

State Electricity Profiles

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Preface

Section 205(a)(2) of the Department of Energy Organization Act of 1977 (Public Law 95-91) requires the Administrator of the Energy Information Administration (EIA) to carry out a central, comprehensive, and unified energy data and information program that will collect, evaluate, assemble, analyze, and disseminate data and information relevant to energy resources, reserves, and related economic and statistical information.

To assist in meeting these responsibilities in the area of electric power, EIA has prepared this report, *State Electricity Profiles*, which provides a statistical overview of the electric power industry in each of the United States and the District of Columbia. It is intended for a wide audience, including Congress, Federal and State

agencies, the electric power industry, and the general public.

The legislation that created EIA vested the organization with an element of statutory independence. EIA does not take positions on policy questions. EIA's responsibility is to provide timely, high-quality information and to perform objective, credible analyses in support of deliberations by both public and private decisionmakers. Accordingly, this report does not purport to represent the policy positions of the U.S. Department of Energy or the Administration.

This report can be accessed from EIA's World Wide Web site at <http://www.eia.doe.gov>.

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Introduction

The 1998 State Electricity Profiles (SEP98) report presents a compilation by the Energy Information Administration (EIA) of electricity-related information for each State and the District of Columbia.¹ The Federal Energy Policy Act of 1992 and resulting final Orders 888 and 889 in 1996 by the Federal Energy Regulatory Commission intended the creation of a competitive electricity generation market. Due to the importance electricity plays in the Nation's economic and social well-being, interested parties have been following the electric power industry's transition by keeping abreast of the restructuring and deregulation events that are taking place. Much of the attention centers around how the States are restructuring the business of electricity supply within their respective jurisdictions. This report profiles the electricity generation of each State, with statistics from 1988 through 1998. Data are presented for a number of areas including generating capability, electricity generation, fuel use, retail sales, nuclear power, capacity factor, and pollutant emissions.

The information contained in this report is in much the same format as in the *State Electricity Profiles 1996* (SEP96) report. Although the EIA published this type of information prior to the SEP96 report, there has been a lack of uniform overview for individual States. This report is intended to update information and to serve as a framework for more detailed studies.

Highlights

Several changes have been made in this year's report:

- SEP 1998 maps show the service territories of the top five utilities based on their retail sales revenue within the State. Previously, the maps showed the service territories of the top five utilities in each State ranked by the capability that they operated in the State. Many generating plants have or are in the process of being merged among utilities or are being sold to nonutilities. Rankings by utility retail sales provide a useful criterion for indicating the

relative size of the utilities in the State, while continuing to show their service territories.

- A dual-fired plant category has been added to the generating capability table—Table 4. Some power plants are capable of generating electricity from multiple fuels. In the previous report, the primary fuel used for the year determined how much capability was added to various plant types (coal, petroleum, gas, etc). For example, a shift in plant capability by fuel type would occur if utilities decided to use gas rather than petroleum from one year to the next. Although it would be accurate to allot capability to gas, interested parties could also assess that gas was the fuel of preference from the generation table with the additional knowledge that things could change given the amount of dual-fired capability available within the State.
- In the previous report, emissions estimates were based on fuel consumption data. This methodology overestimated the emissions contribution from electricity generation since all nonutility fuel consumption may not be totally associated with electricity generation. Consequently, the emissions estimates have been adjusted to show only emissions that result from the generation of electricity.
- New carbon dioxide (CO₂) emission factors have been incorporated. The coefficients for determining emissions of CO₂ from electric utility power plants come from the publication, *Emissions of Greenhouse Gases in the United States*, (DOE/EIA-0573). The nonutility coefficients were developed to be consistent with the utility coefficients.
- Hydroelectric data have been separated from the "Other" category (other is now Renewable) in all tables and figures.
- Electric power consumption data have been omitted from the report since the trend mimics generation. Interested readers can obtain this information by State from the *Electric Power Annual Volume 1, 1998*.

¹ Where mention is made of "the State(s)" in subsequent text, the District of Columbia is included unless otherwise noted.

Layout

Each State profile begins with a map that ranks the five utilities with the largest retail sales within the State. An alphabetic character and shading code are assigned to the utilities. Only those utilities that are investor-owned and have service areas within the State are mapped. Each map also shows the name, location, and rank of the five largest generating plants in the State and their primary energy source.² The plant rank is based on net summer capability. The total land area of the State is displayed as well.

In the accompanying tables and figures, some data are shown for utilities, some for nonutilities, and some for a combination of the two, which are referred to throughout the report as “industry” data. The tables and figures are titled accordingly. For example, Figures 1 through 4 present only utility information. Industry data are presented wherever possible (Figures 5 through 7; Tables 1, 2, 4, 5, & 7) to provide the most complete picture. However, in order to protect the confidentiality of individual respondents’ data, nonutility information is withheld in certain instances. As of 1998, nonutility data by fuel type is no longer confidential information, although prior years’ data will continue to be withheld. Confidential nonutility information was collected from Form EIA-867, “Annual Nonutility Power Producer Report,”³ and is identified in various tables with the letter “W.”⁴ The 5 States where nonutility information is withheld are Arizona, Kentucky, Nebraska, North Dakota, and Wyoming.

Table 1 shows how each State is ranked nationally in various relevant areas, such as its average price of electricity per kilowatt-hour, its population, and its emissions of certain atmospheric pollutants. The average price of electricity in each State is also noted, along with the delineation of North American Electric Reliability Council (NERC) Regions.⁵ Table 2 in each chapter

provides data that accompanies the five largest plants including plant age.⁶ The utility listed is the one that operates the plant. Table 3 gives the percentage of utility sale of the five largest utilities. Tables 4 and 5 show the percentage shares of capability and generation for 1988, 1993, and 1998 based on industry totals except for the aforementioned 5 States. Tables 4 and 5 percentage share columns are italicized for the 5 States listed to further identify their treatment. All footnotes can be found in the Notes and Sources section. Table 9 presents utility data for retail sales within the State. Sometimes utilities that operate power plants only sell power on the wholesale level. The final Profile covers the Nation as a whole. It, too, begins with a map showing the five largest investor-owned utilities ranked by sales and the five largest plants in the country.

To assist in explaining the relationship between utilities and nonutilities, Appendix A provides a summary of the major characteristics of each by ownership category or type. Appendix B contains a list of addresses of State agencies that can provide additional information about the electric power industry and restructuring activities. Appendix C has relevant technical notes.

For details concerning the fundamental aspects of the electric power industry and current events surrounding its restructuring as it moves toward competition and deregulation in the generation segment of the industry, please refer to the following EIA reports: *The Changing Structure of the Electric Power Industry: An Update* (published in December 1996), *The Changing Structure of the Electric Power Industry: Selected Issues, 1998* (published in July 1998), and *The Changing Structure of the Electric Power Industry: Corporate Combinations, 1999* (published in December 1999). Current State restructuring information can be accessed from EIA’s World Wide Web site *Status of State Electric Industry Restructuring Activity* at http://www.eia.doe.gov/cneaf/electricity/chg_str/reomap.html.

² The primary energy source are the predominant fuels, where predominance is based on the quantity of British thermal units (Btus). A Btu is the quantity of heat required to raise the temperature of 1 pound of water by 1 degree Fahrenheit.

³ Form EIA-867 “Annual Nonutility Power Producers Report” has been changed for 1998 and is now Form EIA-860B “Annual Electric Generator Report - Nonutility.”

⁴ Certain data must be suppressed (withheld) during publication to provide the necessary confidentiality for respondents that operate in small reporting areas. Refer to the Technical Notes in Appendix C in this report for an explanation of what data are considered confidential and the methodology used to determine its confidentiality. All sensitive cells identified in the withholding analysis are denoted with the letter “W.”

⁵ Overall reliability planning and coordination of the interconnected power systems are the responsibility of NERC, which was formed voluntarily in 1968 by the electric utility industry as a result of the 1965 power failure in the Northeast. NERC’s 10 regional councils cover the 48 contiguous States, part of Alaska, and portions of Canada and Mexico (Figure1).

⁶ Plant age is based on commercial operation date.

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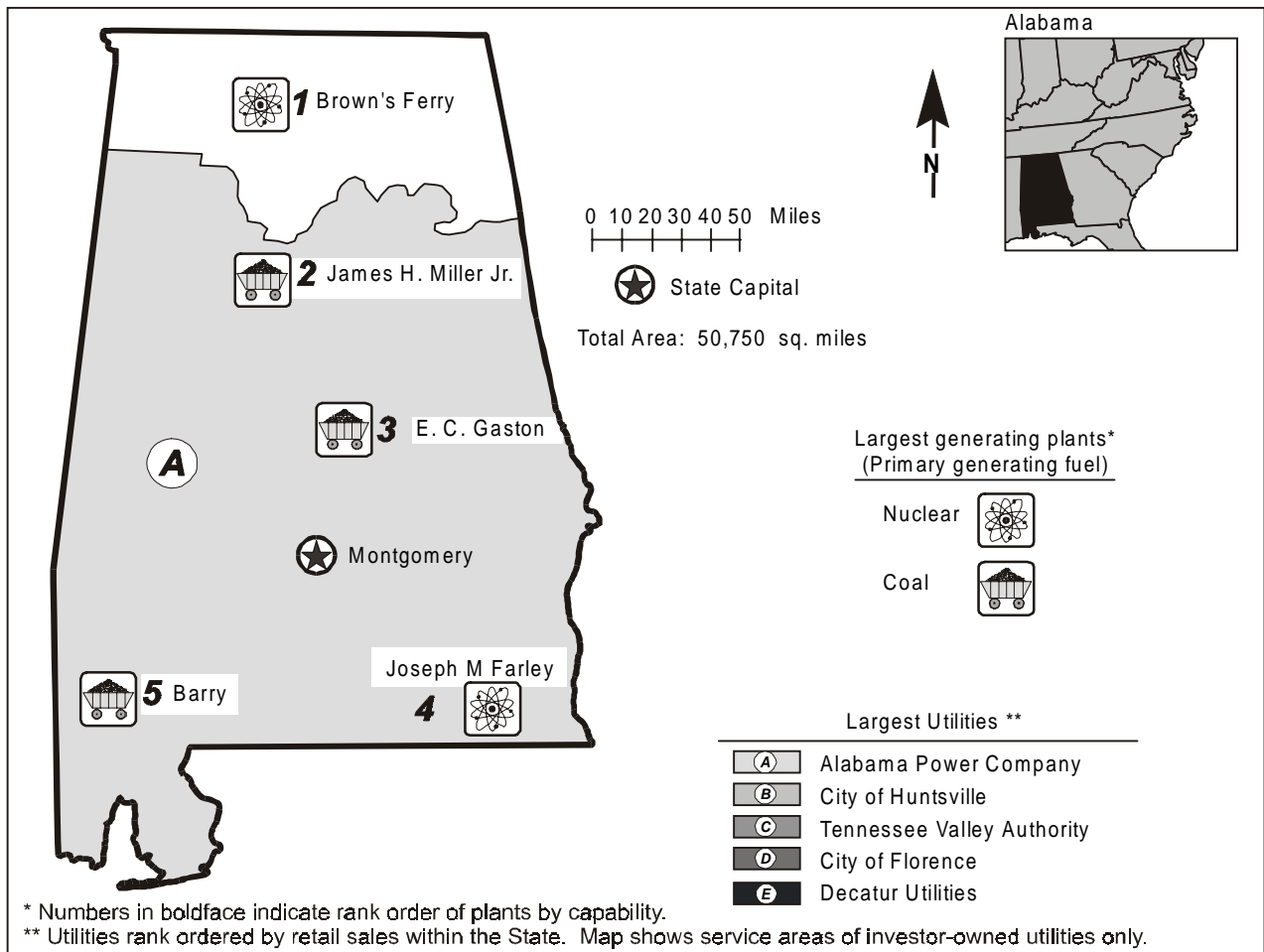


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SERC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	21,292	11
Primary Generating Fuel		Coal	Generation (MWh)	113,393,840	8
Population (as of 7/98)	4,351,037	23	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.56	14	Coal-fired	29	
Industrial	3.89	14	Petroleum-fired	28	
Commercial	6.54	25	Gas-fired	14	
Residential	6.94	13	Nuclear	21	
Industry			Hydroelectric	43	
Capability (MW)	22,372	12	Nonutility		
Generation (MWh)	120,032,763	9	Capability (MW)	1,080	17
Capability/person			Share of Capability (Percent)	4.8	33
(KWe/person)	5.14	5	Generation (MWh)	6,638,923	14
Generation/person			Share of Generation (Percent)	5.5	29
(MWh/person)	27.59	5			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	511	9			
Nitrogen Oxide	252	11			
Carbon Dioxide	77,489	11			
Sulfur Dioxide/sq. mile (Tons)	10.07	13			
Nitrogen Oxides/sq. mile (Tons)	4.97	14			
Carbon Dioxide/sq. mile (Tons)	1,526.88	15			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Browns Ferry	Nuclear	Tennessee Valley Authority	3,248	24
2. James H Miller Jr	Coal	Alabama Power Co	2,779	20
3. E C Gaston	Coal	Alabama Power Co	1,909	38
4. Joseph M. Farley	Nuclear	Alabama Power Co	1,699	21
5. Barry	Coal	Alabama Power Co	1,660	44

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

State Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Alabama Power Company	2,781	1,133	779	854	15
B. City of Huntsville	233	111	77	42	3
C. Tennessee Valley Authority	172	--	--	170	2
D. City of Florence	73	38	25	9	1
E. Decatur Utilities	70	21	17	32	1
Total	3,329	1,304	898	1,106	21
Percentage of Utility Sales	76	69	78	85	46

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	18,789	19,972	21,292	1.4	96.5	95.9	95.2
Coal-fired	10,556	11,579	11,349	0.8	54.2	55.6	50.7
Petroleum-fired	16	18	16	*	0.1	0.1	0.1
Gas-fired	--	152	338	--	--	0.7	1.5
Dual-fired	448	434	1,633	15.4	2.3	2.1	7.3
Nuclear	4,836	4,835	4,947	0.3	24.8	23.2	22.1
Hydroelectric	2,934	2,955	3,009	0.3	15.1	14.2	13.5
Total Nonutility	675	849	1,080	5.4	3.5	4.1	4.8
Industry	19,464	20,821	22,372	1.6	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

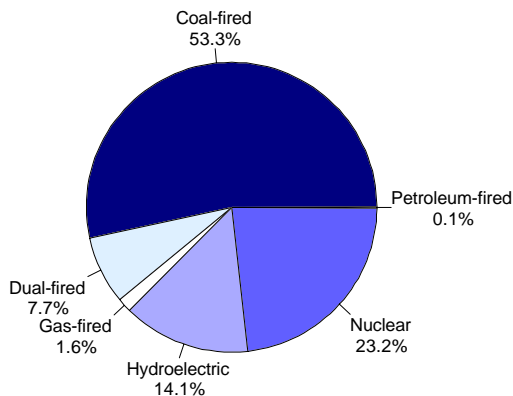


Figure 2. Utility Generation by Primary Energy Source, 1998

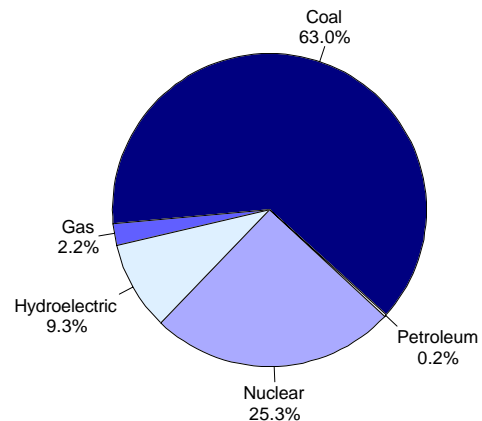


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	67,518,258	94,123,557	113,393,840	5.9	93.8	94.6	94.5
Coal	48,835,452	66,758,044	71,457,433	4.3	67.9	67.1	59.5
Petroleum	106,924	72,217	260,095	10.4	0.1	0.1	0.2
Gas	235,611	435,761	2,448,942	29.7	0.3	0.4	2.0
Nuclear	12,980,841	17,823,325	28,662,513	9.2	18.0	17.9	23.9
Hydroelectric	5,359,430	9,034,210	10,564,857	7.8	7.4	9.1	8.8
Total Nonutility	4,426,386	5,342,848	6,638,923	4.6	6.2	5.4	5.5
Industry	71,944,644	99,466,405	120,032,763	5.9	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	194.7	176.0	157.5	-2.3
Petroleum	366.8	425.4	287.6	-2.7
Gas	207.1	260.4	247.5	2.0

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	484	548	511	0.6
Nitrogen Oxides ^c	182	236	252	3.7
Carbon Dioxide ^c	49,632	67,585	77,489	5.1

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

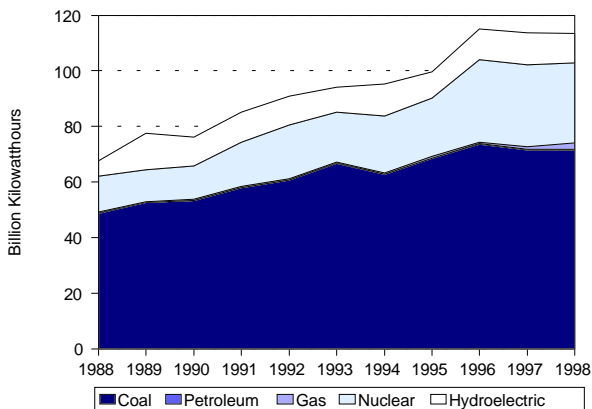


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998
(1998 Dollars)

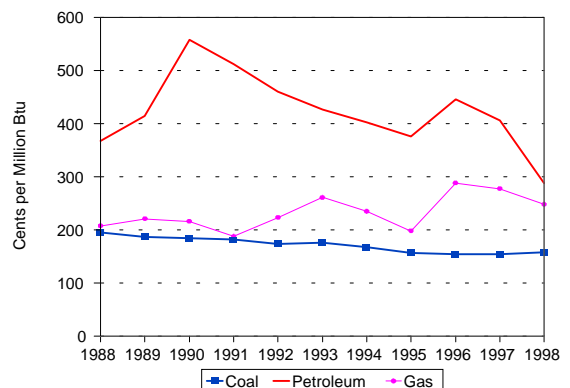


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

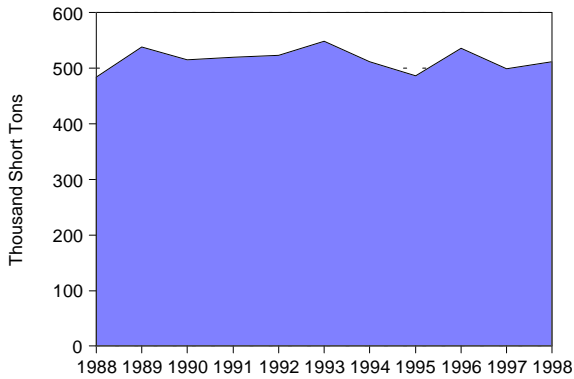


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

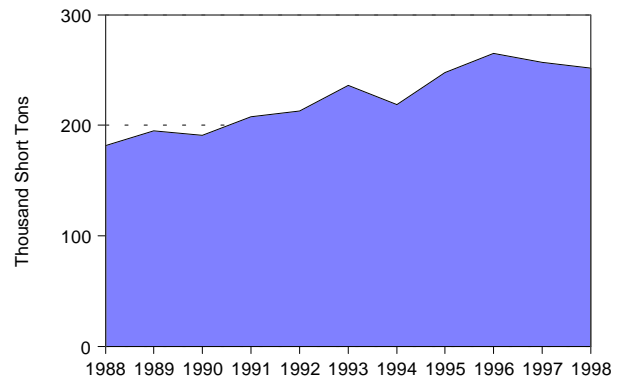


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

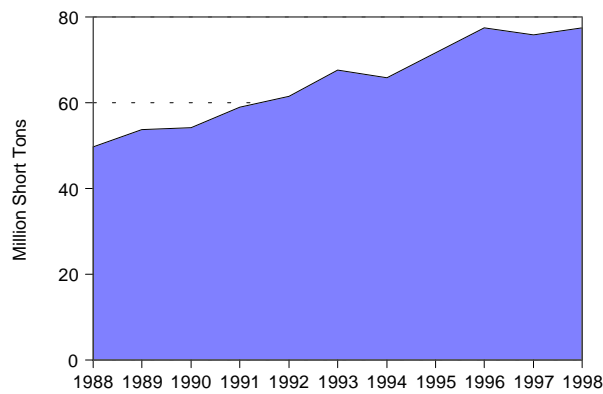


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	19,640,994	22,627,783	27,327,100	3.7	34.7	34.8	34.5
Commercial . .	9,587,819	11,254,231	17,662,317	7.0	16.9	17.3	22.3
Industrial	26,757,650	30,523,625	33,539,416	2.5	47.2	46.9	42.4
Other	651,053	652,036	644,200	-0.1	1.1	1.0	0.8
Total	56,637,510	65,057,675	79,173,033	3.8	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

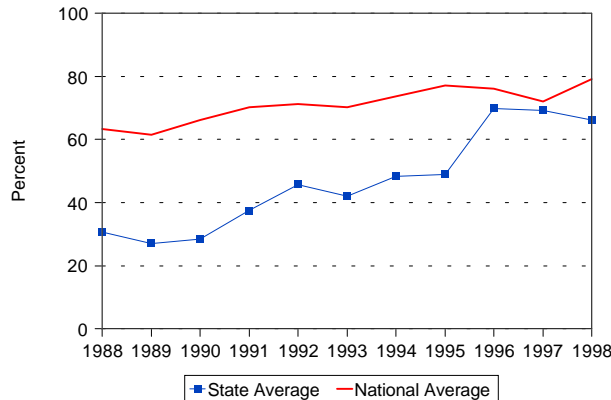


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	1	36	1	24	62
Number of Retail Customers	1,099,347	376,095	23	364,668	1,840,133
Retail Sales (MWh)	36,089,841	10,676,217	4,479,465	5,391,987	56,637,510
Percentage of Retail Sales	63.7	18.9	7.9	9.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,561	758	196	453	3,967
Percentage of Revenue	64.5	19.1	4.9	11.4	100.0
1993					
Number of Utilities	1	36	1	23	61
Number of Retail Customers	1,180,270	411,047	24	397,507	1,988,848
Retail Sales (MWh)	41,147,434	12,494,319	4,328,774	7,087,148	65,057,675
Percentage of Retail Sales	63.2	19.2	6.7	10.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,674	744	150	492	4,060
Percentage of Revenue	65.9	18.3	3.7	12.1	100.0
1998					
Number of Utilities	1	36	1	24	62
Number of Retail Customers	1,285,325	444,591	23	456,749	2,186,688
Retail Sales (MWh)	49,480,816	14,818,060	5,661,949	9,212,208	79,173,033
Percentage of Retail Sales	62.5	18.7	7.2	11.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,781	850	172	602	4,404
Percentage of Revenue	63.1	19.3	3.9	13.7	100.0

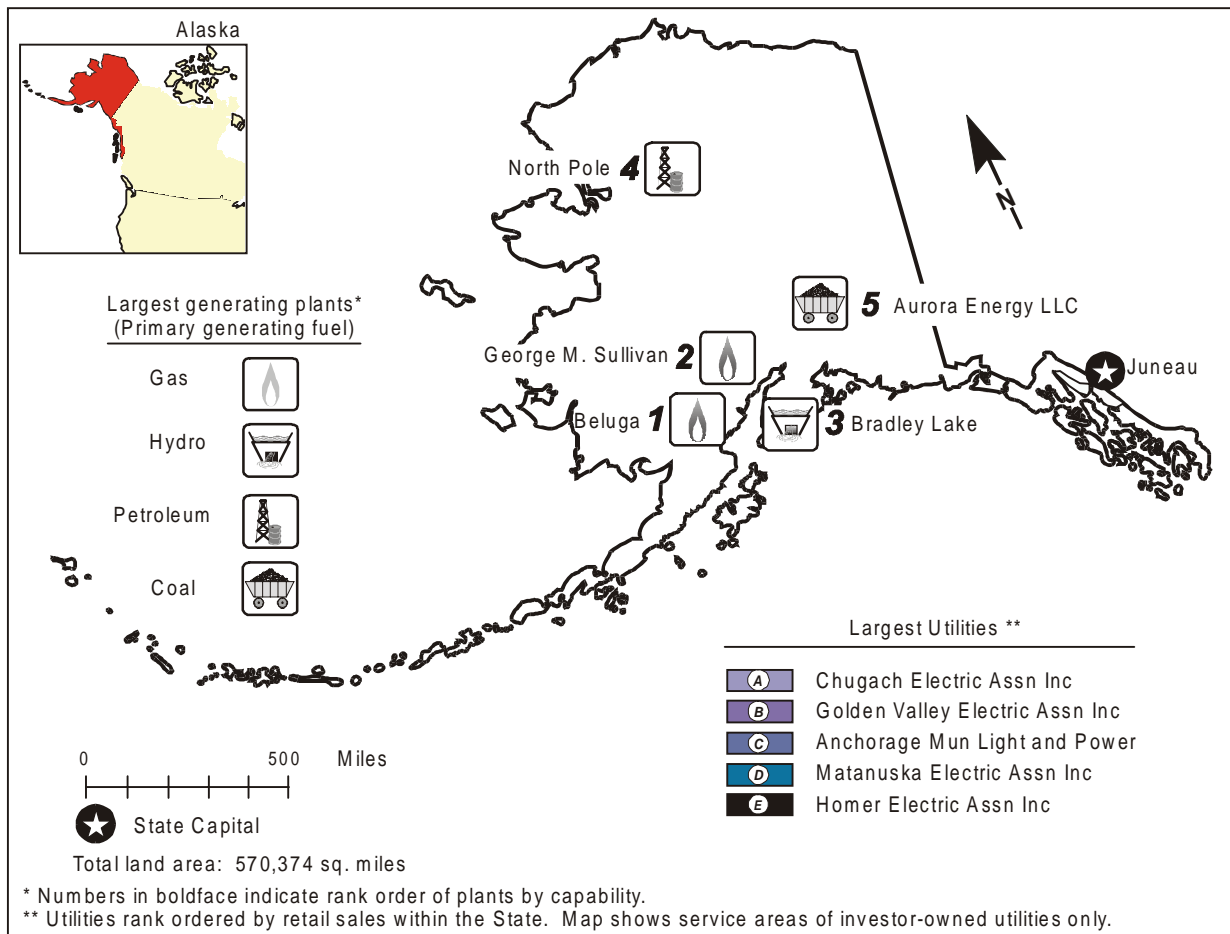


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		Not Applicable	Utility		
Net Exporter or Importer		Not Applicable	Capacity (MW)	1,721	46
Primary Generating Fuel		Gas	Generation (MWh)	4,590,270	47
Population (as of 7/98)	615,205	48	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	9.97	46	Coal-fired	31	
Industrial	7.17	44	Petroleum-fired	17	
Commercial	9.48	43	Gas-fired	22	
Residential	11.5	45	Hydroelectric	19	
Industry			Renewable	16	
Capacity (MW)	2,093	48	Nonutility		
Generation (MWh)	5,861,188	49	Capacity (MW)	372	36
Capacity/person			Share of Capacity (Percent)	17.8	10
(KWe/person)	3.4	19	Generation (MWh)	1,270,918	37
Generation/person			Share of Generation (Percent)	21.7	9
(MWh/person)	9.53	40			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	*	47			
Nitrogen Oxide	10	47			
Carbon Dioxide	3,809	46			
Sulfur Dioxide/sq. mile (Tons)	.00	48			
Nitrogen Oxides/sq. mile (Tons)	0.02	49			
Carbon Dioxide/sq. mile (Tons)	6.68	49			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Beluga	Gas	Chugach Electric Assn Inc	335	30
2. George M Sullivan	Gas	Municipality of Anchorage	220	23
3. Bradley Lake	Hydro	Homer Electric Assn Inc	108	7
4. North Pole	Petroleum	Golden Valley Elec Assn Inc	106	22
5. Aurora Energy LLC	Coal	Aurora Energy LLC	89	--

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Chugach Electric Assn, Inc	93	49	41	2	1
B. Golden Valley Elec Assn, Inc	74	24	25	24	*
C. Anchorage Mun Light and Power	69	14	53	--	2
D. Matanuska Electric Assn, Inc	48	32	16	--	*
E. Homer Electric Assn, Inc	41	18	16	7	*
Total	325	137	151	34	4
Percentage of Utility Sales	64	67	69	57	14

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	1,504	1,711	1,721	1.5	84.1	86.7	82.2
Coal-fired	56	54	25	-8.5	3.1	2.7	1.2
Petroleum-fired	464	501	547	1.9	25.9	25.4	26.2
Gas-fired	362	377	481	3.2	20.3	19.1	23.0
Dual-fired	419	428	308	-3.4	23.4	21.7	14.7
Hydroelectric	203	352	359	6.5	11.4	17.8	17.2
Renewable	*	*	*	*	*	*	*
Total Nonutility	285	263	372	3.0	15.9	13.3	17.8
Industry	1,789	1,974	2,093	1.8	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

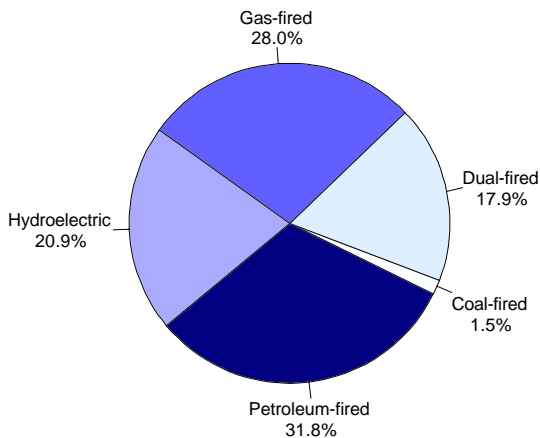


Figure 2. Utility Generation by Primary Energy Source, 1998

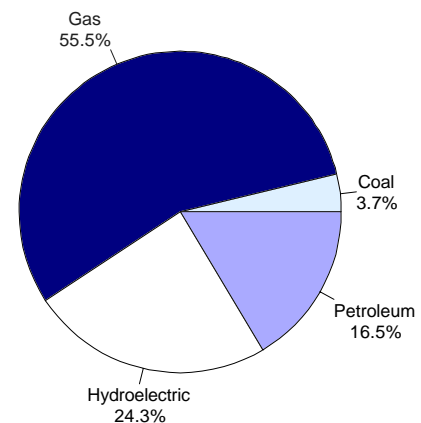


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	4,194,800	4,581,047	4,590,270	1.0	81.0	81.8	78.3
Coal	315,957	322,564	171,053	-6.6	6.1	5.8	2.9
Petroleum	355,694	458,542	756,914	8.8	6.9	8.2	12.9
Gas	2,587,685	2,496,949	2,548,971	-0.2	50.0	44.6	43.5
Hydroelectric	935,464	1,302,992	1,113,332	2.0	18.1	23.3	19.0
Total Nonutility	983,417	1,015,941	1,270,918	2.9	19.0	18.2	21.7
Industry	5,178,217	5,596,988	5,861,188	1.4	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Gas	--	125.4	179.8	--

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	1	1	*	-3.5
Nitrogen Oxides ^c	3	8	10	14.6
Carbon Dioxide ^c	469	2,566	3,809	26.2

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

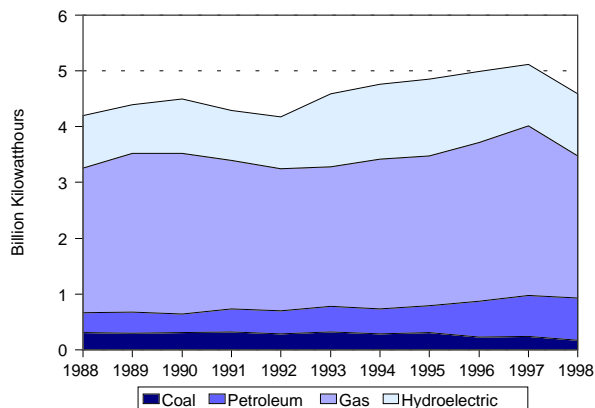


Figure 4. Utility Delivered Fuel Prices for Gas, 1988-1998
(1998 Dollars)

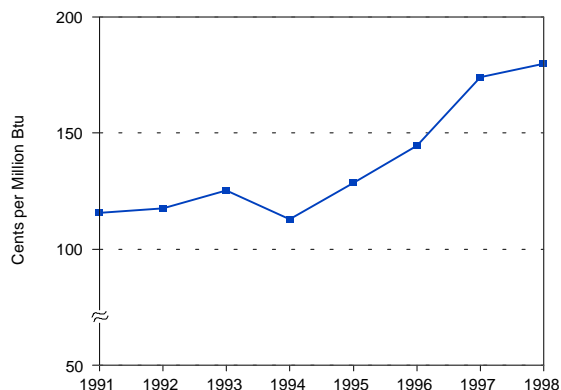


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

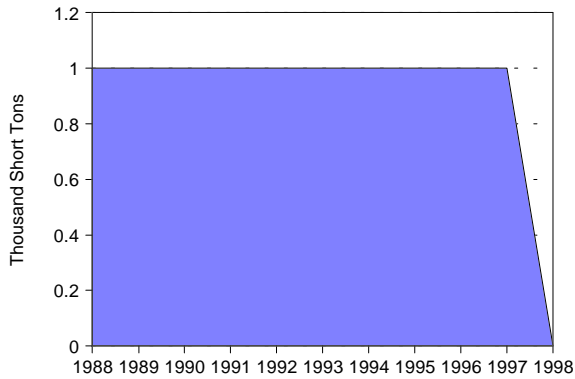


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

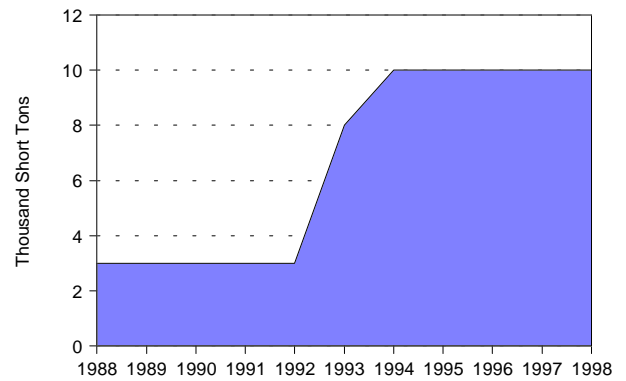


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

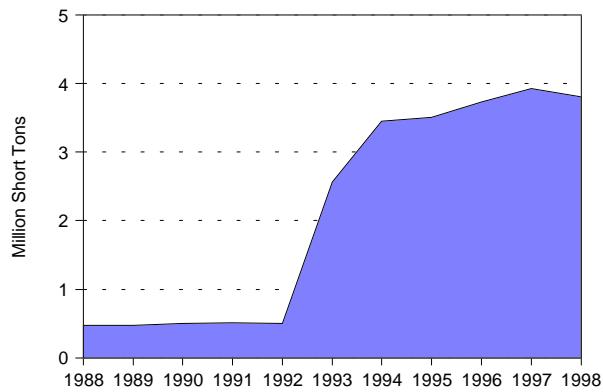


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	1,590,206	1,629,036	1,767,992	1.2	39.3	37.2	34.7
Commercial . .	1,777,502	2,062,399	2,306,729	2.9	43.9	47.1	45.3
Industrial	541,706	501,059	818,182	4.7	13.4	11.4	16.1
Other	135,554	182,133	201,681	4.5	3.3	4.2	4.0
Total	4,044,970	4,374,627	5,094,584	2.6	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

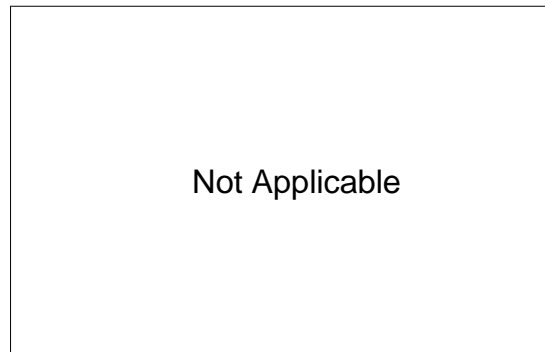


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	20	23	1	21	65
Number of Retail Customers	17,051	55,519	2	152,931	225,503
Retail Sales (MWh)	298,637	1,291,132	2,678	2,452,523	4,044,970
Percentage of Retail Sales	7.4	31.9	0.1	60.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	38	136	--	286	460
Percentage of Revenue	8.3	29.5	--	62.1	100.0
	1993				
Number of Utilities	24	37	1	21	83
Number of Retail Customers	20,537	57,479	2	161,698	239,716
Retail Sales (MWh)	362,700	1,396,905	3,294	2,611,728	4,374,627
Percentage of Retail Sales	8.3	31.9	0.1	59.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	46	143	--	299	488
Percentage of Revenue	9.4	29.3	--	61.2	100.0
	1998				
Number of Utilities	19	35	1	20	75
Number of Retail Customers	23,942	55,807	1	185,435	265,185
Retail Sales (MWh)	400,490	1,342,131	898	3,351,065	5,094,584
Percentage of Retail Sales	7.9	26.3	--	65.8	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	45	132	--	331	508
Percentage of Revenue	8.9	25.9	--	65.2	100.0

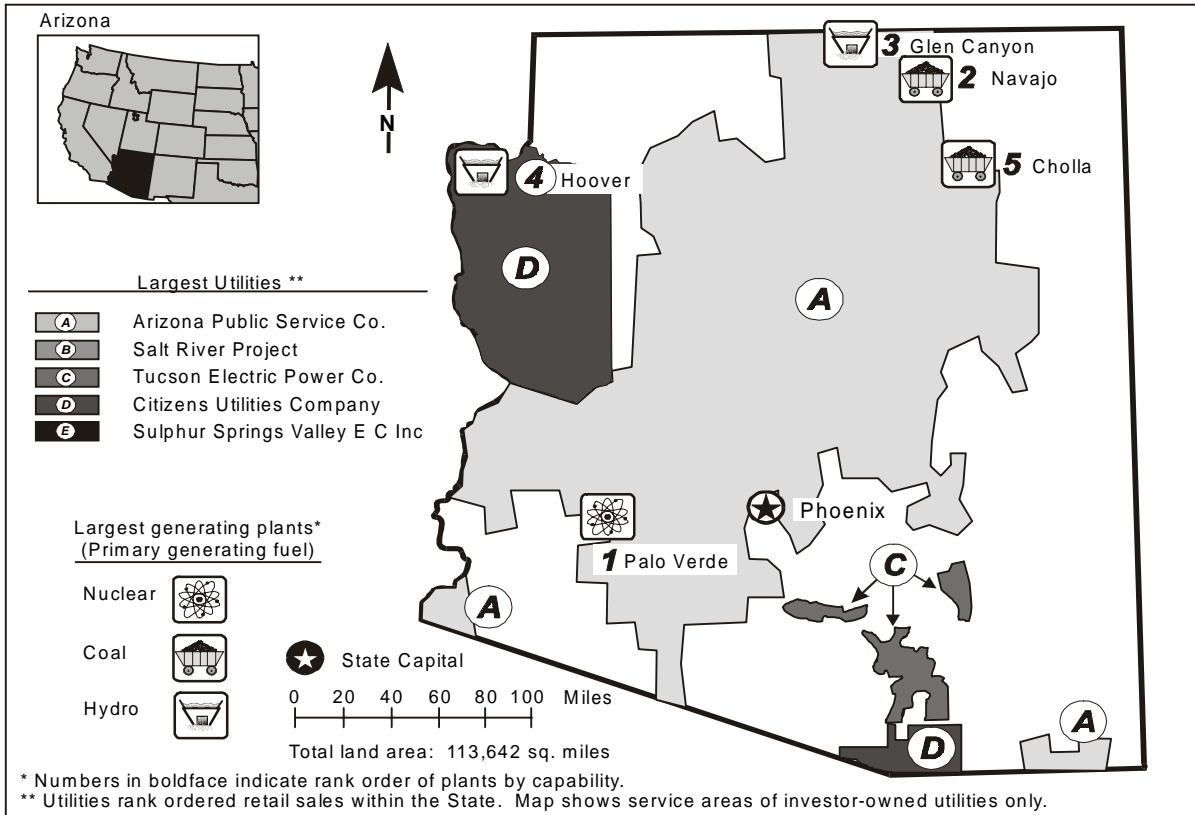


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	15,084	19
Primary Generating Fuel		Coal	Generation (MWh)	81,299,241	18
Population (as of 7/98)	4,667,277	21	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	7.33	37	Coal-fired	20	
Industrial	5.12	40	Petroleum-fired	27	
Commercial	7.76	36	Gas-fired	32	
Residential	8.68	35	Nuclear	11	
Industry			Hydroelectric	42	
Capability (MW)	15,254	21	Renewable	1	
Generation (MWh)	82,080,348	19	Nonutility		
Capability/person			Capability (MW)	171	41
(KWe/person)	3.27	23	Share of Capability (Percent)	1.1	45
Generation/person			Generation (MWh)	781,107	41
(MWh/person)	17.59	15	Share of Generation (Percent)	1	45
Emissions (Thousand Short Tons)					
Sulfur Dioxide	96	27			
Nitrogen Oxide	135	22			
Carbon Dioxide	41,642	22			
Sulfur Dioxide/sq. mile (Tons)	0.85	39			
Nitrogen Oxides/sq. mile (Tons)	1.19	40			
Carbon Dioxide/sq. mile (Tons)	366.43	39			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Palo Verde	Nuclear	Arizona Public Service Co	3,733	12
2. Navajo	Coal	Salt River Proj Ag I & P Dist	2,255	24
3. Glen Canyon	Hydro	Bureau of Reclamation	1,296	34
4. Hoover	Hydro	Bureau of Reclamation	1,042	62
5. Cholla	Coal	Arizona Public Service Co	995	36

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Arizona Public Service Company	1,655	767	699	179	11
B. Salt River Project	1,355	688	468	153	46
C. Tucson Electric Power Company	623	249	146	210	18
D. Citizens Utilities Company	88	42	30	10	6
E. Sulphur Springs Valley E C Inc	46	25	16	2	3
Total	3,768	1,770	1,360	554	84
Percentage of Utility Sales	92	94	95	86	59

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	14,448	15,034	15,084	0.5	100.0	100.0	100.0
Coal-fired	4,762	5,108	5,286	1.2	33.0	34.0	35.0
Petroleum-fired	75	97	85	1.5	0.5	0.6	0.6
Gas-fired	10	10	10	*	0.1	0.1	0.1
Dual-fired	3,287	3,229	3,077	-0.7	22.7	21.5	20.4
Nuclear	3,663	3,810	3,733	0.2	25.4	25.3	24.7
Hydroelectric	2,652	2,781	2,893	1.0	18.4	18.5	19.2
Renewable	--	--	*	--	--	--	*
Total Nonutility	W	W	171	--	--	--	--
Industry	W	W	15,254	--	--	--	--

Figure 1. Utility Generating Capability by Plant Type, 1998

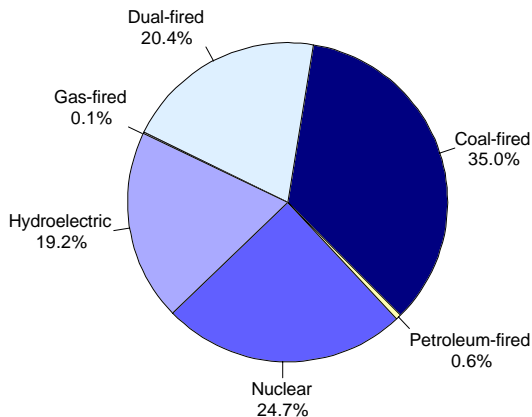


Figure 2. Utility Generation by Primary Energy Source, 1998

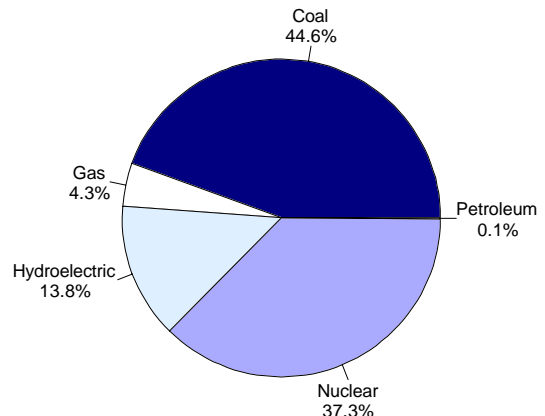


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	61,562,300	68,025,039	81,299,241	3.1	100.0	100.0	100.0
Coal	28,390,913	37,020,817	36,225,373	2.7	46.1	54.4	44.6
Petroleum	118,954	59,875	61,227	-7.1	0.2	0.1	0.1
Gas	2,340,952	1,872,396	3,472,416	4.5	3.8	2.8	4.3
Nuclear	22,940,487	22,048,880	30,301,045	3.1	37.3	32.4	37.3
Hydroelectric	7,770,995	7,023,071	11,239,180	4.2	12.6	10.3	13.8
Total Nonutility	W	W	781,107	--	--	--	--
Industry	W	W	82,080,348	--	--	--	--

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	140.5	135.2	133.1	-0.6
Petroleum	407.0	511.4	429.0	0.6
Gas	224.1	280.7	239.1	0.7

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	95	130	96	0.1
Nitrogen Oxides ^c	106	130	135	2.7
Carbon Dioxide ^c	31,593	40,245	41,642	3.1

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

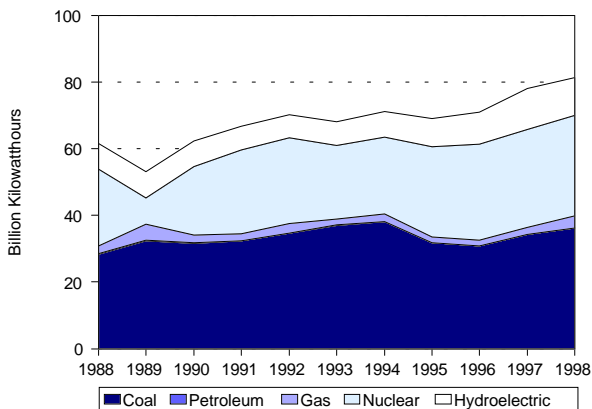


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

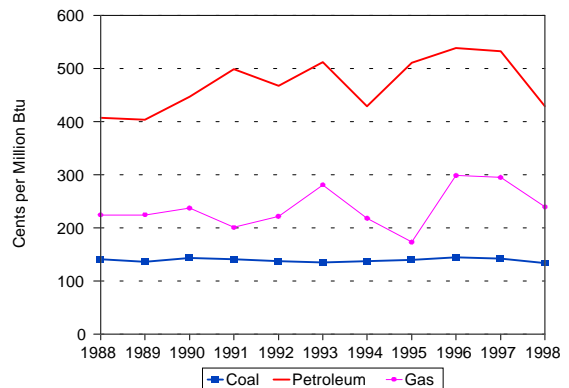


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

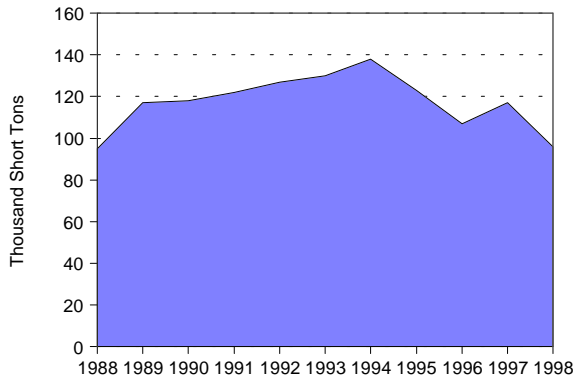


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

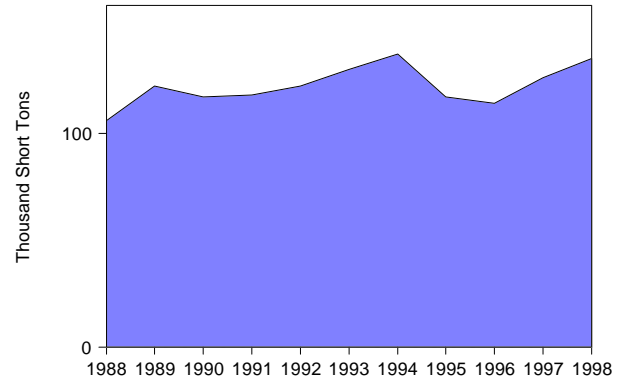


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

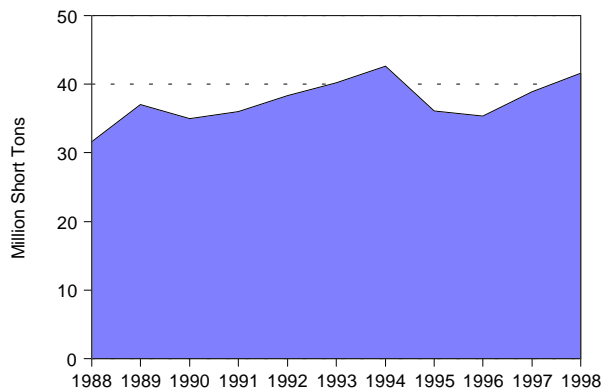


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	14,730,969	16,705,090	21,610,888	4.3	37.8	37.6	38.7
Commercial . .	12,345,694	14,813,140	18,439,797	4.6	31.7	33.4	33.0
Industrial	9,261,483	10,989,057	12,548,978	3.4	23.8	24.8	22.5
Other	2,578,195	1,900,567	3,243,614	2.6	6.6	4.3	5.8
Total	38,916,338	44,407,854	55,843,277	4.1	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

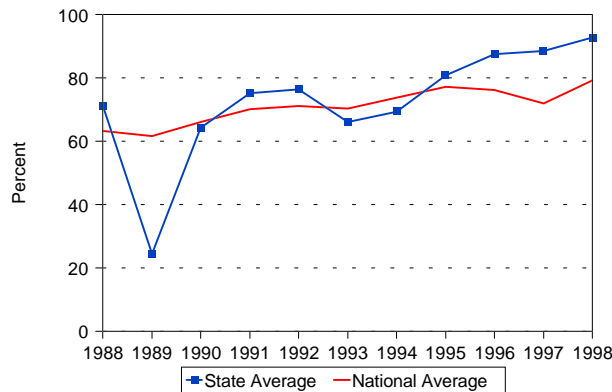


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	5	21	1	13	40
Number of Retail Customers	868,518	567,903	37	97,757	1,534,215
Retail Sales (MWh)	20,603,129	15,439,242	637,395	2,236,572	38,916,338
Percentage of Retail Sales	52.9	39.7	1.6	5.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,145	1,306	8	196	3,654
Percentage of Revenue	58.7	35.7	0.2	5.4	100.0
1993					
Number of Utilities	5	23	2	11	41
Number of Retail Customers	978,325	624,653	14,408	107,705	1,725,091
Retail Sales (MWh)	23,783,521	17,204,642	801,612	2,618,079	44,407,854
Percentage of Retail Sales	53.6	38.7	1.8	5.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,371	1,422	28	192	4,013
Percentage of Revenue	59.1	35.4	0.7	4.8	100.0
1998					
Number of Utilities	5	27	3	10	45
Number of Retail Customers	1,164,538	746,206	18,196	129,572	2,058,512
Retail Sales (MWh)	29,848,381	21,763,707	1,174,223	3,056,966	55,843,277
Percentage of Retail Sales	53.5	39	2.1	5.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,387	1,467	34	204	4,092
Percentage of Revenue	58.3	35.8	0.8	5	100.0

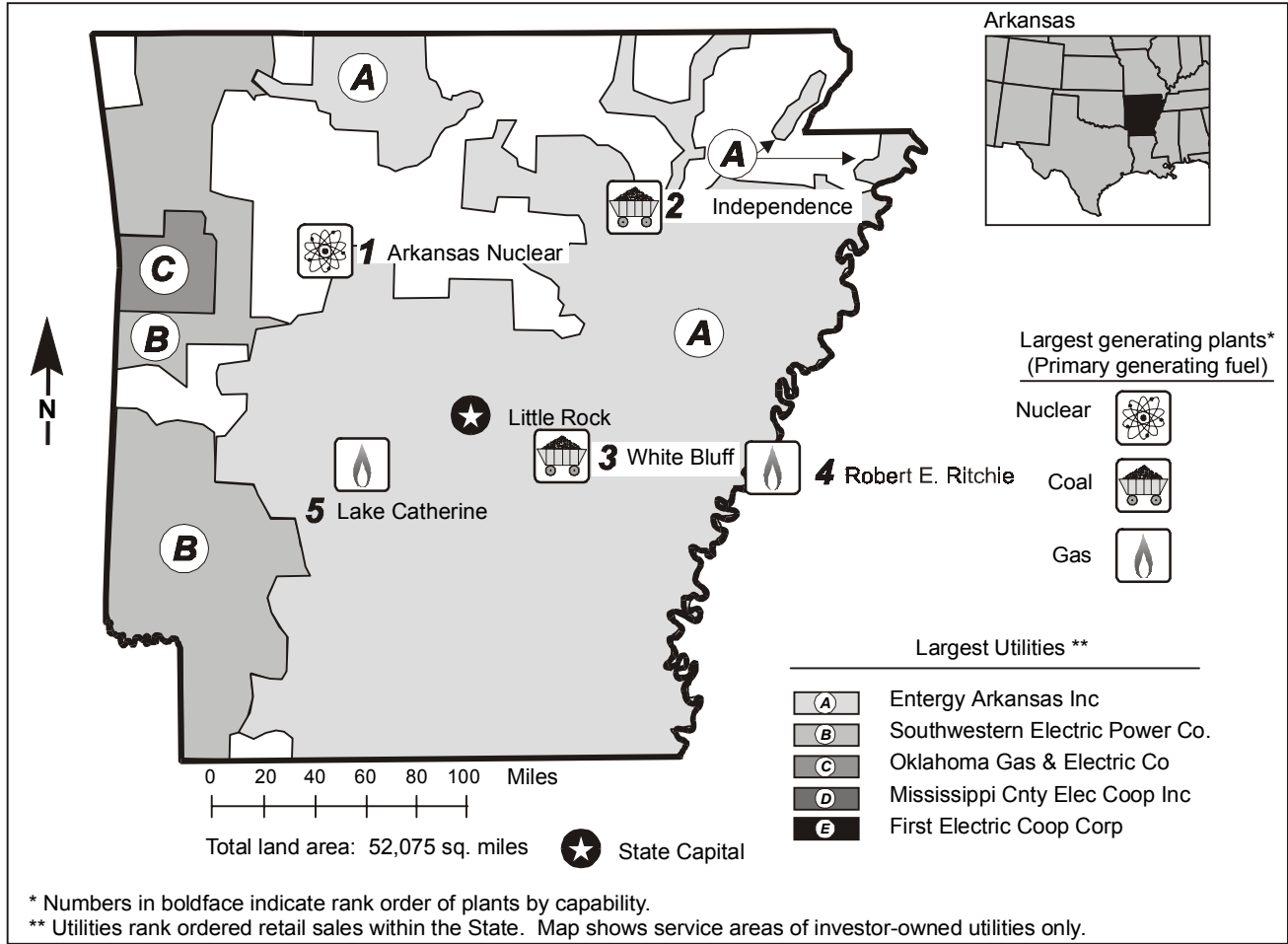


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SPP/SERC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	9,618	28
Primary Generating Fuel		Coal	Generation (MWh)	43,198,908	28
Population (as of 7/98)	2,538,202	33	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.78	20	Coal-fired	16	
Industrial	4.16	20	Petroleum-fired	26	
Commercial	5.9	14	Gas-fired	35	
Residential	7.51	24	Nuclear	21	
			Hydroelectric	37	
Industry			Nonutility		
Capability (MW)	10,013	29	Capability (MW)	395	34
Generation (MWh)	45,661,884	29	Share of Capability (Percent)	3.9	35
Capability/person			Generation (MWh)	2,462,976	31
(KWe/person)	3.94	12	Share of Generation (Percent)	5.4	30
Generation/person					
(MWh/person)	17.99	12			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	74	32			
Nitrogen Oxide	92	33			
Carbon Dioxide	29,054	33			
Sulfur Dioxide/sq. mile (Tons)	1.42	31			
Nitrogen Oxides/sq. mile (Tons)	1.77	31			
Carbon Dioxide/sq. mile (Tons)	557.92	31			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Arkansas Nuclear	Nuclear	Entergy Arkansas Inc	1,694	24
2. Independence	Coal	Entergy Arkansas Inc	1,678	15
3. White Bluff	Coal	Entergy Arkansas Inc	1,659	18
4. Robert E Ritchie	Gas	Entergy Arkansas Inc	918	37
5. Lake Catherine	Gas	Entergy Arkansas Inc	756	48

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Entergy Arkansas, Inc	1,196	562	289	330	15
B. Southwestern Electric Power Co	170	57	42	66	6
C. Oklahoma Gas & Electric Co	96	36	26	29	5
D. Mississippi Cnty Elec Coop Inc	82	3	1	78	*
E. First Electric Coop Corp	81	61	8	8	4
Total	1,625	719	366	510	29
Percentage of Utility Sales	72	67	76	76	70

Table 4. Electric Power Industry Generating Capability by Plant Type 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	9,553	9,672	9,618	0.1	95.7	95.7	96.1
Coal-fired	3,817	3,817	3,817	*	38.2	37.8	38.1
Petroleum-fired	202	204	206	0.2	2.0	2.0	2.1
Gas-fired	--	14	14	--	--	0.1	0.1
Dual-fired	2,590	2,617	2,582	*	25.9	25.9	25.8
Nuclear	1,694	1,694	1,694	*	17.0	16.8	16.9
Hydroelectric	1,250	1,326	1,305	0.5	12.5	13.1	13.0
Total Nonutility	430	432	395	-0.9	4.3	4.3	3.9
Industry	9,983	10,104	10,013	*	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

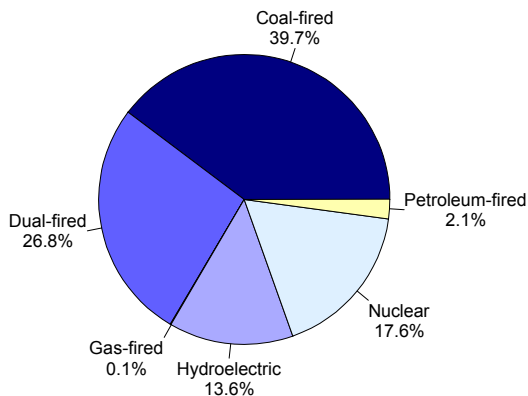


Figure 2. Utility Generation by Primary Energy Source, 1998

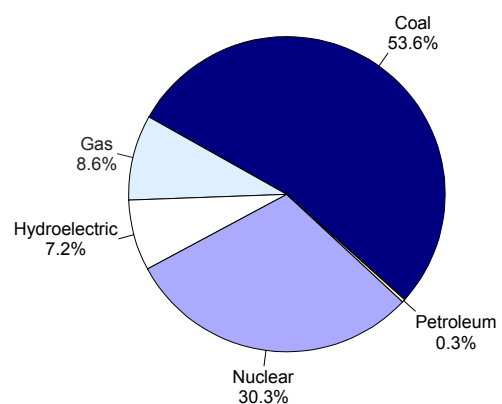


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	33,763,813	38,049,072	43,198,908	2.8	94.3	94.0	94.6
Coal	19,875,578	18,025,615	23,140,020	1.7	55.5	44.5	50.7
Petroleum	142,594	65,624	143,834	0.1	0.4	0.2	0.3
Gas	2,065,061	1,928,399	3,704,159	6.7	5.8	4.8	8.1
Nuclear	8,895,422	13,521,676	13,097,252	4.4	24.8	33.4	28.7
Hydroelectric	2,785,158	4,507,758	3,113,643	1.2	7.8	11.1	6.8
Total Nonutility Industry	2,042,324	2,446,591	2,462,976	2.1	5.7	6.0	5.4
Industry	35,806,138	40,495,663	45,661,884	2.7	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	158.5	170.2	147.2	-0.8
Petroleum	435.4	457.9	370.8	-1.8
Gas	135.0	220.5	224.0	5.8

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	72	62	74	0.3
Nitrogen Oxides ^c	82	69	92	1.4
Carbon Dioxide ^c	23,160	21,262	29,054	2.5

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

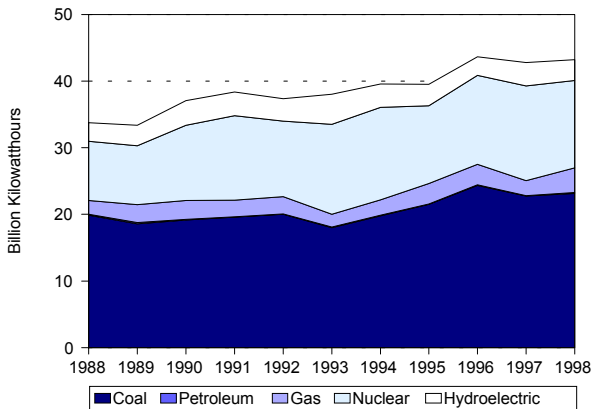


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

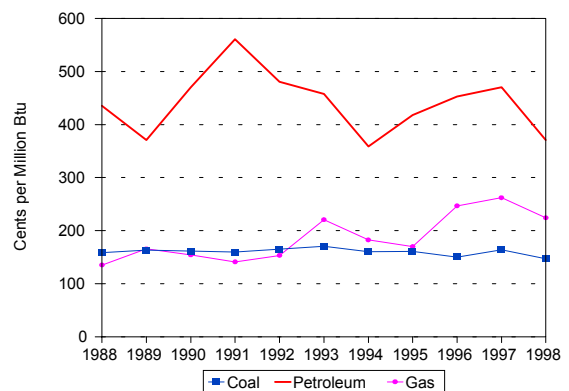


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

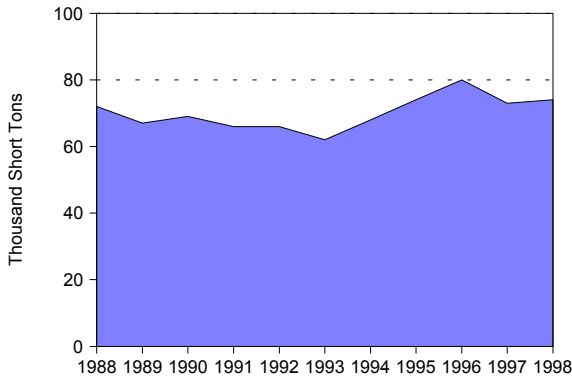


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

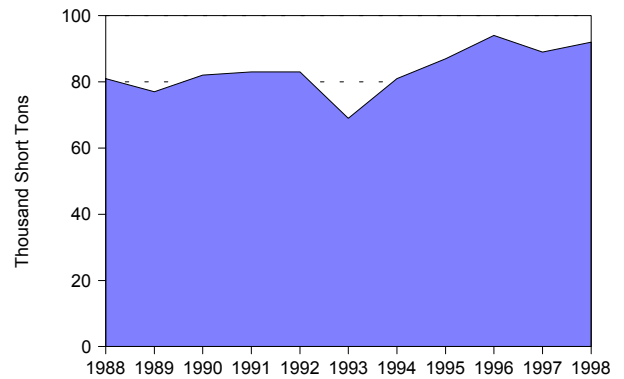


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

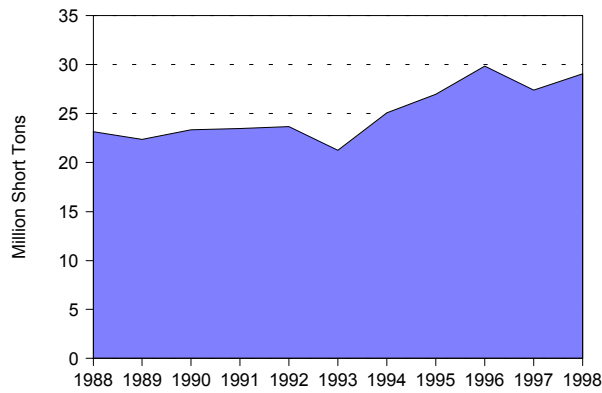


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	9,945,727	11,761,761	14,339,398	4.1	39.3	37.1	36.5
Commercial . .	5,783,149	6,698,105	8,204,704	4.0	22.9	21.1	20.9
Industrial	8,931,093	12,609,005	16,065,970	6.7	35.3	39.8	40.9
Other	612,630	594,062	705,123	1.6	2.4	1.9	1.8
Total	25,272,601	31,662,933	39,315,195	5.0	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

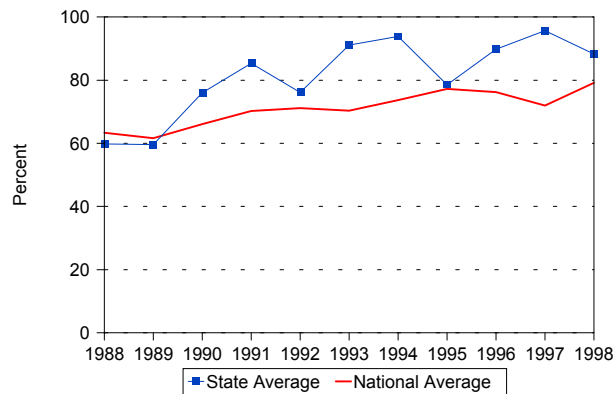


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	4	15	--	19	38
Number of Retail Customers	695,173	123,376	--	290,798	1,109,347
Retail Sales (MWh)	17,869,571	2,948,557	--	4,454,473	25,272,601
Percentage of Retail Sales	70.7	11.7	--	17.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,425	211	--	398	2,034
Percentage of Revenue	70.0	10.4	--	19.6	100.0
1993					
Number of Utilities	4	15	--	17	36
Number of Retail Customers	737,295	133,625	--	323,027	1,193,947
Retail Sales (MWh)	20,631,367	3,919,638	--	7,111,928	31,662,933
Percentage of Retail Sales	65.2	12.4	--	22.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,581	249	--	479	2,308
Percentage of Revenue	68.5	10.8	--	20.7	100.0
1998					
Number of Utilities	4	15	--	17	36
Number of Retail Customers	788,060	151,790	--	376,206	1,316,056
Retail Sales (MWh)	24,551,730	5,127,815	--	9,635,650	39,315,195
Percentage of Retail Sales	62.4	13.0	--	24.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,469	279	--	524	2,272
Percentage of Revenue	64.7	12.3	--	23.1	100.0

