

# Alabama

Two utilities, the Federally owned and unregulated Tennessee Valley Authority (TVA) and the Alabama Power Company (AP), a wholly owned subsidiary of the Atlanta-based Southern Company, are the dominant electric power industry players in Alabama. Together they account for over 95 percent of the utility generating capability in the State. The presence of TVA contributes to Alabama's relatively low electricity prices. In 1996, the average price per kilowatthour of electricity in Alabama was thirteenth lowest in the Nation.

One of the largest discrepancies between national rankings in population and utility generating capability is found in Alabama, a primarily rural State, which had the twenty-third largest population and the twelfth largest utility generating capability in 1996. This discrepancy is a result of the fact that Alabama is an exporter of electricity. Most of the electricity in Alabama is generated at coal-fired plants, and three of the five largest plants in the State are coal-fired. Alabama is also very reliant on nuclear power; the largest power plant in the State, TVA's Browns Ferry, is a nuclear plant. Nuclear generation increased substantially from 1986 to 1996 as Browns Ferry became more productive. Overall, coal and nuclear plants account for 85 percent of total electric power generation in Alabama. More utility hydroelectric power generation occurs in Alabama than in any other eastern State.

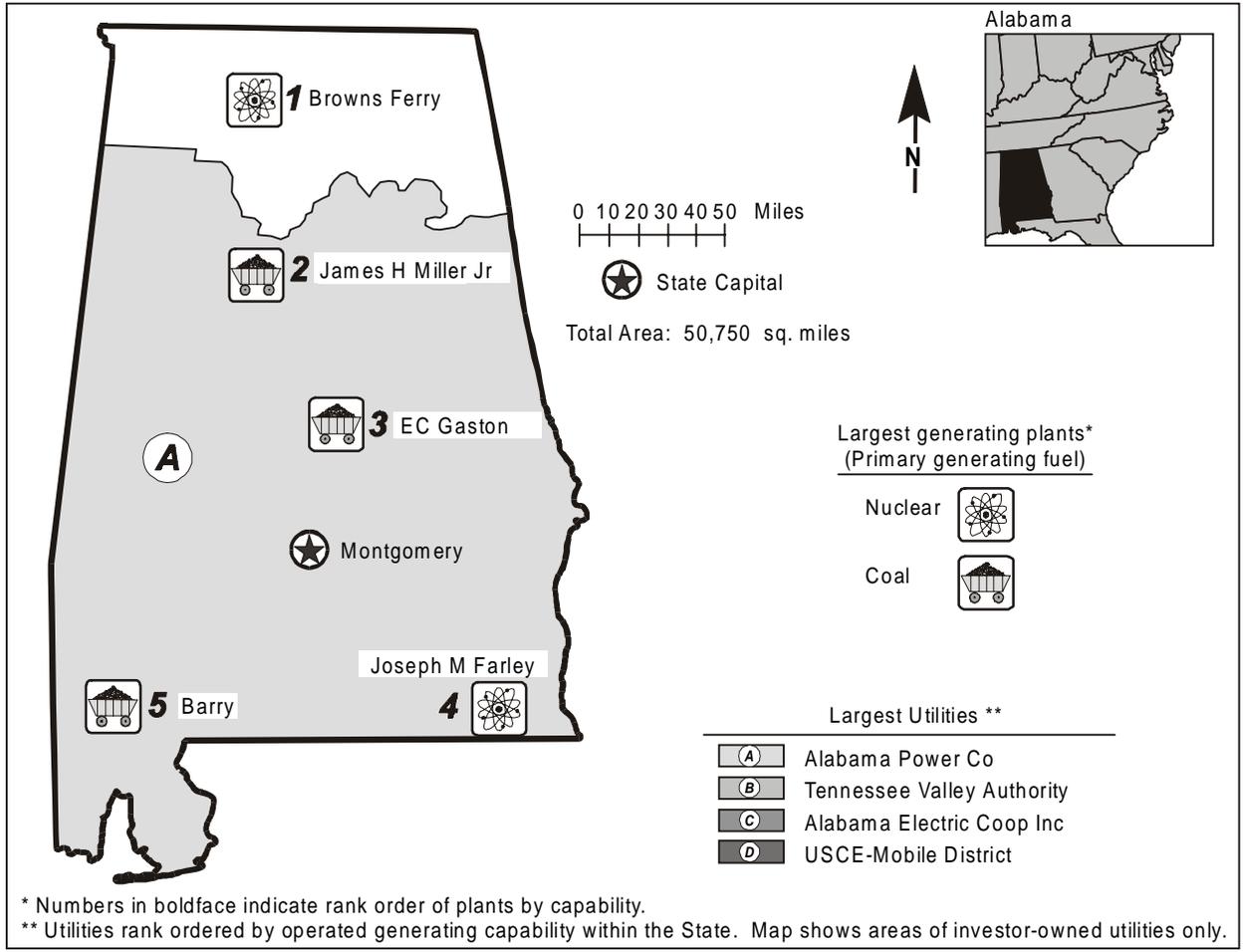
AP's service territory is the southern four-fifths of the State. It is the only utility in the State that is subject to regulation by the Alabama Public Service Commission (PSC) and it accounts for 62 percent of retail sales. The other 60 utilities are owned by the Federal government, the State government, or local cooperatives, accounting for 38 percent of retail sales.

