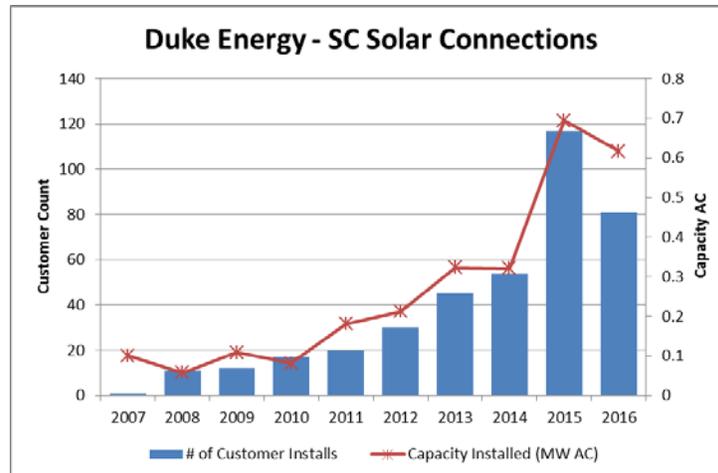


South Carolina Energy Policy Narrative

The nation's electric delivery system concept is more than 100 years old, and much of the equipment has been installed across the country, including South Carolina, for decades (e.g., transformers, capacitors, regulators). In South Carolina, as well as for South Carolina utilities operating in North Carolina, this delivery system, or electric grid, was designed to transport electricity from large centralized generation plants to customers across the Carolinas, sometimes hundreds of miles away. This fundamental infrastructure is still the basis for an electricity grid in the U.S. that is almost 100 percent reliable. Although it has served South Carolina well, the existing electric grid was not designed to support the diverse and dynamic demands that are increasingly being placed on it, such as increased distributed energy resources, reliability challenges and grid hardening/security issues.

In particular, the existing grid is limited in its capability to integrate large amounts of renewable energy sources. Keeping the grid running reliably is a balancing act, where the amount of power put into the grid must equal the amount taken out. So the electricity being used right now was created just a few seconds ago, at a generation plant that an operator can ramp up or down continuously to meet electric demand of the customers it serves. With the variability of renewable energy sources, like wind or solar power, this balance becomes increasingly difficult to maintain. In South Carolina, with the passage of Act 236 and the expansion of distributed energy resources already expressed in the policy and statutes of this State, this becomes especially important. Given the level of solar subscription and expansion in the last two years within the State (cite some SC stats, need input from other Utilities), state policy makers should consider whether current policy and statutes provide for the flexibility to enable and foster the grid investment to support the integration of renewables. Duke Energy has seen a drastic increase in the numbers of customers connecting solar, with the 198 new customers in 2015 and to date in 2016. This is more new customers than the previous 8 years combined. Below is a graph showing the annual increases in solar connections.



The continued safe and reliable operation of the grid is critical, and given the adoption of digital consumer and commercial technologies, outages have become increasingly impactful if they occur. South Carolina has seen reliability challenges from storm restoration and polar vortex scenarios. While the utilities have been commended for excellent restoration in South Carolina considering the severe weather seen in this State in recent years, challenges to the grid make restoration an increasingly difficult task (e.g., Winter storm of February 2014). Reliability is also important not only to residential consumers, but to the economy of South Carolina as well as large manufacturers that could lose entire production runs if they are out of power. Reliability is key for economic development and businesses contemplating South Carolina locations. Of course, hospitals, commercial establishments, schools—all rely on a reliably power supply.

There are significant grid enhancements that have taken place in South Carolina. These include Volt/Var Optimization systems like Duke Energy Progress' Distribution System Demand Response program and self-healing networks. **(cite other programs from other SC utilities)**. However, utilities foresee the need for such investment as growing. Therefore, meeting customer expectations for power 24x7, and immediate restoration when an outage does occur, requires enhancements and improvements in infrastructure to maintain reliability and system integrity in South Carolina. In order to enhance reliability and resiliency, a modernization of the existing infrastructure is necessary and state policy makers should consider whether current policy and statutes provide an optimum path for such investment.