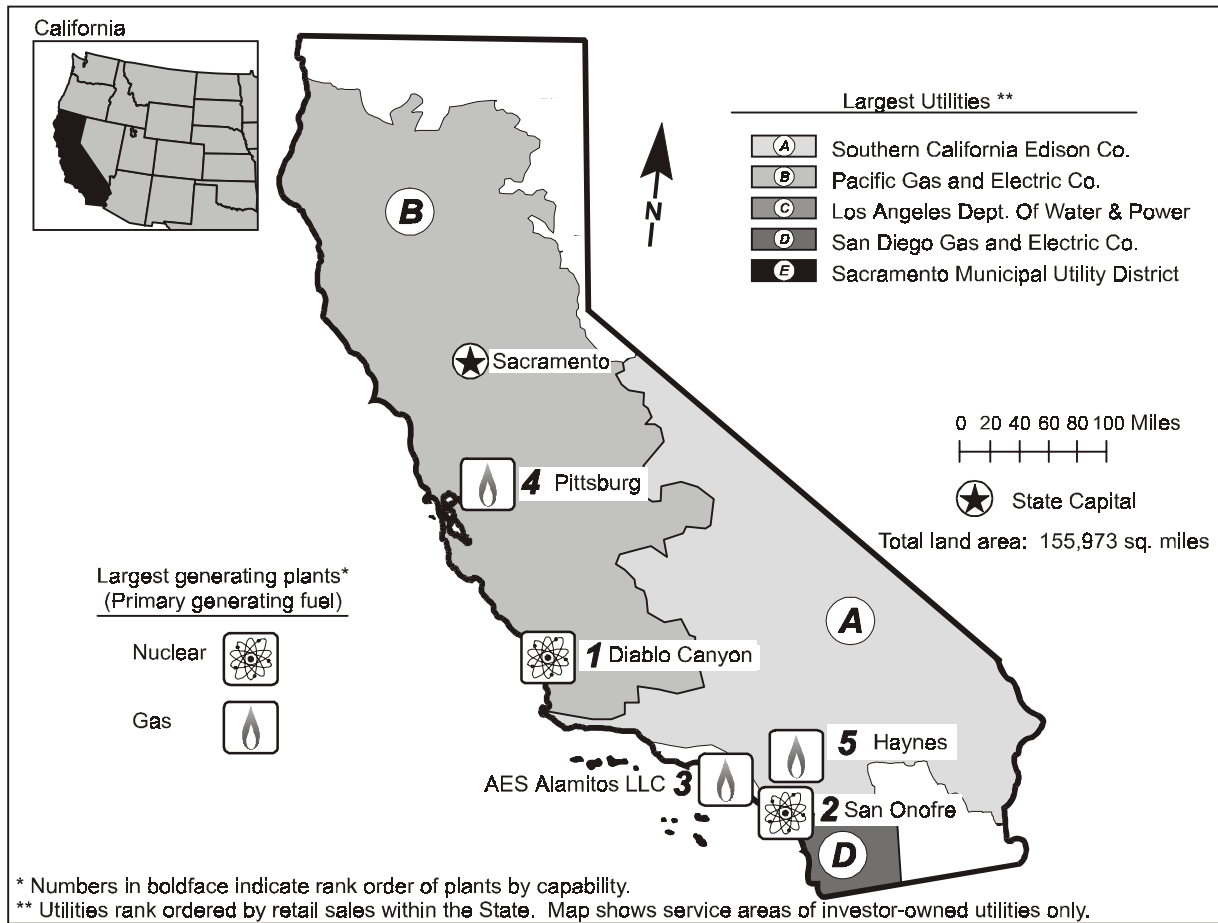


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	30,663	4
Primary Generating Fuel		Hydro	Generation (MWh)	114,926,213	7
Population (as of 7/98)	32,682,794	1	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	9.03	41	Coal-fired		
Industrial	6.59	42	Petroleum-fired	32	
Commercial	9.66	44	Gas-fired	31	
Residential	10.6	42	Nuclear	13	
Industry			Hydroelectric	34	
Capability (MW)	52,349	2	Renewable	18	
Generation (MWh)	188,757,867	4	Nonutility		
Capability/person			Capability (MW)	21,686	1
(KWe/person)	1.6	49	Share of Capability (Percent) . . .	41.4	4
Generation/person			Generation (MWh)	73,831,654	1
(MWh/person)	5.78	50	Share of Generation (Percent) . .	39.1	4
Emissions (Thousand Short Tons)					
Sulfur Dioxide	*	48			
Nitrogen Oxide	100	30			
Carbon Dioxide	51,856	17			
Sulfur Dioxide/sq. mile (Tons)	0.00	49			
Nitrogen Oxides/sq. mile (Tons)	0.64	44			
Carbon Dioxide/sq. mile (Tons)	332.47	40			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Diablo Canyon	Nuclear	Pacific Gas & Electric Co	2,160	13
2. San Onofre	Nuclear	Southern California Edison Co	2,150	15
3. AES Alamos LLC	Gas	AES Southland LLC	2,031	42
4. Pittsburg	Gas	Pacific Gas & Electric Co	2,022	44
5. Haynes	Gas	Los Angeles City of	1,570	36

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Southern California Edison Co	7,105	2,777	2,726	1,526	76
B. Pacific Gas and Electric Co	7,032	2,891	3,138	931	72
C. Los Angeles Dept of Wtr & Pwr	2,074	666	1,156	215	37
D. San Diego Gas & Electric Co	1,520	637	643	233	8
E. Sacramento Municipal Util Dist	711	338	63	304	5
Total	18,443	7,310	7,727	3,209	198
Percentage of Utility Sales	90	92	93	83	55

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	44,429	44,313	30,663	-4.0	80.6	81.4	58.6
Petroleum-fired	559	558	395	-3.8	1.0	1.0	0.8
Gas-fired	886	814	1,527	6.2	1.6	1.5	2.9
Dual-fired	23,257	23,466	9,396	-9.6	42.2	43.1	17.9
Nuclear	5,611	4,310	4,310	-2.9	10.2	7.9	8.2
Hydroelectric	12,469	13,448	13,510	0.9	22.6	24.7	25.8
Renewable	1,647	1,716	1,525	-0.9	3.0	3.2	2.9
Total Nonutility	10,705	10,109	21,686	8.2	19.4	18.6	41.4
Industry	55,134	54,422	52,349	-0.6	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

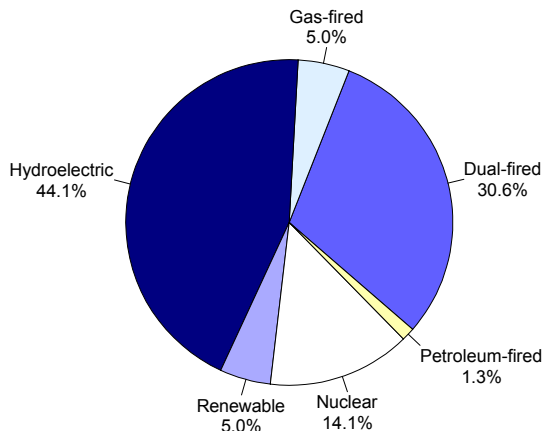


Figure 2. Utility Generation by Primary Energy Source, 1998

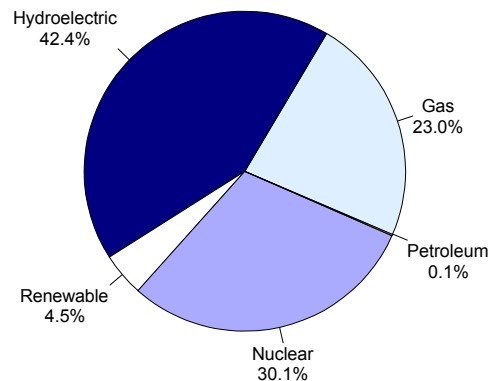


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	125,981,157	125,782,063	114,926,213	-1.0	70.3	67.3	60.9
Petroleum	7,620,777	2,007,674	121,385	-36.9	4.2	1.1	0.1
Gas	53,892,578	46,499,103	26,385,452	-7.6	30.1	24.9	14.0
Nuclear	30,862,960	31,580,692	34,594,206	1.3	17.2	16.9	18.3
Hydroelectric	23,474,130	38,264,443	48,684,142	8.4	13.1	20.5	25.8
Renewable	10,130,711	7,430,151	5,141,028	-7.3	5.6	4.0	2.7
Total Nonutility Industry	53,344,477	61,079,976	73,831,654	3.7	29.7	32.7	39.1
Industry	179,325,634	186,862,039	188,757,867	0.6	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Petroleum	265.8	234.7	274.7	0.4
Gas	283.1	296.3	268.6	-0.6

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	14	5	*	-41.1
Nitrogen Oxides ^c	77	42	100	2.8
Carbon Dioxide ^c	36,672	29,193	51,856	3.9

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

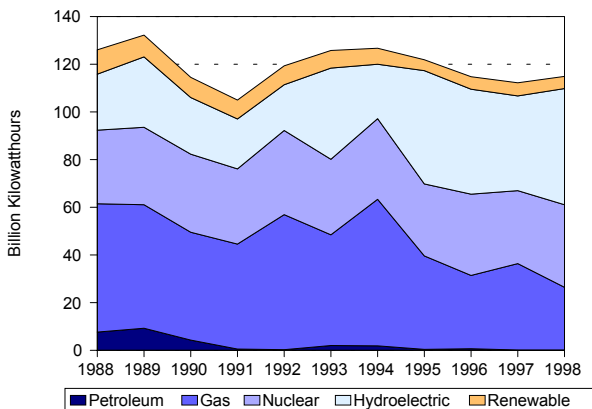


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

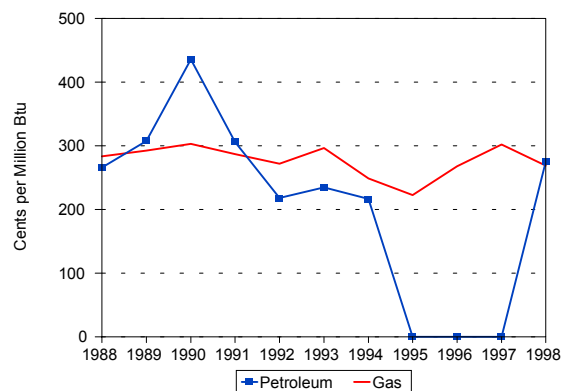


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

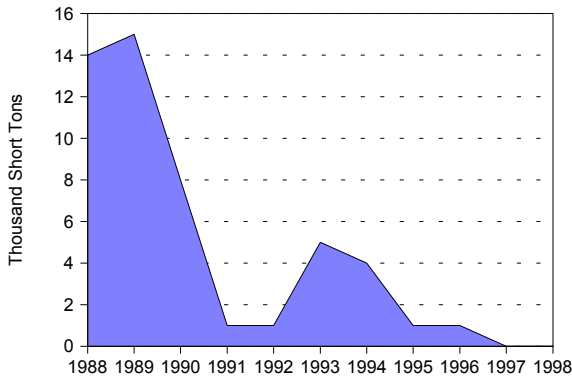


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

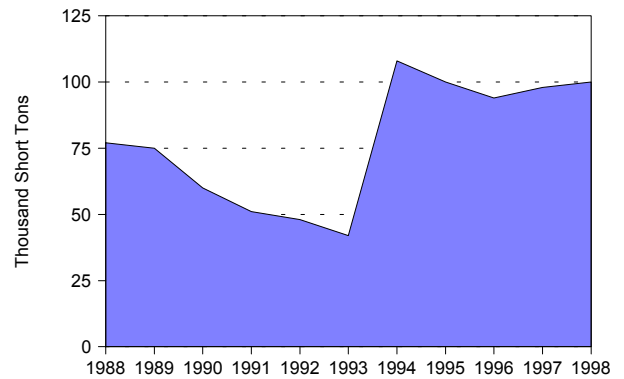


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

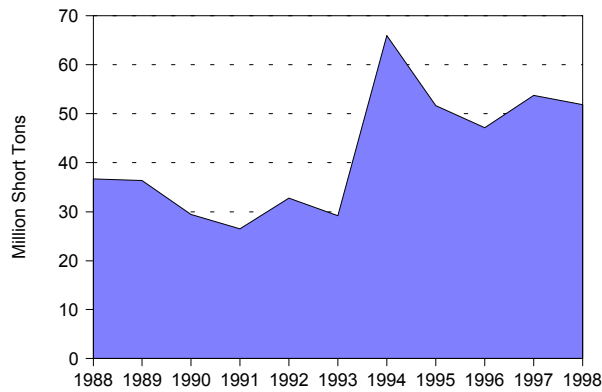


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998 (Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	64,638,925	67,358,692	74,791,673	1.6	32.2	32.0	33.0
Commercial ..	70,706,016	79,058,161	85,677,785	2.2	35.2	37.6	37.8
Industrial	54,988,435	56,189,186	58,855,621	0.8	27.4	26.7	26.0
Other	10,303,797	7,893,887	7,070,608	-4.1	5.1	3.8	3.1
Total	200,637,168	210,499,926	226,395,687	1.3	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

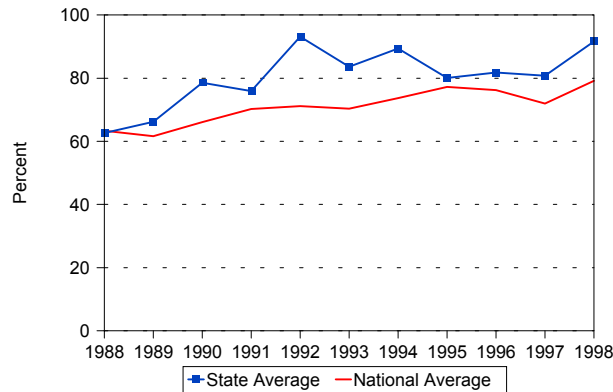


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	7	35	2	6	50
Number of Retail Customers	8,879,705	2,544,438	253	10,940	11,435,336
Retail Sales (MWh)	146,650,266	48,872,359	4,775,946	338,597	200,637,168
Percentage of Retail Sales	73.1	24.4	2.4	0.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	15,697	4,395	97	25	20,214
Percentage of Revenue	77.7	21.7	0.5	0.1	100.0
	1993				
Number of Utilities	6	33	1	4	44
Number of Retail Customers	9,650,199	2,726,789	98	12,456	12,389,542
Retail Sales (MWh)	157,030,364	49,137,333	4,110,790	221,439	210,499,926
Percentage of Retail Sales	74.6	23.3	2	0.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	17,765	4,600	80	18	22,462
Percentage of Revenue	79.1	20.5	0.4	0.1	100.0
	1998				
Number of Utilities	6	34	2	4	46
Number of Retail Customers	10,114,836	2,813,232	107	13,170	12,941,345
Retail Sales (MWh)	169,616,081	52,993,716	3,558,122	227,768	226,395,687
Percentage of Retail Sales	74.9	23.4	1.6	0.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	15,763	4,602	55	19	20,439
Percentage of Revenue	77.1	22.5	0.3	0.1	100.0

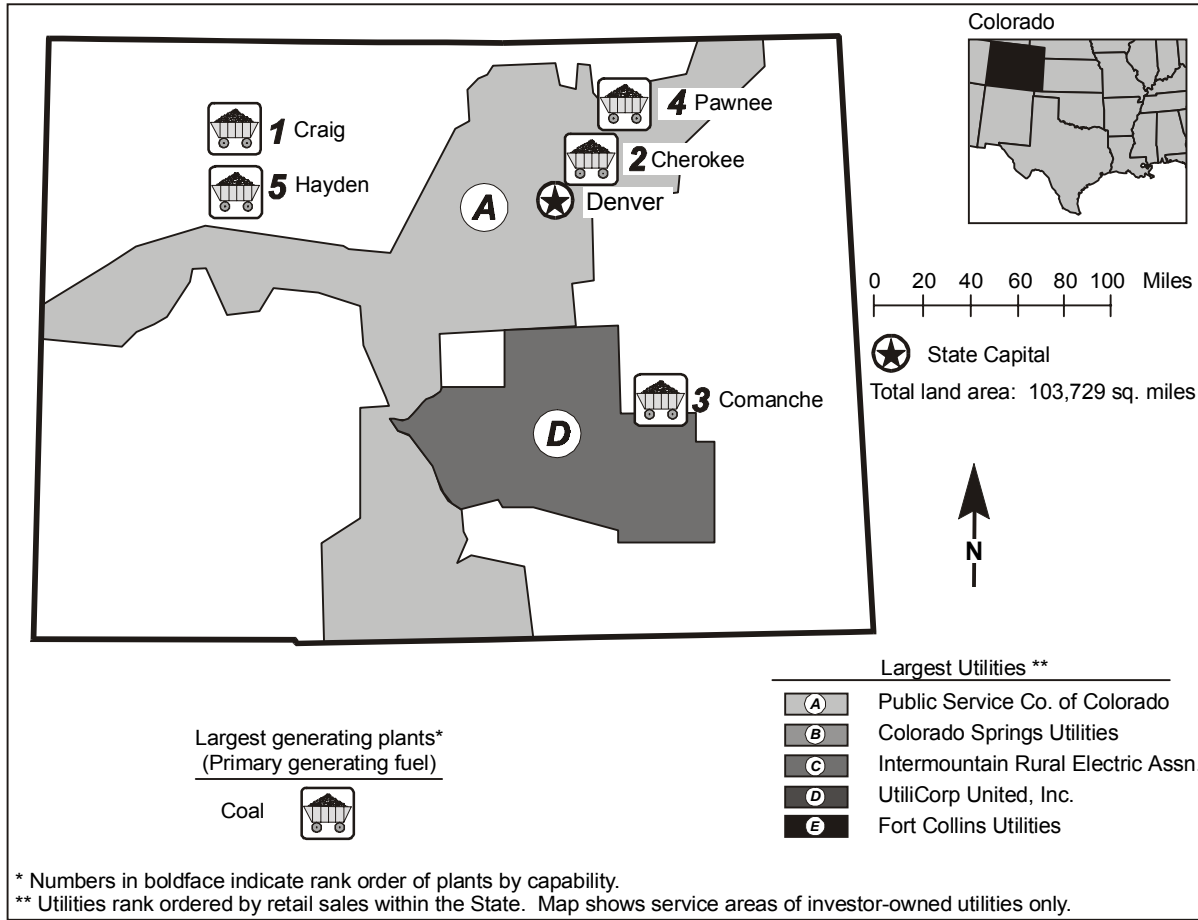


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	6,937	32
Primary Generating Fuel		Coal	Generation (MWh)	35,471,294	32
Population (as of 7/98)	3,968,967	24	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.95	22	Coal-fired	24	
Industrial	4.34	26	Petroleum-fired	25	
Commercial	5.67	10	Gas-fired	25	
Residential	7.45	22	Hydroelectric	31	
Industry			Nonutility		
Capability (MW)	7,613	32	Capability (MW)	676	27
Generation (MWh)	38,851,092	32	Share of Capability (Percent) . . .	8.9	21
Capability/person			Generation (MWh)	3,379,798	28
(KWe/person)	1.92	46	Share of Generation (Percent) . .	8.7	21
Generation/person					
(MWh/person)	9.79	39			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	94	28			
Nitrogen Oxide	135	21			
Carbon Dioxide	38,142	23			
Sulfur Dioxide/sq. mile (Tons)	0.91	38			
Nitrogen Oxides/sq. mile (Tons)	1.3	37			
Carbon Dioxide/sq. mile (Tons)	367.7	38			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Craig	Coal	Tri-State G & T Assn Inc	1,264	19
2. Cherokee	Coal	Public Service Co of Colorado	723	41
3. Comanche	Coal	Public Service Co of Colorado	660	25
4. Pawnee	Coal	Public Service Co of Colorado	495	17
5. Hayden	Coal	Public Service Co of Colorado	446	33

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Public Service Co of Colorado	1,344	514	592	208	30
B. Colorado Springs Utilities	200	71	54	66	9
C. Intermountain Rural Elec Assn	88	60	24	4	1
D. UtiliCorp United, Inc	86	35	31	16	4
E. Fort Collins Utilities	55	20	21	13	*
Total	1,773	700	722	307	43
Percentage of Utility Sales	75	74	80	71	57

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	7,048	6,648	6,937	-0.2	95.5	95.3	91.1
Coal-fired	4,965	4,950	4,963	*	67.3	71.0	65.2
Petroleum-fired	336	141	142	-9.1	4.6	2.0	1.9
Gas-fired	8	1	230	45.2	0.1	*	3.0
Dual-fired	467	459	426	-1.0	6.3	6.6	5.6
Nuclear	217	--	--	--	2.9	--	--
Hydroelectric	1,055	1,098	1,176	1.2	14.3	15.7	15.5
Total Nonutility	329	326	676	8.3	4.5	4.7	8.9
Industry	7,377	6,974	7,613	0.4	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

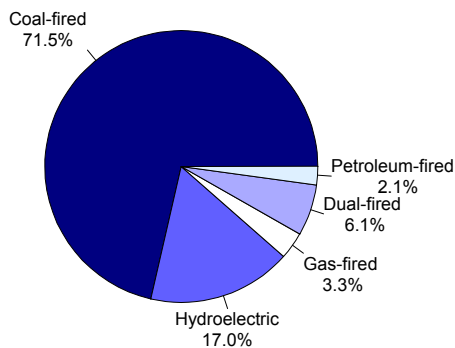


Figure 2. Utility Generation by Primary Energy Source, 1998

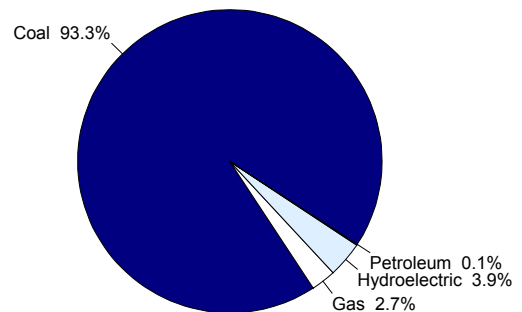


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	30,894,941	32,687,317	35,471,294	1.5	95.6	95.5	91.3
Coal	27,800,715	30,456,351	33,079,201	2.0	86.1	89.0	85.1
Petroleum	38,762	8,898	36,736	-0.6	0.1	*	0.1
Gas	648,805	364,237	963,657	4.5	2.0	1.1	2.5
Nuclear	659,680	--	--	--	2.0	--	--
Hydroelectric	1,744,489	1,857,831	1,391,700	-2.5	5.4	5.4	3.6
Renewable	2,490	--	--	--	*	--	--
Total Nonutility Industry	1,410,086	1,544,413	3,379,798	10.2	4.4	4.5	8.7
Industry	32,305,027	34,231,731	38,851,092	2.1	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	106.6	109.2	98.7	-0.8
Petroleum	384.8	480.6	--	*
Gas	228.7	250.1	300.3	3.1

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	84	85	94	1.3
Nitrogen Oxides ^c	137	130	135	-0.1
Carbon Dioxide ^c	30,903	33,476	38,142	2.4

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

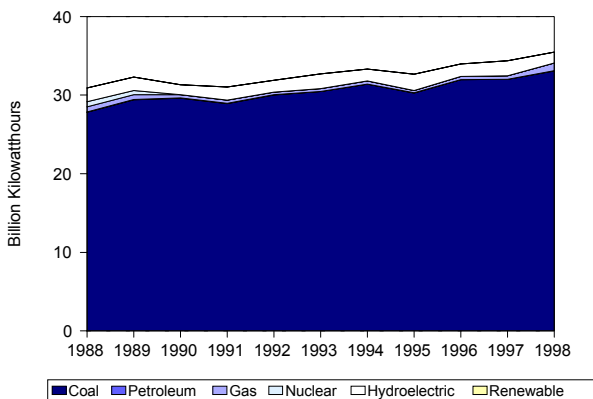


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

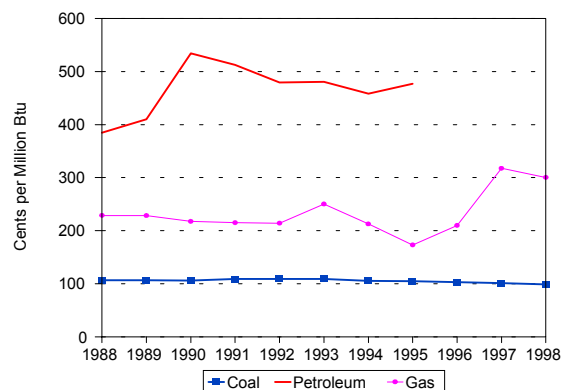


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

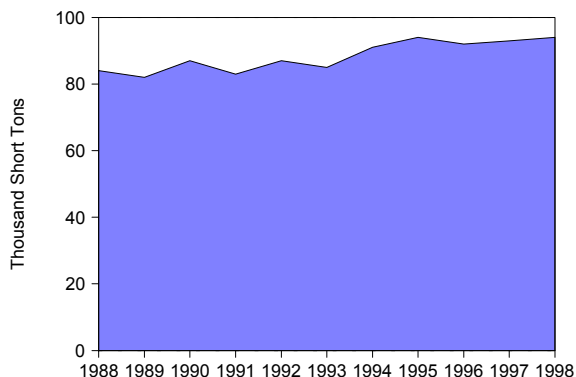


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

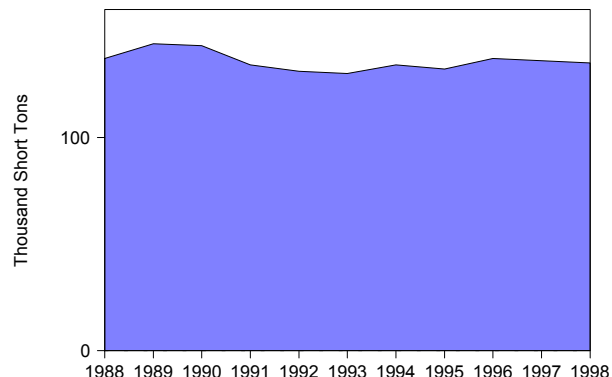


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

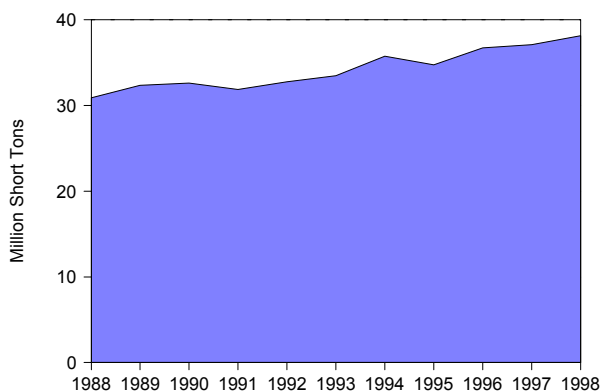


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	9,550,543	10,655,734	12,651,635	3.2	32.6	32.3	32.0
Commercial ..	12,682,683	14,422,396	15,959,287	2.6	43.2	43.8	40.3
Industrial	6,295,433	7,024,007	9,998,404	5.3	21.5	21.3	25.3
Other	806,317	855,666	965,111	2.0	2.8	2.6	2.4
Total	29,334,976	32,957,803	39,574,437	3.4	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

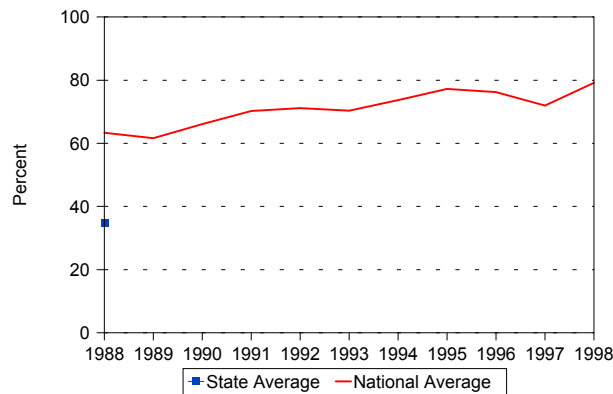


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	2	29	1	26	58
Number of Retail Customers	1,009,950	277,202	16	284,722	1,571,890
Retail Sales (MWh)	18,896,577	4,861,605	31,661	5,545,133	29,334,976
Percentage of Retail Sales	64.4	16.6	0.1	18.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,394	323	1	473	2,191
Percentage of Revenue	63.6	14.7	0.1	21.6	100.0
1993					
Number of Utilities	2	29	1	26	58
Number of Retail Customers	1,090,268	295,738	15	324,044	1,710,065
Retail Sales (MWh)	20,729,877	5,620,801	81,698	6,525,427	32,957,803
Percentage of Retail Sales	62.9	17.1	0.2	19.8	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,367	326	1	501	2,196
Percentage of Revenue	62.3	14.8	0.1	22.8	100.0
1998					
Number of Utilities	2	29	1	28	60
Number of Retail Customers	1,241,764	334,365	12	411,355	1,987,496
Retail Sales (MWh)	24,063,143	7,001,669	83,852	8,425,773	39,574,437
Percentage of Retail Sales	60.8	17.7	0.2	21.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,430	375	1	550	2,357
Percentage of Revenue	60.7	15.9	0.1	23.4	100.0

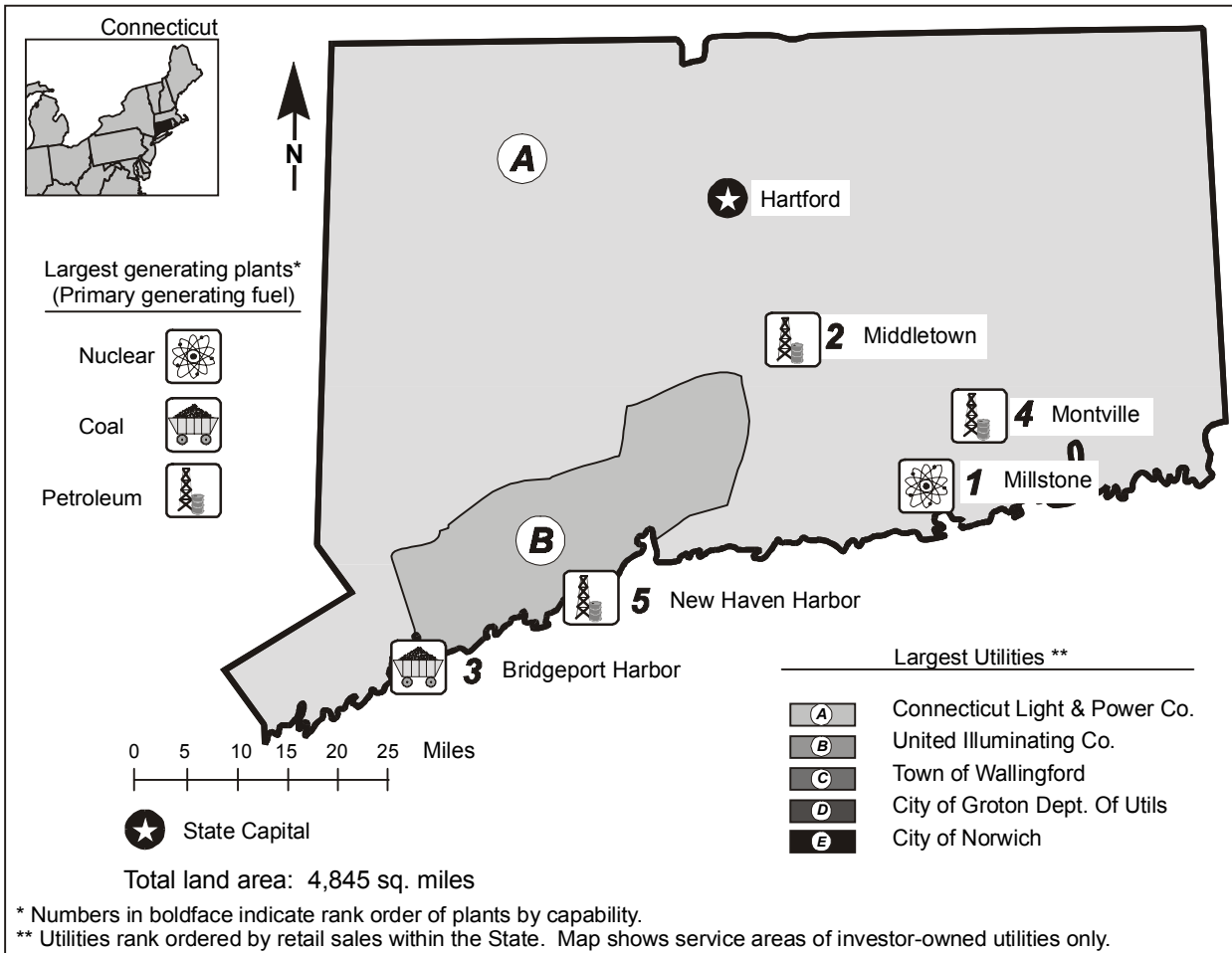


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		NPCC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	5,616	36
Primary Generating Fuel		Petroleum	Generation (MWh)	15,122,925	41
Population (as of 7/98)	3,272,563	29	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	10.30	48	Coal-fired	30	
Industrial	7.70	47	Petroleum-fired	31	
Commercial	10.01	45	Gas-fired	27	
Residential	11.95	47	Nuclear	17	
Industry			Hydroelectric	65	
Capability (MW)	6,565	34	Nonutility		
Generation (MWh)	19,669,157	41	Capability (MW)	949	20
Capability/person			Share of Capability (Percent) . . .	14.5	13
(KWe/person)	2.01	43	Generation (MWh)	4,546,232	22
Generation/person			Share of Generation (Percent) . .	23.1	8
(MWh/person)	6.01	49			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	48	37			
Nitrogen Oxide	22	40			
Carbon Dioxide	14,830	39			
Sulfur Dioxide/sq. mile (Tons)	9.88	14			
Nitrogen Oxides/sq. mile (Tons)	4.62	17			
Carbon Dioxide/sq. mile (Tons)	3,060.89	9			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Millstone	Nuclear	Northeast Nuclear Energy Co	2,011	23
2. Middletown	Petroleum	Connecticut Light & Power Co	770	44
3. Bridgeport Harbor	Coal, Petroleum	United Illuminating Co	646	41
4. Montville	Petroleum	Connecticut Light & Power Co	497	44
5. New Haven Harbor	Petroleum	United Illuminating Co	466	23

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Connecticut Light & Power Co	2,214	998	876	303	37
B. United Illuminating Company	632	263	255	102	12
C. Town of Wallingford	43	15	14	13	2
D. City of Groton Dept of Utils	40	9	9	21	1
E. City of Norwich	30	12	10	7	2
Total	2,958	1,297	1,163	445	53
Percentage of Utility Sales	99	99	99	99	91

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	7,128	6,754	5,616	-2.6	92.0	91.9	85.5
Coal-fired	385	385	385	0.0	5.0	5.2	5.9
Petroleum-fired	2,796	2,429	2,197	-2.6	36.1	33.0	33.5
Dual-fired	528	528	888	5.9	6.8	7.2	13.5
Nuclear	3,217	3,211	2,011	-5.1	41.5	43.7	30.6
Hydroelectric	138	137	136	-0.2	1.8	1.9	2.1
Renewable	64	64	--	--	0.8	0.9	--
Total Nonutility	620	599	949	4.8	8.0	8.1	14.5
Industry	7,748	7,353	6,565	-1.8	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

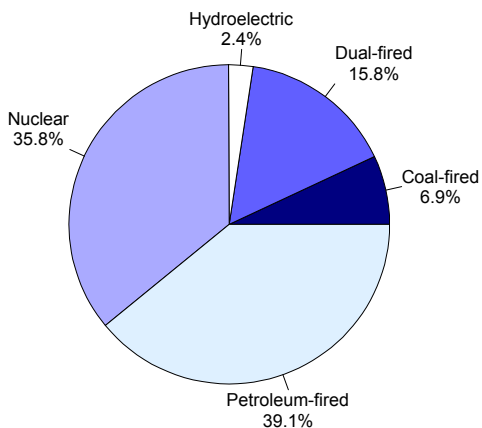


Figure 2. Utility Generation by Primary Energy Source, 1998

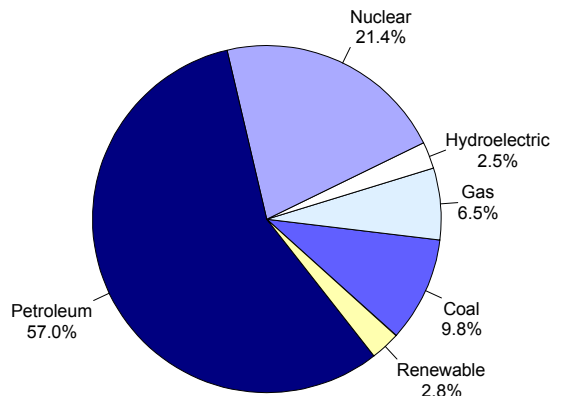


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	36,378,531	28,714,867	15,122,925	-9.3	93.4	87.3	76.9
Coal	2,094,380	1,907,826	1,482,608	-3.8	5.4	5.8	7.5
Petroleum	11,356,097	4,206,354	8,608,001	-3.0	29.1	12.8	43.8
Gas	111,427	47,401	977,388	27.3	0.3	0.1	5.0
Nuclear	22,250,850	21,801,782	3,243,003	-19.3	57.1	66.3	16.5
Hydroelectric	324,276	345,409	384,536	1.9	0.8	1.1	2.0
Renewable	241,500	406,095	427,389	6.5	0.6	1.2	2.2
Total Nonutility	2,589,298	4,161,533	4,546,232	6.5	6.6	12.7	23.1
Industry	38,967,828	32,876,400	19,669,157	-7.3	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	228.6	170.4	181.1	-2.5
Petroleum	239.7	239.8	218.7	-1.0
Gas	217.4	377.8	236.9	1.0

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	61	30	48	-2.6
Nitrogen Oxides ^c	21	10	22	0.5
Carbon Dioxide ^c	12,103	6,597	14,830	2.3

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

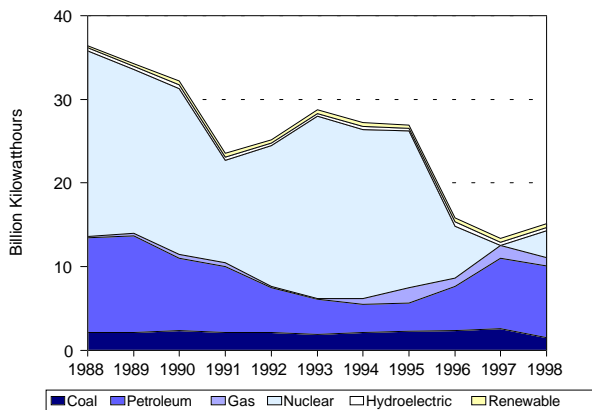


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998
(1998 Dollars)

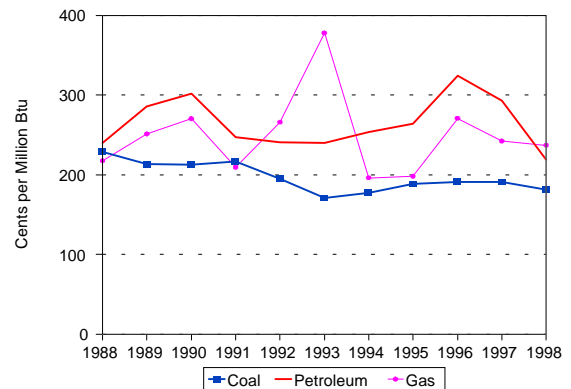


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

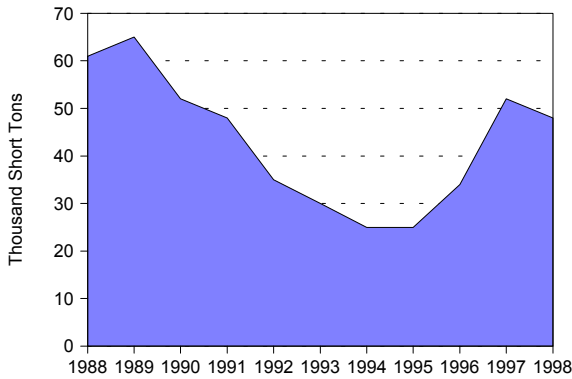


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

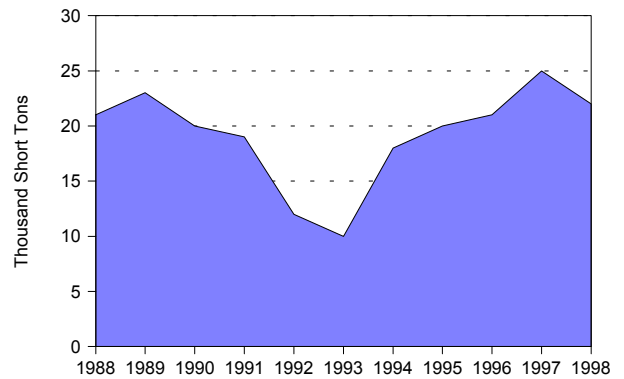


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

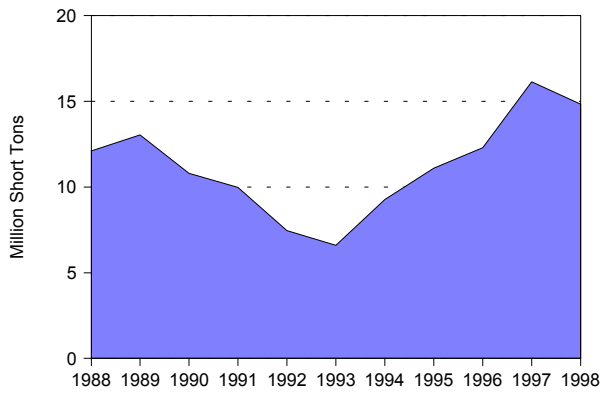


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	10,300,314	10,596,641	10,934,821	0.7	38.3	38.9	37.8
Commercial ..	9,961,196	10,676,841	11,683,481	1.8	37.0	39.2	40.3
Industrial	6,305,365	5,597,348	5,837,521	-0.8	23.4	20.5	20.2
Other	356,303	367,657	500,321	3.8	1.3	1.3	1.7
Total	26,923,175	27,238,487	28,956,144	0.8	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

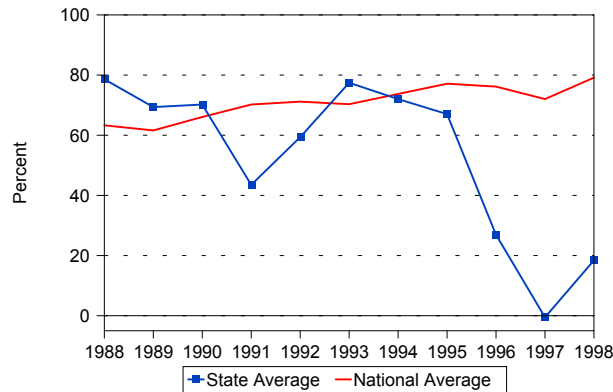


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	5	6	--	--	11
Number of Retail Customers	1,344,245	61,426	--	--	1,405,671
Retail Sales (MWh)	25,420,254	1,502,921	--	--	26,923,175
Percentage of Retail Sales	94.4	5.6	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,710	144	--	--	2,855
Percentage of Revenue	94.9	5.1	--	--	100.0
	1993				
Number of Utilities	4	6	--	--	10
Number of Retail Customers	1,385,986	61,606	--	--	1,447,592
Retail Sales (MWh)	25,663,250	1,575,237	--	--	27,238,487
Percentage of Retail Sales	94.2	5.8	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,940	138	--	--	3,077
Percentage of Revenue	95.5	4.5	--	--	100.0
	1998				
Number of Utilities	3	7	--	--	10
Number of Retail Customers	1,425,324	66,324	--	--	1,491,648
Retail Sales (MWh)	27,179,219	1,776,925	--	--	28,956,144
Percentage of Retail Sales	93.9	6.1	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,846	137	--	--	2,983
Percentage of Revenue	95.4	4.6	--	--	100.0

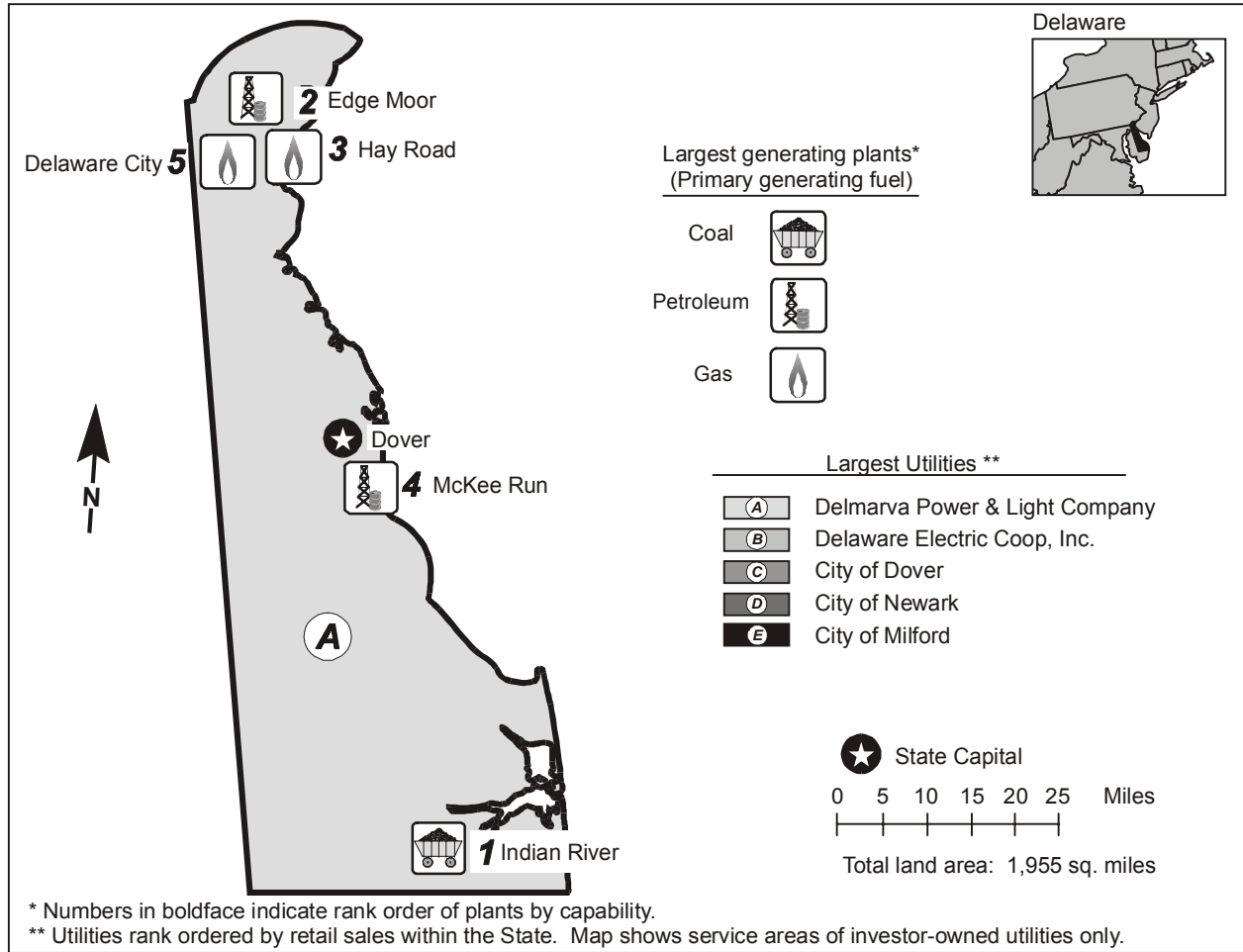


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		MACC	Utility		
Net Exporter or Importer		Importer	Capacity (MW)	2,285	45
Primary Generating Fuel		Coal	Generation (MWh)	6,317,738	45
Population (as of 7/98)	744,066	45	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.88	33	Coal-fired	28	
Industrial	4.65	35	Petroleum-fired	25	
Commercial	7.07	33	Gas-fired	7	
Residential	9.13	38	Nonutility		
Industry			Capacity (MW)	168	42
Capability (MW)	2,452	46	Share of Capability (Percent) . . .	6.8	26
Generation (MWh)	6,898,584	48	Generation (MWh)	580,846	44
Capability/person			Share of Generation (Percent) . .	8.4	23
(KWe/person)	3.3	21			
Generation/person					
(MWh/person)	9.27	41			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	35	39			
Nitrogen Oxide	16	43			
Carbon Dioxide	6,439	43			
Sulfur Dioxide/sq. mile (Tons)	17.92	8			
Nitrogen Oxides/sq. mile (Tons)	8.17	6			
Carbon Dioxide/sq. mile (Tons)	3,293.72	7			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Indian River	Coal	Delmarva Power & Light Co	784	41
2. Edge Moor	Petroleum, Coal	Delmarva Power & Light Co	718	44
3. Hay Road	Gas	Delmarva Power & Light Co	511	9
4. McKee Run	Petroleum	Dover City of	136	36
5. Delaware City	Gas	Star Enterprises	135	42

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Delmarva Power & Light Company ...	548	217	188	138	5
B. Delaware Electric Coop, Inc	62	53	8	1	1
C. City of Dover	47	14	17	15	1
D. City of Newark	23	7	5	11	--
E. City of Milford	12	4	3	4	--
Total	691	295	221	169	7
Percentage of Utility Sales	97	97	97	96	100

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	1,765	2,269	2,285	2.9	90.9	92.8	93.2
Coal-fired	919	931	1,027	1.2	47.3	38.1	41.9
Petroleum-fired	162	124	572	15.1	8.3	5.1	23.3
Gas-fired	--	399	175	--	--	16.3	7.1
Dual-fired	684	815	511	-3.2	35.2	33.3	20.8
Total Nonutility	177	177	168	-0.6	9.1	7.2	6.8
Industry	1,942	2,446	2,452	2.6	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

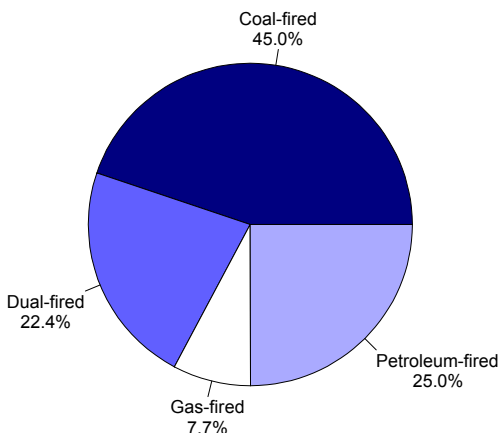


Figure 2. Utility Generation by Primary Energy Source, 1998

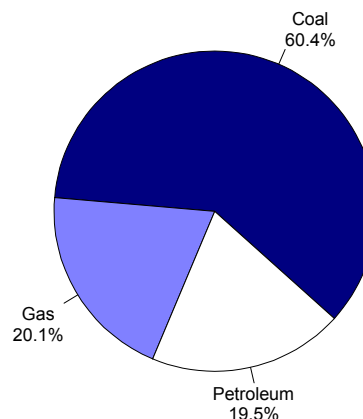


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	8,952,557	8,306,462	6,317,738	-3.8	91.7	92.1	91.6
Coal	5,788,202	5,185,396	3,811,669	-4.5	59.3	57.5	55.3
Petroleum	2,847,606	2,094,383	1,234,464	-8.9	29.2	23.2	17.9
Gas	316,748	1,026,683	1,271,605	16.7	3.2	11.4	18.4
Total Nonutility Industry	811,827	711,219	580,846	-3.7	8.3	7.9	8.4
Industry	9,764,383	9,017,681	6,898,584	-3.8	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	180.6	169.0	156.3	-1.6
Petroleum	232.1	230.0	214.7	-0.9
Gas	242.1	260.9	297.7	2.3

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	88	50	35	-9.7
Nitrogen Oxides ^c	32	25	16	-7.6
Carbon Dioxide ^c	10,303	8,238	6,439	-5.1

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

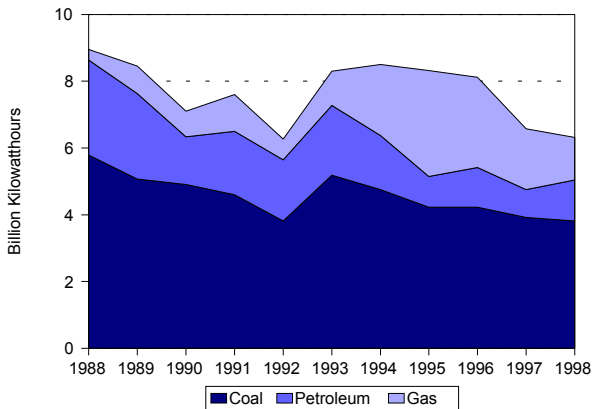


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

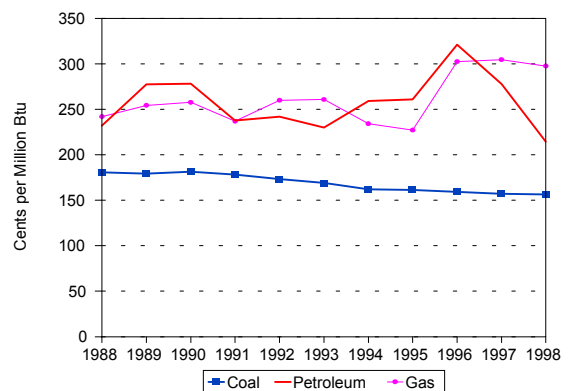


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

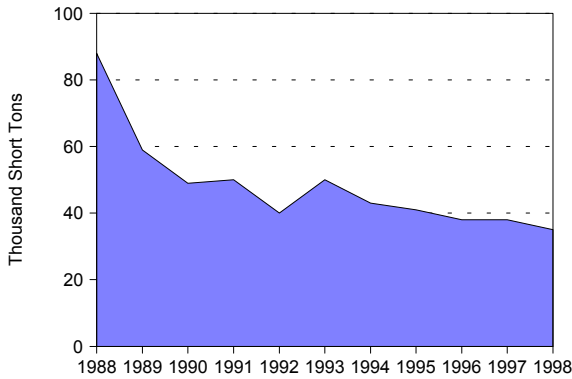


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

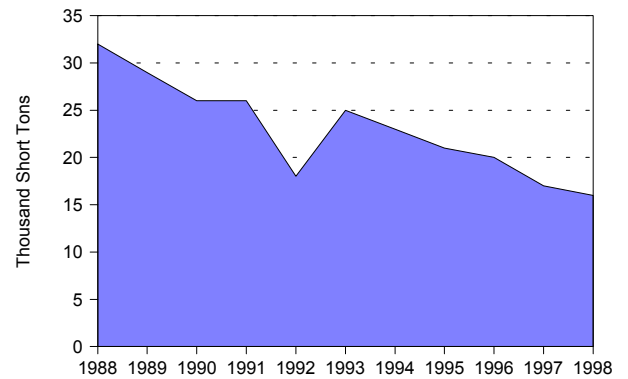


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

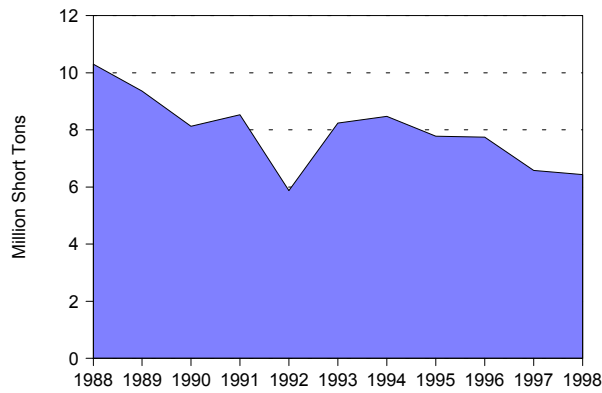


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	2,533,100	3,043,825	3,338,949	3.1	33.6	33.4	32.1
Commercial ..	2,109,184	2,604,586	3,226,801	4.8	28.0	28.6	31.0
Industrial	2,853,803	3,416,811	3,779,148	3.2	37.8	37.5	36.3
Other	47,259	55,912	52,927	1.3	0.6	0.6	0.5
Total	7,543,346	9,121,134	10,397,825	3.6	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

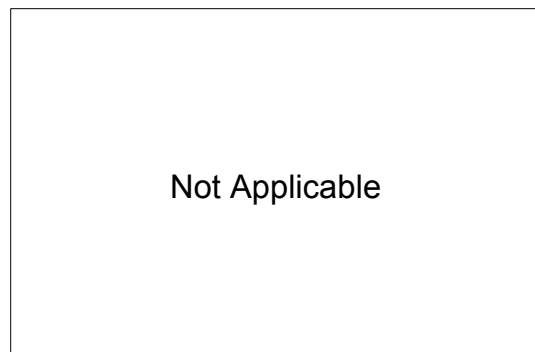


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	1	9	--	1	11
Number of Retail Customers	215,380	40,892	--	40,803	297,075
Retail Sales (MWh)	6,090,799	996,447	--	456,100	7,543,346
Percentage of Retail Sales	80.7	13.2	--	6.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	500	91	--	44	636
Percentage of Revenue	78.7	14.4	--	6.9	100.0
	1993				
Number of Utilities	1	9	--	1	11
Number of Retail Customers	239,137	45,030	--	48,180	332,347
Retail Sales (MWh)	7,360,303	1,173,212	--	587,619	9,121,134
Percentage of Retail Sales	80.7	12.9	--	6.4	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	536	105	--	60	701
Percentage of Revenue	76.5	15.0	--	8.5	100.0
	1998				
Number of Utilities	1	9	--	1	11
Number of Retail Customers	259,652	48,049	--	55,142	362,843
Retail Sales (MWh)	8,262,529	1,434,913	--	700,383	10,397,825
Percentage of Retail Sales	79.5	13.8	--	6.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	548	106	--	62	716
Percentage of Revenue	76.6	14.8	--	8.6	100.0

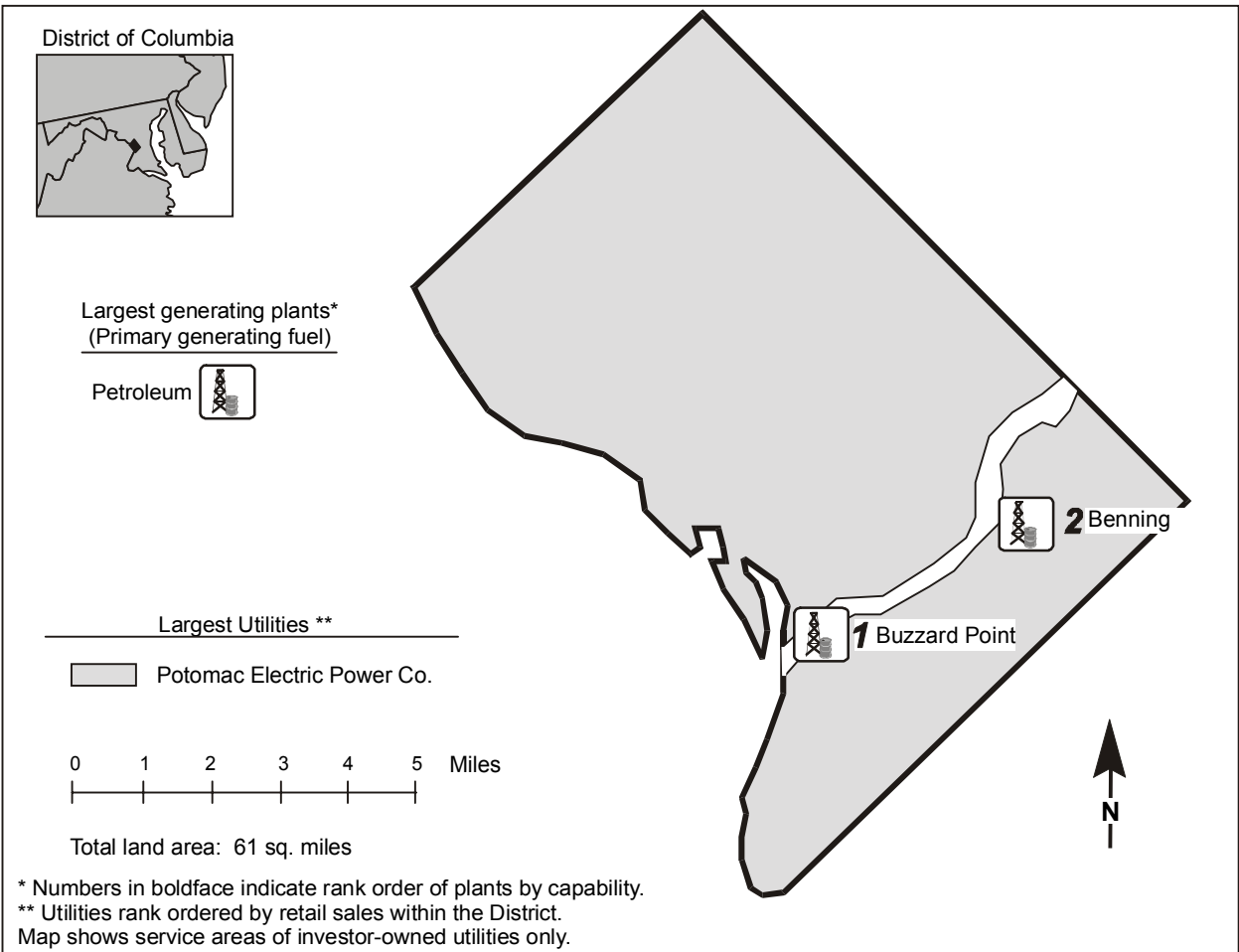


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		MAAC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	806	49
Primary Generating Fuel		Petroleum	Generation (MWh)	243,975	51
Population (as of 7/98)	521,426	50	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	7.41	38	Petroleum-fired	29	
Industrial	4.38	27	Nonutility		
Commercial	7.43	34	Capability (MW)	0	50
Residential	8	30	Share of Capability (Percent) . . .	0.0	50
Industry			Generation (Mwh)	0	50
Capability (MW)	806	51	Share of Generation (Percent) . .	0.0	50
Generation (MWh)	243,975	51			
Capability/person					
(KWe/person)	1.55	50			
Generation/person					
(MWh/person)	0.47	51			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	1	46			
Nitrogen Oxide	*	50			
Carbon Dioxide	267	49			
Sulfur Dioxide/sq. mile (Tons)	18.36	7			
Nitrogen Oxides/sq. mile (Tons)	4.67	16			
Carbon Dioxide/sq. mile (Tons)	4,384.05	1			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Benning	Petroleum	Potomac Electric Power Co	550	30
2. Buzzard Point	Petroleum	Potomac Electric Power Co	256	30

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Potomac Electric Power Company	762	128	598	11	24
Total	762	128	598	11	24
Percentage of Utility Sales	100	100	100	100	100

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	806	806	806	--	99.7	99.7	100.0
Petroleum-fired	806	806	806	*	99.7	99.7	100.0
Total Nonutility	3	3	--	*	0.3	0.3	--
Industry	809	809	806	*	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

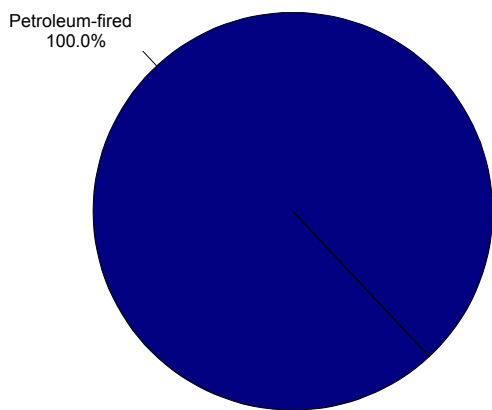


Figure 2. Utility Generation by Primary Energy Source, 1998

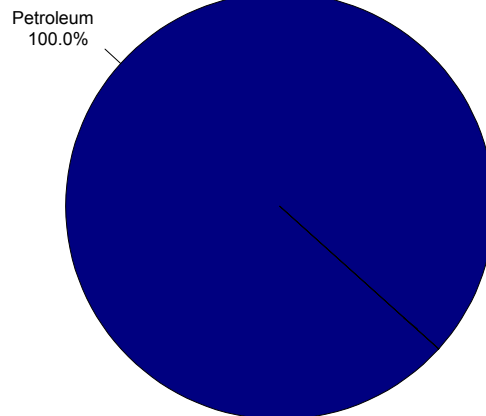


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	468,908	188,452	243,975	-7	100.0	100.0	100.0
Petroleum	468,908	188,452	243,975	-7	100.0	100.0	100.0
Industry	468,908	188,452	243,975	-7	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Petroleum	278.9	303.8	252.9	-1.1

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	3	1	1	-9.3
Nitrogen Oxides ^c	*	*	*	-5.6
Carbon Dioxide ^c	441	227	267	-5.4

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

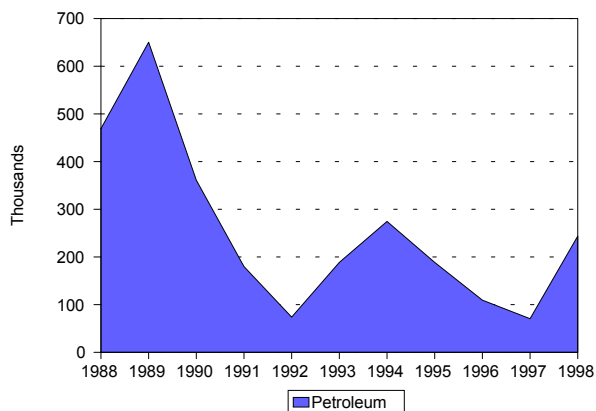


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

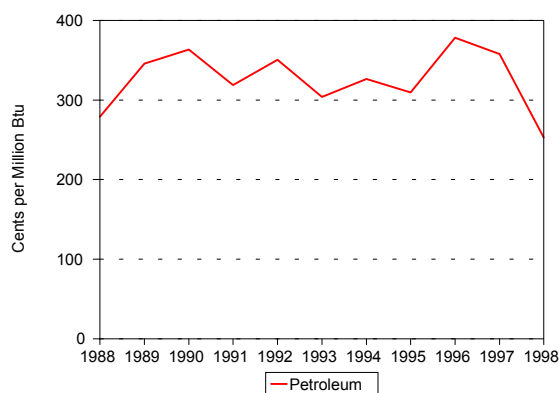


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

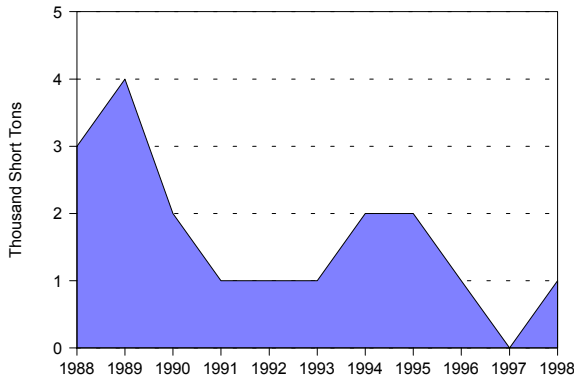


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

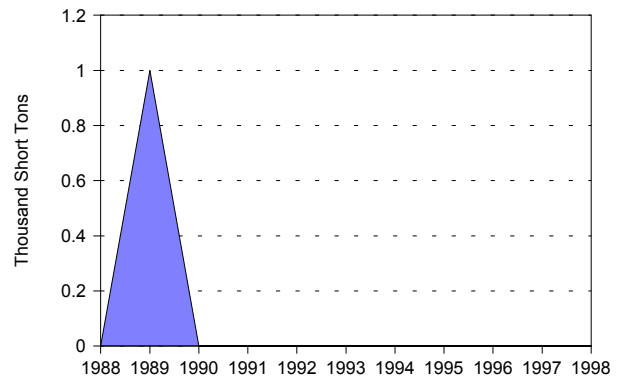


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

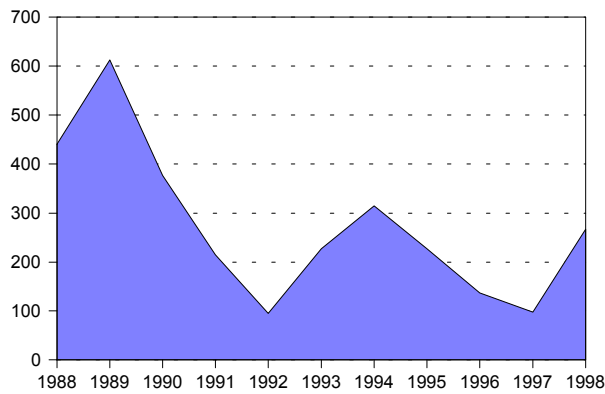


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998 (Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	1,465,416	1,634,807	1,595,611	0.9	15.6	15.8	15.5
Commercial ..	4,792,629	5,417,566	8,051,297	5.9	51.1	52.2	78.3
Industrial	2,809,108	2,976,390	261,869	-23.2	29.9	28.7	2.5
Other	312,410	345,859	372,290	2.0	3.3	3.3	3.6
Total	9,379,563	10,374,622	10,281,067	1.0	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

