South Carolina

The largest utility in terms of generating capability in South Carolina, and the fourth largest in the Nation, is Duke Power. Duke Power operates the two largest plants in the State: Oconee and Catawba, both nuclear plants. It is also the largest utility presence in North Carolina. Nuclear power provides over half of the electricity in South Carolina and represents 37 percent of capability. Coal provides nearly 40 percent of generation, and makes up 32 percent of capability. The third and fourth largest plants in the State are both coal-fired plants operated by the South Carolina Public Service Authority. Over 85 percent of the coal purchased for South Carolina plants in 1997 came from Kentucky's Appalachian coal basin.[1] South Carolina ranks twenty-sixth in population and fifteenth in generating capability in the Nation. With such a large discrepancy in these rankings, it is not surprising that South Carolina is an exporter of electricity.

In July 1998, Duke Power became the Nation's second utility to request a nuclear license extension when it submitted an application for the three-unit Oconee plant. Even though Oconee's current license expires in 2013, the process of approving the license extension request could take three years.[2] Throughout the process, the company must provide the Nuclear Regulatory Commission with additional information about the plant's operations and history. From 1986 through 1996, the average capacity factor for South Carolina nuclear plants was above the industry average.

No South Carolina generators were cited in the Clean Air Act Amendments of 1990 to begin compliance in 1995 with stricter emissions standards for sulfur dioxide (SO_2) and nitrogen oxides (NO_x). However, it is likely that South Carolina will need to design a State implementation plan (SIP) for reducing ground-level ozone in response to a proposal released by the Environmental Protection Agency (EPA) in October 1998. The EPA SIP call proposal does not mandate which sources must reduce pollution. However, EPA states that utilities would be one of the most likely sources of NO_x emissions reductions. Emissions of SO_2, NO_x, and carbon dioxide ranked nineteenth, thirty-first and twenty-eighth among the States, respectively, in 1996. All emissions have increased from 1986 through 1996.

South Carolina has four investor-owned utilities that sell about 70 percent of retail electricity in the State. Almost 30 percent of the electricity in the State is sold by publicly owned utilities and cooperatives. South Carolina's average electricity price in 1996 was 5.67 cents, the seventeenth least expensive in the United States.

With lower than average retail rates, South Carolina is moving relatively slowly toward retail competition. In February 1998, the Public Service Commission of South Carolina (PSC) issued a report, "Proposed Electric Restructuring Implementation Process." The proposal recommends a 5-year transition to retail competition following enactment of legislation. However, legislation to restructure the electric power industry was not acted on in the 1998 legislative session. In April 1998, the PSC requested the major investor-owned utilities to file proposals for restructuring, including stranded cost estimates. Stranded costs were estimated for South Carolina Electric & Gas at $882 million; for Carolina Light & Power at $410 million; and for Duke Power at $81 million. The PSC estimates the cost to deregulate the electric power industry in South Carolina to be $14 billion.[3]

[1] Energy Information Administration, *Cost and Quality of Fuels for Electric Utility Plants 1997 Tables*, DOE/EIA-0191(97) (Washington, DC, May 1998), p. 33.

[2] Nuclear News, *Utility Seeks License Renewal for Oconee Station* (August 1998), p. 20.

[3] Energy Information Administration, Status of State Electric Utility Deregulation Activity, http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html.

