Chattanooga Gas Company Supplemental Testimony of

Tim Sherwood for Docket 07-00224

Q1. Please state your name and position.

A1. My name is Tim Sherwood. I am Managing Director of Capacity Planning for AGL Services Company ("AGLSC"), testifying on behalf of Chattanooga Gas Company ("CGC" or "Company").

Q2. What is the purpose of your testimony?

A2. The purpose of my testimony is to address three subjects raised for the first time in Dr. Brown's rebuttal testimony consistent with the Hearing Officer's Order. These subjects include the management of CGC's Operating Balancing Agreements ("OBAs") on East Tennessee Natural Gas Pipeline ("ETNG"), Dr. Brown's concept of "Long Term Value Proposition", and the facts regarding the Atlanta Gas Light Company Capacity Supply Plan Stipulation in Docket 24960-U ("Stipulation"). In addition, I will support the introduction of hearing exhibits TSS-5 through TSS-19, which were filed with the Tennessee Regulatory Authority ("TRA") on December 1, 2008.

Q3. Are you sponsoring exhibits in connection with your testimony?

A3. Yes. I am sponsoring responsive exhibits TSS-5 through TSS-19, which were prepared under my direction and supervision and are as follows:

Exhibit TSS-05 – CGC Load Duration Curve

Exhibit TSS-06 - CGC Design Day Regression - Straight Regression

Exhibit TSS-07 - CGC Design Day Regression with Bend

Exhibit TSS-08 - CGC ETNG OBA Balances

Exhibit TSS-09 - CGC's ETNG Scheduled Receipts and Imbalance Quantity

Exhibit TSS-10 - CGC ETNG Operator Allocation Summary Report for 2007

Exhibit TSS-11 - CGC GDA Price Comparison for Delivered Supply

Exhibit TSS-12 - CGC FOM Delivered Prices to CGC Gate

Exhibit TSS-13 - CGC Delivered Supply Cost NORA Lateral Receipt Point vs. SNG

Exhibit TSS-14 - Total Heating Degree Days and Highest Single Day

Exhibit TSS-15 - CGC Stylized Map

Exhibit TSS-16 - CGC Purchased Gas Volumes by Pipeline

Exhibit TSS-17 - CGC Gas by Pipeline and Third Party Gas by Pipeline Compared with Dr. Brown Analysis

Exhibit TSS-18 - ETNG System Map (provided only in hard copy)

Exhibit TSS-19 - CGC Tariff (on file with the TRA)

Exhibits TSS-1 through TSS-4 were previously filed with the CGC testimony dated July 30, 2008. Those exhibits were - Exhibit TSS-01 - Professional Experience of Tim Sherwood, Exhibit TSS-02 - Design Day Load and Capacity Comparison, Exhibit TSS-03 - Cost Analysis of Saltville Storage, and Exhibit TSS-04 - CGC System Map with ETNG Facilities.

Exhibit TSS-05 – CGC Load Duration Curve, Exhibit TSS-06 - CGC Design Day Regression - Straight Regression, Exhibit TSS-07 - CGC Design Day Regression with Bend, and Exhibit TSS-14 - Total Heating Degree Days and Highest Single Day are responsive to the new subject raised in Dr. Brown's rebuttal testimony regarding the Atlanta Gas Light Company Stipulation. ***(Brown Rebuttal page 13, line 21 through page 14, line 5 and page 54, line 23 through page 55, line 10).***

Exhibit TSS-08 - CGC ETNG OBA Balances, Exhibit TSS-09 - CGC's ETNG Scheduled Receipts and Imbalance Quantity, and Exhibit TSS-10 - CGC ETNG Operator Allocation Summary Report for 2007 are responsive to the new subject raised in Dr. Brown's rebuttal testimony regarding the management of CGC's OBA. ***(Brown Rebuttal page 24, line 1 through page 34, line 3).***

Exhibit TSS-11 - CGC GDA Price Comparison for Delivered Supply, Exhibit TSS-12 - CGC FOM Delivered Prices to CGC Gate, Exhibit TSS-13 - CGC Delivered Supply Cost NORA Lateral Receipt Point vs. SNG, Exhibit TSS-15 - CGC Stylized Map, Exhibit TSS-16 - CGC Purchased Gas Volumes by Pipeline, Exhibit TSS-17 - CGC Gas by Pipeline and Third Party Gas by Pipeline Compared with Dr. Brown Analysis, Exhibit TSS-18 - ETNG System Map (provided only in hard copy), and Exhibit TSS-19 - CGC Tariff (on file with the TRA) are responsive to the new subject raised in Dr. Brown's rebuttal testimony regarding the concept of "Long Term Value Proposition". ***(Brown Rebuttal page***

5, line 1 through page 11, line 16; page 42, line 5 through page 45, line 16; page 47, line 8 through page 49, line 22).

Q4. Can you provide a summary of your testimony?

A4. Yes.

First, Dr. Brown indicates that based on information included in the Stipulation in Georgia Public Service Commission ("GPSC") Docket 24960-U "AGLC's Capacity Supply Plan" the gas supply requirements for CGC are overstated. ***(Brown Rebuttal page 54, line 23 through page 55, line 10).***

I will explain how Dr. Brown is misunderstanding or misapplying the information in that docket and drawing an incorrect conclusion as to CGC firm capacity needs. I will demonstrate how CGC's capacity portfolio is appropriate and required to meet the needs of the Company's customers in a reliable manner to avoid service outages during periods of extreme cold weather.

Second, Dr. Brown asserts that CGC's management of its OBA does not "Hunt to Zero" or result in imbalances crossing zero and that CGC allows the OBA to be used by the asset manager to facilitate deliveries to Saltville Storage or the Patriot Pipeline. ***(Brown Rebuttal page 24, line 1 through page 34, line 3).***

I will show how Dr. Brown is simply wrong in his description as to the management of CGC's OBA balances and in his assertion that the OBA can be used to make deliveries of gas to Saltville, Patriot, or Transcontinental Gas Pipe Line ("Transco"). ***(Brown Rebuttal page 30, line 23 -27).*** I will show how the OBA balances have crossed zero on a regular basis and how the operation of the OBA because of constraints on the ETNG system cannot be used to make deliveries to Saltville Storage, Patriot Pipeline or to Transco.

Third, Dr. Brown states that because of the AGLSC's compensation system and its relationship to the performance of CGC's asset manager, the personnel within AGLSC make decisions related to the development of CGC's capacity portfolio and use of the gas supply resources in a manner that is not in the best interest of CGC's customers. ***(Brown Rebuttal page 8, line 16 – 24).*** He supports his premise by alleging that AGLSC personnel have taken action to:

(1) overstate the design day for CGC ***(Brown Rebuttal page 5, line 29 -33 and page 13, line 1 through page 14, line 5)***;

(2) maintain the CGC capacity portfolio ***(Brown Rebuttal page 6, line 33 – 35 and page 10, line 1-3)***;

(3) select Sequent as the asset manager for CGC ***(Brown Rebuttal page 10, line 3 – 8)***;

(4) shift gas deliveries from ETNG to Southern Natural Gas ("SNG") ***(Brown Rebuttal page 10, line 22 – 26)***;

(5) assign CGC receipt capacity to the asset manager ***(Brown Rebuttal 11, line 7 - 16)***;

(6) understate the ability of CGC's capacity to reach East Coast Markets ***(Brown Rebuttal page 12, line 20 – 25)***; and

(7) manage its OBA to over deliver to CGC to assist Sequent with deliveries to Saltville and other markets ***(Brown Rebuttal page 25, line 22 – line 33 and page 30, line 20 – 27)***.

I will explain how the performance management system for AGLSC employees protects the customers of CGC from Dr. Brown's value proposition theory. I will also explain how the assertions made by Dr. Brown to support his presumption that AGLSC personnel are not working in the best interest of the CGC customers are not supported by the facts.

DR. BROWN'S ERRORS IN INTERPRETING AGLC DOCKET 24960-U AND HOW IT APPLIES TO DESIGN DAY LOAD AND CAPACITY PORTFOLIO FOR CGC

Q5. **Can you summarize Dr. Brown's testimony regarding Atlanta Gas Light Company's ("AGLC" or "AGLC's") Stipulation in its Capacity Supply Plan in Docket 24960-U and the relationship between the design day load forecast for the Rome Pool and CGC?**

A5. Yes. Dr. Brown draws the conclusion that there should be a relationship between the design day forecast of AGLC's Rome Pool and CGC since the service territories are in close geographic proximity to one another. He then infers that since AGLC's forecast for the Rome Pool is projected to decline from 2008 to 2010, the design day for CGC should decline as well. ***(Brown Rebuttal page 13, line 21 through page 14, line 5 and page 54, line 23 through page 55, line 10).***

Q6. **Do you agree with the conclusion drawn by Dr. Brown regarding this relationship?**

A6. No.

Q7. What is wrong with Dr. Brown's conclusion?

A7. Dr. Brown makes the mistake of not taking into consideration customer count when drawing his conclusion about the relationship between Rome Pool load and CGC's load. During the period 2008 – 2010, AGLC's Rome Pool is projected to have a decline of approximately 5,000 customers, while CGC is forecasted to have a modest increase in customers.

Q8. Can you describe the proceeding associated with Docket 24960-U referenced by Dr. Brown in his rebuttal testimony? *(Brown Rebuttal page 13, line 21 through page 14, line 5 and page 54, line 23 through page 55, line 10).*

A8. Yes. Docket 24960-U is the most recently filed and approved Capacity Supply Plan ("CSP") of AGLC. In the proceeding AGLSC personnel presented and

supported the calculation of design day load of the customers of AGLC. They also demonstrated how the capacity portfolio held by AGLC meets the design day and seasonal supply requirements of the customers.

Q9. Dr. Brown attempts to contrast with your direct testimony a Stipulation proposed by, and agreed to, by AGLC with the Georgia Public Service Commission in Docket No. 24960-U in which the design day for Rome, Georgia decreased to suggest that "if CGC were not in a strategic location with regard to ETNG, CGC's design-day might not be increasing". *(Brown Rebuttal page 55, line 4 – 10).* What is your assessment of Dr. Brown's analysis on this point?

A9. While it is not clear what analysis Dr. Brown performed, Dr. Brown is incorrect in his attempt to contrast my direct testimony with the Georgia Stipulation and he is incorrect in his assertion that the strategic location of CGC with regard to ETNG influences the capacity planning and design day forecast. The analysis done to project design day load is done to determine the level of firm deliverability needed by the utility to keep firm customers supplied with natural gas during periods of extreme cold weather conditions and has nothing to do with the strategic location of the utility being served. "Firm customers" means customers for which CGC has a firm obligation.

Q10. Please explain what design day load is and how the calculation of design day load is important to the planning process.

A10. Design day load is a measure of the maximum amount of gas required on a given day to meet the supply needs of the firm customers. A significant amount of natural gas is used for space heating on the CGC system and therefore, the design day occurs under certain extreme cold temperature conditions. In order to predict the design day load, AGLSC personnel forecast the level of firm load that would be projected at the coldest temperature that could be expected to occur in the Chattanooga service area.

The Company most recently encountered a day having a daily average temperature of 8 degrees in 1985 and has experienced days with average daily temperatures of 10 degrees or colder on 3 different occasions since 1980. The most recent occurred the winter of 1994. The coldest day occurring in each winter and the total HDDs occurring in the winters since 1961 are illustrated in **Exhibit TSS-14**. The coldest day occurring in this past winter was December 16, 2008, with an average daily temperature of 18 degrees.

In the context of gas supply planning, the design day is critical to providing reliable gas service to meet human needs. Without the ability to deliver gas to the CGC gas distribution system at the level needed to meet the full supply needs of the firm customers, outages will occur. Outages would leave CGC's customers without natural gas for space heating during a period when temperatures are well below freezing, potentially creating a life threatening situation for our customers.