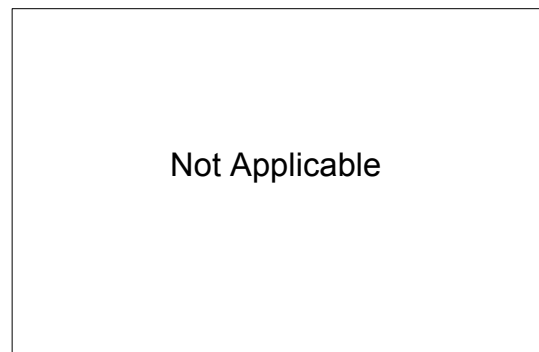


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	1	--	--	--	1
Number of Retail Customers	213,652	--	--	--	213,652
Retail Sales (MWh)	9,379,563	--	--	--	9,379,563
Percentage of Retail Sales	100.0	--	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	729	--	--	--	729
Percentage of Revenue	100.0	--	--	--	100.0
1993					
Number of Utilities	1	--	--	--	1
Number of Retail Customers	220,542	--	--	--	220,542
Retail Sales (MWh)	10,374,622	--	--	--	10,374,622
Percentage of Retail Sales	100.0	--	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	774	--	--	--	774
Percentage of Revenue	100.0	--	--	--	100.0
1998					
Number of Utilities	1	--	--	--	1
Number of Retail Customers	220,169	--	--	--	220,169
Retail Sales (MWh)	10,281,067	--	--	--	10,281,067
Percentage of Retail Sales	100.0	--	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	762	--	--	--	762
Percentage of Revenue	100.0	--	--	--	100.0

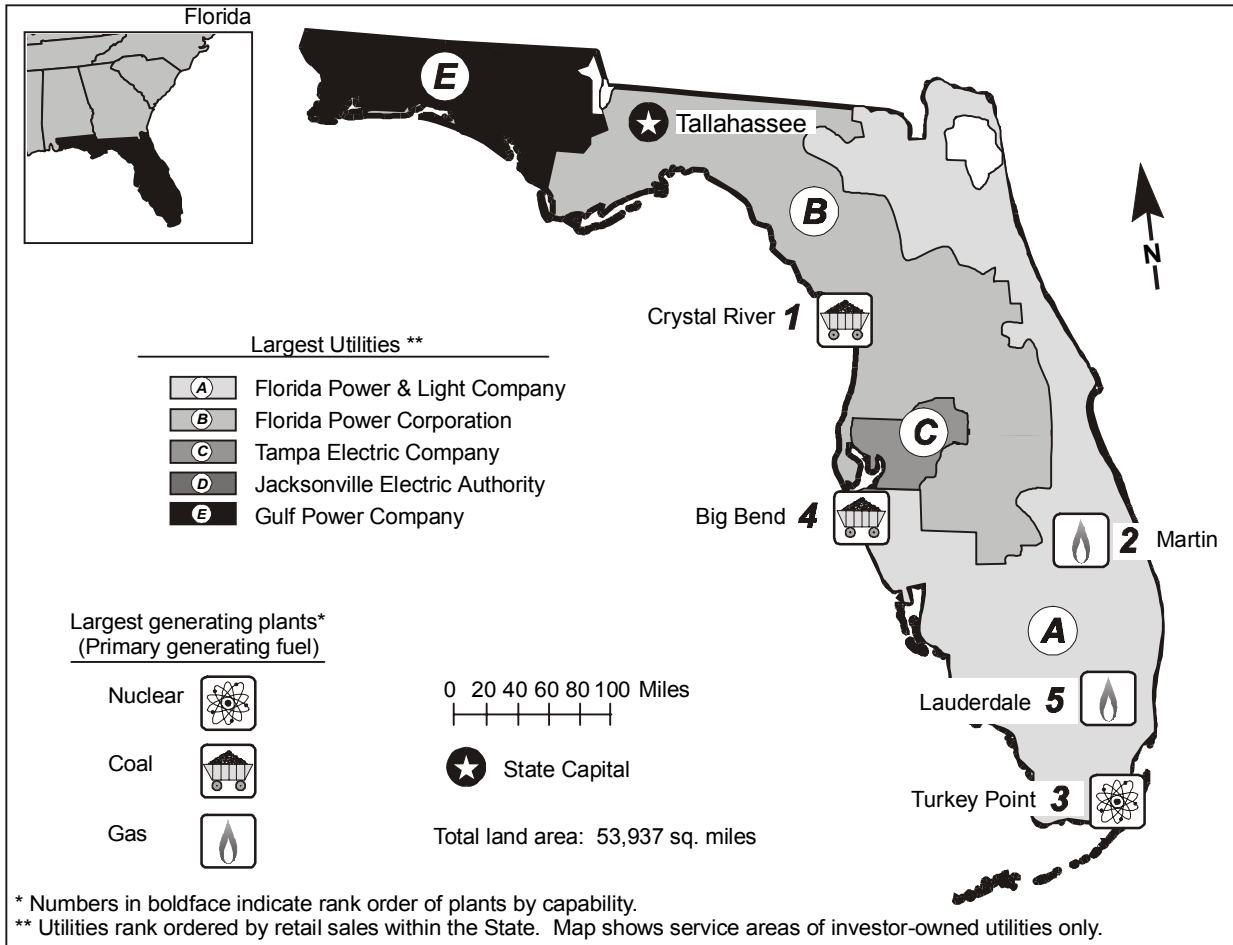


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		FRCC/SERC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	36,472	2
Primary Generating Fuel		Coal	Generation (MWh)	169,447,167	3
Population (as of 7/98)	14,908,230	4	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	7.01	35	Coal-fired	20	
Industrial	4.81	36	Petroleum-fired	27	
Commercial	6.38	23	Gas-fired	22	
Residential	7.89	29	Nuclear	22	
Industry			Hydroelectric	34	
Capability (MW)	40,151	3	Renewable	1	
Generation (MWh)	189,458,656	3	Nonutility		
Capability/person			Capability (MW)	3,679	5
(KWe/person)	2.69	31	Share of Capability (Percent) . . .	9.2	20
Generation/person			Generation (MWh)	20,011,489	5
(MWh/person)	12.71	29	Share of Generation (Percent) . .	10.6	17
Emissions (Thousand Short Tons)					
Sulfur Dioxide	710	6			
Nitrogen Oxide	373	4			
Carbon Dioxide	133,115	3			
Sulfur Dioxide/sq. mile (Tons)	13.17	9			
Nitrogen Oxides/sq. mile (Tons)	6.92	9			
Carbon Dioxide/sq. mile (Tons)	2,467.97	12			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Crystal River	Coal, Nuclear	Florida Power Corp	3,032	32
2. Martin	Gas	Florida Power & Light Co	2,505	18
3. Turkey Point	Nuclear, Petroleum	Florida Power & Light Co	2,210	31
4. Big Bend	Coal	Tampa Electric Co	1,838	29
5. Lauderdale	Gas	Florida Power & Light Co	1,700	41

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Florida Power & Light Company	6,097	3,579	2,239	197	82
B. Florida Power Corporation	2,390	1,425	609	214	142
C. Tampa Electric Company	1,098	563	335	113	87
D. Jacksonville Electric Auth	608	315	181	105	6
E. Gulf Power Company	509	276	161	70	2
Total	10,702	6,158	3,525	700	319
Percentage of Utility Sales	82	81	82	79	83

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	32,363	34,814	36,472	1.3	94.0	92.9	90.8
Coal-fired	9,833	10,030	10,676	0.9	28.6	26.8	26.6
Petroleum-fired	8,243	6,736	6,210	-3.1	23.9	18.0	15.5
Gas-fired	785	1,825	2,851	15.4	2.3	4.9	7.1
Dual-fired	9,781	12,350	12,816	3.0	28.4	32.9	31.9
Nuclear	3,676	3,826	3,869	0.6	10.7	10.2	9.6
Hydroelectric	46	47	47	0.3	0.1	0.1	0.1
Renewable	--	--	3	--	--	--	*
Total Nonutility	2,071	2,675	3,679	6.6	6.0	7.1	9.2
Industry	34,434	37,489	40,151	1.7	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

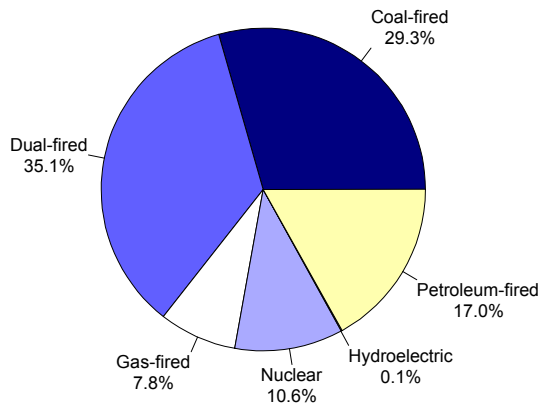


Figure 2. Utility Generation by Primary Energy Source, 1998

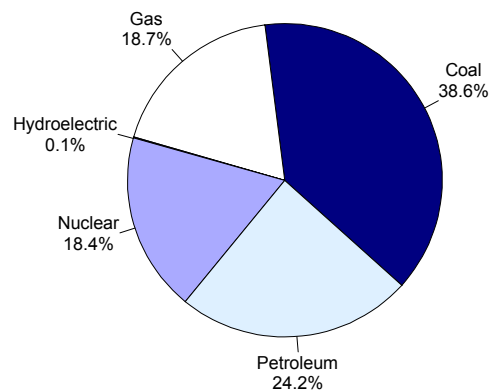


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	124,053,312	140,066,943	169,447,167	3.5	92.3	92.1	89.4
Coal	57,515,607	61,889,050	65,470,151	1.4	42.8	40.7	34.6
Petroleum	25,386,722	34,277,523	40,952,580	5.5	18.9	22.5	21.6
Gas	14,743,647	17,802,730	31,710,512	8.9	11.0	11.7	16.7
Nuclear	26,198,037	25,886,864	31,115,419	1.9	19.5	17.0	16.4
Hydroelectric	209,299	210,776	198,505	-0.6	0.2	0.1	0.1
Total Nonutility Industry	10,369,937	11,957,697	20,011,489	7.6	7.7	7.9	10.6
Industry	134,423,249	152,024,640	189,458,656	3.9	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	177.7	176.7	164.8	-0.8
Petroleum	221.3	220.1	205.9	-0.8
Gas	210.1	234.1	276.2	3.1

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	707	719	710	0.1
Nitrogen Oxides ^c	292	308	373	2.8
Carbon Dioxide ^c	86,645	103,346	133,115	4.9

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

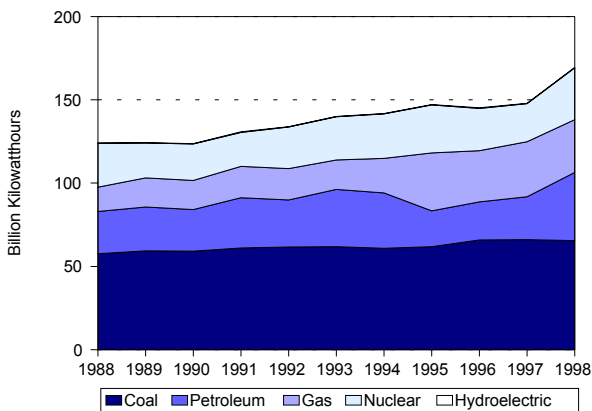


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

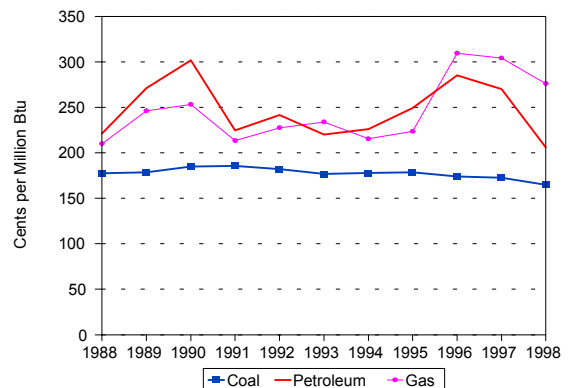


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

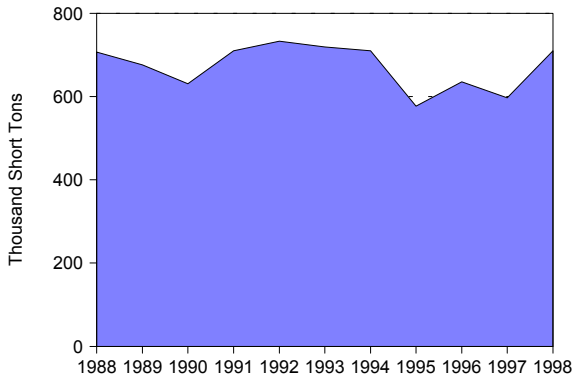


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

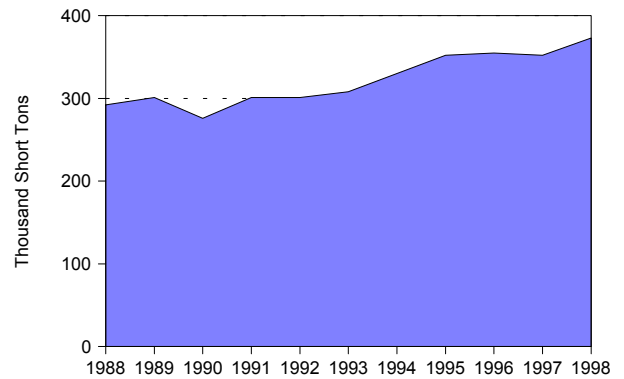


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

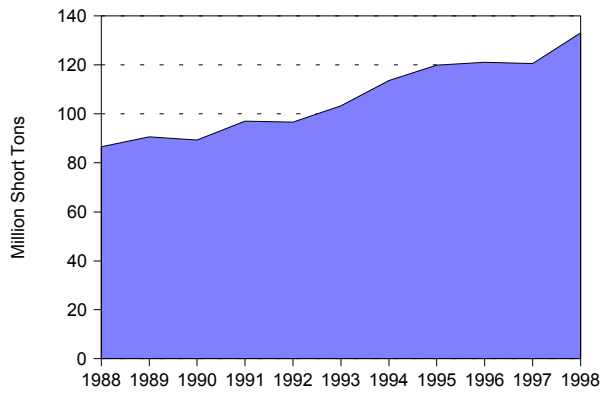


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	63,971,848	76,827,417	95,768,182	4.6	49.1	50.3	51.1
Commercial ..	45,892,365	54,875,680	67,346,460	4.3	35.2	35.9	35.9
Industrial	16,355,592	16,297,722	18,448,021	1.3	12.6	10.7	9.8
Other	4,020,963	4,747,000	5,791,929	4.1	3.1	3.1	3.1
Total	130,240,769	152,747,819	187,354,592	4.1	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

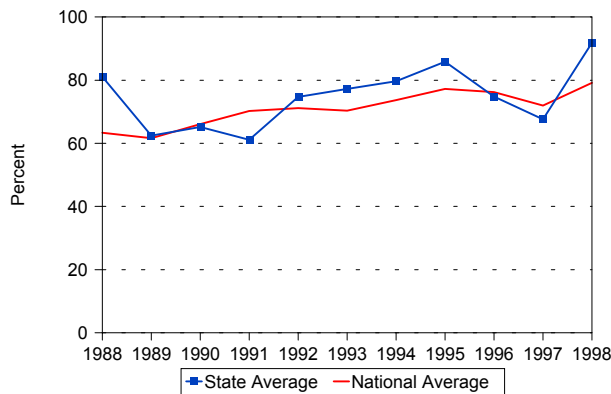


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	6	33	--	16	55
Number of Retail Customers	4,748,982	963,825	--	569,020	6,281,827
Retail Sales (MWh)	102,426,448	20,177,943	--	7,636,378	130,240,769
Percentage of Retail Sales	78.6	15.5	--	5.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	9,058	1,779	--	806	11,644
Percentage of Revenue	77.8	15.3	--	6.9	100.0
1993					
Number of Utilities	5	33	--	16	54
Number of Retail Customers	5,374,868	981,443	--	665,383	7,021,694
Retail Sales (MWh)	118,568,306	24,439,852	--	9,739,661	152,747,819
Percentage of Retail Sales	77.6	16.0	--	6.4	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	9,249	1,968	--	888	12,104
Percentage of Revenue	76.4	16.3	--	7.3	100.0
1998					
Number of Utilities	5	32	--	16	53
Number of Retail Customers	5,926,115	1,080,101	--	764,724	7,770,940
Retail Sales (MWh)	144,665,165	29,695,442	--	12,993,985	187,354,592
Percentage of Retail Sales	77.2	15.8	--	6.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	10,135	2,010	--	983	13,127
Percentage of Revenue	77.2	15.3	--	7.5	100.0

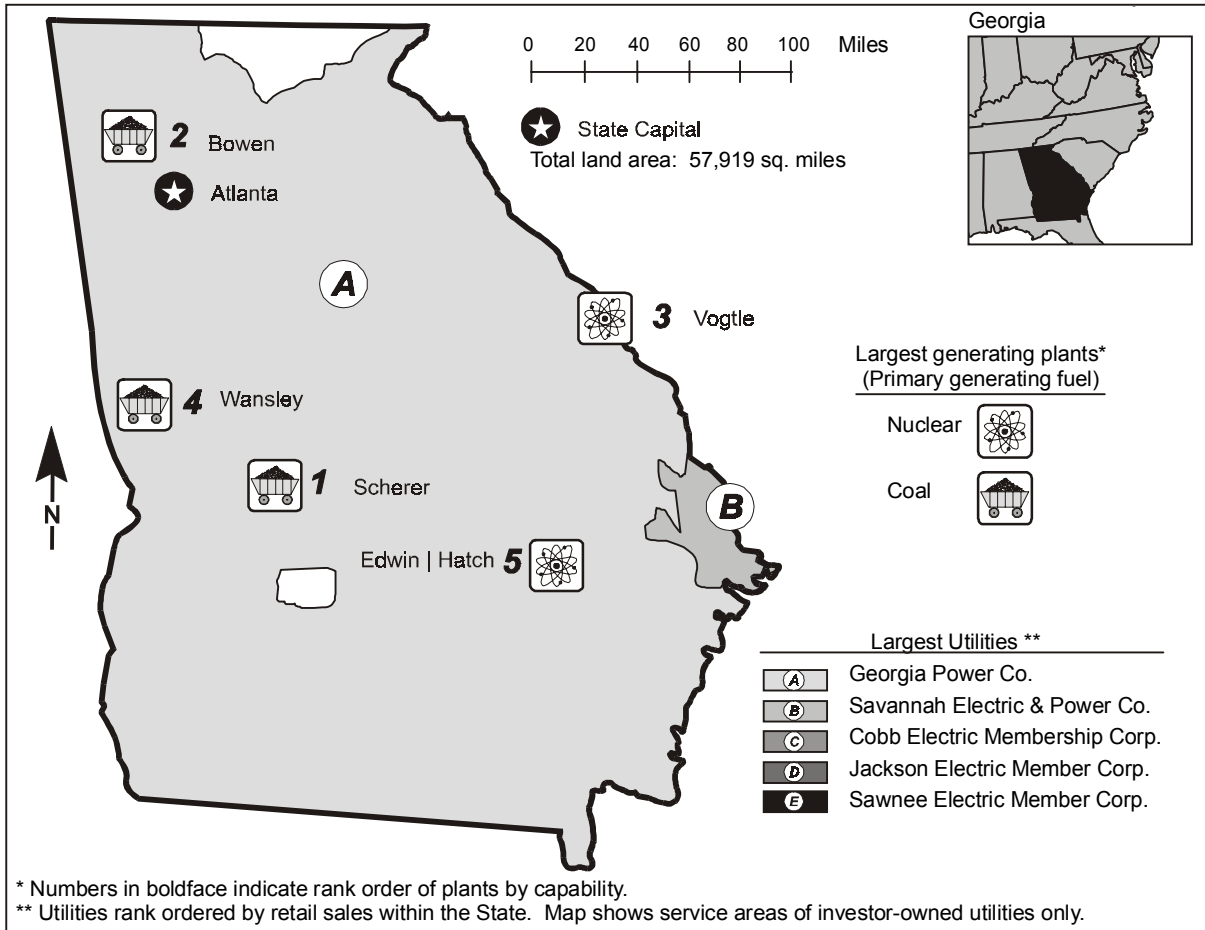


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SERC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	23,390	9
Primary Generating Fuel		Coal	Generation (MWh)	108,716,930	11
Population (as of 7/98)	7,636,522	10	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.40	30	Coal-fired	24	
Industrial	4.23	23	Petroleum-fired	28	
Commercial	7.01	32	Gas-fired	18	
Residential	7.67	28	Nuclear	15	
Industry			Hydroelectric	25	
Capability (MW)	25,082	9	Nonutility		
Generation (MWh)	115,327,447	11	Capability (MW)	1,692	14
Capability/person			Share of Capability (Percent) . . .	6.7	28
(KWe/person)	3.28	22	Generation (MWh)	6,610,517	15
Generation/person			Share of Generation (Percent) . .	5.7	28
(MWh/person)	15.1	24			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	483	10			
Nitrogen Oxide	217	12			
Carbon Dioxide	78,814	10			
Sulfur Dioxide/sq. mile (Tons)	8.35	16			
Nitrogen Oxides/sq. mile (Tons)	3.75	20			
Carbon Dioxide/sq. mile (Tons)	1,360.77	19			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Scherer	Coal	Georgia Power Co	3,443	16
2. Bowen	Coal	Georgia Power Co	3,302	27
3. Vogtle	Nuclear	Georgia Power Co	2,305	11
4. Wansley	Coal	Georgia Power Co	1,824	22
5. Edwin I Hatch	Nuclear	Georgia Power Co	1,642	23

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Georgia Power Company	4,298	1,487	1,591	1,171	49
B. Savannah Electric & Power Co	232	105	83	36	8
C. Cobb Electric Membership Corp	219	154	47	8	11
D. Jackson Electric Member Corp	200	125	51	16	8
E. Sawnee Electric Member Corp	131	94	29	5	2
Total	5,080	1,966	1,801	1,235	79
Percentage of Utility Sales	72	62	78	83	65

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	19,507	21,504	23,390	2.0	94.8	95.5	93.3
Coal-fired	12,848	13,115	13,540	0.6	62.4	58.2	54.0
Petroleum-fired	930	1,057	1,018	1.0	4.5	4.7	4.1
Gas-fired	5	33	35	24.1	0.0	0.1	0.1
Dual-fired	642	622	1,392	9.0	3.1	2.8	5.6
Nuclear	2,617	3,825	3,947	4.7	12.7	17.0	15.7
Hydroelectric	2,465	2,853	3,459	3.8	12.0	12.7	13.8
Total Nonutility	1,066	1,012	1,692	5.3	5.2	4.5	6.7
Industry	20,573	22,516	25,082	2.2	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

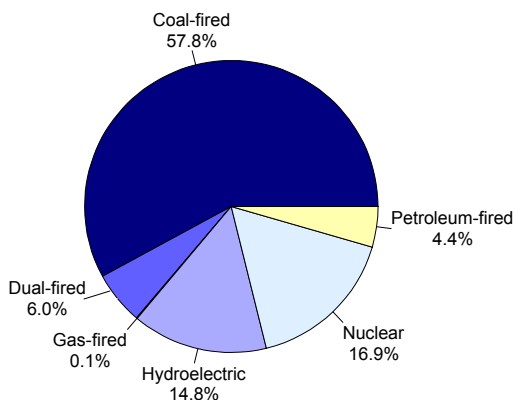


Figure 2. Utility Generation by Primary Energy Source, 1998

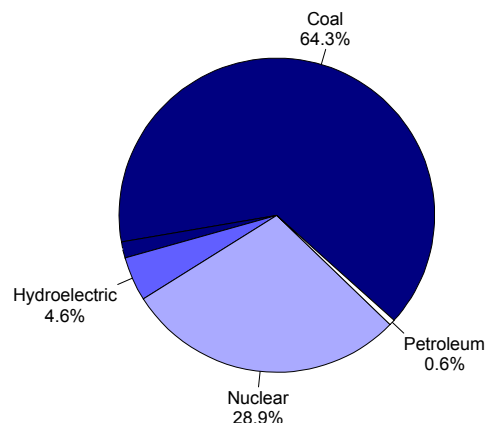


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	82,374,895	95,737,505	108,716,930	3.1	94.1	94.4	94.3
Coal	64,834,463	63,295,811	69,871,150	0.8	74.1	62.4	60.6
Petroleum	260,468	237,473	670,924	11.1	0.3	0.2	0.6
Gas	119,219	218,218	1,768,783	34.9	0.1	0.2	1.5
Nuclear	15,149,498	27,233,352	31,380,401	8.4	17.3	26.8	27.2
Hydroelectric	2,011,247	4,752,651	5,025,672	10.7	2.3	4.7	4.4
Total Nonutility Industry	5,164,479	5,704,786	6,610,517	2.8	5.9	5.6	5.7
Industry	87,539,374	101,442,291	115,327,447	3.1	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	174.7	178.2	154.5	-1.3
Petroleum	283.8	346.9	327.6	1.6
Gas	273.4	323.6	316.0	1.6

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	882	689	483	-6.5
Nitrogen Oxides ^c	223	183	217	-0.3
Carbon Dioxide ^c	65,387	62,422	78,814	2.1

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

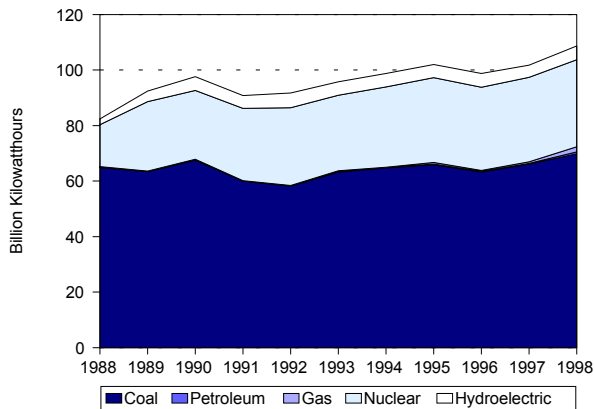


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

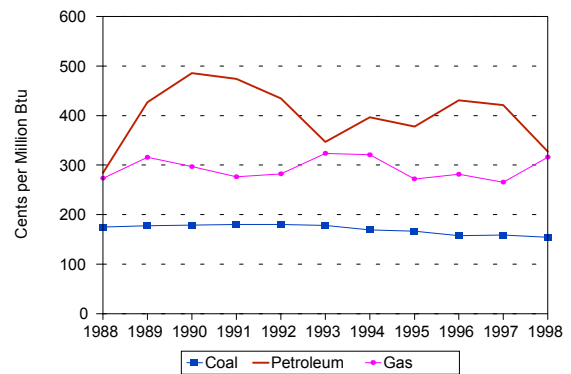


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

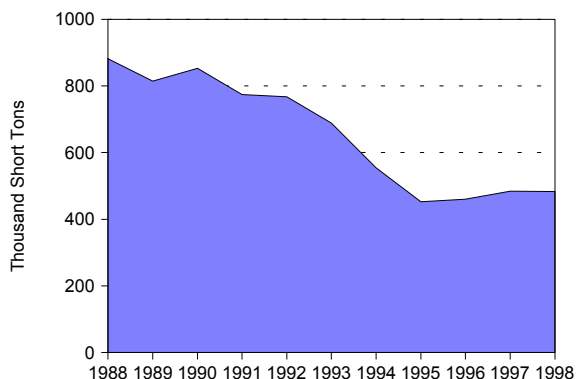


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

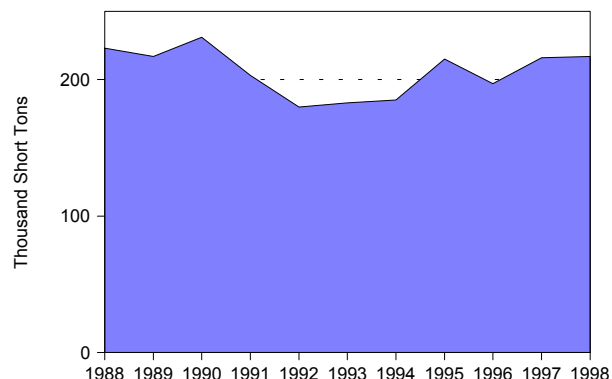


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

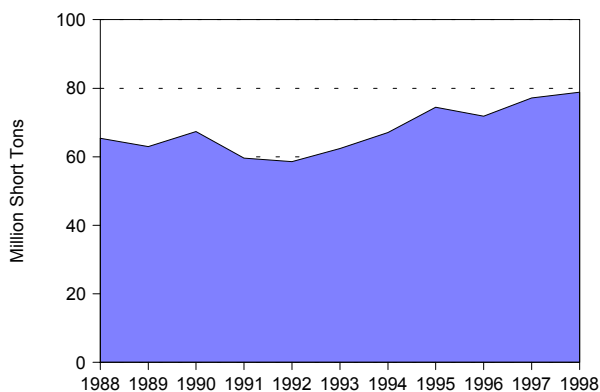


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	27,609,383	33,866,821	41,519,253	4.6	37.1	38.0	37.5
Commercial ..	19,850,266	25,168,564	32,766,468	5.7	26.7	28.2	29.6
Industrial	25,983,594	29,084,291	35,076,513	3.4	34.9	32.6	31.7
Other	903,007	1,071,365	1,358,089	4.6	1.2	1.2	1.2
Total	74,346,244	89,191,041	110,720,323	4.5	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

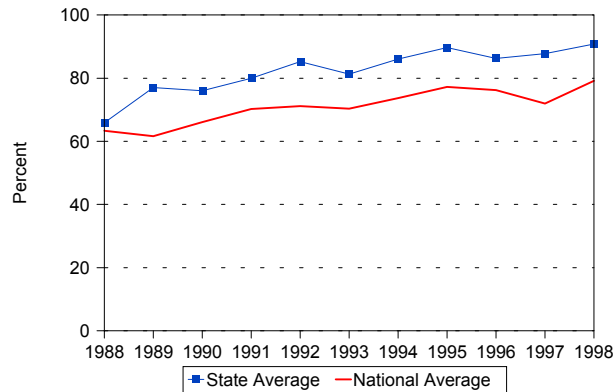


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	2	53	--	43	98
Number of Retail Customers	1,607,959	294,235	--	936,305	2,838,499
Retail Sales (MWh)	52,905,888	7,323,268	--	14,117,088	74,346,244
Percentage of Retail Sales	71.2	9.9	--	19.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	4,082	554	--	1,227	5,864
Percentage of Revenue	69.6	9.5	--	20.9	100.0
1993					
Number of Utilities	2	53	--	43	98
Number of Retail Customers	1,745,384	306,388	--	1,110,241	3,162,013
Retail Sales (MWh)	62,340,121	8,552,423	--	18,298,497	89,191,041
Percentage of Retail Sales	69.9	9.6	--	20.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	4,410	618	--	1,559	6,587
Percentage of Revenue	67.0	9.4	--	23.7	100.0
1998					
Number of Utilities	2	53	--	43	98
Number of Retail Customers	1,936,945	318,375	--	1,367,395	3,622,715
Retail Sales (MWh)	73,976,769	10,719,034	--	26,024,520	110,720,323
Percentage of Retail Sales	66.8	9.7	--	23.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	4,531	662	--	1,894	7,087
Percentage of Revenue	63.9	9.3	--	26.7	100.0

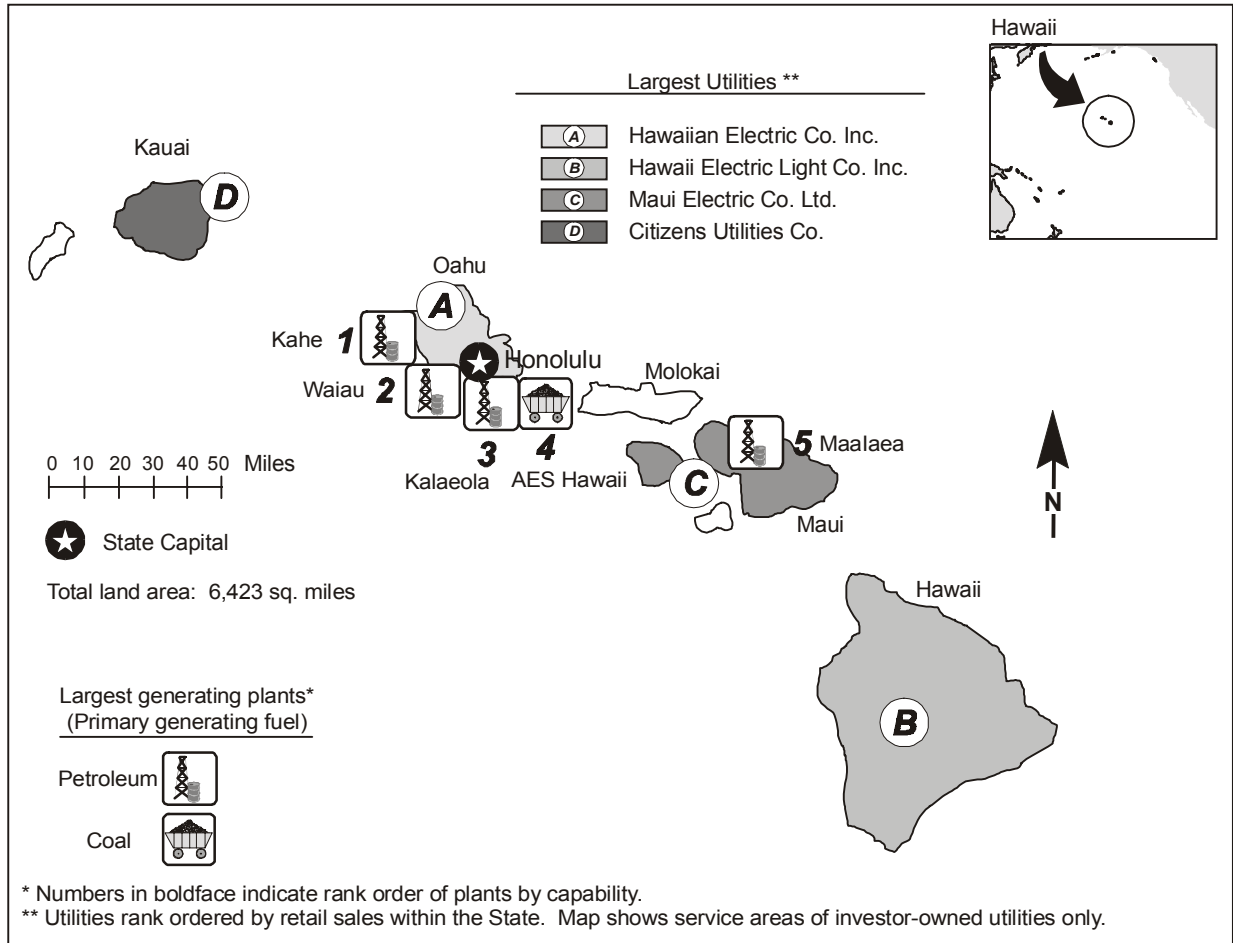


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		Not Applicable	Utility		
Net Exporter or Importer		Not Applicable	Capability (MW)	1,616	47
Primary Generating Fuel		Petroleum	Generation (MWh)	6,301,169	46
Population (as of 7/98)	1,190,472	41	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	11.56	50	Petroleum-fired	28	
Industrial	9.41	50	Gas-fired	5	
Commercial	12.31	51	Hydroelectric	67	
Residential	13.82	50	Nonutility		
Industry			Capability (MW)	737	26
Capability (MW)	2,353	47	Share of Capability (Percent)	31.3	5
Generation (MWh)	10,226,750	45	Generation (MWh)	3,925,581	24
Capability/person			Share of Generation (Percent)	38.4	5
(KWe/person)	1.98	44			
Generation/person					
(MWh/person)	8.59	43			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	18	42			
Nitrogen Oxide	15	44			
Carbon Dioxide	8,170	41			
Sulfur Dioxide/sq. mile (Tons)	2.78	26			
Nitrogen Oxides/sq. mile (Tons)	2.37	28			
Carbon Dioxide/sq. mile (Tons)	1,271.99	21			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Kahe	Petroleum	Hawaiian Electric Co Inc	582	35
2. Waiau	Petroleum	Hawaiian Electric Co Inc	457	51
3. Kalaeola Cogeneration	Petroleum	Kalaeola Partners LP	258	9
4. AES Hawaii Inc	Coal	AES Hawaii Inc	191	6
5. Maalaea	Petroleum	Maui Electric Co Ltd	174	27

Table 3. Top Four Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Hawaiian Electric Company, Inc	712	229	217	261	5
B. Hawaii Electric Light Co, Inc	153	62	58	32	1
C. Maui Electric Company, Ltd	137	49	48	39	1
D. Citizens Utilities Company	69	25	19	25	1
Total	1,070	365	342	357	7
Percentage of Utility Sales	100	100	100	100	100

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	1,453	1,602	1,616	1.2	64.3	67.4	68.7
Petroleum-fired	1,443	1,598	1,612	1.1	63.8	67.3	68.5
Hydroelectric	3	3	4	0.6	0.1	0.1	0.2
Renewable	6	--	--	--	0.3	--	--
Total Nonutility	807	774	737	-1.0	35.7	32.6	31.3
Industry	2,260	2,376	2,353	0.4	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

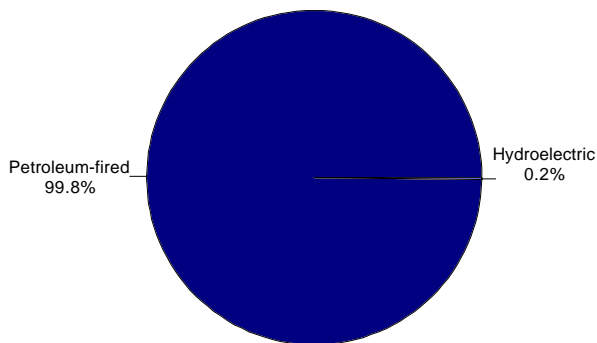


Figure 2. Utility Generation by Primary Energy Source, 1998

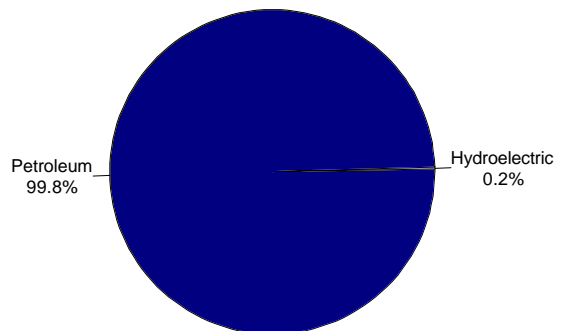


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	7,627,423	6,083,815	6,301,169	-2.1	72.8	61.2	61.6
Petroleum	7,597,134	6,070,063	6,287,107	-2.1	72.5	61.0	61.5
Hydroelectric	14,064	13,752	13,750	-0.3	0.1	0.1	0.1
Renewable	16,225	--	312	-35.5	0.2	--	*
Total Nonutility	2,855,665	3,858,984	3,925,581	3.6	27.2	38.8	38.4
Industry	10,483,088	9,942,799	10,226,750	-0.3	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Petroleum	286.7	308.5	261.5	-1.0

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	24	20	18	-3.3
Nitrogen Oxides ^c	10	8	15	4.3
Carbon Dioxide ^c	6,130	5,584	8,170	3.2

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

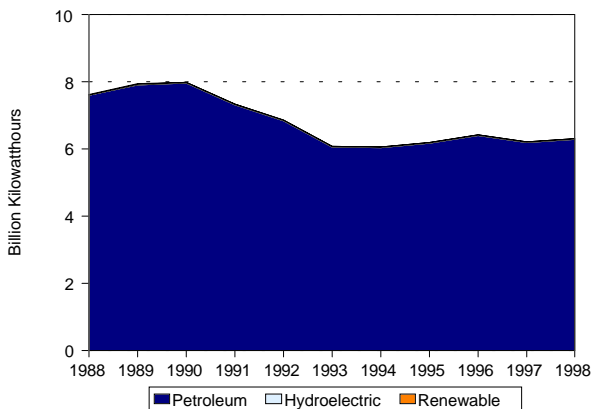


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998
(1998 Dollars)

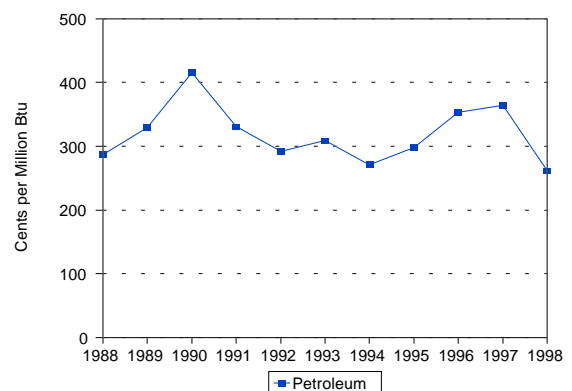


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

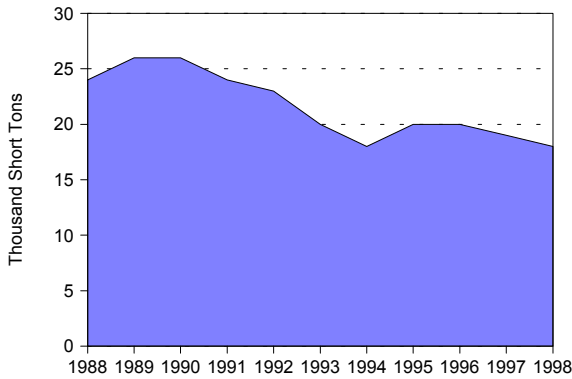


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

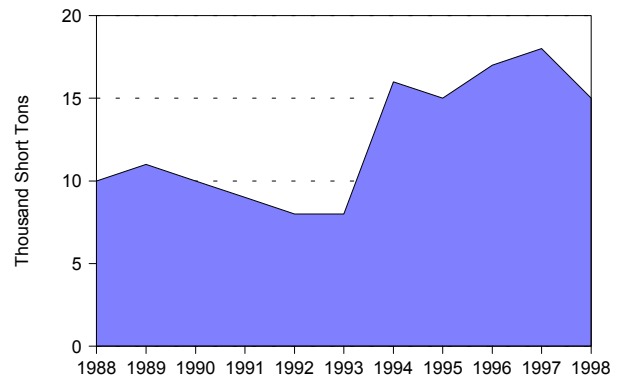


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

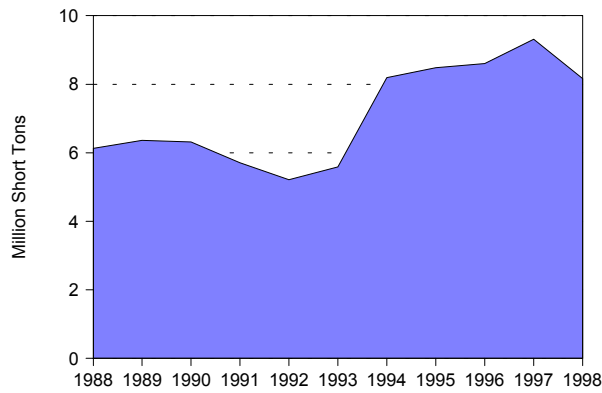


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	2,151,388	2,468,578	2,640,645	2.3	27.9	28.5	28.5
Commercial ..	2,014,205	2,363,224	2,776,068	3.6	26.1	27.3	30.0
Industrial	3,495,480	3,769,876	3,787,397	0.9	45.3	43.5	40.9
Other	57,957	56,233	56,961	-0.2	0.8	0.6	0.6
Total	7,719,029	8,657,911	9,261,071	2.0	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

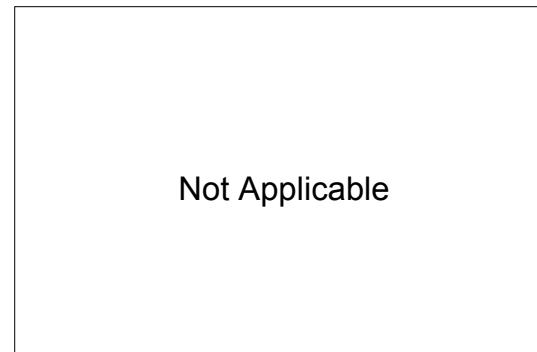


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	5	--	--	--	5
Number of Retail Customers	350,547	--	--	--	350,547
Retail Sales (MWh)	7,719,029	--	--	--	7,719,029
Percentage of Retail Sales	100.0	--	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	744	--	--	--	744
Percentage of Revenue	100.0	--	--	--	100.0
1993					
Number of Utilities	4	--	--	--	4
Number of Retail Customers	390,280	--	--	--	390,280
Retail Sales (MWh)	8,657,911	--	--	--	8,657,911
Percentage of Retail Sales	100.0	--	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,016	--	--	--	1,016
Percentage of Revenue	100.0	--	--	--	100.0
1998					
Number of Utilities	4	--	--	--	4
Number of Retail Customers	417,344	--	--	--	417,344
Retail Sales (MWh)	9,261,071	--	--	--	9,261,071
Percentage of Retail Sales	100.0	--	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,070	--	--	--	1,070
Percentage of Revenue	100.0	--	--	--	100.0

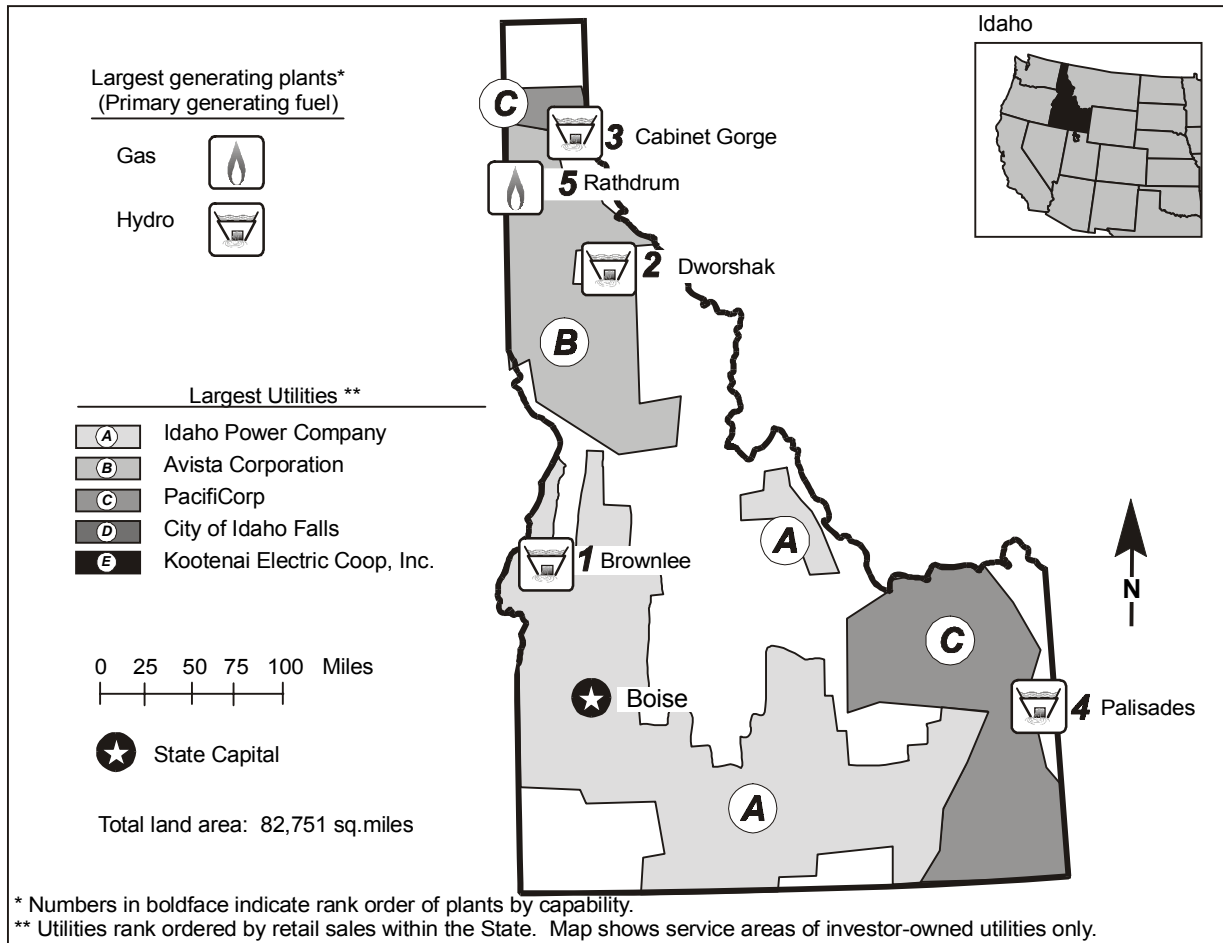


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	2,576	43
Primary Generating Fuel		Hydro	Generation (MWh)	11,978,079	43
Population (as of 7/98)	1,230,923	40	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	4.02	1	Petroleum-fired	31	
Industrial	2.77	2	Gas-fired	3	
Commercial	4.34	1	Hydroelectric	34	
Residential	5.28	2	Nonutility		
Industry			Capability (MW)	425	33
Capability (MW)	3,001	42	Share of Capability (Percent) . . .	14.2	14
Generation (MWh)	13,848,749	43	Generation (MWh)	1,870,670	34
Capability/person			Share of Generation (Percent) . .	13.5	13
(KWe/person)	2.44	36			
Generation/person					
(MWh/person)	11.25	33			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	--	49			
Nitrogen Oxide	1	49			
Carbon Dioxide	222	50			
Sulfur Dioxide/sq. mile (Tons)	--	51			
Nitrogen Oxides/sq. mile (Tons)	0.01	50			
Carbon Dioxide/sq. mile (Tons)	2.69	51			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Brownlee	Hydro	Idaho Power Co	728	40
2. Dworshak	Hydro	USCE-North Pacific Division	460	24
3. Cabinet Gorge	Hydro	Avista Corporation	241	46
4. Palisades	Hydro	Bureau of Reclamation	177	41
5. Rathdrum	Gas	Avista Corporation	136	3

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Idaho Power Company	487	202	168	116	2
B. Avista Corporation	136	48	46	41	1
C. PacifiCorp	113	36	18	59	*
D. City of Idaho Falls	25	12	10	1	2
E. Kootenai Electric Coop, Inc	14	10	4	*	*
Total	776	308	245	217	5
Percentage of Utility Sales	91	88	94	93	43

Table 4. Electric Power Industry Generating Capability by Plant Type, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	2,244	2,304	2,576	1.5	84.9	84.3	85.8
Petroleum-fired	8	6	6	-4.0	0.3	0.2	0.2
Gas-fired	--	--	136	0.0	--	--	4.5
Dual-fired	50	--	--	--	1.9	--	--
Hydroelectric	2,186	2,299	2,435	1.2	82.7	84.1	81.1
Total Nonutility	398	430	425	0.7	15.1	15.7	14.2
Industry	2,642	2,734	3,001	1.4	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

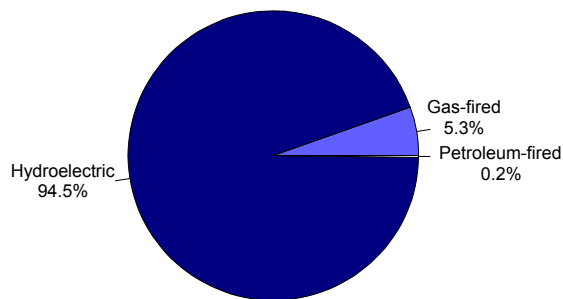


Figure 2. Utility Generation by Primary Energy Source, 1998

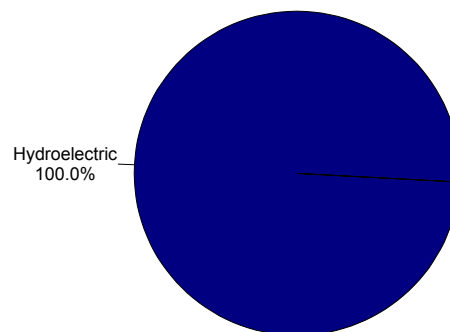


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	6,745,720	9,022,654	11,978,079	6.6	84.6	85.0	86.5
Petroleum	446	103	253	-6.1	*	*	*
Hydroelectric	6,745,274	9,022,551	11,977,826	6.6	84.6	85.0	86.5
Total Nonutility	1,226,058	1,586,820	1,870,670	4.8	15.4	15.0	13.5
Industry	7,971,778	10,609,474	13,848,749	6.3	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	-	-	-	-
Petroleum	-	-	-	-
Gas	-	-	-	-

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	--	--	--	--
Nitrogen Oxides ^c	--	--	1	--
Carbon Dioxide ^c	--	*	222	--

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

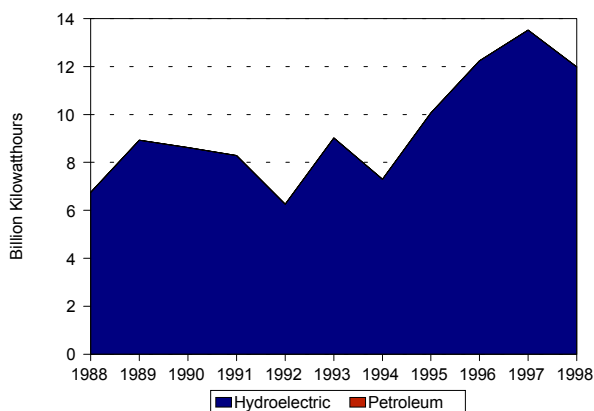


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

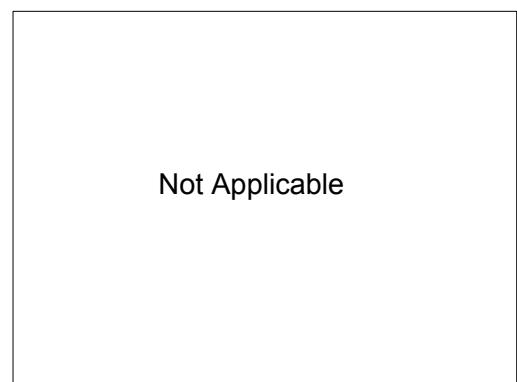


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

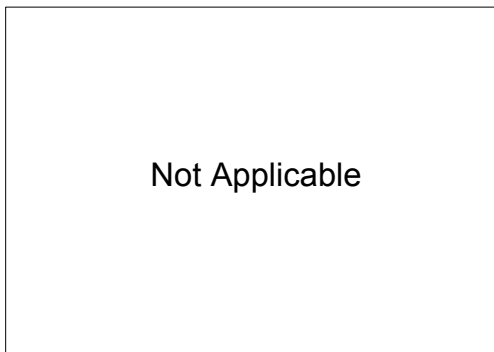


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

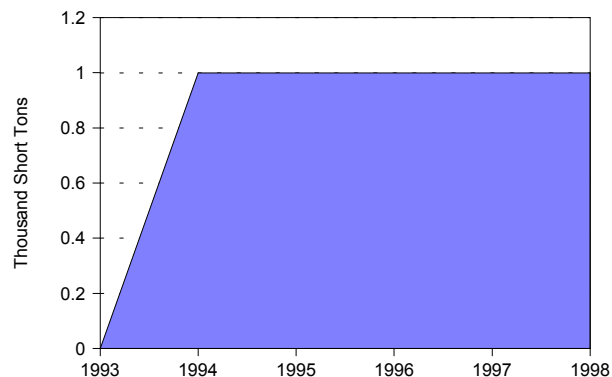


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

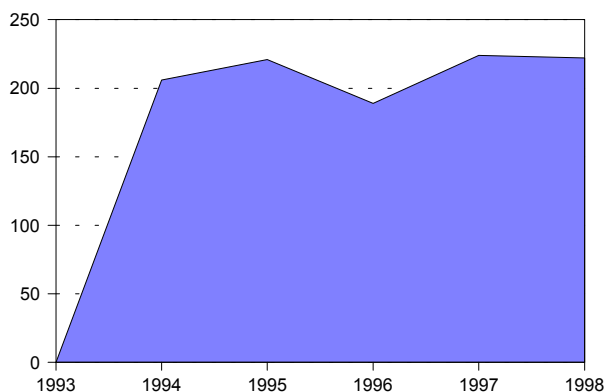


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	5,449,239	6,245,111	6,610,196	2.2	31.8	33.4	31.1
Commercial . .	4,562,440	4,968,602	6,005,016	3.1	26.6	26.5	28.2
Industrial	6,807,192	7,222,067	8,392,701	2.3	39.7	38.6	39.4
Other	346,479	284,060	268,433	-2.8	2.0	1.5	1.3
Total	17,165,351	18,719,840	21,276,346	2.4	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

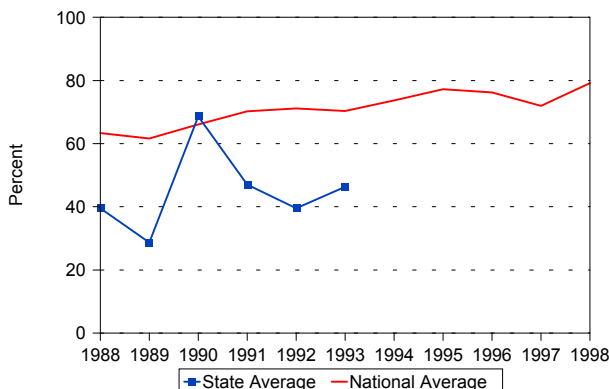


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	7	11	--	17	35
Number of Retail Customers	385,507	32,985	--	45,183	463,675
Retail Sales (MWh)	15,110,688	930,131	--	1,124,532	17,165,351
Percentage of Retail Sales	88.0	5.4	--	6.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	694	44	--	66	804
Percentage of Revenue	86.4	5.5	--	8.2	100.0
	1993				
Number of Utilities	5	11	--	16	32
Number of Retail Customers	430,992	35,461	--	50,045	516,498
Retail Sales (MWh)	16,547,637	1,074,714	--	1,097,489	18,719,840
Percentage of Retail Sales	88.4	5.7	--	5.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	710	49	--	66	824
Percentage of Revenue	86.1	5.9	--	8.0	100.0
	1998				
Number of Utilities	4	11	--	16	31
Number of Retail Customers	502,703	37,633	--	61,586	601,922
Retail Sales (MWh)	18,769,312	1,061,770	--	1,445,264	21,276,346
Percentage of Retail Sales	88.2	5.0	--	6.8	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	736	45	--	73	855
Percentage of Revenue	86.1	5.3	--	8.6	100.0

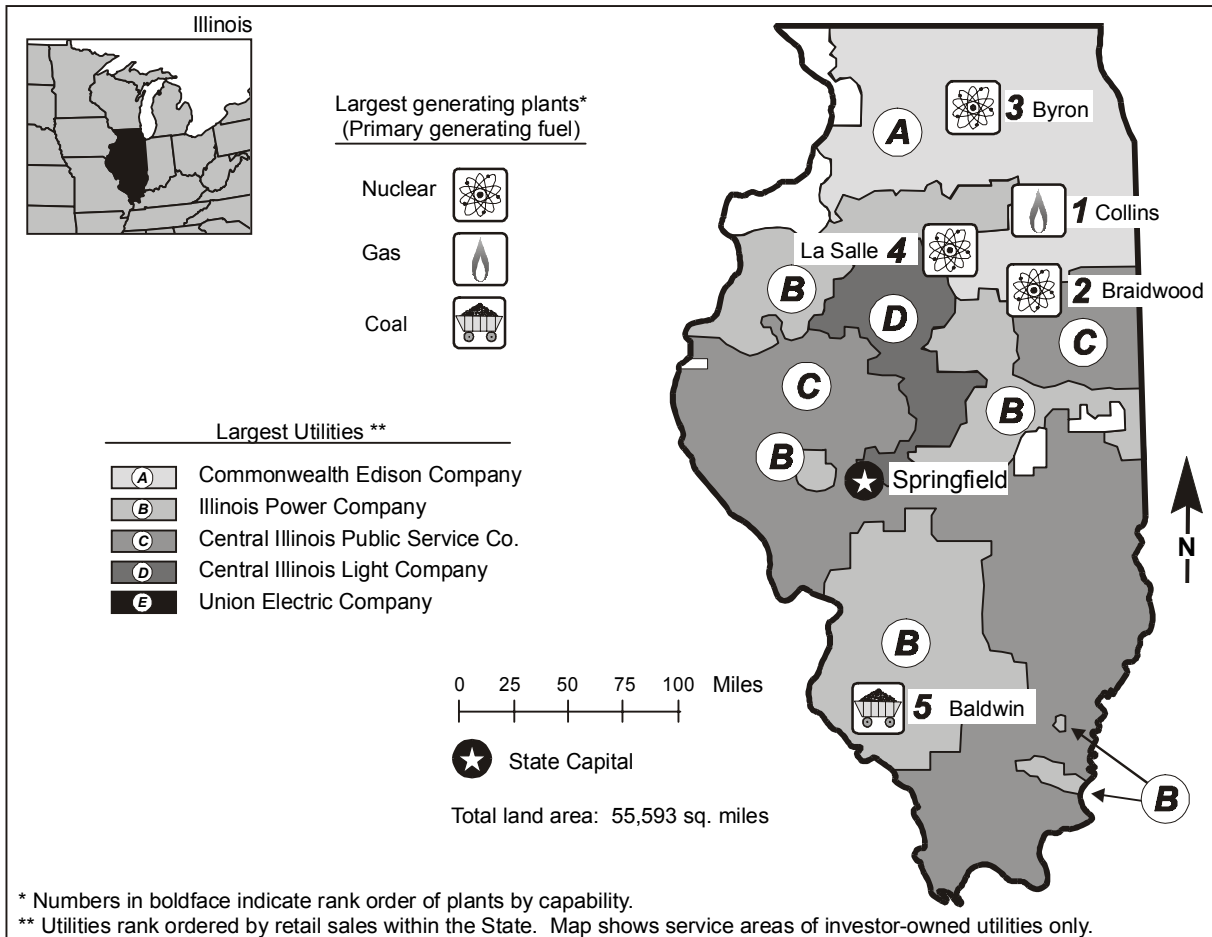


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		MAIN	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	30,367	5
Primary Generating Fuel		Coal	Generation (MWh)	131,273,709	5
Population (as of 7/98)	12,069,774	5	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	7.46	39	Coal-fired	31	
Industrial	5.11	39	Petroleum-fired	37	
Commercial	7.77	37	Gas-fired	23	
Residential	9.85	39	Nuclear	16	
Industry			Hydroelectric	21	
Capability (MW)	32,493	6	Nonutility		
Generation (MWh)	138,746,800	7	Capability (MW)	2,126	11
Capability/person			Share of Capability (Percent) . . .	6.5	29
(KWe/person)	2.69	32	Generation (MWh)	7,473,091	13
Generation/person			Share of Generation (Percent) . .	5.4	31
(MWh/person)	11.5	32			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	695	7			
Nitrogen Oxide	367	5			
Carbon Dioxide	87,361	8			
Sulfur Dioxide/sq. mile (Tons)	12.5	11			
Nitrogen Oxides/sq. mile (Tons)	6.59	11			
Carbon Dioxide/sq. mile (Tons)	1,571.45	14			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Collins	Gas	Commonwealth Edison Co	2,698	21
2. Byron	Nuclear	Commonwealth Edison Co	2,240	13
3. Braidwood	Nuclear	Commonwealth Edison Co	2,180	10
4. LaSalle	Nuclear	Commonwealth Edison Co	2,096	14
5. Baldwin	Coal	Illinois Power Co	1,751	28

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Commonwealth Edison Company	6,687	2,552	2,188	1,407	541
B. Illinois Power Company	1,197	469	329	374	26
C. Central Illinois Pub Serv Co	570	242	201	118	10
D. Central Illinois Light Company	335	134	112	88	2
E. Union Electric Company	156	45	38	72	1
Total	8,946	3,441	2,867	2,057	580
Percentage of Utility Sales	91	88	93	94	97

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	32,576	32,769	30,367	-0.8	98.0	98.0	93.5
Coal-fired	14,954	15,063	14,250	-0.5	45.0	45.0	43.9
Petroleum-fired	3,678	2,630	1,227	-11.5	11.1	7.9	3.8
Gas-fired	35	72	309	27.3	0.1	0.2	1.0
Dual-fired	1,287	2,382	4,038	13.5	3.9	7.1	12.4
Nuclear	12,609	12,609	10,529	-2.0	37.9	37.7	32.4
Hydroelectric	12	12	13	0.6	*	*	*
Total Nonutility	680	675	2,126	13.5	2.0	2.0	6.5
Industry	33,255	33,444	32,493	-0.3	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

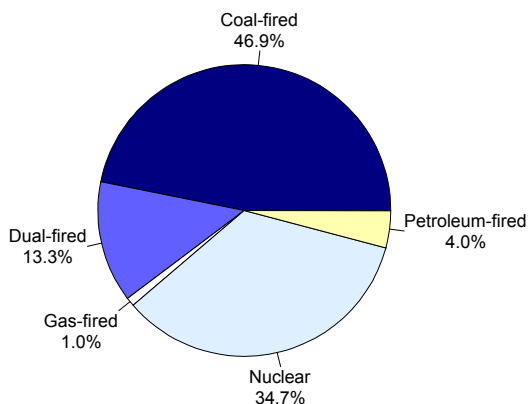


Figure 2. Utility Generation by Primary Energy Source, 1998

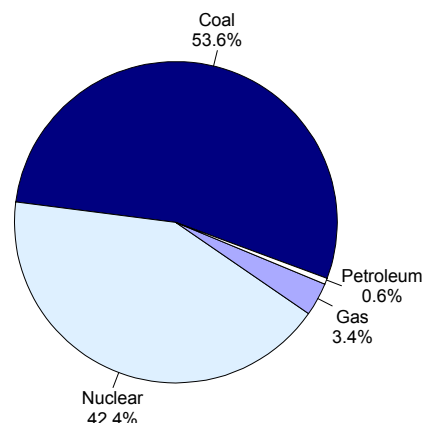


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	123,339,615	140,081,020	131,273,709	0.7	97.4	97.5	94.6
Coal	52,993,802	59,764,568	70,306,091	3.2	41.9	41.6	50.7
Petroleum	696,999	719,130	838,107	2.1	0.6	0.5	0.6
Gas	434,776	1,184,217	4,483,112	29.6	0.3	0.8	3.2
Nuclear	69,166,028	78,373,458	55,595,668	-2.4	54.6	54.6	40.1
Hydroelectric	48,010	39,647	50,731	0.6	*	*	*
Total Nonutility	3,228,760	3,581,317	7,473,091	9.8	2.6	2.5	5.4
Industry	126,568,374	143,662,337	138,746,800	1.0	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	190.6	170.4	155.7	-2.2
Petroleum	312.0	298.0	275.2	-1.4
Gas	326.9	244.4	220.7	-4.3

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	882	812	695	-2.6
Nitrogen Oxides ^c	280	302	367	3.0
Carbon Dioxide ^c	59,494	67,510	87,361	4.4