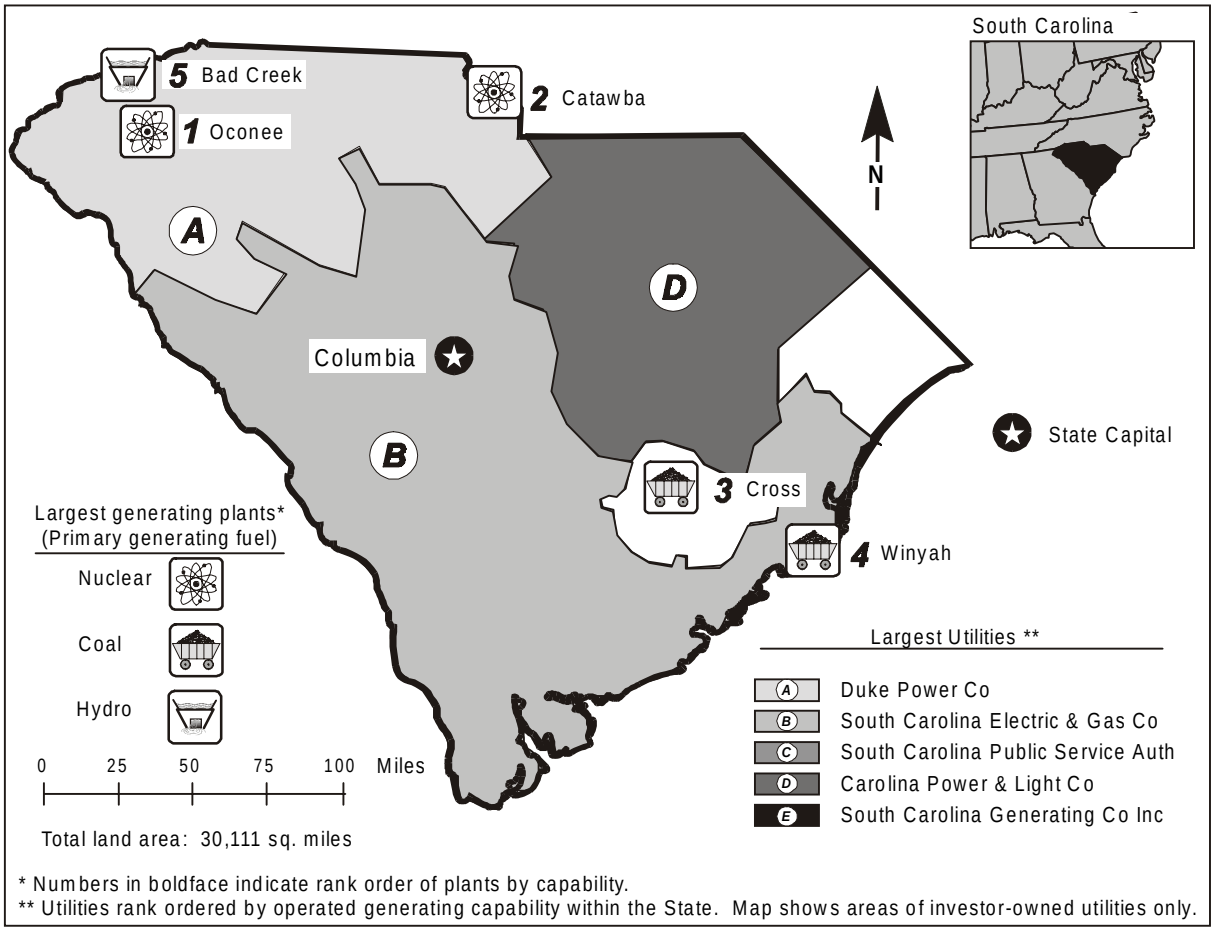

Table 1. 1996 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SERC
Net Exporter or Importer		Exporter
State Primary Generating Fuel		Nuclear
Population (as of 7/96)	3,716,645	26
Average Revenue (cents/kWh)	5.67	[a]17
Industry		
Capability (MWe)	17,549	[b]17
Generation (MWh)	78,645,821	[b]16
Capability/person (KWe/person)	4.72	[b]4
Generation/person (MWh/person)	21.16	[b]5
Sulfur Dioxide Emissions (Thousand Short Tons)	239	19
Nitrogen Oxide Emissions (Thousand Short Tons)	102	31
Carbon Dioxide Emissions (Thousand Short Tons)	35,369	28
Sulfur Dioxide/sq. mile (Tons)	7.94	17
Nitrogen Oxides/sq. mile (Tons)	3.40	22
Carbon Dioxide/sq. mile (Tons)	1,174.61	23

Item	Value	U.S. Rank
Utility		
Capability (MWe)	17,173	15
Generation (MWh)	76,325,556	17
Average Age of Coal Plants	21 years	
Average Age of Oil-fired Plants	25 years	
Average Age of Gas-fired Plants	17 years	
Average Age of Nuclear Plants	17 years	
Average Age of Hydroelectric Plants	27 years	
Average Age of Other Plants	--	
Nonutility[c]		
Capability (MWe)	376	32
Percentage Share of Capability	2.1	40
Generation (MWh)	2,320,265	30
Percentage Share of Generation	3.0	37

-- = Not applicable.