Should such an outage happen, it could take several days or weeks to restore service depending on the number of customers who lose service. The process to restore service requires a minimum of two visits. The first visit turns service off to the dwelling. The second visit is to restore service and relight pilots. Difficulty in gaining access to a premise delays the relight process and subjects our customers to life threatening conditions and their property to potential damaging effects of extreme cold such as frozen and ruptured pipes.

Forecasting the design day allows CGC to determine what level of total natural gas delivery capacity is needed to meet the critical supply needs of the firm customers under extreme weather conditions.

Q11. In CSP Docket 24960-U referenced by Dr. Brown, how was the design day load calculated for AGLC's CSP and how does it compare to the methodology used to calculate CGC's design day?

A11. The design day for AGLC is calculated by performing a regression analysis for each discrete load area or "pool" on the AGLC system. The load for all customers for which the utility has a firm obligation under its tariff is analyzed in relation to average temperature for that day on which that load occurred. The regression results in a formula that describes the relationship between temperature and load per customer. By including in the formula the number of customers being served and the temperature expected under design conditions, a design day load can be projected.

For example, for the Atlanta Pool the design day load in the CSP for 2008 is 1,913,319 dths and grows to 1,975,580 dths in 2010. This results from applying the use per customer factor of 1.623 dths (resulting from the regression) at an average daily temperature of 10 degrees to the projected growth in customers between 2008 and 2010.

In contrast to the Atlanta Pool, the Rome Pool load is expected to have a decline of approximately 5,000 customers over the period 2008 through 2010. Therefore, applying the Rome Pool's use per customer factor of 1.485 at the average daily temperature of 8 degrees, the design temperature associated with the Rome pool results in a decline in the projected design day load.

AGLSC personnel use the same method as is used for AGLC to determine the design day for CGC. The result of this regression methodology is graphically shown on **Exhibit TSS-07**, indicating the use per customer increases as average temperature decreases. This method is the same as approved in Docket 24960-U for AGLC. The Company finds it to be superior to the results of the straight line regression methodology illustrated in **Exhibit TSS-06** because the results are more accurate when compared to historical, actual load experience at both AGLC and CGC. The design day load included on **Exhibit TSS-02** was determined using this method including the design day average temperature for Chattanooga of 8 degrees and a customer count for CGC of 62,187.

While Dr. Browns testifies that "CGC's design day forecasts include industrial loads and are interruptible or stand-by only" ***(Brown Rebuttal page 54, line 19 – 21)***, the fact is that loads included in the design day regression analysis are loads for which CGC has a firm obligation consistent with CGC's tariff, included as **Exhibit TSS-19**. The design day analysis for CGC was done in the same manner as the analysis referenced in the Stipulation in Docket 24960-U.

As opposed to the Rome Pool on the AGLC system, the firm customer count for CGC has been increasing. This is why Dr. Brown is wrong in drawing the conclusion that the CGC design day should decline because the design day load for AGLC's Rome Pool declined in the last CSP.

Q12. Was the CGC load calculation referenced by Dr. Brown in TRA Docket 06-00175 performed consistent with the methodology associated with the Stipulation in AGLC Docket 24960-U?

A12. No. Dr. Brown is wrong in saying that the Company performed a design day load forecast in TRA Docket 06-00175. ***(Brown Rebuttal page 13, line 14 – 19).*** As was acknowledged by Dr. Brown and the CAPD in their responses to CGC data request nos. 11 and 13, the number referenced in that docket was not performed consistent with the methodology included in the AGLC Stipulation and was only used for cost allocations of peak period distribution system costs and did not include the allocation of pipeline costs. The calculation was not meant to project

the maximum level of firm gas supply needed to meet the firm customer needs under extreme weather conditions when reliable gas service is critical to the human needs of CGC's customers.

Q13. Does the Stipulation in Docket 24960-U referenced by Dr. Brown in his testimony address other important capacity planning issues that are also important to the reliable service to CGC's firm customers? ***(Brown Rebuttal page 13, line 21 through page 14, line 5 and page 54, line 23 through page 55, line 10).***

A13. Yes. The Stipulation discusses the type and duration of the firm supply resources that are appropriate to meet the design day load of the customers given overall load characteristics.

Q14. How were the design day load characteristic of the Rome Pool and other AGLC Pools evaluated as part of the Stipulation referenced by Dr. Brown?

A14. In Docket 24960-U, AGLSC personnel examined the nature of the design day load and the durational capabilities of the gas supply resources included in the portfolio to (1) make sure they meet the severe winter requirements of the firm customers and (2) fit the portfolio to the seasonal load in a manner to mitigate fixed costs. This is done through the examination of the Load Duration Curve.

The same type of load duration analysis was performed for CGC. The Load Duration Curve for the CGC system has been provided as **Exhibit TSS-05**. The

exhibit illustrates load from the coldest to the warmest day in the period selected, as the red line indicates the design day on the far left and descending to the right. The firm capacity resources under contract are shown on the graphic as stacked blocks. The total capability of these resources is shown as the area under the blocks.

On **Exhibit TSS-05**, the green block shows CGC's on-system liquefied natural gas ("LNG") facility. At its maximum it can serve 70,000 dths per day of load and can serve that level of load until the LNG in its storage tank is depleted in just 17 days, assuming the tank was completely full. The storage services contracted by CGC are similar in that they have limited inventory, but also perform the function of allowing the Company to serve weather variable load and secure supply when well-head gas becomes unavailable, such as when hurricanes Rita and Katrina devastated the Gulf Coast region. As shown on the exhibit, firm transportation resources are typically available every day, but usually have the highest fixed costs.

The load factor calculations resulting from the AGLC Stipulation and for the CGC portfolio would also be performed in a consistent manner. As you can see on **Exhibit TSS-05**, the Company has developed a portfolio designed to meet the seasonal needs of the firm customers, while limiting fixed costs, by meeting almost half of the design day need of the system using the lower cost and shorter duration on-system LNG facility. The load factor calculation referenced by Dr.

Brown in his rebuttal Exhibit 18, was calculated using a simplifying assumption of full design day capacity being available for the entire year. ***(Brown Rebuttal page 18, line 17 through page 19, line 12).*** Adjusting his load factor calculation to take into account that the 70,000 dths of deliverability from the LNG facility is available for approximately 17 days per year, instead of 365 days, the load factor for CGC increases by more than 45% over the level cited in Dr. Brown's rebuttal testimony.

This is why Dr. Brown is wrong when he utilizes load on a day in January, 2005 to state that CGC only uses about 60% of its capacity to serve CGC's firm customers load. ***(Brown Rebuttal page 13, line 5 – 12).*** While Dr. Brown did not indicate what specific day he used to make this assertion, the Company reviewed that month and found that the coldest day during that period had an average temperature of 23 degrees, which is 15 degrees warmer than the temperature expected on the design day.

The firm load experienced that January 2005 day was consistent with the load predicted by the Company's design day load formula under those temperature conditions.

In addition, the Load Duration Curve in **Exhibit TSS-05** indicates that virtually 100% of the firm transportation and storage contracted by CGC would be used to meet firm customer needs on a day with load like we experienced on that January

2005 day. As the exhibit illustrates, the remainder of the firm deliverability available comes from the on-system LNG resource that can only be relied on for a limited number of days and is needed to serve days colder than 23 degrees. Therefore, the CGC analysis is consistent with the AGLC Stipulation, and Dr. Brown's attempt to suggest otherwise is incorrect.

DR. BROWN'S ERRORS IN DESCRIBING CGC'S USE OF THE ETNG OBA

Q15. Can you explain what the ETNG OBA is and how it is used by CGC?

A15. Yes. The ETNG OBA is an agreement between ETNG and CGC, which allows deliveries at any of CGC's pipeline interconnects or gate stations to be balanced against all deliveries scheduled to those gate stations.

For example, assume a local distribution company ("LDC") has two gate stations "A" and "B". Natural gas purchased by the LDC must be scheduled and nominated to one of the specific gate stations. Without the OBA, if 5,000 dths were scheduled to gate station A and 3,000 were scheduled to gate station B, the LDC's nominations would be balanced on a daily basis against each gate station individually. Therefore, if the LDC consumed 4,000 dths at A and 4,000 at B, the LDC would be carrying a 1,000 dth long imbalance at A and a 1,000 dth short imbalance at B. These imbalances would be accumulated for the month and the LDC would be subject to the pipeline's tariff based cash-out process at the end of the month for the imbalance at each gate station. With the OBA, total

nominations are balanced against total consumption, resulting in no net imbalance for the day in this example and no exposure to a cash-out position. In addition, this allows for easier management of total system imbalances.

Q16. How does Dr. Brown's statements regarding CGC's use of its OBA compare to the capability provided in the OBA?

A16. Dr. Brown is wrong in assigning the OBA with the ability to facilitate deliveries to delivery points on the ETNG system that are not within the firm rights of the Company. ***(Brown Rebuttal page 30, line 20 – 27).*** The OBA only allows CGC to balance deliveries with nominations across all of its **contracted** delivery points across all of its pipeline contracts in total rather than being balanced at the contract and gate station level. The OBA does not allow balancing of deliveries between CGC and its delivery points on ETNG and a delivery point into another pipeline such as the Saltville Storage, Patriot Pipeline or Transco. This is similar to how CGC allows its transportation customers to trade imbalance between each other on a monthly basis. The Company would not allow this between customers on two separate utility systems.

Therefore, Dr. Brown is wrong in implying that CGC can facilitate deliveries off system because "*...CGC could schedule more deliveries than it needs and the imbalance could be taken as a delivery at another point on ETNG's system ...*" ***(Brown Rebuttal page 30, line 20 – 23).*** For this quote to be accurate, with

relationship to CGC all delivery points must be points associated with the CGC's transportation agreement.

Q17. How does Dr. Brown's testimony and exhibits regarding the volume tracking of OBA balances compare to CGC's actual OBA balances?

A17. It is not clear what data sources and/or calculation methodology Dr. Brown used, but it is clear that his attempts to compute the Company's OBA balances are wrong. CGC does manage its OBA on the pipeline in a manner in which it does regularly cross zero as is shown on **Exhibit TSS-08, Exhibit TSS-09, and Exhibit TSS-10**. Note that contrary to Dr. Brown's testimony ***(Brown Rebuttal page 33, line 21 – 35)***, the OBA does in fact move above and below a zero value. Therefore, his assertion that OBA is used consistently as a source of gas for the asset manager is simply not supported by the facts.

Exhibit TSS-08 is a table which includes each month from August 2005 through October 2008. For each month the total monthly delivery and total monthly receipt are included, along with the monthly imbalance (labeled as Mo. Imbalance (Long)/Short). The table shows that from month to month the imbalance is sometime positive and sometimes negative. **Exhibit TSS-09** is a graph representing the OBA balance for CGC as the red line on the graph.

Exhibit TSS-10 is a table which includes the volume scheduled (Scheduled Quantity), the volume delivered (Allocated Quantity), the difference between the

volume scheduled and the volume delivered (Var Quantity), the average scheduled quantity (Dly Sched Quantity), and the average delivery quantity (Dly Alloc Quantity) for each month of calendar year 2007.

Given the errors in his data, Dr. Brown's comparison of CGC's use of the OBA and El Paso Electric's imbalance management are moot since the facts associated with CGC's OBA imbalance volumes are wrong. However, it is important to note that the comparison between the balancing activities of El Paso Electric and CGC demonstrates a fundamental lack of understanding as to the nature of the loads served by the two companies and the pipeline services used by the companies to manage the differences between the amount of gas scheduled and the amount of gas actually consumed.

CGC has several key differences when compared to El Paso Electric. CGC has multiple pipelines serving its system, has storage available to aid with balancing, and schedules and burns volumes in light of the net activity of transportation customer imbalances which are included in the total system imbalance.

El Paso Electric uses its transportation capacity exclusively to serve gas fired electric generating facilities that have their consumption controlled by El Paso Electric. Generally speaking, El Paso will know the day ahead of plans for operations of the generating plants. The only flexibility they potentially have is to shift generation between plants served by different energy sources, and/or use

alternate fuels at a plant. El Paso Electric is required under the terms of the service they have contracted for, on their single delivering pipeline, to continually balance scheduled gas supply volumes with their daily burns.

