BEFORE THE TENNESSEE PUBLIC UTILITY COMMISSION
NASHVILLE, TENNESSEE

February 15, 2018

IN RE:	)	
	)	
CHATTANOOGA GAS COMPANY	)	
PETITION FOR APPROVAL OF AN	)	
ADJUSTMENT IN RATES AND	)	**Docket No.**
TARIFF; THE TERMINATION OF	)	**18-**00017
THE AUA MECHANISM AND THE	)	
RELATED TARIFF CHANGES AND	)	
REVENUE DEFICIENCY	)	
RECOVERY; AND AN ANNUAL	)	
RATE REVIEW MECHANISM	)	

DIRECT TESTIMONY OF

GREGORY BECKER

ON BEHALF OF

CHATTANOOGA GAS COMPANY

I. INTRODUCTION AND WITNESS QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Gregory Becker. My business address is Ten Peachtree Place, Atlanta, GA 30309.

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

A. I am the Director, Capacity Planning for Southern Company Gas. Southern Company Gas is the holding company for seven natural gas distribution companies, including Chattanooga Gas Company ("CGC" or the "Company).

Q. Please describe your responsibilities as Director, Capacity Planning.

A. As Director, Capacity Planning, I have responsibility for load forecasting and economic analysis of pipeline capacity and gas supply services for Southern Company Gas, including CGC.

Q. Please summarize your educational background and work experience.

A. In 2003, I received a Bachelor of Arts degree in Management from Southern Polytechnic State University in Marietta, Georgia. Southern Polytechnic State University is now part of Kennesaw State University.

I began my career in 1990 at National Fuel Gas in Buffalo, New York as an Analyst in the Gas Supply department. In 1998, I moved to Georgia for a position at a company called New Energy Associates as a Senior Consultant in their gas division. In this role, I supported clients throughout North America in the utilization of a proprietary gas supply planning and forecasting software called SENDOUT®. Then, in 2006, I joined Southern Company Gas (previously AGL Resources) as a Senior Analyst in the Gas Operations Department. I was subsequently promoted to Manager, and I now serve in my current role as Director, Capacity Planning.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your direct testimony?

A. The purpose of my testimony is to identify the Company's long term gas supply requirements, describe its current gas supply portfolio, identify the shortfall the current portfolio has compared to the Company's long term requirements, and discuss the options available to the Company in meeting that shortfall. I further explain why the option selected by the Company is the superior option.

Q. Are you sponsoring any exhibits?

A. Yes. In addition to this testimony, I am sponsoring several exhibits:

- Exhibit GB-1 is a map of CGC's system;
- Exhibit GB-2 CONFIDENTIAL identifies CGC's supply requirements;
- Exhibit GB-3 CONFIDENTIAL is a map that provides a high level view of two on-system improvement alternatives evaluated by CGC; and
- Exhibit GB-4 CONFIDENTIAL is a summary comparison of gas supply options CGC considered.

III. BACKGROUND

Q. Please briefly describe CGC's service territory and the customers it serves.

A. As shown in Exhibit GB-1, CGC's service territory includes Hamilton and Bradley counties in south central Tennessee. CGC serves approximately 65,000 customers in Chattanooga, Cleveland, and the surrounding areas. Approximately 57,000 of these customers are residential customers, 6,500 are small commercial and industrial customers, and 2,000 are large commercial and industrial customers. The majority of these customers are Sales customers, while about 115 are Transportation customers. CGC currently delivers approximately 14,500,000 Dekatherm ("Dth") annually to its Sales and Transportation customers and plans for a design day demand that is near 164,000 Dth including a 10% reserve margin. There are 10 Therms in every Dekatherm.

CGC's system interconnects with two interstate natural gas pipelines, East Tennessee Natural Gas, LLC ("East Tennessee") and Southern Natural Gas Company ("Southern Natural"). CGC also owns and operates a liquefied natural gas ("LNG") storage facility on its system which is located near the city of Chattanooga.