Title IV of the Clean Air Act Amendments of 1990 specified 3,363 megawatts of nameplate capacity at AP's E.C. Gaston plant and TVA's Colbert plant to begin compliance with Phase I sulfur dioxide (SO<sub>2</sub>) emissions requirements of the Environmental Protection Agency's (EPA's) Acid Rain Program in 1995. Both plants' affected units have been in compliance all three years of the program; that is, they have had enough allowances on hand to account for their SO<sub>2</sub> emissions. Emissions of SO<sub>2</sub>, nitrogen oxides (NO<sub>x</sub>) and carbon dioxide (CO<sub>2</sub>) have increased in Alabama, however, because generation has grown at an average annual growth rate of 5.9 percent compared to 2.7 percent for the entire country. In fact, emissions of SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> each rank Alabama in the top 11 States in the country.

It is likely that Alabama will need to design a State implementation plan (SIP) for reducing ground-level ozone in response to a proposal released by the 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 emissions reductions of NO<sub>x</sub>.

With regard to the deregulation of the electric power industry, Alabama's State legislature passed the "Electricity Customer Severance Law" in May 1996. The law gives utilities the right to collect from customers who leave their system the amount of stranded costs associated with the customers' service. In December 1997, the PSC approved a preliminary staff report on restructuring the industry, and in April 1998 the Commission approved the establishment of a series of workshops on electric power industry restructuring to aid the Commission in making decisions.<sup>1</sup>

<sup>1</sup> Energy Information Administration, Status of State Electric Utility Deregulation Activity, [http://www.eia.doe.gov/cneaf/electricity/chg\\_str/tab5rev.html](http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html).



**Table 1. 1996 Summary Statistics**

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s) . . . . .		SERC	<b>Utility</b>		
Net Exporter or Importer . . . .		Exporter	Capability (MWe) . . . . .	20,692	12
State Primary Generating Fuel		Coal	Generation (MWh) . . . . .	115,093,211	6
Population (as of 7/96) . . . . .	4,287,178	23	Average Age of Coal Plants . . . .	29 years	
Average Revenue (cents/kWh)	5.35	<sup>a</sup> 13	Average Age of Oil-fired Plants	26 years	
<b>Industry</b>			Average Age of Gas-fired Plants	11 years	
Capability (MWe) . . . . .	21,729	<sup>b</sup> 12	Average Age of Nuclear Plants	19 years	
Generation (MWh) . . . . .	121,705,111	<sup>b</sup> 8	Average Age of Hydroelectric Plants . . . . .	41 years	
Capability/person			Average Age of Other Plants . . . .	--	
(KWe/person) . . . . .	5.07	<sup>b</sup> 3	<b>Nonutility<sup>c</sup></b>		
Generation/person			Capability (MWe) . . . . .	1,037	14
(MWh/person) . . . . .	28.39	<sup>b</sup> 3	Percentage Share of Capability	4.8	28
Sulfur Dioxide Emissions			Generation (MWh) . . . . .	6,611,900	13
(Thousand Short Tons) . . . . .	564	8	Percentage Share of		
Nitrogen Oxide Emissions			Generation . . . . .	5.4	26
(Thousand Short Tons) . . . . .	293	10	-- = Not applicable.		
Carbon Dioxide Emissions					
(Thousand Short Tons) . . . . .	94,586	6			
Sulfur Dioxide/sq. mile (Tons)	11.12	13			
Nitrogen Oxides/sq. mile (Tons)	5.78	13			
Carbon Dioxide/sq. mile (Tons)	1,863.77	14			