In contrast, CGC serves more than 60,000 different consumers, of which it does not control their behavior. The usage is primarily driven by the actual average temperature for the day, which can and often does deviate significantly from the day ahead forecasted temperatures. CGC cannot fuel switch to manage its daily need for natural gas supply. In addition, CGC has transport customers that schedule gas to the system from ETNG and whose daily balances are included in CGC's imbalances, since CGC is the delivery point operator. Accordingly, Dr. Brown's OBA arguments do not withstand analysis.

DR. BROWN'S LACK OF SUPPORT FOR HIS VALUE PROPOSITON THEORY

Q18. Can you summarize what you are describing as Dr. Brown's "long term value proposition" theory?

A18. Yes. In his rebuttal testimony, Dr. Brown makes the assertion that CGC's capacity planning is serving the broader interests of AGL Resources Inc. ("AGLR"), which sees CGC's excess capacity as a platform for Sequent's earning contributions to AGLR. ***(Brown Rebuttal page 5, line 1 – 5).*** He asserts that the personnel involved in "gas supply planning have a direct pay-incentive to help

Sequent." ***(Brown Rebuttal page 9, line 22- 25).*** In support of these accusations, Dr. Brown points to the Annual Incentive Plan of the Company that provides employees the opportunity to earn additional compensation based on personal and corporate performance. ***(Brown Rebuttal page 8, line 16 – 24).***

As evidence in support of his speculations regarding the motives of the AGLSC personnel, he points to several actions that he claims have resulted:

1) He states that AGLSC biases are evidenced by the system load for CGC being overstated when compared to the Rome Pool of AGLC, therefore increasing capacity made available to Sequent.

2) He argues that because of this financial incentive the capacity planning process will result in an effort to sustain CGC's excess capacity.

3) CGC selecting Sequent as the asset manager.

4) He also says that AGLSC personnel and CGC have further demonstrated their implementation of the "Long-Term Value Proposition" by using its ENTG capacity less and less since 2003, thus enhancing Sequent's access to ENTG.

5) Dr. Brown also states that CGC assigned 5,000 dths of receipt capacity it held on ETNG to Sequent to enhance their access to ETNG.

6) Dr. Brown testifies that with the advent of the Patriot Pipeline project, CGC's ETNG contracts are avenues to east cost gas markets driving increased value for Sequent.

7) That CGC manages the OBA in a manner that does not cross zero and therefore provides benefits to Sequent to the detriment of CGC's customers and that the OBA can be used to make deliveries to Saltville Storage, Patriot Pipeline, and Transco for the benefit of Sequent.

Q19. Do you agree with Dr. Brown that the actions of the personnel involved in capacity planning for CGC are influenced by corporate objective and/or personal compensation to make decisions for any other reason than providing reliable service to CGC's customers at best cost?

A19. I disagree with Dr. Brown on all points for his argument regarding the long term value proposition. The personnel involved in capacity planning and gas supply for CGC are in no way influenced to make decisions or take actions, except in the best interest of CGC's customers. Dr. Brown's speculative theory seems to be based on a misunderstanding of the company's performance management process and on a number of erroneous assumptions as to actions taken by CGC.

Q20. Are you familiar with the performance management processes and the Annual Incentive Plan for the members of the capacity planning personnel?

A20. Yes, I am.

Q21. Are the underlying assumptions Dr. Brown uses related to his argument about the Company's incentive compensation correct?

A21. No, Dr. Brown's assumptions are not correct. The single most significant factor influencing compensation, including the payment of additional compensation for the employees involved in the capacity planning process, is their individual performance. The individual performance of these employees is specifically dedicated to the service of AGLR's utilities and does not include the performance of Sequent. Failure to meet the individual performance standards makes employees ineligible for additional compensation under the Annual Incentive Plan. Therefore, Dr. Brown's theory that AGLSC personnel will not appropriately perform their responsibilities is simply wrong. Additionally, the capacity planning and supply management issues that Dr. Brown sites to support his speculation are wrong as well.

Q22. Can you detail the errors in Dr. Brown's supposed evidence of his long term value proposition associated with the system load for CGC being overstated when compared to the Rome Pool of AGLC?

A22. Dr. Brown cites as further evidence of AGLSC biases in the supply planning process that the design day load for CGC is overstated when compared to the

Rome Pool of AGLC, therefore increasing capacity made available to Sequent. As explained earlier in my testimony, Dr. Brown is wrong in his interpretation of how the Rome Pool design day load relates to CGC design day load.

A23. Can you detail the errors in Dr. Brown's supposed evidence of his long term value proposition that because of this financial incentive the capacity planning process will result in an effort to sustain CGC's excess capacity?

A23. Dr. Brown's assertion that the capacity planning process will result in an effort to sustain CGC's excess capacity is simply not supported by the facts. There have been no additions to the CGC capacity portfolio since AGLR acquired CGC in 1986. The fact is that the only change to the CGC's portfolio in the past 3 years has been a reduction of 5,000 Dth/d of firm transportation capacity implemented. That 6.8% capacity reduction is counter to Dr. Brown's supposition that we will work to sustain excess CGC's capacity.

Q24. Can you detail the errors in Dr. Brown's supposed evidence of his long term value proposition due to CGC selecting Sequent as the asset manager?

A24. Sequent was selected as the asset manager for CGC as the result of a tariff based RFP process in which they were the party offering the highest minimum annual guaranteed payment to CGC's customers. In addition, CGC annually files a detailed report of the gain that results from the asset management agreement and is shared with its customers. The TRA Staff audits the filing and includes the

results of its audit in the annual Actual Cost Adjustment ("ACA") Audit Report that is presented to and accepted by the TRA Directors.

Q25. Can you detail the errors in Dr. Brown's supposed evidence of his long term value proposition demonstrated by CGC using its ENTG capacity less and less since 2003, thus enhancing Sequent's access to ENTG?

A25. Dr. Brown spends a significant portion of his testimony explaining that AGLSC personnel are demonstrating his long term value proposition by using its ENTG capacity less and less since 2003. ***(Brown Rebuttal page 22, line 12 – 15 and page 34 line 12 through page 35, line 12).*** Supposedly this effort is to the detriment of CGC customers by increasing the dependence on volumes of higher priced gas supplied from SNG thereby enhancing Sequent's access to ENTG capacity. However, Dr. Brown's accusation is again simply not supported by the facts. Consistent with the annual filing made by CGC in its ACA proceedings, the purchase mix between ETNG and SNG has not shifted as testified by Dr. Brown. To the contrary, as is illustrated in **Exhibit TSS-16**, every year since 2003, ETNG purchases and deliveries have been higher than in 2003. It is also important to note that each year CGC provides the TRA Staff detailed support of all gas purchases and deliveries by both pipelines as part of the annual ACA and Performance Based Ratemaking filings. The Staff audits this data and issues a report to the TRA Directors for their acceptance.

Dr. Brown's mistake could have been associated with inappropriately adding third party deliveries with deliveries for CGC's sales customers when analyzing deliveries to CGC. As is illustrated in **Exhibit TSS-17**, comparing 2003 to 2005, third party volume deliveries shifted from ETNG to SNG, while CGC's deliveries from ETNG increased from 54% to 61%.

Dr. Brown also speculates that CGC's alleged shift of purchases from ETNG to SNG would result in higher costs to CGC's customers. ***(Brown Rebuttal page 35, line 26 through page 37, line 25)***. To ensure that the record is clear on this issue, **Exhibit TSS-11**, **Exhibit TSS-12**, and **Exhibit TSS-13** have been provided to provide accurate information as to the delivered gas costs from ENTG and SNG. **Exhibit TSS-11** is a table indicating the average delivered daily gas cost from the four pricing points into CGC's SNG capacity (labeled SONAT) and ETNG capacity (labeled TN Z0, TN500, TN800) and the differences in pricing between those points from November 2002 through October 2008. The data indicate that prices between SNG and the various receipt points into ETNG vary by location and over time. **Exhibit TSS-12** is a table indicating the delivered prices for monthly purchases from the pricing points into CGC's SNG capacity (labeled SONAT) and ETNG capacity (labeled TN Z0, TN500, TN800, and LA & Offshore Z1) from November 2001 through November 2008. Seasonal averages are calculated in the lower tables. Again, the data indicate that prices between SNG and the various receipt points into ETNG vary by location and over time. **Exhibit TSS-13** is the calculation of the delivered supply cost comparison for July 2004 between gas delivered to CGC from the NORA lateral into ETNG and

delivered to CGC via SNG. This exhibit shows that the calculation in Brown Rebuttal Exhibit 44 excluded the cost of fuel and variable transportation on the ETNG system resulting in an actual delivery cost of $6.338 from NORA instead of the $6.2342 in his testimony. This price is comparable to the $6.337 cost calculated for the same period for gas delivered from SNG. Therefore, instead of the cost being almost $0.10 lower from ETNG as indicated in his testimony, the prices are essentially the same.

Q26. Can you detail the errors in Dr. Brown's supposed evidence of his long term value proposition when he states that CGC assigned 5,000 dths of receipt capacity it held on ETNG to Sequent to enhance their access to ETNG?

A26. Dr. Brown has consistently stated that CGC provided Sequent special access to the ETNG capacity by assigning, releasing, or in some other manner relinquishing its capacity to Sequent. His testimony is simply not consistent with the facts. As explained in several data request responses (see CGC's responses to CAPD's first data request nos. 55, 82, 83, 84 & 85, and CGC's responses to CAPD's second data request nos. 7 & 9) and throughout my pre-filed testimony (dated July 30, 2008), CGC did not relinquish or assign capacity to Sequent. The Company turned back capacity to ETNG consistent with the contract provisions and the pipeline's FERC approved tariff. Capacity and/or receipt point rights on ETNG are provided to parties in a non-discriminatory manner consistent with FERC rules and the pipelines tariff.

Q27. Can you detail the errors in Dr. Brown's supposed evidence of his long term value proposition when he testifies that with the advent of the Patriot Pipeline project, CGC's ETNG contracts are avenues to east cost gas markets driving increased value for Sequent.

A27. Dr. Brown also testifies that with the advent of the Patriot Pipeline project, CGC's ETNG contracts became avenues to east coast gas markets driving increased value for Sequent. Again, Dr. Brown's facts are wrong. His testimony indicates that the Company's capacity on ETNG can be delivered to the Patriot Pipeline. The Patriot Pipeline was placed in service a few years ago and does provide a physical tie between ETNG system and Transco.

However, as illustrated in **Exhibit TSS-15**, CGC's capacity on ETNG cannot be used to reach the Patriot Pipeline. The Company's capacity on ETNG does not provide firm delivery rights east of the ETNG's Top Side constraint point. Even the relatively small amount of capacity held by CGC with receipt rights in Dickenson County with firm delivery rights to CGC distribution system do not provide rights to Saltville, Patriot Pipeline, or Transco.

Exhibit TSS-15 is a graphic depiction of the ETNG system indicating the capacity held by CGC as dotted lines with arrows showing the path and direction of that path. **Exhibit TSS-18** is a hard copy map of the ETNG system showing that **Exhibit TSS-15** is accurate in its reference to the general location of receipt and delivery points on the ETNG system.

Q28. Can you detail the errors in Dr. Brown's supposed evidence of his long term value proposition when he testifies that CGC manages the OBA in a manner that does not cross zero and therefore provides benefits to Sequent to the detriment of CGC's customers and that the OBA can be used to make deliveries to Saltville Storage for the benefit of Sequent? *(Brown Rebuttal page 33, line 21 – 30 and Brown Rebuttal page 25, line 22 – 28).*

A28. Dr. Brown's testimony further states that CGC manages the OBA in a manner that does not cross zero and therefore provides benefits to Sequent to the detriment of CGC's customers. Again, Dr. Brown is incorrect. As outlined above, CGC does actively manage the OBA in such a manner that its balance often cross zero.