IV. GAS SUPPLY REQUIREMENTS

Q. Please briefly describe CGC's system operations.

A. CGC must arrange for gas supplies to be delivered to its system that are adequate to meet all of its firm customers' daily, monthly, seasonal, and peak needs and operate its system through each winter season assuming severe weather will occur. CGC must operate and maintain its system so that unexpected changes in customer usage, often caused by weather, can be managed effectively. To meet these objectives and gas supply requirements, CGC utilizes its gas supply portfolio, which consists of firm interstate pipeline transportation (firm transport or firm transportation) capacity contracts, firm interstate pipeline storage services, and its LNG peaking facility.

Q. How does CGC determine its overall gas supply requirements?

A. To determine its overall gas supply requirements, CGC utilizes two demand forecasts of projected load. First, there is the forecast of monthly demand which assumes normal, or average weather occurs. Second, we also develop demand for a design day, which is a forecast for the coldest day of the year.

Q. Why do you look at the coldest day to determine the Company's design day?

A. As a natural gas utility, cold weather has the greatest impact on our demand, and so we must ensure enough supply to meet that demand. For our planning purposes, we use a severe weather assumption of a day having a mean temperature equal to 8 degrees Fahrenheit, which in the industry is referred to as a 57 heating degree day ("HDD"). A heating degree day is a measure of a day's average temperature relative to an assumed common base threshold. The Company uses an HDD base threshold temperature of 65 degrees. A day with an average temperature of 65 degrees would have 0 HDDs. A day with an average temperature of 64 degrees would have 1 HDD. A day with an average temperature of just 8 degrees, the company's design day planning weather criteria, would be a 57 HDD day. The 8 degree temperature level has been used in our planning for many years now because it has proven to be a reliable assumption for planning purposes. It was discussed in detail by the Company in Docket 07-00224.

Q. How do these two forecasts lead to the development of the Company's gas supply requirements?

A. The Company utilizes these two forecasts to project demand for both the near and long term. It is fundamental that the Company must have a gas supply portfolio in place to meet its daily demand under normal weather conditions. This demand controls our operational requirements on most days, and how we plan for sufficient gas supply to meet those daily needs. But the real driver for determining overall gas supply is the design day since it will have the highest level of assumed demand that the Company is planning to serve. However, the supply versus requirements analysis does not stop with the design day. The actual gas supply portfolio must exceed the design day demand, with that extra increment above the design day known as a reserve margin.

Q. Can you elaborate on the reserve margin analysis?

A. A reserve margin is included within the supply portfolio to protect the system and its customers. There are several scenarios where our forecasts cannot account for everything, such as very extreme weather conditions (colder than the 8 degree forecasted temperature), unanticipated load (greater than expected natural gas use per customer), supply disruptions, pipeline outages or constraints, equipment failures, or other operational issues. The design day ensures we can meet our projected design day demand, and the reserve margin helps to ensure that we are able to serve that critical day's need if the actual load exceeds our design day forecast. Consistent with industry practice and Company experience, CGC has determined that a reserve margin of ten (10) percent of its forecasted design day demand is reasonable and prudent.

Q. What are the Company's current gas supply requirements?

A. The Company's current and forecasted gas supply requirements as set forth in my Exhibit GB-2 CONFIDENTIAL. For the 2017-2018 winter period, we forecast a total of approximately 164,000 Dth/day. This quantity covers the current forecasted design day demand of 149,000 Dth plus a ten (10) percent reserve margin.

Q. What are the Company's expected gas supply requirements over the next several years?

A. As the number of customers on CGC's system is expected to increase over the next several years, design day demand is also expected to increase. The Company's design day demand forecast is expected to reach approximately 167,000 Dth by the 2026-2027 winter period. To provide a ten (10) percent reserve margin, CGC's overall gas supply requirements would need to total 184,000 Dth/day at that time.

