

Background Description of South Carolina's Existing Natural Gas Infrastructure

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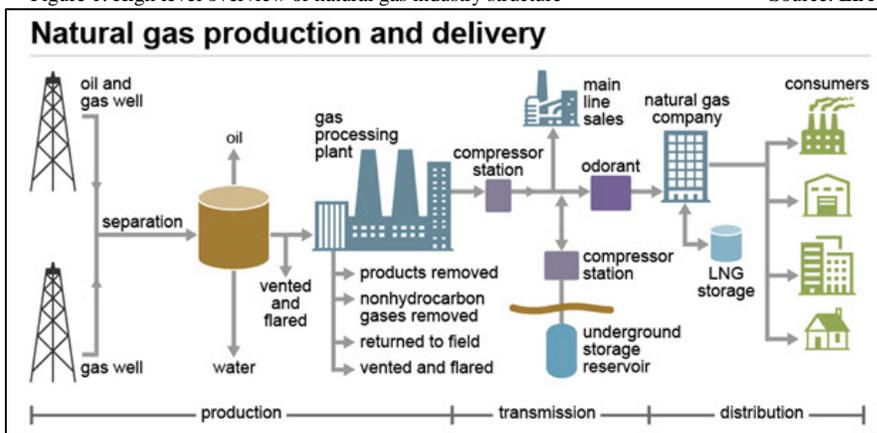
1) U.S. Natural Gas System Overview

As illustrated in Figure 1, the nation's natural gas system consists of production, processing, transmission, storage, and distribution systems that provide for delivery to consumers. The State of South Carolina ("State") has no in-state oil or natural gas production or processing facilities. The State's natural gas system begins at the transmission portion of the supply chain.

When natural gas leaves a processing plant it often enters into an interstate pipeline. These pipelines are generally large systems that cross multiple states and are regulated by the Federal Energy Regulatory Commission ("FERC"). Interstate pipelines provide the transportation of natural gas from production zones to take-away points and market demand centers. These pipelines are critical for the delivery of natural gas to the State of South Carolina since it has no internal natural gas supply. An overview of the various South Carolina natural gas systems that exist to provide for the delivery of natural gas are outlined in the next section.

Figure 1: High level overview of natural gas industry structure

Source: EIA



2) South Carolina Natural Gas Infrastructure Overview

The State of South Carolina's natural gas systems are the transmission and distribution infrastructure that provides for the safe and reliable delivery of natural gas to the State's residential, commercial, industrial, electric generation, and compressed natural gas ("CNG") end-users. The State's natural gas infrastructure consists of four interstate pipelines, two Investor-Owned Utilities ("IOU"), five Natural Gas Authorities ("NGA's"), four Commission of Public Works ("CPW's") and five Municipalities.

The states IOU's, NGA's, CPW's, and Municipalities are all responsible for the safe and reliable delivery of natural gas to support the needs of end-users. Gas distribution systems have general service area assignments but there is no specific state requirement that requires a duty or obligation to serve customers in those areas. Interstate pipelines also deliver directly to industrial and electrical generation customers in the State. IOU's are subject to the oversight and regulation of the South Carolina Public Service Commission ("SCPSC") whereas the government-owned gas utilities are not.

The South Carolina Natural Gas Department of the Office of Regulatory Staff ("ORS") represents the public interest with regard to the regulation of the two natural gas IOU's in South Carolina which include Piedmont Natural Gas and South Carolina Electric & Gas. Duties of the ORS encompass rate, accounting, legal, technical, and certain service issues regarding the purchase, sale, transportation, and storage of natural gas by all companies within the jurisdiction of the SCPSC. With the exception of safety issues, the ORS does not have the responsibility for oversight of non-jurisdictional utilities including municipal systems, NGA's, and liquid propane systems. However, the ORS does monitor overall activities in the state to provide information on policy matters in the state. As outlined above, interstate pipelines are regulated by the FERC.

Outlined in Figures 2 and 3 below are the Interstate Pipelines, IOU's, NGA's, CPW's, and Municipal utilities in the State:

Figure 2: Investor and Government owned natural gas systems in the State

Investor-Owned	Government-Owned	
	NGA's	Municipalities
IOU's - Piedmont Natural Gas - South Carolina Electric & Gas	-Chester County NGA -Clinton-Newberry NGA -Fort Hill NGA -Lancaster County NGA -York County NGA	-Bennettsville, City of -Fountain Inn Natural Gas System -Orangeburg Public Utilities -Union, City of -Winnsboro, Town of
Interstate Pipelines -Dominion Carolina Gas Transmission -Elba Express Company -Southern Natural Gas -Transcontinental Gas Pipe Line	CPW's -Bamberg BPW -Greenwood CPW -Greer CPW -Laurens CPW	

Figure 3: South Carolina Natural Gas Customers (2013 data)

	Residential Customers	Commercial Customers	Industrial Customers	Total
South Carolina Electric & Gas	299,289	25,521	476	325,286
Piedmont Natural Gas	122,803	13,778	371	136,952
York County NGA	53,882	4,060	48	57,990
Fort Hill NGA	34,760	3,708	98	38,566
Greer CPW	18,004	1,518	10	19,532
Greenwood CPW	15,914	1,616	17	17,547
Clinton-Newberry NGA	11,103	1,449	45	12,597
Orangeburg Public Utilities	7,124	1,068	26	8,218
Chester County NGA	6,572	842	21	7,435
Laurens CPW	6,396	723	16	7,135
Fountain Inn Natural Gas System	6,305	309	50	6,664
Union, City of	5,475	628	17	6,120
Bennettville, City of	2,583	262	5	2,850
Winnboro, Town of	2,158	271	7	2,436
Bamberg BPW	918	149	16	1,083

Source: 2013 Guide to Electric and Natural Gas Utilities in South Carolina, SC Energy Office
 Note Lancaster County NGA customer data was not provided

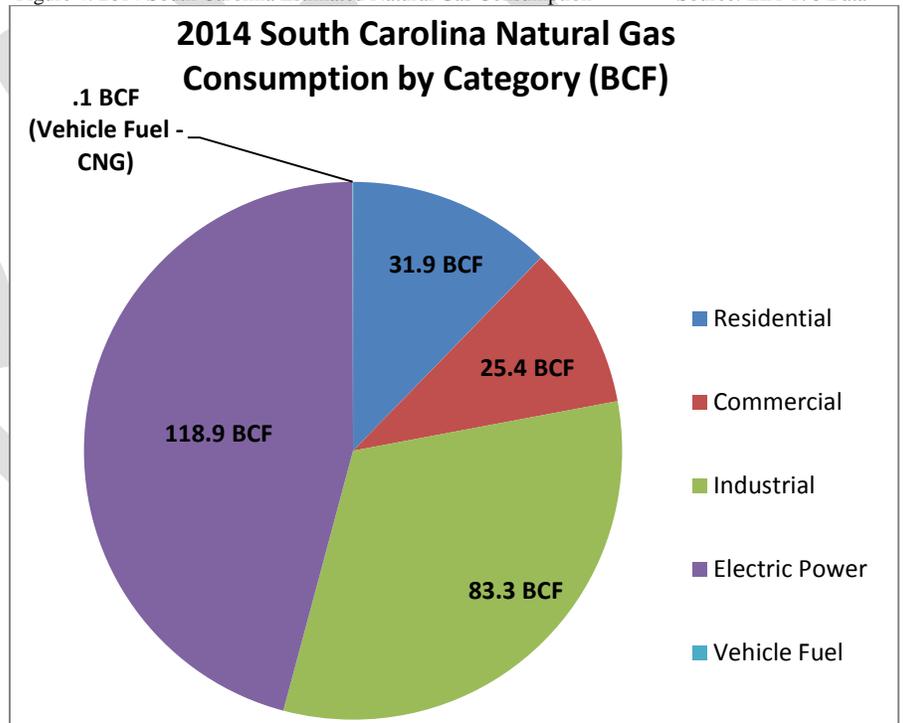
3) South Carolina Consumption and Supply

According to the American Gas Association’s (“AGA”) current South Carolina state profile, the State has approximately 650,735 natural gas customers¹. This number comprises of 593,286 residential, 55,997 commercials, and 1,452 industrial customers¹. In 2014, State customers consumed approximately 259.6 BCF according to the Energy Information Agency (“EIA”) ². The usage by category is summarized in Figure 4.

Historically, the majority of natural gas consumed by end-users in the State has originated from the Gulf Coast production region. Interstate pipelines have transported this natural gas from various supply access points and production areas to interconnection points into the State.

With the shale gas growth that has occurred over the last several years, natural gas supply sources and traditional pipeline flows across the nation are in the process of changing. Figure 5, on the following page, summarizes the major shale basins in the United States.

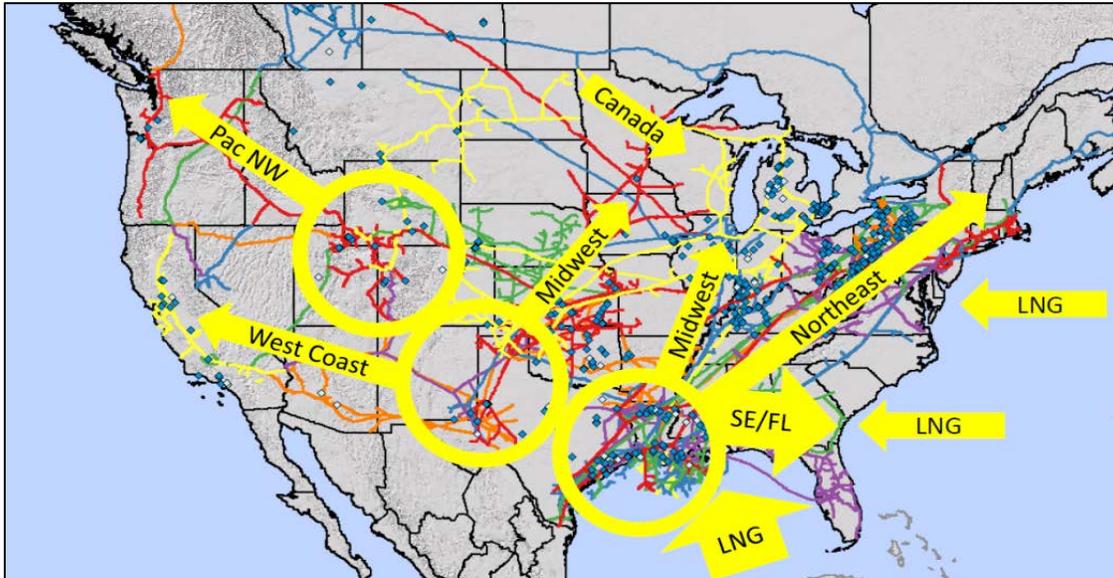
Figure 4: 2014 South Carolina Estimated Natural Gas Consumption Source: EIA-176 Data



With the growth in domestic shale gas production over the last several years and projected growth into the future, new demands centers for natural gas are developing. These include petrochemical plants, pipeline exports to Mexico, and new LNG ("Liquefied Natural Gas") export facilities. Per the FERC, there are currently approximately 8.9 BCF/day of LNG export capability that is permitted and under construction at five facilities in Louisiana, Maryland, and Texas³. These facilities will come online in different stages between 2016 and 2020. Cheniere Energy's LNG export facility in Sabine Pass, Louisiana is the only current operational LNG export facility. Its first export cargo left in February of 2016 bound for Latin America. As of March 22nd, 2016 there are 8 pending FERC applications for LNG export facilities in the lower 48 states³. This includes the proposed 0.35 Bcf/d Southern LNG proposed project at Elba Island. There are also 12 proposed LNG export facilities in the lower 48 states that are in pre-filing with the FERC³.