Another erroneous assertion by Dr. Brown is that the OBA can be used to make deliveries to Saltville Storage, Patriot Pipeline, and Transco for the benefit of Sequent. The OBA's only function is to provide for management of net imbalances across multiple CGC delivery points, within the reach of the utility's underlying firm capacity. As previously stated as well, Dr. Brown's reference to the El Paso Electric generating facility does not provide a valid comparison .

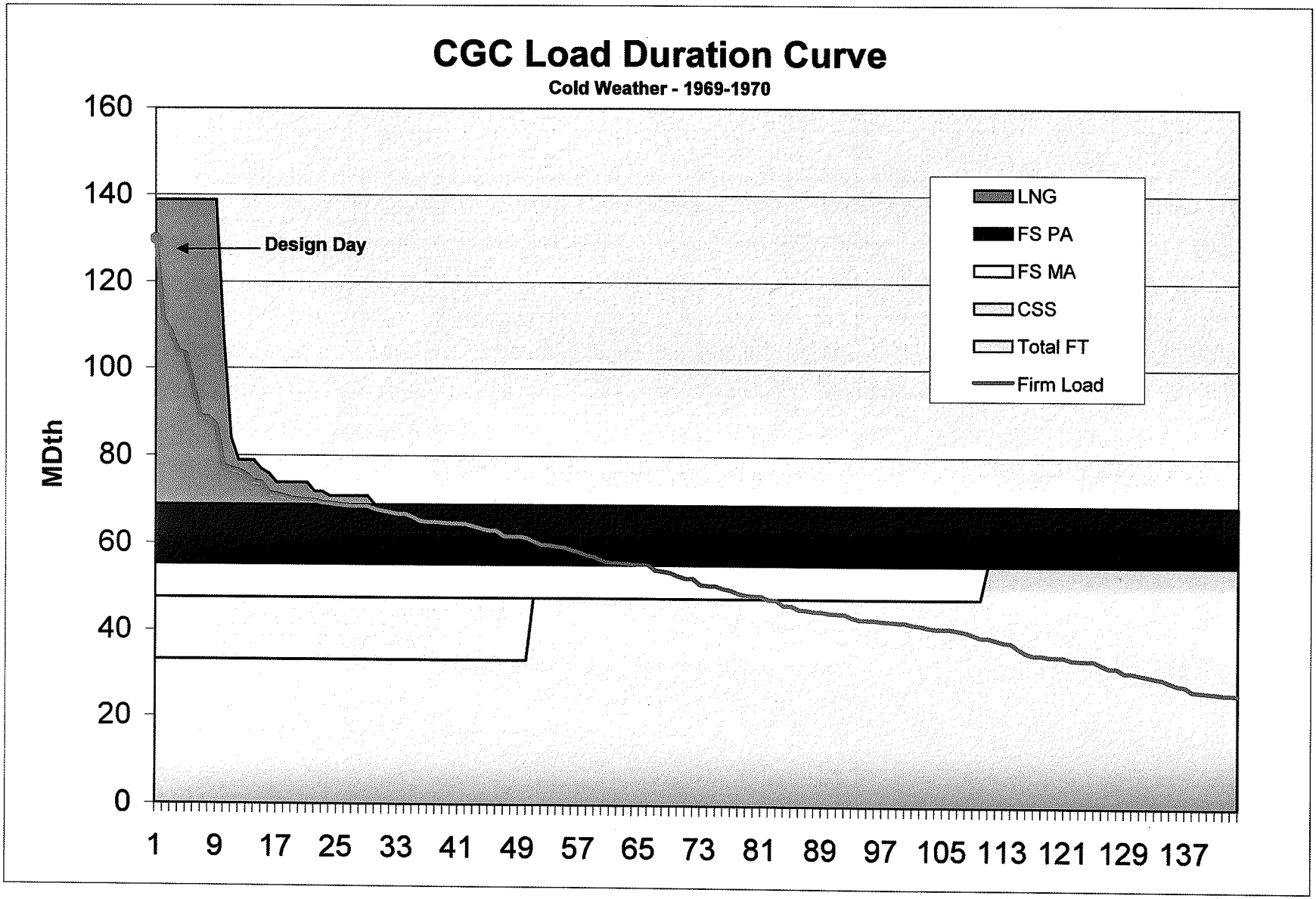
Q29. What conclusions do you draw regarding Dr. Brown's long term value proposition theory?

A29. Dr. Brown's speculative theory that the personnel responsible for the gas supply planning for CGC are inappropriately incented is simply not supported by the facts. His claims regarding the actions that have resulted from this effort to

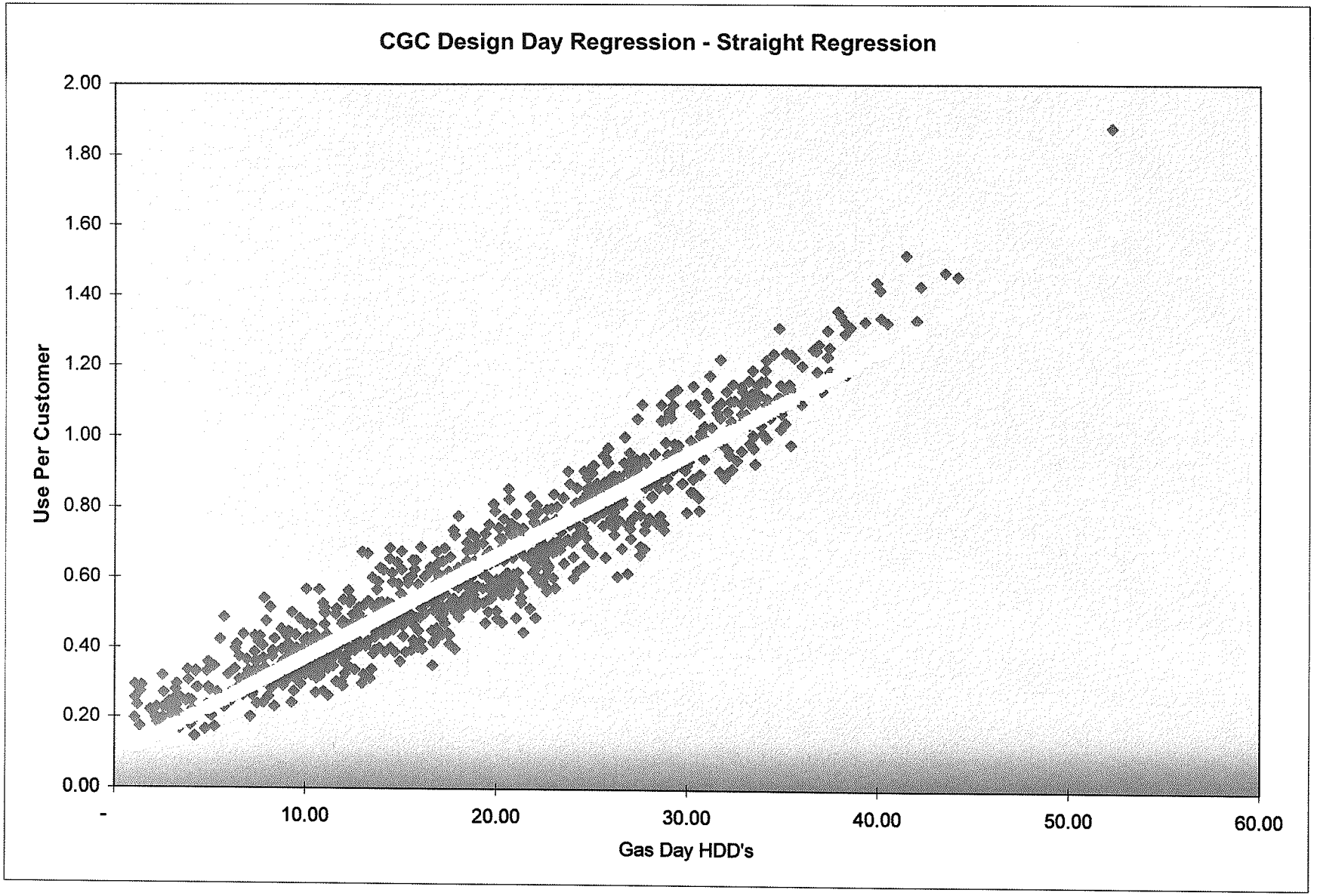
enhance corporate value are simply not true. I can personally testify as the person with responsibility for these activities that Dr. Brown's accusations are incorrect.

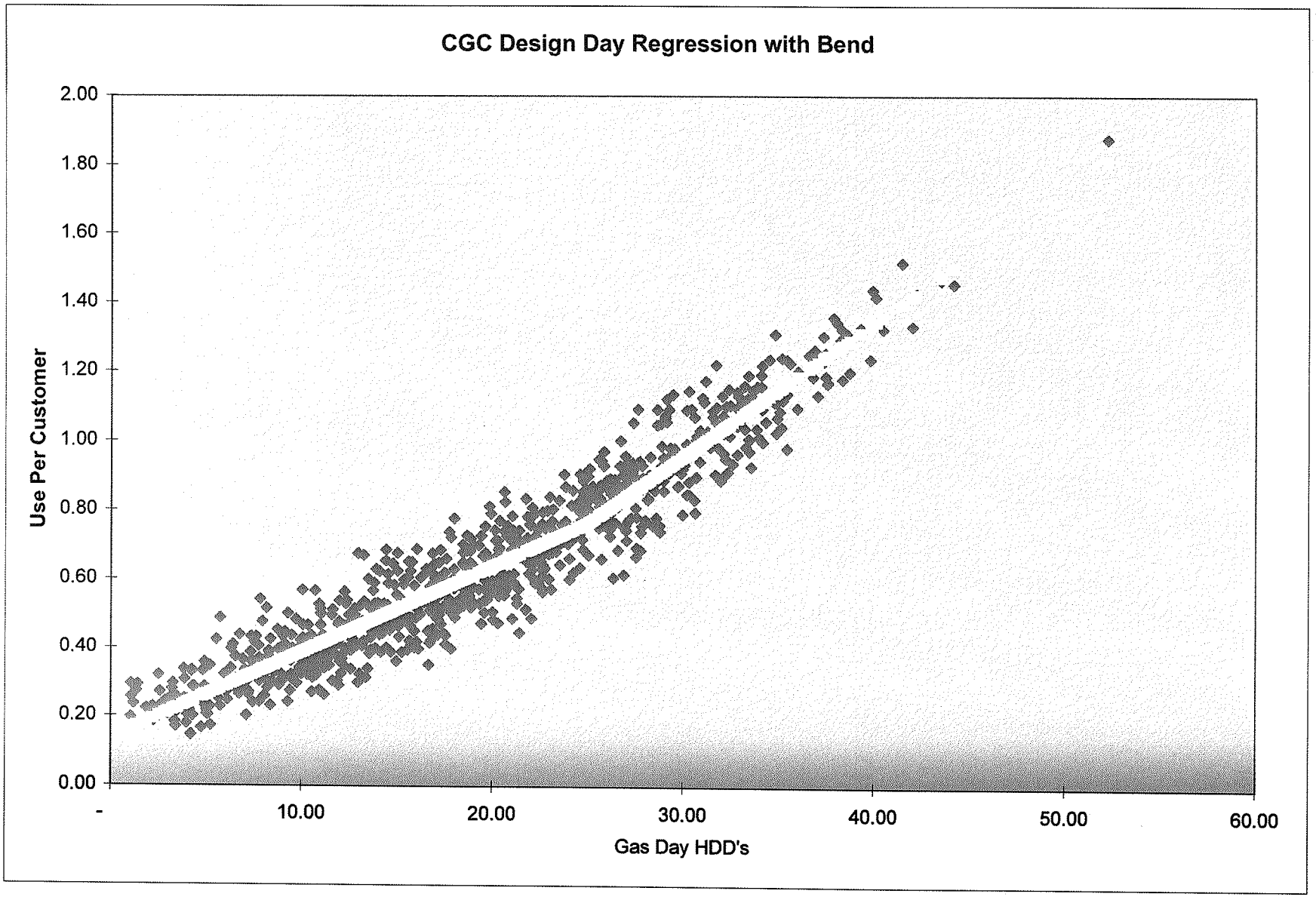
Q30. Does this conclude your testimony?