Q. Why is the Company using a 10 year planning horizon?

A. The Company uses 10 years so that we can ensure that we have the necessary supply and related facilities in place to deliver the gas to our system and its customers when it is needed. The process of securing incremental gas supply resources requires lead time in order to evaluate supply sources, long term pricing, negotiate the contracts, and, when necessary, construct infrastructure to facilitate delivery of the gas supply. Similarly, the time it takes to plan, negotiate, design, build, and place into service new gas supply infrastructure has also become a much longer process than in the past. Whether we build the new facilities or we rely upon a third party, the regulatory approval process on incremental capacity projects on interstate pipelines is reviewed by the Federal Energy Regulatory Commission, or the FERC, and several other agencies. That process has ballooned to a 3 or 4 year process. Not that long ago the review process was completed in 18 months to 2 years. Once approved, we are increasingly seeing challenges to FERC pipeline decisions or delays in local permitting that can add additional lead time to pipeline projects. Then there is the construction and testing phase before the pipeline can be put in service. Given the significant supply changes we face as early as 2022, if CGC does not set a plan in motion now for this added supply and transportation facilities, we run the risk of not having resources available in the foreseeable future to meet our customer needs.

V. GAS SUPPLY PORTFOLIO

Q. Please describe the Company's current gas supply portfolio.

A. As mentioned earlier, CGC maintains a gas supply portfolio that consists of firm transportation, company-owned LNG supply, and, at times, Citygate peaking services. CGC currently contracts for 41,350 Dth/day of firm transport on East Tennessee and 27,567 Dth/day of firm transport on Southern Natural, for a total of 68,917 Dth/day of pipeline capacity with delivery to CGC's system. CGC also contracts for 37,819 Dth/day of firm transport on an upstream pipeline, Tennessee Gas Pipeline Company, L.L.C. ("Tennessee Gas"), that interconnects with East Tennessee. East Tennessee in turn delivers the Tennessee Gas quantities to the

CGC system. In addition to the firm transportation contracts held on Tennessee Gas, CGC also contracts for two storage services on Tennessee Gas. CGC delivers storage withdrawals to its system from these two services by using a portion of the firm transportation capacity held on Tennessee Gas and on East Tennessee. CGC also contracts for a storage service on Southern Natural and delivers withdrawals to its system from this service using a portion of its Southern Natural firm transportation capacity. The Southern Natural storage is a no notice service and is used to help balance the system day-to-day.

In addition to the 68,917 Dth/day of gas supply that CGC can deliver to its system via interstate pipelines, CGC's on-system LNG facility can deliver gas supply to its customers. The Chattanooga LNG facility has a maximum daily rated deliverability of 120,000 Dth. Currently about 90,000 Dth/day can be sent out into the Company's LNG transmission system. Warming the natural gas from its chilled liquid state in which it is stored allows the commodity to convert back to a gas form for transport in CGC's pipeline system. Sendout of natural gas, in that gas form, from the LNG facility is currently limited to about 90,000 Dth/day by on-system infrastructure constraints and the geographic area that the gas can be moved to.

Q. Does the Company hold any other gas supply assets in its portfolio?

A. Yes. CGC recently contracted for 25,000 Dth/day of East Tennessee firm transportation capacity through a capacity release transaction. Oglethorpe Power Corporation ("Oglethorpe"), a shipper on East Tennessee, Southern Natural, and Transcontinental Gas Pipeline ("Transco") among others, had excess East

Tennessee firm transportation capacity that it offered to release to CGC for five years. This release will expire January 31, 2022.

Q. Does the Company's current gas supply portfolio meet the requirements identified in its ten-year outlook?

A. No. The Company's current gas supply portfolio falls short of its requirements after the capacity released to CGC by Oglethorpe expires in 2022. In fact, not only does the current portfolio no longer provide a reserve margin after 2022, it does not provide enough gas supply to meet the forecasted design day demand of the Company's customers.