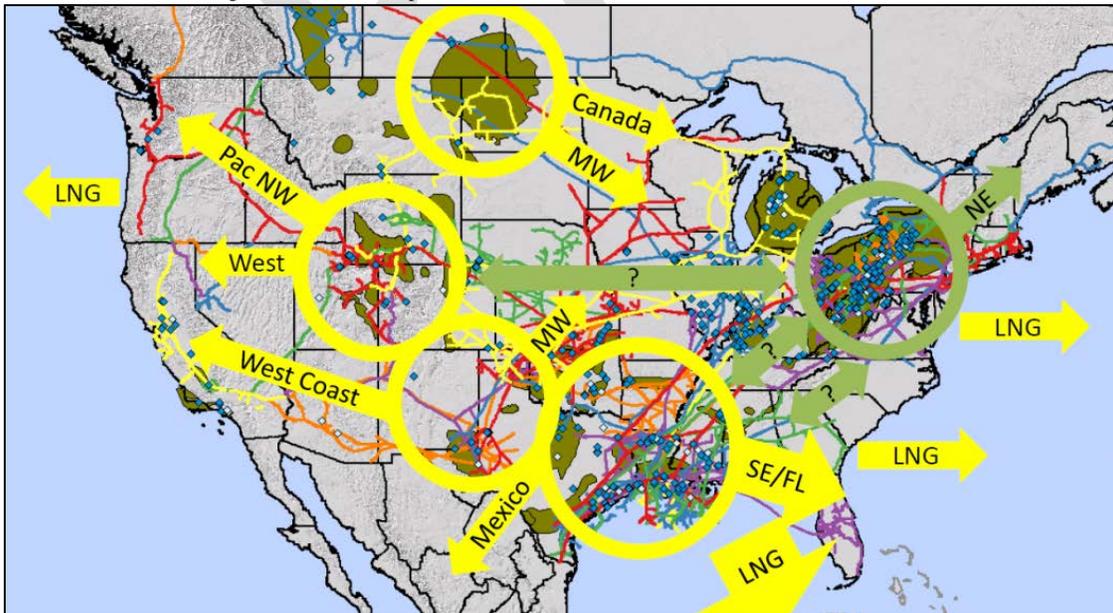
The growth in shale production is providing new sources of natural gas supply for end-users and is shifting traditional pipeline flows. The change in the United States' pre-shale to post-shale supply flow is illustrated in the figures 7 and 8 below.

Figure 7: Illustrative Pipeline and LNG Flows **Pre-Shale** Gas Production Growth



Source: America Natural Gas Alliance (now part of the American Petroleum Institute)

Figure 8: Illustrative Pipeline and LNG Flows **Post-Shale** Gas Production Growth



Source: America Natural Gas Alliance (now part of the American Petroleum Institute)

Shale gas growth has provided a significant new source of natural gas supply and is changing the supply dynamics of the United States. With the growth in Marcellus natural gas supply, traditional pipeline flows from the south to the north are being displaced with natural gas produced in the Northeast region. New pipeline projects have been proposed and executed to move the growing Northeast natural gas supply to markets to the west, south and north.

An example of new pipeline infrastructure that is transporting growing Northeast shale gas production from the Marcellus and Utica to the south is the proposed Atlantic Coast Pipeline ("ACP"). ACP is an approximately 600 mile FERC regulated pipeline originating in Harrison County, West Virginia. The southern termination of ACP is in Robeson County, North Carolina, which borders the State of South Carolina.

ACP will initially have a capacity of 1.5 Bcf/d, with future expansion capability up to 2.0 Bcf/d. The project will offer additional supply capacity for economic growth, direct supply access to shale production, and pipeline diversity to meet the growing needs of power generators and gas utilities. The project is summarized in Figure 9.

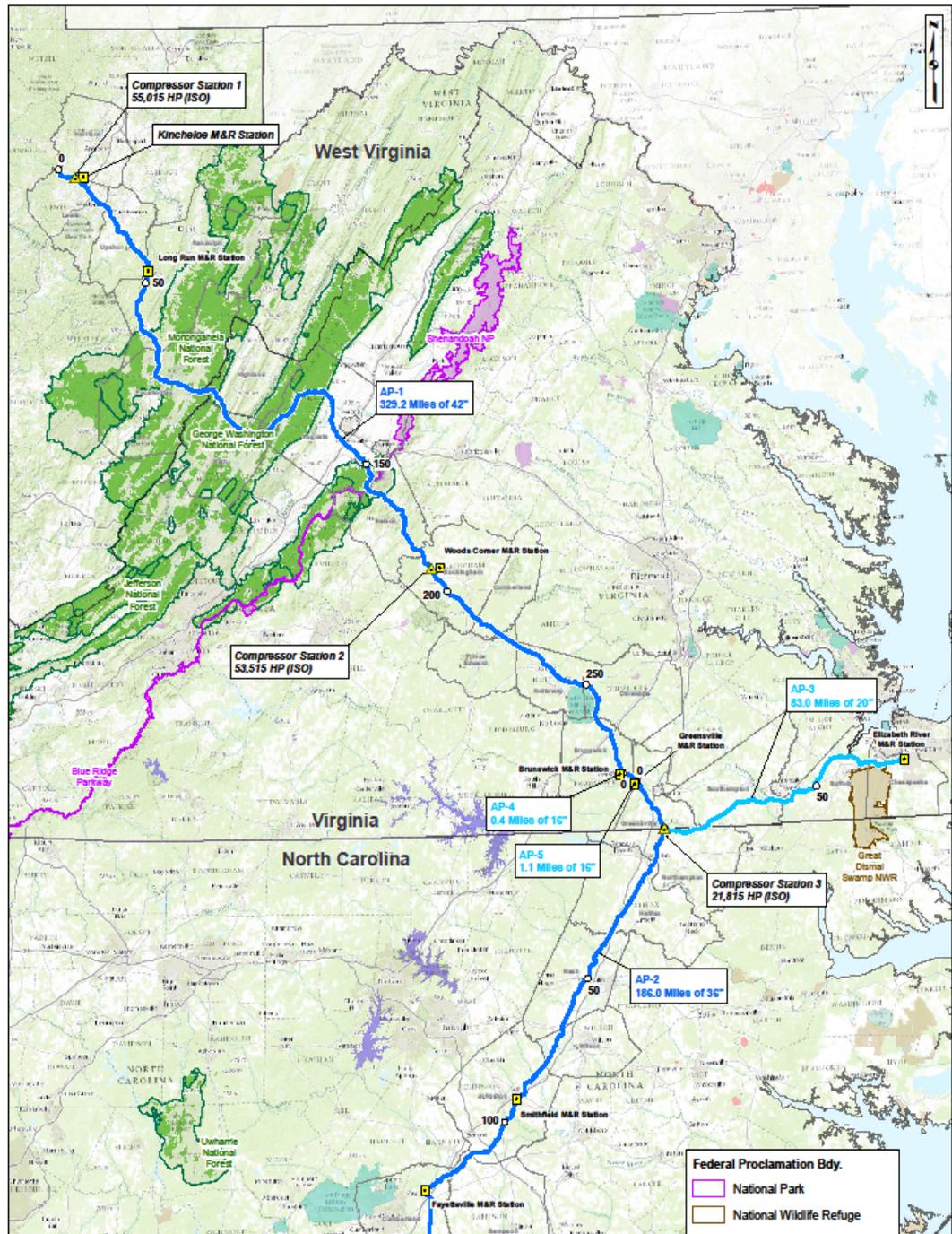


Figure 9: ACP Map
Source: Dominion

Transco's Leidy Southeast, Dalton and Atlantic Sunrise projects are examples of expansion projects of current pipeline infrastructure that are moving the growing Northeast shale southward. These projects could impact the sources of natural gas that flows into the State of South Carolina. Leidy Southeast went into service in late 2015, while Dalton and Atlantic Sunrise are scheduled to go into service in 2017.

These Transco expansion projects allow for contractual and physical gas flows north-to-south, which will displace traditional south-to-north flows. The Atlantic Sunrise project, for example, involves modifying valves and piping at compressor stations within the State of South Carolina to allow for bi-directional gas flow across the State. These projects are illustrated in Figures 10, 11 and 12.

According to the EIA, South Carolina's natural gas infrastructure has inflow capacity of 4.8 Bcf/d and outflow capacity of 4.2 Bcf/d.⁶ Projects such as these could potentially allow for greater flows into and out-of the state.