A30. Yes.


CGC Load Duration Curve
Cold Weather - 1969-1970
MDth
160
140
120
100
80
60
40
20
0
Design Day
LNG
FS PA
FS MA
CSS
Total FT
Firm Load
1
9
17
25
33
41
49
57
65
73
81
89
97
105
113
121
129
137

TSS - 06

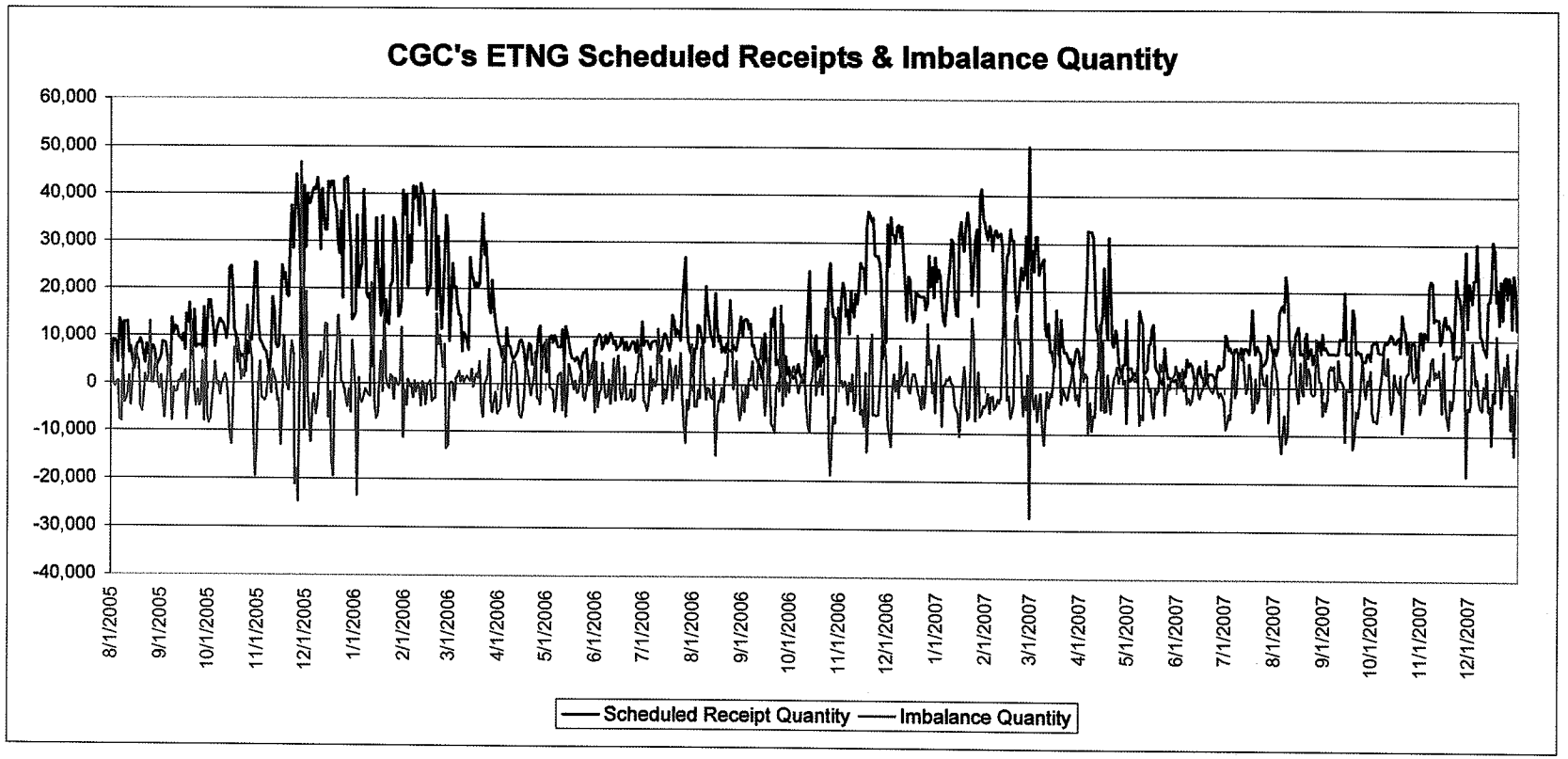

CGC Design Day Regression - Straight Regression
Use Per Customer
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
-
10.00
20.00
30.00
40.00
50.00
60.00
Gas Day HDD's


CGC Design Day Regression with Bend
Use Per Customer
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
-
10.00
20.00
30.00
40.00
50.00
60.00
Gas Day HDD's

Chattanooga Gas Company
ETNG OBA Balances

Month	Alloc Del Qty	Alloc Rec Qty	Mo. Imbalance (Long)/Short	Daily Alloc Delivery Qty	Daily Alloc Receipt Qty
Aug-05	238,498	224,740	13,758	7,693	7,250
Sep-05	259,289	280,049	(20,760)	8,643	9,335
Oct-05	378,303	386,348	(8,045)	12,203	12,463
Nov-05	551,953	549,175	2,778	18,398	18,306
Dec-05	1,098,284	1,095,660	2,624	35,429	35,344
Jan-06	686,303	684,795	1,508	22,139	22,090
Feb-06	858,380	864,459	(6,079)	30,656	30,874
Mar-06	570,343	575,046	(4,703)	18,398	18,550
Apr-06	224,838	215,105	9,733	7,495	7,170
May-06	207,173	203,636	3,537	6,683	6,569
Jun-06	270,269	263,562	6,707	8,718	8,502
Jul-06	320,714	326,401	(5,687)	10,346	10,529
Aug-06	306,418	309,472	(3,054)	9,884	9,983
Sep-06	224,724	223,940	784	7,491	7,465
Oct-06	248,895	247,329	1,566	8,029	7,978
Nov-06	641,184	645,327	(4,143)	21,373	21,511
Dec-06	732,518	737,675	(5,157)	23,630	23,796
Jan-07	799,046	820,778	(21,732)	25,776	26,477
Feb-07	780,712	780,162	550	27,883	27,863
Mar-07	415,138	419,382	(4,244)	13,392	13,528
Apr-07	435,634	438,259	(2,625)	14,521	14,609
May-07	162,620	150,960	11,660	5,246	4,870
Jun-07	81,360	86,417	(5,057)	2,625	2,788
Jul-07	263,349	253,902	9,447	8,495	8,190
Aug-07	316,832	317,314	(482)	10,220	10,236
Sep-07	241,568	255,375	(13,807)	8,052	8,513
Oct-07	287,922	288,543	(621)	9,288	9,308
Nov-07	478,657	446,902	31,755	15,955	14,897
Dec-07	581,108	589,575	(8,467)	18,745	19,019
Jan-08	850,383	853,858	(3,475)	27,432	27,544
Feb-08	742,530	745,360	(2,830)	25,604	25,702
Mar-08	532,213	530,181	2,032	17,168	17,103
Apr-08	304,945	301,976	2,969	10,165	10,066
May-08	191,095	212,608	(21,513)	6,164	6,858
Jun-08	94,287	97,804	(3,517)	3,042	3,155
Jul-08	80,185	85,463	(5,278)	2,587	2,757
Aug-08	160,588	161,166	(578)	5,180	5,199
Sep-08	197,246	193,326	3,920	6,575	6,444
Oct-08	209,612	213,262	(3,650)	6,762	6,879

TSS - 09


CGC's ETNG Scheduled Receipts & Imbalance Quantity
60,000
50,000
40,000
30,000
20,000
10,000
0
-10,000
-20,000
-30,000
-40,000
8/1/2005
9/1/2005
10/1/2005
11/1/2005
12/1/2005
1/1/2006
2/1/2006
3/1/2006
4/1/2006
5/1/2006
6/1/2006
7/1/2006
8/1/2006
9/1/2006
10/1/2006
11/1/2006
12/1/2006
1/1/2007
2/1/2007
3/1/2007
4/1/2007
5/1/2007
6/1/2007
7/1/2007
8/1/2007
9/1/2007
10/1/2007
11/1/2007
12/1/2007
Scheduled Receipt Quantity
Imbalance Quantity

Chattanooga Gas Company
ETNG Operator Allocation Summary Report for 2007

Energy Scheduled to CCG's Connecting Points w/ ETNG
12 Month Summation Per ETNG's EBB Jan - Dec 2007

Month	Scheduled Quantity	Allocated Quantity	Var Quantity	Dly Sched Quantity	Dly Alloc Quantity
Jan-07	1,228,582	1,206,850	(21,732)	39,632	38,931
Feb-07	1,161,887	1,162,437	550	41,496	41,516
Mar-07	624,994	620,750	(4,244)	20,161	20,024
Apr-07	613,481	610,856	(2,625)	20,449	20,362
May-07	261,457	273,117	11,660	8,434	8,810
Jun-07	165,243	160,186	(5,057)	5,330	5,167
Jul-07	338,491	347,938	9,447	10,919	11,224
Aug-07	452,294	451,812	(482)	14,590	14,575
Sep-07	289,957	276,150	(13,807)	9,665	9,205
Oct-07	401,743	401,122	(621)	12,959	12,939
Nov-07	693,815	725,570	31,755	23,127	24,186
Dec-07	835,488	827,021	(8,467)	26,951	26,678
Total	**7,067,432**	**7,063,809**			

Chattanooga Gas Company
GDA Price Comparison for Delivered Supply

Average East Tennessee Delivered GDA Prices

	SONAT	TN Z0	TN500	TN800
Nov-Mar02	$ 2.558	$ 2.522	$ 2.549	$ 2.546
Apr-Oct02	$ 3.471	$ 3.464	$ 3.477	$ 3.477
Nov-Mar03	$ 5.522	$ 5.599	$ 5.676	$ 5.652
Apr-Oct03	$ 5.242	$ 5.242	$ 5.240	$ 5.231
Nov-Mar04	$ 5.654	$ 5.573	$ 5.708	$ 5.692
Apr-Oct04	$ 5.952	$ 5.939	$ 5.956	$ 5.941
Nov-Mar05	$ 6.550	$ 6.409	$ 6.633	$ 6.575
Apr-Oct05	$ 9.604	$ 8.828	$ 8.587	$ 9.094
Nov-Mar06	$ 9.581	$ 8.513	$ 9.553	$ 9.481
Apr-Oct06	$ 6.432	$ 6.327	$ 6.464	$ 6.187
Nov-Mar07	$ 7.436	$ 6.991	$ 7.508	$ 7.375
Apr-Oct07	$ 7.035	$ 6.939	$ 7.095	$ 7.019
Nov-Mar08	$ 8.266	$ 8.014	$ 8.311	$ 8.258
Apr-Oct08	$ 10.006	$ 9.831	$ 10.002	$ 9.962

SNG Delivered GDA Cost vs Other Delivering Pipes

	SNG vs TN Z0		SNG vs 500L		SNG vs 800L	
Nov-Mar02	$ 0.036	1.39%	$ 0.008	0.33%	$ 0.012	0.47%
Apr-Oct02	$ 0.006	0.18%	$ (0.006)	-0.18%	$ (0.006)	-0.17%
Nov-Mar03	$ (0.077)	-1.39%	$ (0.154)	-2.79%	$ (0.130)	-2.35%
Apr-Oct03	$ (0.000)	0.00%	$ 0.002	0.04%	$ 0.011	0.21%
Nov-Mar04	$ 0.080	1.42%	$ (0.054)	-0.96%	$ (0.038)	-0.67%
Apr-Oct04	$ 0.013	0.22%	$ (0.004)	-0.07%	$ 0.012	0.19%
Nov-Mar05	$ 0.141	2.16%	$ (0.084)	-1.27%	$ (0.025)	-0.38%
Apr-Oct05	$ 0.777	8.09%	$ 1.017	10.59%	$ 0.510	5.31%
Nov-Mar06	$ 1.068	11.15%	$ 0.028	0.30%	$ 0.100	1.05%
Apr-Oct06	$ 0.105	1.63%	$ (0.032)	-0.50%	$ 0.245	3.80%
Nov-Mar07	$ 0.445	5.98%	$ (0.073)	-0.98%	$ 0.061	0.82%
Apr-Oct07	$ 0.096	1.36%	$ (0.061)	-0.86%	$ 0.015	0.22%
Nov-Mar08	$ 0.252	3.05%	$ (0.045)	-0.55%	$ 0.008	0.10%
Apr-Oct08	$ 0.175	1.75%	$ 0.004	0.04%	$ 0.044	0.44%

A positive value indicates the SNG path to CGC is more expensive.