Q. What is the shortfall in the portfolio for which the Company needs to solve in its ten year outlook?

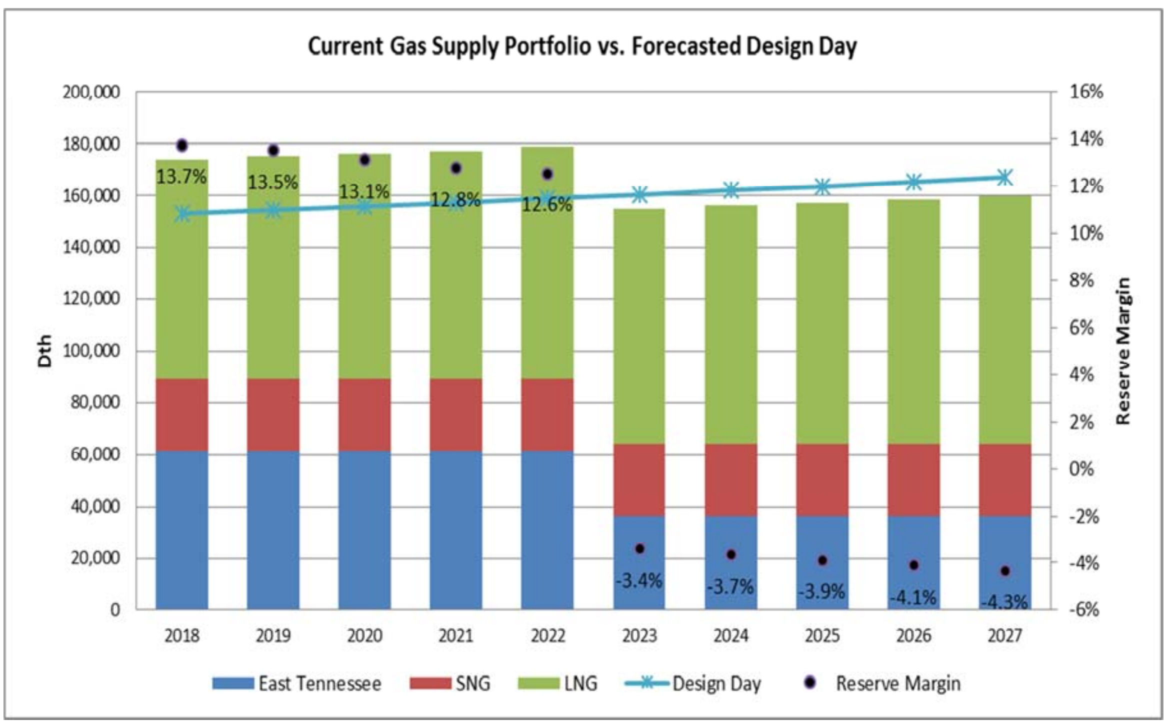
A. CGC's portfolio has a supply shortfall of approximately 25,000 Dth/day, at a minimum, for the 2026-2027 winter just to meet forecasted design day load and maintain a reasonable reserve margin.

In addition to the shortfall of about 25,000 Dth/day, a portion of CGC's East Tennessee firm transportation capacity has a designated primary receipt point that has become increasingly illiquid over the years in terms of finding flowing gas supply to fill this firm transportation capacity. The quantity of firm transportation in CGC's portfolio with this receipt point is approximately 5,000 Dth/day. This gas supply capability has been removed from CGC's outlook for this analysis. The graph below, Figure 1, illustrates this shortfall and why CGC plans to more fully utilize its existing LNG peaking facility, which I will more fully discuss later.

Q. Could you explain what the chart labels are meant to represent and the context of the material summarized?

A. Yes. Overall, the chart captures the three supply sources for CGC – the East Tennessee pipeline, the Southern Natural Gas pipeline, and our LNG facility. Each bar on the chart represents the winter season which covers a split calendar year. Thus, the bar labeled 2022 displays information about the heating season of November 2021 through March 2022. The Oglethorpe capacity, which is included within the East Tennessee capacity on the chart, is available to CGC through January 31, 2022, and represents the major change in the chart from the 2022 to 2023 winter season.