The modernization of the grid includes the application of information technology and digital equipment that provide the remote monitoring, remote control and expanded intelligence capabilities, including smart meters at the homes of consumers. Smart meters, as reported by the Economic and Demographic Subcommittee, provide a path for customer programs and data that provide more transparency and control to consumers over their usage and ultimately their

bill. Currently there are XXX smart meters installed in SC, and of these, XXX are capable of supporting Time-of-Use (TOU) rates. TOU rate programs provide customers with variable usage charges based on the time of day, to encourage optimal usage patterns. The policy of South Carolina has supported the use of this technology for customer through statutory enablement of pre-pay programs, and XX utilities currently have prepayment programs using smart meters and XX expressed interest in such programs in the future. Such programs allow for other customer benefits outlined in [the Economic & Demographic section].

Furthermore, it became clear through the development of this Energy Plan that electric utilities are facing expanding customer expectations, increasing environmental regulation, and new technologies that have to be integrated seamlessly into the grid. The grid of the rapidly-approaching future will function in ways never imagined when the original wires were installed. If South Carolina is to participate in the innovation coming to fruition in the electric sector such as distributed energy resources like solar panels, wind turbines, electric vehicles, and microgrids, then the State will require an advanced, integrated grid to manage and optimize the increasingly dynamic flow of electricity. State policy should balance the needs of consumers, the requirements of the grid, and the desire to keep pace with technology in maintaining or refining policy that fosters disciplined investment.

All of the needs described above in SC require communications among grid equipment and with centralized systems. Tomorrow's grid will operate with increased efficiency, easily integrate renewable sources of generation, and provide South Carolina consumers and utilities with near real-time data and greater monitoring capabilities.

Current Overview of Electric Infrastructure

The following is a snapshot provided for each electric utility in the state and an overview of its current electric infrastructure, generation sources and customer base.

Santee Cooper

Santee Cooper, or South Carolina Public Service Authority, is South Carolina's state-owned electric and water utility. Santee Cooper is a public-power provider and the primary source of electricity for approximately 2 million people in all 46 counties of South Carolina. We serve more than 174,000 residential and commercial customers directly in Berkeley, Georgetown and Horry counties. We also supply electricity to the state's 20 electric cooperatives, the cities of Bamberg and Georgetown, 27 large industrial customers including Joint Base Charleston, the

Alabama Municipal Electric Authority, and the 10 member cities that form the Piedmont Municipal Power Agency.

Santee Cooper operates an integrated transmission system which includes lines owned and leased by Santee Cooper as well as those owned by Central. The transmission system includes approximately 1,285 miles of 230 kilovolt (“kV”), 1,847 miles of 115 kV, 1,753 miles of 69 kV, 10 miles of 46 kV and 97 miles of 34 kV and below overhead and underground transmission lines. Santee Cooper operates 104 transmission substations and switching stations serving 86 distribution substations and 468 Central Cooperative delivery points.

iii. Line miles of transmission and Line miles of distribution

- 5029 miles Transmission; 2841 miles Distribution

Santee Cooper’s transmission system is integrated into the regional transmission system serving the southeastern areas of the United States and the Eastern Interconnection. Santee Cooper has separate interchange agreements with each of the companies with which it is interconnected which provide for mutual exchanges of power. Santee Cooper is party to the Virginia-Carolinas Reliability Agreement (“VACAR”) and a member of the SERC Reliability Corporation.

Santee Cooper was created in 1934 as a rural electrification and public works project. Santee Cooper generated its first electricity in February 1942. The project saw the creation of lakes Marion and Moultrie, along with over 40 miles of dams and dikes, and the world’s highest single-lift navigation lock at the time.

Santee Cooper is governed by a 12-member board of directors appointed by the governor, vetted by the Senate Public Utilities Review Committee, and confirmed by the state Senate.