Chattanooga Gas Company
FOM Delivered Prices to CGC Gate

Flow Month	SONAT	TN Z0	TN500	TN800	LA & Offshore Z1
Nov-01	$ 3.244	$ 3.242	n/a	n/a	$ 3.256
Dec-01	$ 2.340	$ 2.326	n/a	n/a	$ 2.338
Jan-02	$ 2.656	$ 2.705	n/a	n/a	$ 2.682
Feb-02	$ 2.092	$ 2.053	n/a	n/a	$ 2.088
Mar-02	$ 2.482	$ 2.463	n/a	n/a	$ 2.463
Apr-02	$ 3.498	$ 3.526	n/a	n/a	$ 3.506
May-02	$ 3.447	$ 3.463	n/a	n/a	$ 3.443
Jun-02	$ 3.488	$ 3.452	n/a	n/a	$ 3.454
Jul-02	$ 3.355	$ 3.368	$ 3.360	$ 3.339	
Aug-02	$ 3.026	$ 3.052	$ 3.037	$ 3.037	
Sep-02	$ 3.365	$ 3.389	$ 3.360	$ 3.370	
Oct-02	$ 3.806	$ 3.799	$ 3.839	$ 3.839	
Nov-02	$ 4.248	$ 4.283	$ 4.267	$ 4.267	
Dec-02	$ 4.258	$ 4.273	$ 4.288	$ 4.277	
Jan-03	$ 5.059	$ 5.030	$ 5.070	$ 5.059	
Feb-03	$ 5.808	$ 5.756	$ 5.862	$ 5.873	
Mar-03	$ 9.402	$ 9.407	$ 9.490	$ 9.501	
Apr-03	$ 5.223	$ 5.230	$ 5.299	$ 5.320	
May-03	$ 5.243	$ 5.220	$ 5.268	$ 5.299	
Jun-03	$ 6.065	$ 6.145	$ 6.144	$ 6.154	
Jul-03	$ 5.551	$ 5.451	$ 5.455	$ 5.455	
Aug-03	$ 4.781	$ 4.841	$ 4.778	$ 4.819	
Sep-03	$ 5.048	$ 5.093	$ 5.059	$ 5.059	
Oct-03	$ 4.535	$ 4.557	$ 4.559	$ 4.548	
Nov-03	$ 4.566	$ 4.557	$ 4.611	$ 4.611	
Dec-03	$ 4.987	$ 4.978	$ 5.070	$ 5.038	
Jan-04	$ 6.361	$ 6.187	$ 6.383	$ 6.373	
Feb-04	$ 5.940	$ 5.651	$ 5.987	$ 5.977	
Mar-04	$ 5.293	$ 5.146	$ 5.341	$ 5.330	
Apr-04	$ 5.498	$ 5.504	$ 5.539	$ 5.549	
May-04	$ 6.083	$ 6.145	$ 6.154	$ 6.154	
Jun-04	$ 6.874	$ 6.924	$ 6.936	$ 6.300	
Jul-04	$ 6.361	$ 6.387	$ 6.383	$ 6.363	
Aug-04	$ 6.192	$ 6.261	$ 6.227	$ 6.237	
Sep-04	$ 5.217	$ 5.241	$ 5.216	$ 5.184	
Oct-04	$ 5.740	$ 5.861	$ 5.925	$ 5.904	

Seasonal Averages					
NOV-MAR 02	$ 2.563	$ 2.558	n/a	n/a	$ 2.565
APR-OCT 02	$ 3.426	$ 3.436	$ 3.399	$ 3.396	$ 3.468
NOV-MAR 03	$ 5.755	$ 5.750	$ 5.795	$ 5.795	n/a
APR-OCT 03	$ 5.207	$ 5.220	$ 5.223	$ 5.237	n/a
NOV-MAR 04	$ 5.429	$ 5.304	$ 5.478	$ 5.466	n/a
APR-OCT 04	$ 5.995	$ 6.046	$ 6.054	$ 5.956	n/a

Flow Month	SONAT	TN Z0	TN500	TN800
Nov-04	$ 7.835	$ 7.734	$ 7.906	$ 7.885
Dec-04	$ 7.979	$ 7.944	$ 8.260	$ 8.250
Jan-05	$ 6.379	$ 6.051	$ 6.509	$ 6.477
Feb-05	$ 6.523	$ 6.072	$ 6.613	$ 6.592
Mar-05	$ 6.475	$ 6.314	$ 6.540	$ 6.529
Apr-05	$ 6.659	$ 7.660	$ 7.666	$ 7.635
May-05	$ 6.913	$ 6.861	$ 6.988	$ 6.978
Jun-05	$ 6.282	$ 6.440	$ 6.342	$ 6.321
Jul-05	$ 7.178	$ 7.250	$ 7.218	$ 7.238
Aug-05	$ 7.840	$ 7.934	$ 7.916	$ 7.916
Sep-05	$ 11.077	$ 10.817	$ 11.242	$ 11.002
Oct-05	$ 14.632	$ 13.268	$ 14.453	$ 14.622
Nov-05	$ 14.330	$ 12.247	$ 14.516	$ 14.568
Dec-05	$ 11.632	$ 8.660	$ 11.763	$ 11.763
Jan-06	$ 11.944	$ 9.323	$ 12.014	$ 11.909
Feb-06	$ 8.666	$ 7.671	$ 8.719	$ 8.635
Mar-06	$ 7.307	$ 7.176	$ 7.374	$ 7.322
Apr-06	$ 7.398	$ 7.271	$ 7.499	$ 7.468
May-06	$ 7.368	$ 7.229	$ 7.436	$ 7.416
Jun-06	$ 6.075	$ 6.114	$ 6.112	$ 6.112
Jul-06	$ 6.034	$ 6.019	$ 6.133	$ 6.071
Aug-06	$ 7.307	$ 7.261	$ 7.416	$ 7.332
Sep-06	$ 7.042	$ 6.924	$ 7.176	$ 7.092
Oct-06	$ 4.313	$ 4.199	$ 4.277	$ 4.256
Nov-06	$ 7.347	$ 7.155	$ 7.468	$ 7.426
Dec-06	$ 8.579	$ 7.965	$ 8.677	$ 8.635
Jan-07	$ 6.085	$ 5.609	$ 6.123	$ 6.008
Feb-07	$ 7.154	$ 6.966	$ 7.249	$ 7.176
Mar-07	$ 7.821	$ 7.408	$ 7.926	$ 7.801
Apr-07	$ 7.790	$ 7.460	$ 7.843	$ 7.822
May-07	$ 7.749	$ 7.734	$ 7.885	$ 7.781
Jun-07	$ 7.831	$ 7.923	$ 8.010	$ 7.916
Jul-07	$ 7.149	$ 7.208	$ 7.238	$ 7.186
Aug-07	$ 6.304	$ 6.272	$ 6.310	$ 6.279
Sep-07	$ 5.642	$ 5.567	$ 5.654	$ 5.581
Oct-07	$ 6.609	$ 6.629	$ 6.602	$ 6.602

Seasonal Averages				
NOV-MAR 05	$ 7.038	$ 6.823	$ 7.165	$ 7.147
APR-OCT 05	$ 8.654	$ 8.604	$ 8.832	$ 8.816
NOV-MAR 06	$ 10.776	$ 9.015	$ 10.877	$ 10.840
APR-OCT 06	$ 6.505	$ 6.431	$ 6.579	$ 6.535
NOV-MAR 07	$ 7.397	$ 7.021	$ 7.489	$ 7.409
APR-OCT 07	$ 7.011	$ 6.971	$ 7.078	$ 7.024

Flow Month	SONAT	TN Z0	TN500	TN800
Nov-07	$ 7.485	$ 7.471	$ 7.509	$ 7.509
Dec-07	$ 6.324	$ 7.050	$ 7.489	$ 7.468
Jan-08	$ 7.454	$ 7.282	$ 7.509	$ 7.468
Feb-08	$ 8.442	$ 8.302	$ 8.448	$ 8.344
Mar-08	$ 9.249	$ 9.144	$ 9.334	$ 9.303
Apr-08	$ 9.870	$ 9.796	$ 9.980	$ 9.939
May-08	$ 11.540	$ 11.448	$ 11.774	$ 11.722
Jun-08	$ 12.201	$ 12.132	$ 12.431	$ 12.378
Jul-08	$ 13.596	$ 13.541	$ 13.661	$ 13.609
Aug-08	$ 9.575	$ 9.375	$ 9.553	$ 9.543
Sep-08	$ 8.638	$ 8.271	$ 8.615	$ 8.656
Oct-08	$ 7.660	$ 7.282	$ 7.739	$ 7.697
Nov-08	$ 6.724	$ 6.387	$ 6.738	$ 6.707

Seasonal Averages				
NOV-MAR 08	$ 7.791	$ 7.850	$ 8.058	$ 8.018
APR-OCT 08	$ 10.440	$ 10.263	$ 10.536	$ 10.506

Chattanooga Gas Company
Delivered Supply Cost
NORA Lateral Receipt Point vs SNG

TGP 500L July 2004 FOM Price	$ 6.08		
SNG July 2004 FOM Price	$ 6.16		
TGP 1-1 Discounted Variable	$ 0.0507	TGP 1-1 Summer Fuel	1.70%
TGP 0-1 Discounted Variable	$ 0.0410	TGP 0-1 Summer Fuel	2.44%
ETNG Variable	$ 0.0030	ETNG Fuel	1.58%
SNG P-3 Variable	$ 0.0654	SNG Fuel	1.78%

The SNG and ETNG delivered supply sourced from receipt point 59315 on the NORA lateral had the same cost per Dth in July 2004.