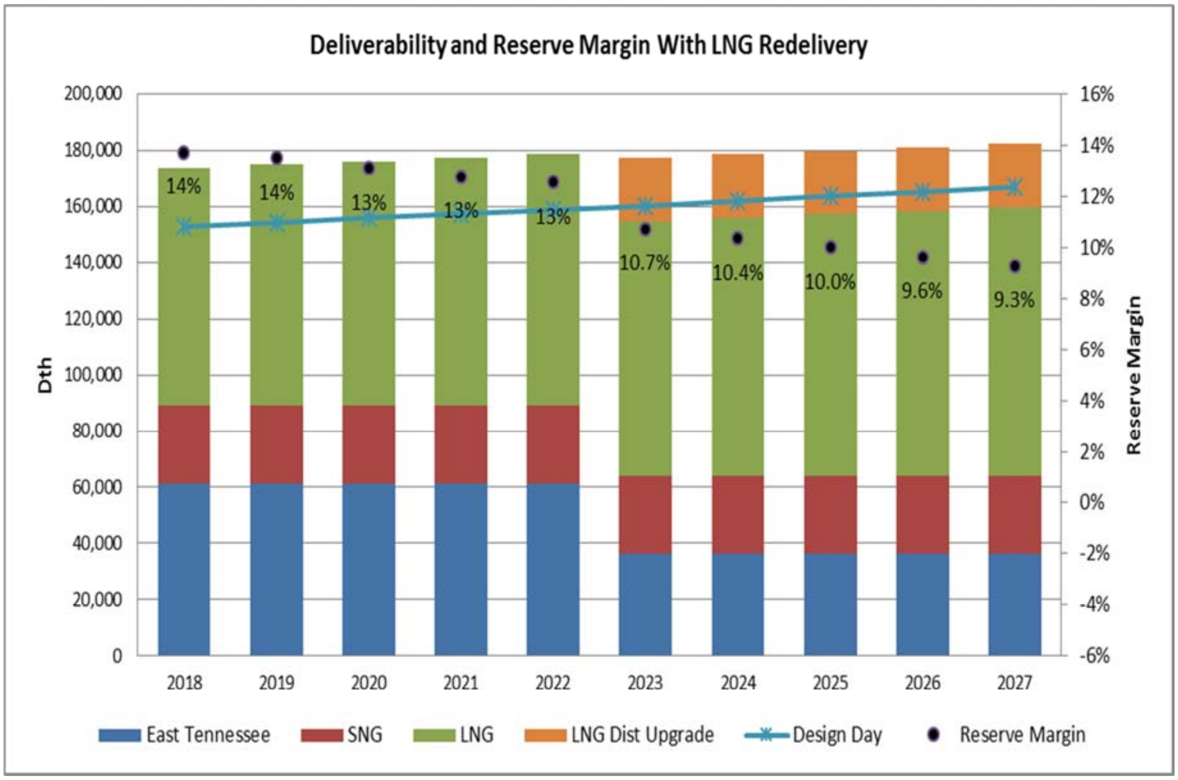
Figure 1



Q. Is there a comparable look at CGC's gas supply capability after the LNG redelivery project is completed?

A. Yes, there is. Figure 2, shown below, incorporates the added supply capability that the system will have after the build out of the LNG redelivery project.

Figure 2



VI. GAS SUPPLY OPTIONS

Q. You testified that the Company plans to utilize its existing LNG facility through an LNG redelivery project. Did the Company consider any other options to cover this shortfall?