Figure 10: Leidy Southeast

Source: Williams

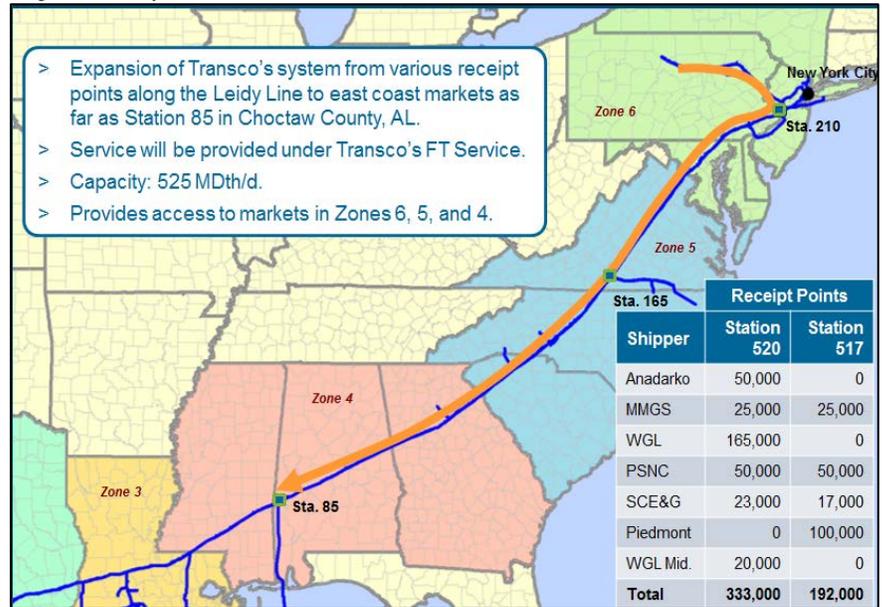


Figure 11: Atlantic Sunrise

Source: Williams

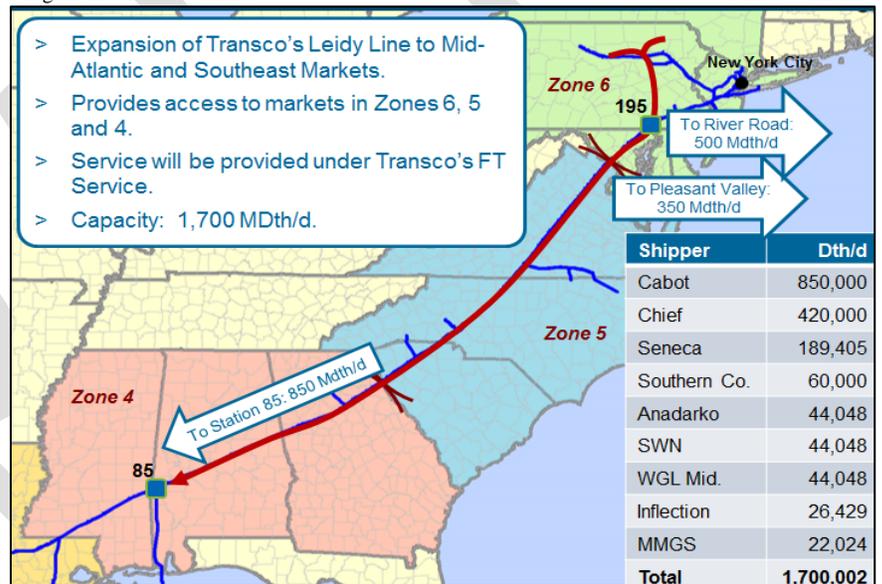
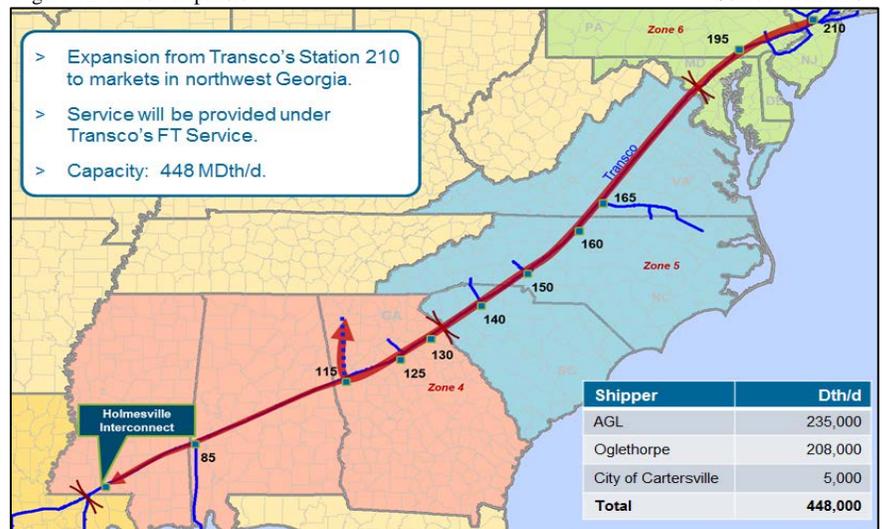


Figure 12: Dalton Expansion

Source: Williams



4) Interstate Pipelines

There are four interstate natural gas pipelines that deliver natural gas from out-of-state sources to support the needs of South Carolina end-users. These interstate pipelines are Dominion Carolina Gas Transmission ("DCGT"), Elba Express Company, Southern Natural Gas ("SNG"), and Transcontinental Pipeline ("Transco"). Figure 13 shows the location of the interstate pipelines and the approximate size of the pipeline infrastructure across the State. Further descriptions of each interstate pipeline are summarized in this section.

Interstate natural gas pipelines are regulated by the FERC, and the Pipeline and Hazardous Material Safety Administration ("PHMSA") under the Department of Transportation.

The FERC regulates interstate natural gas pipeline permitting, routing for new pipeline projects, public need for a project as well as potential landowner and environmental impacts. In addition, the FERC reviews and approves transportation rates that pipelines are permitted to charge for interstate shipments as well as tariff provisions.

PHMSA oversee the safety requirements of pipelines including the design, construction, operation and maintenance of American's approximately 2.6 million miles of natural gas pipelines.

Dominion Carolina Gas Transmission("DCGT")
DCGT is an interstate natural gas pipeline company serving wholesale and direct industrial customers throughout South Carolina. The FERC and PHMSA oversee DCGT's pipeline management and safety, respectively.

DCGT owns and operates the interstate pipeline system with the widest geographic coverage in South Carolina. DCGT's system delivers natural gas to the majority of natural gas utilities in the State.

The DCGT system is comprised of approximately 1,500 miles of pipelines between 2" to 24" diameter operating at pressures up to 1200 psi. DCGT's system interconnects with Sonat and Transco are shown in Figure 14. The majority of the natural gas that flows into DCGT is sourced from Sonat and Transco, as shown in Figure 15. Volumes in Figure 15 are scheduled pipeline receipts before netting displacement deliveries.

Figure 13: Interstate pipeline and natural gas power plant map Source: Platts & MHI

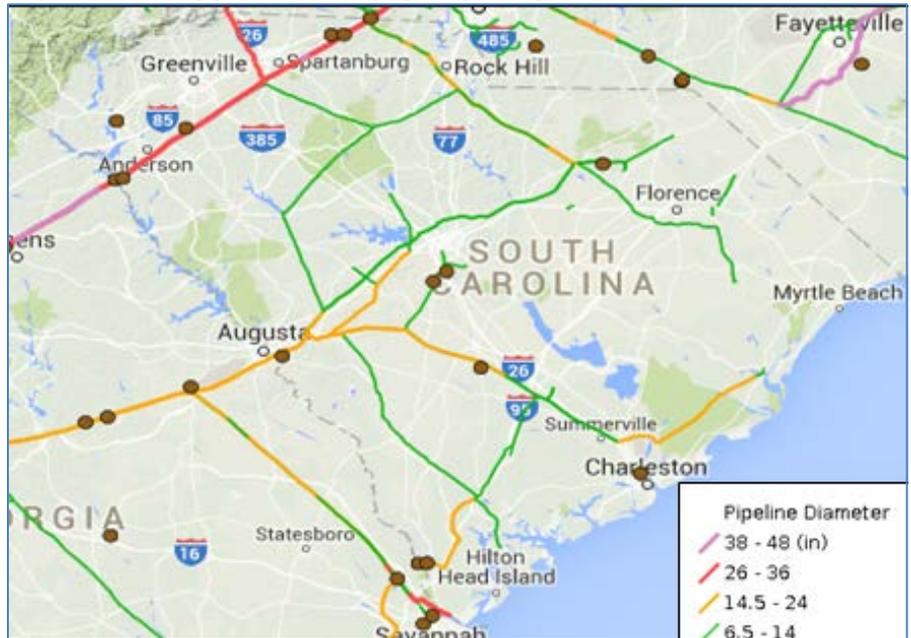


Figure 14: DCGT map with interstate interconnects Source: Dominion

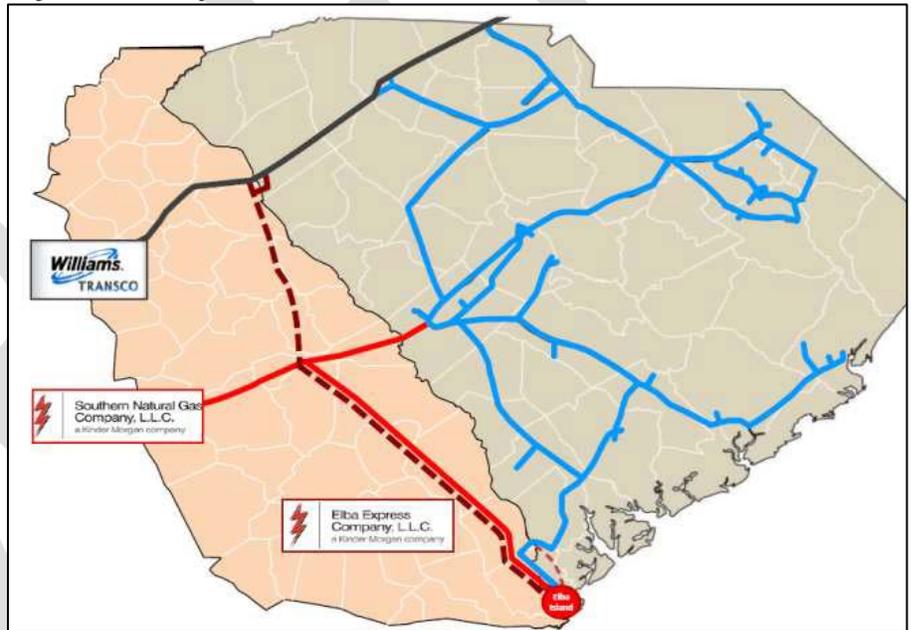
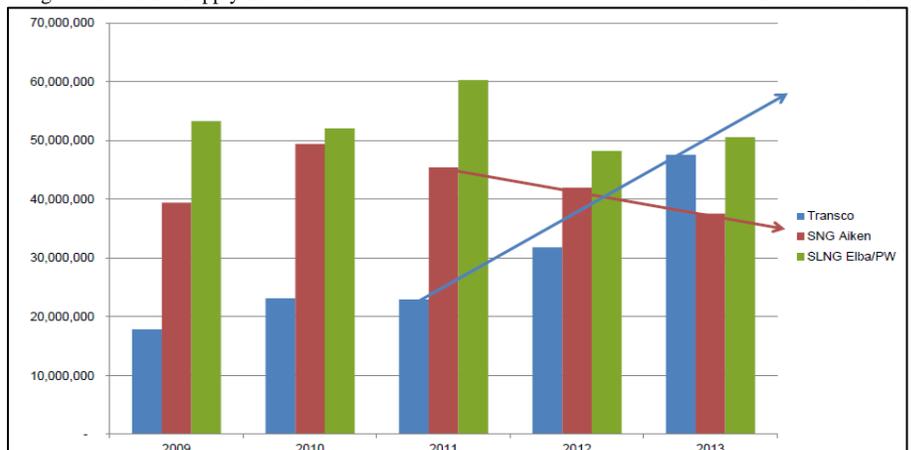


Figure 15: DCGT Supply Sources Source: DCGT



As shown in Figure 16, DCGT's estimated throughput in 2014 was approximately 137.5 BCF. Overall throughput grew approximately 9.7% between 2010 and 2014. DCGT provides natural gas delivery service to the industrial, LDC ("Local Distribution Company"), and power generation sectors.