**Table 2. Five Largest Utility Plants, 1996**

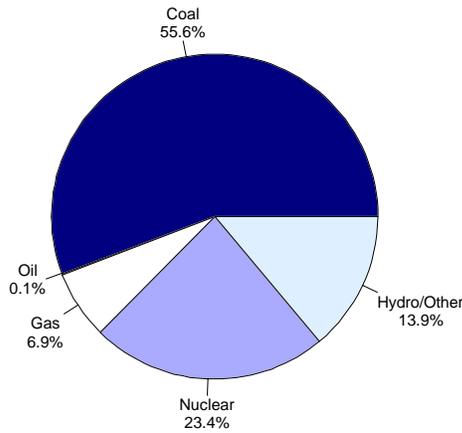
Plant Name	Type	Operating Utility	Net Capability (MWe)
1. Browns Ferry .....	Nuclear	Tennessee Valley Authority	3,195
2. James H Miller Jr .....	Coal	Alabama Power Co	2,680
3. E C Gaston .....	Coal	Alabama Power Co	1,924
4. Joseph M. Farley .....	Nuclear	Alabama Power Co	1,644
5. Barry .....	Coal/Gas	Alabama Power Co	1,637

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

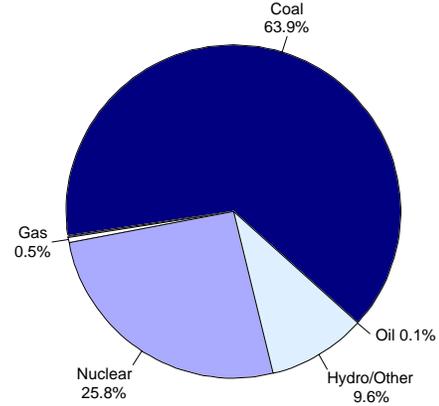
Utility	Net Summer Capability	Net Coal Capability	Net Oil Capability	Net Gas Capability	Net Nuclear Capability	Net Hydro/Other Capability
A. Alabama Power Co .....	12,282	8,175	20	769	1,644	1,674
B. Tennessee Valley Authority .....	7,408	2,789	--	368	3,195	1,056
C. Alabama Electric Coop Inc .....	860	552	--	300	--	8
D. USCE-Mobile District .....	143	--	--	--	--	143
Total .....	20,692	11,516	20	1,437	4,839	2,881
Percentage of Industry Capability	95.2	--	--	--	--	--

-- = Not applicable.

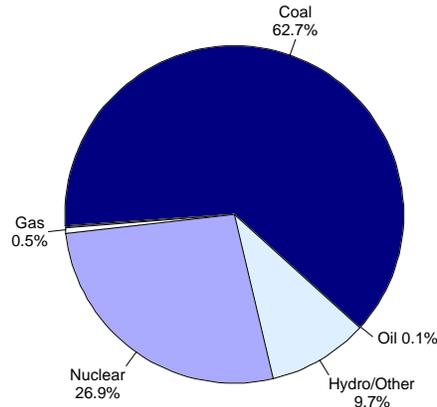
**Figure 1. Utility Generating Capability by Primary Energy Source, 1996**



**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	10,519	11,589	11,515	54.4	56.3	53.0
Oil	101	18	20	0.5	0.1	0.1
Gas	400	530	1,437	2.1	2.6	6.6
Nuclear	4,856	4,831	4,839	25.1	23.5	22.3
Hydro/Other	2,940	2,934	2,881	15.2	14.3	13.3
Total Utility	18,816	19,902	20,692	97.2	96.7	95.2
Total Nonutility	509	669	1,037	2.8	3.3	4.8
Industry	19,325	20,571	21,729	100.0	100.0	100.0

**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	51,693,135	57,897,011	73,598,580	71.9	65.1	60.5
Oil	34,362	104,324	155,778	(s)	0.1	0.1
Gas	58,831	417,106	549,397	0.1	0.5	0.5
Nuclear	11,561,408	15,874,637	29,707,535	16.1	17.8	24.4
Hydro/Other	5,226,939	10,757,723	11,081,921	7.3	12.1	9.1
Total Utility	68,574,675	85,050,801	115,093,21	95.4	95.6	94.6
Total Nonutility	3,316,351	3,891,890	6,611,900	4.6	4.4	5.4
Industry	71,891,026	88,942,691	121,705,11	100.0	100.0	100.0