A. Yes. We considered a variety of ideas, and ultimately found that there were four different options. The options we considered were as follows: (1) contracting for incremental firm transportation capacity on East Tennessee and/or Southern

Natural; (2) extending the term of the Oglethorpe capacity release; (3) contracting with East Tennessee to move incremental gas quantities from the Company's LNG facility; and, (4) improving the Company's own distribution system to allow incremental quantities from the CGC LNG facility to be delivered directly on system to its customers, what we have called the LNG redelivery project. The costs of each of these options are summarized on my Exhibit GB-4 CONFIDENTIAL.

Q. Please describe the first option in more detail.

A. The first option listed above would involve contracting for more firm transportation capacity on East Tennessee and/or Southern Natural. However, both East Tennessee and Southern Natural pipelines are fully subscribed in the area of their respective systems that serve CGC. That means neither East Tennessee nor Southern Natural have transportation capacity to sell into the market on a firm basis to a customer like CGC. As a result, East Tennessee and Southern Natural would need to expand their systems in some manner to create more transportation capacity to sell, and CGC would need to participate in such an expansion project. This option was not selected as it was determined that contracting for incremental firm transportation under a pipeline expansion project would be the most costly option for CGC's customers.

Q. Please describe the second option in more detail.

A. CGC considered extending the term of the capacity release agreement it recently entered into with Oglethorpe. However, Oglethorpe has been unwilling to extend the capacity release beyond the initial five year term that expires in January 2022.

Q. Please describe the third option in more detail.

A. Another way to increase the overall level of supply held in the portfolio is to increase utilization of the Company's LNG facility. As mentioned, the maximum daily sendout of the facility is 120,000 Dth/day, while constraints on the Company's distribution system currently limit sendout from the facility to approximately 90,000 Dth/day. This means 30,000 Dth/day of LNG sendout capability is available but cannot be utilized to meet customer demand today. Therefore, to increase utilization of the LNG facility, infrastructure improvements would need to be made. In this case, CGC separately evaluated improvements to its LNG transmission system as well as a market area specific expansion of the East Tennessee system. We evaluated the construction costs of both options that would be necessary to make available the 30,000 Dth/day of additional sendout to CGC's customers.

Q. Please describe how a system expansion by East Tennessee would allow for increased sendout from the LNG facility.

A. This approach would involve CGC sending the available 30,000 Dth/day of LNG gas into the East Tennessee system, with East Tennessee transporting the gas on its system for delivery back to CGC at other interconnection points that CGC has with East Tennessee. However, since East Tennessee capacity is currently fully subscribed, East Tennessee would need to expand its system to provide the capacity necessary to accept the 30,000 Dth/day of LNG sendout from CGC and return it back to CGC at other delivery points. After considering the costs to both companies for this option, it was clear that CGC's LNG redelivery project was far superior.

Q. Please describe how on-system improvements of CGC's transmission system for the LNG redelivery project would allow for increased sendout from the LNG facility without involvement of any other parties.

A. Currently, CGC's LNG sendout is limited by the amount of customer load within the vicinity of the LNG facility and the infrastructure used to transport natural gas sent out from the plant to serve CGC's customers. Therefore, this option would require CGC to place new pipeline transmission mains in service. This new infrastructure would begin from a point on the existing LNG transmission system and go out to the Red Bank area and then continue on toward Signal Mountain. An added benefit of this CGC build out is that through this expanded system, CGC will be able to serve additional customers in the Red Bank and Signal Mountain areas.

These system improvements would be done in two phases. The first phase would extend a main from the LNG facility over to Red Bank, which is a delivery point off of East Tennessee. This phase would reach approximately 6,700 Dth/day of current customer load and take twelve to eighteen months to construct. The second phase would extend this same main further out to reach the Signal Mountain area of CGC's system. This phase would connect an additional 16,000 Dth/day of current customer load and take an additional fifteen to eighteen months to construct.