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

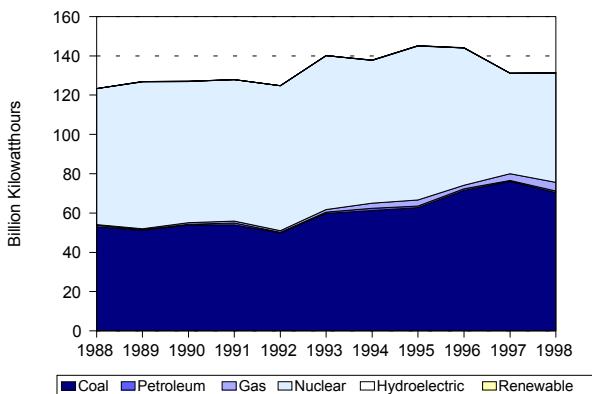


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

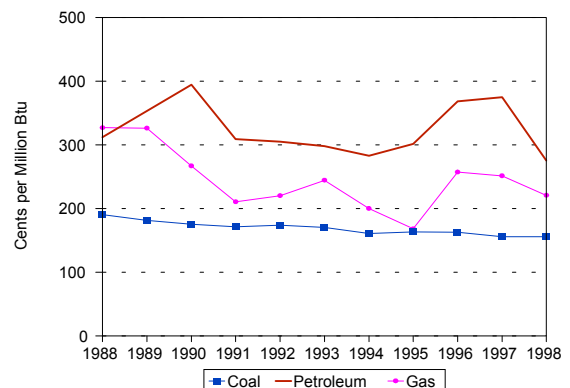


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

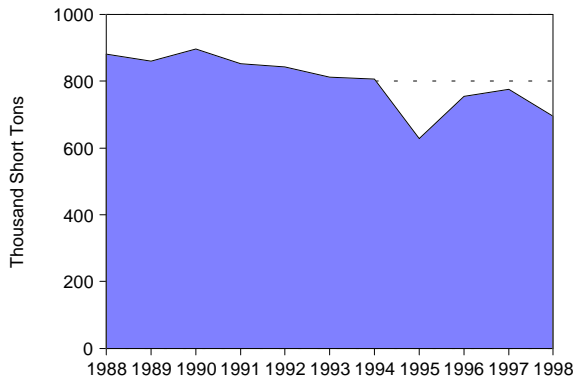


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

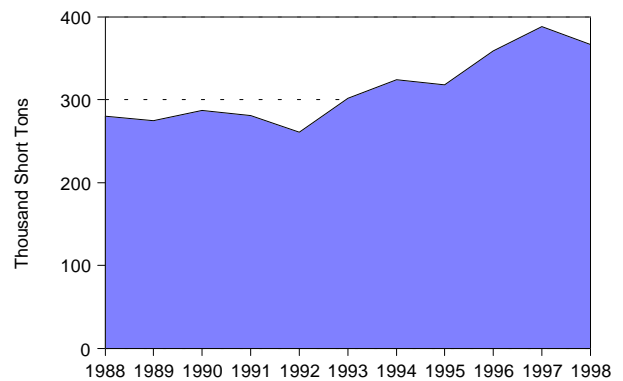


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

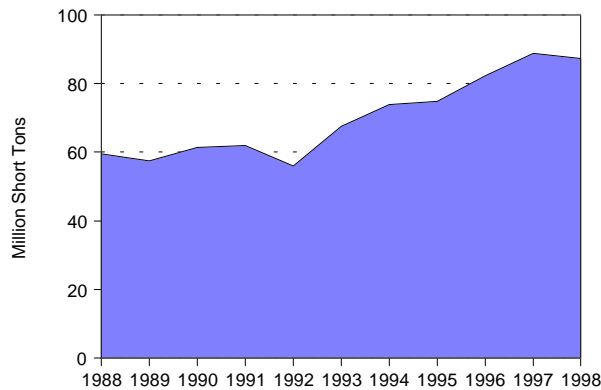


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	33,980,236	35,225,722	39,684,985	1.7	30.9	29.9	30.2
Commercial . .	30,550,534	34,354,863	39,680,816	2.9	27.8	29.2	30.2
Industrial	37,942,367	40,249,440	43,031,174	1.4	34.5	34.2	32.8
Other	7,567,692	7,956,350	8,820,422	1.7	6.9	6.8	6.7
Total	110,040,827	117,786,375	131,217,397	2.0	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

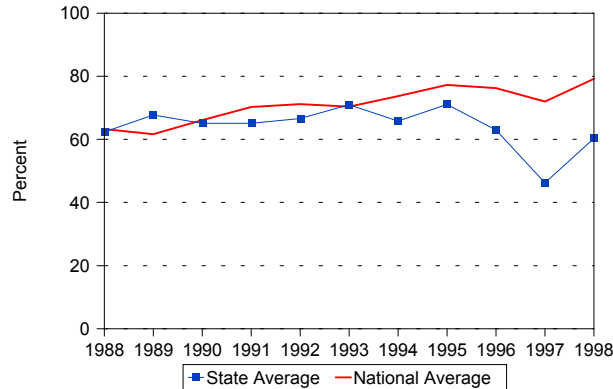


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	8	41	--	27	76
Number of Retail Customers	4,317,870	195,904	--	210,846	4,724,620
Retail Sales (MWh)	102,907,081	3,956,527	--	3,177,219	110,040,827
Percentage of Retail Sales	93.5	3.6	--	2.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	9,504	321	--	364	10,188
Percentage of Revenue	93.3	3.1	--	3.6	100.0
1993					
Number of Utilities	9	41	--	28	78
Number of Retail Customers	4,518,990	212,375	--	221,551	4,952,916
Retail Sales (MWh)	109,651,328	4,519,626	--	3,615,421	117,786,375
Percentage of Retail Sales	93.1	3.8	--	3.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	9,344	331	--	370	10,044
Percentage of Revenue	93	3.3	--	3.7	100.0
1998					
Number of Utilities	9	41	--	28	78
Number of Retail Customers	4,813,989	235,584	--	240,255	5,289,828
Retail Sales (MWh)	121,639,611	5,560,355	--	4,017,431	131,217,397
Percentage of Retail Sales	92.7	4.2	--	3.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	9,091	345	--	356	9,792
Percentage of Revenue	92.8	3.5	--	3.6	100.0

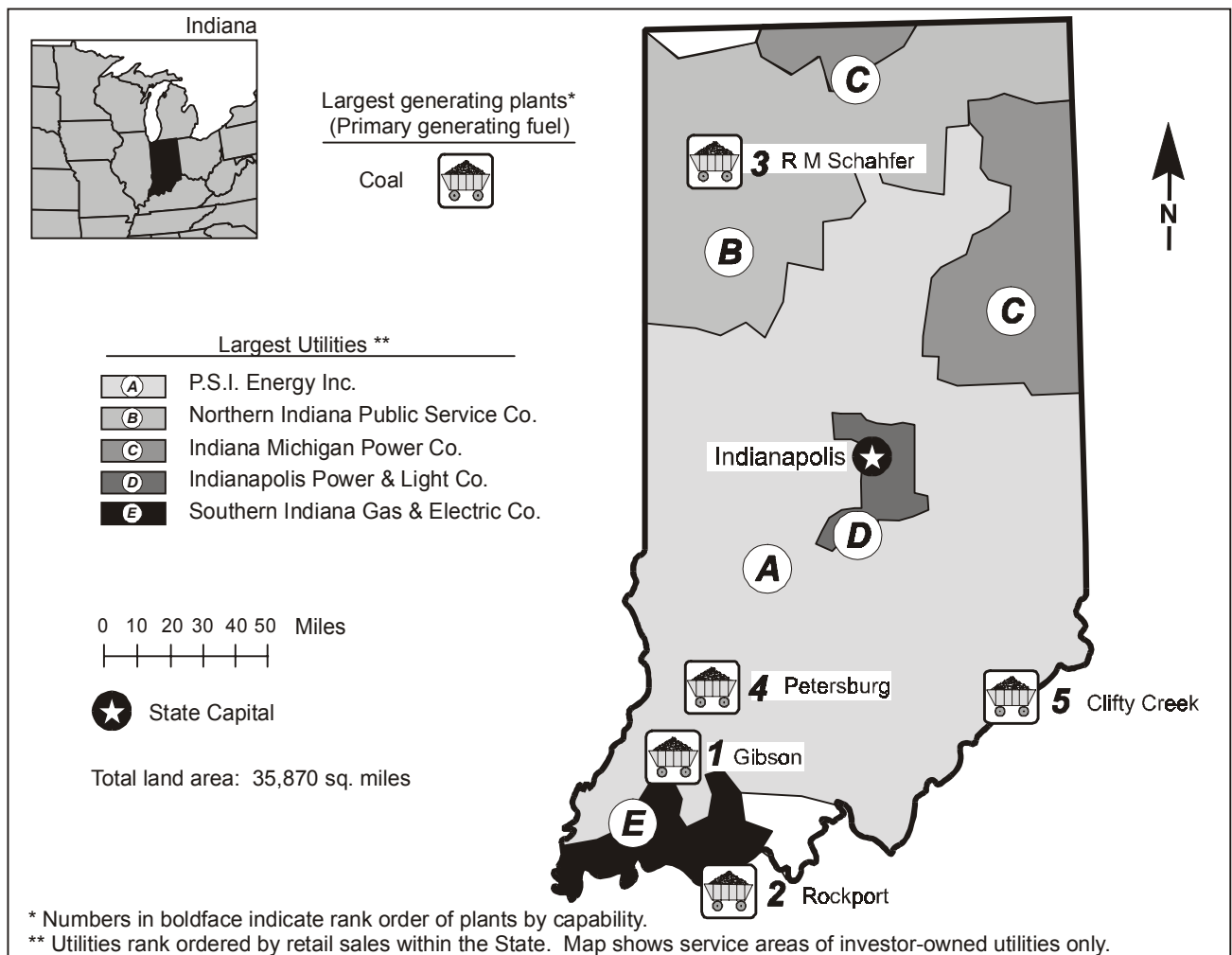


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		ECAR	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	20,337	13
Primary Generating Fuel		Coal	Generation (MWh)	112,771,878	10
Population (as of 7/98)	5,907,617	14	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.34	10	Coal-fired	25	
Industrial	3.95	16	Petroleum-fired	37	
Commercial	6.08	16	Gas-fired	20	
Residential	7.01	15	Hydroelectric	38	
Industry			Nonutility		
Capability (MW)	21,808	13	Capability (MW)	1,472	15
Generation (MWh)	117,520,960	10	Share of Capability (Percent)	6.7	27
Capability/person			Generation (MWh)	4,749,082	20
(KWe/person)	3.69	15	Share of Generation (Percent)	4	35
Generation/person					
(MWh/person)	19.89	9			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	803	4			
Nitrogen Oxide	494	3			
Carbon Dioxide	121,905	5			
Sulfur Dioxide/sq. mile (Tons)	22.38	5			
Nitrogen Oxides/sq. mile (Tons)	13.78	1			
Carbon Dioxide/sq. mile (Tons)	3,398.51	6			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Gibson	Coal	PSI Energy Inc	3,131	23
2. Rockport	Coal	Indiana Michigan Power Co	2,600	14
3. R M Schahfer	Coal	Northern Indiana Pub Serv Co	1,780	22
4. Petersburg	Coal	Indianapolis Power & Light Co	1,672	31
5. Clifty Creek	Coal	Indiana-Kentucky Electric Corp	1,210	43

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. PSI Energy, Inc	1,169	470	312	378	9
B. Northern Indiana Pub Serv Co	978	291	268	405	14
C. Indiana Michigan Power Co	861	301	241	313	5
D. Indianapolis Power & Light Co	722	269	122	321	10
E. Southern Indiana Gas & Elec Co	232	88	67	75	2
Total	3,962	1,420	1,010	1,493	40
Percentage of Utility Sales	81	74	86	84	79

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	19,359	20,901	20,337	0.5	96.2	96.5	93.3
Coal-fired	18,291	19,542	18,709	0.3	90.9	90.2	85.8
Petroleum-fired	479	480	486	0.2	2.4	2.2	2.2
Gas-fired	366	343	297	-2.3	1.8	1.6	1.4
Dual-fired	147	467	786	20.5	0.7	2.2	3.6
Hydroelectric	76	69	59	-2.9	0.4	0.3	0.3
Total Nonutility	773	767	1,472	7.4	3.8	3.5	6.7
Industry	20,133	21,668	21,808	0.9	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

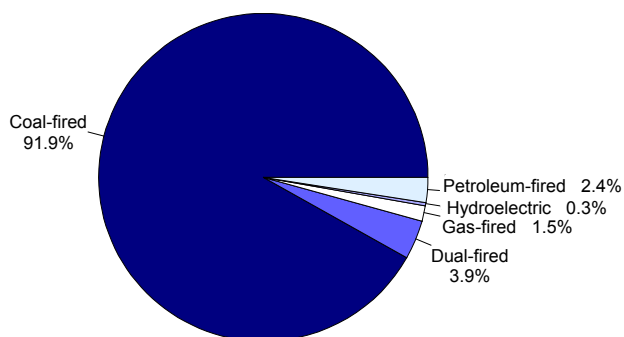


Figure 2. Utility Generation by Primary Energy Source, 1998

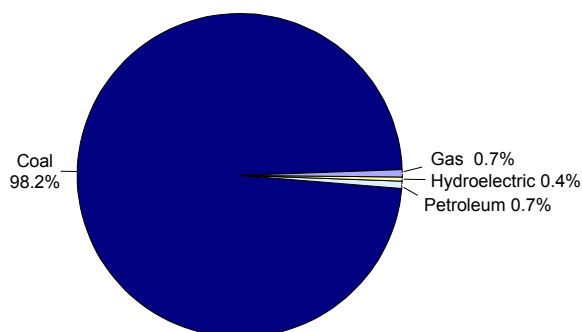


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	83,953,697	99,951,149	112,771,878	3.3	95.7	96.4	96.0
Coal	82,812,536	98,776,088	110,696,190	3.3	94.4	95.3	94.2
Petroleum	383,213	197,848	821,530	8.8	0.4	0.2	0.7
Gas	316,916	528,813	775,490	10.5	0.4	0.5	0.7
Hydroelectric	441,032	448,400	478,668	0.9	0.5	0.4	0.4
Total Nonutility	3,772,575	3,684,028	4,749,082	2.6	4.3	3.6	4.0
Industry	87,726,272	103,635,177	117,520,960	3.3	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	143.2	126.8	112.3	-2.7
Petroleum	363.4	420.7	319.4	-1.4
Gas	259.1	273.7	280.5	0.9

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	1,457	1,256	803	-6.4
Nitrogen Oxides ^c	441	483	494	1.3
Carbon Dioxide ^c	94,147	109,015	121,905	2.9

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

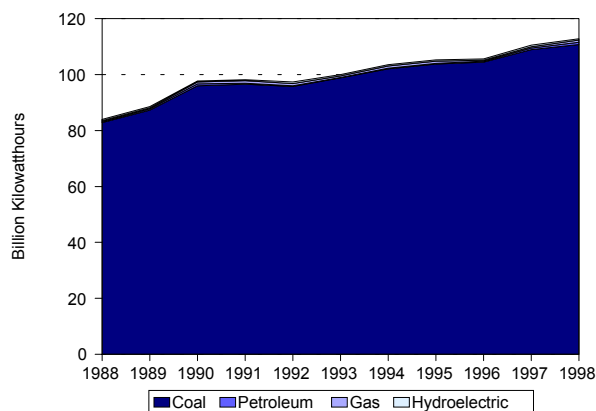


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

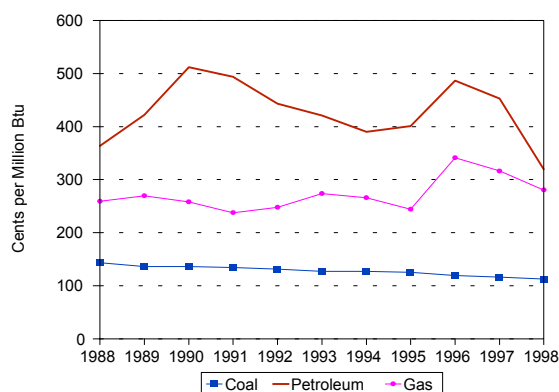


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

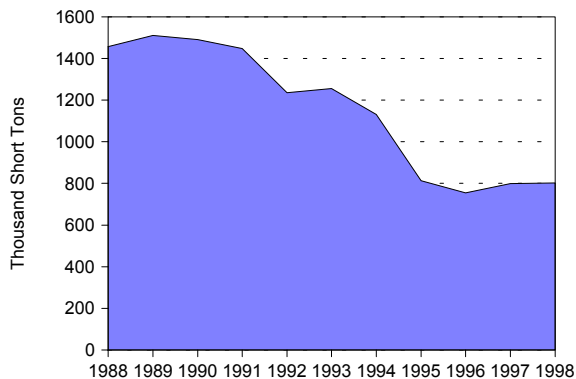


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

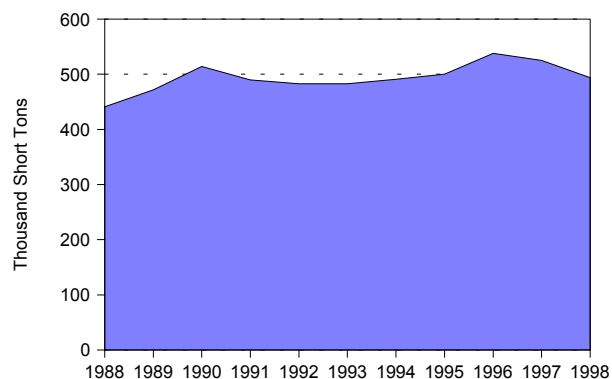


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

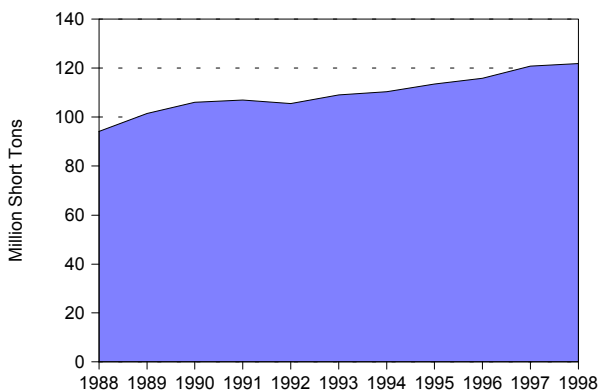


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	22,486,251	24,978,467	27,334,287	2.2	31.4	30.5	29.7
Commercial . .	15,058,156	17,015,035	19,367,619	2.8	21.0	20.8	21.0
Industrial	33,473,920	39,415,340	44,848,353	3.3	46.7	48.1	48.7
Other	657,102	522,648	508,566	-2.8	0.9	0.6	0.5
Total	71,675,420	81,931,490	92,058,825	2.8	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

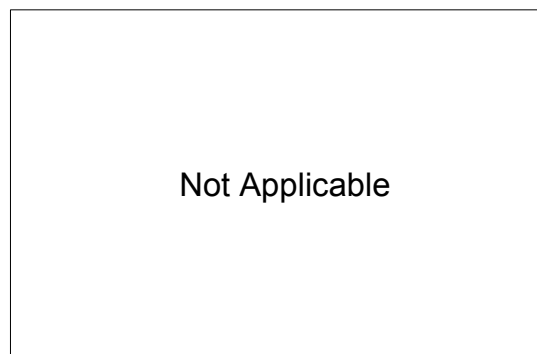


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	7	71	--	44	122
Number of Retail Customers	1,815,681	225,514	--	351,184	2,392,379
Retail Sales (MWh)	61,224,854	4,990,215	--	5,460,351	71,675,420
Percentage of Retail Sales	85.4	7.0	--	7.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	4,240	353	--	510	5,103
Percentage of Revenue	83.1	6.9	--	10.0	100.0
1993					
Number of Utilities	7	72	--	44	123
Number of Retail Customers	1,933,724	236,571	--	385,411	2,555,706
Retail Sales (MWh)	69,434,830	5,836,974	--	6,659,686	81,931,490
Percentage of Retail Sales	84.7	7.1	--	8.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	3,782	363	--	517	4,663
Percentage of Revenue	81.1	7.8	--	11.1	100.0
1998					
Number of Utilities	7	73	--	42	122
Number of Retail Customers	2,080,081	248,616	--	438,628	2,767,325
Retail Sales (MWh)	76,816,646	7,139,769	--	8,102,410	92,058,825
Percentage of Retail Sales	83.4	7.8	--	8.8	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	4,037	365	--	512	4,914
Percentage of Revenue	82.2	7.4	--	10.4	100.0

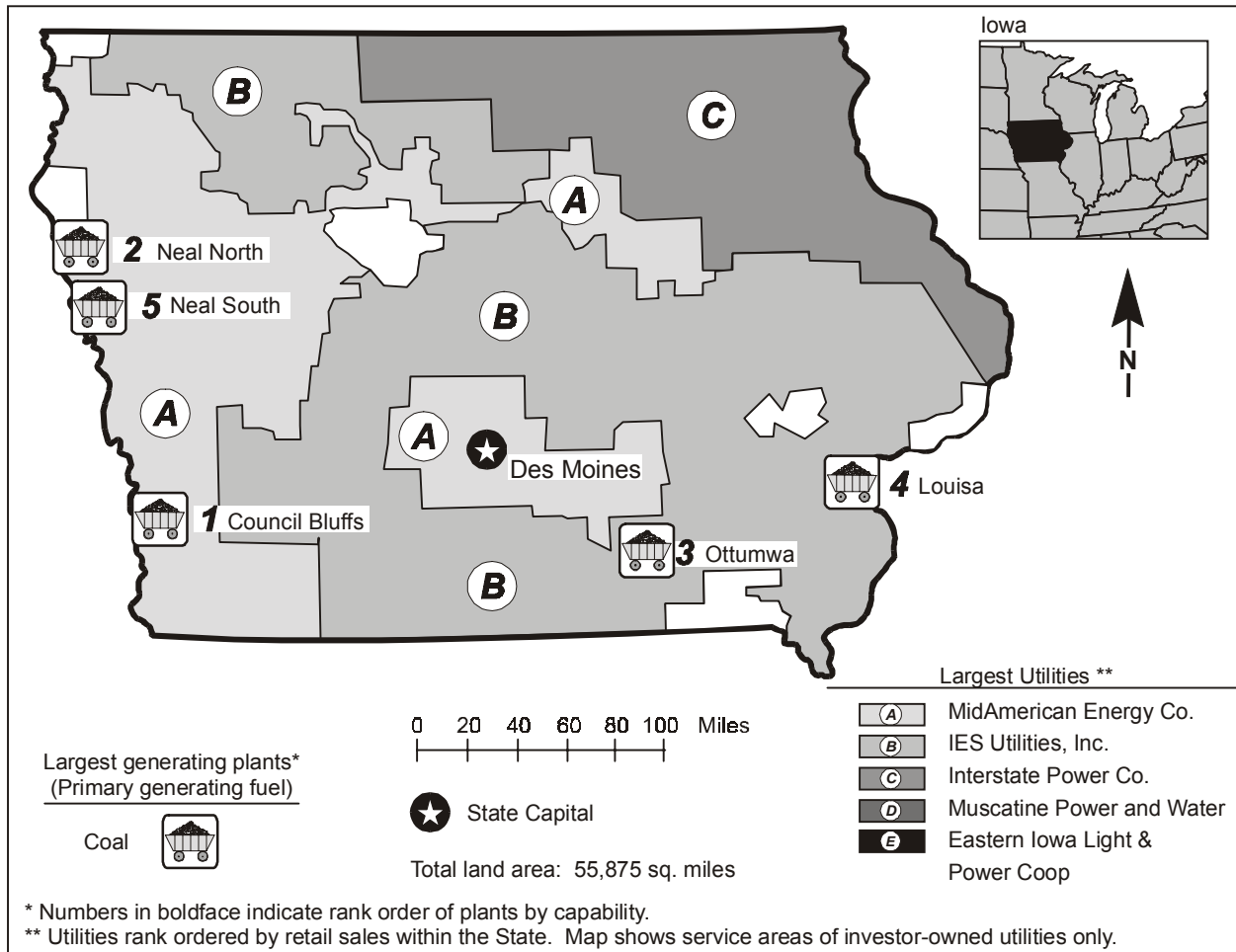


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		MAPP	Utility		
Net Exporter or Importer		Importer	Capacity (MW)	8,368	30
Primary Generating Fuel		Coal	Generation (MWh)	37,085,476	30
Population (as of 7/98)	2,861,025	30	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.04	24	Coal-fired	23	
Industrial	3.99	17	Petroleum-fired	22	
Commercial	6.67	30	Gas-fired	23	
Residential	8.38	32	Nuclear	23	
Industry			Hydroelectric	84	
Capacity (MW)	8,702	31	Renewable	44	
Generation (MWh)	38,205,016	33	Nonutility		
Capacity/person			Capacity (MW)	334	37
(KWe/person)	3.04	26	Share of Capacity (Percent) . . .	3.8	36
Generation/person			Generation (MWh)	1,119,540	38
(MWh/person)	13.35	27	Share of Generation (Percent) . .	2.9	40
Emissions (Thousand Short Tons)					
Sulfur Dioxide	147	21			
Nitrogen Oxide	156	18			
Carbon Dioxide	37,506	25			
Sulfur Dioxide/sq. mile (Tons)	2.64	28			
Nitrogen Oxides/sq. mile (Tons)	2.79	26			
Carbon Dioxide/sq. mile (Tons)	671.25	29			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Council Bluffs	Coal	MidAmerican Energy Co	972	44
2. Neal North	Coal	MidAmerican Energy Co	950	34
3. Ottumwa	Coal	MidAmerican Energy Co	716	17
4. Louisa	Coal	MidAmerican Energy Co	700	15
5. Neal South	Coal	MidAmerican Energy Co	624	19

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. MidAmerican Energy Company	907	388	224	237	60
B. IES Utilities, Inc	588	233	169	181	5
C. Interstate Power Company	213	63	36	111	3
D. Muscatine Power and Water	41	6	9	25	1
E. Eastern Iowa Light&Power Coop	38	21	2	15	*
Total	1,787	710	440	568	69
Percentage of Utility Sales	79	71	82	89	82

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	7,756	8,074	8,368	0.8	95.6	95.5	96.2
Coal-fired	5,892	5,818	5,717	-0.3	72.7	68.8	65.7
Petroleum-fired	325	512	662	8.2	4.0	6.0	7.6
Gas-fired	21	62	128	22.2	0.3	0.7	1.5
Dual-fired	893	1,042	993	1.2	11.0	12.3	11.4
Nuclear	500	515	520	0.4	6.2	6.1	6.0
Hydroelectric	124	125	131	0.6	1.5	1.5	1.5
Renewable	--	*	216	--	--	*	2.5
Total Nonutility	354	384	334	-0.7	4.4	4.5	3.8
Industry	8,110	8,458	8,702	0.8	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

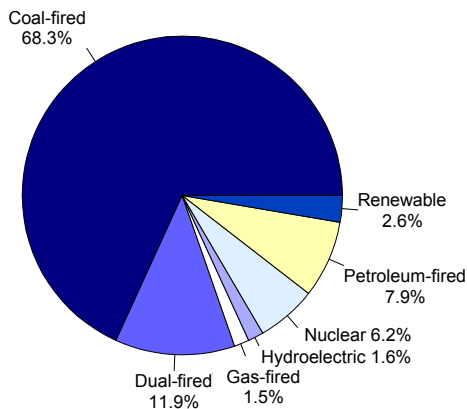


Figure 2. Utility Generation by Primary Energy Source, 1998

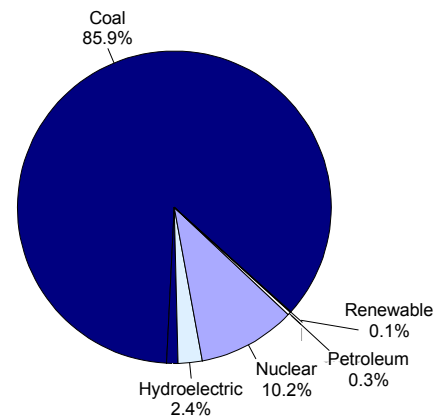


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	27,729,449	30,991,690	37,085,476	3.3	97.4	97.3	97.1
Coal	23,345,200	26,642,524	31,883,678	3.5	82.0	83.7	83.5
Petroleum	48,854	49,511	109,620	9.4	0.2	0.2	0.3
Gas	417,318	308,065	412,281	-0.1	1.5	1.0	1.1
Nuclear	3,163,205	3,235,009	3,767,513	2.0	11.1	10.2	9.9
Hydroelectric	697,858	737,023	893,219	2.8	2.5	2.3	2.3
Renewable	57,015	19,558	19,165	-11.4	0.2	0.1	0.1
Total Nonutility Industry	731,055	846,034	1,119,540	4.8	2.6	2.7	2.9
Industry	28,460,504	31,837,724	38,205,016	3.3	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	123.5	101.2	87.6	-3.7
Petroleum	372.1	408.0	332.9	-1.2
Gas	202.7	310.1	305.9	4.7

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	193	176	147	-2.9
Nitrogen Oxides ^c	132	141	156	1.8
Carbon Dioxide ^c	27,189	31,315	37,506	3.6

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

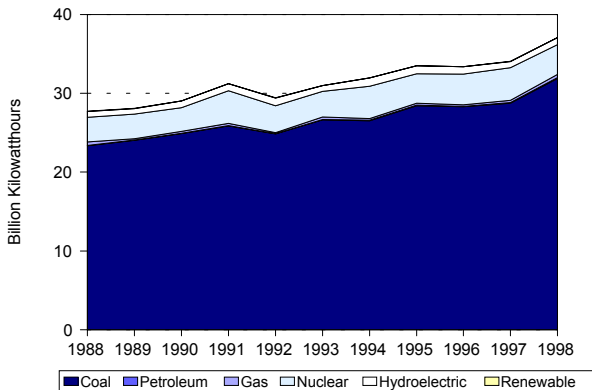


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

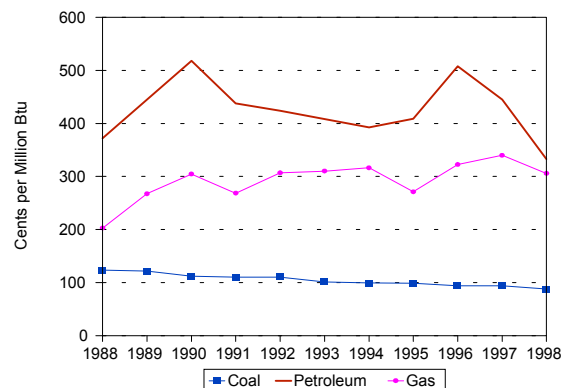


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

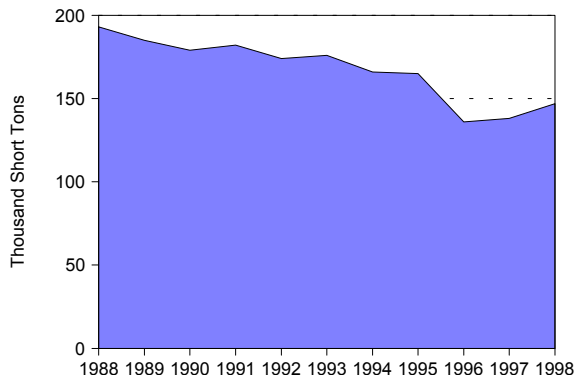


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

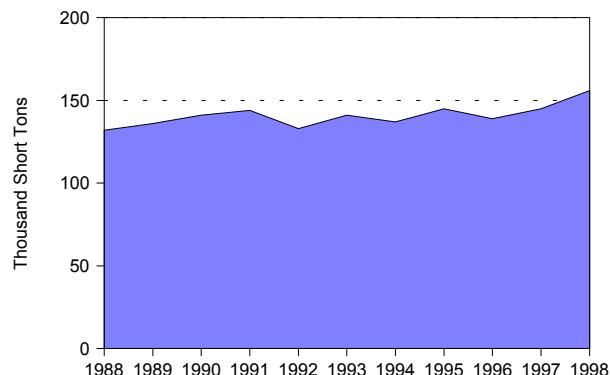


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

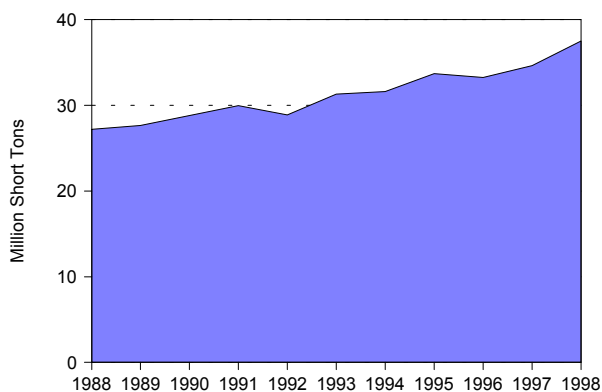


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	10,677,008	11,103,104	11,855,408	1.2	37.0	34.6	31.8
Commercial ..	6,320,299	7,268,933	8,033,776	2.7	21.9	22.6	21.5
Industrial	11,024,509	12,465,070	16,078,667	4.3	38.2	38.8	43.1
Other	815,843	1,266,803	1,350,441	5.8	2.8	3.9	3.6
Total	28,837,653	32,103,910	37,318,292	2.9	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

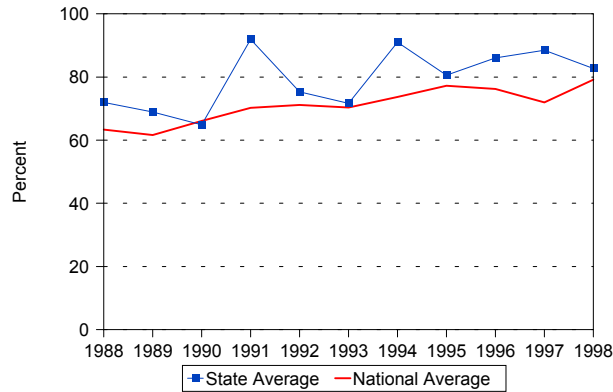


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	9	138	--	53	200
Number of Retail Customers	938,275	180,255	--	174,230	1,292,760
Retail Sales (MWh)	22,224,341	3,693,846	--	2,919,466	28,837,653
Percentage of Retail Sales	77.1	12.8	--	10.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,673	244	--	274	2,191
Percentage of Revenue	76.4	11.1	--	12.5	100.0
1993					
Number of Utilities	5	138	--	50	193
Number of Retail Customers	970,397	185,413	--	179,118	1,334,928
Retail Sales (MWh)	24,825,796	4,068,874	--	3,209,240	32,103,910
Percentage of Retail Sales	77.3	12.7	--	10.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,590	240	--	278	2,109
Percentage of Revenue	75.4	11.4	--	13.2	100.0
1998					
Number of Utilities	4	138	--	43	185
Number of Retail Customers	1,018,618	193,226	--	190,192	1,402,036
Retail Sales (MWh)	28,492,270	4,716,561	--	4,109,461	37,318,292
Percentage of Retail Sales	76.3	12.6	--	11.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,713	257	--	284	2,255
Percentage of Revenue	76	11.4	--	12.6	100.0

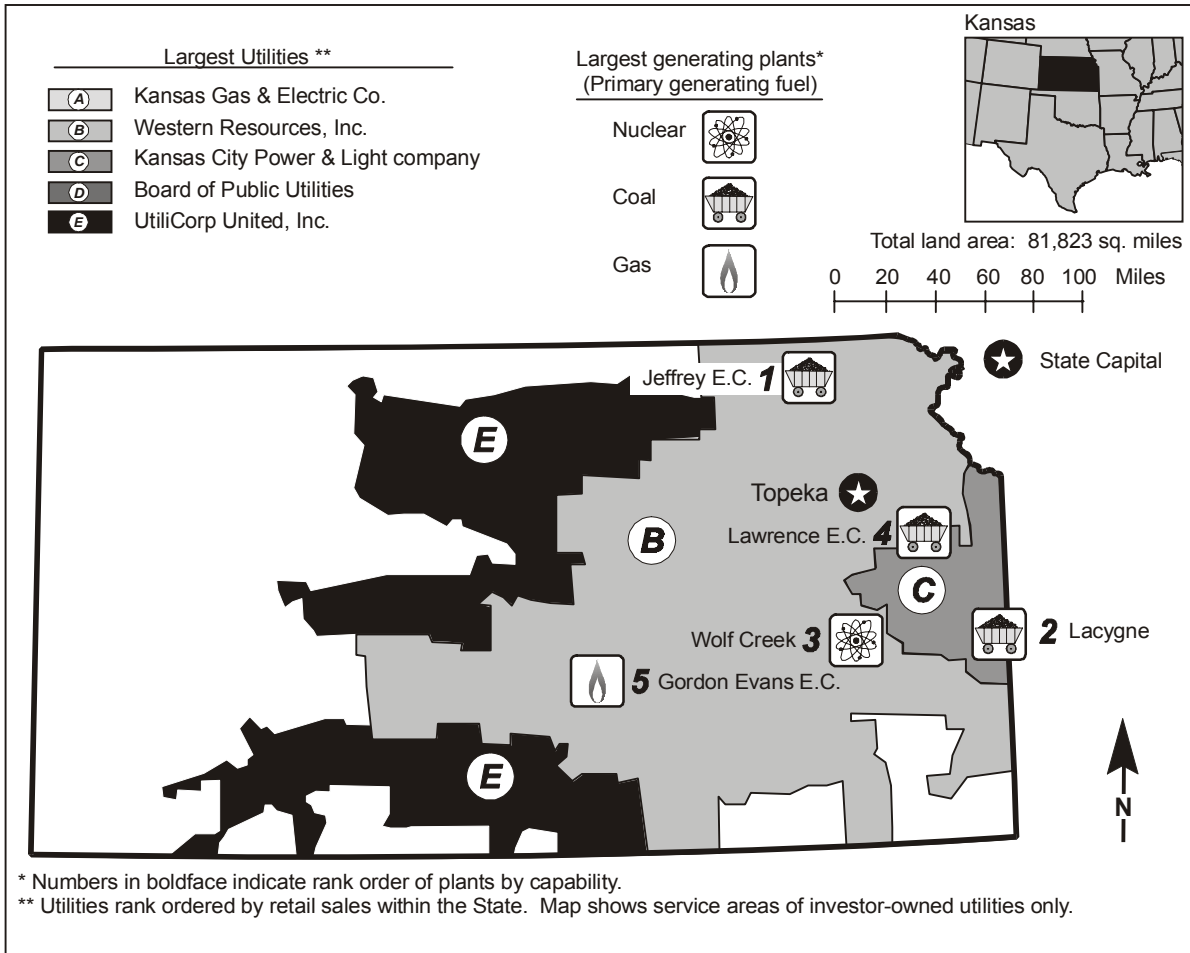


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SPP	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	9,915	27
Primary Generating Fuel		Coal	Generation (MWh)	41,480,827	29
Population (as of 7/98)	2,638,667	32	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.28	28	Coal-fired	23	
Industrial	4.46	31	Petroleum-fired	25	
Commercial	6.34	21	Gas-fired	31	
Residential	7.65	27	Nuclear	13	
Industry			Nonutility		
Capability (MW)	9,965	30	Capability (MW)	49	47
Generation (MWh)	41,585,227	31	Share of Capability (Percent) . . .	0.5	48
Capability/person			Generation (MWh)	104,400	48
(KWe/person)	3.78	14	Share of Generation (Percent) . .	0.3	49
Generation/person					
(MWh/person)	15.76	22			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	98	26			
Nitrogen Oxide	129	24			
Carbon Dioxide	34,069	30			
Sulfur Dioxide/sq. mile (Tons)	1.2	33			
Nitrogen Oxides/sq. mile (Tons)	1.57	34			
Carbon Dioxide/sq. mile (Tons)	416.37	37			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Jeffrey EC	Coal	KPL Western Resources Co	2,214	20
2. Lacygne	Coal	Kansas City Power & Light Co	1,362	25
3. Wolf Creek	Nuclear	Wolf Creek Nuclear Oper Corp	1,164	13
4. Lawrence EC	Coal	KPL Western Resources Co	598	46
5. Gordon Evans EC	Gas	Kansas Gas & Electric Co	534	37

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Kansas Gas & Electric Company	581	238	170	167	6
B. Western Resources, Inc	472	191	186	90	4
C. Kansas City Power & Light Co	329	155	145	24	5
D. Board of Public Utilities	117	36	47	31	3
E. UtiliCorp United, Inc	107	39	39	27	2
Total	1,605	659	588	339	20
Percentage of Utility Sales	75	73	77	78	53

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	9,507	9,706	9,915	0.5	99.5	99.5	99.5
Coal-fired	5,010	5,189	5,407	0.9	52.5	53.2	54.3
Petroleum-fired	290	317	214	-3.3	3.0	3.2	2.1
Gas-fired	78	291	376	19.1	0.8	3.0	3.8
Dual-fired	2,998	2,775	2,754	-0.9	31.4	28.5	27.6
Nuclear	1,128	1,134	1,164	0.3	11.8	11.6	11.7
Hydroelectric	2	--	--	--	*	--	--
Renewable	*	*	--	--	*	*	--
Total Nonutility	44	44	49	1.2	0.5	0.5	0.5
Industry	9,552	9,750	9,965	0.5	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

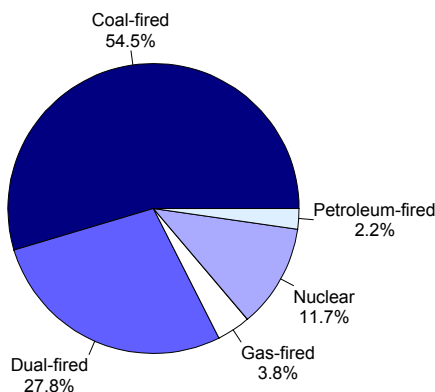


Figure 2. Utility Generation by Primary Energy Source, 1998

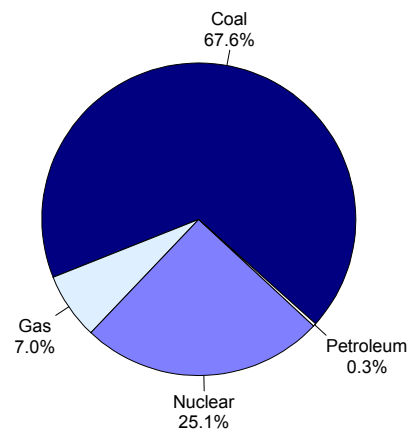


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	31,385,362	36,432,577	41,480,827	3.1	99.0	99.2	99.7
Coal	23,088,642	26,799,665	28,023,687	2.2	72.8	72.9	67.4
Petroleum	146,530	76,463	122,143	-2.0	0.5	0.2	0.3
Gas	1,488,597	1,656,848	2,924,279	7.8	4.7	4.5	7.0
Nuclear	6,649,977	7,899,543	10,410,718	5.1	21.0	21.5	25.0
Hydroelectric	11,523	--	--	*	*	--	--
Renewable	94	58	--	*	*	*	--
Total Nonutility	329,555	309,990	104,400	-12.0	1.0	0.8	0.3
Industry	31,714,917	36,742,567	41,585,227	3.1	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	123.9	102.2	98.1	-2.6
Petroleum	318.6	402.4	265.5	-2.0
Gas	206.0	232.0	213.7	0.4

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	112	70	98	-1.5
Nitrogen Oxides ^c	115	119	129	1.3
Carbon Dioxide ^c	28,455	32,649	34,069	2.0

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

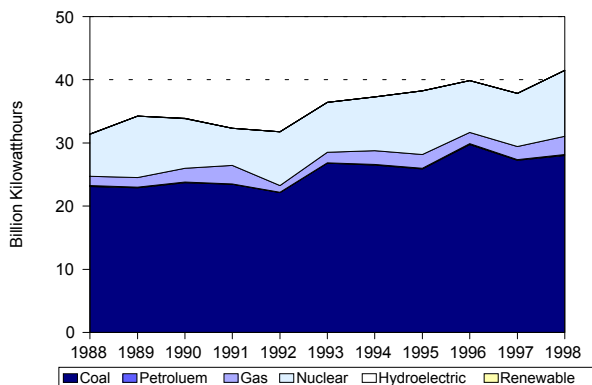


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

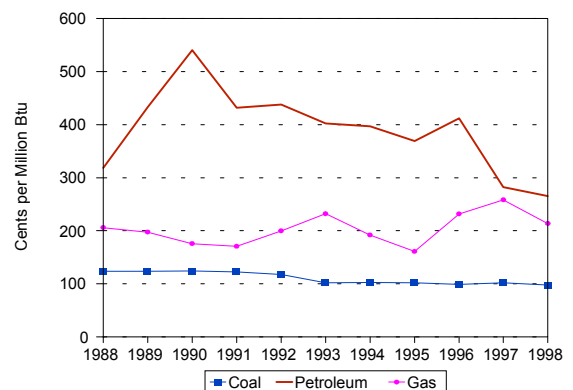


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

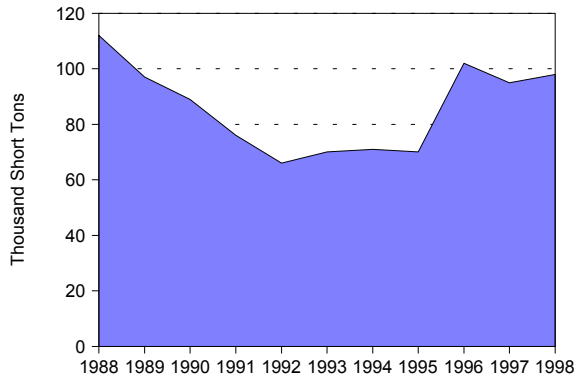


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

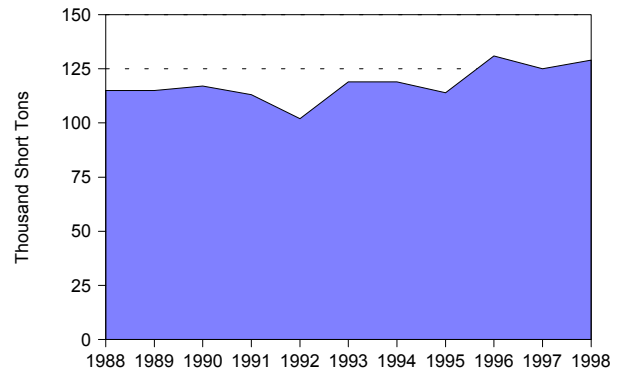


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

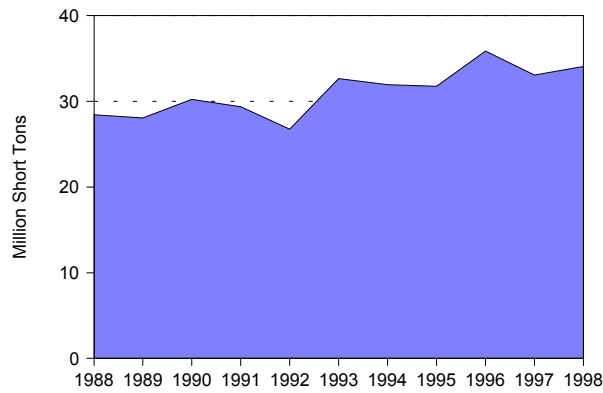


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	9,120,965	9,986,318	11,831,973	2.9	35.3	34.7	34.7
Commercial . .	8,583,051	9,753,228	12,073,058	3.9	33.2	33.9	35.4
Industrial	7,707,657	8,702,319	9,761,952	2.7	29.8	30.2	28.6
Other	417,025	366,520	473,193	1.4	1.6	1.3	1.4
Total	25,828,692	28,808,385	34,140,176	3.1	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

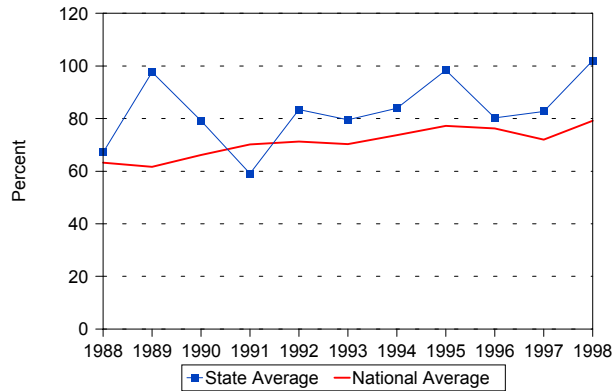


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	6	121	--	35	162
Number of Retail Customers	773,994	224,719	--	172,264	1,170,977
Retail Sales (MWh)	18,524,766	4,556,271	--	2,747,655	25,828,692
Percentage of Retail Sales	71.7	17.6	--	10.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,503	341	--	297	2,141
Percentage of Revenue	70.2	15.9	--	13.9	100.0
1993					
Number of Utilities	6	121	--	33	160
Number of Retail Customers	830,176	226,337	--	179,810	1,236,323
Retail Sales (MWh)	21,019,088	4,871,294	--	2,918,003	28,808,385
Percentage of Retail Sales	73	16.9	--	10.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,488	325	--	281	2,094
Percentage of Revenue	71.1	15.5	--	13.4	100.0
1998					
Number of Utilities	6	119	--	32	157
Number of Retail Customers	890,968	233,056	--	190,907	1,314,931
Retail Sales (MWh)	24,799,250	5,742,510	--	3,598,416	34,140,176
Percentage of Retail Sales	72.6	16.8	--	10.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,503	343	--	299	2,145
Percentage of Revenue	70.1	16.0	--	13.9	100.0

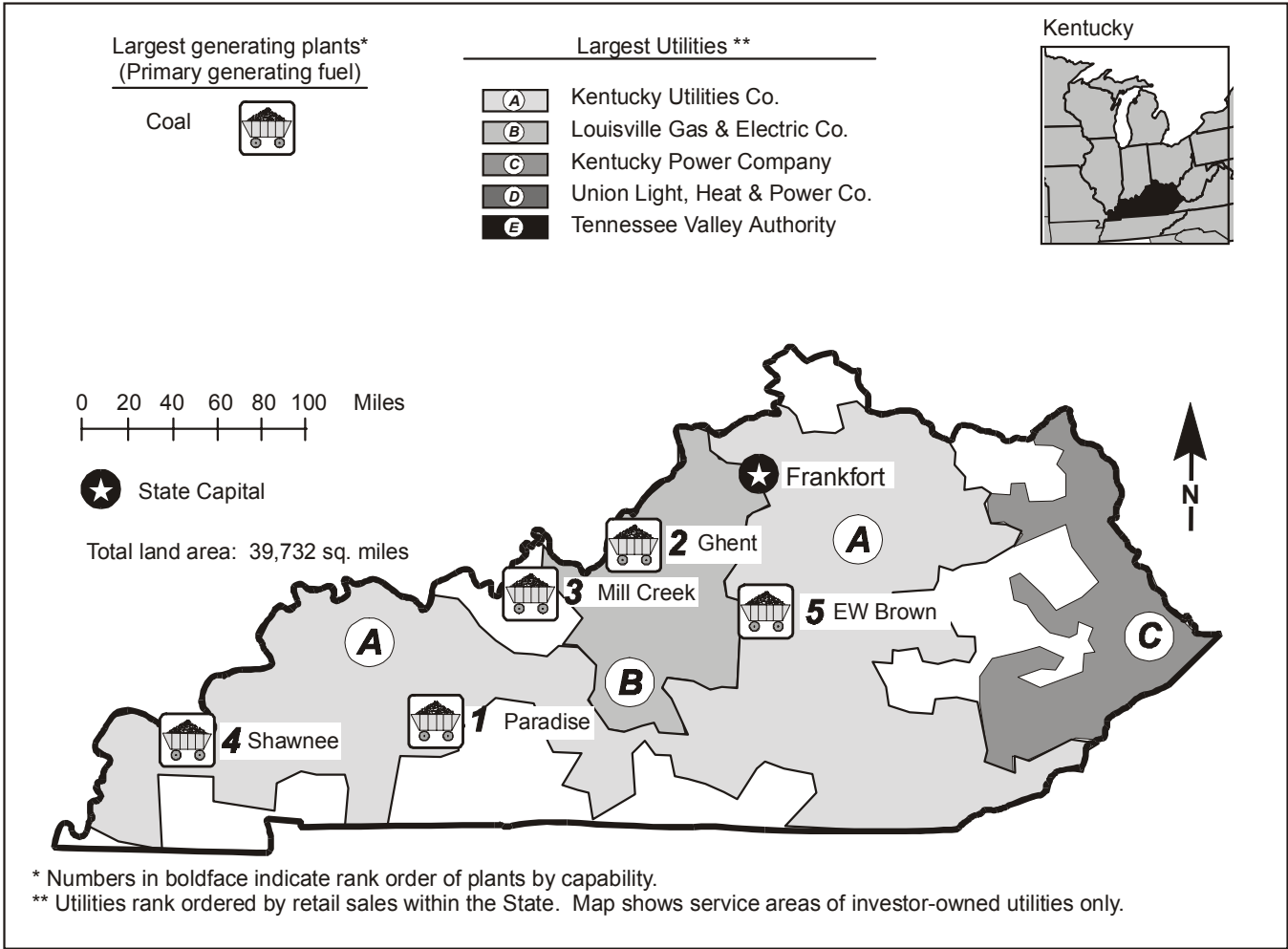


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		ECAR/SERC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	13,995	21
Primary Generating Fuel		Coal	Generation (MWh)	86,151,121	15
Population (as of 7/98)	3,934,310	25	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	4.16	3	Coal-fired	27	
Industrial	2.91	3	Petroleum-fired	40	
Commercial	5.3	5	Gas-fired	9	
Residential	5.61	3	Hydroelectric	45	
Industry			Nonutility		
Capability (MW)	16,007	20	Capability (MW)	2,012	12
Generation (MWh)	90,936,825	16	Share of Capability (Percent) . . .	12.6	15
Capability/person			Generation (MWh)	4,785,704	19
(KWe/person)	4.07	9	Share of Generation (Percent) . .	5.3	32
Generation/person					
(MWh/person)	23.11	6			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	739	5			
Nitrogen Oxide	328	7			
Carbon Dioxide	91,233	6			
Sulfur Dioxide/sq. mile (Tons)	18.59	6			
Nitrogen Oxides/sq. mile (Tons)	8.27	5			
Carbon Dioxide/sq. mile (Tons)	2,296.21	13			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Paradise	Coal	Tennessee Valley Authority	2,169	35
2. Ghent	Coal	Kentucky Utilities Co	1,968	24
3. Mill Creek	Coal	Louisville Gas & Electric Co	1,470	26
4. Shawnee	Coal	Tennessee Valley Authority	1,330	45
5. E W Brown	Coal, Gas	Kentucky Utilities Co	1,147	41

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Kentucky Utilities Company	604	221	150	177	56
B. Louisville Gas & Electric Co	553	213	171	113	55
C. Kentucky Power Company	260	105	60	94	1
D. Union Light, Heat & Power Co	190	72	56	44	19
E. Tennessee Valley Authority	165	--	--	163	2
Total	1,771	611	436	592	133
Percentage of Utility Sales	56	50	65	53	89

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	15,043	15,297	13,995	-0.8	100.0	100.0	100.0
Coal-fired	13,839	14,093	12,517	-1.1	92.0	92.1	89.4
Petroleum-fired	124	134	70	-6.2	0.8	0.9	0.5
Gas-fired	207	207	92	-8.6	1.4	1.4	0.7
Dual-fired	78	68	508	23.1	0.5	0.4	3.6
Hydroelectric	795	795	808	0.2	5.3	5.2	5.8
Total Nonutility	W	W	2,012	--	--	--	--
Industry	W	W	16,007	--	--	--	--

Figure 1. Utility Generating Capability by Plant Type, 1998

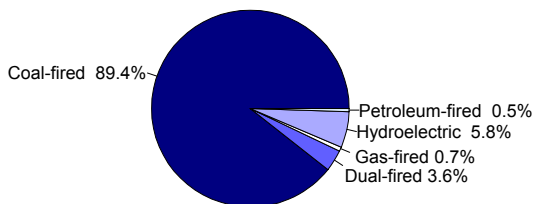


Figure 2. Utility Generation by Primary Energy Source, 1998

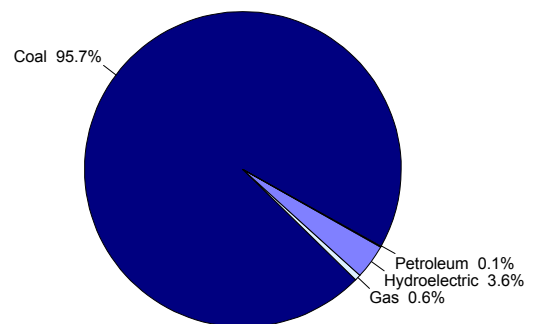


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	76,436,044	84,997,718	86,151,121	1.3	100.0	100.0	100.0
Coal	73,847,433	81,722,246	82,412,216	1.2	96.6	96.1	95.7
Petroleum	125,609	96,727	127,062	0.1	0.2	0.1	0.1
Gas	40,214	23,632	495,825	32.2	0.1	*	0.6
Hydroelectric	2,422,787	3,155,113	3,116,018	2.8	3.2	3.7	3.6
Total Nonutility Industry	W	W	4,785,704	--	--	--	--
	W	W	90,936,825	--	--	--	--

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	119.8	116.7	105.9	-1.3
Petroleum	384.6	437.8	383.3	*
Gas	246.0	301.1	331.9	3.4

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	736	979	739	*
Nitrogen Oxides ^c	334	356	329	-0.2
Carbon Dioxide ^c	75,261	84,590	91,233	2.2

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

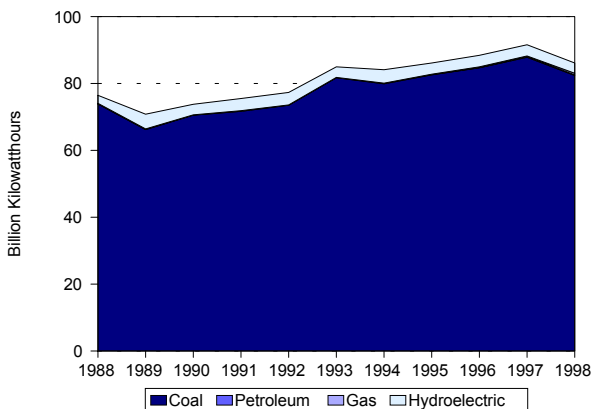


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

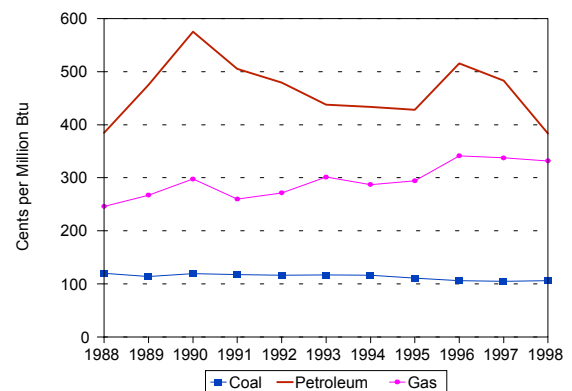


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

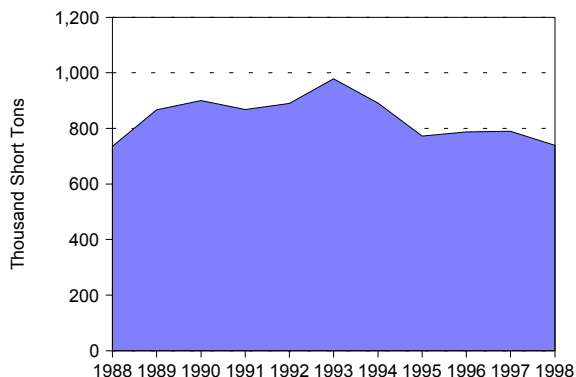


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

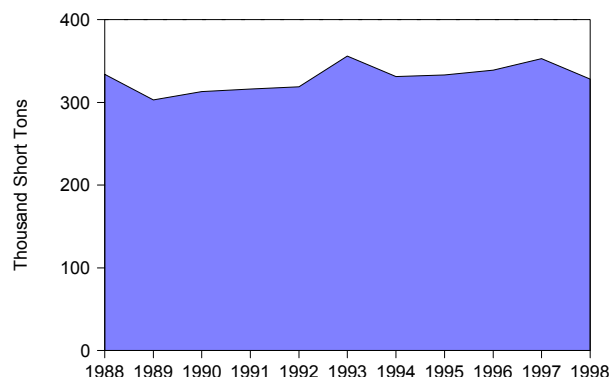


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

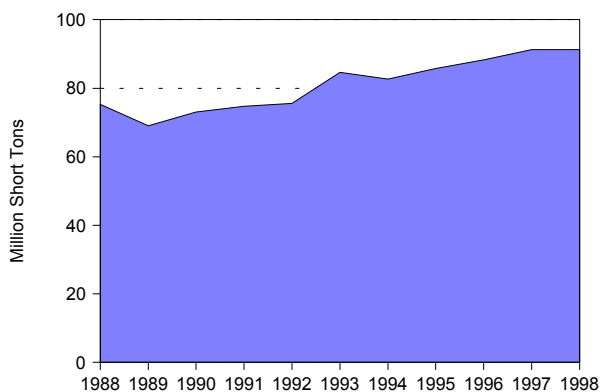


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	16,810,999	19,223,127	21,669,405	2.9	31.1	28.2	28.6
Commercial . .	8,439,226	9,828,936	12,728,800	4.7	15.6	14.4	16.8
Industrial	26,446,283	36,320,037	38,259,679	4.2	48.9	53.3	50.4
Other	2,381,681	2,777,084	3,192,427	3.3	4.4	4.1	4.2
Total	54,078,192	68,149,184	75,850,311	3.8	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

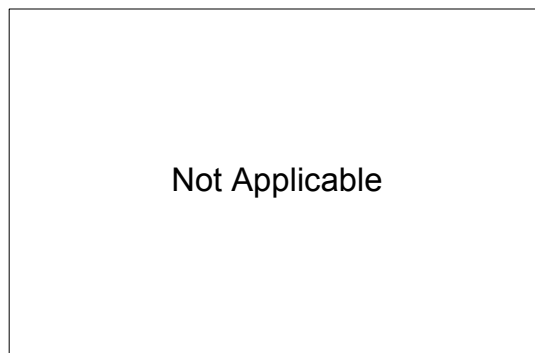


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	5	31	1	27	64
Number of Retail Customers	944,075	182,722	21	511,332	1,638,150
Retail Sales (MWh)	32,181,417	4,802,774	2,202,550	14,891,451	54,078,192
Percentage of Retail Sales	59.5	8.9	4.1	27.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,765	307	421	1,026	3,518
Percentage of Revenue	50.2	8.7	12.0	29.2	100.0
1993					
Number of Utilities	6	30	1	27	64
Number of Retail Customers	1,012,513	187,647	22	578,394	1,778,576
Retail Sales (MWh)	43,248,103	5,277,434	2,184,164	17,439,483	68,149,184
Percentage of Retail Sales	63.5	7.7	3.2	25.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,836	285	168	951	3,241
Percentage of Revenue	56.7	8.8	5.2	29.3	100.0
1998					
Number of Utilities	6	30	1	26	63
Number of Retail Customers	1,095,461	196,710	22	663,311	1,955,504
Retail Sales (MWh)	42,399,144	6,315,631	6,813,655	20,321,881	75,850,311
Percentage of Retail Sales	55.9	8.3	9.0	26.8	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,726	317	165	947	3,155
Percentage of Revenue	54.7	10.0	5.2	30.0	100.0

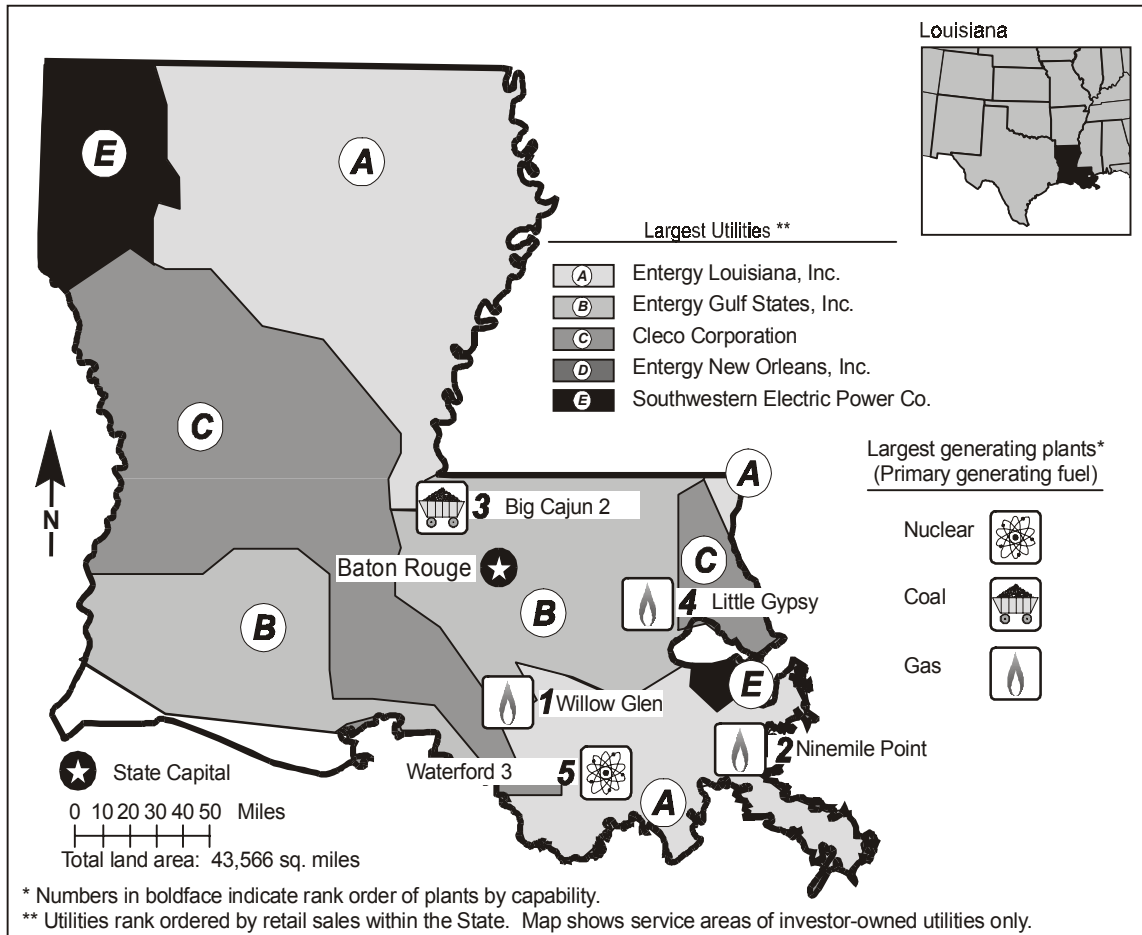


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SPP/SERC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	17,014	16
Primary Generating Fuel		Gas	Generation (MWh)	66,107,474	20
Population (as of 7/98)	4,362,758	22	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.78	19	Coal-fired	15	
Industrial	4.15	19	Petroleum-fired	31	
Commercial	6.56	26	Gas-fired	29	
Residential	7.07	17	Nuclear	13	
Industry			Nonutility		
Capability (MW)	20,372	14	Capability (MW)	3,358	7
Generation (MWh)	89,622,382	17	Share of Capability (Percent)	16.5	11
Capability/person			Generation (MWh)	23,514,908	4
(KWe/person)	4.67	7	Share of Generation (Percent)	26.2	7
Generation/person					
(MWh/person)	20.54	8			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	179	20			
Nitrogen Oxide	153	19			
Carbon Dioxide	53,161	16			
Sulfur Dioxide/sq. mile (Tons)	4.12	23			
Nitrogen Oxides/sq. mile (Tons)	3.52	22			
Carbon Dioxide/sq. mile (Tons)	1,220.24	22			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Willow Glen	Gas	Entergy Gulf States Inc	2,045	38
2. Ninemile Point	Gas	Entergy Louisiana Inc	1,827	47
3. Big Cajun 2	Coal	Cajun Electric Power Coop Inc	1,725	17
4. Little Gypsy	Gas	Entergy Louisiana Inc	1,253	37
5. Waterford 3	Nuclear	Entergy Louisiana Inc	1,075	13

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Entergy Louisiana, Inc	1,596	599	367	598	33
B. Entergy Gulf States, Inc	1,054	317	256	453	29
C. Cleco Corporation	450	219	94	105	34
D. Entergy New Orleans, Inc	403	165	149	26	62
E. Southwestern Electric Power Co	276	136	78	50	11
Total	3,779	1,435	945	1,231	169
Percentage of Utility Sales	84	76	83	96	93

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	16,850	16,885	17,014	0.1	85.4	86.0	83.5
Coal-fired	3,333	3,343	3,448	0.4	16.9	17.0	16.9
Petroleum-fired	44	212	16	-10.6	0.2	1.1	0.1
Gas-fired	754	616	1,443	7.5	3.8	3.1	7.1
Dual-fired	10,708	10,708	10,096	-0.7	54.3	54.6	49.6
Nuclear	2,011	2,006	2,011	*	10.2	10.2	9.9
Total Nonutility	2,879	2,739	3,358	1.7	14.6	14.0	16.5
Industry	19,729	19,624	20,372	0.4	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