Santee Cooper is a leader in generating renewable power, with 130 megawatts online or under contract. We also are helping customers use less electricity through our Reduce The Use energy-efficiency program. We provide wholesale water through the Santee Cooper Regional Water System and Lake Marion Regional Water System.

i. Generation Sources (placeholder – data will come from another subcommittee)

ii. Generation Capacity (placeholder – data will come from another subcommittee)

iv. Total number of customers

- 174,023 directly-served Retail Customers in Horry, Georgetown and Berkeley counties
- 745,554 indirectly-served through Central Electric Power Cooperative
 - a. 455 Central Electric Power System Delivery points
- Municipal Customers: City of Bamberg, City of Georgetown, PMPA
- Large Industrial Customers: 27

v. *List of counties served*

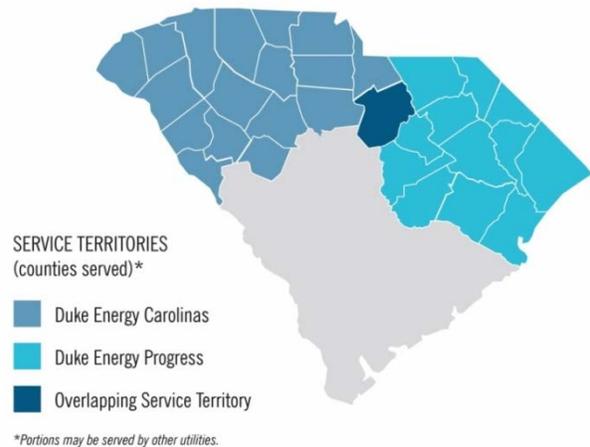
- Three (3) counties for retail customers; all 46 counties via Central Electric delivery points

Duke Energy

Duke Energy subsidiaries Duke Energy Carolinas (DEC) and Duke Energy Progress (DEP) are regulated public utilities primarily engaged in the generation, transmission, distribution, and sale of electricity to approximately 4 million customers in portions of North Carolina and South Carolina. In 2012, Duke Energy and Progress Energy merged to form today’s Duke Energy, one of the largest electric power holding companies in the United States. While Duke Energy Carolinas and Duke Energy Progress utility operations in the Carolinas will remain separate for some time, what remains at the very foundation of Duke Energy is a continued commitment to serve our communities and provide safe, reliable electric service to our customers every day.

Duke Energy utilities serve 30 counties in South Carolina providing electric service to over 733,000 retail customers. The customers are made up of approximately 612,000 residential, 119,000 commercial, and 2,100 industrial customers.

In 2015, DEP delivered 6,357 Gigawatt-hours (GWh=1,000,000 kilowatt-hours) of electricity and DEC delivered 21,290 GWh to South Carolina retail customers.



Duke Energy Carolinas operates and maintains 25,546 miles of distribution lines and 5,031 miles of transmission lines in South Carolina. Duke Energy Progress operates and maintains 9,034 miles of distribution lines and 930 miles of transmission lines in South Carolina.

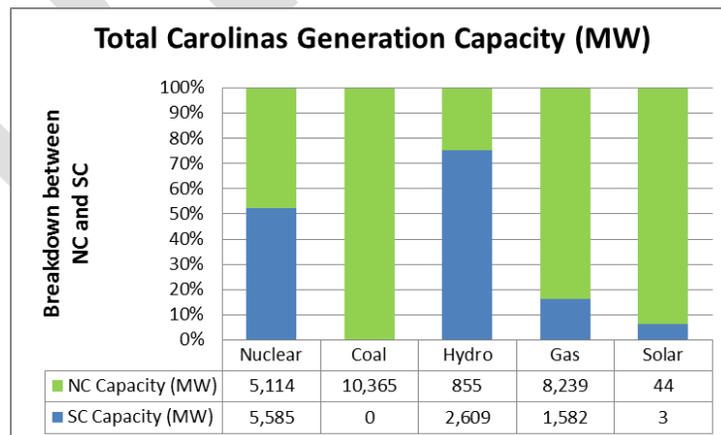
Duke Energy began deploying Advanced Metering Infrastructure across its Carolinas service territory in 2012. Duke Energy Carolinas has projects underway in 2016 to install additional AMI meters, therefore, the numbers below reflect meter counts as of March 1, 2016.

