



October 23, 2017

BY E-PORTAL

Ms. Carlotta Stauffer
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: DOCKET NO. 20170179-GU - Petition for rate increase and approval of depreciation study by Florida City Gas.

Dear Ms. Stauffer:

Attached, for electronic filing, please find the testimony of Florida City Gas's witness Stephen Wassell. (Document 11 of 14)

Sincerely,

A handwritten signature in blue ink that reads "Beth Keating".

Beth Keating
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MEK

ATTACHMENTS

cc:// PSC (20 Hard copies)

Office of Public Counsel (Kelly)

1 Before the Florida Public Service Commission

2 Docket No. 20170179-GU: Petition for rate increase by Florida City Gas.

3 Prepared Direct Testimony of Stephen Wassell

4 On behalf of Florida City Gas

5 Date of Filing: October 23, 2017

6
7 **I. INTRODUCTION**

8 Q. What is your name and business address?

9 A. My name is Stephen Wassell, and my business address is 10 Peachtree
10 Place, Atlanta, Georgia 30309.

11
12 Q. By whom and in what position are you employed?

13 A. I am vice president of Storage & Peaking Operations for Southern Company
14 Gas. Southern Company Gas is the parent company to their seven local
15 distribution companies, which include Nicor Gas, Elizabethtown Gas, Virginia
16 Natural Gas, Elkton Gas, Chattanooga Gas, Atlanta Gas Light, and Florida
17 City Gas ("FCG").

18
19 Q. What are your duties and responsibilities in that position?

20 A. I am responsible for the operation of all seven Liquefied Natural Gas ("LNG")
21 facilities within Atlanta Gas Light, Chattanooga Gas, Elizabethtown Gas, as
22 well as two merchant LNG facilities in Trussville, Alabama, and Jacksonville,
23 Florida. In addition, I have responsibilities for two compressor stations and
24 two propane peaking plants in Virginia, as well as Jefferson Island Storage
25 and Hub in Louisiana, Golden Triangle Storage in Texas, Central Valley Gas

1 Storage in California, and the seven underground storage facilities
2 supporting Nicor Gas Company's system in Illinois, as described more fully
3 below.

4
5 Q. What is your educational background and prior work experience?

6 A. I received a Bachelor of Civil Engineering degree from the Georgia Institute
7 of Technology and have held my professional engineering license for over 20
8 years in the state of Georgia. I have more than 26 years of experience in
9 engineering, large project management, and system operations. I joined
10 Atlanta Gas Light in 1991, and I worked in the Engineering, System
11 Operations, System Planning and Plant Construction departments. I also
12 recently served as managing director of Pipeline Project Management where
13 I was responsible for the large diameter pipeline design and construction
14 across Georgia. Prior to that role, I served as managing director of System
15 Operations where I managed the pressure crews and transmission pipelines
16 in Florida, Tennessee, and Georgia. I also served as director of Engineering
17 Design where I managed the Atlanta, Elizabeth, Norfolk, and Hialeah
18 Engineering Design offices. These engineering and operations positions
19 have allowed me to develop knowledge and experience necessary to run the
20 company's LNG operations.

21

22 **II. PURPOSE OF TESTIMONY**

23 Q. What is the purpose of your testimony?

24 A. I am presenting this testimony on behalf of FCG to explain what LNG
25 facilities are needed to address the capacity issues described in greater

1 detail in the testimony of Witness Becker. In addition, I will testify to the
2 construction schedule of the anticipated LNG facility and describe the costs
3 associated with the project.
4

5 **III. DESCRIPTION OF THE LNG FACILITY**

6 Q: FCG has stated that an LNG facility is required to assist the Company in
7 meeting its future capacity needs. Exactly, what LNG facilities are needed?