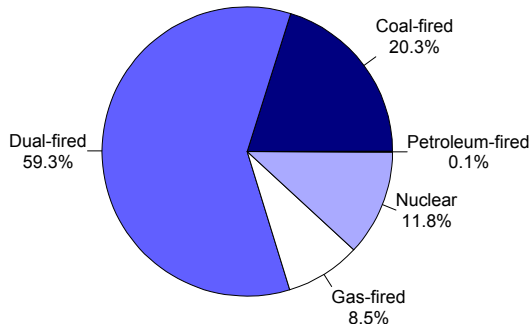


Figure 2. Utility Generation by Primary Energy Source, 1998

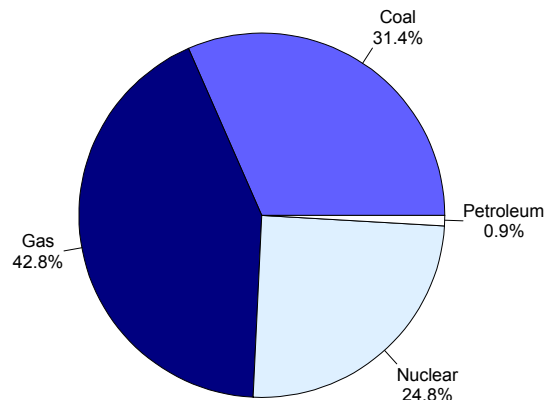


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	56,773,516	59,352,572	66,107,474	1.7	72.2	75.2	73.8
Coal	18,430,591	19,365,873	20,761,891	1.3	23.4	24.5	23.2
Petroleum	271,721	1,837,844	600,078	9.2	0.3	2.3	0.7
Gas	24,285,837	23,750,752	28,318,004	1.7	30.9	30.1	31.6
Nuclear	13,785,366	14,398,103	16,427,501	2.0	17.5	18.2	18.3
Total Nonutility	21,833,914	19,591,096	23,514,908	0.8	27.8	24.8	26.2
Industry	78,607,430	78,943,668	89,622,382	1.5	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	155.5	158.5	142.9	-0.9
Petroleum	347.6	222.7	222.3	-4.8
Gas	163.1	238.5	227.4	3.8

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	83	182	179	9.0
Nitrogen Oxides ^c	126	127	153	2.2
Carbon Dioxide ^c	35,243	38,817	53,161	4.7

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

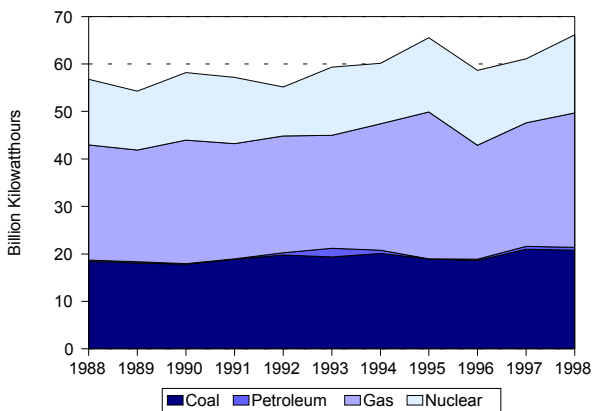


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

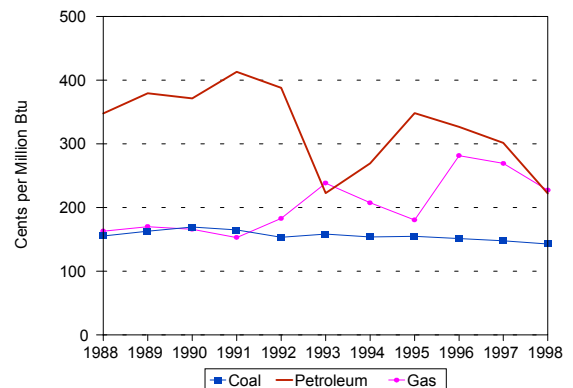


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

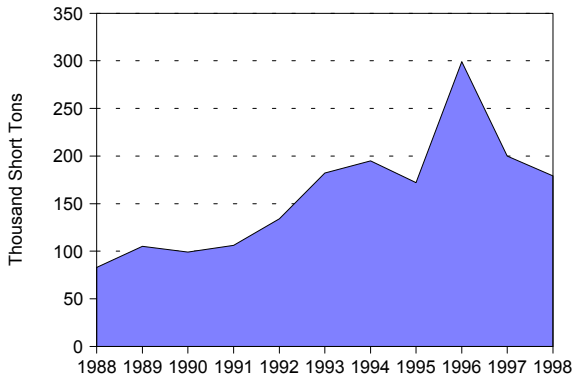


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

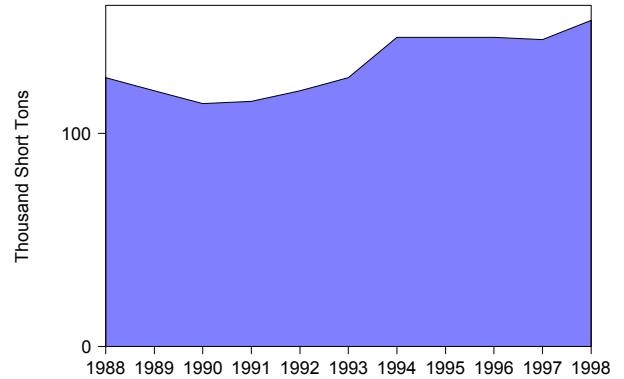


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

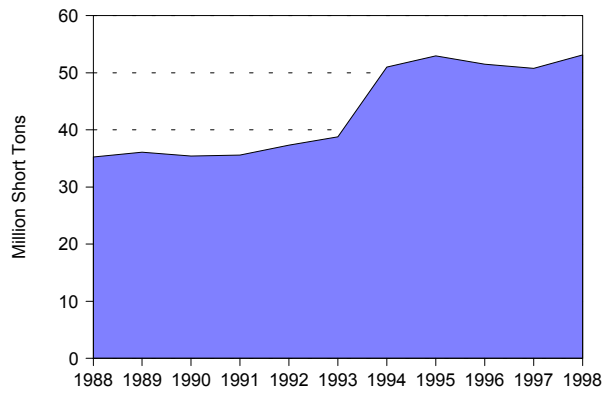


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	20,133,877	22,430,246	26,708,911	3.2	33.5	33.1	34.4
Commercial . .	13,087,805	14,398,302	17,274,245	3.1	21.8	21.3	22.2
Industrial	23,558,646	28,439,211	30,999,298	3.1	39.3	42.0	39.9
Other	3,230,382	2,488,066	2,733,637	-1.8	5.4	3.7	3.5
Total	60,010,714	67,755,825	77,716,091	2.9	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

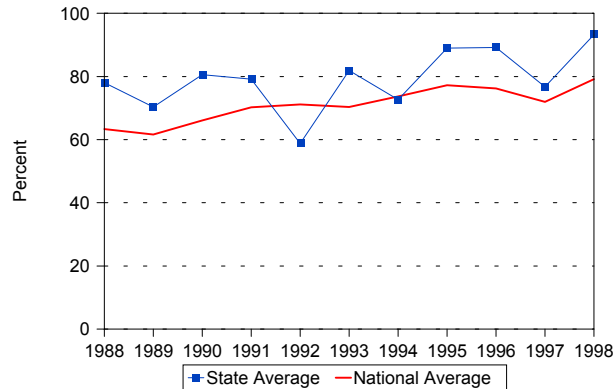


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	6	21	--	15	42
Number of Retail Customers	1,380,312	133,333	--	318,244	1,831,889
Retail Sales (MWh)	52,356,478	2,929,019	--	4,725,217	60,010,714
Percentage of Retail Sales	87.2	4.9	--	7.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	3,728	235	--	479	4,442
Percentage of Revenue	83.9	5.3	--	10.8	100.0
1993					
Number of Utilities	5	22	--	15	42
Number of Retail Customers	1,448,209	143,397	--	326,315	1,917,921
Retail Sales (MWh)	59,087,591	3,424,023	--	5,244,211	67,755,825
Percentage of Retail Sales	87.2	5.1	--	7.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	3941	252	--	477	4670
Percentage of Revenue	84.4	5.4	--	10.2	100.0
1998					
Number of Utilities	5	22	--	13	40
Number of Retail Customers	3,941	252	--	477	4,670
Retail Sales (MWh)	67,099,906	4,094,992	--	6,521,193	77,716,091
Percentage of Retail Sales	86.3	5.3	--	8.4	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	3,779	261	--	449	4,490
Percentage of Revenue	84.2	5.8	--	10.0	100.0

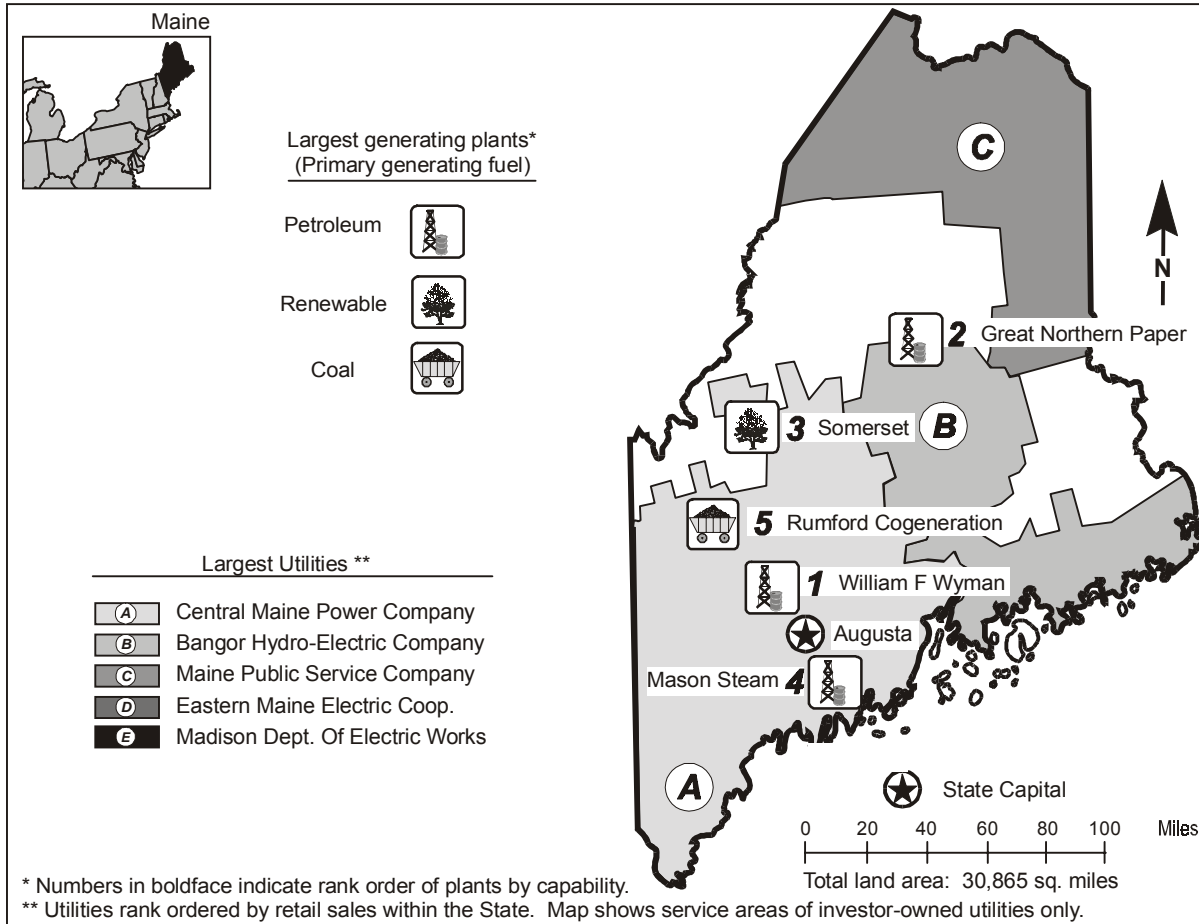


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		NPCC	Utility		
Net Exporter or Importer		Importer	Capacity (MW)	1,457	48
Primary Generating Fuel		Petroleum	Generation (MWh)	3,549,008	49
Population (as of 7/98)	1,247,554	39	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	9.75	44	Petroleum-fired	28	
Industrial	6.61	43	Hydroelectric	52	
Commercial	10.33	48	Renewable	4	
Residential	13.02	48	Nonutility		
Industry			Capacity (MW)	1,368	16
Capability (MW)	2,825	45	Share of Capability (Percent) . . .	48.4	3
Generation (MWh)	11,116,096	44	Generation (MWh)	7,567,088	12
Capability/person			Share of Generation (Percent) . .	68.1	2
(KWe/person)	2.26	39			
Generation/person					
(MWh/person)	8.91	42			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	12	44			
Nitrogen Oxide	12	46			
Carbon Dioxide	4,849	45			
Sulfur Dioxide/sq. mile (Tons)	0.39	42			
Nitrogen Oxides/sq. mile (Tons)	0.38	46			
Carbon Dioxide/sq. mile (Tons)	157.11	45			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. William F Wyman	Petroleum	Central Maine Power Co	838	41
2. Great Northern Paper	Petroleum	Great Northern Paper Inc	289	81
3. Somerset	Renewable	SAPPI	102	22
4. Mason Steam	Petroleum	Central Maine Power Co	98	46
5. Rumford Cogeneration	Coal	Mead Paper Corporation	96	8

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Central Maine Power Company	865	361	259	234	10
B. Bangor Hydro-Electric Company	177	71	61	43	2
C. Maine Public Service Company	51	21	18	10	1
D. Eastern Maine Electric Coop	12	7	2	3	*
E. Madison Dept of Electric Works	11	1	*	10	*
Total	1,116	461	341	300	14
Percentage of Utility Sales	99	99	99	98	96

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	2,360	2,402	1,457	-5.2	62.4	63.5	51.6
Petroleum-fired	1,128	1,111	1,025	-1.1	29.8	29.4	36.3
Nuclear	845	870	--	--	22.4	23.0	0.0
Hydroelectric	387	421	402	0.4	10.2	11.1	14.2
Renewable	--	--	30	--	--	--	1.0
Total Nonutility	1,419	1,382	1,368	-0.4	37.6	36.5	48.4
Industry	3,779	3,784	2,825	-3.2	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

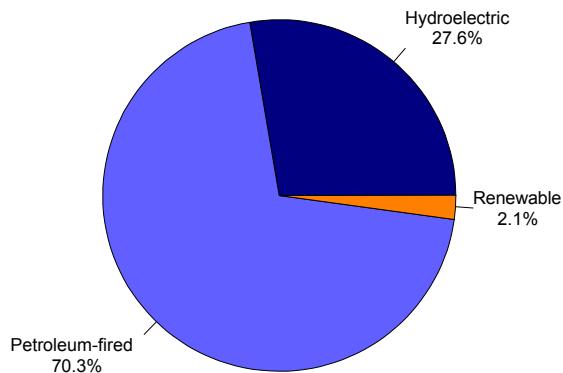


Figure 2. Utility Generation by Primary Energy Source, 1998

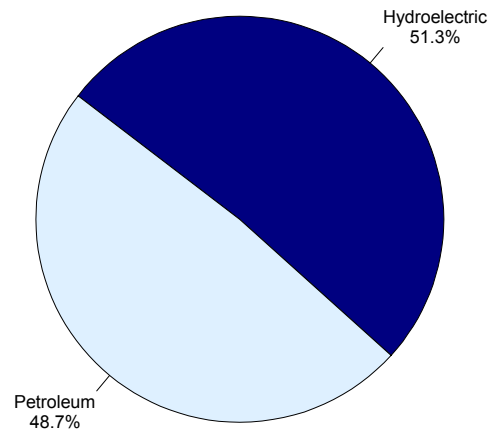


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	9,529,922	8,075,919	3,549,008	-10.4	57.1	51.6	31.9
Petroleum	2,944,027	760,460	1,728,702	-5.7	17.7	4.9	15.6
Nuclear	5,017,202	5,739,866	--	--	30.1	36.7	--
Hydroelectric	1,568,692	1,575,593	1,820,306	1.7	9.4	10.1	16.4
Total Nonutility	7,146,823	7,577,246	7,567,088	0.6	42.9	48.4	68.1
Industry	16,676,745	15,653,165	11,116,096	-4.4	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Petroleum	235.3	213.7	202.1	-1.7

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	14	6	12	-2.0
Nitrogen Oxides ^c	4	1	12	11.7
Carbon Dioxide ^c	2,532	736	4,849	7.5

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

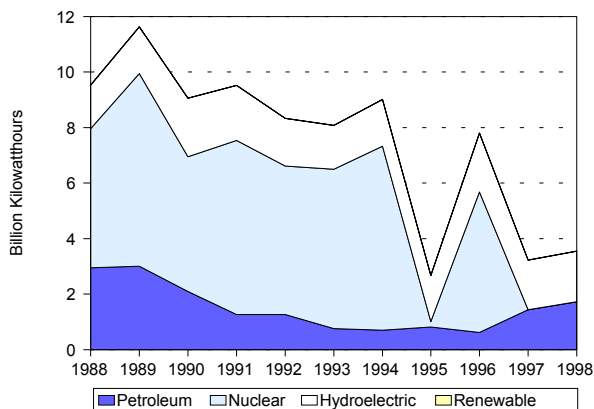


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

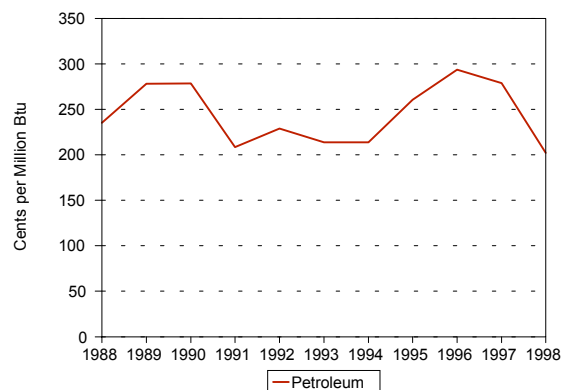


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

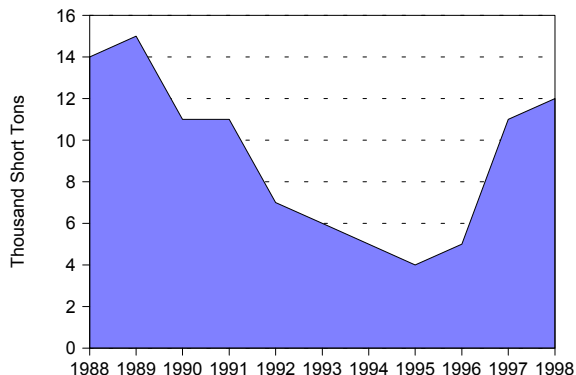


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

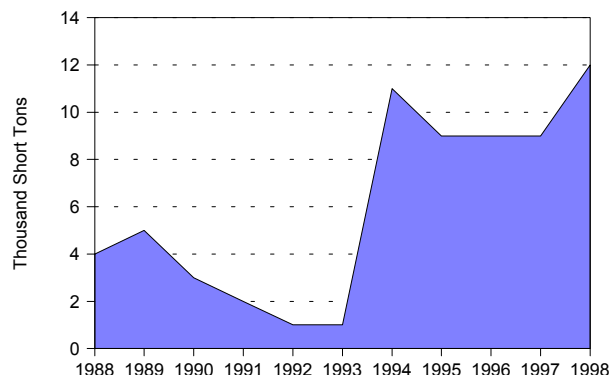


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

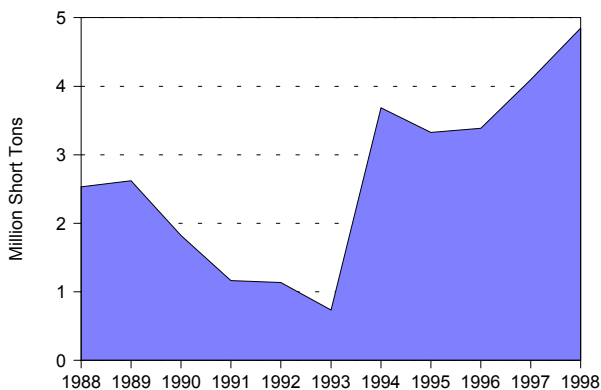


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	3,903,621	3,872,293	3,589,078	-0.9	34.7	32.4	30.9
Commercial . .	2,568,919	2,868,391	3,324,367	2.9	22.8	24.0	28.7
Industrial	4,616,049	5,039,630	4,622,053	*	41.0	42.2	39.8
Other	175,237	172,042	63,197	-10.7	1.6	1.4	0.5
Total	11,263,823	11,952,356	11,598,695	0.3	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

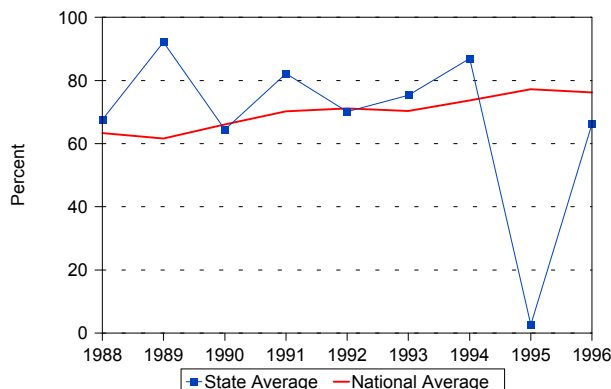


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	3	6	--	4	13
Number of Retail Customers	603,367	13,497	--	13,956	630,820
Retail Sales (MWh)	10,959,506	203,733	--	100,584	11,263,823
Percentage of Retail Sales	97.3	1.8	--	0.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	925	19	--	12	956
Percentage of Revenue	96.8	2.0	--	1.2	100.0
1993					
Number of Utilities	3	5	--	4	12
Number of Retail Customers	652,946	13,521	--	15,022	681,489
Retail Sales (MWh)	11,617,676	209,817	--	124,863	11,952,356
Percentage of Retail Sales	97.2	1.8	--	1.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,162	21	--	14	1,197
Percentage of Revenue	97.1	1.8	--	1.1	100.0
1998					
Number of Utilities	3	5	--	3	11
Number of Retail Customers	685,760	14,275	--	13,835	713,870
Retail Sales (MWh)	11,071,457	401,252	--	125,986	11,598,695
Percentage of Retail Sales	95.5	3.5	--	1.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,093	25	--	14	1,131
Percentage of Revenue	96.6	2.2	--	1.2	100.0

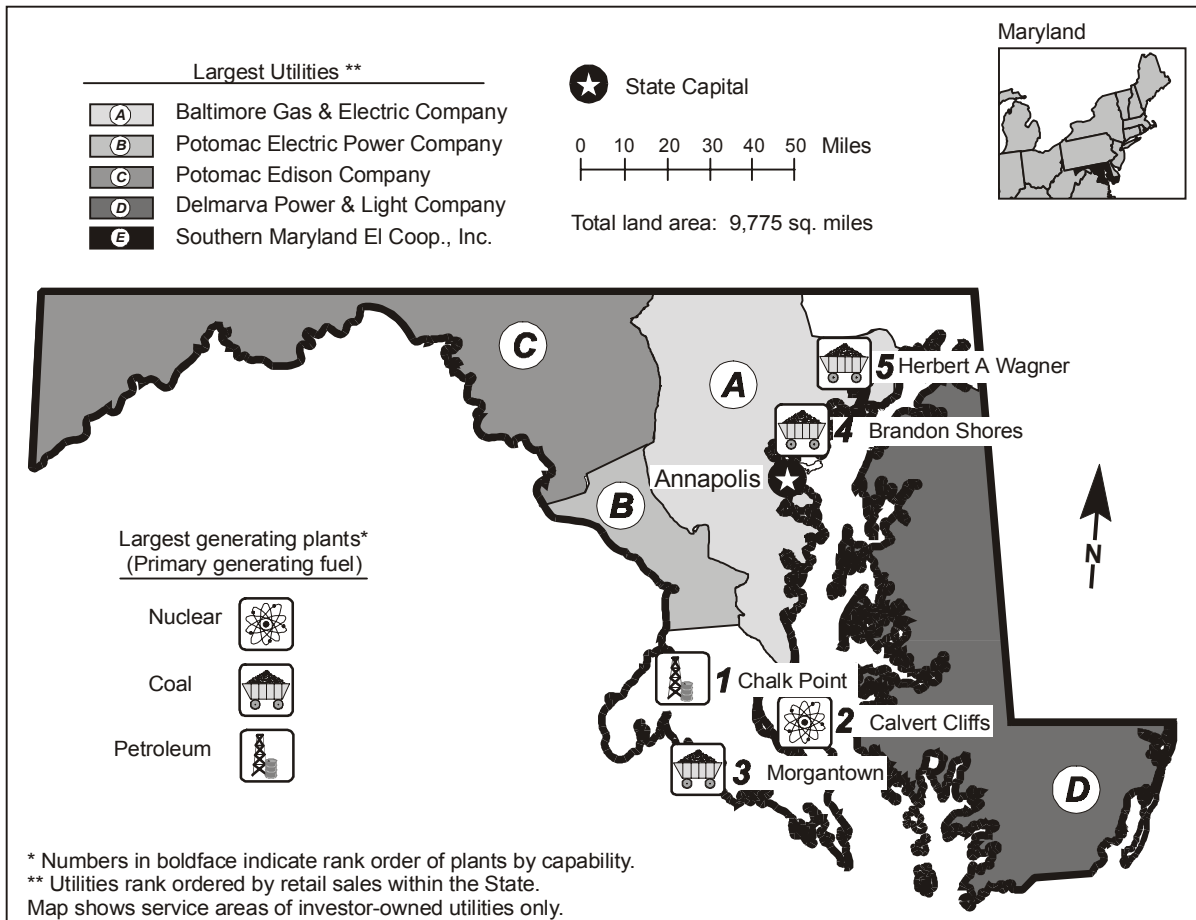


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		ECAR/MAAC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	10,970	25
Primary Generating Fuel		Coal	Generation (MWh)	48,513,503	24
Population (as of 7/98)	5,130,072	19	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.99	34	Coal-fired	27	
Industrial	4.14	18	Petroleum-fired	23	
Commercial	6.82	31	Gas-fired	19	
Residential	8.44	33	Nuclear	22	
Industry			Hydroelectric	52	
Capability (MW)	11,582	25	Nonutility		
Generation (MWh)	50,649,541	26	Capability (MW)	612	29
Capability/person			Share of Capability (Percent) . . .	5.3	31
(KWe/person)	2.26	40	Generation (MWh)	2,136,038	33
Generation/person			Share of Generation (Percent) . .	4.2	34
(MWh/person)	9.87	38			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	265	16			
Nitrogen Oxide	102	29			
Carbon Dioxide	35,434	26			
Sulfur Dioxide/sq. mile (Tons)	27.08	3			
Nitrogen Oxides/sq. mile (Tons)	10.39	4			
Carbon Dioxide/sq. mile (Tons)	3,624.94	4			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Chalk Point	Petroleum, Coal, Gas	Potomac Electric Power Co	2,423	34
2. Calvert Cliffs	Nuclear	Baltimore Gas & Electric Co	1,675	23
3. Morgantown	Coal, Petroleum	Potomac Electric Power Co	1,412	28
4. Brandon Shores	Coal	Baltimore Gas & Electric Co	1,296	14
5. Herbert A Wagner	Coal, Petroleum, Gas	Baltimore Gas & Electric Co	1,020	42

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Baltimore Gas & Electric Co	2,073	949	877	212	36
B. Potomac Electric Power Company	987	440	505	24	18
C. The Potomac Edison Company	408	172	95	138	3
D. Delmarva Power & Light Company	285	148	106	30	2
E. Southern Maryland EI Coop, Inc	193	123	49	11	10
Total	3,947	1,831	1,631	415	69
Percentage of Utility Sales	98	97	99	97	98

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	9,607	10,709	10,970	1.5	97.0	97.4	94.7
Coal-fired	3,972	4,628	4,647	1.8	40.1	42.1	40.1
Petroleum-fired	1,718	1,408	1,289	-3.1	17.4	12.8	11.1
Gas-fired	247	246	327	3.2	2.5	2.2	2.8
Dual-fired	1,592	2,338	2,503	5.2	16.1	21.3	21.6
Nuclear	1,650	1,660	1,675	0.2	16.7	15.1	14.5
Hydroelectric	428	428	530	2.4	4.3	3.9	4.6
Total Nonutility	296	290	612	8.4	3.0	2.6	5.3
Industry	9,903	10,998	11,582	1.8	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

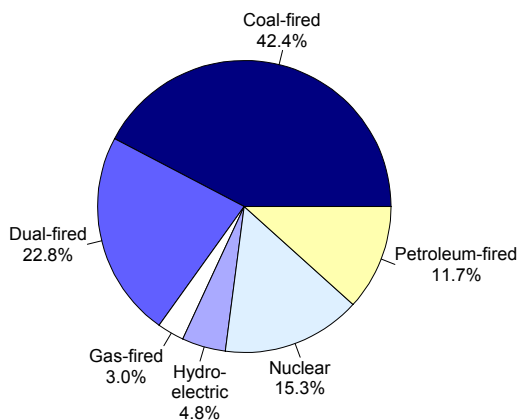


Figure 2. Utility Generation by Primary Energy Source, 1998

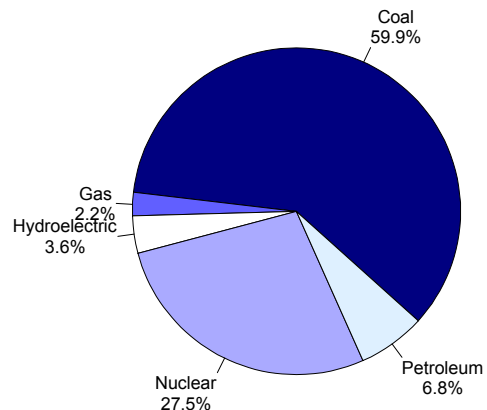


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	40,384,456	43,488,284	48,513,503	2.1	96.4	96.7	95.8
Coal	23,316,062	24,890,670	29,077,013	2.5	55.6	55.3	57.4
Petroleum	3,547,408	3,953,777	3,311,978	-0.8	8.5	8.8	6.5
Gas	402,433	684,750	1,054,177	11.3	1.0	1.5	2.1
Nuclear	11,733,990	12,300,816	13,330,598	1.4	28.0	27.3	26.3
Hydroelectric	1,327,501	1,658,271	1,739,737	3.1	3.2	3.7	3.4
Renewable	57,062	--	--	--	0.1	--	--
Total Nonutility Industry	1,529,195	1,489,590	2,136,038	3.8	3.6	3.3	4.2
Industry	41,913,652	44,977,874	50,649,541	2.1	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	157.6	159.9	145.7	-0.9
Petroleum	236.1	228.9	211.5	-1.2
Gas	259.7	288.8	263.2	0.1

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	271	269	265	-0.3
Nitrogen Oxides ^c	88	93	102	1.7
Carbon Dioxide ^c	26,854	29,322	35,434	3.1

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

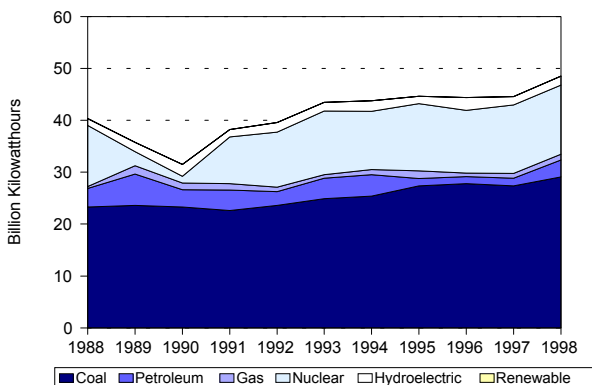


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

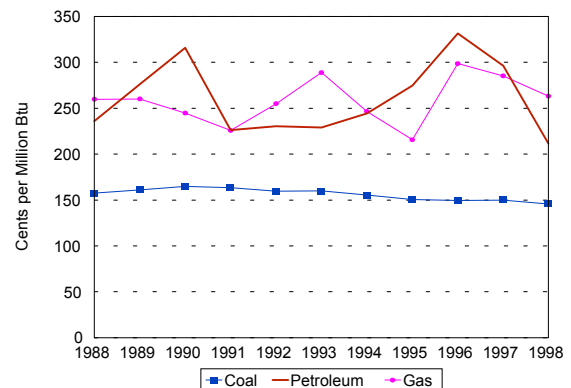


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

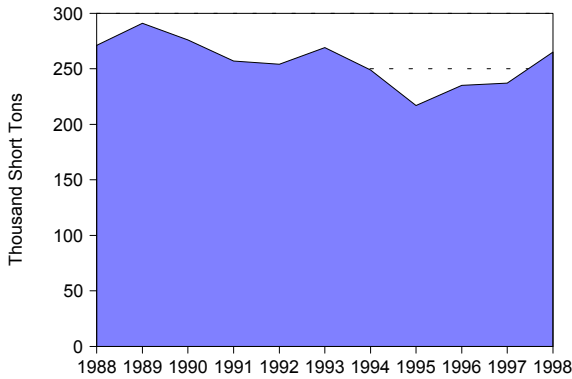


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

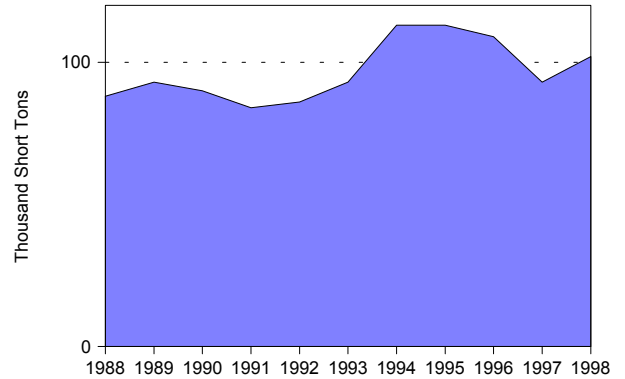


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

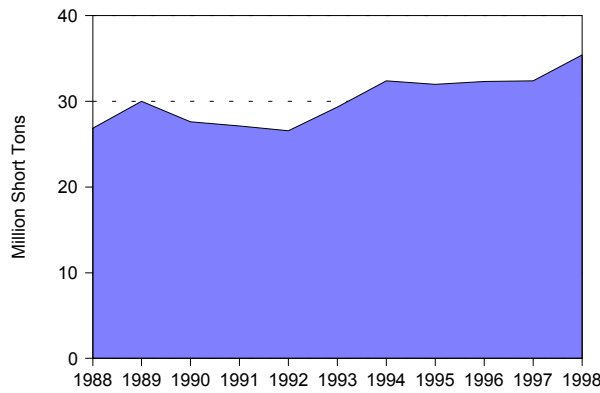


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	18,483,346	21,546,122	22,406,858	2.2	38.9	40.0	38.7
Commercial ..	11,006,418	11,316,965	24,284,167	9.2	23.1	21.0	42.0
Industrial	17,445,813	20,200,632	10,343,677	-5.6	36.7	37.5	17.9
Other	628,392	808,685	798,936	2.7	1.3	1.5	1.4
Total	47,563,968	53,872,404	57,833,638	2.2	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

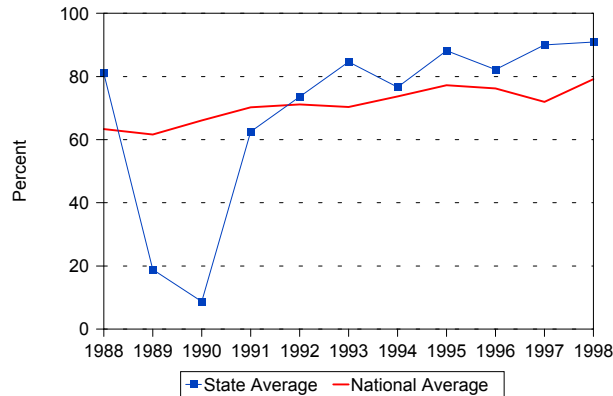


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	5	5	--	3	13
Number of Retail Customers	1,695,036	27,718	--	114,400	1,837,154
Retail Sales (MWh)	44,890,526	543,030	--	2,130,412	47,563,968
Percentage of Retail Sales	94.4	1.1	--	4.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	3,297	36	--	186	3,519
Percentage of Revenue	93.7	1.0	--	5.3	100.0
1993					
Number of Utilities	5	5	--	3	13
Number of Retail Customers	1,854,358	29,676	--	133,451	2,017,485
Retail Sales (MWh)	50,527,634	613,829	--	2,730,941	53,872,404
Percentage of Retail Sales	93.8	1.1	--	5.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	3,857	39	--	231	4,127
Percentage of Revenue	93.5	1.0	--	5.6	100.0
1998					
Number of Utilities	4	5	--	3	12
Number of Retail Customers	1,963,610	30,513	--	153,233	2,147,356
Retail Sales (MWh)	53,971,729	674,353	--	3,187,556	57,833,638
Percentage of Retail Sales	93.3	1.2	--	5.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	3,754	40	--	251	4,045
Percentage of Revenue	92.8	1.0	--	6.2	100.0

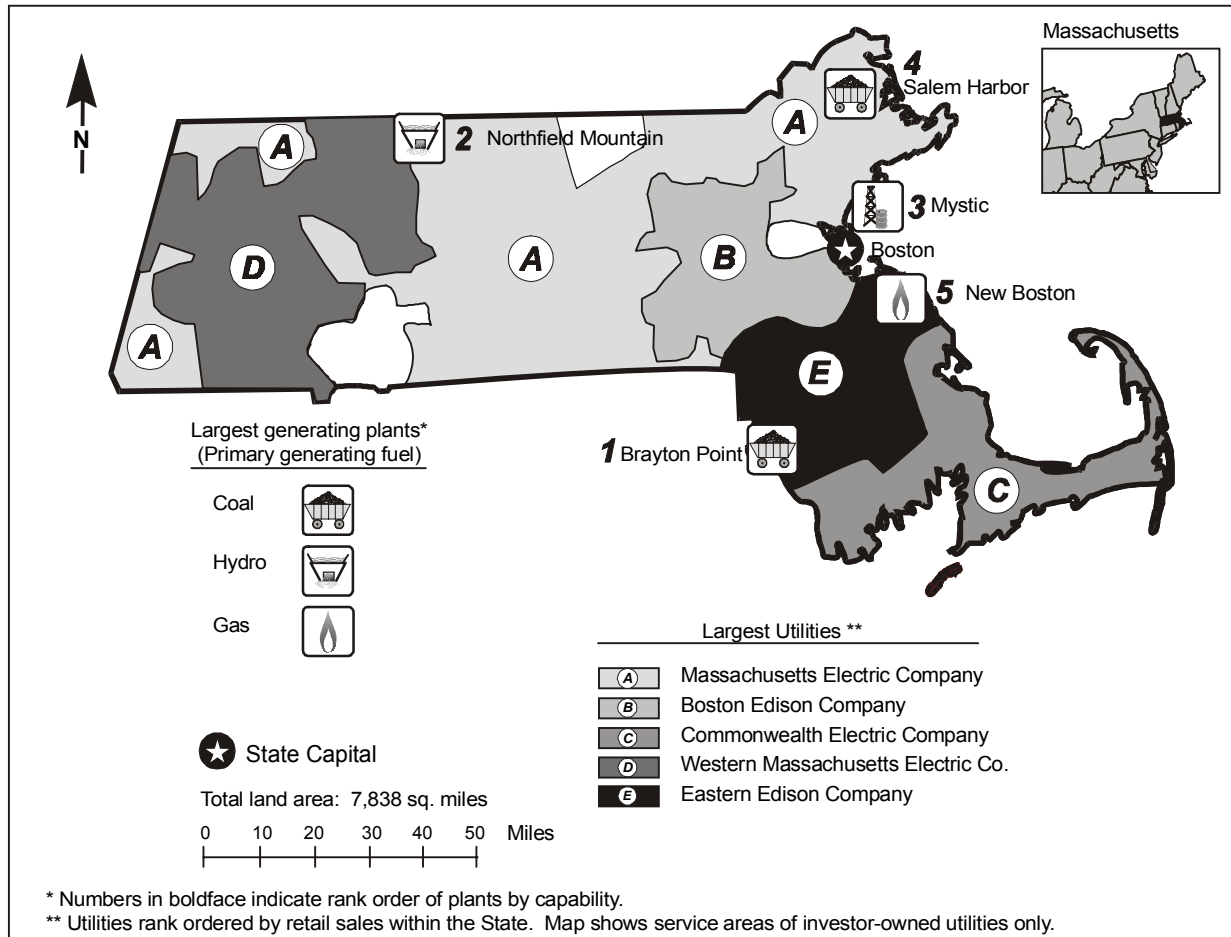


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		NPCC	Utility		
Net Exporter or Importer		Importer	Capacity (MW)	3,385	41
Primary Generating Fuel		Coal	Generation (MWh)	26,036,881	40
Population (as of 7/98)	6,144,407	13	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	9.59	43	Coal-fired	40	
Industrial	8.18	49	Petroleum-fired	29	
Commercial	9.35	42	Gas-fired	20	
Residential	10.6	41	Nuclear	26	
Industry			Hydroelectric	30	
Capacity (MW)	10,328	27	Renewable	14	
Generation (MWh)	45,817,498	28	Nonutility		
Capacity/person			Capacity (MW)	6,943	3
(KWe/person)	1.68	47	Share of Capacity (Percent)	67.2	2
Generation/person			Generation (MWh)	19,780,617	6
(MWh/person)	7.46	47	Share of Generation (Percent)	43.2	3
Emissions (Thousand Short Tons)					
Sulfur Dioxide	98	25			
Nitrogen Oxide	51	38			
Carbon Dioxide	30,080	32			
Sulfur Dioxide/sq. mile (Tons)	12.56	10			
Nitrogen Oxides/sq. mile (Tons)	6.48	12			
Carbon Dioxide/sq. mile (Tons)	3,837.76	2			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Brayton Point	Gas	US Gen New England Inc	1,539	40
2. Northfield Mountain	Hydro	Western Massachusetts Elec Co	1,120	26
3. Sithe Mystic LLC	Gas	Sithe New England Holdings LLC	1,056	41
4. Salem Harbor	Coal	US Gen New England Inc	746	46
5. New Boston	Gas	Sithe New England Holdings LLC	706	33

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Massachusetts Electric Company	1,469	572	569	310	17
B. Boston Edison Company	1,408	432	818	136	23
C. Commonwealth Electric Company	389	207	147	31	4
D. Western Massachusetts Elec Co	355	143	130	77	5
E. Eastern Edison Company	248	115	96	35	3
Total	3,869	1,468	1,760	589	51
Percentage of Utility Sales	83	85	88	70	61

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	9,837	9,461	3,385	-11.2	88.8	86.6	32.8
Coal-fired	1,746	1,679	328	-17.0	15.8	15.4	3.2
Petroleum-fired	3,225	2,691	431	-20.0	29.1	24.6	4.2
Gas-fired	176	18	115	-4.6	1.6	0.2	1.1
Dual-fired	2,079	2,552	574	-13.3	18.8	23.4	5.6
Nuclear	834	665	665	-2.5	7.5	6.1	6.4
Hydroelectric	1,778	1,856	1,272	-3.7	16.1	17.0	12.3
Renewable	--	*	*	*	--	*	*
Total Nonutility	1,237	1,465	6,943	21.1	11.2	13.4	67.2
Industry	11,074	10,925	10,328	-0.8	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

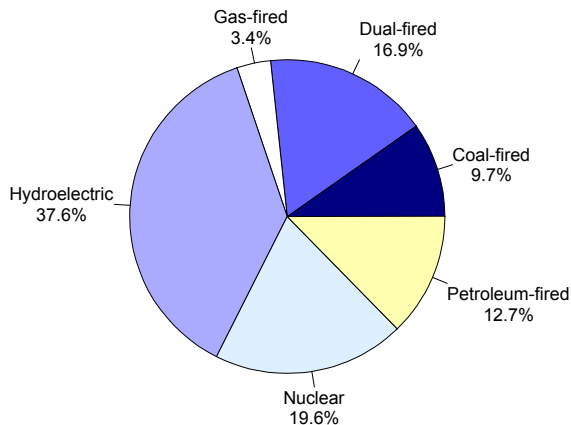


Figure 2. Utility Generation by Primary Energy Source, 1998

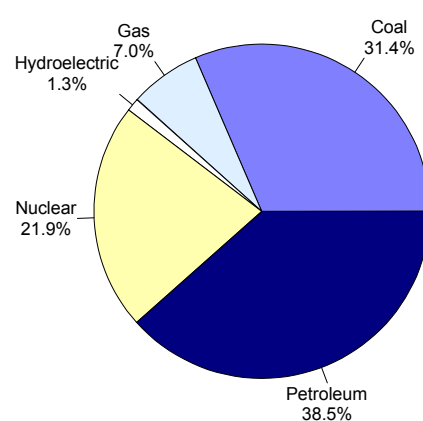


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	34,664,134	28,163,544	26,036,881	-3.1	82.7	76.0	56.8
Coal	11,687,474	9,815,909	8,168,608	-3.9	27.9	26.5	17.8
Petroleum	19,908,204	11,112,574	10,019,730	-7.3	47.5	30.0	21.9
Gas	1,802,037	2,897,352	1,818,857	0.1	4.3	7.8	4.0
Nuclear	1,116,887	4,338,685	5,698,414	19.9	2.7	11.7	12.4
Hydroelectric	149,532	-976	331,272	9.2	0.4	*	0.7
Total Nonutility Industry	7,237,833	8,879,528	19,780,617	11.8	17.3	24.0	43.2
Industry	41,901,967	37,043,072	45,817,498	1.0	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	161.2	167.5	167.6	0.4
Petroleum	225.9	261.7	192.5	-1.8
Gas	222.2	263.0	273.8	2.3

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	258	146	98	-10.1
Nitrogen Oxides ^c	70	46	51	-3.5
Carbon Dioxide ^c	28,260	19,313	30,080	0.7

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

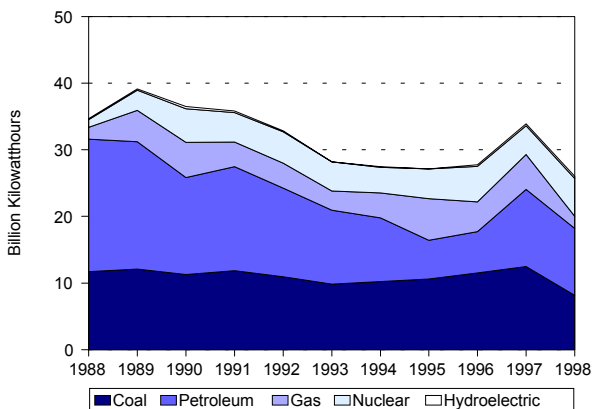


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

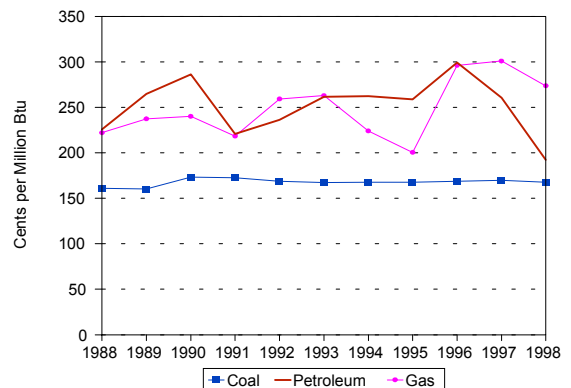


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

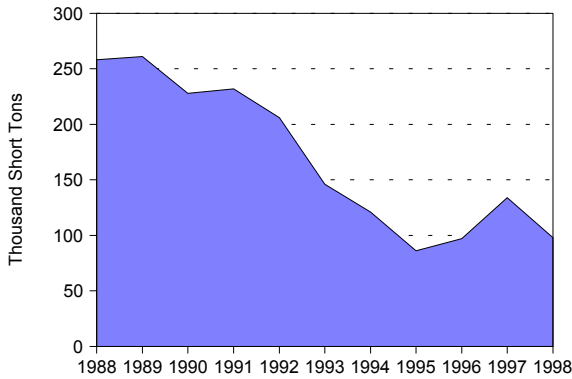


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

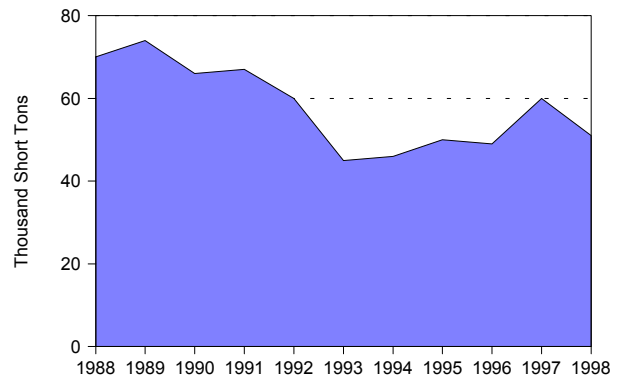


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

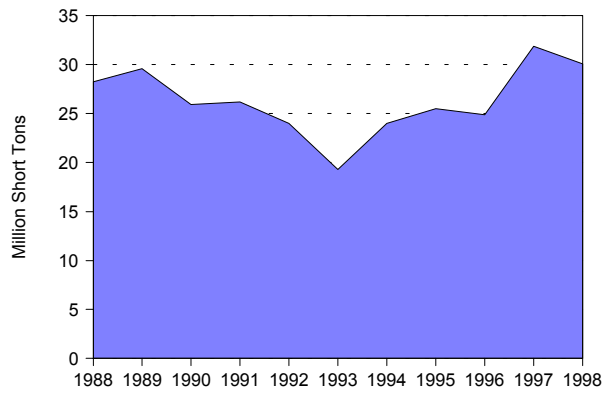


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	15,510,894	15,785,272	16,387,951	0.6	34.7	34.9	33.7
Commercial ..	17,886,023	18,896,866	21,422,373	2.0	40.0	41.7	44.1
Industrial	10,243,119	9,604,594	10,211,977	*	22.9	21.2	21.0
Other	1,086,946	994,016	584,843	-6.6	2.4	2.2	1.2
Total	44,726,985	45,280,748	48,607,144	0.9	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

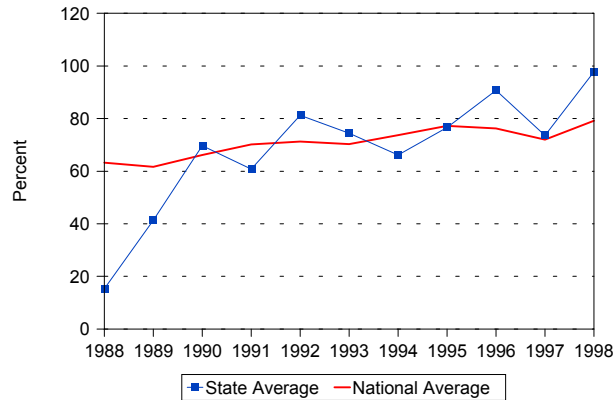


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	10	40	--	--	50
Number of Retail Customers	2,231,470	326,972	--	--	2,558,442
Retail Sales (MWh)	38,916,966	5,810,019	--	--	44,726,985
Percentage of Retail Sales	87.0	13.0	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	3,777	640	--	--	4,417
Percentage of Revenue	85.5	14.5	--	--	100.0
1993					
Number of Utilities	10	40	--	1	51
Number of Retail Customers	2,341,194	348,411	--	2,960	2,692,565
Retail Sales (MWh)	39,177,189	6,066,984	--	36,575	45,280,748
Percentage of Retail Sales	86.5	13.4	--	0.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	4,346	625	--	4	4,975
Percentage of Revenue	87.4	12.6	--	0.1	100.0
1998					
Number of Utilities	10	40	--	--	50
Number of Retail Customers	2,440,934	364,563	--	--	2,805,497
Retail Sales (MWh)	41,993,565	6,613,579	--	--	48,607,144
Percentage of Retail Sales	86.4	13.6	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	4,047	612	--	--	4,659
Percentage of Revenue	86.9	13.1	--	--	100.0

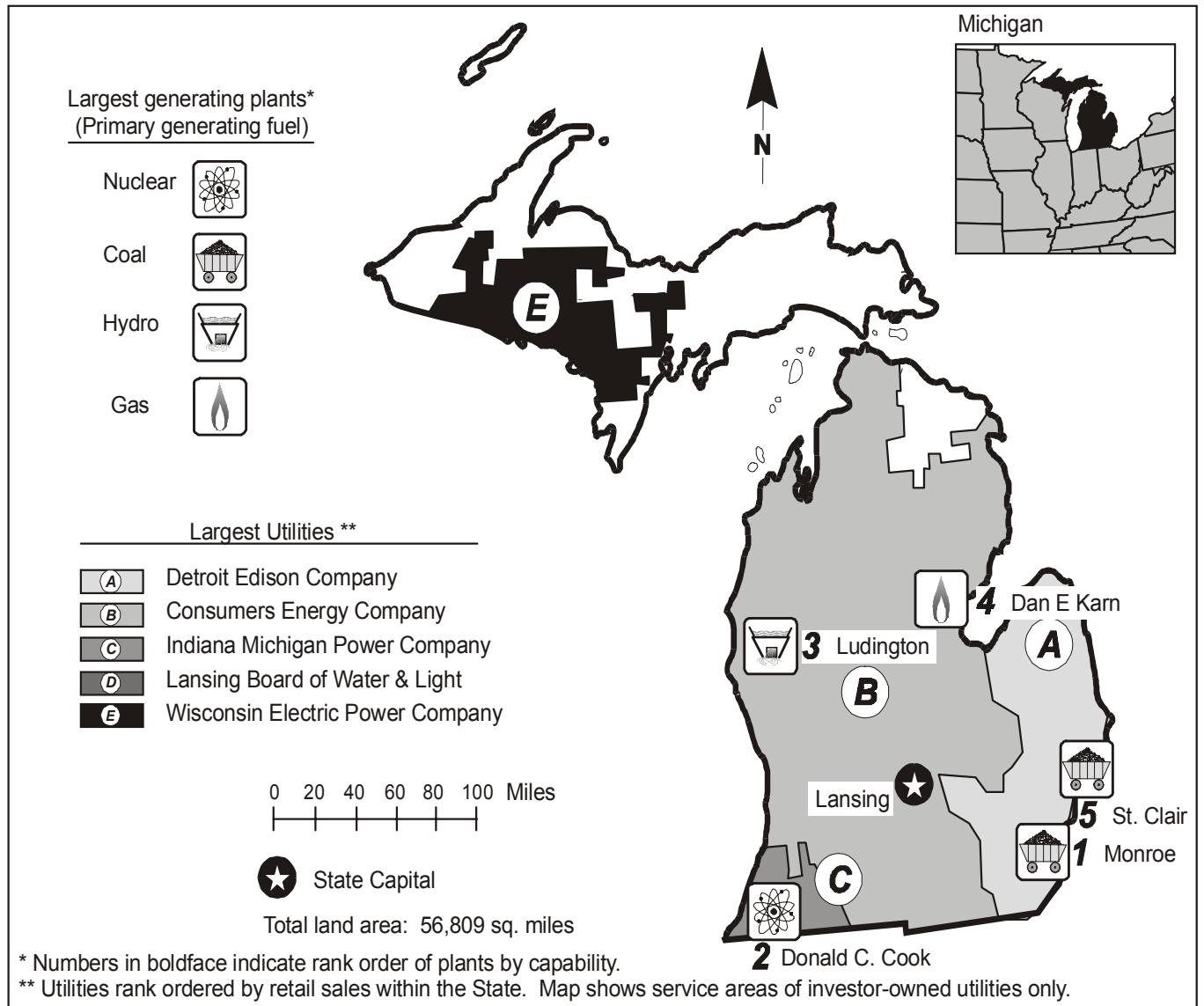


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		ECAR/MAIN	Utility		
Net Exporter or Importer		Importer	Capability (MW)	21,943	10
Primary Generating Fuel		Coal	Generation (MWh)	85,146,307	16
Population (as of 7/98)	9,820,231	8	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	7.09	36	Coal-fired	30	
Industrial	5.03	38	Petroleum-fired	27	
Commercial	7.81	39	Gas-fired	25	
Residential	8.67	34	Nuclear	19	
Industry			Hydroelectric	29	
Capability (MW)	24,634	10	Renewable	2	
Generation (MWh)	100,566,070	13	Nonutility		
Capability/person			Capability (MW)	2,691	10
(KWe/person)	2.51	33	Share of Capability (Percent)	10.9	18
Generation/person			Generation (MWh)	15,419,763	9
(MWh/person)	10.24	36	Share of Generation (Percent)	15.3	12
Emissions (Thousand Short Tons)					
Sulfur Dioxide	411	13			
Nitrogen Oxide	299	9			
Carbon Dioxide	80,164	9			
Sulfur Dioxide/sq. mile (Tons)	7.23	18			
Nitrogen Oxides/sq. mile (Tons)	5.26	13			
Carbon Dioxide/sq. mile (Tons)	1,411.12	17			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Monroe	Coal	Detroit Edison Co	3,014	29
2. Donald C Cook	Nuclear	Indiana Michigan Power Co	2,060	23
3. Ludington	Hydro	Consumers Energy Co	1,872	25
4. Dan E Karn	Gas, Petroleum, Coal	Consumers Energy Co	1,791	39
5. St Clair	Coal, Petroleum	Detroit Edison Co	1,681	45

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Detroit Edison Company	3,613	1,253	1,553	758	49
B. Consumers Energy Company	2,441	938	772	707	24
C. Indiana Michigan Power Co	181	73	49	57	2
D. Lansing Board of Water & Light	129	33	59	33	5
E. Wisconsin Electric Power Co	108	12	10	85	*
Total	6,472	2,310	2,442	1,639	80
Percentage of Utility Sales	91	89	92	91	85

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	22,409	22,412	21,943	-0.2	88.6	89.0	89.1
Coal-fired	12,036	11,929	11,840	-0.2	47.6	47.4	48.1
Petroleum-fired	3,058	1,639	2,438	-2.5	12.1	6.5	9.9
Gas-fired	412	685	403	-0.2	1.6	2.7	1.6
Dual-fired	721	1,993	1,230	6.1	2.9	7.9	5.0
Nuclear	3,980	3,967	3,918	-0.2	15.7	15.8	15.9
Hydroelectric	2,203	2,200	2,113	-0.5	8.7	8.7	8.6
Renewable	--	--	1	--	--	--	*
Total Nonutility	2,873	2,760	2,691	-0.7	11.4	11.0	10.9
Industry	25,282	25,172	24,634	-0.3	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

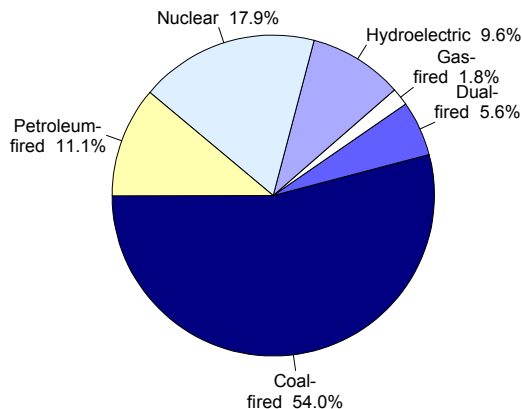


Figure 2. Utility Generation by Primary Energy Source, 1998

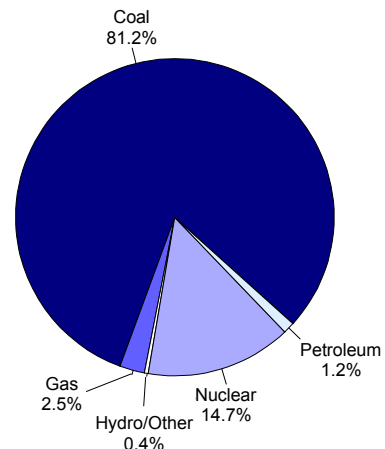


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	88,868,001	92,250,107	85,146,307	-0.5	87.2	86.8	84.7
Coal	68,578,331	61,558,991	69,142,807	0.1	67.3	57.9	68.8
Petroleum	1,414,034	619,777	1,005,170	-3.7	1.4	0.6	1.0
Gas	584,653	680,194	2,152,055	15.6	0.6	0.6	2.1
Nuclear	17,807,837	28,525,000	12,494,153	-3.9	17.5	26.8	12.4
Hydroelectric	483,146	866,145	352,122	-3.5	0.5	0.8	0.4
Total Nonutility Industry	13,015,961	14,069,743	15,419,763	1.9	12.8	13.2	15.3
Industry	101,883,963	106,319,850	100,566,070	-0.1	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	175.7	152.8	133.4	-3
Petroleum	279.9	305.8	280.6	*
Gas	255.5	241.7	232.4	-1

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	397	358	411	0.4
Nitrogen Oxides ^c	303	285	299	-0.2
Carbon Dioxide ^c	73,202	66,322	80,164	1.0

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

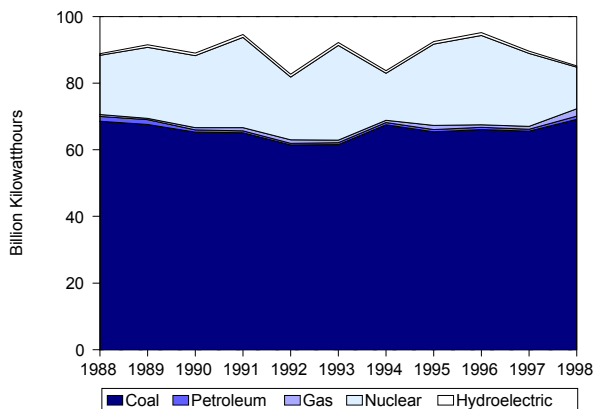


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

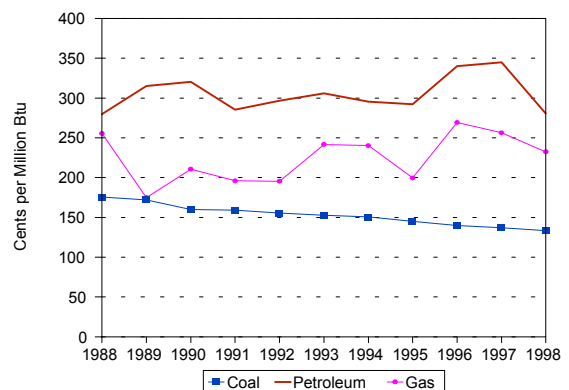


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

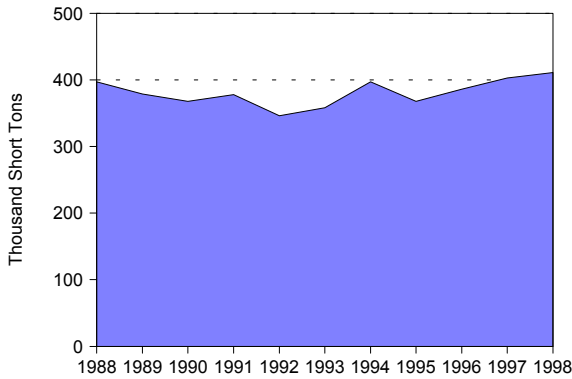


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

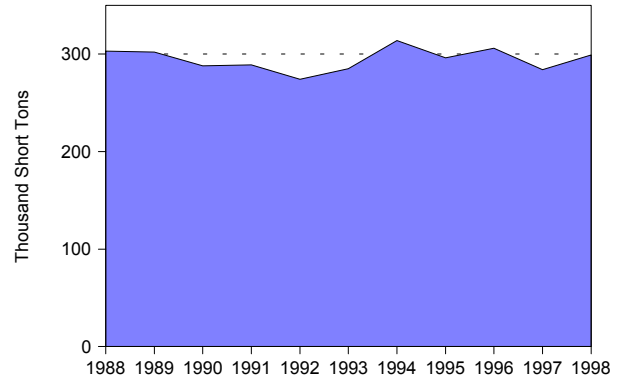


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

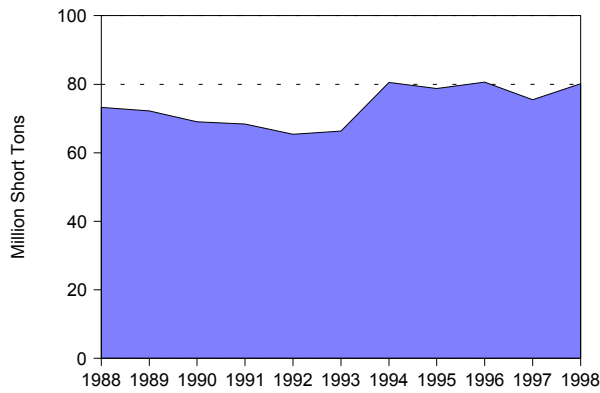


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	25,316,458	26,770,174	29,807,978	1.8	30.7	30.6	29.7
Commercial ..	19,529,986	28,930,387	33,839,513	6.3	23.7	33.0	33.7
Industrial	36,324,219	30,571,544	35,983,417	-0.1	44.0	34.9	35.8
Other	1,346,420	1,316,497	875,287	-4.7	1.6	1.5	0.9
Total	82,517,085	87,588,602	100,506,195	2.2	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

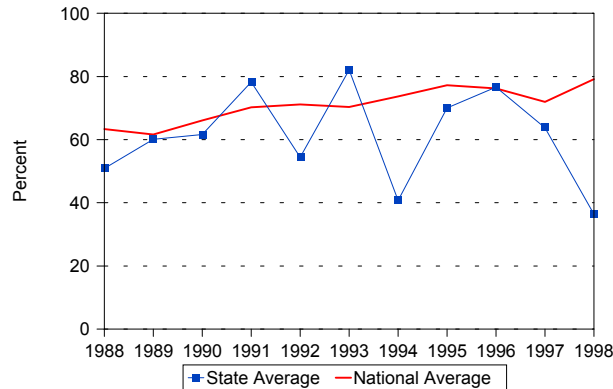


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	10	41	--	14	65
Number of Retail Customers	3,530,405	252,485	--	197,532	3,980,422
Retail Sales (MWh)	75,103,765	5,725,620	--	1,687,700	82,517,085
Percentage of Retail Sales	91.0	6.9	--	2.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	6,288	440	--	172	6,899
Percentage of Revenue	91.1	6.4	--	2.5	100.0
1993					
Number of Utilities	9	41	--	14	64
Number of Retail Customers	3,722,365	272,811	--	220,581	4,215,757
Retail Sales (MWh)	79,434,919	6,230,971	--	1,922,712	87,588,602
Percentage of Retail Sales	90.7	7.1	--	2.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	6,258	441	--	189	6,888
Percentage of Revenue	90.9	6.4	--	2.7	100.0
1998					
Number of Utilities	9	41	--	12	62
Number of Retail Customers	3,951,321	283,409	--	251,917	4,486,647
Retail Sales (MWh)	90,968,012	7,237,704	--	2,300,479	100,506,195
Percentage of Retail Sales	90.5	7.2	--	2.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	6,468	462	--	199	7,129
Percentage of Revenue	90.7	6.5	--	2.8	100.0