Dr. Brown's Cost Calculation of Delivered NORA Supply to CGC Gate

July 2004 TGP 500L FOM Price	TGP 1-1 Fuel	TGP 1-1 Var	Delivered Cost
$ 6.08	1.70%	0.0507	$ 6.2358

Delivered NORA Supply Calculation
July 2004: (6.08)/(1-.017) + 0.0491 = 6.2342

Actual Cost Calculation of Delivered NORA Supply to CGC Gate

July 2004 TGP 500L FOM Price	TGP 1-1 Fuel	TGP 1-1 Var	ET Fuel	ET Var	Delivered Cost
$ 6.08	1.70%	0.0507	1.58%	0.003	$ 6.3381

Delivered NORA Supply Calculation
July 2004: (6.08)/(1-.017)/(1-.0158) + 0.0507 + 0.003 = 6.338

Actual Cost Calculation of Delivered SNG to CGC Gate

July 2004 SNG FOM Price	P-3 Fuel	P-3 Var	Delivered Cost
$ 6.16	1.78%	0.0654	$ 6.3370

Delivered SNG Supply Calculation
July 2004: (6.16)/(1-.0178 + 0.0654 = 6.337

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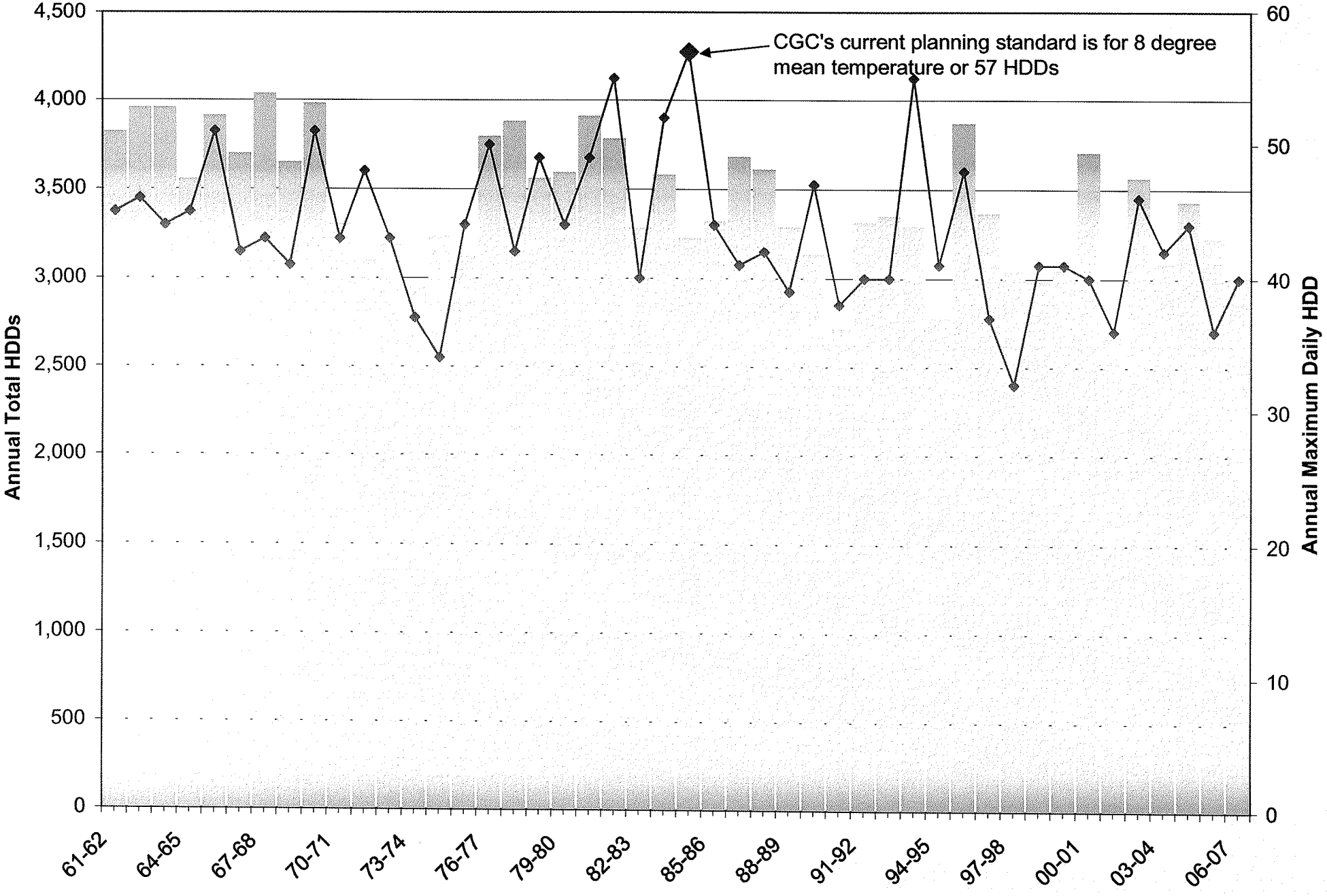
Total Heating Degree Days and Highest Single Day

10 AM - 10 AM 8-point average



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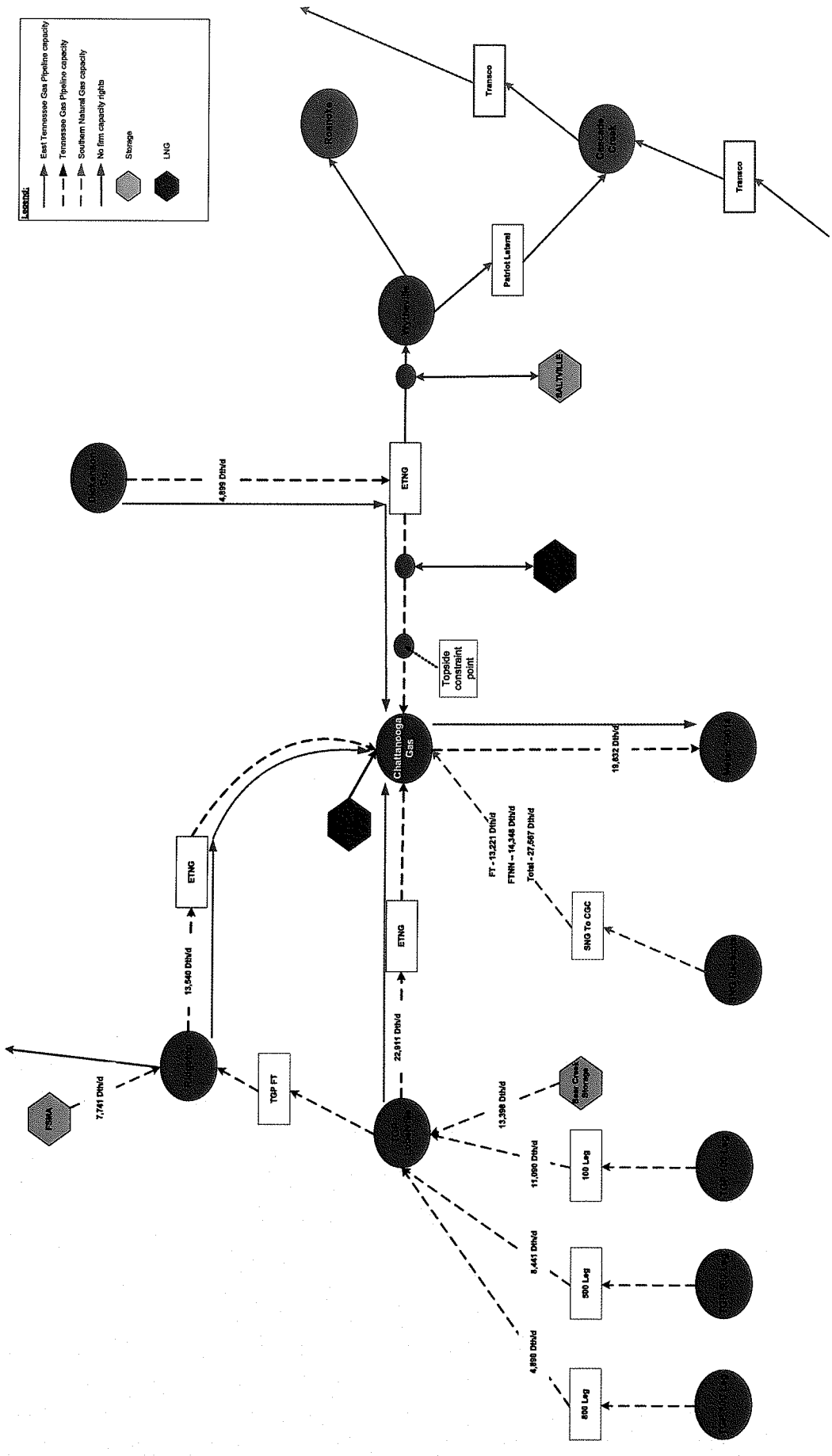
Legend:
East Tennessee Gas Pipeline capacity
Tennessee Gas Pipeline capacity
Southern Natural Gas capacity
No firm capacity rights
Storage
LNG
Transco
Transco
Patriot Lateral
ETNG
4,899 Dth/d
Topside constraint point
Chattanooga Gas
19,832 Dth/d
FT - 13,221 Dth/d
FTNN - 14,346 Dth/d
Total - 27,567 Dth/d
SNG To CGC
ETNG
ETNG
13,540 Dth/d
22,911 Dth/d
7,741 Dth/d
FSMA
TGP FT
13,398 Dth/d
11,000 Dth/d
100 Leg
8,441 Dth/d
500 Leg
4,898 Dth/d
800 Leg

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Chattanooga Gas Company
Docket 07-00224
Purchased Gas Volumes by Pipeline

		Gross Purchases		Net Deliveries	
		East Tennessee	Southern Natural	East Tennessee	Southern Natural
12 Month Ended December 31	2003	59%	41%	54%	46%
12 Month Ended December 31	2004	70%	30%	65%	35%
12 Month Ended December 31	2005	65%	35%	61%	39%
12 Month Ended December 31	2006	69%	31%	64%	36%
12 Month Ended December 31	2007	66%	34%	64%	36%

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Chattanooga Gas Company
Docket 07-00224
Purchased Gas Volumes by Pipeline

12 Month Ended December 31 **2003**

EAST TENNESSEE **ALL VOLUMES ARE IN DTH'S**

Month		FT PURCHASES a/	IT PURCHASES	FS INJECTIONS b/	FS WITHDRAWALS b/	NET DELIVERIES
	Jan-03	841,913	0	(5,596)	501,326	1,337,643
	Feb-03	764,737	0	(6,046)	271,753	1,030,444
	Mar-03	385,550	0	(44,776)	169,967	510,741
	Apr-03	362,488	0	(71,076)	0	291,412
	May-03	136,945	0	(12,176)	0	124,769
	Jun-03	590,261	0	(492,201)	0	98,060
	Jul-03	528,540	0	(482,612)	0	45,928
	Aug-03	294,996	0	(263,500)	0	31,496
	Sep-03	201,840	0	(165,420)	0	36,420
	Oct-03	364,267	0	(172,498)	0	191,769
	Nov-03	350,913	0	(29,487)	153,177	474,603
	Dec-03	644,077	0	(19,065)	454,376	1,079,388
TOTAL		5,466,527	0	(1,764,453)	1,550,599	5,252,673

SOUTHERN **ALL VOLUMES ARE IN DTH'S**

Month		FT PURCHASES a/	IT PURCHASES	CSS INJECTIONS b/	CSS WITHDRAWALS b/	CASHOUT b/	NET DELIVERIES
	Jan-03	420,794	0	(11,357)	258,448	22,963	667,885
	Feb-03	392,046	0	(18,269)	143,542	(9,449)	517,319
	Mar-03	170,888	0	(41,099)	137,773	(2,496)	267,562
	Apr-03	170,174	0	(214)	36,039	10,939	205,999
	May-03	161,746	0	(15,600)	48,187	46,832	194,333
	Jun-03	302,673	0	(117,370)	69,098	22,782	254,401
	Jul-03	396,468	0	(163,047)	83,982	48,766	317,403
	Aug-03	564,822	0	(187,707)	36,714	11,229	413,829
	Sep-03	502,068	0	(93,040)	109,646	34,593	518,674
	Oct-03	245,736	0	(30,814)	92,265	38,475	307,187
	Nov-03	145,115	0	(15,026)	59,441	16,437	189,530
	Dec-03	390,908	0	(14,066)	242,788	0	619,630
TOTAL		3,863,438	0	(707,609)	1,317,923	241,071	4,473,752
TOTAL ANNUAL DTHS		9,329,965	0	(2,472,062)	2,868,522	241,071	9,726,425
EAST TENNESSEE VOLUMES		5,466,527					5,252,673
SOUTHERN VOLUMES		3,863,438					4,473,752
% EAST TENNESSEE		**59%**					**54%**
% SOUTHERN		**41%**					**46%**

