oct 10	Nov 10	Dec 10	Jan 11	Feb 11	Mar 11	Apr 11
Existing Customers		53,235	53,235	53,235	53,235	53,235	53,235	53,235	53,235	53,235	53,235	53,235	53,235
New Growth	396	304	334	362	387	420	462	503	541	581	609	637	671
Attrition	1.2%	-479	-533	-587	-641	-695	-749	-803	-857	-911	-965	-1,019	-1,073
Seasonal Change		23	-516	-923	-1,104	-1,128	-744	152	695	900	1,013	958	629
Net Customer Forecast		53,084	52,521	52,088	51,877	51,832	52,204	53,086	53,614	53,806	53,892	53,811	53,463

* New Growth and Attrition are rolling figures based on a starting point of August 2009.

Commercial Customer Forecast

Test Period	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Customer Counts	**Jul 08**	**Aug 08**	**Sep 08**	**Oct 08**	**Nov 08**	**Dec 08**	**Jan 09**	**Feb 09**	**Mar 09**	**Apr 09**	**May 09**	**Jun 09**
Existing Customers												
New Growth												
Attrition												
Seasonal Change												
Net Customer Forecast	8,044	7,965	7,959	7,967	8,200	8,373	8,405	8,439	8,414	8,313	8,204	8,076

Attrition Period

		May 10	Jun 10	Jul 10	Aug 10	Sep 10	Oct 10	Nov 10	Dec 10	Jan 11	Feb 11	Mar 11	Apr 11
New Growth	120	6	4	5	5	11	15	18	14	16	9	9	8
Attrition	2.8%	-19	-19	-19	-19	-19	-19	-19	-19	-20	-20	-20	-20
		19.13567	19.13567	19.13567	19.13567	19.13567	19.13567	19.13567	19.13567	19.13567	19.13567	19.13567	19.13567

Attrition Period

		May 10	Jun 10	Jul 10	Aug 10	Sep 10	Oct 10	Nov 10	Dec 10	Jan 11	Feb 11	Mar 11	Apr 11
Customer Counts													
Existing Customers		8,201	8,201	8,201	8,201	8,201	8,201	8,201	8,201	8,201	8,201	8,201	8,201
New Growth	120	76	80	85	90	101	116	134	148	164	173	182	190
Attrition	2.8%	-179	-198	-217	-236	-255	-274	-293	-312	-332	-352	-372	-392
Seasonal Change		19	-88	-168	-215	-219	-204	-2	147	185	217	199	118
Net Customer Forecast		8,117	7,995	7,901	7,840	7,828	7,839	8,040	8,184	8,218	8,239	8,210	8,117

* New Growth and Attrition are rolling figures based on a starting point of August 2009.

CHATTANOOGA GAS COMPANY
30-Year Normal Heating Degree Days
1979 through 2009

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	24	22	18	9	3	0	0	0	0	2	6	19
2	23	21	17	9	3	0	0	0	0	2	8	19
3	21	22	17	8	3	0	0	0	0	2	10	19
4	22	24	15	8	3	0	0	0	0	2	11	20
5	24	25	14	9	2	0	0	0	0	2	12	20
6	22	25	14	9	2	0	0	0	0	3	13	22
7	22	24	15	9	2	0	0	0	0	4	12	20
8	25	23	15	7	2	0	0	0	0	4	12	19
9	24	21	15	8	1	0	0	0	0	4	12	18
10	25	22	17	8	1	0	0	0	0	3	12	18
11	27	21	16	7	1	0	0	0	0	3	13	20
12	25	23	15	5	1	0	0	0	0	4	14	20
13	23	23	13	5	1	0	0	0	0	5	15	19
14	24	20	13	4	1	0	0	0	0	5	14	21
15	25	19	13	5	1	0	0	0	0	5	15	20
16	27	19	12	6	2	0	0	0	0	5	15	21
17	27	21	12	6	1	0	0	0	0	5	14	22
18	25	20	11	5	1	0	0	0	0	4	14	23
19	26	17	12	5	1	0	0	0	0	6	13	23
20	28	16	13	4	1	0	0	0	0	6	13	24
21	26	15	13	4	1	0	0	0	0	6	15	23
22	26	16	14	4	1	0	0	0	1	6	16	23
23	26	16	12	5	0	0	0	0	1	8	16	22
24	24	18	10	4	0	0	0	0	1	8	16	25
25	25	18	9	3	0	0	0	0	1	8	16	28
26	26	18	10	3	0	0	0	0	1	7	16	27
27	25	18	9	4	0	0	0	0	1	8	14	23
28	23	17	9	3	1	0	0	0	1	8	16	21
29	22		9	4	1	0	0	0	2	8	18	22
30	22		8	3	1	0	0	0	1	7	18	24
31	23		9		0		0	0		6		22
Monthly Total (Non Leap Year)	757	564	399	173	38	0	0	0	10	156	409	667	3,173
Monthly Total (Leap Year)	757	582	390	167	35	0	0	0	10	156	409	667	3,173

July 1975 Through June 2005
Previous Rate Case Normal Degree Days

Monthly Total (Non Leap Year)	795	581	405	174	40	0	0	0	14	165	415	697	3,286
Monthly Total (Leap Year)	795	599	397	167	37	0	0	0	14	165	415	697	3,286