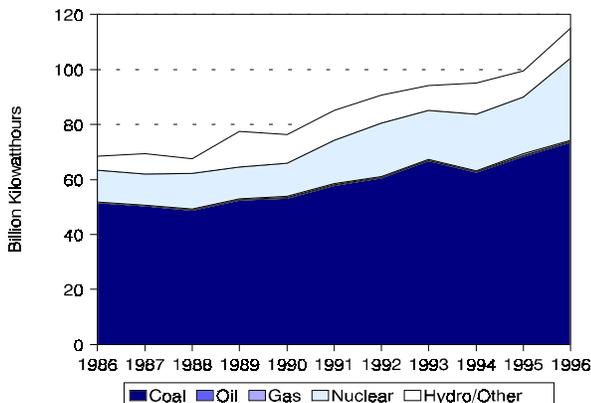
(s) = Nonzero percentage less than 0.05.

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

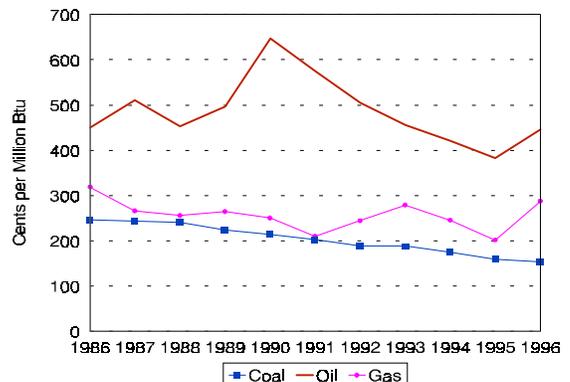
Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	0.517	0.576	0.737	64.6	57.0	51.5
Oil	(s)	0.001	0.002	0.0	0.1	0.1
Gas	0.001	0.004	0.006	0.1	0.4	0.4
Nuclear	0.125	0.170	0.316	15.6	16.9	22.1
Hydro/Other	0.055	0.111	0.114	6.8	11.0	8.0
Total Utility	0.698	0.863	1.175	87.2	85.4	82.1
Total Nonutility	0.103	0.147	0.256	12.8	14.6	17.9
Industry	0.800	1.010	1.431	100.0	100.0	100.0

(s) = Nonzero value less than 0.0005

**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)



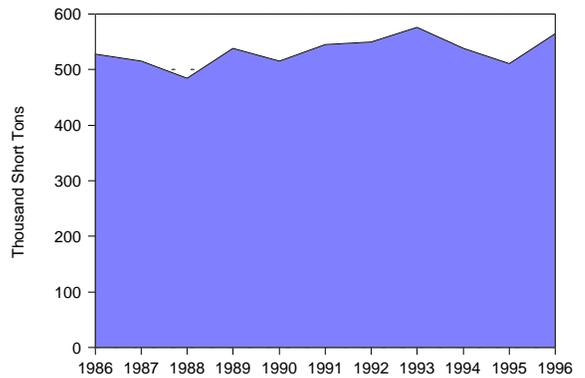
**Table 7. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986, 1991, and 1996**  
(Cents per million Btu, 1996 Dollars)

Fuel	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Coal . . . . .	246.6	203.4	154.3	-4.6
Oil . . . . .	450.6	575.2	445.7	-0.1
Gas . . . . .	318.8	210.3	287.6	-1.0

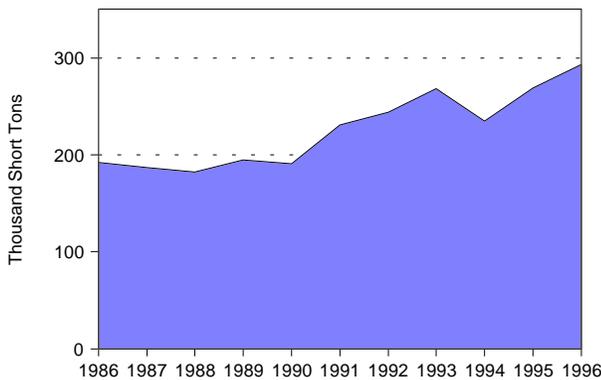
**Table 8. Electric Power Industry Emissions Estimates, 1986, 1991, and 1996**  
(Thousand Short Tons)