Table 2. Five Largest Plants, 1996

Plant Name	Type	Operating Utility	Net Capability (MWe)
1. Oconee	Nuclear	Duke Power Co	2,538
2. Catawba	Nuclear	Duke Power Co	2,258
3. Cross	Coal	South Carolina Pub Serv Auth	1,100
4. Winyah	Coal	South Carolina Pub Serv Auth	1,080
5. Bad Creek	Hydro	Duke Power Co	1,065

Table 3. Top Five Utilities with Largest Generating Capability, and Type, Within the State, 1996
(Megawatts Electric)

Utility	Net Summer Capability	Net Coal Capability	Net Oil Capability	Net Gas Capability	Net Nuclear Capability	Net Hydro/Other Capability
A. Duke Power Co	7,647	370	301	--	4,796	2,180
B. South Carolina Electric&Gas Co	4,004	2,017	185	105	942	756
C. South Carolina Pub Serv Auth	3,139	2,350	575	--	--	214
D. Carolina Power & Light Co	1,444	174	364	223	683	--
E. South Carolina Genertg Co Inc	609	560	49	--	--	--
Total	16,843	5,471	1,474	328	6,421	3,150
Percentage of Industry Capability	96.0	--	--	--	--	--

-- = Not applicable.

Figure 1. Utility Generating Capability by Primary Energy Source, 1996

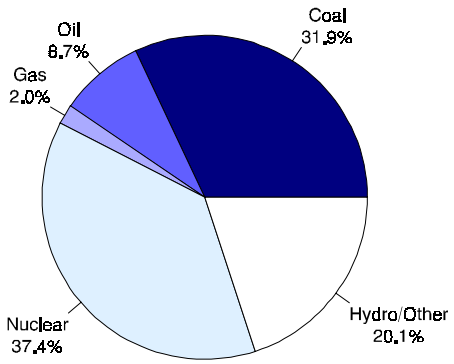

Figure 2. Utility Generation by Primary Energy Source, 1996

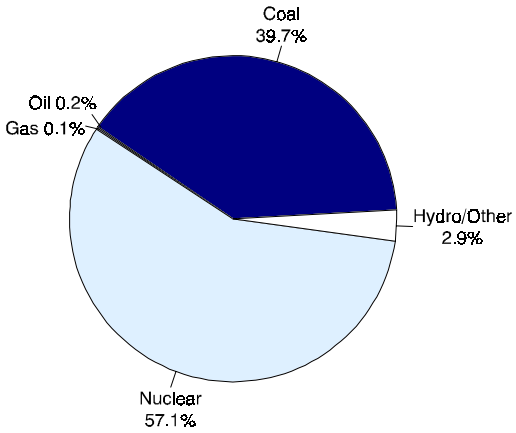

Figure 3. Energy Consumed at Electric Utilities by Primary Energy Source, 1996

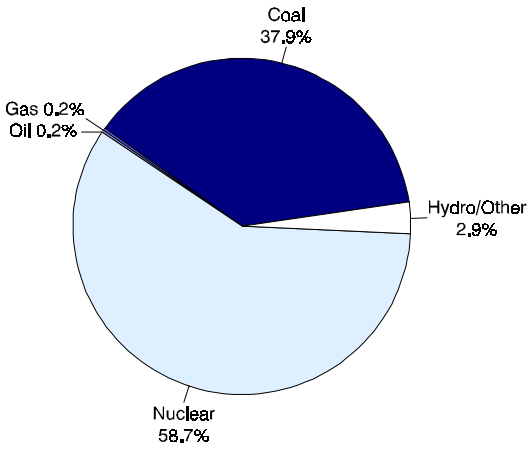

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1986, 1991, and 1996
(Megawatts Electric)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	4,812	4,812	5,471	*32.2*	*29.8*	*31.9*
Oil	908	894	1,488	*6.1*	*5.5*	*8.7*
Gas	665	760	345	*4.5*	*4.7*	*2.0*
Nuclear	6,420	6,364	6,421	*43.0*	*39.4*	*37.4*
Hydro/Other	2,136	3,332	3,449	*14.3*	*20.6*	*20.1*
Total Utility	14,941	16,162	17,173	*100.0*	*100.0*	*100.0*
Total Nonutility	332	W	376	--	--	--

-- = Not applicable. W = Withheld.

Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1986, 1991, and 1996
(Thousand Kilowatthours)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	19,503,758	23,165,807	30,307,236	*34.5*	*33.2*	*39.7*
Oil	67,346	83,385	125,657	*0.1*	*0.1*	*0.2*
Gas	132,821	983,695	90,464	*0.2*	*1.4*	*0.1*
Nuclear	35,625,497	43,108,073	43,571,032	*63.0*	*61.7*	*57.1*
Hydro/Other	1,216,957	2,497,024	2,231,167	*2.2*	*3.6*	*2.9*
Total Utility	56,546,380	69,837,984	76,325,556	*100.0*	*100.0*	*100.0*
Total Nonutility	1,449,392	W	2,320,265	--	--	--

-- = Not applicable. W = Withheld.