Figure 16 - DCGT Throughput by Sector (rounded to BCF) Source: Dominion

Sector	2010	2011	2012	2013	2014
Industrial	22.3	23.8	26.8	27.0	28.0
LDC	64.9	59.1	54.0	58.9	59.5
Power Generation	37.5	45.5	38.9	42.3	38.2
Displacement	.6	.5	2.1	7.3	11.8
Total Throughput	125.3	128.9	121.8	135.5	137.5

Figure 17 outlines DCGT's proposed Transco to Charleston Project, a \$119 million expansion, an application for which was filed with the FERC in March of 2016. The project includes 55 miles of 12" pipe in Spartanburg, Laurens, Newberry and Greenwood counties. There is also a separate 5 mile section of 4" pipe entirely within Dillon County.

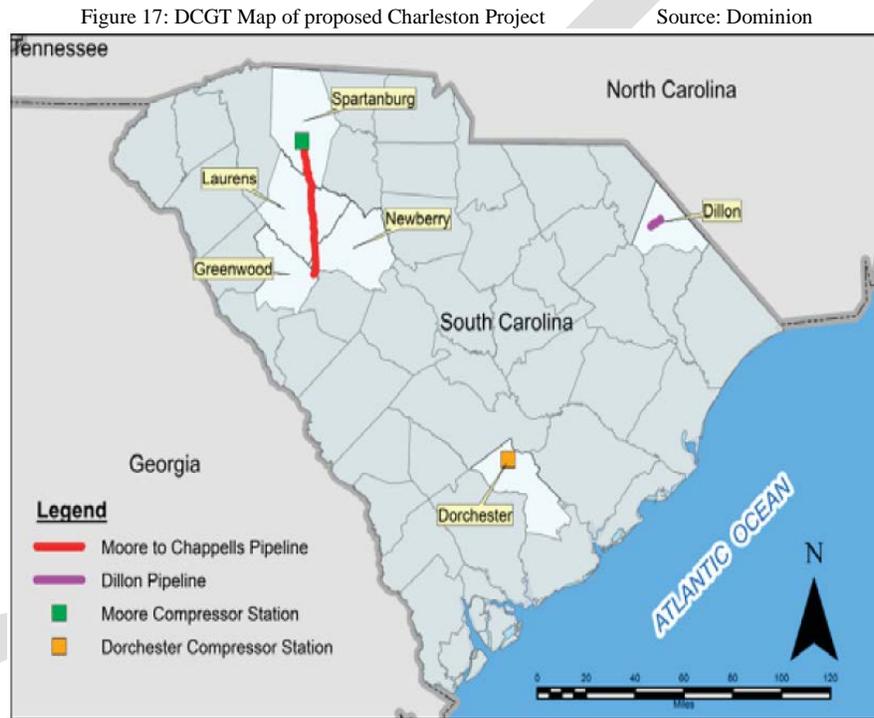
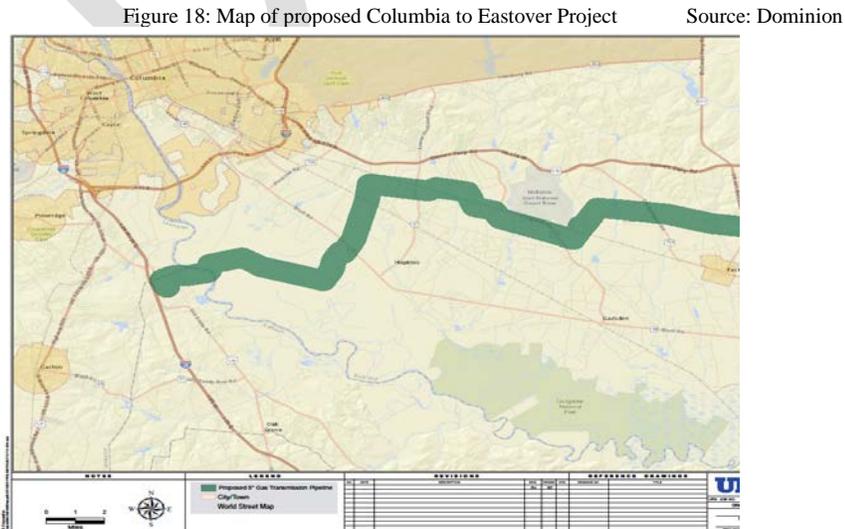


Figure 18 outlines DCGT's proposed Columbia to Eastover Project which includes 28 miles of new 8-inch diameter natural gas pipeline and associated ancillary facilities in Lexington, Calhoun and Richland Counties.



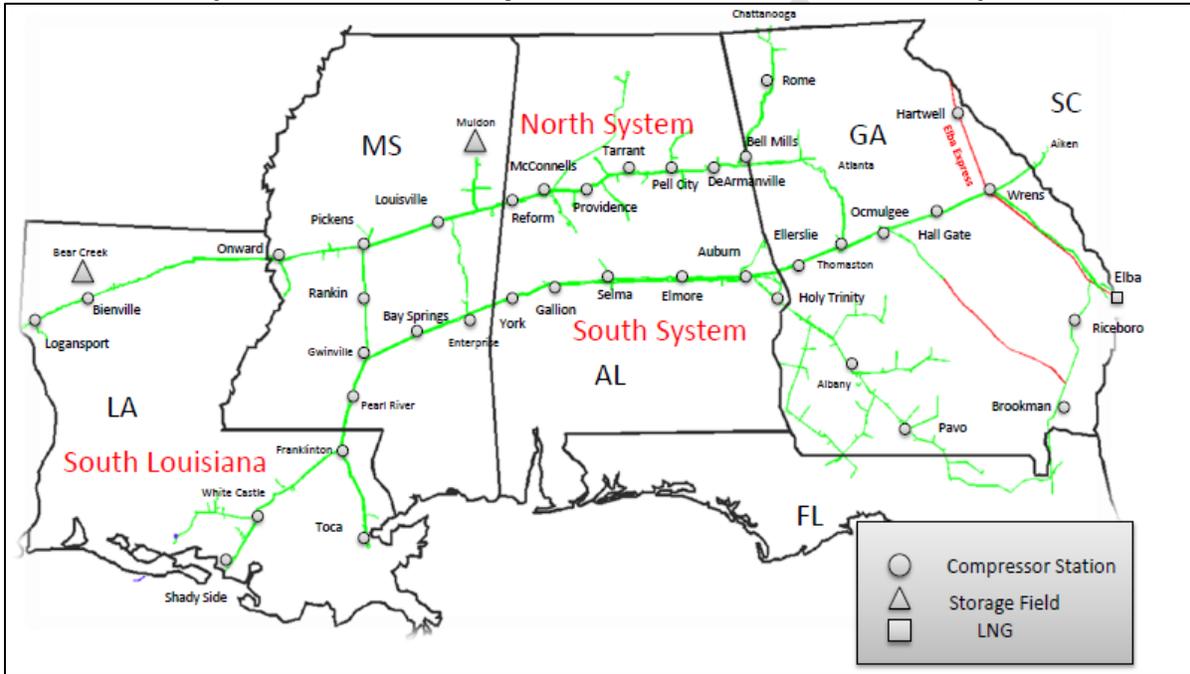
Southern Natural Gas (“SNG”)

SNG is owned and operated by Kinder Morgan. SNG was initially designed to transport natural gas from northern Louisiana and the Gulf Coast to states in the Southeast, including South Carolina. With the development of new gas supplies in different parts of the country and the decline of Gulf Coast production, today less than half of SNG’s supply comes from the Gulf Coast. As shown in Figure 19, SNG connects with DCGT in both Aiken County, South Carolina and in Chatham County, Georgia. SNG has other direct customers in Aiken County, South Carolina, including SCE&G.

The main SNG delivery point into South Carolina is on the East of Wrens portion of the pipeline delivering up to 475,000 Mcf/d at the Aiken interconnect with DCGT.⁴ Additionally, there are two delivery points off of SNG with SCE&G. One delivers up to 125,000 Mcf/d to the 650 Megawatt Urquhart power plant and the other delivers up to 80,000 Mcf/d to North Augusta.⁴ According to the EIA, SNG delivered approximately 56 BCF of gas into the State of South Carolina in 2014.⁵ This compares to historical flows of 51 BCF in 2013, 66 BCF in 2012, and 63 BCF in 2011.⁵

Figure 19: Southern Natural Gas Map

Source: Kinder Morgan



Elba Express Company

Figure 20: Elba Express Map

Source: Kinder Morgan

The 200-mile Elba Express pipeline, also owned and operated by Kinder Morgan, enters South Carolina in Anderson County as show in Figure 20 on the previous page. Elba Express has a bi-directional interconnects with Transco in Anderson County, South Carolina and across the Savannah River in Hart County, Georgia. Elba Express interconnects with SNG near Wrens, Georgia. In Port Wentworth, Georgia, Elba Express interconnects with SNG and DCGT.