Chattanooga Gas Company
Docket 07-00224
Purchased Gas Volumes by Pipeline

12 Month Ended December 31 **2004**

EAST TENNESSEE **ALL VOLUMES ARE IN DTH's**

Month		FT PURCHASES a/	IT PURCHASES	FS INJECTIONS b/	FS WITHDRAWALS b/	NET DELIVERIES
	Jan-04	870,887	0	(11,989)	358,977	1,217,875
	Feb-04	842,582	0	(5,626)	137,198	974,154
	Mar-04	324,394	0	0	154,097	478,491
	Apr-04	194,161	0	0	272,238	466,399
	May-04	161,588	0	0	169,215	330,803
	Jun-04	845,680	0	(649,912)	0	195,768
	Jul-04	735,351	0	(629,729)	0	105,622
	Aug-04	472,680	0	(398,545)	0	74,135
	Sep-04	100,874	0	(5)	6,202	107,071
	Oct-04	306,278	0	(204,011)	12,402	114,669
	Nov-04	165,134	0	0	287,450	452,584
	Dec-04	953,917	0	(33,818)	108,939	1,029,038
TOTAL		5,973,526	0	(1,933,635)	1,506,718	5,546,609

SOUTHERN

Month		FT PURCHASES a/	IT PURCHASES	CSS INJECTIONS b/	CSS WITHDRAWALS b/	CASHOUT b/	NET DELIVERIES.
	Jan-04	414,026	0	(26,491)	197,174	6,396	591,105
	Feb-04	383,465	0	(8,978)	167,672	22,517	564,676
	Mar-04	233,363	0	(42,497)	110,971	(6,005)	295,832
	Apr-04	135,530	0	(17,295)	22,650	1,699	142,584
	May-04	125,893	0	(6,603)	16,434	213	135,937
	Jun-04	180,322	0	(143,100)	2,149	1,139	40,510
	Jul-04	178,148	0	(109,267)	9,511	2,034	80,426
	Aug-04	209,746	0	(99,067)	7,828	3,249	121,756
	Sep-04	121,127	0	(8,411)	8,490	14,780	135,986
	Oct-04	118,054	0	0	71,498	42,723	232,275
	Nov-04	126,270	0	(2,192)	123,328	13,042	260,448
	Dec-04	342,072	0	(24,645)	129,222	1,040	447,689
TOTAL		2,568,016	0	(488,546)	866,927	102,827	3,049,224
TOTAL ANNUAL DTHS		8,541,542	0	(2,422,181)	2,373,645	102,827	8,595,833

EAST TENNESSEE VOLUMES	5,973,526	5,546,609
SOUTHERN VOLUMES	2,568,016	3,049,224
% EAST TENNESSEE	**70%**	**65%**
% SOUTHERN	**30%**	**35%**

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Chattanooga Gas Company
Docket 07-00224
Purchased Gas Volumes by Pipeline

12 Month Ended December 31 2005

EAST TENNESSEE

Month		FT PURCHASES a/	IT PURCHASES	FS INJECTIONS b/	FS WITHDRAWALS b/	NET DELIVERIES.
	Jan-05	649,584	0	(36,565)	285,669	898,688
	Feb-05	517,629	0	0	333,216	850,845
	Mar-05	446,452	0	0	456,182	902,634
	Apr-05	518,275	0	0	61,973	580,248
	May-05	302,634	0	0	0	302,634
	Jun-05	650,004	0	(441,653)	0	208,351
	Jul-05	597,257	0	(443,193)	0	154,064
	Aug-05	633,447	0	(445,317)	0	188,130
	Sep-05	566,411	0	(407,524)	0	158,887
	Oct-05	499,880	0	(198,783)	57,121	358,218
	Nov-05	524,011	0	(15,986)	117,460	625,485
	Dec-05	1,230,900	0	(33,405)	103,219	1,300,714
TOTAL		7,136,484	0	(2,022,426)	1,414,840	6,528,898

SOUTHERN

Month		FT PURCHASES a/	IT PURCHASES	CSS INJECTIONS b/	CSS WITHDRAWALS b/	CASHOUT b/	NET DELIVERIES c/
	Jan-05	433,318	0	(42,323)	85,848	(9,048)	467,795
	Feb-05	251,746	0	(17,626)	79,118	23,603	336,841
	Mar-05	173,398	0	(10,947)	151,885	1,092	315,428
	Apr-05	261,127	0	0	158,471	(5,686)	413,912
	May-05	377,266	0	(70,354)	56,218	(379)	362,751
	Jun-05	265,767	0	(129,419)	19,625	17,961	173,934
	Jul-05	290,253	0	(189,755)	23,485	(15,549)	108,434
	Aug-05	234,368	0	(109,970)	29,928	31,398	185,724
	Sep-05	129,240	0	(32,140)	106,226	(7,818)	195,508
	Oct-05	305,001	0	(33,070)	118,493	(9,836)	380,588
	Nov-05	487,240	0	(28,117)	77,567	(5,881)	530,809
	Dec-05	648,751	0	(49,131)	44,709	7,142	651,471
TOTAL		3,857,475	0	(712,852)	951,573	26,999	4,123,195
TOTAL ANNUAL DTHS		10,993,959	0	(2,735,278)	2,366,413	26,999	10,652,093
EAST TENNESSEE VOLUMES		7,136,484					6,528,898
SOUTHERN VOLUMES		3,857,475					4,123,195
% EAST TENNESSEE		**65%**					**61%**
% SOUTHERN		**35%**					**39%**

Chattanooga Gas Company
Docket 07-00224
Purchased Gas Volumes by Pipeline

12 Month Ended December 31 **2006**

EAST TENNESSEE **ALL VOLUMES ARE IN DTH's**

Month		FT PURCHASES a/	IT PURCHASES	FS INJECTIONS b/	FS WITHDRAWALS b/	NET DELIVERIES
	Jan-06	537,191	0	(23,391)	280,550	794,350
	Feb-06	581,291	0	(9,420)	397,264	969,135
	Mar-06	257,167	0	(2,000)	336,256	591,423
	Apr-06	495,004	0	(318,414)	0	176,590
	May-06	434,296	0	(277,571)	0	156,725
	Jun-06	340,746	0	(287,263)	0	53,483
	Jul-06	406,612	0	(288,137)	0	118,475
	Aug-06	400,693	0	(321,945)	15,000	93,748
	Sep-06	433,376	0	(276,902)	0	156,474
	Oct-06	482,545	0	(228,798)	9,302	263,049
	Nov-06	540,929	0	(3,076)	193,869	731,722
	Dec-06	435,426	0	0	463,202	898,628
TOTAL		5,345,276	0	(2,036,917)	1,695,443	5,003,802

SOUTHERN **ALL VOLUMES ARE IN DTH's**

Month		FT PURCHASES a/	IT PURCHASES	CSS INJECTIONS b/	CSS WITHDRAWALS b/	CASHOUT b/	NET DELIVERIES
	Jan-06	322,169	0	(33,204)	110,676	47,734	447,375
	Feb-06	221,815	0	(24,836)	130,507	2,278	329,764
	Mar-06	126,232	0	(26,367)	156,604	(10,557)	245,912
	Apr-06	137,460	0	(27,827)	14,963	11,634	136,230
	May-06	182,393	0	(75,323)	8,969	438	116,477
	Jun-06	187,594	0	(65,765)	5,132	19,629	146,590
	Jul-06	113,455	0	(77,785)	34,036	9	69,715
	Aug-06	332,804	0	(65,683)	64,198	(1,068)	330,251
	Sep-06	157,958	0	(88,573)	88,504	11,769	169,658
	Oct-06	196,798	0	(23,041)	53,942	63,390	291,089
	Nov-06	200,787	0	(14,793)	20,146	21,506	227,646
	Dec-06	270,718	0	(22,804)	75,285	(10,507)	312,692
TOTAL		2,450,183	0	(546,001)	762,962	156,255	2,823,399
TOTAL ANNUAL DTHS		7,795,459	0	(2,582,918)	2,458,405	156,255	7,827,201
EAST TENNESSEE VOLUMES		5,345,276					5,003,802
SOUTHERN VOLUMES		2,450,183					2,823,399
% EAST TENNESSEE		**69%**					**64%**
% SOUTHERN		**31%**					**36%**

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Chattanooga Gas Company
Docket 07-00224
Purchased Gas Volumes by Pipeline

12 Month Ended December 31 2007

EAST TENNESSEE **ALL VOLUMES ARE IN DTH's**

Month		FT PURCHASES a/	IT PURCHASES	FS INJECTIONS b/	FS WITHDRAWALS c/	NET DELIVERIES.
	Jan-07	562,351	0	(6,548)	491,649	1,047,452
	Feb-07	572,872	0	(3,940)	455,746	1,024,678
	Mar-07	398,440	0	(20,888)	118,434	495,986
	Apr-07	631,889	0	(236,788)	16,048	411,149
	May-07	371,910	0	(257,784)	5,168	119,294
	Jun-07	340,746	0	(239,790)	0	100,956
	Jul-07	328,420	0	(257,782)	0	70,638
	Aug-07	333,202	0	(247,785)	0	85,417
	Sep-07	305,633	0	(250,723)	0	54,910
	Oct-07	473,354	0	(344,151)	9,302	138,505
	Nov-07	442,255	0	0	177,292	619,547
	Dec-07	378,438	0	(2,209)	392,509	768,738
TOTAL		5,139,510	0	(1,868,388)	1,666,148	4,937,270

SOUTHERN **ALL VOLUMES ARE IN DTH's**

Month		FT PURCHASES a/	IT PURCHASES	CSS INJECTIONS b/	CSS WITHDRAWALS b/	CASHOUT b/	NET DELIVERIES
	Jan-07	266,741	0	(26,714)	165,473	(293)	405,207
	Feb-07	315,139	0	(38,744)	177,829	7,941	462,165
	Mar-07	156,093	0	(33,948)	28,082	(4,826)	145,401
	Apr-07	234,647	0	(40,656)	22,583	(2,796)	213,778
	May-07	247,200	0	(87,647)	85,408	(12,625)	232,336
	Jun-07	437,095	0	(91,355)	45,493	(17,818)	373,415
	Jul-07	233,758	0	(97,910)	38,392	(18,472)	155,768
	Aug-07	143,803	0	(87,257)	14,008	(8,115)	62,439
	Sep-07	166,808	0	(137,281)	99,891	(1,507)	127,911
	Oct-07	91,078	0	(17,999)	97,964	4,171	175,214
	Nov-07	172,775	0	(11,440)	52,232	6,213	219,780
	Dec-07	174,215	0	(28,206)	88,248	(36,153)	198,104
TOTAL		2,639,352	0	(699,157)	915,603	-84,280	2,771,518
TOTAL ANNUAL DTHS		7,778,862	0	(2,567,545)	2,581,751	-84,280	7,708,788
EAST TENNESSEE VOLUMES		5,139,510					4,937,270
SOUTHERN VOLUMES		2,639,352					2,771,518
% EAST TENNESSEE		**66%**					**64%**
% SOUTHERN		**34%**					**36%**

a/ Purchase Invoices, volumes not adjusted for pipeline, injection, and withdrawal fuel .
b/ Storage-Layer Inventory Worksheets

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Chattanooga Gas Company
CGC Gas by Pipeline & Third Party Gas by Pipeline
Compared with Dr. Brown Analysis

		ThroughPut Dekathersm	Nominations on CGC's ETNG Delivery Points Dekatherms	SONAT Supply:Col 2 -Col 3	ETNG Supply/CGC ThroughPut	SONAT Supply/CGC Throughput
2003	a/	16,867.40	12,195.59	4,671.81	72.3%	27.7%
CGC Net Purchases	b/	9,726.43	5,252.67	4,473.75	**54.00%**	**46.00%**
Third Party Gas	c/	7,140.97	6,942.91	198.06	97.23%	2.77%
2005	a/	16,624.23	8,776.66	7,847.57	52.79%	47.21%
CGC Net Purchases	b/	10,652.09	6,528.90	4,123.20	**61.29%**	**38.71%**
Third Party Gas	c/	5,972.14	2,247.77	3,724.38	37.64%	62.36%

a/ Brown Rebuttal Page 43
b/ Purchased Gas and Pipeline I Invoices
c/ Dr. Brown Volumes less CGC Purchases