Table 6. Electric Power Industry Consumption by Primary Energy Source, 1986, 1991, and 1996
(Quadrillion Btu)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	0.197	0.235	0.299	*33.0*	*31.9*	*37.9*
Oil	0.001	0.001	0.002	*0.1*	*0.1*	*0.2*
Gas	0.001	0.010	0.001	*0.2*	*1.4*	*0.2*
Nuclear	0.385	0.463	0.463	*64.5*	*63.1*	*58.8*
Hydro/Other	0.013	0.026	0.023	*2.1*	*3.5*	*2.9*
Total Utility	0.596	0.734	0.788	*100.0*	*100.0*	*100.0*
Total Nonutility	0.069	W	0.089	--	--	--

-- = Not applicable. W = Withheld.

Figure 4. Utility Generation of Electricity by Primary Energy Source, 1986-1996

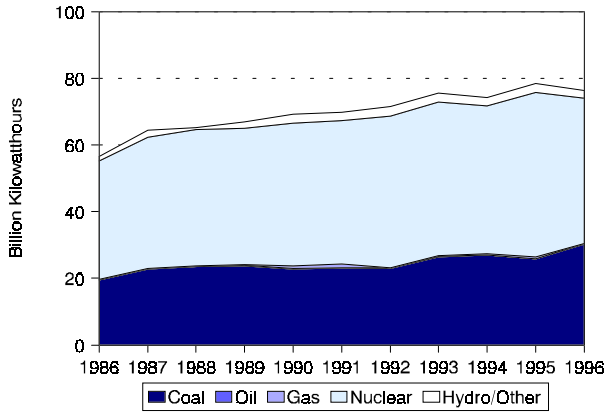

Figure 5. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986-1996
(1996 Dollars)

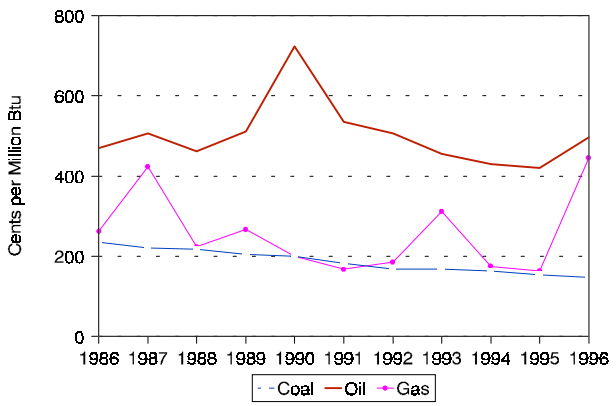

Table 7. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986, 1991, and 1996
(Cents per Million Btu, 1996 Dollars)

Fuel	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Coal	235.6	182.7	147.1	-4.6
Oil	469.5	534.1	496.5	0.6
Gas	262.2	167.4	445.4	5.4

Table 8. Electric Power Industry Emissions Estimates, 1986, 1991, and 1996
(Thousand Short Tons)

Emission Type	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Sulfur Dioxide	148	177	239	4.9
Nitrogen Oxides[d]	64	85	102	4.8
Carbon Dioxide[d]	19,791	28,899	35,369	6.0