8 A: FCG needs to construct an LNG plant. The plant contemplated by FCG
9 would include truck unloading facilities, storage tanks, and vaporization
10 equipment. This will be discussed in greater detail below.
11

12 Q: How does the planned LNG facility work?

13 A: LNG is brought into the plant by tankers from LNG producers. The LNG is
14 stored in the three tanks until the distribution system needs supplemental
15 gas. The LNG is then pumped to the vaporizer where heat is added to the
16 LNG changing it back into a gas. The gas then flows into the Jet Fuel Line
17 and runs to the regulator stations and on to customers on the FCG
18 distribution system.
19

20 Q. How is LNG created?

21 A. LNG is created by chilling natural gas down to -260°F . That physical
22 process changes the gas phase of natural gas to the liquid phase. In the
23 liquid phase, the LNG takes up less volume (600 to 1), which makes it more
24 feasible and safer to transport the energy source by truck.
25

1 Q: Where will FCG purchase LNG?

2 A: LNG is produced by facilities all over the United States. FCG can purchase
3 LNG from numerous companies that will deliver it by tanker. Three
4 companies that can most effectively deliver LNG to South Florida are New
5 Fortress which has a facility in Miami, Eagle LNG, which has a facility in
6 Jacksonville, and Pivotal LNG, which has access to facilities in Jacksonville,
7 Trussville, Alabama and three plants in Georgia. There are other plants
8 outside of the southeast that could also provide LNG. Pivotal LNG is a
9 subsidiary of Southern Company Gas like FCG is but is operated
10 independently. Pivotal LNG competes with these other companies for selling
11 LNG in the commercial fuels market, including competition for sales to FCG.

12

13 Q: What is a vaporization unit?

14 A. A vaporization unit converts LNG back to vapor for use in the distribution
15 system for consumption by customers.

16

17 Q: Where would this plant be located?

18 A: The facility will be located on property along FCG's 6" Jet Fuel Line in the
19 area between Cutler Ridge and Homestead. We are currently evaluating
20 locations for the facility. This area is well suited as the land is more rural and
21 less developed when compared to the northern portions of the pipeline,
22 which are urban and fully developed.

23

24 Q: What is the Jet Fuel Line?

1 A: The Jet Fuel Line is a high pressure 6” steel pipeline that originally
2 transported jet fuel from Miami International Airport (“MIA”) to Homestead Air
3 Reserve Base. After Hurricane Andrew hit in 1992, the line was taken out of
4 service. FCG purchased and converted the pipeline to natural gas service in
5 2010 to reinforce the FCG distribution system south of the MIA. The
6 pipeline’s name, Jet Fuel Line, is still based on its original use even though it
7 was retested and modified to become part of FCG’s natural gas distribution
8 system.

9
10 Q: How will this facility provide peaking services for areas that are outside of the
11 Cutler Ridge and Homestead areas?

12 A: Currently, the Miami distribution system is being fed by multiple tap stations
13 off of Florida Gas Transmission’s (“FGT”) pipeline system. A tap station is
14 where gas is transferred from FGT to FCG. In the area south of MIA, the
15 entire distribution system can currently be supplied entirely by the Jet Fuel
16 Line. Once the planned Homestead LNG facility is constructed, we can meet
17 the needs of these customers with the LNG plant. It creates an additional
18 supply source that is needed by FCG at this time and is discussed in the
19 testimony of Witness Becker. By displacing the FGT gas from the areas
20 south of MIA, this gives extra capacity to be used north of MIA. The areas to
21 the north will continue to take gas from FGT.

22
23 Q: How long could the plant run before running out of LNG?

24 The plant will have three tanks holding a total of 270,000 gallons of LNG. At
25 a design rate of 10 million standard cubic feet per day (“MMscfd”), the plant

1 can send out gas for approximately 51 hours, or just over two days. This is
2 slightly more gas than is supplied to the FCG customers on a design day by
3 the distribution system south of MIA. Typically the plant would not run at that
4 maximum rate later in the day when the weather warms up from early
5 morning low temperatures. At lower flow rates the plant could run much
6 longer than 51 hours. While cold weather is the primary driver for use of an
7 LNG facility, it can also be used for operational concerns. An example would
8 include a supplier interruption due to third party damage or natural disasters.