The Elba Express pipeline was originally constructed to move vaporized LNG that was being imported into the Elba Island LNG facility to domestic markets, including South Carolina. However, with the growth in domestic shale gas production and the market price of natural gas in the US, imports of LNG into Elba Island and across the US have been declining. Kinder Morgan is planning to add liquefaction facilities to be able to export natural gas from Elba Island which will make the terminal bi-directional. Elba Express is planning a companion expansion to move gas from Transco to Elba Island and to other southeastern markets, including South Carolina.

Transcontinental Pipeline ("Transco")

Transco is an interstate natural gas transmission company that owns and operates approximately 9,700-mile natural gas pipeline system, which is regulated by the FERC, extending from Texas, Louisiana, Mississippi and the offshore Gulf of Mexico through Alabama, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, Pennsylvania and New Jersey to the New York City metropolitan area. The system serves customers in Texas and 12 Southeast and Atlantic seaboard states, including major metropolitan areas in Georgia, North Carolina, Washington, D.C., Maryland, New York, New Jersey, and Pennsylvania. There are two compressor stations in South Carolina located on the Transco system in Anderson and Spartanburg counties. Per Transco operational data, the design capacity of the pipeline into South Carolina is approximately 3.8 Bcf/day.

Figure 21: Transco System Map

Source: Williams



As of December 31, 2015, Transco's system had a mainline delivery capacity of approximately 6.4 MMDth of natural gas per day from its production areas to its primary markets, including delivery capacity from the mainline to locations on its Mobile Bay Lateral. Using its Leidy Line along with market-area storage and transportation capacity, Transco can deliver an additional 5.1 MMDth of natural gas per day for a system-wide delivery capacity total of approximately 11.5 MMDth of natural gas per day. Transco's system includes 45 compressor stations, four underground storage fields, and an LNG storage facility. Compression facilities at sea level-rated capacity total approximately 1.8 million horsepower.

Transco's major natural gas transportation customers are public utilities and municipalities that provide service to residential, commercial, industrial and electric generation end users. Shippers on Transco's system include public utilities, municipalities, intrastate pipelines, direct industrial users, electrical generators, natural gas marketers and producers. Transco's firm transportation agreements are generally long-term agreements with various expiration dates and account for the major portion of Transco's business. Additionally, Transco offers interruptible transportation services under shorter term agreements.

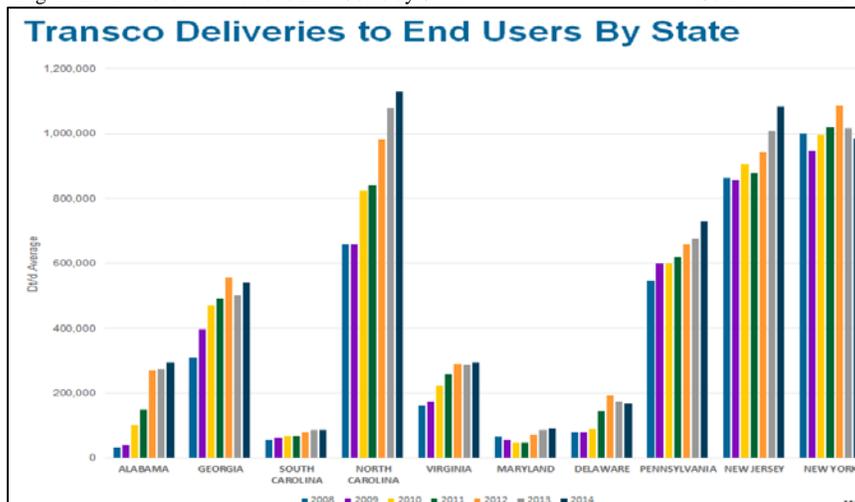
Transco has natural gas storage capacity in four underground storage fields located on or near its pipeline system or market areas and operates two of these storage fields. Transco also has storage capacity in an LNG storage facility that it owns and operates. The total usable gas storage capacity available to Transco and its customers in such underground storage fields and LNG storage facility and through storage service contracts is approximately 200 Bcf of natural gas. In addition, wholly owned subsidiaries of Transco operate and hold a 35 percent equity-method investment in Pine Needle LNG Company, LLC, and an LNG storage facility with 4 Bcf of storage capacity.

Transco is the largest interstate pipeline source of gas for the State. According to the EIA, approximately 717 BCF flowed into South Carolina in 2014.⁵ This 717 BCF includes consumption in multiple states, from South Carolina to Mid-Atlantic markets. South Carolina's end-user consumption off Transco compared to other states is shown in Figure 22.

The 717 BCF is lower than previous years as south-to-north flow displacement continues as a result of Marcellus Shale production growth. Historical flows on Transco into South Carolina were 805 BCF in 2013, 977 BCF in 2012, and 1,034 BCF in 2011.⁵ Figure 22 also displays South Carolina's end-user consumption growth on Transco.

Figure 22: Transco Deliveries to End-Users by State

Source: Williams



5) Investor Owned Utilities

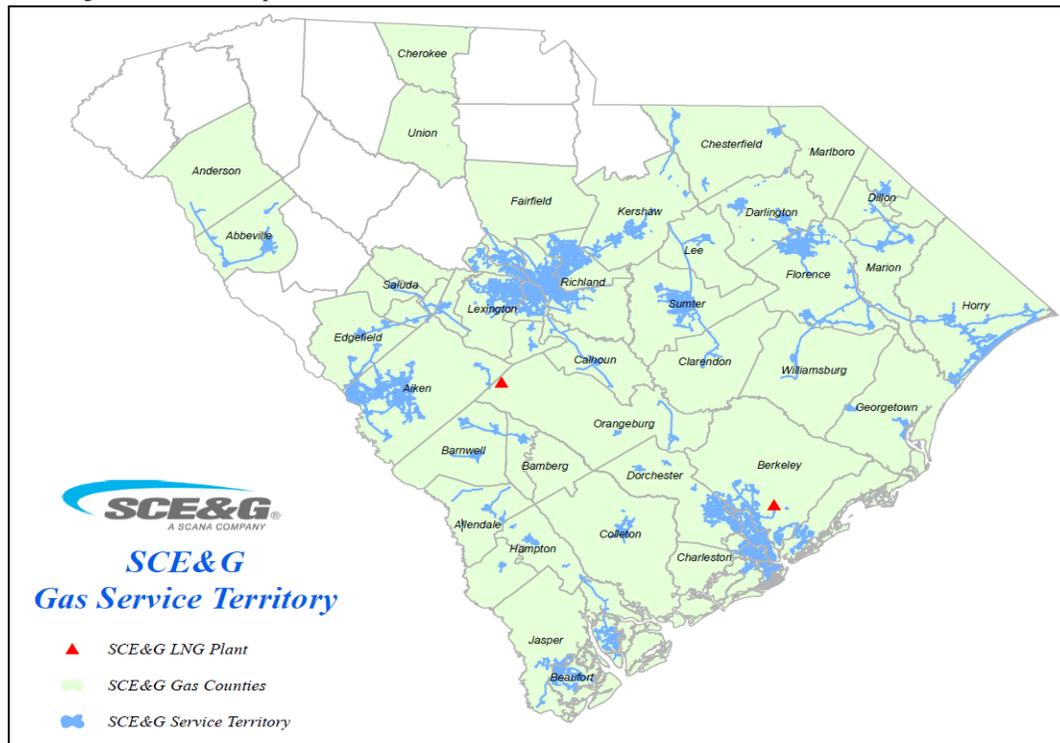
There are two IOU's in South Carolina, which are South Carolina Electric & Gas ("SCE&G") and Piedmont Natural Gas ("PNG").

South Carolina Electric & Gas

South Carolina Electric & Gas traces its history to 1846 when the South Carolina General Assembly authorized the incorporation of the Charleston Gas Light Company. Today SCE&G delivers gas to approximately 349,000 residential, commercial and industrial customers in 35 of the 46 counties in the Midlands, Pee Dee and Coastal communities of South Carolina. In 2015, SCE&G purchased a total volume of 62 BCF of natural gas from multiple suppliers that were transported into the state by Dominion Carolina Gas, Transco Pipeline and Southern Natural Pipeline.

Figure 23: SCE&G Map

Source: SCANA



SCE&G delivers natural gas through 447 miles of high-pressure transmission pipelines and 9,064 miles of distribution mains to serve South Carolina's many growing cities and communities. The transmission steel pipe ranges from 4" to 20" in diameter and operate at 469 to 1,200 psi. The distribution system consists of steel pipe, ranging from 3/4" to 12" with pressure ranges from 25 to 250 psi, and plastic pipe, ranging from 1/2" to 8" with pressure ranges from 25 to 60 psi. The newer plastic pipe represents 57% of the overall distribution system.

SCE&G is committed to the economic development and industrial growth of its service territory. Its pipeline projects have fueled hundreds of new jobs and its annual customer growth rate has been approaching 3% since 2014. As the demand for natural gas continues to grow, SCE&G is consistently improving and expanding its infrastructure to ensure the safe and reliable delivery of natural gas.

SCE&G also operates two LNG facilities at Bushy Park and Salley, SC. These facilities have the capacity to hold 23 million gallons of LNG, the equivalent of approximately 2 BCF of natural gas. When required, these facilities can supply an additional 105 million cubic feet of natural gas per day for delivery into the local distribution systems.

Piedmont Natural Gas

Founded in 1950 Piedmont Natural Gas Company, provides regulated natural gas transmission and distribution service to over one million, residential, commercial, and industrial/power generation customers in North Carolina, South Carolina and Tennessee. The Company's South Carolina service area includes major portions of Anderson, Greenville, Spartanburg and Cherokee Counties. Total customer growth across the Company's three-state service area was approximately 2% in 2015. In South Carolina, Piedmont serves approximately 139,000 customers. Due to its proximity and interconnection with major interstate natural gas transmission pipeline infrastructure, Piedmont's natural gas pipeline delivery system in South Carolina has been critical in establishing the upstate as South Carolina's leading manufacturing and industrial hub. Piedmont delivered approximately 20 BCF of natural gas to its South Carolina customers in 2015.