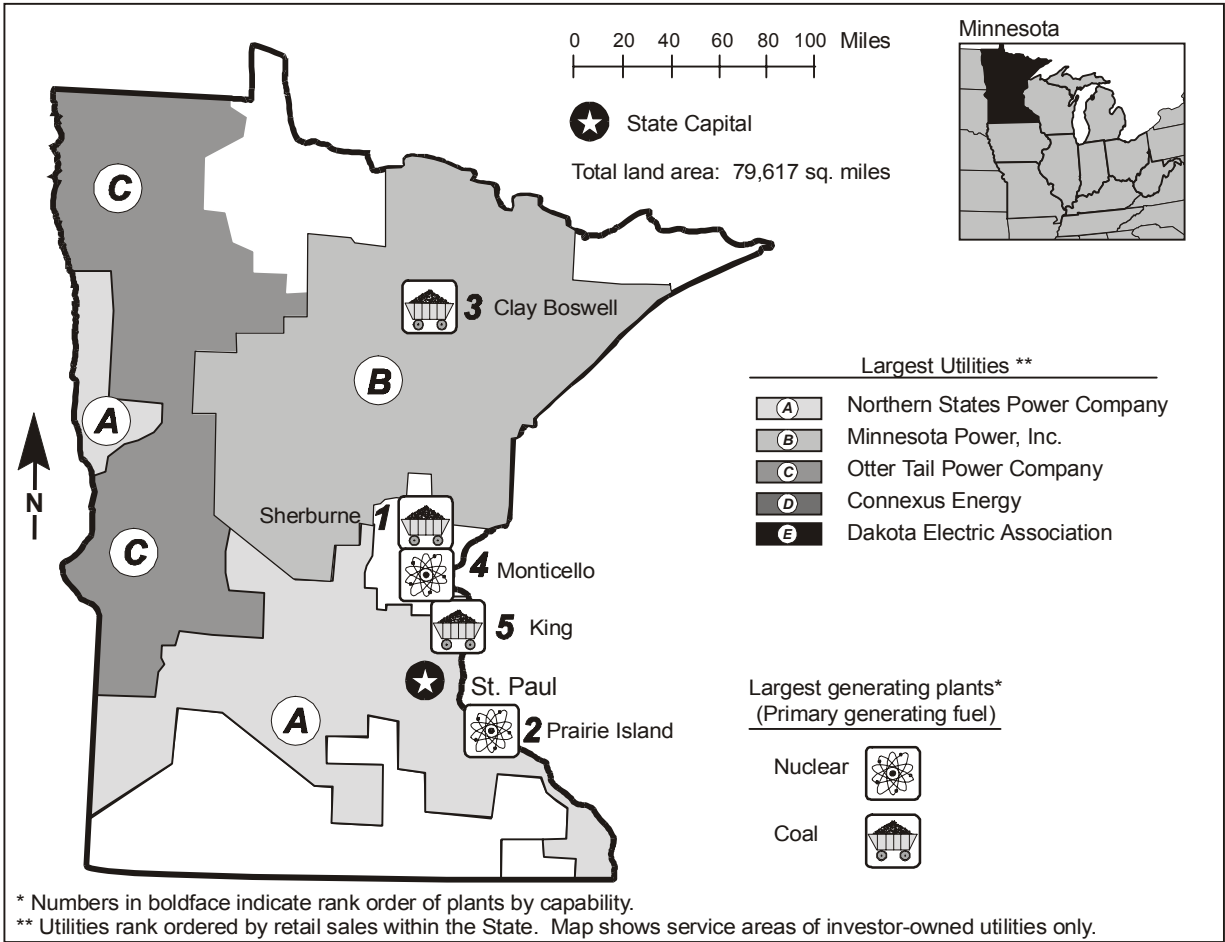


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		MAPP	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	9,089	29
Primary Generating Fuel		Coal	Generation (MWh)	43,976,935	27
Population (as of 7/98)	4,726,411	20	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.71	17	Coal-fired	27	
Industrial	4.45	30	Petroleum-fired	26	
Commercial	6.28	20	Gas-fired	29	
Residential	7.33	21	Nuclear	9	
Industry			Hydroelectric	71	
Capability (MW)	10,118	28	Renewable	44	
Generation (MWh)	47,418,129	27	Nonutility		
Capability/person			Capability (MW)	1,030	18
(KWe/person)	2.14	41	Share of Capability (Percent) . . .	10.2	19
Generation/person			Generation (MWh)	3,441,194	27
(MWh/person)	10.03	37	Share of Generation (Percent) . .	7.3	24
Emissions (Thousand Short Tons)					
Sulfur Dioxide	83	31			
Nitrogen Oxide	140	20			
Carbon Dioxide	37,773	24			
Sulfur Dioxide/sq. mile (Tons)	1.04	34			
Nitrogen Oxides/sq. mile (Tons)	1.76	32			
Carbon Dioxide/sq. mile (Tons)	474.44	35			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Sherburne Co	Coal	Northern States Power Co	2,313	22
2. Prairie Island	Nuclear	Northern States Power Co	1,052	24
3. Clay Boswell	Coal	Minnesota Power Inc	1,023	40
4. Monticello	Nuclear	Northern States Power Co	578	2
5. King	Coal	Northern States Power Co	571	40

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Northern States Power Company	1,655	577	289	765	24
B. Minnesota Power, Inc.	372	57	60	251	5
C. Otter Tail Power Company	97	29	35	31	2
D. Connexus Energy	93	60	27	3	2
E. Dakota Electric Association	85	49	17	18	1
Total	2,303	773	428	1,069	34
Percentage of Utility Sales	71	61	65	85	63

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	8,760	8,864	9,089	0.4	93.6	93.7	89.8
Coal-fired	5,724	5,708	5,657	-0.1	61.2	60.3	55.9
Petroleum-fired	871	936	983	1.4	9.3	9.9	9.7
Gas-fired	3	35	292	69.0	*	0.4	2.9
Dual-fired	424	401	242	-6.0	4.5	4.2	2.4
Nuclear	1,549	1,554	1,630	0.6	16.6	16.4	16.1
Hydroelectric	145	144	139	-0.5	1.5	1.5	1.4
Renewable	44	85	146	14.2	0.5	0.9	1.4
Total Nonutility	595	595	1,030	6.3	6.4	6.3	10.2
Industry	9,355	9,459	10,118	0.9	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

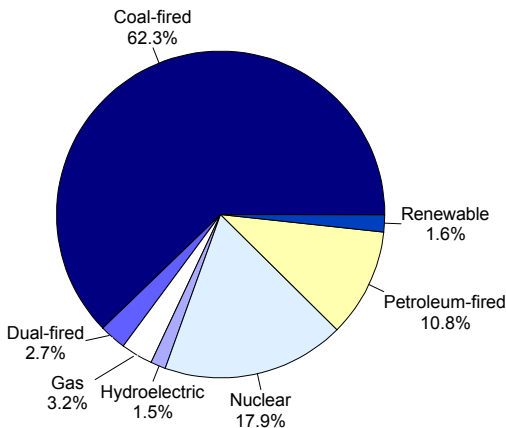


Figure 2. Utility Generation by Primary Energy Source, 1998

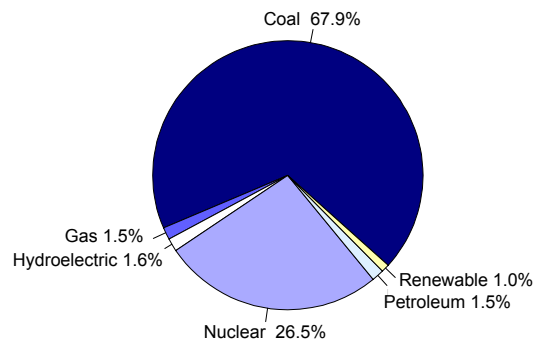


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	40,251,918	41,254,101	43,976,935	1.0	95.5	93.7	92.7
Coal	26,726,038	27,110,850	29,884,402	1.2	63.4	61.6	63.0
Petroleum	142,408	630,166	649,866	18.4	0.3	1.4	1.4
Gas	410,275	279,415	652,432	5.3	1.0	0.6	1.4
Nuclear	12,288,175	11,986,053	11,644,106	-0.6	29.2	27.2	24.6
Hydroelectric	532,060	833,736	694,836	3.0	1.3	1.9	1.5
Renewable	152,962	413,881	451,293	12.8	0.4	0.9	1.0
Total Nonutility	1,885,774	2,790,802	3,441,194	6.9	4.5	6.3	7.3
Industry	42,137,692	44,044,903	47,418,129	1.3	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	119.6	113.4	106.9	-1.2
Petroleum	369.2	442.0	352.7	-0.5
Gas	198.4	245.0	233.8	1.8

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	92	88	83	-1.2
Nitrogen Oxides ^c	133	133	140	0.6
Carbon Dioxide ^c	31,503	34,197	37,773	2.0

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

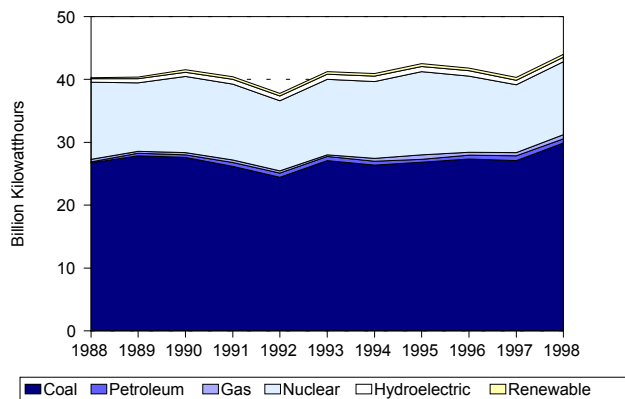


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

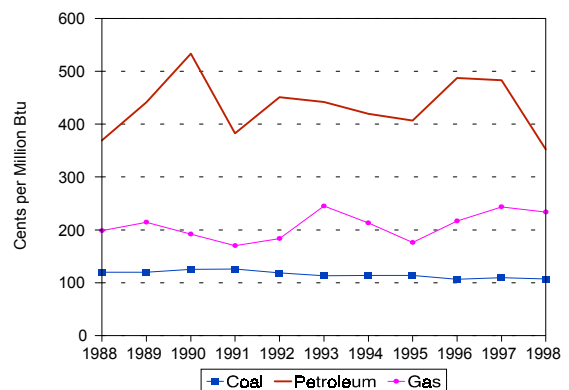


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

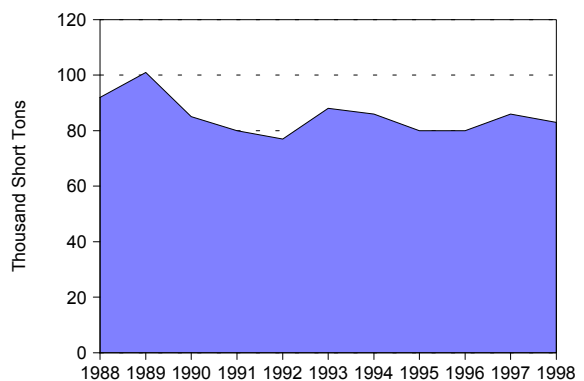


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

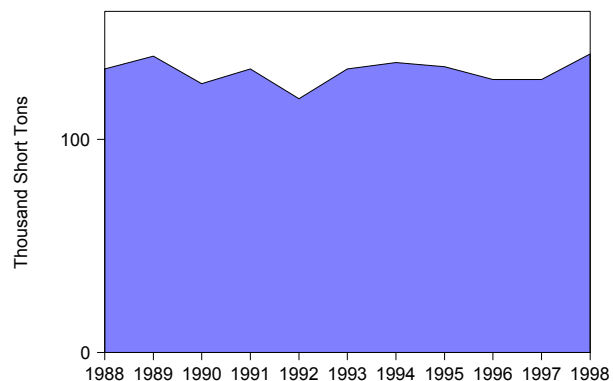


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

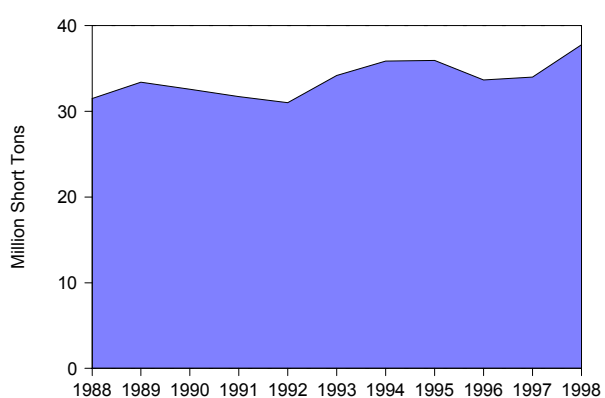


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998 (Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	14,995,997	15,596,985	17,378,235	1.6	32.8	31.7	30.6
Commercial . .	7,792,457	8,535,124	10,435,903	3.3	17.0	17.3	18.4
Industrial	22,130,947	24,384,332	28,213,513	2.7	48.4	49.5	49.7
Other	808,123	694,229	716,396	-1.3	1.8	1.4	1.3
Total	45,727,512	49,210,670	56,744,047	2.4	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

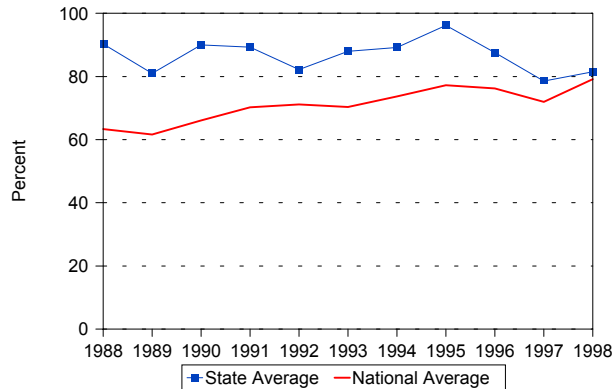


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	6	126	1	50	183
Number of Retail Customers	1,173,117	285,503	3	477,232	1,935,855
Retail Sales (MWh)	32,973,067	5,937,031	42,197	6,775,217	45,727,512
Percentage of Retail Sales	72.1	13.0	0.1	14.8	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,087	400	--	623	3,110
Percentage of Revenue	67.1	12.9	--	20.0	100.0
1993					
Number of Utilities	5	125	1	50	181
Number of Retail Customers	1,247,683	291,610	3	532,578	2,071,874
Retail Sales (MWh)	34,696,160	6,552,010	41,250	7,921,250	49,210,670
Percentage of Retail Sales	70.5	13.3	0.1	16.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,007	409	1	618	3,034
Percentage of Revenue	66.2	13.5	--	20.4	100.0
1998					
Number of Utilities	5	125	1	47	178
Number of Retail Customers	1,339,423	309,359	3	595,307	2,244,092
Retail Sales (MWh)	39,299,462	7,770,321	43,916	9,630,348	56,744,047
Percentage of Retail Sales	69.3	13.7	0.1	17.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,174	437	1	627	3,239
Percentage of Revenue	67.1	13.5	--	19.4	100.0

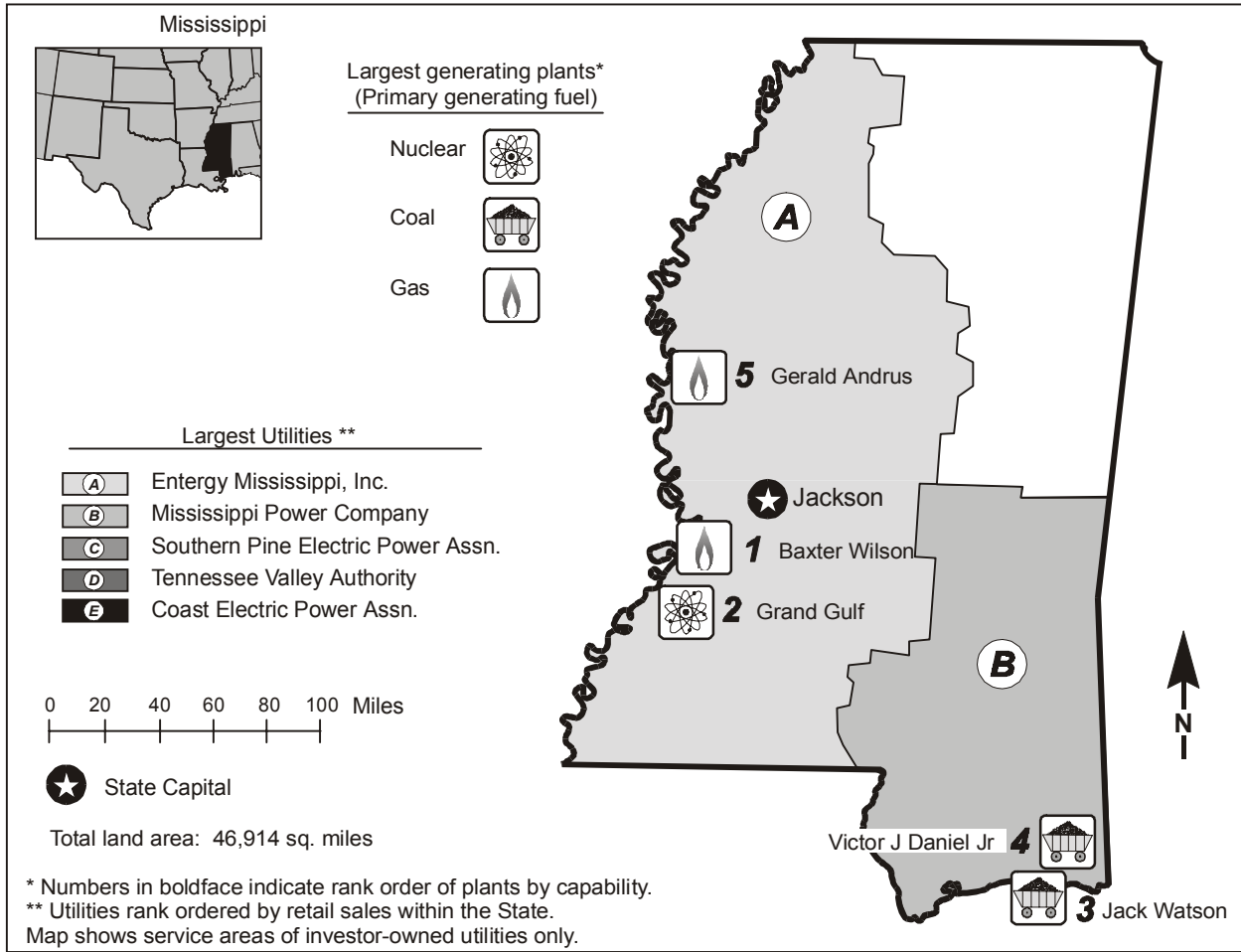


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SERC/SPP	Utility		
Net Exporter or Importer		Importer	Capability (MW)	7,156	31
Primary Generating Fuel		Gas	Generation (MWh)	31,991,676	34
Population (as of 7/98)	2,751,335	31	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.98	23	Coal-fired	22	
Industrial	4.22	22	Petroleum-fired	21	
Commercial	6.62	29	Gas-fired	31	
Residential	7.03	16	Nuclear	13	
Industry			Nonutility		
Capability (MW)	7,538	33	Capability (MW)	382	35
Generation (MWh)	34,433,901	35	Share of Capability (Percent)	5.1	32
Capability/person			Generation (MWh)	2,442,225	32
(KWe/person)	2.74	30	Share of Generation (Percent)	7.1	25
Generation/person					
(MWh/person)	12.52	30			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	128	23			
Nitrogen Oxide	71	35			
Carbon Dioxide	23,184	35			
Sulfur Dioxide/sq. mile (Tons)	2.73	27			
Nitrogen Oxides/sq. mile (Tons)	1.52	36			
Carbon Dioxide/sq. mile (Tons)	494.18	34			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Baxter Wilson	Gas	Entergy Mississippi Inc	1,321	31
2. Grand Gulf	Nuclear	Entergy Operations Inc	1,204	13
3. Jack Watson	Coal, Gas	Mississippi Power Co	1,053	41
4. Victor J Daniel Jr	Coal	Mississippi Power Co	987	21
5. Gerald Andrus	Gas	Entergy Mississippi Inc	761	23

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Entergy Mississippi, Inc	850	368	285	171	27
B. Mississippi Power Company	443	158	146	135	4
C. Southern Pine Elec Power Assn	95	50	20	25	*
D. Tennessee Valley Authority	84	--	--	84	--
E. Coast Electric Power Assn	73	56	11	5	*
Total	1,545	632	462	420	31
Percentage of Utility Sales	61	55	65	68	50

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	6,949	7,045	7,156	0.3	95.1	95.1	94.9
Coal-fired	2,234	2,238	2,136	-0.5	30.6	30.2	28.3
Petroleum-fired	31	31	40	2.9	0.4	0.4	0.5
Gas-fired	650	336	665	0.2	8.9	4.5	8.8
Dual-fired	2,891	3,298	3,112	0.8	39.6	44.5	41.3
Nuclear	1,142	1,143	1,204	0.6	15.6	15.4	16.0
Total Nonutility	361	362	382	0.6	4.9	4.9	5.1
Industry	7,310	7,408	7,538	0.3	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

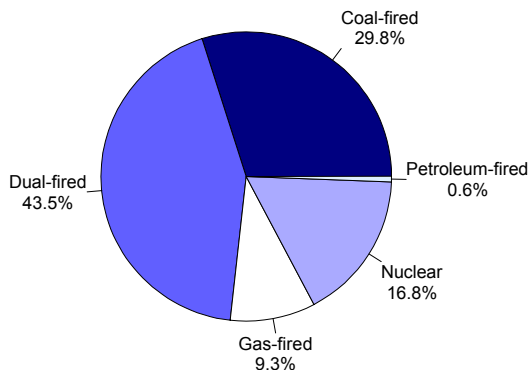


Figure 2. Utility Generation by Primary Energy Source, 1998

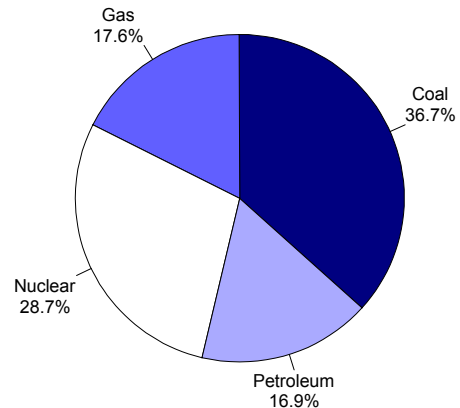


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	25,092,657	23,234,028	31,991,676	2.7	92.0	89.6	92.9
Coal	12,051,136	8,819,755	11,747,963	-0.3	44.2	34.0	34.1
Petroleum	658,991	3,545,055	5,417,924	26.4	2.4	13.7	15.7
Gas	2,800,151	2,965,671	5,635,261	8.1	10.3	11.4	16.4
Nuclear	9,582,379	7,903,547	9,190,528	-0.5	35.1	30.5	26.7
Total Nonutility Industry	2,181,038	2,707,531	2,442,225	1.3	8.0	10.4	7.1
Industry	27,273,695	25,941,559	34,433,901	2.6	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	181.2	164.2	153.8	-1.8
Petroleum	327.7	176.2	199.2	-5.4
Gas	184.7	241.6	222.1	2.1

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	128	141	128	*
Nitrogen Oxides ^c	48	43	71	4.4
Carbon Dioxide ^c	14,688	14,843	23,184	5.2

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

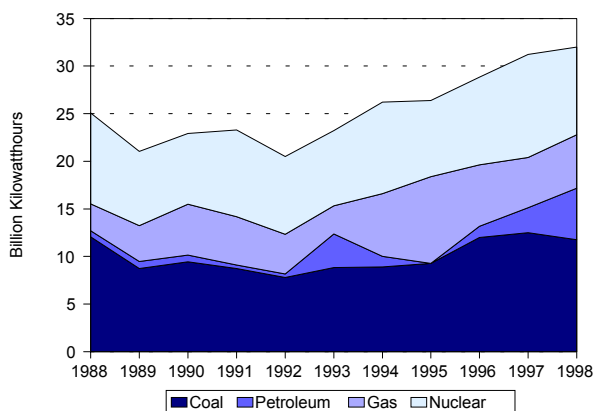


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

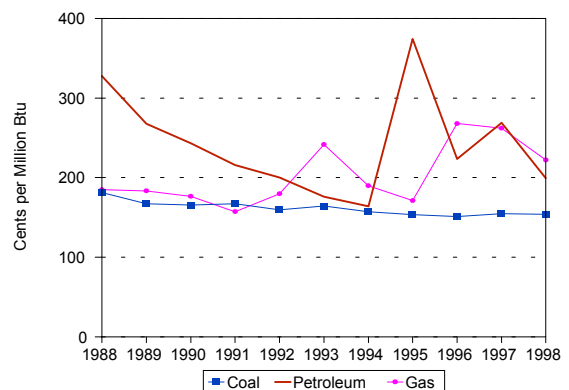


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

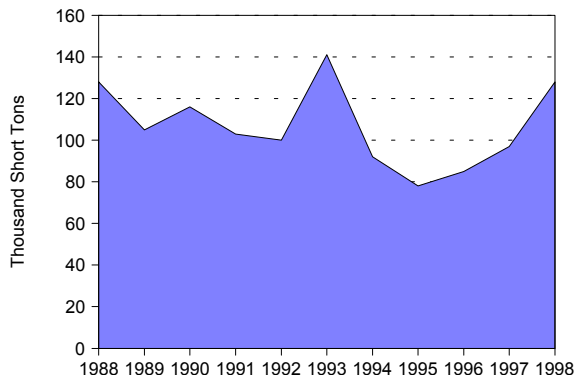


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

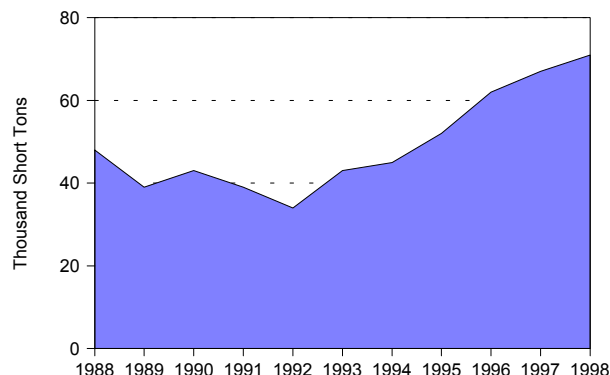


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

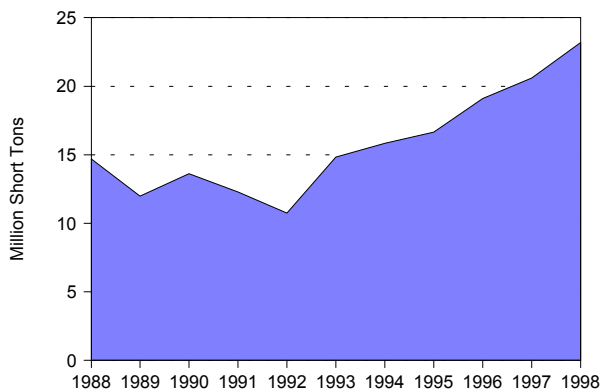


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998 (Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	11,414,657	13,199,806	16,392,306	4.1	40.6	38.0	38.6
Commercial ..	5,928,177	6,685,014	10,781,116	6.9	21.1	19.2	25.4
Industrial	10,115,006	14,229,237	14,598,566	4.2	36.0	40.9	34.3
Other	621,713	635,244	738,250	1.9	2.2	1.8	1.7
Total	28,079,551	34,749,301	42,510,238	4.7	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

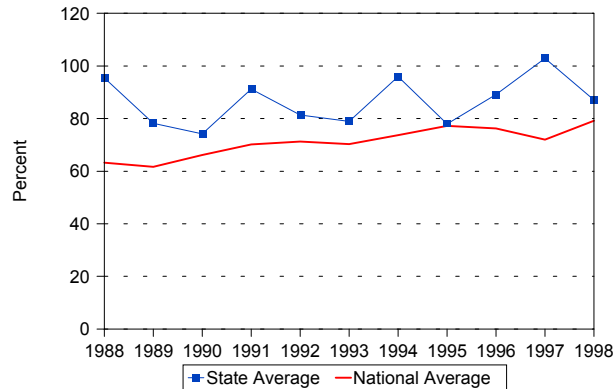


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	2	23	1	24	50
Number of Retail Customers	512,454	118,734	7	483,908	1,115,103
Retail Sales (MWh)	14,811,925	3,140,310	1,420,438	8,706,878	28,079,551
Percentage of Retail Sales	52.7	11.2	5.1	31.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,182	229	65	720	2,196
Percentage of Revenue	53.8	10.4	2.9	32.8	100.0
1993					
Number of Utilities	2	23	1	25	51
Number of Retail Customers	539,085	123,131	7	540,618	1,202,841
Retail Sales (MWh)	17,559,555	3,537,398	2,757,612	10,894,736	34,749,301
Percentage of Retail Sales	50.5	10.2	7.9	31.4	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,295	220	86	762	2,364
Percentage of Revenue	54.8	9.3	3.7	32.3	100.0
1998					
Number of Utilities	2	23	1	25	51
Number of Retail Customers	574,329	128,427	8	617,288	1,320,052
Retail Sales (MWh)	20,965,798	4,244,474	3,165,210	14,134,756	42,510,238
Percentage of Retail Sales	49.3	10.0	7.4	33.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,293	253	84	913	2,543
Percentage of Revenue	50.8	9.9	3.3	35.9	100.0

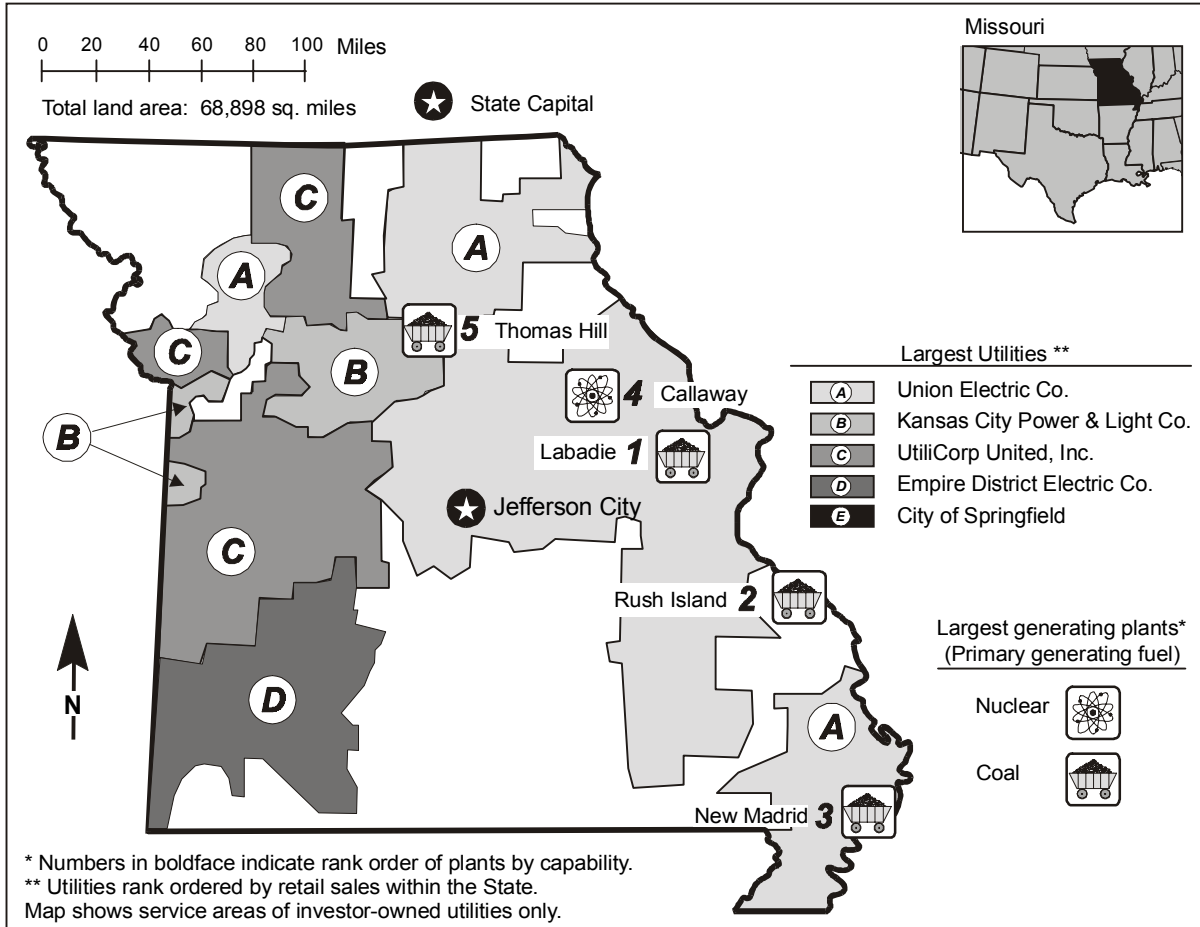


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SPP/MAIN/SERC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	16,282	17
Primary Generating Fuel		Coal	Generation (MWh)	74,894,188	19
Population (as of 7/98)	5,437,562	16	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.08	26	Coal-fired	27	
Industrial	4.43	28	Petroleum-fired	22	
Commercial	5.99	15	Gas-fired	18	
Residential	7.08	18	Nuclear	14	
Industry			Hydroelectric	37	
Capability (MW)	16,389	19	Nonutility		
Generation (MWh)	75,192,842	20	Capability (MW)	107	45
Capability/person			Share of Capability (Percent) . . .	0.7	47
(KWe/person)	3.01	28	Generation (MWh)	298,654	46
Generation/person			Share of Generation (Percent) . .	0.4	47
(MWh/person)	13.83	25			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	265	15			
Nitrogen Oxide	269	10			
Carbon Dioxide	71,031	13			
Sulfur Dioxide/sq. mile (Tons)	3.85	24			
Nitrogen Oxides/sq. mile (Tons)	3.9	19			
Carbon Dioxide/sq. mile (Tons)	1,030.96	25			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Labadie	Coal	Union Electric Co	2,300	28
2. Rush Island	Coal	Union Electric Co	1,166	22
3. New Madrid	Coal	Associated Electric Coop Inc	1,160	26
4. Callaway	Nuclear	Union Electric Co	1,143	14
5. Thomas Hill	Coal	Associated Electric Coop Inc	1,120	32

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Union Electric Company	1,899	838	727	322	12
B. Kansas City Power & Light Co	524	179	247	96	3
C. UtiliCorp United, Inc	290	154	82	30	23
D. Empire District Electric Co	192	89	65	33	5
E. City of Springfield	117	45	55	17	--
Total	3,022	1,306	1,177	497	43
Percentage of Utility Sales	72	65	82	71	67

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	14,999	15,433	16,282	0.9	99.3	99.3	99.3
Coal-fired	10,627	10,795	10,943	0.3	70.3	69.5	66.8
Petroleum-fired	1,295	1,401	1,069	-2.1	8.6	9.0	6.5
Gas-fired	215	192	449	8.5	1.4	1.2	2.7
Dual-fired	683	809	1,478	9.0	4.5	5.2	9.0
Nuclear	1,118	1,125	1,143	0.2	7.4	7.2	7.0
Hydroelectric	1,062	1,110	1,200	1.4	7.0	7.1	7.3
Total Nonutility	111	111	107	-0.4	0.7	0.7	0.7
Industry	15,110	15,544	16,389	0.9	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Primary Energy Source, 1998

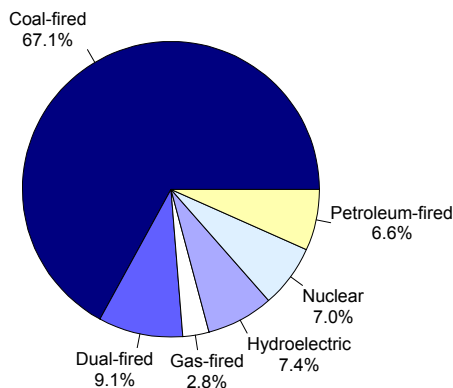


Figure 2. Utility Generation by Primary Energy Source, 1998

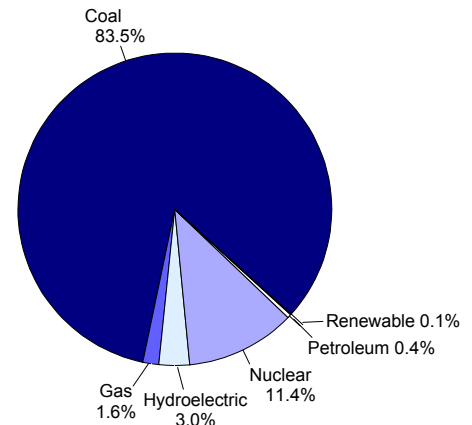


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	59,739,728	53,202,268	74,894,188	2.5	99.4	99.3	99.6
Coal	49,050,944	40,688,696	62,488,551	2.7	81.6	76.0	83.1
Petroleum	131,178	634,432	309,734	10.0	0.2	1.2	0.4
Gas	111,898	386,378	1,232,461	30.5	0.2	0.7	1.6
Nuclear	8,935,158	8,381,333	8,516,773	-0.5	14.9	15.6	11.3
Hydroelectric	1,510,550	3,110,176	2,268,882	4.6	2.5	5.8	3.0
Renewable	--	1,253	77,787	--	--	*	0.1
Total Nonutility	339,390	353,735	298,654	-1.4	0.6	0.7	0.4
Industry	60,079,118	53,556,003	75,192,842	2.5	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	138.2	123.8	91.7	-4.4
Petroleum	237.0	298.8	275.0	1.7
Gas	277.0	231.8	223.4	-2.4

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	824	464	265	-11.8
Nitrogen Oxides ^c	261	202	269	0.3
Carbon Dioxide ^c	51,869	45,321	71,031	3.6

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

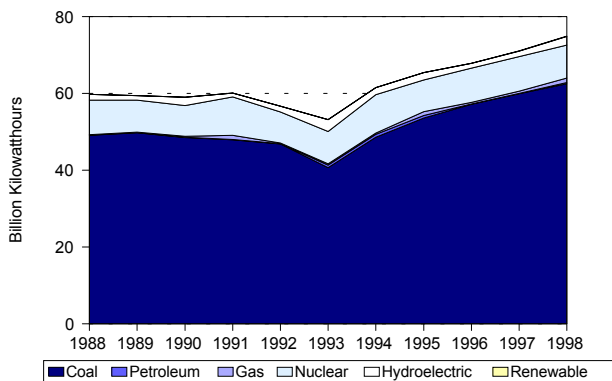


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

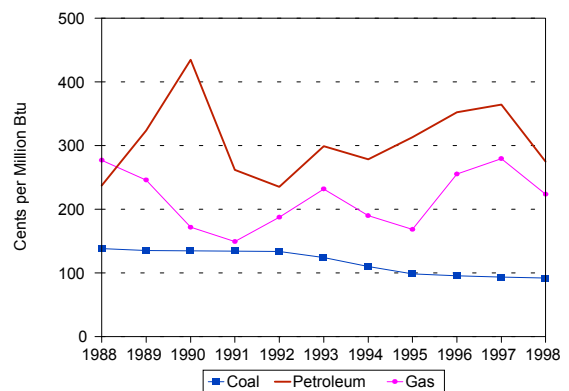


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

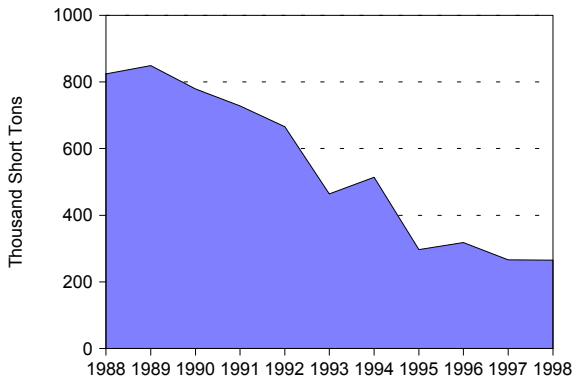


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

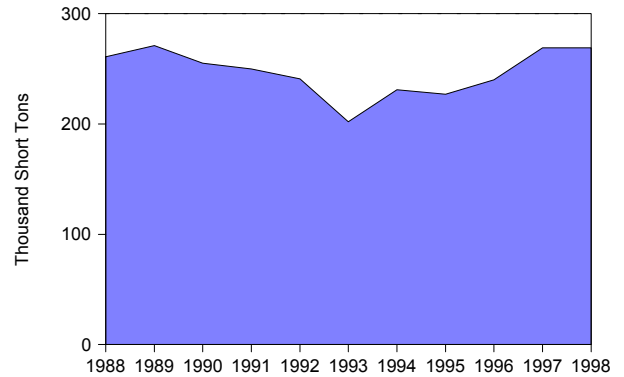


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

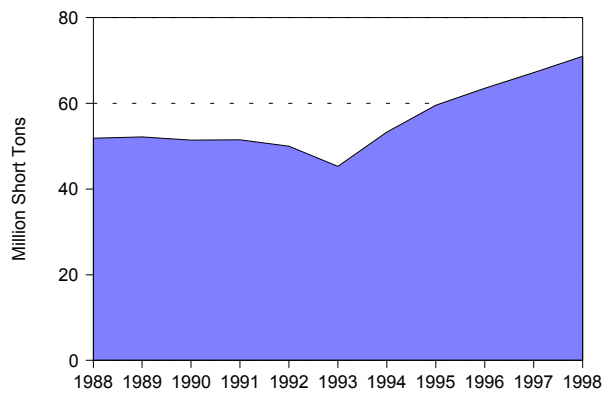


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	21,347,741	24,182,047	28,264,507	3.2	40.9	41.3	41.0
Commercial . .	17,541,210	19,914,076	23,896,071	3.5	33.6	34.0	34.6
Industrial	12,556,109	13,617,994	15,800,878	2.6	24.0	23.2	22.9
Other	802,000	907,952	1,024,107	2.8	1.5	1.5	1.5
Total	52,247,052	58,622,069	68,985,563	3.1	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

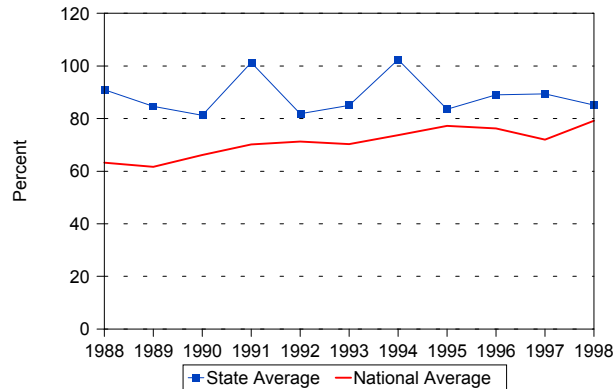


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	6	90	--	45	141
Number of Retail Customers	1,559,810	328,177	--	471,877	2,359,864
Retail Sales (MWh)	37,765,032	6,517,585	--	7,964,435	52,247,052
Percentage of Retail Sales	72.3	12.5	--	15.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	3,189	468	--	617	4,274
Percentage of Revenue	74.6	11.0	--	14.4	100.0
1993					
Number of Utilities	5	89	--	45	139
Number of Retail Customers	1,638,589	345,484	--	522,714	2,506,787
Retail Sales (MWh)	41,488,629	7,701,514	--	9,431,926	58,622,069
Percentage of Retail Sales	70.8	13.1	--	16.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,952	478	--	654	4,084
Percentage of Revenue	72.3	11.7	--	16.0	100.0
1998					
Number of Utilities	5	88	--	44	137
Number of Retail Customers	1,730,006	373,719	--	595,063	2,698,788
Retail Sales (MWh)	48,149,839	9,359,754	--	11,475,970	68,985,563
Percentage of Retail Sales	69.8	13.6	--	16.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,993	522	--	680	4,195
Percentage of Revenue	71.3	12.4	--	16.2	100.0

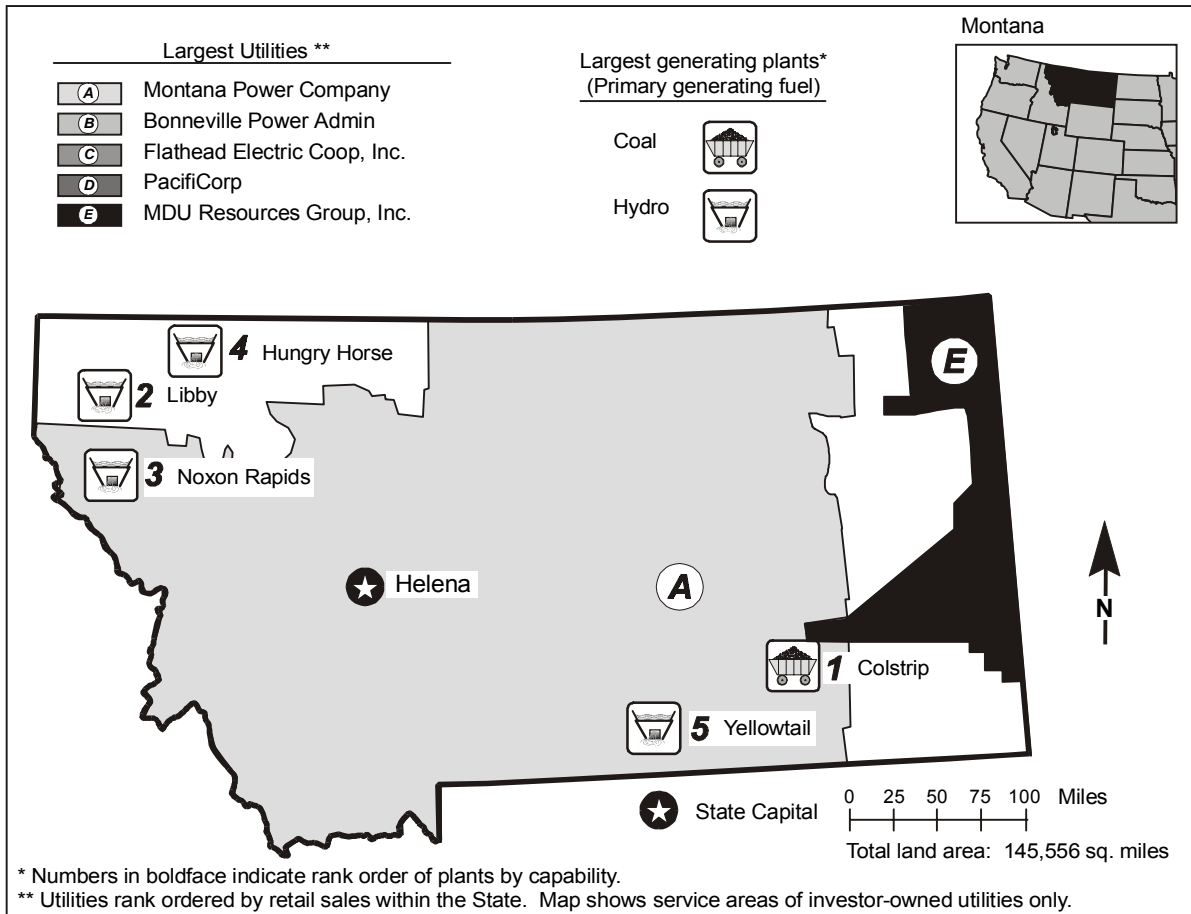


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC/MAPP	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	4,944	39
Primary Generating Fuel		Hydro	Generation (MWh)	27,616,913	38
Population (as of 7/98)	879,533	44	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	4.80	5	Coal-fired	17	
Industrial	3.19	4	Petroleum-fired	26	
Commercial	5.87	13	Gas-fired	22	
Residential	6.50	10	Hydroelectric	40	
Industry			Nonutility		
Capability (MW)	5,065	40	Capability (MW)	121	44
Generation (MWh)	28,460,516	40	Share of Capability (Percent) . . .	2.4	42
Capability/person			Generation (MWh)	843,603	40
(KWe/person)	5.76	4	Share of Generation (Percent) . .	3	39
Generation/person					
(MWh/person)	32.36	4			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	18	43			
Nitrogen Oxide	63	36			
Carbon Dioxide	20,044	37			
Sulfur Dioxide/sq. mile (Tons)	0.12	45			
Nitrogen Oxides/sq. mile (Tons)	0.44	45			
Carbon Dioxide/sq. mile (Tons)	137.7	46			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Colstrip	Coal	Montana Power Co	2,094	23
2. Libby	Hydro	USCE-North Pacific Division	604	23
3. Noxon Rapids	Hydro	Avista Corporation	554	39
4. Hungry Horse	Hydro	Bureau of Reclamation	428	46
5. Yellowtail	Hydro	Bureau of Reclamation	288	32

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Montana Power Company	390	128	141	112	9
B. Bonneville Power Admin	40	--	--	40	--
C. Flathead Electric Coop, Inc	38	9	3	25	1
D. PacifiCorp	33	13	10	9	*
E. MDU Resources Group, Inc	29	11	11	6	1
Total	529	161	165	192	11
Percentage of Utility Sales	80	66	85	94	53

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	4,951	4,871	4,944	*	98.8	98.8	97.6
Coal-fired	2,260	2,260	2,300	0.2	45.1	45.8	45.4
Petroleum-fired	--	--	5	--	--	--	0.1
Dual-fired	120	120	52	-8.8	2.4	2.4	1.0
Hydroelectric	2,559	2,478	2,587	0.1	51.1	50.3	51.1
Renewable	13	13	--	--	0.3	0.3	--
Total Nonutility	60	60	121	8.1	1.2	1.2	2.4
Industry	5,012	4,931	5,065	0.1	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

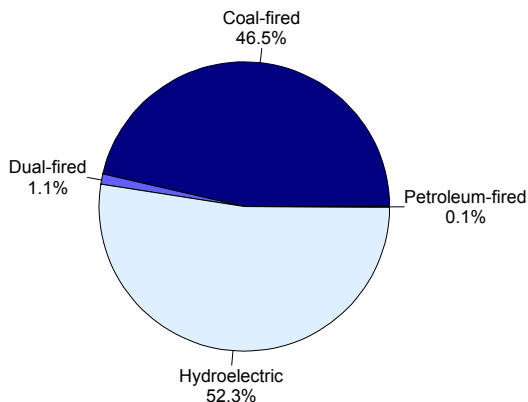


Figure 2. Utility Generation by Primary Energy Source, 1998

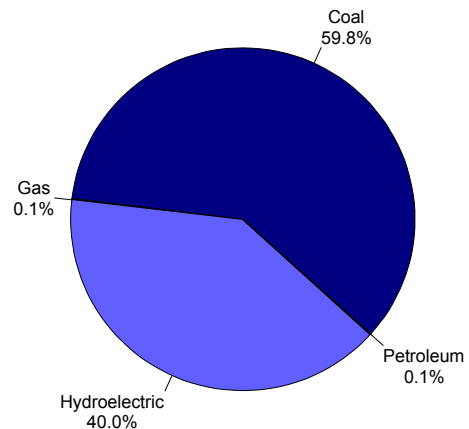


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	24,821,129	23,447,322	27,616,913	1.2	98.4	98.2	97.0
Coal	16,461,924	13,774,690	16,507,968	*	65.3	57.7	58.0
Petroleum	29,819	20,885	14,344	-7.8	0.1	0.1	0.1
Gas	36,851	24,159	40,953	1.2	0.1	0.1	0.1
Hydroelectric	8,237,378	9,549,364	11,053,648	3.3	32.7	40.0	38.8
Renewable	55,157	78,224	--	--	0.2	0.3	--
Total Nonutility Industry	400,916	425,533	843,603	8.6	1.6	1.8	3.0
Industry	25,222,045	23,872,855	28,460,516	1.4	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	54.5	69.3	67.4	2.4
Petroleum	403.3	525.5	466.0	1.6
Gas	126.3	268.1	191.8	4.7

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	20	20	18	-1.4
Nitrogen Oxides ^c	70	50	63	-1.1
Carbon Dioxide ^c	18,613	15,777	20,044	0.8

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

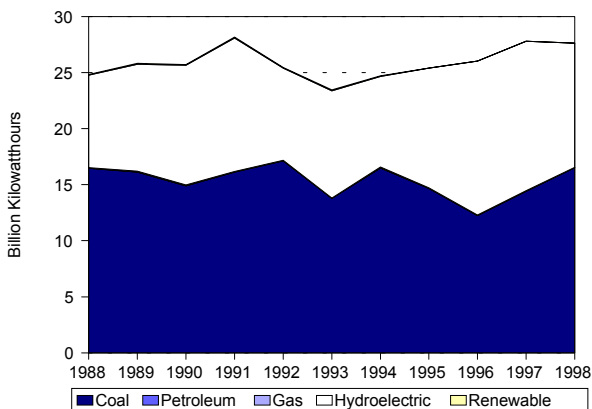


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

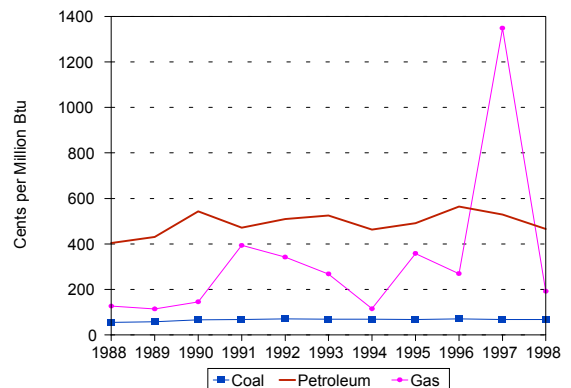


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

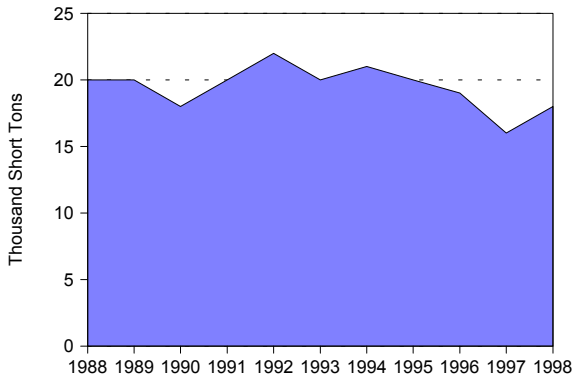


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

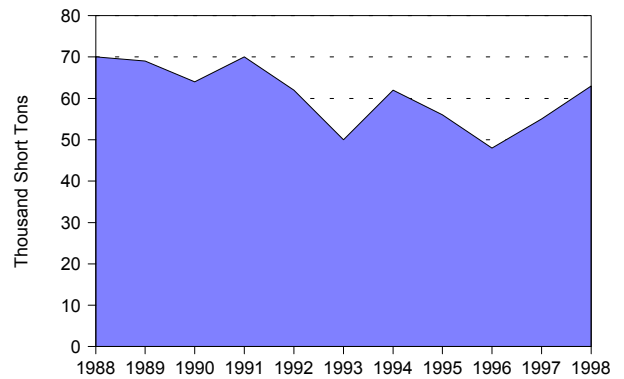


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

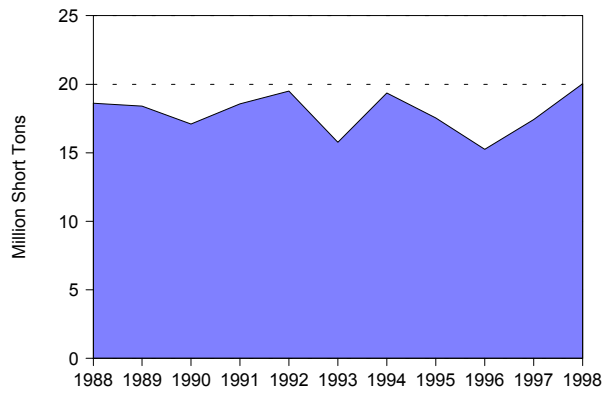
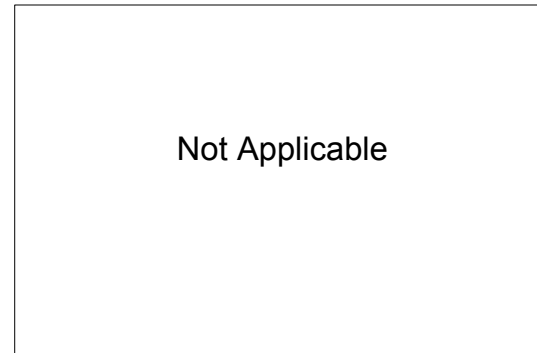


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	3,301,170	3,597,987	3,722,471	1.3	25.5	27.8	27.0
Commercial ..	2,619,848	3,026,077	3,313,181	2.6	20.2	23.4	24.0
Industrial	6,438,245	5,836,579	6,402,519	-0.1	49.8	45.1	46.5
Other	582,259	468,584	335,393	-5.9	4.5	3.6	2.4
Total	12,941,518	12,929,227	13,773,564	0.7	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998**Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998**

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	6	1	2	30	39
Number of Retail Customers	300,720	14,608	22	96,509	411,859
Retail Sales (MWh)	7,791,825	252,260	3,193,875	1,703,558	12,941,518
Percentage of Retail Sales	60.2	1.9	24.7	13.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	429	12	114	117	672
Percentage of Revenue	63.8	1.8	16.9	17.5	100.0
1993					
Number of Utilities	5	1	3	30	39
Number of Retail Customers	313,244	797	13,697	104,056	431,794
Retail Sales (MWh)	8,366,996	13,943	2,776,128	1,772,160	12,929,227
Percentage of Retail Sales	64.7	0.1	21.5	13.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	433	1	68	120	621
Percentage of Revenue	69.6	0.1	10.9	19.4	100.0
1998					
Number of Utilities	6	1	3	29	39
Number of Retail Customers	351,909	872	15,042	142,808	510,631
Retail Sales (MWh)	8,354,616	13,446	2,297,319	3,108,183	13,773,564
Percentage of Retail Sales	60.7	0.1	16.7	22.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	453	1	56	152	661
Percentage of Revenue	68.5	0.1	8.4	23.0	100.0

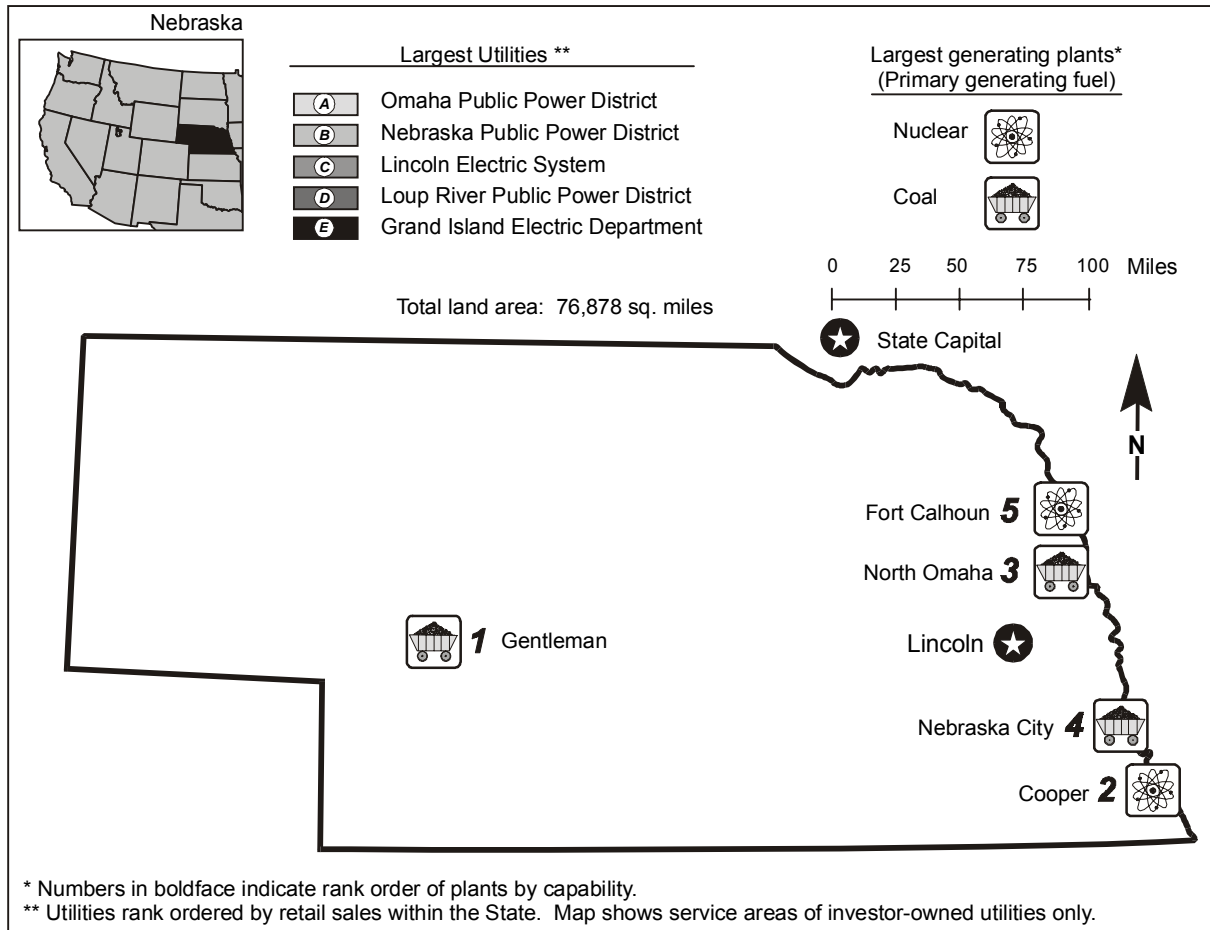


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC/MAPP	Utility		
Net Exporter or Importer		Exporter	Capacity (MW)	5,811	34
Primary Generating Fuel		Coal	Generation (MWh)	28,720,209	37
Population (as of 7/98)	1,660,772	38	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.30	9	Coal-fired	23	
Industrial	3.60	8	Petroleum-fired	21	
Commercial	5.45	6	Gas-fired	27	
Residential	6.46	8	Nuclear	24	
			Hydroelectric	50	
Industry			Nonutility		
Capacity (MW)	5,827	37	Capacity (MW)	17	49
Generation (MWh)	28,796,791	39	Share of Capacity (Percent) . . .	0.3	49
Capacity/person			Generation (MWh)	76,582	49
(KWe/person)	3.51	17	Share of Generation (Percent) . .	0.3	48
Generation/person					
(MWh/person)	17.34	17			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	56	34			
Nitrogen Oxide	95	31			
Carbon Dioxide	21,242	36			
Sulfur Dioxide/sq. mile (Tons)	0.73	40			
Nitrogen Oxides/sq. mile (Tons)	1.24	39			
Carbon Dioxide/sq. mile (Tons)	276.31	41			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Gentleman	Coal	Nebraska Public Power District	1,365	19
2. Cooper	Nuclear	Nebraska Public Power District	769	24
3. North Omaha	Coal	Omaha Public Power District	663	44
4. Nebraska City	Coal	Omaha Public Power District	619	19
5. Fort Calhoun	Nuclear	Omaha Public Power District	476	25

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Omaha Public Power District	446	192	160	80	14
B. Nebraska Public Power District	168	73	51	32	12
C. Lincoln Electric System	132	57	42	21	12
D. Loup River Public Power Dist	32	10	6	14	2
E. Grand Island Electric Dept	28	10	7	10	*
Total	805	341	266	157	41
Percentage of Utility Sales	66	65	74	63	44

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	5,422	5,512	5,811	0.8	100.0	100.0	100.0
Coal-fired	2,890	3,103	3,169	1.0	53.3	56.3	54.5
Petroleum-fired	363	304	283	-2.7	6.7	5.5	4.9
Gas-fired	136	9	2	-38.0	2.5	0.2	0.0
Dual-fired	610	674	945	5.0	11.2	12.2	16.3
Nuclear	1,254	1,254	1,245	-0.1	23.1	22.8	21.4
Hydroelectric	169	168	167	-0.2	3.1	3.0	2.9
Total Nonutility	W	W	17	-	--	--	--
Industry	W	W	5,827	-	--	--	--

Figure 1. Utility Generating Capability by Plant Type, 1998

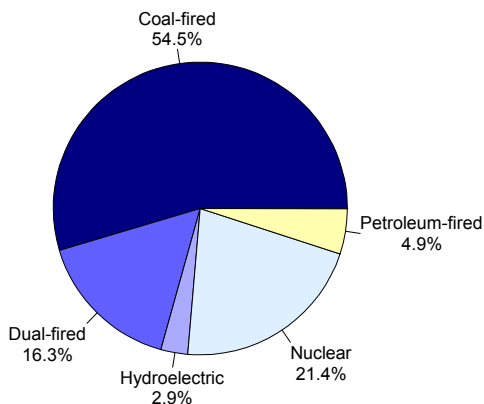


Figure 2. Utility Generation by Primary Energy Source, 1998

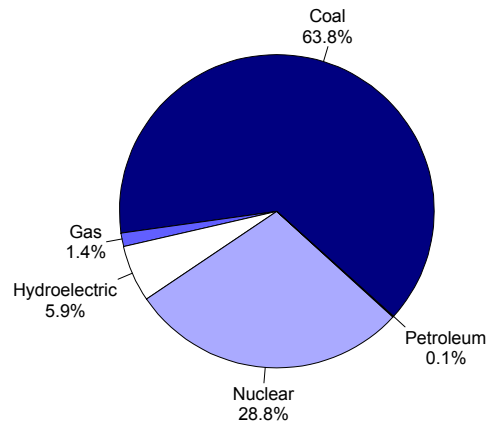


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	20,635,246	22,724,286	28,720,209	3.7	100.0	100.0	100.0
Coal	12,225,081	14,739,783	18,335,965	4.6	59.2	64.9	63.8
Petroleum	68,888	19,035	41,892	-5.4	0.3	0.1	0.1
Gas	163,029	152,922	400,008	10.5	0.8	0.7	1.4
Nuclear	6,828,027	6,805,133	8,258,803	2.1	33.1	29.9	28.8
Hydroelectric	1,350,221	1,001,663	1,682,834	2.5	6.5	4.4	5.9
Renewable	--	5,750	707	--	--	*	*
Total Nonutility Industry	W	W	76,582	--	--	--	--
	W	W	28,796,791	--	--	--	--

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	84.1	75.5	58.6	-3.9
Petroleum	241.7	420.1	354.5	4.3
Gas	268.6	272.7	242.7	-1.1

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	50	58	56	1.4
Nitrogen Oxides ^c	72	76	95	3.1
Carbon Dioxide ^c	14,223	16,772	21,242	4.6

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

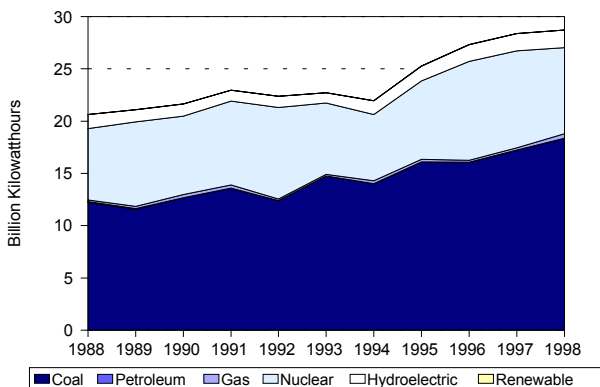


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

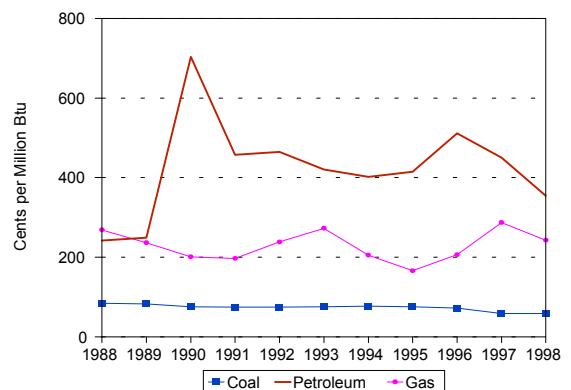


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

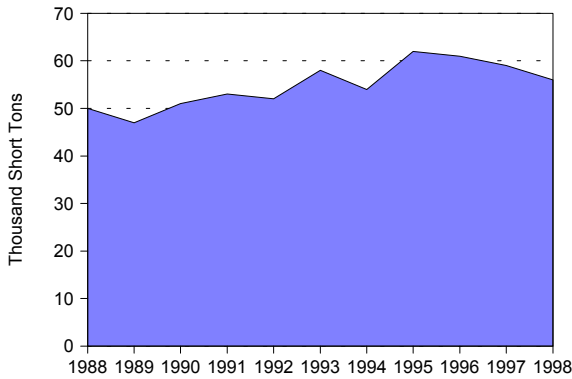


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

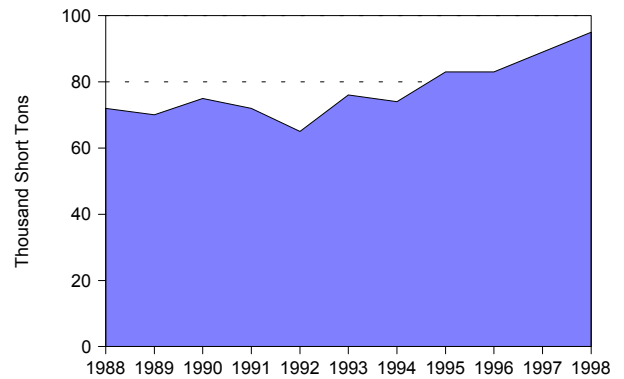


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

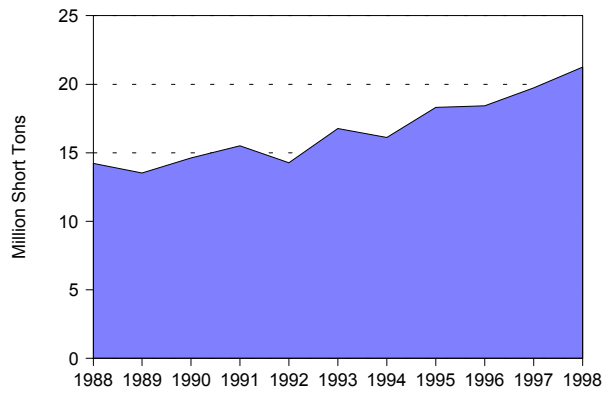


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	6,813,221	7,226,029	8,160,194	2.0	39.5	38.5	35.3
Commercial ..	4,995,573	5,471,340	6,594,284	3.1	28.9	29.2	28.5
Industrial	4,103,712	4,962,540	6,915,665	6.0	23.8	26.5	29.9
Other	1,346,119	1,089,132	1,474,754	1.0	7.8	5.8	6.4
Total	17,258,629	18,749,041	23,144,897	3.3	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