Q. Is this information shown on one of your exhibits?

A. Yes. Exhibit GB-3 CONFIDENTIAL shows the indicative routes that CGC may use in building out the planned improvements to its transmission system. At this time, we are treating these as confidential in order to not impact our costs where CGC may need to acquire additional property rights. As the exhibit shows, there are two alternatives to reach Signal Mountain. Right now the Company is still evaluating each of them and will make a final decision later in 2018 after the final project assessments can be completed. Alternative 1 is preferred because it should be less costly to build as it is a shorter route to build. Alternative 2 could be used if needed but it is longer and is expected to require more construction cost.

VII. BEST LONG TERM SOLUTION

Q. Which of the four options described above has the Company selected?

A. The Company has selected the fourth option, which involves making improvements to its own transmission system in order to increase utilization of the existing LNG facility and take advantage of added LNG sendout to meet the projected load on a design day. As shown in Exhibit GB-4 CONFIDENTIAL, this LNG redelivery option is the most economical of the four options.

Q. Why were the other gas supply options rejected?

A. The first option which involved East Tennessee expanding its system to increase its firm transportation capacity was thoroughly vetted. When East Tennessee was conducting its non-binding open season, CGC explored this opportunity with the pipeline company, including several firm transportation delivery options for how to meet CGC's future supply needs. However, the extensive improvements that

East Tennessee would need to make to its system, to meet CGC's need along with others expressing interest in the project, caused this to be the most costly of all the additional gas supply options. The second option, simply extending the term of the Oglethorpe capacity release, taken at face value, was attractive since it was cheaper than the first and third options. But after lengthy discussions with Oglethorpe, CGC determined that Oglethorpe was unable to guarantee this capacity would be available after January 2022 due to Oglethorpe's own needs. The third option which involved both CGC and East Tennessee expanding their systems to move CGC's LNG sendout, was not selected since it was more expensive than CGC's LNG redelivery enhancement project to Red Bank and Signal Mountain. After consideration of all of the costs, CGC's LNG redelivery system improvements are both cheaper and provide enhanced operational flexibility and long term reliability.

Q. Please elaborate on the additional benefits associated with the LNG redelivery project.

A. Besides being cheaper, the LNG redelivery project more fully utilizes an existing Company-owned facility that is already included in the Company's rate base. This option also gives the Company greater flexibility in meeting customer needs because the gas supply is controlled by the Company, meaning CGC does not need to give notice to or obtain supply from a third party when customers need the gas. This also helps to improve overall system reliability as the LNG plant's maximum capacity will be available as a short duration gas supply source in the event pipeline disruptions occur. Finally, by constructing this new main we are expanding our system in a manner that will enable us to serve additional customers within the areas of the project.

Q. How can the Company select this option if the projected costs of the two alternative builds from Red Bank to Signal Mountain are not known at this time?

A. At this point, Alternative 1 appears to be the most cost effective to build as it is the shorter route. Alternative 2 is technically feasible and presents fewer potential obstacles, so its longer length may or may not make it more expensive to build than Alternative 1. Using our preliminary estimates for either build out alternative to reach Signal Mountain, as summarized in my Exhibit GB-4 CONFIDENTIAL, the LNG redelivery project is more cost effective than each of the other three options considered. When the additional benefits are added in, the LNG resupply project is the superior means of meeting the forecasted need of our customers within our 10 year planning horizon.

Q. What is the anticipated start date of the construction project to reach Red Bank and Signal Mountain?

A. The current plan is to begin the build out to Red Bank in mid-2018. Once the final decision is made on the route to complete Signal Mountain, we anticipate construction will commence in 2019 and will be completed by December 2020.