Piedmont ensures the delivery of the gas supplies to their distribution system to meet the design peak day, seasonal and annual needs of their firm customers by using a variety of firm transportation and storage capacity contracts. Piedmont purchases natural gas supplies by contracting primarily with major and independent producers and marketers. Piedmont also purchases a diverse portfolio of transportation and storage services from interstate pipelines that are regulated by the FERC. Piedmont's review and implementation of their gas supply acquisition strategy ensures that Piedmont has adequate and reliable supplies to meet the peak day needs of their

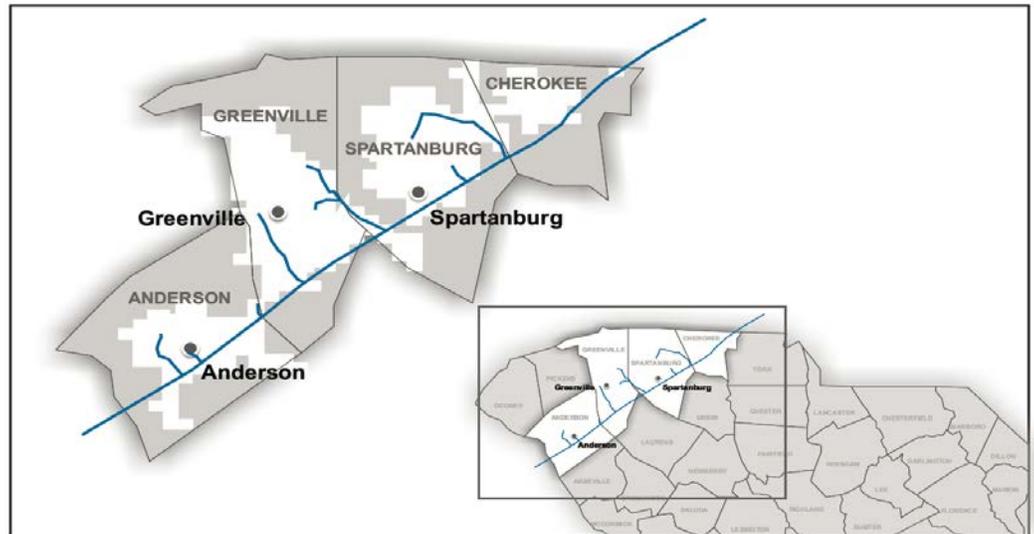
utility customers. Piedmont evaluates ongoing cold weather conditions and corresponding customer consumption patterns, as well as historical winter weather over the past 40 years, in developing the peak day system requirements.

In South Carolina Piedmont Natural Gas operates and maintains 3,789 miles of transmission and distribution mains at operating pressures between 15 and 800 psi. Coated and cathodically protected steel distribution mains account for 1,450 miles of the total with the remaining 2,228 miles being constructed in plastic. Steel pipe diameters range from ¾” to 16” and plastic pipe diameters are ½” to 8”.

Piedmont Natural Gas also owns and operates three publically accessible compressed natural gas fueling stations in South Carolina to fuel our own vehicles and meet the growing demand for CNG from both public and private fleet operators. Approximately one-third of Piedmont’s 1,100 company vehicles operate on CNG with 73 registered in South Carolina.

Figure 24: PNG gas service territory

Source: Piedmont



6) Natural Gas Authorities

There are five NGA's in the State, which are Chester County, Clinton-Newberry, Fort Hill, Lancaster County, and York County. Summaries of each are provided below. In addition, Patriots Energy Group operates a natural gas transmission pipeline that crosses Chester, Lancaster and York counties. It is jointly owned between Chester County NGA, Lancaster County NGA, and York County NGA.

Chester County NGA

The Chester County Natural Gas Authority was created in April 1954 under Act 806 of the Acts and Joint Resolution of the State of South Carolina of 1954 and commenced the distribution of natural gas in 1957. The service area for the Authority is defined as being Chester County, Lockhart School District in Union County, and the Mitford and Blackstock area in Fairfield County. The NGA is a member of the Patriots Energy Group.

Clinton Newberry NGA

Clinton Newberry Natural Gas Authority began supplying natural gas services to Laurens and Newberry counties in 1952. In the mid-1980's it began providing services to Southern Spartanburg. The NGA currently is expanding its services to the Lake Murray and Lake Greenwood areas in these counties as well. The NGA currently provides service to about 13,000 customers.

Fort Hill NGA

Fort Hill Natural Gas Authority was established by the South Carolina Legislature to serve the municipalities and outlying areas of Oconee, Pickens and portions of Anderson Counties. By statute, Fort Hill is a non-profit, tax-exempt entity and is authorized to issue tax-exempt "municipal" bonds to construct and expand our natural gas distribution network and facilities.

Fort Hill serves approximately 38,000 residential, commercial and industrial customers in a 3 county service area. Fort Hill maintains approximately 2,700 miles of steel and PE plastic distribution gas mains and service lines of varying diameters between 5/8" and 10". Fort Hill purchases natural gas for resale to our customers on the open market. The gas is transported from various sources in the gas-producing regions of the United States to Fort Hill via three interconnects with Transco in Anderson County, South Carolina.

Lancaster County NGA

Since 1954 Lancaster County Natural Gas Authority has provided natural gas service, whenever feasible, to the residences, commercial businesses and industries within Lancaster County, South Carolina. Service areas include: Indian Land; Lancaster and Kershaw / Heath Springs. The NGA is a member of the Patriots Energy Group.

York County NGA

For over 55 years York County Natural Gas Authority ("YCNGA") has provided residential, commercial and industrial gas service throughout York County, South Carolina. In April of 2010 it added another gas system which was purchased from the Town of Blacksburg. The NGA's service area includes all of York County and the Northeast portion of Cherokee County. Service is not presently economically feasible in all rural areas, but is generally available in and around Rock Hill, York, Clover, Fort Mill, Tega Cay, River Hills, Smyrna, McConnells, Sharon, Hickory Grove and Blacksburg. Most densely populated residential subdivisions have service as do all industrial parks in York County. The NGA currently has over 1,000 miles of distribution mains and serves over 58,000 customers. It is a member of the Patriots Energy Group.

7) Board/Commission of Public Works

There are four CPW's in the State, which are Bamberg, Greenwood, Greer and Laurens. Summaries of each are provided below.

Bamberg BPW

Bamberg BPW was established in October 1905. The BPW provides water, wastewater, electric and natural gas service throughout the incorporated area of Bamberg and beyond. The BPW serves approximately 2,000 customers with one or more utilities. The BPW is the utility entity of the Bamberg municipal government, separate from the City of Bamberg and governed by a three person commission.

Greenwood CPW

Greenwood CPW has been providing safe and reliable natural gas to Greenwood County for over 70 years. The natural gas unit, which began operation in 1940, was initially operated by the City of Greenwood which at the time manufactured and distributed liquid petroleum gas. In 1946, the natural gas system became part of the Combined Public Utility System.

The CPW operates the natural gas unit within a territory that extends from near the town of Chappells, SC to Belton, SC. The territory includes portions of Greenwood, Abbeville, Anderson, Laurens, and Greenville counties. Besides the city of Greenwood, the unit operates franchises and is the exclusive natural gas supplier to the towns of Donalds, Hodges, Ware Shoals, Ninety Six, and Promised Land in South Carolina.

Greenwood CPW delivers natural gas to over 17,500 customers through its distribution network of 770 miles of natural gas pipeline. The natural gas system serves an area of 310 square miles with interconnections with two interstate pipelines, Transco and DCGT.

Greer CPW

Greer CPW was formed in 1913 for the purposes of providing electricity, water distribution, and sewer collection and treatment to the residents of the City of Greer. In 1957, the City Council enacted an ordinance which founded a natural gas unit to be added to what is now the present-day system.

The transmission originates on the Transco mainline in Crescent, South Carolina, from which point gas is transported to the City by means of an eight-inch high-pressure transmission line which is owned and maintained by the Commission. The Commission operates and maintains approximately 42 miles of high-pressure lines and approximately 729 miles of intermediate and distribution lines, along with 131 pressure-reducing and regulating stations. These distribution lines serve more than 20,000 customers located from the City of Landrum, north of the City of Greer on Highway 14, to south of the City of Greer along Highway 101 towards the City of Woodruff, encompassing approximately 460 square miles. Over the last year, the Commission experienced a customer growth rate of 3.0% in the Gas unit. The Commission dedicated one of the few CNG fueling stations in the area available to the public. Since its dedication in April 2013, the Commission has seen a strong growth in CNG sales along with interest among fleet operators and other fueling providers.

Laurens CPW

In February of 1922, the South Carolina General Assembly enacted a law creating the Laurens Board of Commissioners of Public Works, thereby initiating the improvement and expansion of the utilities system. In the 1950s, the citizens of Laurens established a municipally-owned natural gas system, the fourth utility in the combined system.

8) Municipal Systems

There are five Municipal Systems in the State, which are Bennettsville, Fountain Inn, Orangeburg, Union, and Winnsboro. Summaries of these municipal systems are provided below.

Bennettsville, City of

The natural gas division operates and maintains the city's natural gas system and facilities and is responsible for making new service taps, piping dwellings, repairing leaks, connecting appliances and responding to other customer calls based on requests for service. A

propane air plant is located strategically on the Highway 15/401 Bypass. Its purpose is to supplement natural gas supply to the city under extreme load conditions and curtailments issued by pipeline suppliers.

Fountain Inn Natural Gas System

Established in July 1954 as a municipal enterprise pursuant to the Federal Power Commission Order in December 1953. As a municipal enterprise, the Fountain Inn Natural Gas System serves over 6,400 residential, commercial and industrial customers. The system includes approximately 270 miles of natural gas pipeline. Approximately 70% of the system is comprised of plastic pipe and 30% is steel pipe. The system has 9 regulator stations. All corporate control of the utility is vested in the city's seven-member Council.

Orangeburg Public Utilities

In 1955, the original natural gas system for the City of Orangeburg was completed and later the gas systems were expanded into the suburban areas and today serve the towns of Cordova and Rowesville. The gas system consists of approximately 323 miles of 2" to 10" diameter mains, distributing more than 2.3 BCF of natural gas per year to approximately 10,000 meters. The Gas Division owns and operates a propane-air peak shaving plant. At this facility liquid propane is stored to be used on cold winter nights when natural gas is curtailed or purchases are limited.

Union, City of

The City provides for the operations, construction and maintenance of the City's Gas Distribution System to support approximately 6,500 customers located in Union and Spartanburg counties. Gas is purchased from Transco and DCGT. The city gas system is comprised of approximately 405 miles of distribution piping.

Winnsboro, Town of

The Town of Winnsboro has been providing gas service to the town citizens for over forty years. It currently provides natural gas to approximately 2,800 gas utility customers.