Emission Type	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Sulfur Dioxide . . .	528	544	564	0.7
Nitrogen Oxides <sup>d</sup> .	192	231	293	4.3
Carbon Dioxide <sup>d</sup> . .	52,849	71,993	94,586	6.0

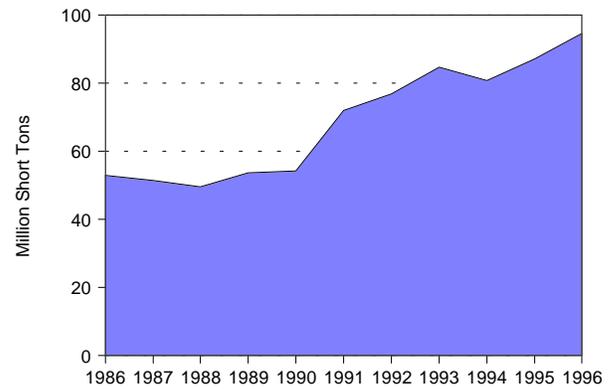
**Figure 6. Estimated Sulfur Dioxide Emissions, 1986-1996**



**Figure 7. Estimated Nitrogen Oxide Emissions, 1986-1996**



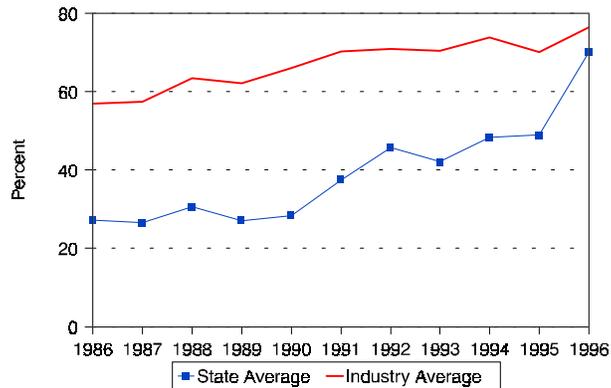
**Figure 8. Estimated Carbon Dioxide Emissions, 1986-1996**



**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 . . .	18,258,939	21,293,428	25,634,024	3.5	35.4	34.8	35.1
Commercial . .	8,772,676	11,349,000	13,327,556	4.3	17.0	18.5	18.2
Industrial . . .	24,045,609	27,985,476	33,522,650	3.4	46.6	45.7	45.9
Other . . . . .	519,708	599,421	620,189	1.8	1.0	1.0	0.8
Total . . . . .	51,596,932	61,227,325	73,104,419	3.5	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	1	36	1	24	62
Number of Retail Customers	1,059,885	358,121	23	346,785	1,764,814
Retail Sales (MWh)	32,801,375	9,853,101	4,074,550	4,867,904	51,596,930
Percentage of Retail Sales	63.6	19.1	7.9	9.4	100.0
Revenue from Retail Sales (thousand 1996 \$) <sup>e</sup>	2,500,339	663,076	154,666	397,394	3,760,483
Percentage of Revenue	66.5	17.6	5.3	10.6	100.0
<b>1991</b>					
Number of Utilities	1	36	1	23	61
Number of Retail Customers	1,143,628	395,896	22	378,882	1,918,428
Retail Sales (MWh)	38,537,368	11,941,867	4,175,079	6,573,011	61,227,325
Percentage of Retail Sales	62.9	19.5	6.8	10.7	100.0
Revenue from Retail Sales (thousand 1996 \$) <sup>e</sup>	2,528,958	741,978	137,106	459,306	3,884,350
Percentage of Revenue	65.1	19.1	4.0	11.8	100.0
<b>1996</b>					
Number of Utilities	1	36	1	23	61
Number of Retail Customers	1,240,065	428,989	22	431,392	2,100,468
Retail Sales (MWh)	45,690,068	14,258,124	4,739,511	8,416,716	73,104,419
Percentage of Retail Sales	62.5	19.5	6.5	11.5	100.0
Revenue from Retail Sales (thousand 1996 \$) <sup>e</sup>	2,468,616	772,884	137,149	534,454	3,913,103
Percentage of Revenue	63.1	19.8	3.5	13.7	100.0