South Carolina-Only Meter Breakdown				
Utility	Total Number of Meters	Manually-Read Meters	AMR Meters	AMI Meters
Duke Energy Carolinas	587,976	8,806	485,119	94,051
Duke Energy Progress	172,549	2,988	161,337	8,224
Total	760,525	11,794	646,456	102,275

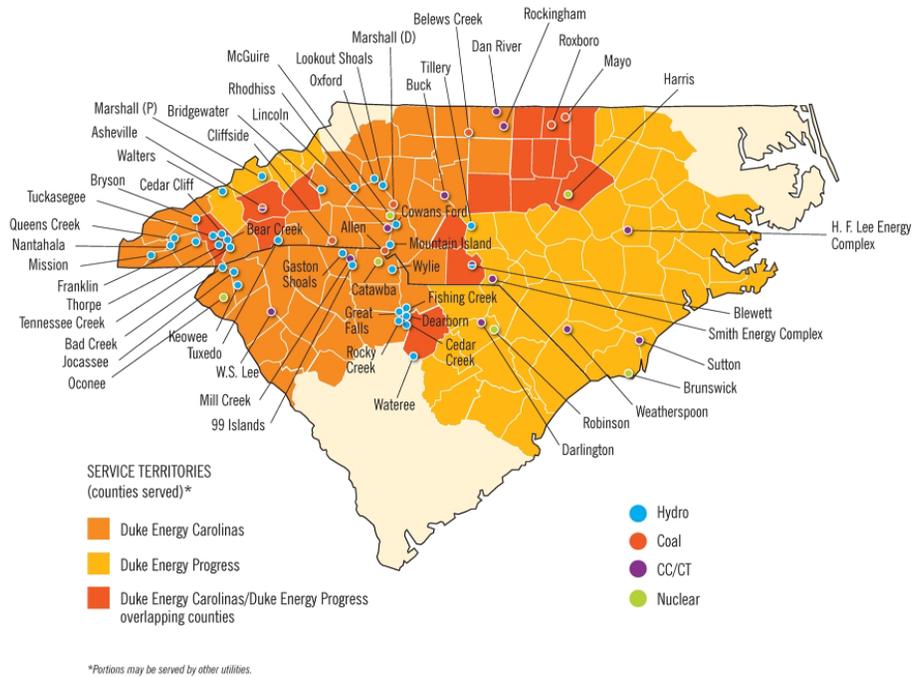
The AMI meters deployed by Duke Energy all have the capability to support time-of-use rate offerings. As of December 31, 2015, 10,586 customers were enrolled in one of the time-of-use rate tariffs offered by Duke Energy.

South Carolina-Only Meter Breakdown		
Utility	Number of Meters Time-of-Use Rate Ready	Number of Meters Implementing Time-of-Use Rate
Duke Energy Carolinas	94,051	5,609
Duke Energy Progress	8,224	4,977
Total	102,275	10,586

Duke Energy owns and operates nearly 34,400 Megawatts (MW) of generation capacity across the Carolinas. While Duke Energy provides power to SC customers from sources in both NC and SC, 9,779 MW of capacity is based in SC.



See the map below for the locations of Duke’s North and South Carolina-based generation:



Duke Energy's history began with the Catawba Power Company in 1904, when the first power plant, Catawba Hydro Station in South Carolina, began providing electricity to Victoria Cotton Mills in Rock Hill, SC. Over the next century, the company's generation fleet expanded into coal, nuclear and natural gas, growing to serve the ever growing demand for the conveniences that electricity could provide.

As Duke Energy moves forward, it is working to reduce the environmental impact of its existing plants, and investing in energy efficiency initiatives that can reduce the need to build new ones. The company is also developing smart grid technologies that will create a digital, interconnected network – giving customers new ways to save energy, money and the environment. Duke Energy is investing in renewable energy sources, adding aggressively to its portfolio of wind and solar assets in the past decade.

Since 1904, Duke Energy has helped build South Carolina communities, attract jobs and investments and keep the state competitive. Headquartered in Charlotte, NC, Duke Energy is a Fortune 125 company serving approximately 7.4 million electric customers in six states.