9) Condition of South Carolina's Natural Gas Pipeline Infrastructure

Over the last ten years there has been considerable attention given to the age and condition of infrastructure in the United States including natural gas transmission and distributions systems. Transporting natural gas via pipelines is one of the safest and most economical ways to transport energy from production to the end-user. As the demand for natural gas continues to increase further investments in pipeline upgrades and additions will be required to add capacity and to reduce risk associated with aging pipelines, many of which were installed prior to 1970. Materials and methods of construction have improved dramatically that concurrently reduce service interruption, and mitigate public risk.

In 2011 DOT and PHMSA, in response to significant national natural gas pipeline incidents, promulgated regulations that require inspection, repair, rehabilitation and/or replacement of the highest risk natural gas pipeline infrastructure by pipeline operators. The program includes an inventory of pipelines by type, system evaluation to identify risks and an implementation plan to mitigate those risks. The regulatory compliance process is broken down into two major areas starting with TIMP (Transmission Integrity Management Program) which focuses on high pressure, high consequence pipelines that comprise the nation-wide interstate pipeline network and major feeds owned by local natural gas distribution companies. The second regulatory component is termed DIMP (Distribution Integrity Management Program), and requires natural gas utilities to assess and take action to mitigate any risks discovered on lower pressure delivery systems serving cities, towns and individual natural gas customers. South Carolina's natural gas utilities continue to invest in projects that focus on integrity upgrades that address regulatory safety concerns while prudently improving the systems that serve the State's growing population, business, industry and power generation needs.

Pipeline materials and construction are the primary factors considered in assessing the condition of natural gas pipeline infrastructure within states. Categorically the major types of natural gas pipeline are cast iron, bare steel, coated and wrapped steel, and plastic. Additionally, modern steel pipes are protected from corrosion related material loss through the use of cathodic protection. Whereas steel is exclusively used for high pressure transmission pipelines; steel, cast iron and plastic pipe are all used for low pressure distribution systems. Elimination of cast iron distribution pipes and uncoated steel pipes is a primary focus of the federal Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011, that requires utilities on a state-by-state basis to provide data on their replacement of bare steel and cast iron pipe.

Nineteen states have completely eliminated cast iron distribution lines including South Carolina. Cast Iron pipe has been supplanted by plastic pipe that will not corrode and is easier to repair if cut by a dig-in. By comparison New Jersey is ranked last for remaining cast iron distribution lines at 4,586 miles of pipe still in service.⁷ New York has 6,375 cast iron service lines that have yet to be replaced.⁷

Higher risk uncoated pipes commonly known as bare steel pipe are being replaced by coated pipelines, eliminating external corrosion. PHMSA's accelerated approach has made high pressure bare steel replacements its highest priority. South Carolina is a leader in this

area with no uncoated steel transmission pipelines and only 6 miles of uncoated steel distribution remaining in service at the end of 2015.⁷ Only 396 bare steel natural gas services (from the distribution main to the customer premise) remained in SC at the close of 2015.⁷ Pennsylvania takes the bottom ranking with bare steel transmission at 963 miles, with Ohio having the lowest distribution ranking at 7,672 miles of pipe in service.⁷

The role of state and local governments is vital to maintaining, upgrading and expanding natural gas pipeline networks. Public utilities commissions in many states including South Carolina have allowed regulated utility investments in pipeline system integrity upgrades and maintenance programs to be recovered through accelerated rate mechanisms. The benefit of such mechanisms is that it provides the appropriate regulatory framework to encourage rather than disincent timely investment in the safety, reliability and efficiency of pipeline systems to meet customer demand for natural gas.

10) Natural Gas Main and Service Infrastructure

The infrastructure of a gas utility is comprised of two main components: mains and services. Figure 25 illustrates how a gas main comes from an interstate pipeline to the gas service, which then connects to the end-user’s meter. Mains and services come in various sizes and materials.

All reported infrastructure in South Carolina is made of steel or plastic (polyethylene). While steel is used for all pipe sizes, it currently is primarily used for larger pipes. Over the last twenty years polyethylene pipe use has increased due to its longer lifespan, due to steel’s natural corrosion from elements in the ground and moisture. South Carolina Gas Utilities report that there is no iron or copper gas infrastructure in South Carolina. Additionally, no natural gas utilities in the State of South Carolina have reported any mains or services built prior to 1950. The largest portion of gas utility infrastructure construction occurred between 1990 and 2009.

Main Infrastructure

The gas main pipeline infrastructure of the State transports natural gas from the interstate pipelines to the service lines. As of 2014, the State had approximately 21,225 miles⁸ of gas main pipeline between its IOU and municipal utilities. Figures 26 through 29 detail the market share, size, material composition, and age of South Carolina’s gas main infrastructure.

Figure 25: Main & Service Illustrative Image Source: SoCal Gas

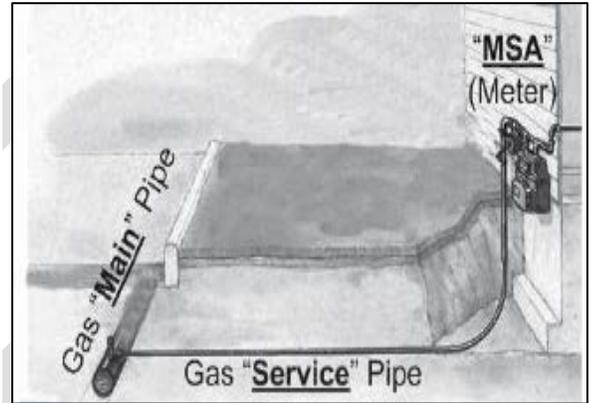


Figure 26: South Carolina Gas Utility - Main Market Share (PMHSA)

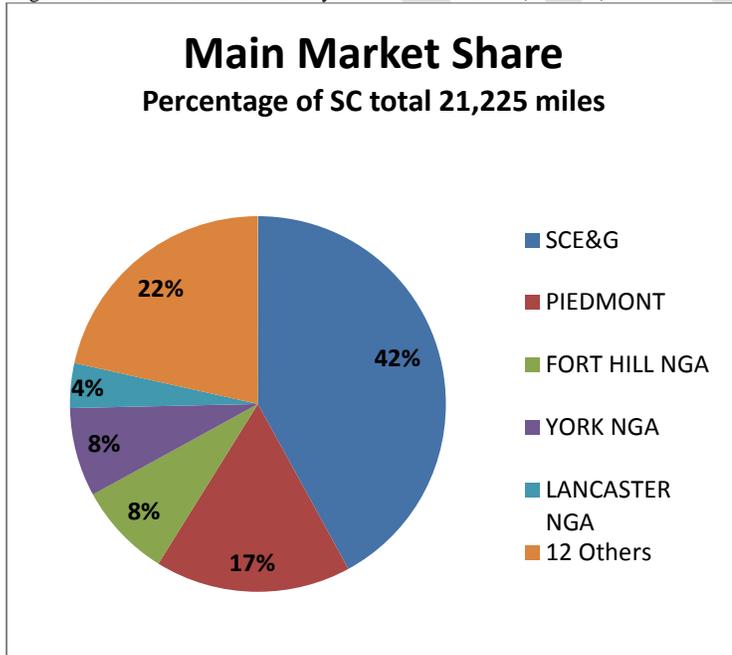


Figure 27: South Carolina Gas Utility - Construction Year of Mains (PMHSA)

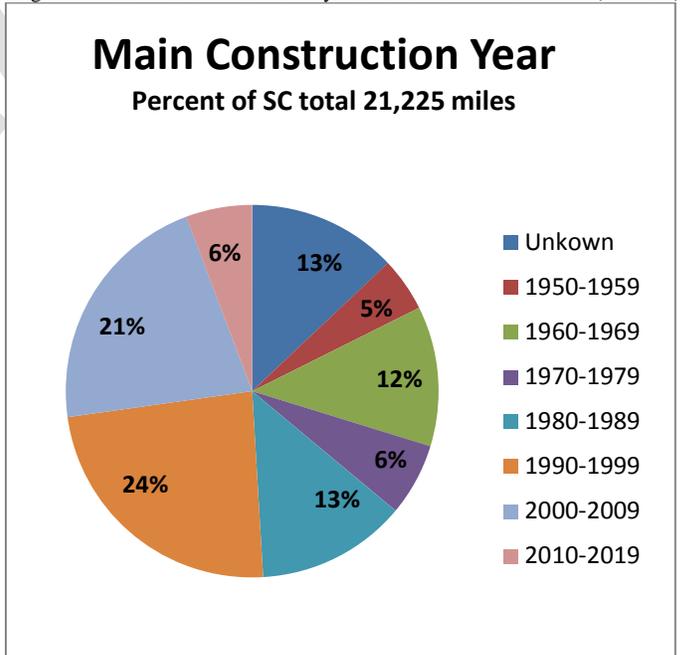


Figure 28: South Carolina Gas Utility - Mains by Size (PMHSA)

SC GAS UTILITY	2" or Less	>2"-4"	>4"-8"	>8"-12"	>12"	Total
SOUTH CAROLINA ELECTRIC & GAS CO	6,178	1,516	1,140	77	7	8,918
PIEDMONT NATURAL GAS CO INC	2,412	669	442	54	-	3,577
FORT HILL NGA	1,093	460	144	33	-	1,730
YORK COUNTY NGA	1,099	369	152	2	-	1,622
LANCASTER COUNTY NGA	570	170	73	-	-	813
GREENWOOD CPW	407	246	46	43	-	742
CLINTON - NEWBERRY NGA	477	191	64	-	-	732
GREER CPW	449	220	60	-	-	729
CHESTER COUNTY NGA	385	170	35	-	-	590
UNION, CITY OF	235	109	57	5	-	405
LAURENS CPW	227	78	42	44	-	391
ORANGEBURG PUBLIC UTILITIES	210	59	52	30	-	351
FOUNTAIN INN NGA	176	108	19	-	-	303
WINNSBORO, TOWN OF	68	50	21	-	-	138
BENNETTSVILLE, CITY OF	56	28	2	-	-	86
BAMBERG BOARD OF PUBLIC WORKS	51	32	-	-	-	83
PATRIOTS ENERGY GROUP	-	3	13	-	-	16
	14,092	4,478	2,361	286	7	21,225
	66%	21%	11%	1%	0%	

Figure 29: South Carolina Gas Utility - Mains by Material (PMHSA)

SC GAS UTILITY	Steel	Plastic	Total	% Steel	% Plastic
SOUTH CAROLINA ELECTRIC & GAS CO	3,905	5,013	8,918	44%	56%
PIEDMONT NATURAL GAS CO INC	1,461	2,116	3,577	41%	59%
FORT HILL NGA	742	988	1,730	43%	57%
YORK COUNTY NGA	358	1,264	1,622	22%	78%
LANCASTER COUNTY NGA	234	579	813	29%	71%
GREENWOOD CPW	332	410	742	45%	55%
CLINTON - NEWBERRY NGA	188	544	732	26%	74%
GREER CPW	182	547	729	25%	75%
CHESTER COUNTY NGA	123	467	590	21%	79%
UNION, CITY OF	172	233	405	43%	57%
LAURENS CPW	169	222	391	43%	57%
ORANGEBURG PUBLIC UTILITIES	236	115	351	67%	33%
FOUNTAIN INN NGA	70	233	303	23%	77%
WINNSBORO, TOWN OF	70	68	138	51%	49%
BENNETTSVILLE, CITY OF	54	32	86	63%	37%
BAMBERG BOARD OF PUBLIC WORKS	38	45	83	46%	54%
PATRIOTS ENERGY GROUP	16	-	16	100%	0%
	8,350	12,875	21,225	39%	61%

Service Infrastructure

The gas service pipeline infrastructure of the State transports the natural gas from the main pipes to the end-user's meter. As of 2014, the State had approximately 784,092 service lines⁸. Figures 30 through 33 detail the market share, size, material composition, and age of South Carolina's gas service line infrastructure.