Figure 6. Estimated Sulfur Dioxide Emissions, 1986-1996

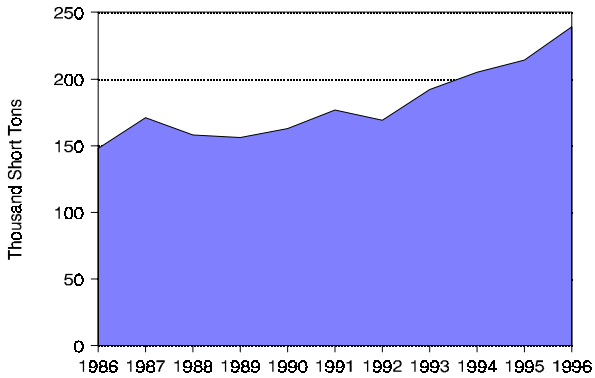

Figure 7. Estimated Nitrogen Oxide Emissions, 1986-1996

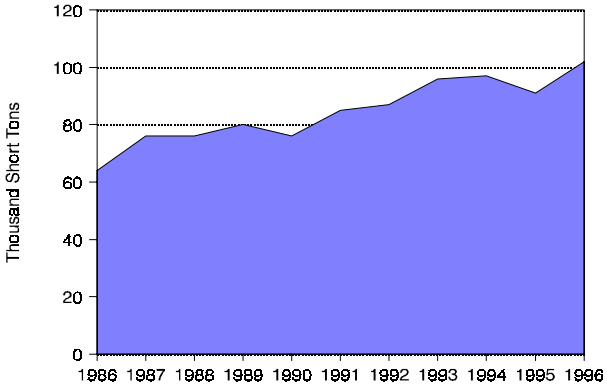

Figure 8. Estimated Carbon Dioxide Emissions, 1986-1996

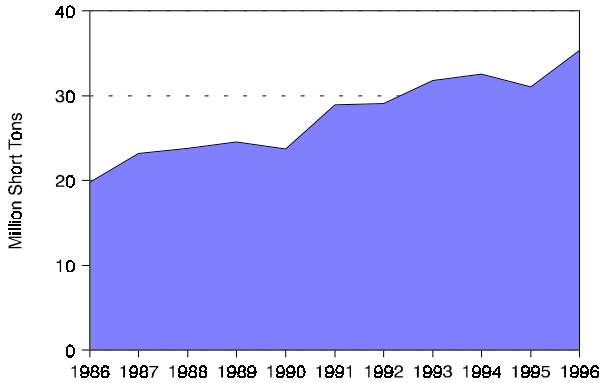

Table 9. Utility Retail Sales by Sector, 1986, 1991, and 1996
(Megawatthours)

Sector	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Residential	16,122,155	18,706,762	22,513,555	3.4	32.6	32.8	33.6
Commercial	9,802,864	12,208,945	14,544,887	4.0	19.8	21.4	21.7
Industrial	22,805,417	25,360,811	29,184,592	2.5	46.1	44.4	43.5
Other	703,001	792,813	843,181	1.8	1.4	1.4	1.3
Total	49,433,441	57,069,331	67,086,215	3.1	100.0	100.0	100.0

Figure 9. Nuclear Power Capacity Factor Comparison, 1986-1996

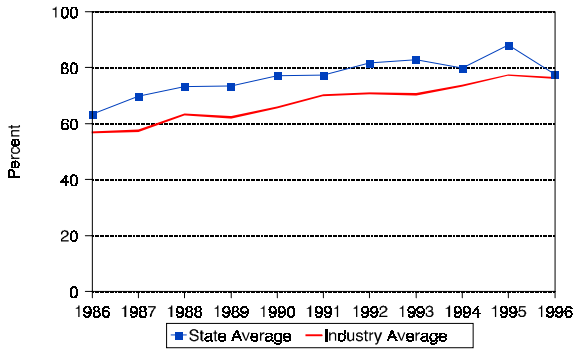

Table 10. Utility Retail Sales Statistics, 1986, 1991, and 1996

Item	Investor-Owned Utility	Public	Federal	Cooperative	Total
			1986		
Number of Utilities	5	22	--	21	48
Number of Retail Customers	908,815	209,985	--	376,001	1,494,801
Retail Sales (MWh)	34,661,343	9,288,547	--	5,483,551	49,433,441
Percentage of Retail Sales	70.1	18.8	--	11.1	100.0
Revenue from Retail Sales (thousand 1996 $)[e]	2,525,121	528,983	--	520,708	3,574,813
Percentage of Revenue	70.6	14.8	--	14.6	100.0
			1991		
Number of Utilities	4	22	--	21	47
Number of Retail Customers	1,007,384	231,836	--	440,671	1,679,891
Retail Sales (MWh)	39,255,319	10,427,172	--	7,386,840	57,069,331
Percentage of Retail Sales	68.8	18.3	--	12.9	100.0
Revenue from Retail Sales (thousand 1996 $)[e]	2,477,731	552,114	--	579,706	3,609,552
Percentage of Revenue	68.6	15.3	--	16.1	100.0
			1996		
Number of Utilities	4	22	--	21	47
Number of Retail Customers	1,096,017	257,674	--	513,455	1,867,146
Retail Sales (MWh)	45,290,922	11,595,877	--	10,199,416	67,086,215
Percentage of Retail Sales	67.5	17.3	--	15.2	100.0
Revenue from Retail Sales (thousand 1996 $)[e]	2,536,740	567,337	--	697,519	3,801,596
Percentage of Revenue	66.7	14.9	--	18.4	100.0

-- = Not applicable.