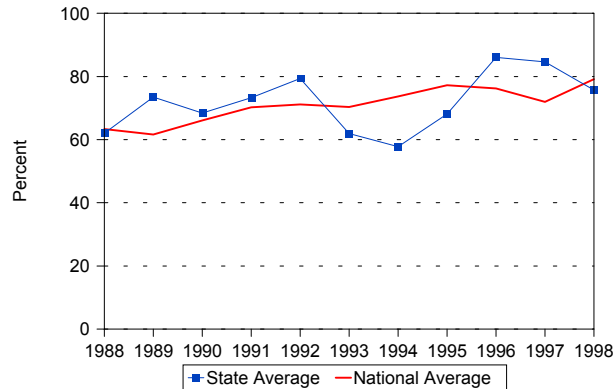


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	--	154	1	11	166
Number of Retail Customers	--	767,939	14	18,261	786,214
Retail Sales (MWh)	--	16,653,510	161,980	443,139	17,258,629
Percentage of Retail Sales	--	96.5	0.9	2.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	--	1,117	1	40	1,159
Percentage of Revenue	--	96.4	0.1	3.5	100.0
1993					
Number of Utilities	--	152	1	10	163
Number of Retail Customers	--	804,057	13	19,205	823,275
Retail Sales (MWh)	--	18,211,629	141,050	396,362	18,749,041
Percentage of Retail Sales	--	97.1	0.8	2.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	--	1,108	2	33	1,144
Percentage of Revenue	--	96.9	0.2	2.9	100.0
1998					
Number of Utilities	--	151	1	10	162
Number of Retail Customers	--	854,025	12	20,349	874,386
Retail Sales (MWh)	--	22,486,501	143,281	515,115	23,144,897
Percentage of Retail Sales	--	97.2	0.6	2.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	--	1,188	2	38	1,227
Percentage of Revenue	--	96.8	0.2	3.1	100.0

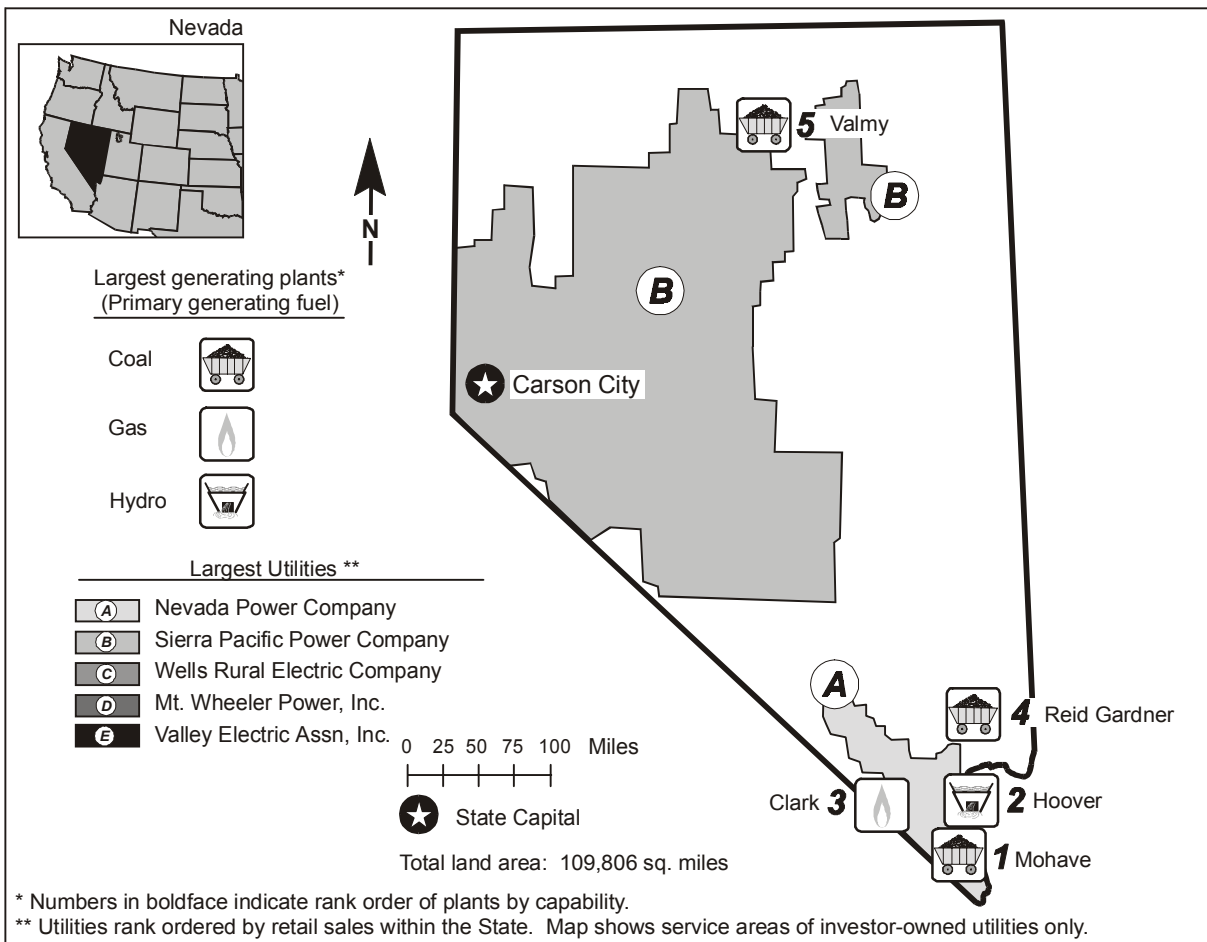


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC	Utility		
Net Exporter or Importer		Importer	Capacity (MW)	5,642	35
Primary Generating Fuel		Coal	Generation (MWh)	26,552,567	39
Population (as of 7/98)	1,743,772	36	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.76	18	Coal-fired	23	
Industrial	4.57	33	Petroleum-fired	36	
Commercial	6.50	24	Gas-fired	20	
Residential	7.00	14	Hydroelectric	57	
Industry			Nonutility		
Capacity (MW)	6,389	35	Capacity (MW)	748	25
Generation (MWh)	30,590,359	38	Share of Capacity (Percent) . . .	11.7	17
Capacity/person			Generation (MWh)	4,037,792	23
(KWe/person)	3.66	16	Share of Generation (Percent) . .	13.2	14
Generation/person					
(MWh/person)	17.54	16			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	54	35			
Nitrogen Oxide	76	34			
Carbon Dioxide	24,167	34			
Sulfur Dioxide/sq. mile (Tons)	0.49	41			
Nitrogen Oxides/sq. mile (Tons)	0.69	43			
Carbon Dioxide/sq. mile (Tons)	220.09	43			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Mohave	Coal	Southern California Edison Co	1,580	27
2. Hoover	Hydro	Bureau of Reclamation	1,037	62
3. Clark	Gas	Nevada Power Co	684	43
4. Reid Gardner	Coal	Nevada Power Co	605	33
5. Valmy	Coal	Sierra Pacific Power Co	532	17

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Nevada Power Company	834	380	176	249	28
B. Sierra Pacific Power Company	496	148	166	179	3
C. Wells Rural Electric Company	24	3	2	18	*
D. Mt Wheeler Power, Inc	22	4	1	15	2
E. Valley Electric Assn, Inc	22	10	6	6	--
Total	1,398	545	351	468	33
Percentage of Utility Sales	97	98	96	97	94

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	4,857	5,235	5,642	1.7	90.8	91.2	88.3
Coal-fired	2,692	2,717	2,806	0.5	50.3	47.3	43.9
Petroleum-fired	78	48	45	-6.0	1.5	0.8	0.7
Gas-fired	125	216	306	10.5	2.3	3.8	4.8
Dual-fired	1,019	1,223	1,439	3.9	19.0	21.3	22.5
Hydroelectric	944	1,031	1,046	1.2	17.6	18.0	16.4
Total Nonutility	493	506	748	4.7	9.2	8.8	11.7
Industry	5,350	5,741	6,389	2.0	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

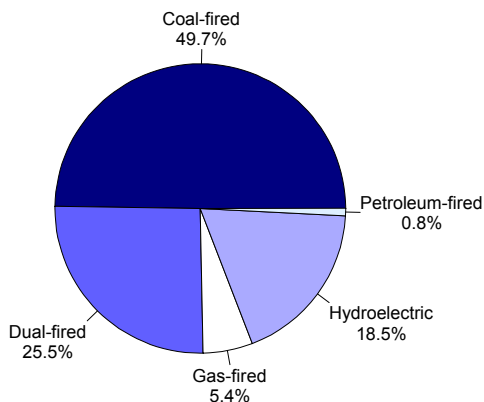


Figure 2. Utility Generation by Primary Energy Source, 1998

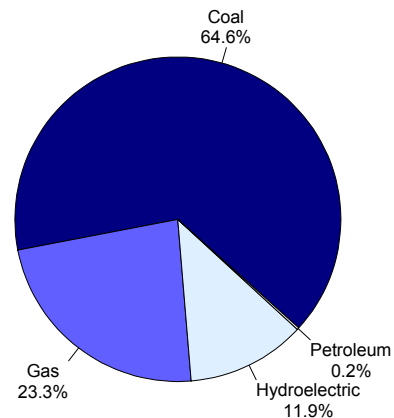


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	20,296,153	19,820,333	26,552,567	3.0	90.2	84.4	86.8
Coal	16,764,148	15,627,860	17,161,341	0.3	74.5	66.5	56.1
Petroleum	542,427	246,506	50,285	-23.2	2.4	1.0	0.2
Gas	898,609	1,986,014	6,189,526	23.9	4.0	8.5	20.2
Hydroelectric	2,090,969	1,959,953	3,151,415	4.7	9.3	8.3	10.3
Total Nonutility	2,211,428	3,665,820	4,037,792	6.9	9.8	15.6	13.2
Industry	22,507,581	23,486,153	30,590,359	3.5	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	136.3	146.8	129.8	-0.5
Petroleum	244.8	358.3	379.6	5.0
Gas	271.8	237.7	230.2	-1.8

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	61	53	54	-1.4
Nitrogen Oxides ^c	69	65	76	1.1
Carbon Dioxide ^c	21,125	20,074	24,167	1.5

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

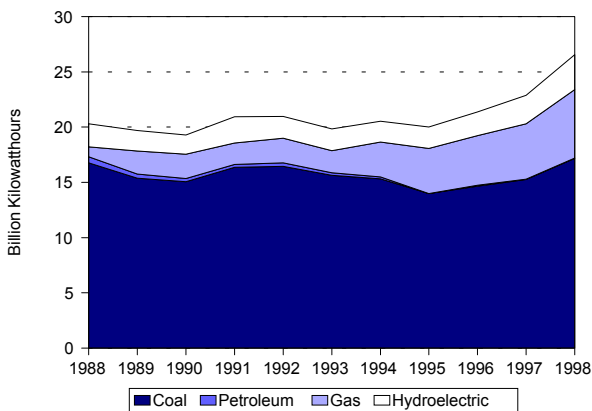


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

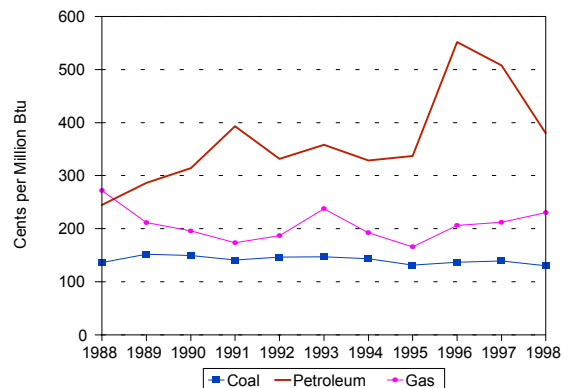


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

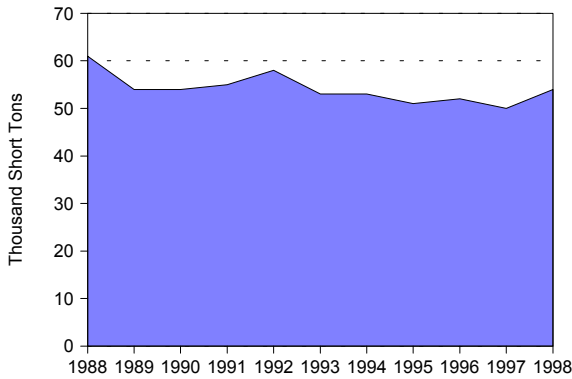


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

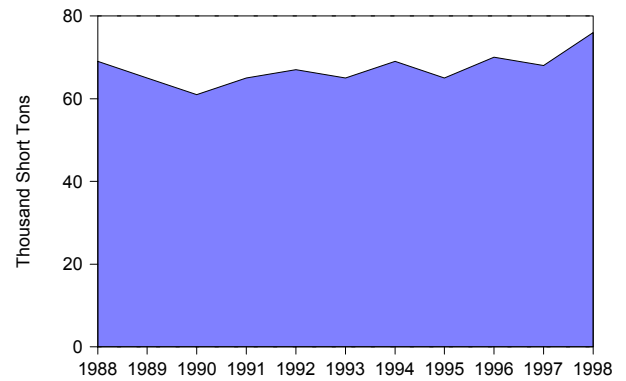


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

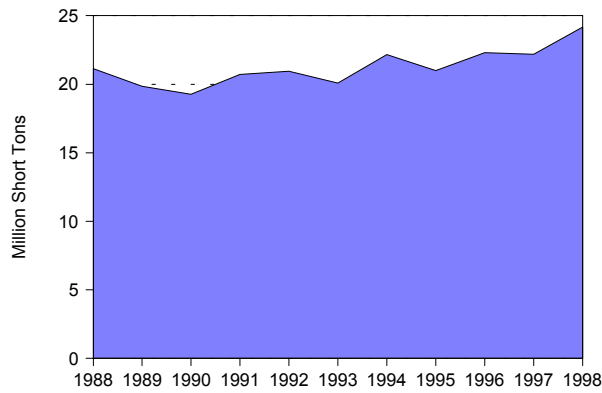


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	4,968,159	6,280,698	7,974,769	5.4	36.3	33.9	31.8
Commercial ..	3,488,871	4,297,615	5,655,038	5.5	25.5	23.2	22.6
Industrial	4,684,581	7,180,913	10,518,385	9.4	34.2	38.8	42.0
Other	542,684	739,625	888,883	5.6	4.0	4.0	3.5
Total	13,684,291	18,498,851	25,037,075	6.9	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

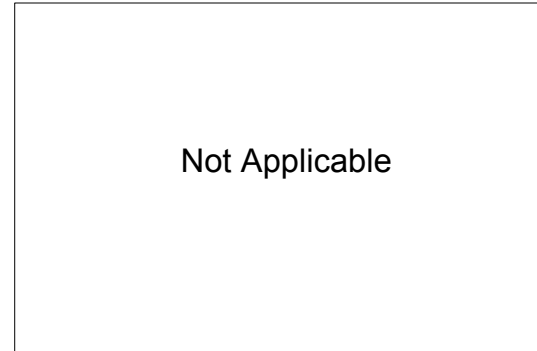
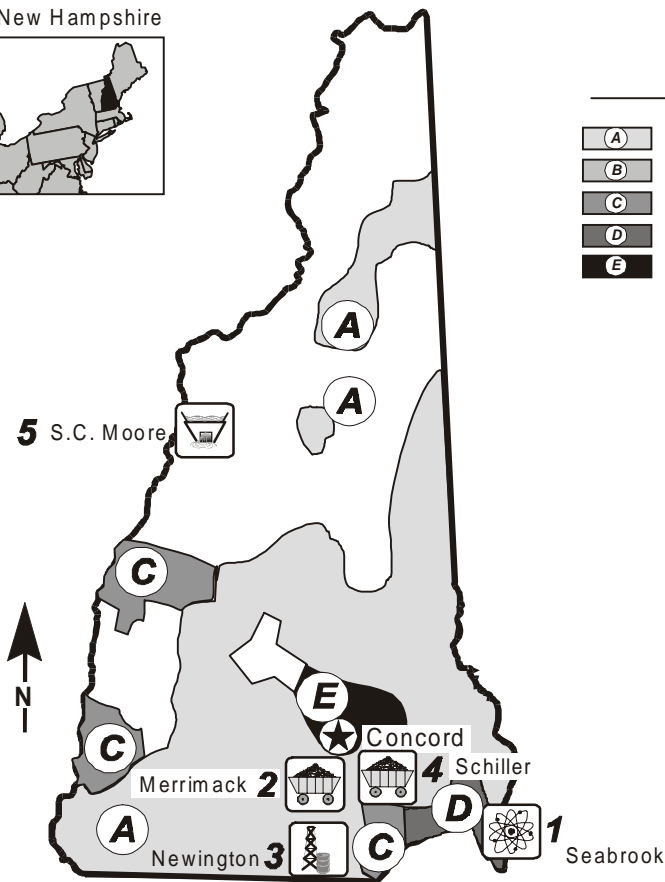
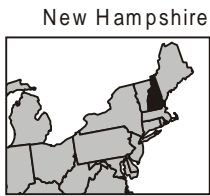


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

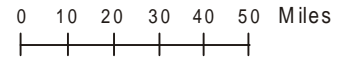
Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	4	9	1	9	23
Number of Retail Customers	460,375	13,133	2	15,502	489,012
Retail Sales (MWh)	11,875,686	1,241,770	9,015	557,820	13,684,291
Percentage of Retail Sales	86.8	9.1	0.1	4.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	863	36	--	38	936
Percentage of Revenue	92.1	3.8	--	4.0	100.0
1993					
Number of Utilities	4	8	1	9	22
Number of Retail Customers	605,872	15,312	3	19,635	640,822
Retail Sales (MWh)	16,394,392	1,124,026	26,349	954,084	18,498,851
Percentage of Retail Sales	88.6	6.1	0.1	5.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,104	38	--	54	1,197
Percentage of Revenue	92.3	3.1	--	4.5	100.0
1998					
Number of Utilities	4	8	1	9	22
Number of Retail Customers	783,965	20,552	2	25,876	830,395
Retail Sales (MWh)	22,021,436	1,404,512	25,844	1,585,283	25,037,075
Percentage of Retail Sales	88	5.6	0.1	6.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,332	38	--	72	1,442
Percentage of Revenue	92.4	2.6	--	5.0	100.0



- Largest Utilities ****
- (A) Public Service Company of NH
 - (B) New Hampshire Electric Coop., Inc.
 - (C) Granite State Electric Company
 - (D) Exeter & Hampton Electric Company
 - (E) Concord Electric Company

Largest generating plants* (Primary generating fuel)

- Nuclear
- Coal
- Hydro
- Petroleum



Total land area: 8,969 sq. miles

* Numbers in boldface indicate rank order of plants by capability.

** Utilities rank ordered by retail sales within the State. Map shows service areas of investor-owned utilities only.

Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		NPCC	Utility		
Net Exporter or Importer		Exporter	Capacity (MW)	2,292	44
Primary Generating Fuel		Nuclear	Generation (MWh)	14,237,580	42
Population (as of 7/98)	1,185,823	42	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	11.93	51	Coal-fired	35	
Industrial	9.42	51	Petroleum-fired	25	
Commercial	11.64	50	Nuclear	8	
Residential	13.92	51	Hydroelectric	59	
Industry			Nonutility		
Capacity (MW)	2,850	44	Capacity (MW)	558	31
Generation (MWh)	16,102,737	42	Share of Capacity (Percent)	19.6	6
Capacity/person			Generation (MWh)	1,865,157	35
(KWe/person)	2.4	38	Share of Generation (Percent)	11.6	16
Generation/person					
(MWh/person)	13.58	26			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	51	36			
Nitrogen Oxide	14	45			
Carbon Dioxide	5,577	44			
Sulfur Dioxide/sq. mile (Tons)	5.66	21			
Nitrogen Oxides/sq. mile (Tons)	1.52	35			
Carbon Dioxide/sq. mile (Tons)	621.81	30			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Seabrook	Nuclear	North Atlantic Engy Serv Corp	1,162	8
2. Merrimack	Coal	Public Service Co of NH	466	38
3. Newington	Petroleum	Public Service Co of NH	408	24
4. Schiller	Coal, Petroleum	Public Service Co of NH	162	46
5. S C Moore	Hydro	US Gen New England Inc	145	41

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Public Service Company of NH	810	335	286	183	6
B. New Hampshire Elec Coop, Inc	94	60	30	3	*
C. Granite State Electric Company	64	24	30	9	1
D. Exeter & Hampton Electric Co	51	24	13	11	3
E. Concord Electric Company	48	16	14	12	7
Total	1,067	458	374	219	17
Percentage of Utility Sales	97	97	96	96	97

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	1,431	2,508	2,292	5.4	84.6	90.5	80.4
Coal-fired	615	578	578	-0.7	36.3	20.8	20.3
Petroleum-fired	97	66	64	-4.5	5.8	2.4	2.3
Dual-fired	441	423	425	-0.4	26.0	15.3	14.9
Nuclear	--	1,150	1,162	--	--	41.5	40.8
Hydroelectric	278	291	64	-15.0	16.4	10.5	2.2
Total Nonutility	261	264	558	8.8	15.4	9.5	19.6
Industry	1,693	2,771	2,850	6.0	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

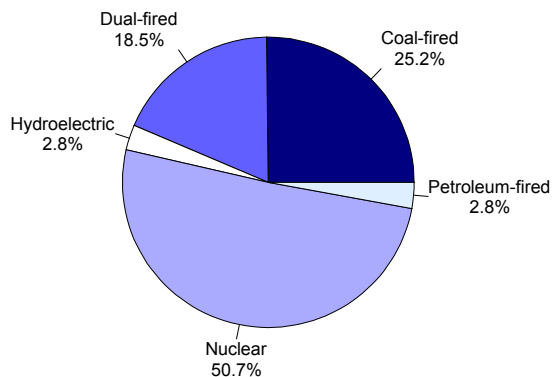


Figure 2. Utility Generation by Primary Energy Source, 1998

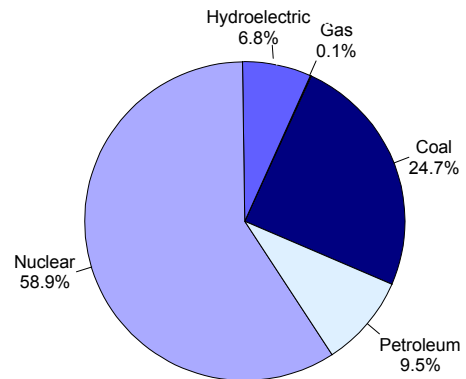


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	6,997,436	14,586,006	14,237,580	8.2	81.6	89.8	88.4
Coal	3,197,296	3,263,241	3,513,065	1.1	37.3	20.1	21.8
Petroleum	2,827,850	1,262,688	1,352,598	-7.9	33.0	7.8	8.4
Gas	4,644	11,503	9,837	8.7	0.1	0.1	0.1
Nuclear	--	9,046,805	8,387,023	--	--	55.7	52.1
Hydroelectric	967,647	1,001,769	975,057	0.1	11.3	6.2	6.1
Total Nonutility Industry	1,575,635	1,661,152	1,865,157	1.9	18.4	10.2	11.6
Industry	8,573,072	16,247,158	16,102,737	7.3	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	177.7	160.8	161.2	-1.1
Petroleum	186.9	183.7	187.2	*
Gas	0.0	217.2	0.0	0.0

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	80	51	51	-5.0
Nitrogen Oxides ^c	23	21	14	-5.7
Carbon Dioxide ^c	5,789	4,716	5,577	-0.4

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

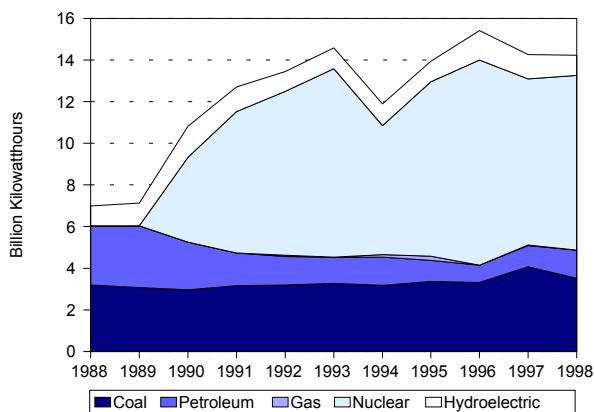


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

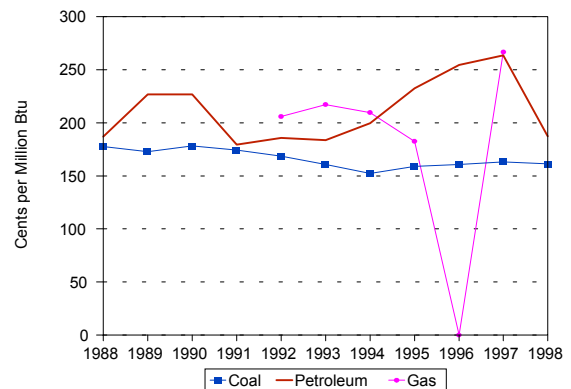


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

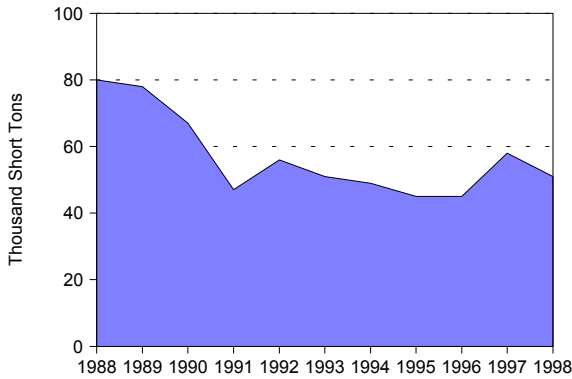


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

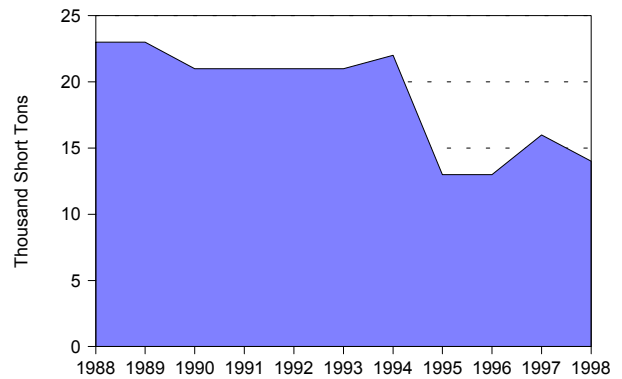


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

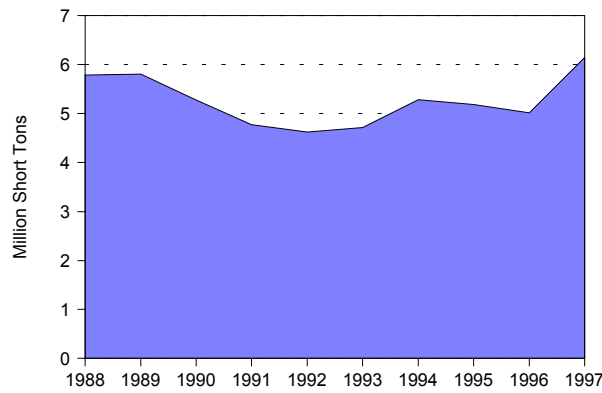


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	3,463,607	3,420,322	3,383,764	-0.3	39.1	39.0	36.6
Commercial ..	1,946,665	2,122,570	3,328,294	6.1	22.0	24.2	36.0
Industrial	3,338,796	3,099,592	2,414,739	-3.5	37.7	35.4	26.1
Other	99,048	118,485	126,918	2.8	1.1	1.3	1.4
Total	8,848,115	8,760,969	9,253,715	0.5	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

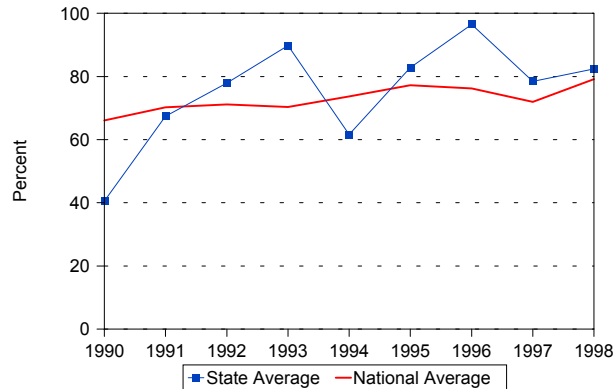


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	7	5	--	1	13
Number of Retail Customers	473,791	10,052	--	59,631	543,474
Retail Sales (MWh)	8,152,339	134,277	--	561,499	8,848,115
Percentage of Retail Sales	92.1	1.5	--	6.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	854	12	--	61	927
Percentage of Revenue	92.1	1.3	--	6.6	100.0
1993					
Number of Utilities	6	5	--	1	12
Number of Retail Customers	503,885	11,610	--	63,125	578,620
Retail Sales (MWh)	8,018,727	151,339	--	590,903	8,760,969
Percentage of Retail Sales	91.5	1.7	--	6.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	949	14	--	83	1,047
Percentage of Revenue	90.7	1.4	--	7.9	100.0
1998					
Number of Utilities	6	5	--	1	12
Number of Retail Customers	535,057	10,792	--	69,757	615,606
Retail Sales (MWh)	8,513,235	157,539	--	582,941	9,253,715
Percentage of Retail Sales	92.0	1.7	--	6.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	994	15	--	94	1,104
Percentage of Revenue	90.1	1.4	--	8.6	100.0

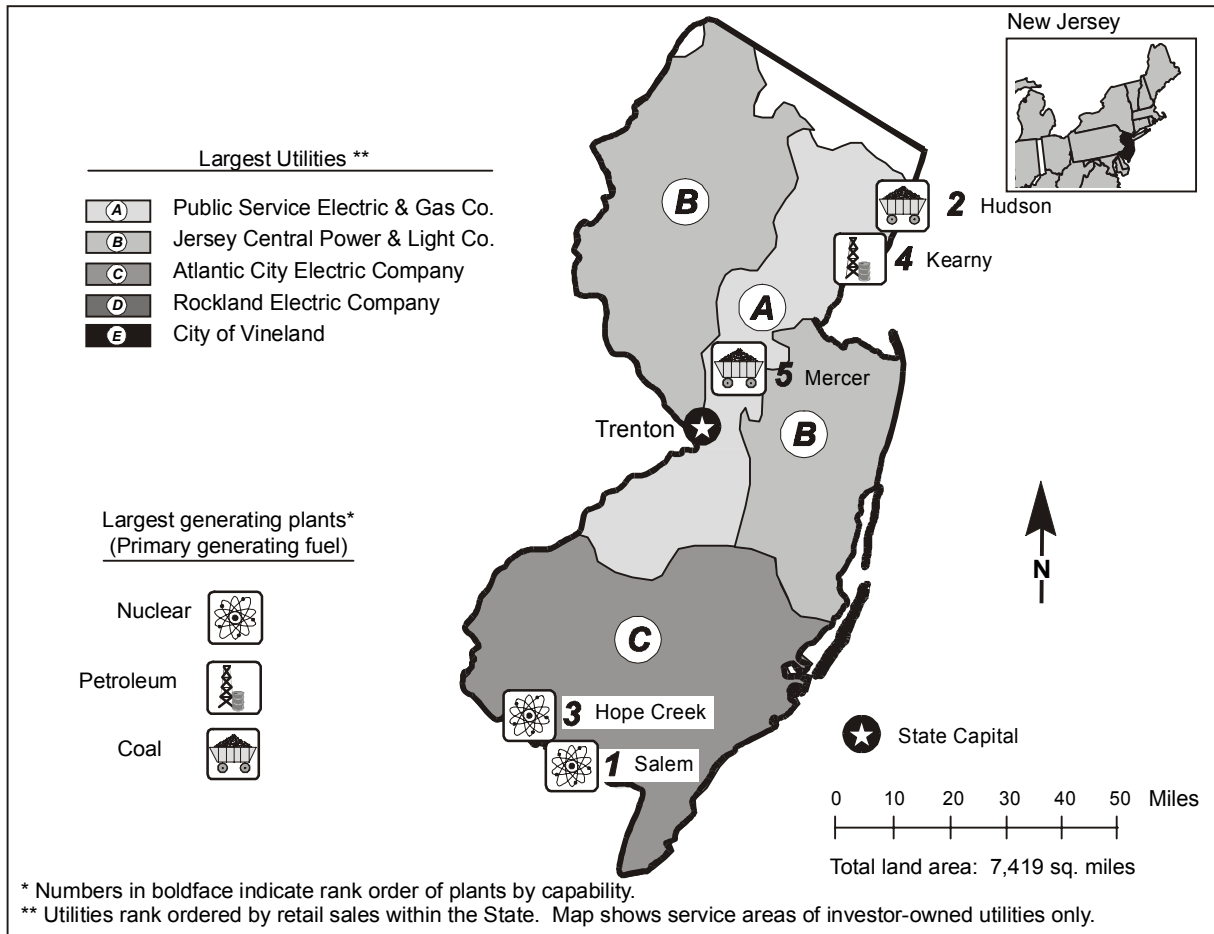


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		MACC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	13,390	22
Primary Generating Fuel		Nuclear	Generation (MWh)	35,911,086	31
Population (as of 7/98)	8,095,542	9	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	10.17	47	Coal-fired	34	
Industrial	7.94	48	Petroleum-fired	30	
Commercial	10.09	46	Gas-fired	26	
Residential	11.39	44	Nuclear	19	
Industry			Hydroelectric	33	
Capability (MW)	16,625	18	Nonutility		
Generation (MWh)	53,666,002	24	Capability (MW)	3,235	8
Capability/person			Share of Capability (Percent) . . .	19.5	8
(KWe/person)	2.05	42	Generation (MWh)	17,754,916	7
Generation/person			Share of Generation (Percent) . .	33.1	6
(MWh/person)	6.63	48			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	44	38			
Nitrogen Oxide	51	39			
Carbon Dioxide	19,411	38			
Sulfur Dioxide/sq. mile (Tons)	5.91	19			
Nitrogen Oxides/sq. mile (Tons)	6.83	10			
Carbon Dioxide/sq. mile (Tons)	2,616.35	11			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Salem	Nuclear	Public Service Electric&Gas Co	2,250	27
2. Hudson	Coal, Gas, Petroleum	Public Service Electric&Gas Co	1,135	34
3. Hope Creek	Nuclear	Public Service Electric&Gas Co	1,031	12
4. Kearny	Petroleum, Gas	Public Service Electric&Gas Co	784	45
5. Mercer	Coal, Petroleum	Public Service Electric&Gas Co	777	38

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Public Service Electric&Gas Co	3,807	1,271	1,849	631	56
B. Jersey Central Power&Light Co	1,973	889	778	286	21
C. Atlantic City Electric Company	926	377	417	121	11
D. Rockland Electric Company	136	62	68	5	1
E. City of Vineland	38	13	11	14	1
Total	6,881	2,611	3,122	1,057	90
Percentage of Utility Sales	99	99	99	100	99

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	13,510	13,850	13,390	-0.1	86.5	84.5	80.5
Coal-fired	1,652	1,644	1,658	*	10.6	10.0	10.0
Petroleum-fired	3,407	3,072	2,490	-3.4	21.8	18.8	15.0
Gas-fired	165	303	1,068	23.1	1.1	1.8	6.4
Dual-fired	4,093	4,598	3,912	-0.5	26.2	28.1	23.5
Nuclear	3,863	3,853	3,862	*	24.7	23.5	23.2
Hydroelectric	330	380	400	2.2	2.1	2.3	2.4
Total Nonutility	2,111	2,534	3,235	4.9	13.5	15.5	19.5
Industry	15,621	16,384	16,625	0.7	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

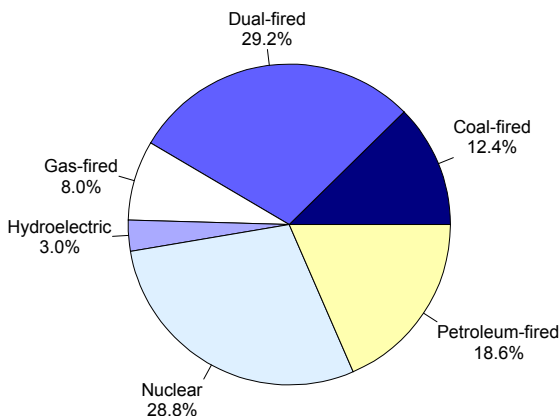


Figure 2. Utility Generation by Primary Energy Source, 1998

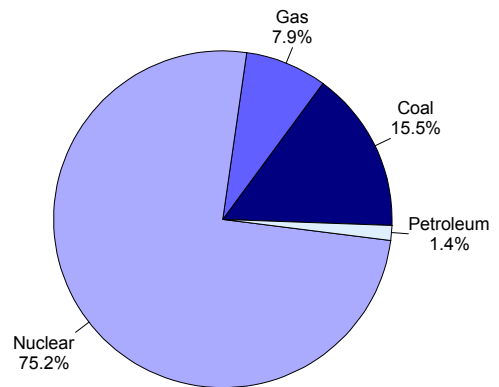


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	40,159,823	34,284,622	35,911,086	-1.2	77.4	71.0	66.9
Coal	7,162,911	5,465,762	5,586,357	-2.7	13.8	11.3	10.4
Petroleum	5,051,941	1,028,686	484,998	-22.9	9.7	2.1	0.9
Gas	4,276,299	2,981,168	2,853,825	-4.4	8.2	6.2	5.3
Nuclear	23,890,324	24,932,240	27,132,139	1.4	46.0	51.7	50.6
Hydroelectric	-221,652	-123,234	-146,233	-4.5	-0.4	-0.3	-0.3
Total Nonutility	11,753,213	13,970,696	17,754,916	4.7	22.6	29.0	33.1
Industry	51,913,035	48,255,318	53,666,002	0.4	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	171.7	177.3	159.0	-0.8
Petroleum	251.2	268.0	242.2	-0.4
Gas	224.5	229.9	262.0	1.7

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	86	60	44	-7.2
Nitrogen Oxides ^c	55	39	51	-0.9
Carbon Dioxide ^c	15,602	9,421	19,411	2.5

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

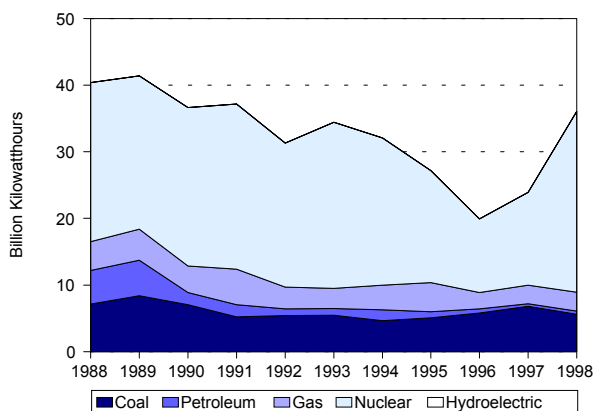


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

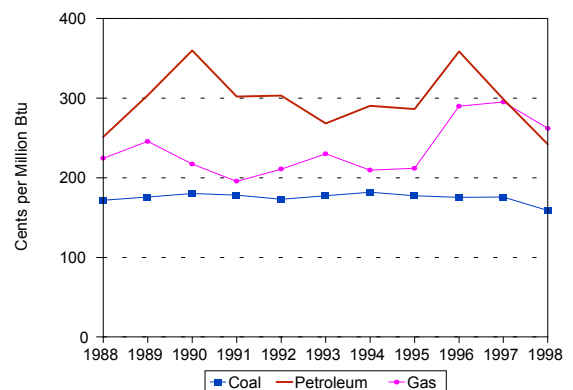


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

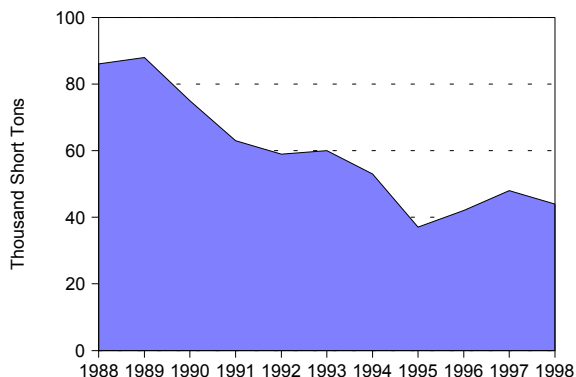


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

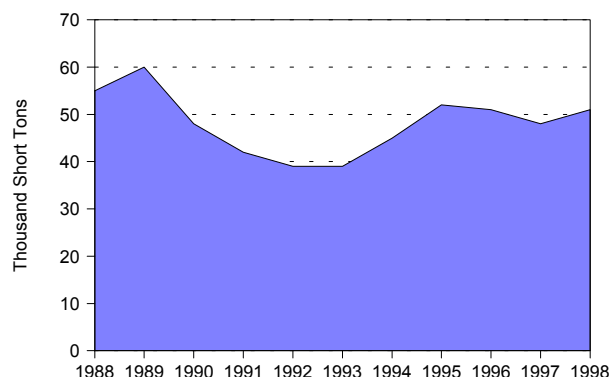


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

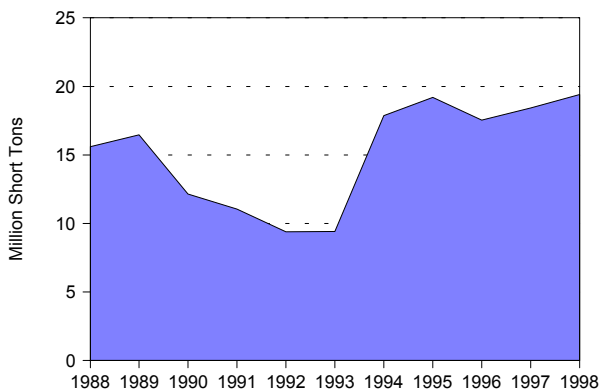


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	20,656,492	22,042,043	23,190,705	1.3	33.3	33.6	34.0
Commercial ..	25,142,841	28,493,042	31,127,232	2.4	40.5	43.4	45.7
Industrial	15,843,501	14,595,879	13,339,168	-1.9	25.5	22.2	19.6
Other	468,868	489,682	504,407	0.8	0.8	0.8	0.7
Total	62,111,702	65,620,646	68,161,512	1.0	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

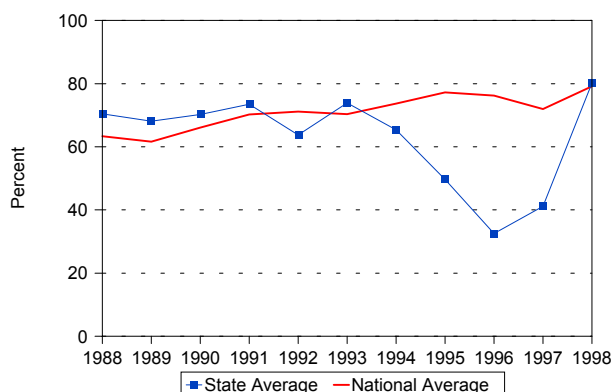


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	4	9	--	1	14
Number of Retail Customers	3,163,926	49,947	--	9,315	3,223,188
Retail Sales (MWh)	61,249,499	762,906	--	99,297	62,111,702
Percentage of Retail Sales	98.6	1.2	--	0.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	6,595	82	--	15	6,692
Percentage of Revenue	98.5	1.2	--	0.2	100.0
1993					
Number of Utilities	4	9	--	1	14
Number of Retail Customers	3,291,484	52,750	--	10,071	3,354,305
Retail Sales (MWh)	64,675,898	836,057	--	108,691	65,620,646
Percentage of Retail Sales	98.6	1.3	--	0.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	7,109	93	--	14	7,216
Percentage of Revenue	98.5	1.3	--	0.2	100.0
1998					
Number of Utilities	4	9	--	1	14
Number of Retail Customers	3,441,890	53,916	--	10,612	3,506,418
Retail Sales (MWh)	67,155,694	892,461	--	113,357	68,161,512
Percentage of Retail Sales	98.5	1.3	--	0.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	6,842	78	--	12	6,932
Percentage of Revenue	98.7	1.1	--	0.2	100.0

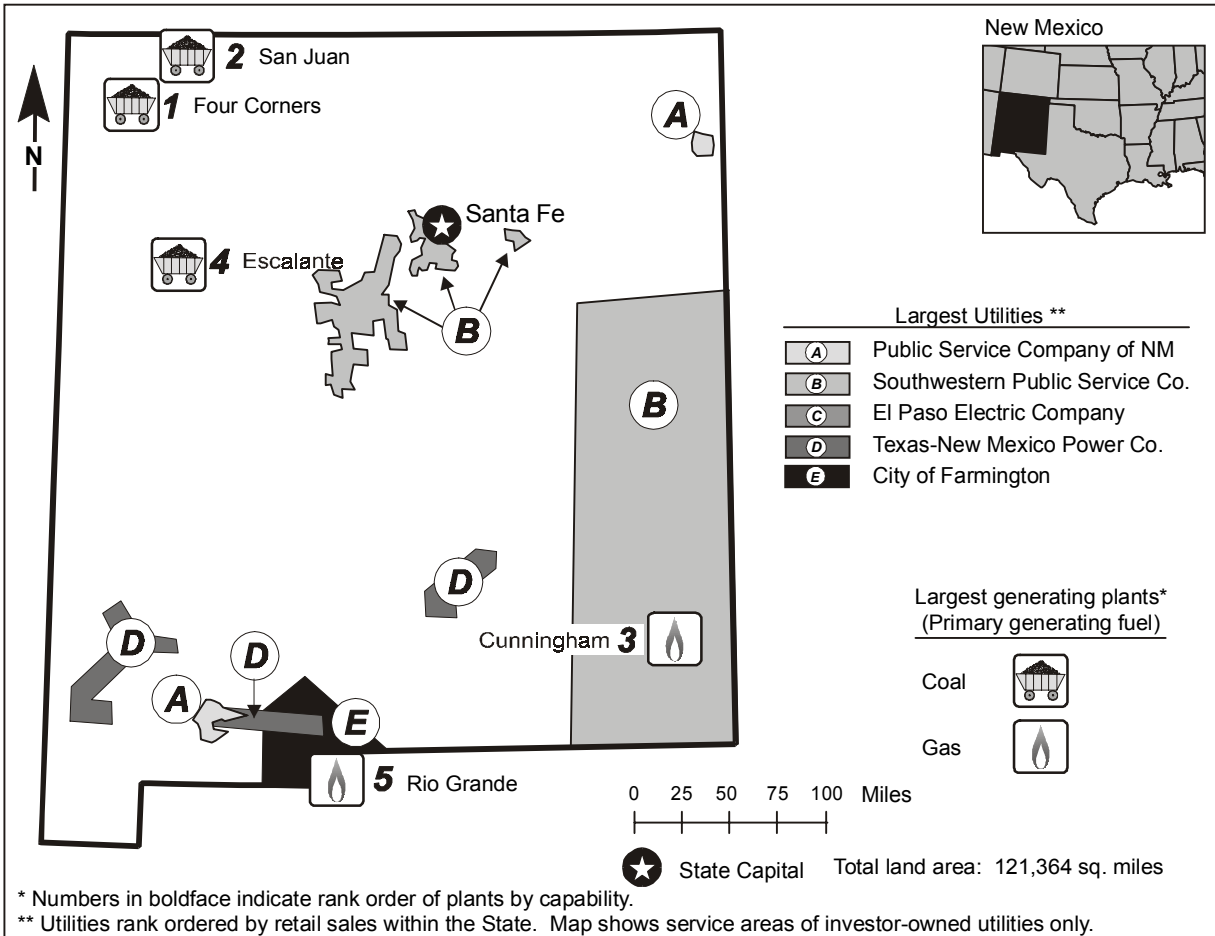


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SPP/WSCC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	5,294	37
Primary Generating Fuel		Coal	Generation (MWh)	31,428,332	35
Population (as of 7/98)	1,733,535	37	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.78	32	Coal-fired	25	
Industrial	4.47	32	Petroleum-fired	30	
Commercial	7.80	38	Gas-fired	27	
Residential	8.85	37	Hydroelectric	26	
Industry			Nonutility		
Capability (MW)	5,531	38	Capability (MW)	237	39
Generation (MWh)	32,341,707	36	Share of Capability (Percent)	4.3	34
Capability/person			Generation (MWh)	913,375	39
(KWe/person)	3.19	24	Share of Generation (Percent)	2.8	41
Generation/person					
(MWh/person)	18.66	10			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	120	24			
Nitrogen Oxide	128	25			
Carbon Dioxide	32,879	31			
Sulfur Dioxide/sq. mile (Tons)	0.99	35			
Nitrogen Oxides/sq. mile (Tons)	1.05	41			
Carbon Dioxide/sq. mile (Tons)	270.91	42			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Four Corners	Coal	Arizona Public Service Co	2,040	35
2. San Juan	Coal	Public Service Co of NM	1,614	25
3. Cunningham	Gas	Southwestern Public Service Co	511	41
4. Escalante	Coal	Plains Elec Gen&Trans Coop Inc	247	14
5. Rio Grande	Gas	El Paso Electric Co	246	41

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Public Service Company of NM	536	188	242	89	18
B. Southwestern Public Service Co	156	48	39	62	7
C. El Paso Electric Company	102	43	31	3	26
D. Texas-New Mexico Power Company ..	84	19	19	44	1
E. City of Farmington	49	14	23	10	2
Total	927	312	353	208	54
Percentage of Utility Sales	75	76	79	75	54

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	5,145	5,062	5,294	0.3	97.3	96.5	95.7
Coal-fired	3,894	3,901	3,913	0.1	73.7	74.4	70.7
Petroleum-fired	25	24	15	-5.6	0.5	0.4	0.3
Gas-fired	504	318	925	7.0	9.5	6.1	16.7
Dual-fired	665	761	360	-6.6	12.6	14.5	6.5
Hydroelectric	57	59	81	4.0	1.1	1.1	1.5
Total Nonutility	141	183	237	6.0	2.7	3.5	4.3
Industry	5,286	5,245	5,531	0.5	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

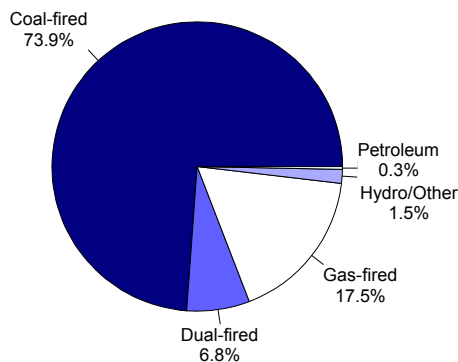


Figure 2. Utility Generation by Primary Energy Source, 1998

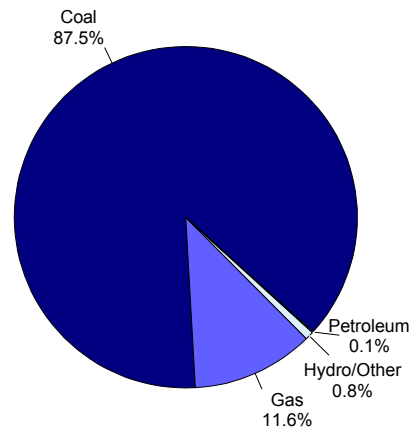


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	26,369,189	28,364,368	31,428,332	2.0	98.6	98.7	97.2
Coal	24,245,250	25,507,029	27,537,426	1.4	90.7	88.7	85.1
Petroleum	44,587	35,337	23,020	-7.1	0.2	0.1	0.1
Gas	1,978,978	2,528,175	3,631,474	7.0	7.4	8.8	11.2
Hydroelectric	100,374	293,827	236,412	10.0	0.4	1.0	0.7
Total Nonutility Industry	361,913	380,093	913,375	10.8	1.4	1.3	2.8
Industry	26,731,102	28,744,461	32,341,707	2.1	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	117.5	136.8	130.6	1.2
Petroleum	308.0	505.8	439.3	4.0
Gas	213.6	219.3	220.0	0.3

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	44	58	120	11.9
Nitrogen Oxides ^c	145	117	128	-1.4
Carbon Dioxide ^c	28,654	29,840	32,879	1.5

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

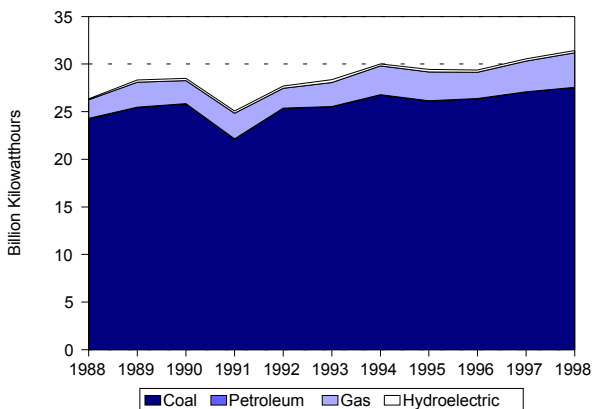


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

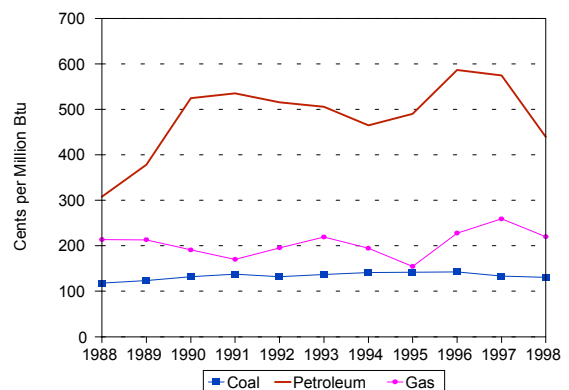


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

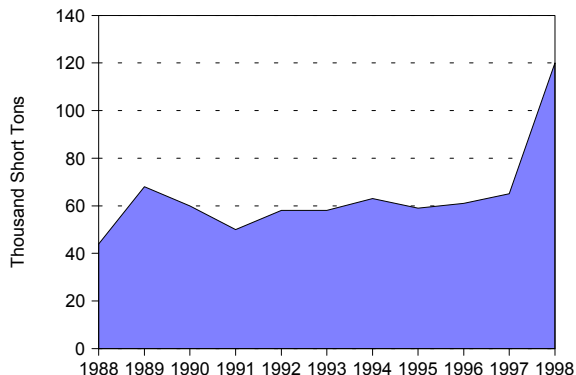


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

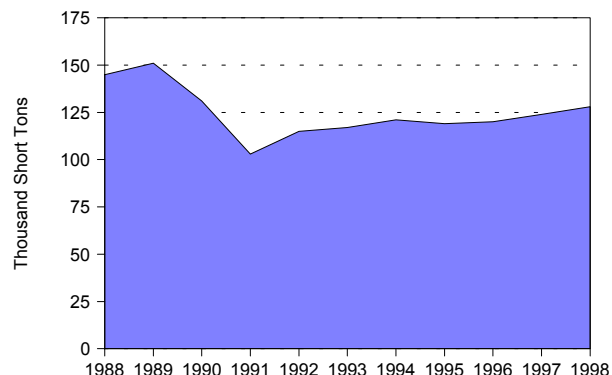


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

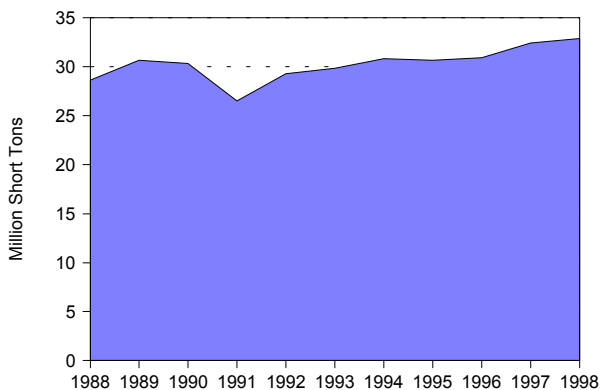


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	3,393,708	3,884,263	4,641,931	3.5	26.6	26.0	25.5
Commercial ..	4,264,269	4,759,364	5,703,424	3.3	33.4	31.9	31.4
Industrial	4,032,148	4,816,121	6,185,578	4.9	31.6	32.3	34.0
Other	1,065,195	1,467,131	1,642,187	4.9	8.3	9.8	9.0
Total	12,755,321	14,926,879	18,173,120	4.0	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

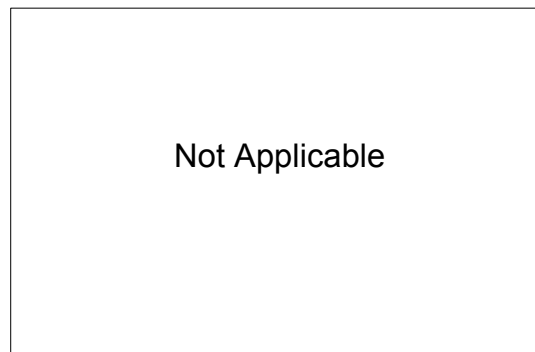


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	4	8	1	20	33
Number of Retail Customers	458,119	60,483	1	128,742	647,345
Retail Sales (MWh)	9,337,166	1,043,345	74,460	2,300,350	12,755,321
Percentage of Retail Sales	73.2	8.2	0.6	18.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	863	96	1	230	1,190
Percentage of Revenue	72.5	8.0	0.1	19.3	100.0
1993					
Number of Utilities	4	8	1	20	33
Number of Retail Customers	505,833	63,458	3	147,097	716,391
Retail Sales (MWh)	10,759,571	1,328,637	151,870	2,686,801	14,926,879
Percentage of Retail Sales	72.1	8.9	1.0	18.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	858	106	4	220	1,188
Percentage of Revenue	72.3	8.9	0.3	18.5	100.0
1998					
Number of Utilities	4	8	1	21	34
Number of Retail Customers	568,708	72,975	5	171,179	812,867
Retail Sales (MWh)	12,794,451	1,587,396	194,399	3,596,874	18,173,120
Percentage of Retail Sales	70.4	8.7	1.1	19.8	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	878	109	4	241	1,233
Percentage of Revenue	71.3	8.9	0.3	19.5	100.0

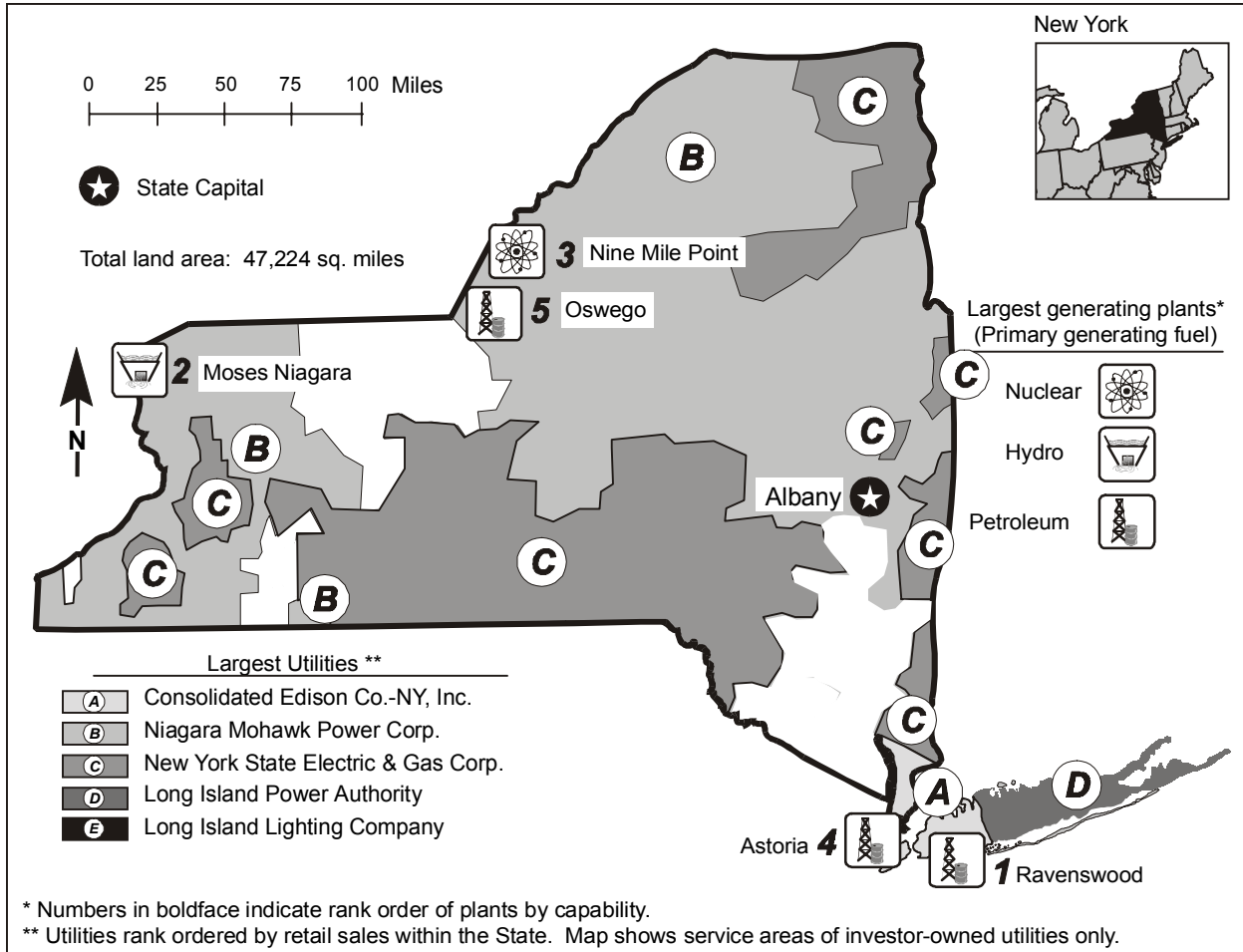


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		NPCC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	29,585	6
Primary Generating Fuel		Nuclear	Generation (MWh)	115,840,453	6
Population (as of 7/98)	18,159,175	3	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	10.71	49	Coal-fired	36	
Industrial	4.95	37	Petroleum-fired	29	
Commercial	11.63	49	Gas-fired	31	
Residential	13.66	49	Nuclear	21	
			Hydroelectric	38	
Industry			Nonutility		
Capability (MW)	34,963	5	Capability (MW)	5,378	4
Generation (MWh)	144,553,274	6	Share of Capability (Percent)	15.4	12
Capability/person			Generation (MWh)	28,712,821	3
(KWe/person)	1.93	45	Share of Generation (Percent)	19.9	10
Generation/person					
(MWh/person)	7.96	45			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	268	14			
Nitrogen Oxide	130	23			
Carbon Dioxide	64,048	14			
Sulfur Dioxide/sq. mile (Tons)	5.67	20			
Nitrogen Oxides/sq. mile (Tons)	2.75	27			
Carbon Dioxide/sq. mile (Tons)	1,356.26	20			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Ravenswood	Petroleum	Consolidated Edison Co-NY Inc	2,167	35
2. Moses Niagara	Hydro	Power Authority of State of NY	2,160	37
3. Nine Mile Point	Nuclear	Niagara Mohawk Power Corp	1,760	29
4. Astoria	Petroleum	Consolidated Edison Co-NY Inc	1,704	40
5. Oswego	Petroleum	Niagara Mohawk Power Corp	1,567	31

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Consolidated Edison Co-NY, Inc	5,015	1,832	3,015	99	69
B. Niagara Mohawk Power Corp	3,022	1,202	1,220	549	51
C. New York State Elec & Gas Corp	1,504	716	391	239	158
D. Long Island Power Authority	1,313	646	647	--	21
E. Long Island Lighting Company	877	441	416	--	20
Total	11,731	4,836	5,689	887	319
Percentage of Utility Sales	84	88	92	71	28

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	31,040	32,731	29,585	-0.5	92.6	91.8	84.6
Coal-fired	3,865	3,879	3,891	0.1	11.5	10.9	11.1
Petroleum-fired	8,034	6,300	4,519	-6.2	24.0	17.7	12.9
Gas-fired	45	350	312	24.0	0.1	1.0	0.9
Dual-fired	8,975	10,130	10,830	2.1	26.8	28.4	31.0
Nuclear	4,766	4,831	4,966	0.5	14.2	13.6	14.2
Hydroelectric	5,355	7,240	5,067	-0.6	16.0	20.3	14.5
Total Nonutility	2,472	2,913	5,378	9.0	7.4	8.2	15.4
Industry	33,512	35,644	34,963	0.5	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

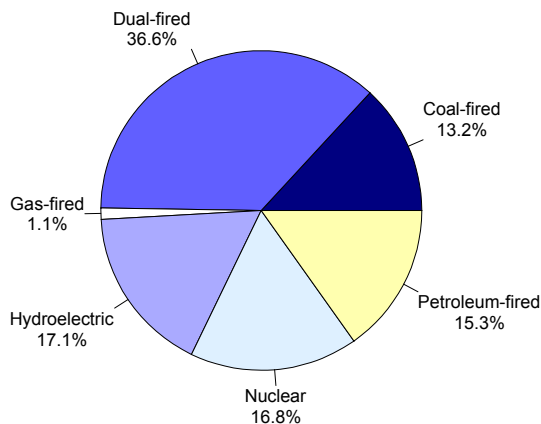


Figure 2. Utility Generation by Primary Energy Source, 1998

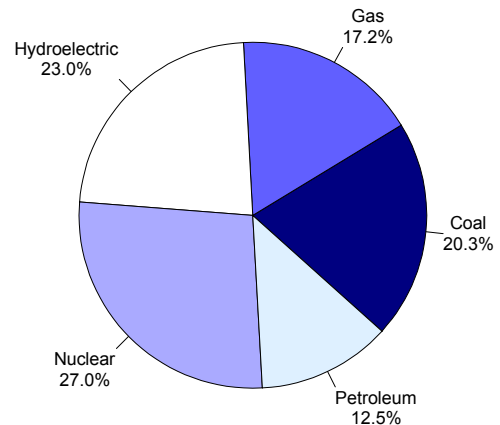


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	124,713,752	106,314,502	115,840,453	-0.8	90.8	85.5	80.1
Coal	22,761,164	21,819,763	23,503,467	0.4	16.6	17.5	16.3
Petroleum	39,864,823	14,438,633	14,523,573	-10.6	29.0	11.6	10.0
Gas	14,011,839	16,165,604	19,913,329	4.0	10.2	13.0	13.8
Nuclear	24,175,279	26,889,261	31,313,708	2.9	17.6	21.6	21.7
Hydroelectric	23,900,647	26,988,004	26,581,773	1.2	17.4	21.7	18.4
Renewable	--	13,237	4,603	--	--	*	*
Total Nonutility Industry	12,666,815	18,025,622	28,712,821	9.5	9.2	14.5	19.9
Industry	137,380,567	124,340,124	144,553,274	0.6	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	158.1	149.6	143.4	-1.1
Petroleum	248.9	257.0	203.5	-2.2
Gas	223.6	264.8	249.6	1.2