9

10 Q. What is a design day?

11 A. As explained in Witness Becker's testimony, a design day is a single cold
12 winter day event having an average daily temperature of 36 degrees
13 Fahrenheit in the Miami-Dade County area and a concurrent average daily
14 temperature of 28 degrees Fahrenheit in the Brevard County portion of the
15 state. We use such low average temperatures because, as explained above,
16 gas is in greater demand when it is colder.

17

18 Q: How does the tank prevent the entire contents from vaporizing in the South
19 Florida heat?

20 A: The tank is actually comprised of an inner and outer tank. The inner tank is
21 made of a stainless steel to allow for the cold temperature of the LNG. The
22 outer tank is made of carbon steel. In between these walls, there is insulation
23 and a vacuum. While this slows down the transfer of heat to the LNG, the
24 liquid in the tank will, nonetheless, produce some vapor, called "boil-off," that
25 must be sent into the distribution system.

1

2 Q. Is "boil-off" a safety hazard for employees at the plant or for nearby homes or
3 facilities?

4 A. No. The boil-off is compressed and pushed into the distribution system.

5

6 Q. Please describe the safety measures that would be implemented at this
7 facility.

8 A. This LNG plant will be constructed to the latest codes such as the federal
9 Department of Transportation's requirements, set forth in the Code of
10 Federal Regulations ("CFR"), at Chapter 49, Part 193, and in National Fire
11 Protection Association Standard 59A, in addition to local building codes.
12 Following these codes will ensure necessary hazard detection such as fire,
13 gas, smoke and low temperature detection will be utilized throughout the
14 facility for continuous monitoring of all potential hazards. Protective systems
15 such as fire suppression, LNG spill impoundment, and fire extinguishing
16 systems will be designed and implemented for proper protection in the
17 unlikely scenario of a hazardous event.

18

19 Q. Is the facility designed to withstand weather in South Florida?

20 A. Yes. The basis of design for the project allows for constant winds up to 150
21 mph with gusts up to 183 mph, as required by Chapter 49 CFR, Part 193.
22 The facility design also takes into account the humidity and temperatures
23 experienced in South Florida.

24

1 Q. Are there any safety or environmental risks associated with this planned
2 facility?

3 A. LNG facilities are generally considered to be relatively low-risk facilities within
4 the industry. This is due not only to the significant safety measures built into
5 our facility, such as those I've described above, but the properties of the
6 product itself. The LNG, if released, will convert to a gas that is lighter than
7 air and harmlessly disperse into the atmosphere. Because of this, LNG also
8 will not pollute water supplies or soil in the area if it was spilled. This makes it
9 a great alternative fuel when compared to diesel or oil.

10

11 **IV. COST AND CONSTRUCTION OF THE LNG FACILITY**

12 Q: When would the plant be completed?

13 A: Engineering design work has started and would continue through May 2018.
14 Equipment procurement would start in January 2018 and continue through
15 October 2018. Construction would start in May 2018 and be completed in
16 January 2019. Commissioning would be complete in January 2019.

17

18 Q: What is the estimated cost?

19 A: The plant would cost approximately \$58 million.

20

21 Q: What is the basis of this amount?

22 A: The cost estimate was based on an estimate from our engineering
23 contractor, HDR, who has designed many LNG facilities. Here is a
24 breakdown of the costs.

25

1	LNG Tanks and Regasification System	\$8.0 million
2	Boil-Off Gas System	\$1.0 million
3	LNG Truck Unloading Station	\$1.8 million
4	Site Works, Civil/Structural Works and Buildings	\$4.4 million
5	Electrical, Instrumentation & Control Systems	\$2.3 million
6	Balance of Plant	\$9.2 million
7	Land Costs	\$12.5 million
8	Engineering and other indirect costs	\$18.8 million
9	Total	\$58.0 million

10

11 Q: Is that cost fixed at this time?

12 A: No, it is an estimate. As the project gets closer to completion, the accuracy of
13 the cost estimate will be refined.