Figure 30: South Carolina Gas Utility - Service Market Share (PMHSA)

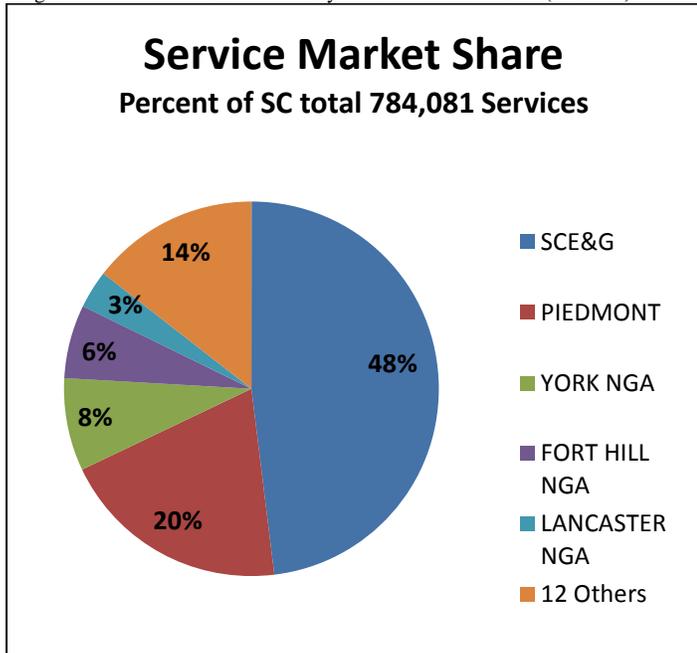


Figure 31: South Carolina Gas Utility - Construction Year of Services (PMHSA)

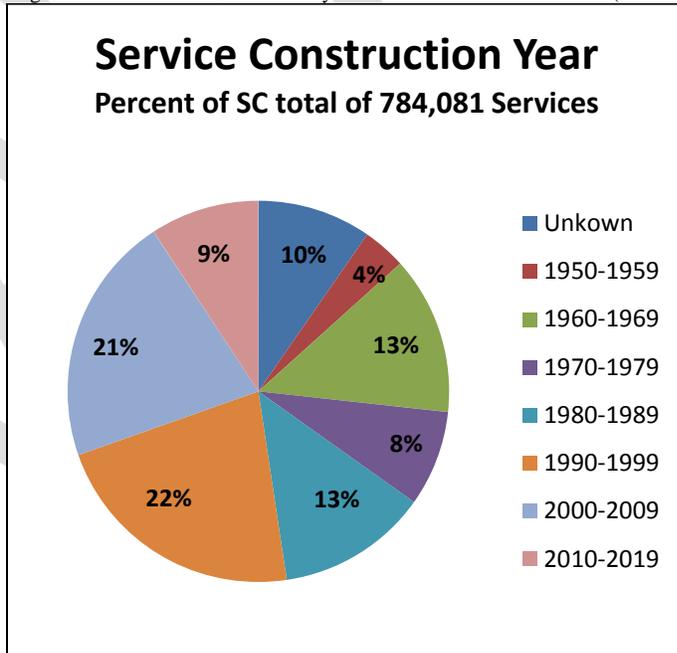


Figure 32: South Carolina Gas Utility - Services by Size (PMHSA)

SC GAS UTILITY	Unknwn	1" or Less	>1"-2"	>2"-4"	>4"-8"	>8"	Total
SOUTH CAROLINA ELECTRIC & GAS CO	3	355,896	20,727	129	30	1	376,786
PIEDMONT NATURAL GAS CO INC	-	144,274	11,102	223	26	11	155,636
YORK COUNTY NGA	-	62,549	165	18	2	-	62,734
FORT HILL NGA	-	49,144	598	20	3	-	49,765
LANCASTER COUNTY NGA	-	25,631	55	9	1	-	25,696
GREENWOOD CPW	-	24,008	181	26	2	-	24,217
GREER CPW	-	21,393	565	77	3	-	22,038
CLINTON - NEWBERRY NGA	-	16,110	213	28	-	-	16,351
ORANGEBURG PUBLIC UTILITIES	-	10,088	72	5	3	-	10,168
CHESTER COUNTY NGA	-	9,979	47	12	4	-	10,042
LAURENS CPW	7,414	348	11	1	-	-	7,774
FOUNTAIN INN NGA	-	7,643	48	4	-	-	7,695
UNION, CITY OF	-	7,355	26	15	-	-	7,396
BENNETTSVILLE, CITY OF	-	3,292	-	-	-	-	3,292
WINNSBORO, TOWN OF	-	2,863	19	-	1	-	2,883
BAMBERG BOARD OF PUBLIC WORKS	-	1,595	12	1	-	-	1,608
PATRIOTS ENERGY GROUP	-	-	-	-	-	-	-
	7,417	742,168	33,841	568	75	12	784,081
	1%	95%	4%	0%	0%	0%	

Figure 33: South Carolina Gas Utility - Services by Material (PMHSA)

SC GAS UTILITY	Steel	Plastic	Total	% Steel	% Plastic
SOUTH CAROLINA ELECTRIC & GAS CO	93,173	283,613	376,786	25%	75%
PIEDMONT NATURAL GAS CO INC	25,288	130,348	155,636	16%	84%
YORK COUNTY NGA	5,232	57,502	62,734	8%	92%
FORT HILL NGA	18,062	31,703	49,765	36%	64%
LANCASTER COUNTY NGA	2,089	23,607	25,696	8%	92%
GREENWOOD CPW	8,160	16,057	24,217	34%	66%
GREER CPW	3,629	18,409	22,038	16%	84%
CLINTON - NEWBERRY NGA	2,501	13,850	16,351	15%	85%
ORANGEBURG PUBLIC UTILITIES	6,167	4,001	10,168	61%	39%
CHESTER COUNTY NGA	2,016	8,026	10,042	20%	80%
LAURENS CPW	2,396	5,378	7,774	31%	69%
FOUNTAIN INN NGA	727	6,968	7,695	9%	91%
UNION, CITY OF	3,885	3,511	7,396	53%	47%
BENNETTSVILLE, CITY OF	2,255	1,037	3,292	68%	32%
WINNSBORO, TOWN OF	852	2,031	2,883	30%	70%
BAMBERG BOARD OF PUBLIC WORKS	732	876	1,608	46%	54%
PATRIOTS ENERGY GROUP	-	-	-	-	-
	177,164	606,917	784,081	23%	77%

11) Pipeline Permitting Overview

Below is a list of permits that may be required by the South Carolina Department of Health & Environmental Control ("SCDHEC") for proposed gas pipelines:

1. Bureau of Water ("BOW")

a. Hydrostatic Test Water Discharge General Permit: This permit may cover all new and existing point source discharges to waters of South Carolina and discharges to the land, as identified in this section below, except for discharges identified under Part II.B.3 (Limitations on coverage). This permit authorizes discharge of the following types of wastewater as further specified in this permit:

- i. Hydrostatic test waters from new and used natural gas and new liquefied petroleum gas ("LPG") pipelines.
- ii. Hydrostatic test waters from used LPG pipelines and from new petroleum tanks and pipelines.
- iii. Hydrostatic test waters from used petroleum tanks and pipelines.

b. 401 Water Quality Certifications: Any applicant for a Federal license or permit to conduct any activity which during construction or operation may result in any discharge to navigable waters is required by Federal law to first obtain a certification from the BOW. Potential applicants are encouraged to contact the BOW prior to submitting an application. Federal law provides that no Federal license or permit is to be granted until such certification is obtained.

c. Navigable Waters Permit: Unless expressly exempted, a permit issued by the SCDHEC is required for any dredging, filling or construction or alteration activity in, on, or over a navigable water, or in, or on the bed under navigable waters, or in, or on lands or waters subject to a public navigational servitude under Article 14 Section 4 of the South Carolina Constitution and 49-1-10 of the 1976 S.C. Code of Laws including submerged lands under the navigable waters of the state, or for any activity significantly affecting the flow of any navigable water.

d. Storm water Construction Permit: Under the National Pollutant Discharge Elimination System ("NPDES") Permit Program, storm water discharges are considered point sources and operators of these sources are required to receive an NPDES permit before they can discharge storm water runoff.

2. Ocean and Coastal Resource Management ("OCRM")

a. Coastal Zone Consistency ("CZC") Certification: CZC Certification is required for all land disturbing activities that required permit coverage located within any of the eight coastal counties (Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry and Jasper) prior to receiving coverage under the NPDES Permit Program. These certifications establish that all land and water uses within these critical areas are consistent with both the State's Coastal Zone Management Plan ("SCCZMP") and the South Carolina Coastal Zone Management Act.

3. Bureau of Air Quality (BAQ)

a. Air Construction Permit: Congress established an air construction permitting program as part of the EPA's 1977 Clean Air Act Amendments. This permitting program requires stationary sources of air pollution to receive permits from the government before they start construction. Air construction permits issued to a facility specify what conditions must be met to demonstrate compliance with state and federal air quality requirements.

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