VIII. CONCLUSION

Q. Does this conclude your direct testimony?

A. Yes.

Exhibit GB-1
CGC Witness Becker Direct
Map of CGC's System
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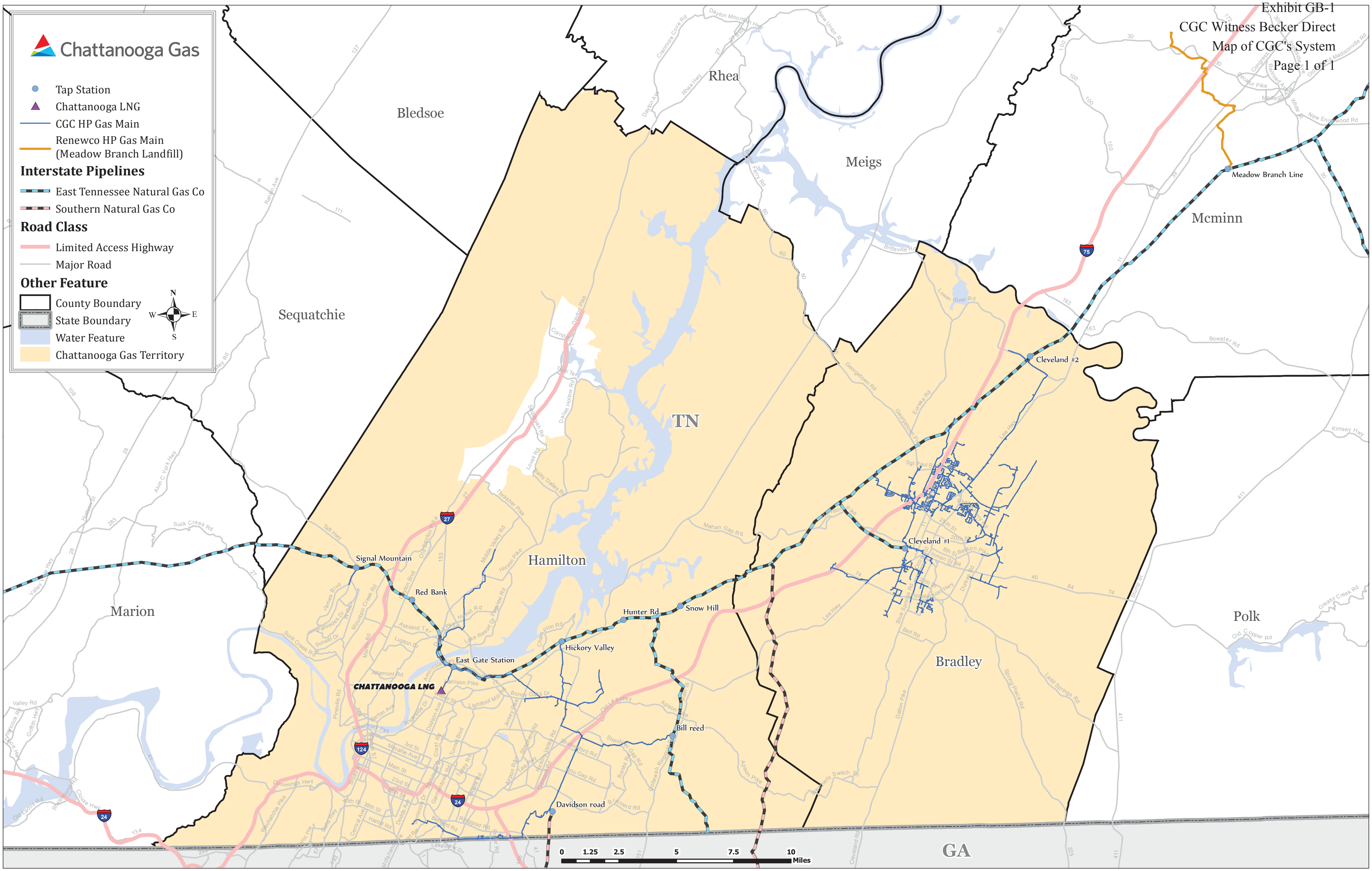

Southern Company Gas, GIS & Asset Data - South, November 2016

Project Files\AGLR LDC Asset Maps\2016\CGC with HP gas main and assets_20161108.mxd