14

15 Q: Did FCG consider other types of peak shaving plants for this facility?

16 A: Yes. We evaluated four types of plants to provide peak shaving for FCG as
17 follows:

18

19 1. First, we looked at a portable vaporization plant. This uses a portable
20 vaporizer and LNG trucks, but has no LNG storage capacity. While the least
21 expensive, with an estimated cost of \$4 million, there is no guarantee that the
22 LNG would be available to be delivered when it is needed to support the
23 FCG system. When FCG has a design day, it is most likely that the states to
24 the north are also having a design day. Therefore, LNG may not be available
25 as it may be used to provide peak shaving for customers who have priority in

1 other states. That lack of certainty does not make this option viable for
2 Florida consumers.

3

4 2. Next we looked at an LNG plant with vaporization only, which is the
5 plant we are planning to construct for FCG. This plant has the benefit of
6 being able to store its own supply of LNG making that capacity available only
7 for FCG customers. The certainty of availability makes this the best option.
8 In addition, the plant can be enhanced and expanded with the system needs
9 and can also be improved with liquefaction at a future date. Liquefaction
10 would allow FCG to make its own LNG instead of having to purchase it from
11 other sources.

12

13 3. The third option is a LNG plant with liquefaction. This plant estimate is
14 \$96 million. In this scenario, we have the ability to produce our own LNG
15 during warmer months which can take advantage of the lower summer
16 pricing of natural gas. Until the facility has a need for a greater storage
17 volume, there is no justification to install liquefaction facilities.

18

19 4. Lastly, we looked at a Compressed Natural Gas (“CNG”) facility. While
20 often used on a small scale, we do not know of a facility that has ever been
21 constructed on a scale necessary to provide the level of supply needed. We
22 estimated the facility would cost of \$63 million. Due to a higher cost and the
23 facility being the first of its kind, it was not considered a viable option. The
24 costs alone do not make this a viable option for our consumers.

25

1 Q: What steps will FCG take to minimize the costs associated with the
2 construction of the LNG facility?

3 A. Southern Company Gas has a long history of using LNG for peak shaving
4 with our local distribution companies in Georgia, Tennessee, and New
5 Jersey. We employ many industry experts that understand the liquefaction,
6 storage and vaporization of LNG. This experience and expertise will help us
7 minimize costs.

8

9 Q: Why does FCG seek cost recovery for an LNG facility at this time?

10 A: Without the facility, FCG cannot meet all the potential demand, as explained
11 in the testimony of witness Becker. The facility is needed now. As witness
12 Becker explains in his testimony, this facility cannot be delayed and to do so
13 jeopardizes our ability to meet demand.

14 Even if the estimate was to be exceeded, the plant is more cost effective
15 than any other pipeline project. Furthermore, just like pipeline projects, these
16 types of facilities are normally approved when they are early in design. We
17 have no more uncertainty than a pipeline project that is proposed to bring in
18 new supply. In fact, with only one parcel of land, we have less uncertainty
19 than a pipeline that would have hundreds or even thousands of land owners
20 that may require individual negotiation over the construction path and
21 property rights.

22

23 Q. Please explain the status of FCG's development and contracting for
24 construction of the LNG plant.

1 A. FCG is using the resources of Southern Company Gas's engineering
2 department who is working with HDR on the design. The detailed
3 engineering will be bid out to an engineering firm that specializes in LNG
4 plant design. Once the plans are completed, the construction will be bid out
5 and the bids will be evaluated by an internal team of LNG and engineering
6 experts at Southern Company Gas. Throughout the construction process, we
7 will have our inspectors to watch each step. In addition, the facilities are
8 subject to audit by the FPSC and PHMSA to assure our design, construction
9 and operation complies with federal standards.

10

11 **V. CONCLUSION**

12 Q. Does this conclude your testimony?

13 A. Yes.

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