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	378	281	268	-3.8
Nitrogen Oxides ^c	143	111	130	-1.1
Carbon Dioxide ^c	64,765	48,217	64,048	-0.1

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

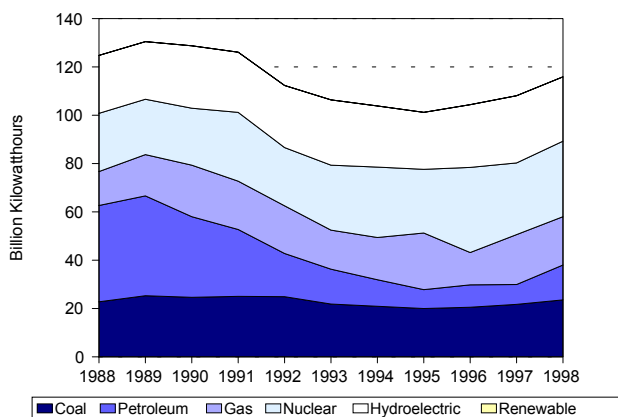


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

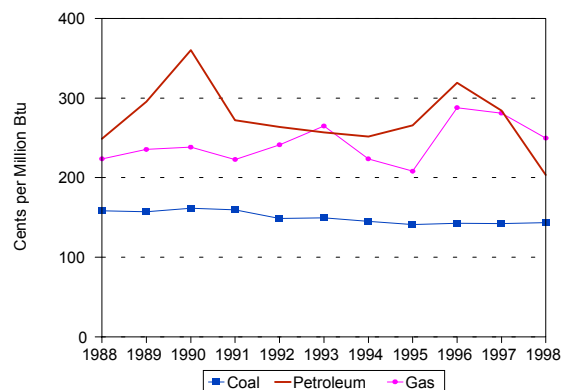


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

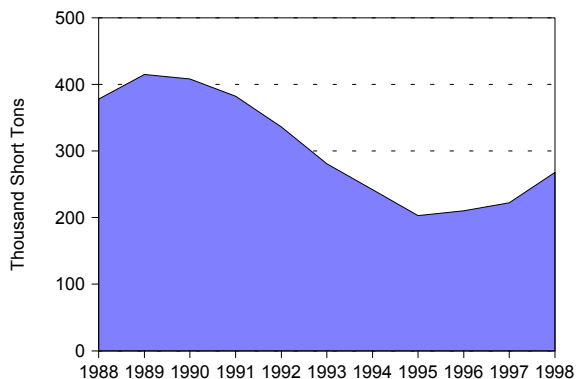


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

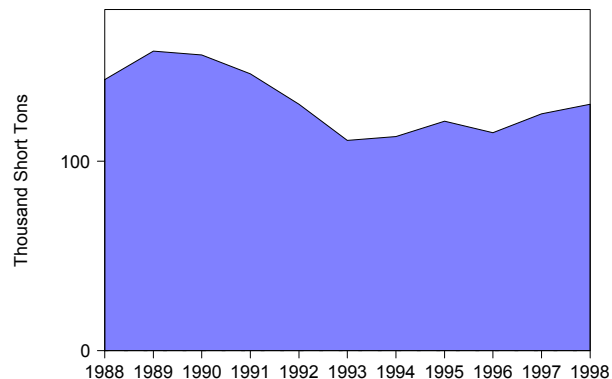


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

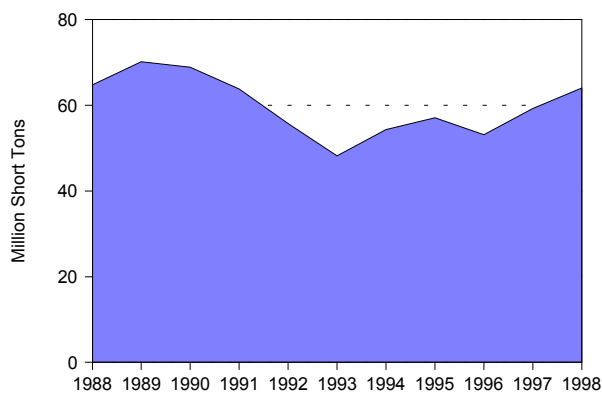


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	37,460,485	39,897,465	40,239,598	0.8	29.8	30.6	30.7
Commercial ..	46,597,585	47,728,275	53,163,549	1.5	37.1	36.7	40.5
Industrial	30,155,412	30,187,053	25,088,858	-2.0	24.0	23.2	19.1
Other	11,429,574	12,357,386	12,669,403	1.1	9.1	9.5	9.7
Total	125,643,060	130,170,179	131,161,408	0.5	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

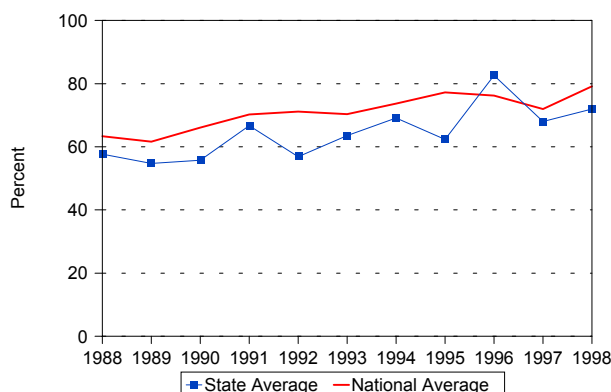


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	10	49	--	4	63
Number of Retail Customers	6,812,572	148,526	--	12,522	6,973,620
Retail Sales (MWh)	109,184,156	16,325,276	--	133,628	125,643,060
Percentage of Retail Sales	86.9	13.0	--	0.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	12,662	917	--	12	13,591
Percentage of Revenue	93.2	6.7	--	0.1	100.0
1993					
Number of Utilities	10	48	--	4	62
Number of Retail Customers	7,089,056	155,697	--	14,294	7,259,047
Retail Sales (MWh)	113,057,106	16,963,799	--	149,274	130,170,179
Percentage of Retail Sales	86.9	13.0	--	0.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	14,308	1,050	--	13	15,370
Percentage of Revenue	93.1	6.8	--	0.1	100.0
1998					
Number of Utilities	10	49	--	4	63
Number of Retail Customers	6,210,187	1,206,115	--	15,562	7,431,864
Retail Sales (MWh)	103,101,846	27,905,108	--	154,454	131,161,408
Percentage of Retail Sales	78.6	21.3	--	0.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	11,779	2,252	--	13	14,043
Percentage of Revenue	83.9	16.0	--	0.1	100.0

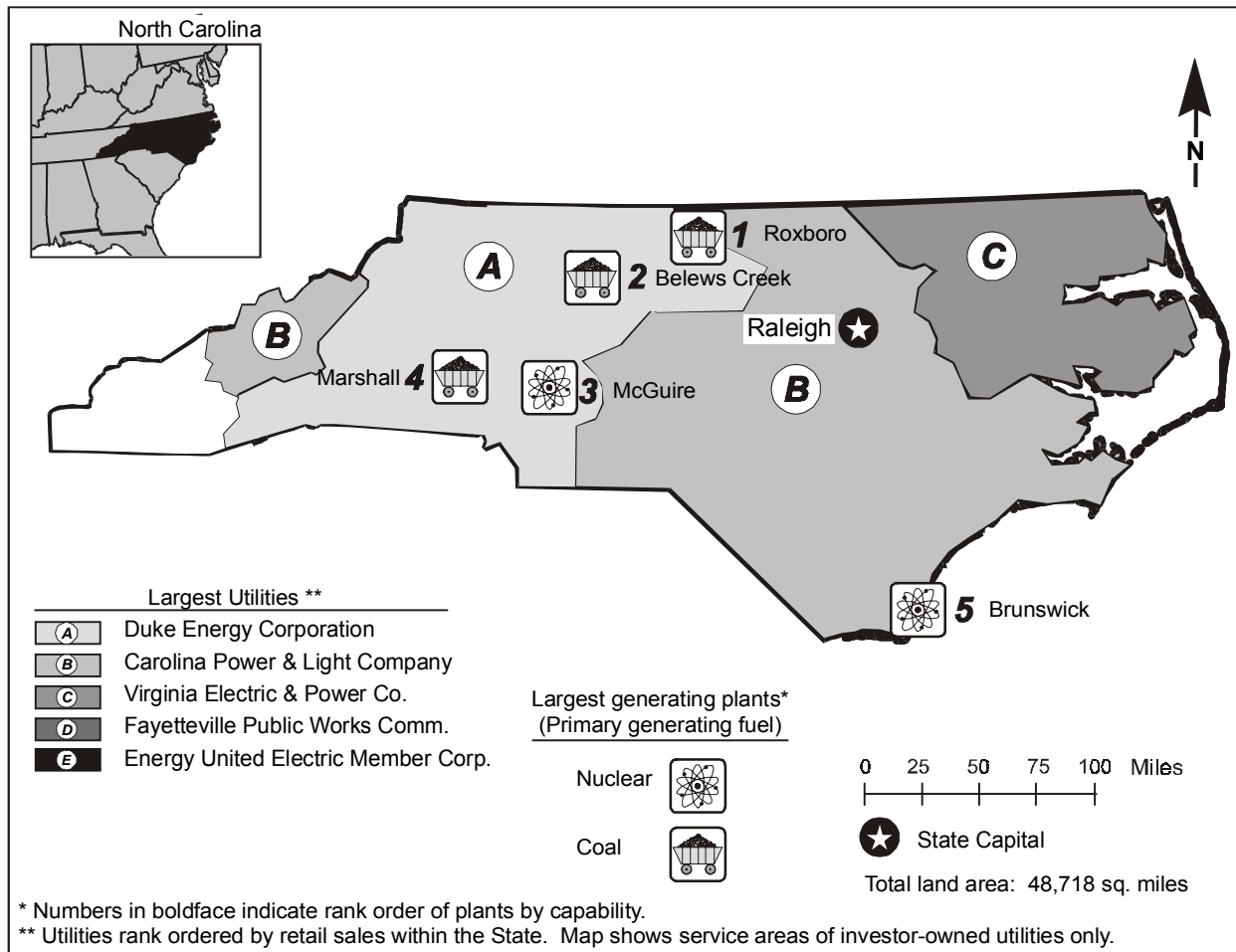


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SERC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	21,020	12
Primary Generating Fuel		Coal	Generation (MWh)	113,112,235	9
Population (as of 7/98)	7,545,828	11	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.45	31	Coal-fired	30	
Industrial	4.63	34	Petroleum-fired	28	
Commercial	6.35	22	Gas-fired	7	
Residential	8.01	31	Nuclear	17	
			Hydroelectric	49	
Industry			Nonutility		
Capability (MW)	22,845	11	Capability (MW)	1,825	13
Generation (MWh)	121,371,988	8	Share of Capability (Percent) . . .	8	22
Capability/person			Generation (MWh)	8,259,753	11
(KWe/person)	3.03	27	Share of Generation (Percent) . .	6.8	26
Generation/person					
(MWh/person)	16.08	20			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	448	11			
Nitrogen Oxide	215	13			
Carbon Dioxide	73,681	12			
Sulfur Dioxide/sq. mile (Tons)	9.2	15			
Nitrogen Oxides/sq. mile (Tons)	4.42	18			
Carbon Dioxide/sq. mile (Tons)	1,512.40	16			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Roxboro	Coal	Carolina Power & Light Co	2,477	32
2. Belews Creek	Coal	Duke Power Co	2,240	24
3. McGuire	Nuclear	Duke Power Co	2,200	17
4. Marshall	Coal	Duke Power Co	2,090	33
5. Brunswick	Nuclear	Carolina Power & Light Co	1,631	23

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Duke Energy Corporation	2,963	1,214	952	776	20
B. Carolina Power & Light Company	2,117	888	582	574	74
C. Virginia Electric & Power Co	204	96	42	58	9
D. Fayetteville Public Works Comm	127	61	44	18	5
E. EnergyUnited Elec Member Corp	115	93	13	9	1
Total	5,527	2,352	1,634	1,434	108
Percentage of Utility Sales	75	68	76	89	76

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	20,026	20,182	21,020	0.5	94.4	94.5	92.0
Coal-fired	12,430	12,503	12,440	*	58.6	58.5	54.5
Petroleum-fired	478	304	358	-3.2	2.3	1.4	1.6
Gas-fired	78	68	96	2.3	0.4	0.3	0.4
Dual-fired	476	718	1,851	16.3	2.2	3.4	8.1
Nuclear	4,698	4,639	4,691	*	22.2	21.7	20.5
Hydroelectric	1,867	1,950	1,584	-1.8	8.8	9.1	6.9
Total Nonutility	1,179	1,180	1,825	5.0	5.6	5.5	8.0
Industry	21,205	21,361	22,845	0.8	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

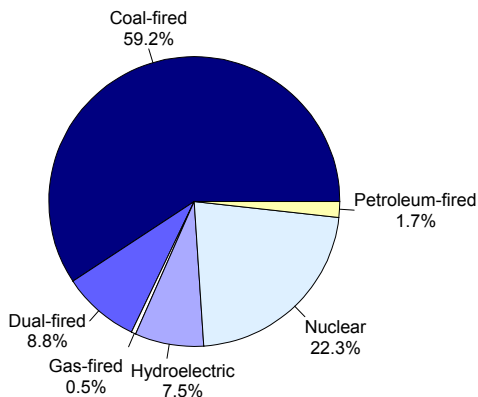


Figure 2. Utility Generation by Primary Energy Source, 1998

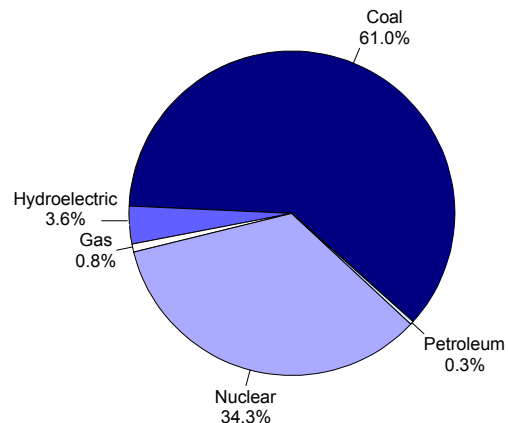


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	78,405,793	88,753,614	113,112,235	4.2	92.3	93.1	93.2
Coal	46,089,553	59,383,147	69,000,633	4.6	54.2	62.3	56.9
Petroleum	224,580	165,175	285,902	2.7	0.3	0.2	0.2
Gas	55,113	239,530	936,314	37.0	0.1	0.3	0.8
Nuclear	29,146,209	23,758,927	38,778,211	3.2	34.3	24.9	31.9
Hydroelectric	2,890,339	5,206,835	4,111,175	4.0	3.4	5.5	3.4
Total Nonutility Industry	6,575,997	6,560,602	8,259,753	2.6	7.7	6.9	6.8
Industry	84,981,791	95,314,216	121,371,988	4.0	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	177.5	169.9	143.8	-2.3
Petroleum	348.5	405.0	310.5	-1.3
Gas	--	351.6	267.9	--

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	312	421	448	4.1
Nitrogen Oxides ^c	176	211	215	2.3
Carbon Dioxide ^c	45,679	58,750	73,681	5.5

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

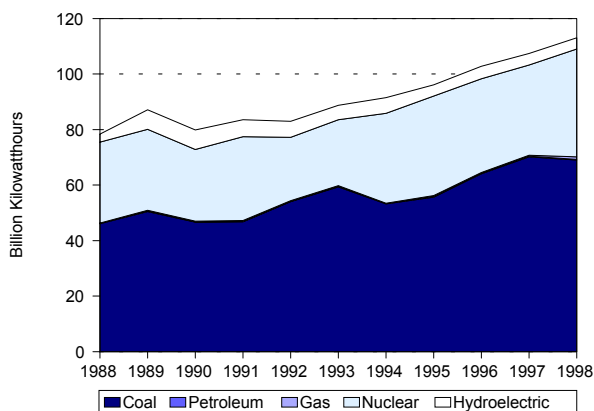


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

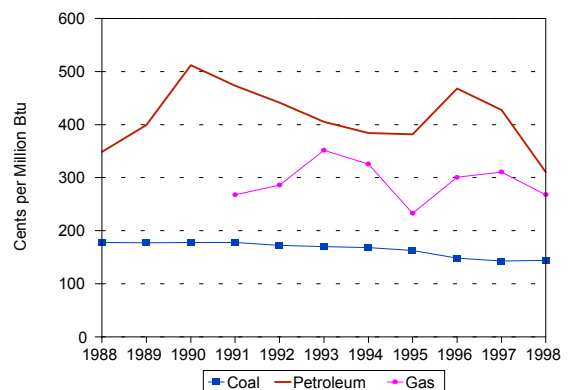


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

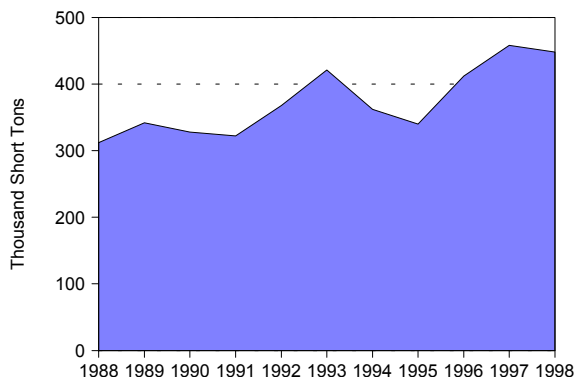


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

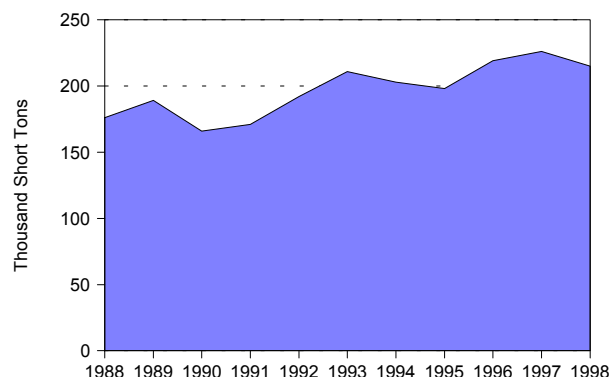


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

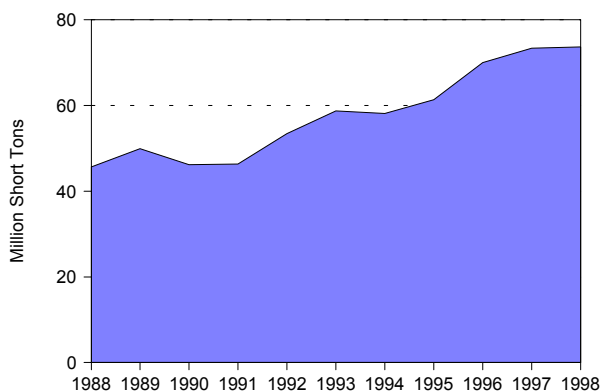


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	32,211,851	37,742,397	42,890,314	3.2	37.7	37.8	37.8
Commercial ..	21,512,615	26,747,461	33,637,195	5.1	25.1	26.8	29.6
Industrial	30,211,492	33,487,659	34,985,931	1.6	35.3	33.6	30.8
Other	1,604,279	1,800,037	2,082,866	2.9	1.9	1.8	1.8
Total	85,540,241	99,777,554	113,596,306	3.2	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

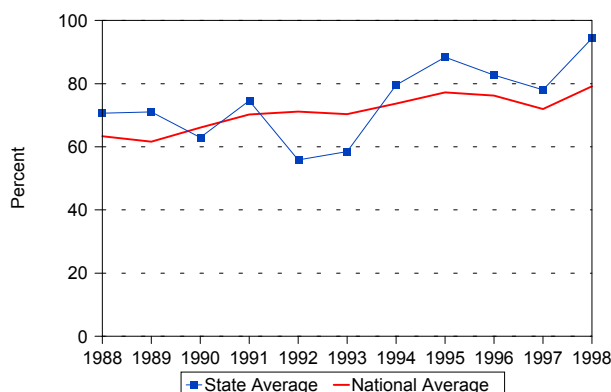


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	5	72	1	32	110
Number of Retail Customers	2,083,921	433,849	5	585,077	3,102,852
Retail Sales (MWh)	67,545,064	10,332,952	7,483	7,654,742	85,540,241
Percentage of Retail Sales	79.0	12.1	--	8.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	5,003	891	--	759	6,653
Percentage of Revenue	75.2	13.4	--	11.4	100.0
1993					
Number of Utilities	5	72	1	32	110
Number of Retail Customers	2,305,792	468,522	4	663,143	3,437,461
Retail Sales (MWh)	78,228,364	11,919,091	5,803	9,624,296	99,777,554
Percentage of Retail Sales	78.4	11.9	--	9.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	5,304	1,035	--	949	7,287
Percentage of Revenue	72.8	14.2	--	13.0	100.0
1998					
Number of Utilities	3	72	1	31	107
Number of Retail Customers	2,615,693	501,562	4	783,198	3,900,457
Retail Sales (MWh)	87,619,237	13,780,835	6,796	12,189,438	113,596,306
Percentage of Retail Sales	77.1	12.1	--	10.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	5,285	1,066	--	982	7,332
Percentage of Revenue	72.1	14.5	--	13.4	100.0

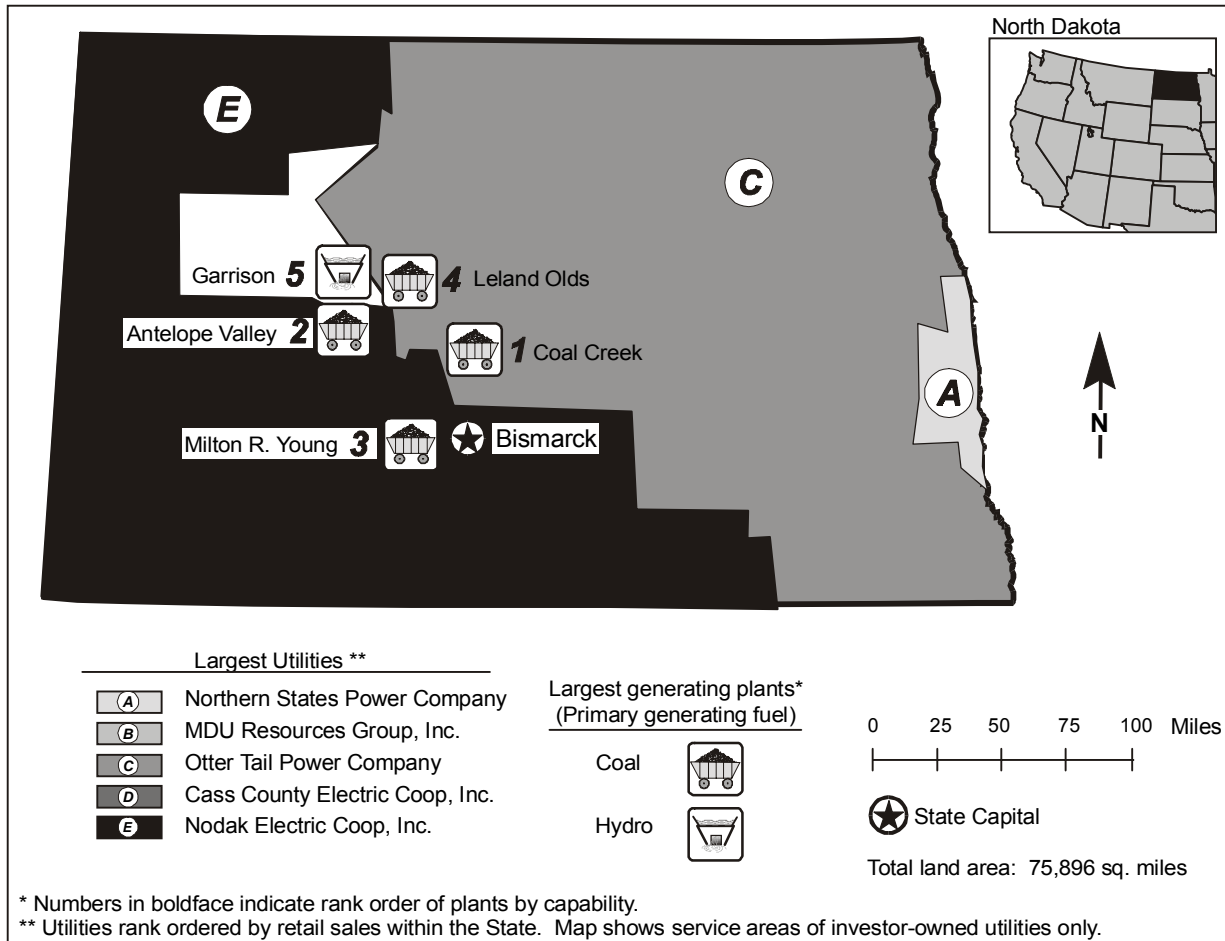


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		MAPP	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	4,656	40
Primary Generating Fuel		Coal	Generation (MWh)	30,518,976	36
Population (as of 7/98)	637,808	47	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.70	16	Coal-fired	20	
Industrial	4.30	24	Petroleum-fired	30	
Commercial	6.20	17	Gas-fired	45	
Residential	6.49	9	Hydroelectric	41	
Industry			Nonutility		
Capability (MW)	4,691	41	Capability (MW)	35	48
Generation (MWh)	30,671,950	37	Share of Capability (Percent) . . .	0.7	46
Capability/person			Generation (MWh)	152,974	47
(KWe/person)	7.35	3	Share of Generation (Percent) . .	0.5	46
Generation/person					
(MWh/person)	48.09	3			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	144	22			
Nitrogen Oxide	112	27			
Carbon Dioxide	34,286	29			
Sulfur Dioxide/sq. mile (Tons)	2.09	30			
Nitrogen Oxides/sq. mile (Tons)	1.63	33			
Carbon Dioxide/sq. mile (Tons)	496.94	33			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Coal Creek	Coal	Coop Power Assn	1,080	19
2. Antelope Valley	Coal	Basin Electric Power Coop	900	14
3. Milton R Young	Coal	Minnkota Power Coop Inc	705	28
4. Leland Olds	Coal	Basin Electric Power Coop	650	32
5. Garrison	Hydro	USCE-Missouri River District	518	42

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Northern States Power Company	101	41	24	34	2
B. MDU Resources Group, Inc	78	33	37	6	3
C. Otter Tail Power Company	75	29	33	11	2
D. Cass County Electric Coop, Inc	27	18	7	1	1
E. Nodak Electric Coop, Inc	26	16	2	4	4
Total	307	136	103	56	12
Percentage of Utility Sales	66	64	72	60	59

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	4,525	4,478	4,656	0.3	100.0	100.0	100.0
Coal-fired	3,876	3,856	4,068	0.5	85.7	86.1	87.4
Petroleum-fired	94	66	61	-4.6	2.1	1.5	1.3
Gas-fired	--	--	9	--	--	--	0.2
Dual-fired	10	10	--	--	0.2	0.2	--
Hydroelectric	545	545	518	-0.6	12.0	12.2	11.1
Total Nonutility	W	W	35	--	--	--	--
Industry	W	W	4,691	--	--	--	--

Figure 1. Utility Generating Capability by Plant Type, 1998

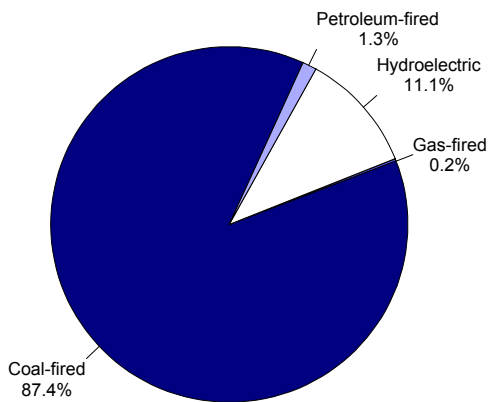


Figure 2. Utility Generation by Primary Energy Source, 1998

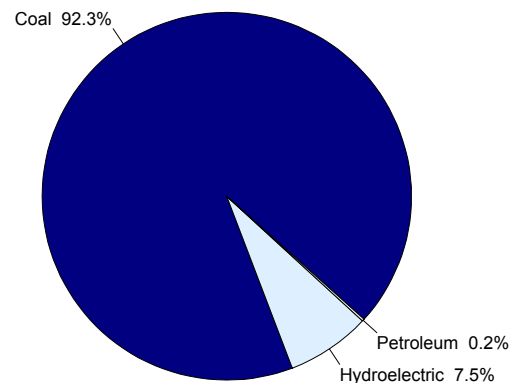


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	27,351,342	28,499,824	30,518,976	1.2	100.0	100.0	100.0
Coal	25,449,761	27,048,924	28,176,015	1.1	93.0	94.9	92.3
Petroleum	17,925	35,795	47,091	11.3	0.1	0.1	0.2
Gas	-14	-5	-78	20.6	*	*	*
Hydroelectric	1,883,670	1,415,110	2,295,948	2.2	6.9	5.0	7.5
Total Nonutility Industry	W	W	152,974	--	--	--	--
Industry	W	W	30,671,950	--	--	--	--

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	70.3	71.4	76.2	0.9
Petroleum	362.1	441.6	311.9	-1.6
Gas	428.6	424.9	369.3	-1.6

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	98	140	144	4.3
Nitrogen Oxides ^c	105	109	112	0.8
Carbon Dioxide ^c	30,826	32,990	34,286	1.2

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

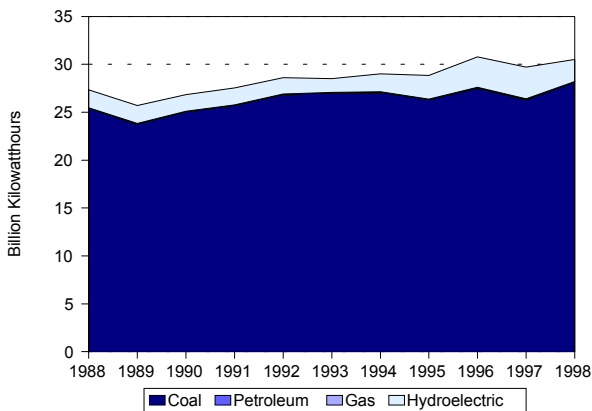


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

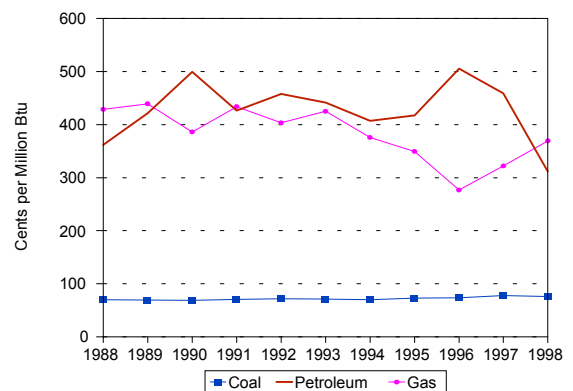


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

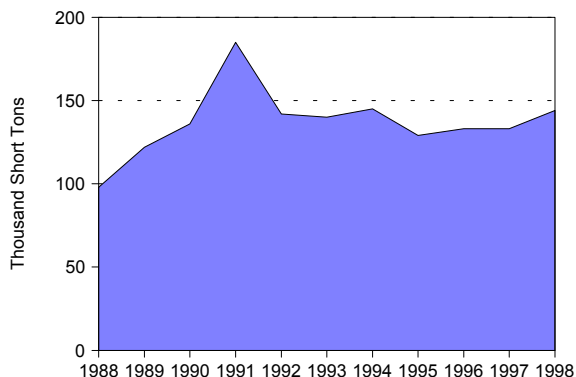


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

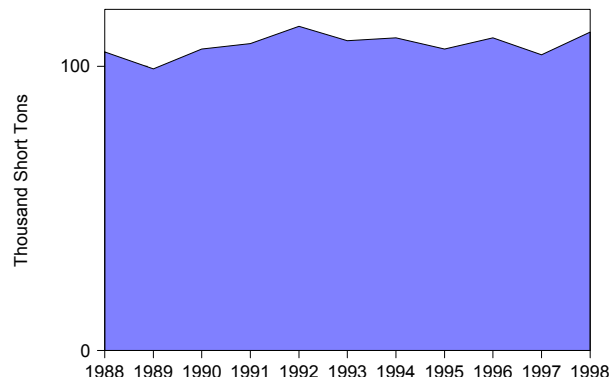


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

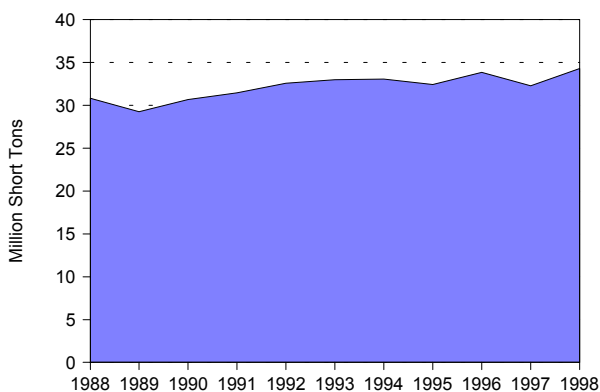


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	3,050,202	3,209,081	3,272,102	0.8	42.9	43.2	39.8
Commercial ..	1,520,710	1,830,759	2,305,227	4.7	21.4	24.6	28.0
Industrial	2,069,970	1,904,643	2,187,096	0.6	29.1	25.6	26.6
Other	465,892	487,475	455,959	-0.2	6.6	6.6	5.5
Total	7,106,776	7,431,958	8,220,384	1.6	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

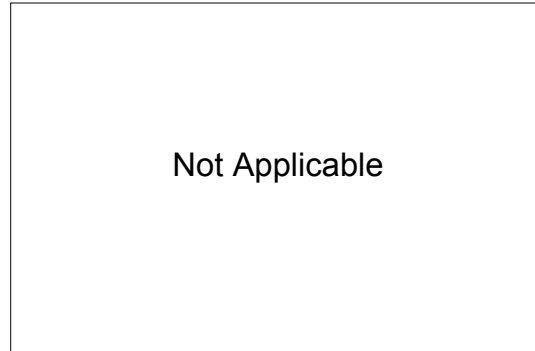


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	3	12	1	26	42
Number of Retail Customers	199,584	15,164	14	102,403	317,165
Retail Sales (MWh)	3,738,385	294,854	92,224	2,981,313	7,106,776
Percentage of Retail Sales	52.6	4.1	1.3	42.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	276	17	1	224	517
Percentage of Revenue	53.3	3.3	0.2	43.3	100.0
	1993				
Number of Utilities	3	11	1	25	40
Number of Retail Customers	203,618	11,044	16	106,943	321,621
Retail Sales (MWh)	4,038,467	247,642	115,182	3,030,667	7,431,958
Percentage of Retail Sales	54.3	3.3	1.5	40.8	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	258	12	2	206	477
Percentage of Revenue	54.0	2.4	0.3	43.2	100.0
	1998				
Number of Utilities	3	12	1	24	40
Number of Retail Customers	210,345	11,237	24	117,144	338,750
Retail Sales (MWh)	4,459,599	254,970	108,070	3,397,745	8,220,384
Percentage of Retail Sales	54.3	3.1	1.3	41.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	254	11	2	201	469
Percentage of Revenue	54.3	2.4	0.3	43.0	100.0

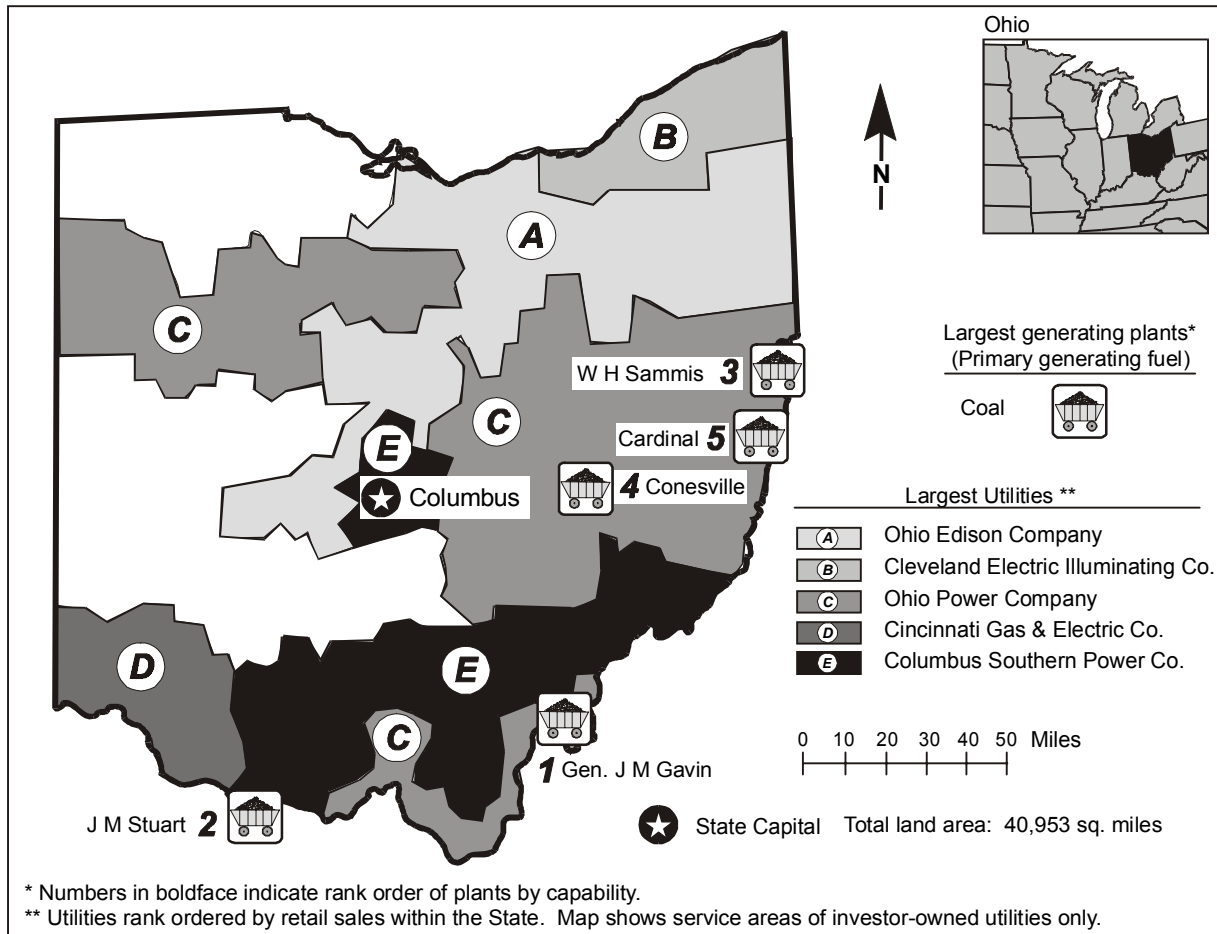


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		ECAR	Utility		
Net Exporter or Importer		Importer	Capacity (MW)	26,768	7
Primary Generating Fuel		Coal	Generation (MWh)	146,448,159	4
Population (as of 7/98)	11,237,752	7	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.38	29	Coal-fired	29	
Industrial	4.30	25	Petroleum-fired	24	
Commercial	7.67	35	Gas-fired	16	
Residential	8.70	36	Nuclear	15	
Industry			Hydroelectric	15	
Capacity (MW)	27,095	7	Renewable	15	
Generation (MWh)	147,943,088	5	Nonutility		
Capacity/person			Capacity (MW)	328	38
(KWe/person)	2.41	37	Share of Capacity (Percent)	1.2	44
Generation/person			Generation (MWh)	1,494,929	36
(MWh/person)	13.16	28	Share of Generation (Percent)	1	44
Emissions (Thousand Short Tons)					
Sulfur Dioxide	1,316	1			
Nitrogen Oxide	535	2			
Carbon Dioxide	133,274	2			
Sulfur Dioxide/sq. mile (Tons)	32.12	2			
Nitrogen Oxides/sq. mile (Tons)	13.06	2			
Carbon Dioxide/sq. mile (Tons)	3,254.30	8			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Gen J M Gavin	Coal	Ohio Power Co	2,600	24
2. J M Stuart	Coal	Dayton Power & Light Co	2,350	29
3. W H Sammis	Coal	Ohio Edison Co	2,233	39
4. Conesville	Coal	Columbus Southern Power Co	1,925	41
5. Cardinal	Coal	Cardinal Operating Co	1,800	31

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Ohio Edison Company	1,980	796	613	564	7
B. Cleveland Electric Illum Co	1,699	573	606	501	18
C. Ohio Power Company	1,391	426	276	680	8
D. Cincinnati Gas & Electric Co	1,203	489	354	280	81
E. Columbus Southern Power Co	1,000	440	394	148	17
Total	7,272	2,725	2,243	2,173	131
Percentage of Utility Sales	71	70	76	69	57

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	25,703	27,186	26,768	0.5	98.7	98.8	98.8
Coal-fired	21,910	23,147	22,456	0.3	84.1	84.1	82.9
Petroleum-fired	1,046	873	771	-3.3	4.0	3.2	2.8
Gas-fired	78	492	492	22.7	0.3	1.8	1.8
Dual-fired	419	419	793	7.4	1.6	1.5	2.9
Nuclear	2,041	2,042	2,042	*	7.8	7.4	7.5
Hydroelectric	120	124	123	0.3	0.5	0.4	0.5
Renewable	90	90	90	*	0.3	0.3	0.3
Total Nonutility	342	333	328	-0.5	1.3	1.2	1.2
Industry	26,046	27,519	27,095	0.4	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

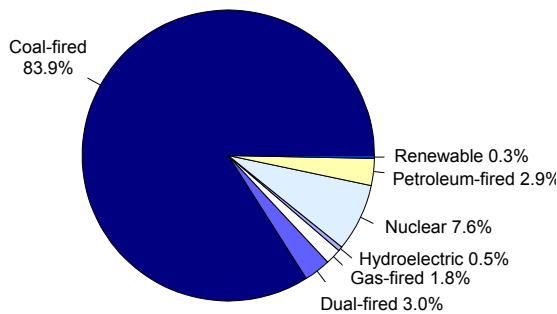


Figure 2. Utility Generation by Primary Energy Source, 1998

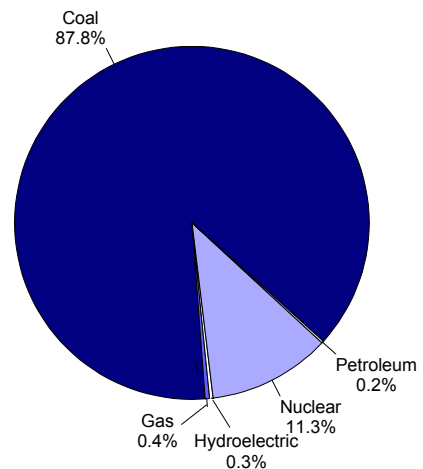


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	124,034,200	133,735,428	146,448,159	1.9	98.7	98.9	99.0
Coal	114,563,697	123,024,655	128,696,073	1.3	91.2	91.0	87.0
Petroleum	415,115	276,037	351,408	-1.8	0.3	0.2	0.2
Gas	63,421	176,872	518,519	26.3	0.1	0.1	0.4
Nuclear	8,454,531	10,010,661	16,475,732	7.7	6.7	7.4	11.1
Hydroelectric	186,862	183,069	406,427	9.0	0.1	0.1	0.3
Renewable	350,573	64,134	--	--	0.3	*	--
Total Nonutility Industry	1,581,506	1,509,209	1,494,929	-0.6	1.3	1.1	1.0
Industry	125,615,706	135,244,637	147,943,088	1.8	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	152.2	141.3	136.5	-1.2
Petroleum	311.7	407.4	332.6	0.7
Gas	346.5	285.6	308.4	-1.3

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	2,216	2,125	1,316	-5.6
Nitrogen Oxides ^c	534	530	535	*
Carbon Dioxide ^c	118,793	126,043	133,274	1.3

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

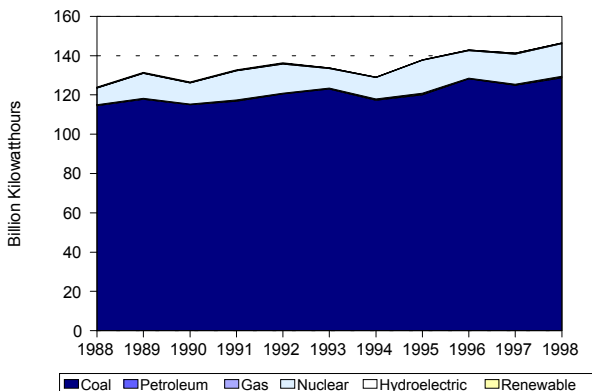


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

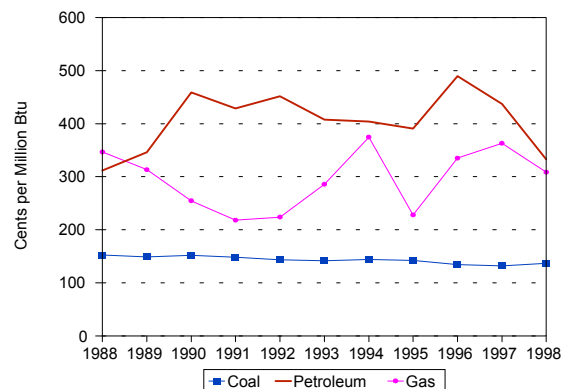


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

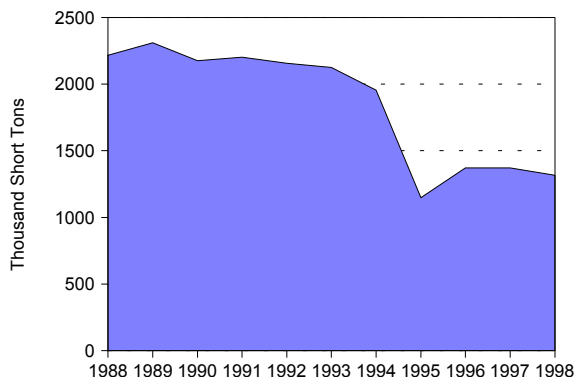


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

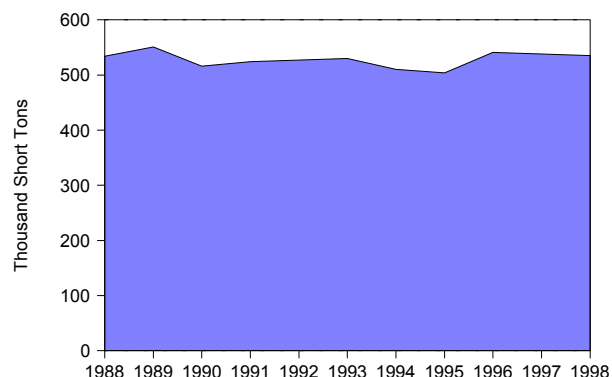


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

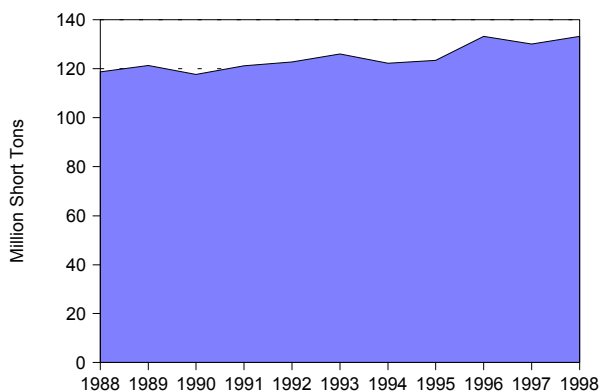


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	38,713,181	41,950,456	44,516,171	1.6	28.8	28.2	27.9
Commercial ..	29,004,294	33,298,608	38,471,813	3.2	21.6	22.4	24.1
Industrial	62,238,088	68,831,023	72,998,337	1.8	46.3	46.3	45.7
Other	4,360,451	4,490,578	3,806,855	-1.5	3.3	3.0	2.4
Total	134,316,009	148,570,665	159,793,176	1.9	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

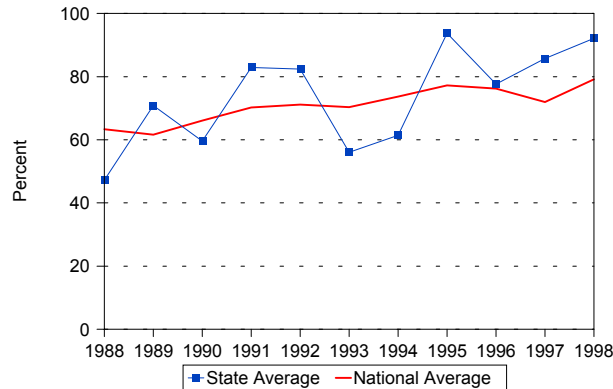


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	9	84	--	28	121
Number of Retail Customers	4,060,145	290,975	--	251,912	4,603,032
Retail Sales (MWh)	124,502,913	5,723,659	--	4,089,437	134,316,009
Percentage of Retail Sales	92.7	4.3	--	3.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	9,006	423	--	338	9,767
Percentage of Revenue	92.2	4.3	--	3.5	100.0
1993					
Number of Utilities	9	85	--	27	121
Number of Retail Customers	4,260,946	315,925	--	281,266	4,858,137
Retail Sales (MWh)	136,241,817	7,455,762	--	4,873,086	148,570,665
Percentage of Retail Sales	91.7	5.0	--	3.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	9,350	481	--	342	10,173
Percentage of Revenue	91.9	4.7	--	3.4	100.0
1998					
Number of Utilities	9	85	--	26	120
Number of Retail Customers	4,464,892	355,672	--	319,761	5,140,325
Retail Sales (MWh)	144,971,872	9,057,309	--	5,763,995	159,793,176
Percentage of Retail Sales	90.7	5.7	--	3.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	9,276	552	--	369	10,198
Percentage of Revenue	91.0	5.4	--	3.6	100.0

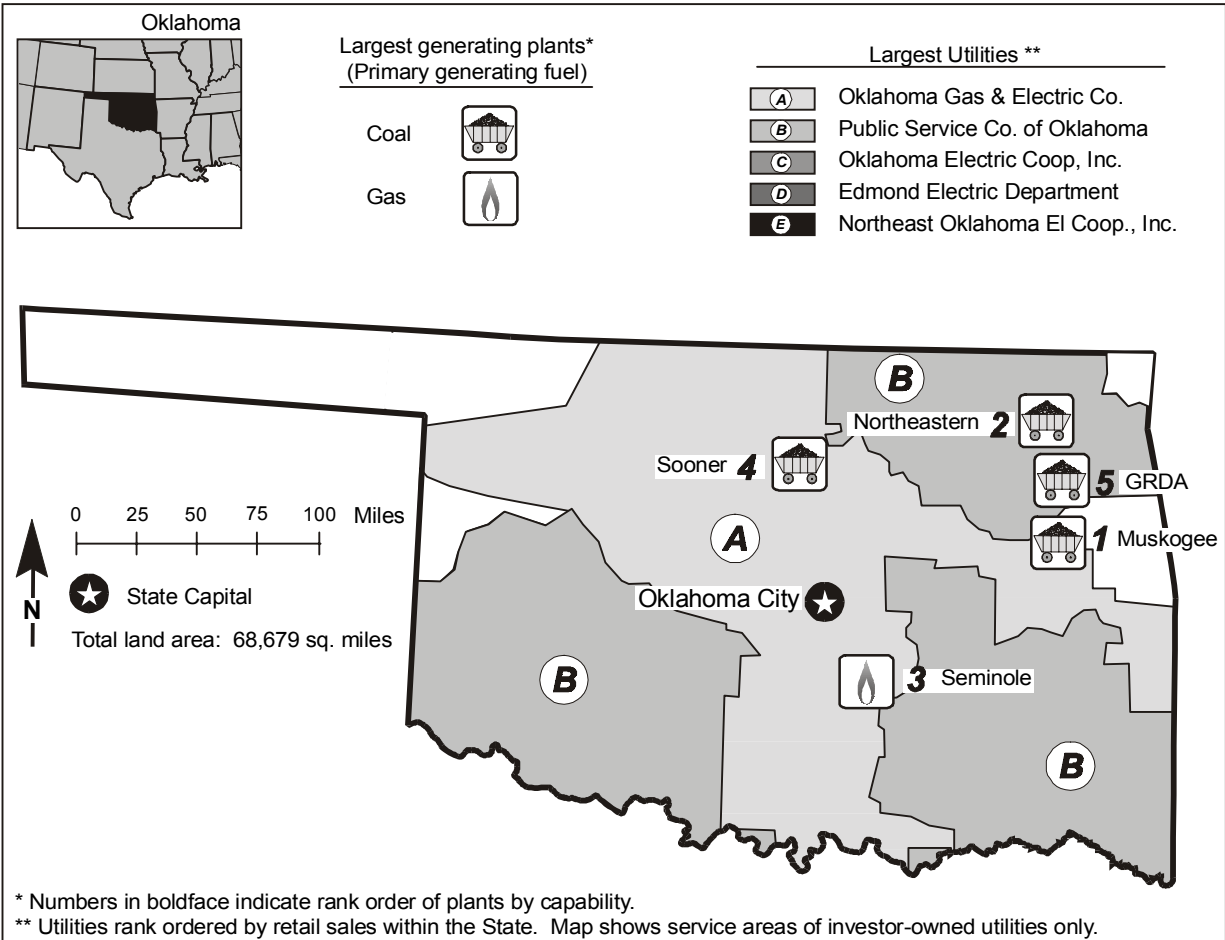


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SPP	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	12,622	23
Primary Generating Fuel		Coal	Generation (MWh)	51,454,036	23
Population (as of 7/98)	3,339,478	27	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.43	11	Coal-fired	17	
Industrial	3.65	9	Petroleum-fired	33	
Commercial	5.66	9	Gas-fired	30	
Residential	6.57	11	Hydroelectric	33	
Industry			Nonutility		
Capability (MW)	13,451	23	Capability (MW)	829	24
Generation (MWh)	56,190,603	23	Share of Capability (Percent) . . .	6.2	30
Capability/person			Generation (MWh)	4,736,567	21
(KWe/person)	4.03	10	Share of Generation (Percent) . .	8.4	22
Generation/person					
(MWh/person)	16.83	19			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	89	30			
Nitrogen Oxide	162	17			
Carbon Dioxide	49,603	18			
Sulfur Dioxide/sq. mile (Tons)	1.29	32			
Nitrogen Oxides/sq. mile (Tons)	2.35	29			
Carbon Dioxide/sq. mile (Tons)	722.24	28			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Muskogee	Coal	Oklahoma Gas & Electric Co	1,657	42
2. Northeastern	Coal, Gas	Public Service Co of Oklahoma	1,541	37
3. Seminole	Gas	Oklahoma Gas & Electric Co	1,522	27
4. Sooner	Coal	Oklahoma Gas & Electric Co	1,031	19
5. GRDA	Coal	Grand River Dam Authority	1,010	17

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Oklahoma Gas & Electric Co	1,116	501	287	212	115
B. Public Service Co of Oklahoma	738	329	236	163	10
C. Oklahoma Electric Coop, Inc	42	32	8	1	*
D. Edmond Electric Department	36	22	5	6	3
E. Northeast Oklahoma EI Coop Inc	32	25	6	*	--
Total	1,963	910	543	382	129
Percentage of Utility Sales	75	71	77	79	96

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	12,758	12,859	12,622	-0.1	93.3	94.2	93.8
Coal-fired	4,816	4,874	4,837	*	35.2	35.7	36.0
Petroleum-fired	30	30	28	-0.8	0.2	0.2	0.2
Gas-fired	989	706	964	-0.3	7.2	5.2	7.2
Dual-fired	5,928	6,240	5,758	-0.3	43.4	45.7	42.8
Hydroelectric	994	1,009	1,035	0.4	7.3	7.4	7.7
Total Nonutility	915	785	829	-1.1	6.7	5.8	6.2
Industry	13,673	13,644	13,451	-0.2	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

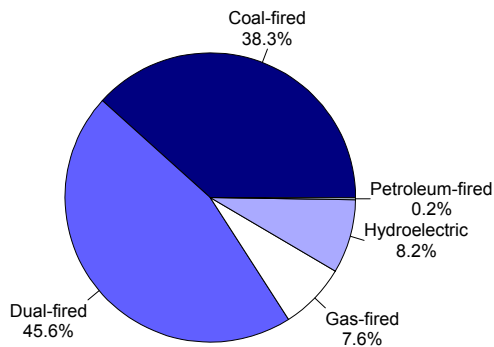


Figure 2. Utility Generation by Primary Energy Source, 1998

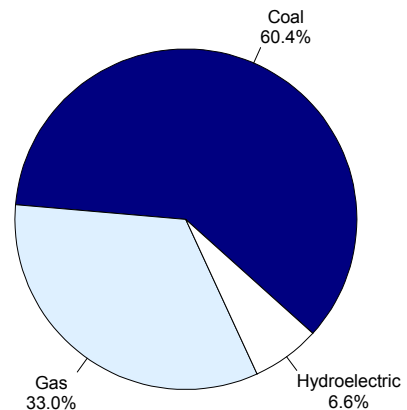


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	44,035,382	48,810,720	51,454,036	1.7	92.4	91.8	91.6
Coal	24,273,272	28,990,113	31,026,837	2.8	50.9	54.5	55.2
Petroleum	29,148	14,027	7,541	-13.9	0.1	*	*
Gas	17,688,084	15,510,168	16,999,645	-0.4	37.1	29.2	30.3
Hydroelectric	2,044,878	4,296,412	3,420,013	5.9	4.3	8.1	6.1
Total Nonutility Industry	3,633,559	4,340,129	4,736,567	3.0	7.6	8.2	8.4
Industry	47,668,941	53,150,849	56,190,603	1.8	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	148.2	123.6	91.0	-5.3
Petroleum	268.2	349.8	292.2	0.9
Gas	281.3	310.7	241.2	-1.7

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	94	104	89	-0.6
Nitrogen Oxides ^c	135	137	162	2.0
Carbon Dioxide ^c	36,040	41,068	49,603	3.6

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

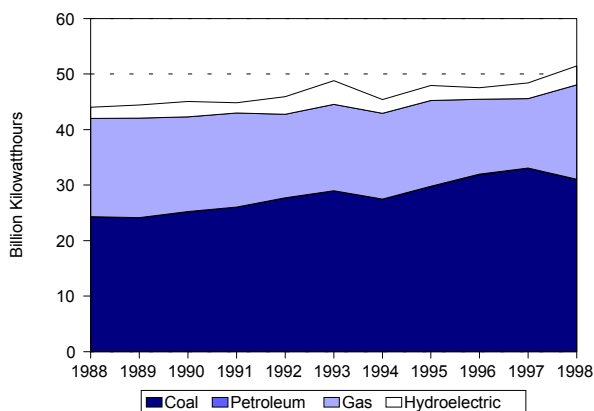


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

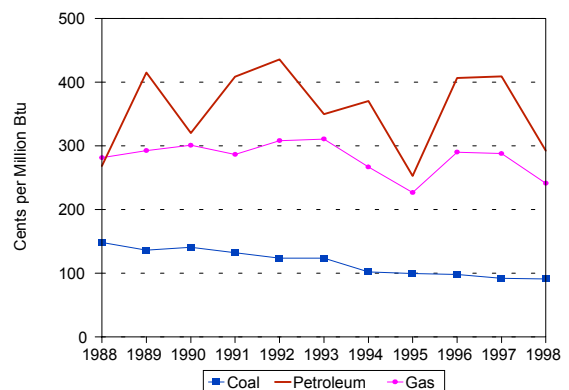


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

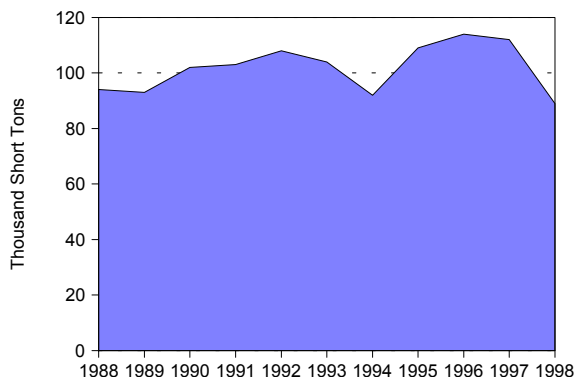


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

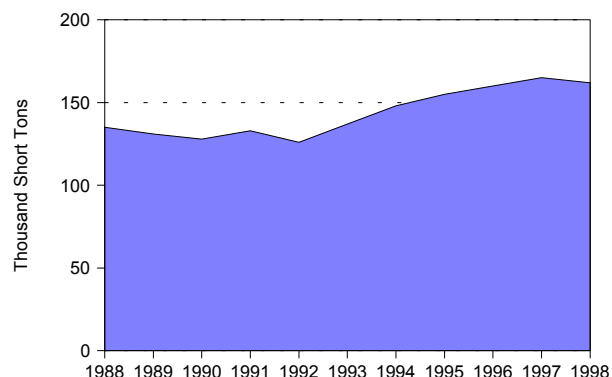


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

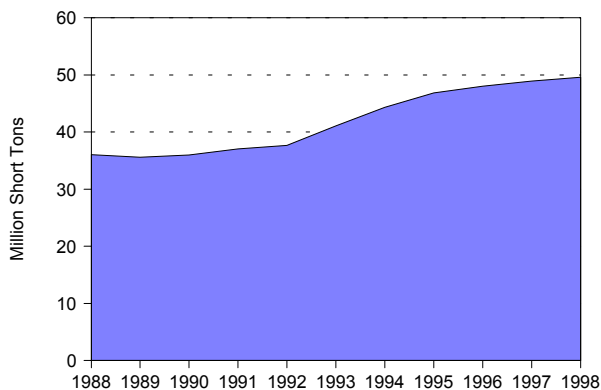


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	14,474,707	15,901,344	19,510,723	3.4	38.8	39.2	40.7
Commercial ..	10,100,471	10,823,963	12,458,949	2.4	27.1	26.7	26.0
Industrial	10,719,168	11,698,989	13,174,693	2.3	28.7	28.9	27.5
Other	2,031,625	2,107,031	2,752,210	3.4	5.4	5.2	5.8
Total	37,325,974	40,531,327	47,896,575	2.8	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

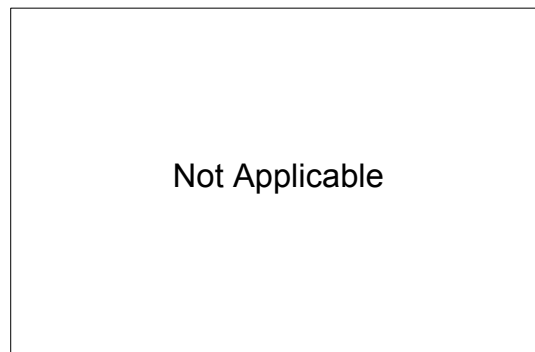


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	4	64	--	32	100
Number of Retail Customers	1,039,136	175,187	--	344,824	1,559,147
Retail Sales (MWh)	28,294,618	3,793,830	--	5,237,526	37,325,974
Percentage of Retail Sales	75.8	10.2	--	14.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,859	272	--	475	2,606
Percentage of Revenue	71.3	10.4	--	18.2	100.0
1993					
Number of Utilities	4	63	--	31	98
Number of Retail Customers	1,078,041	167,559	--	363,528	1,609,128
Retail Sales (MWh)	31,149,833	3,699,537	--	5,681,957	40,531,327
Percentage of Retail Sales	76.9	9.1	--	14.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,963	236	--	461	2,659
Percentage of Revenue	73.8	8.9	--	17.3	100.0
1998					
Number of Utilities	4	62	--	30	96
Number of Retail Customers	1,134,688	177,412	--	397,138	1,709,238
Retail Sales (MWh)	36,295,835	4,651,272	--	6,949,468	47,896,575
Percentage of Retail Sales	75.8	9.7	--	14.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,874	264	--	464	2,602
Percentage of Revenue	72.0	10.1	--	17.8	100.0

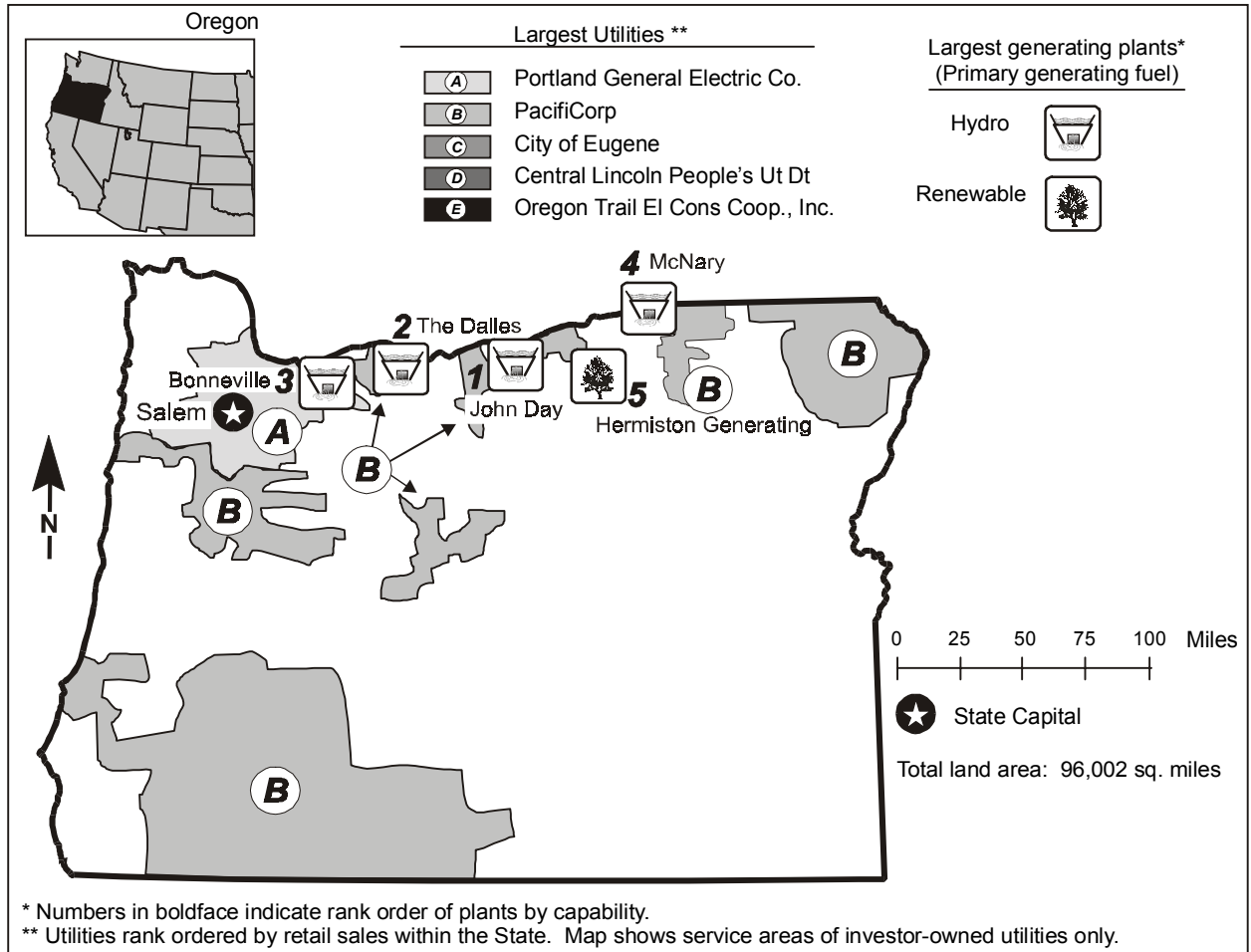


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	10,449	26
Primary Generating Fuel		Hydro	Generation (MWh)	46,352,310	25
Population (as of 7/98)	3,282,055	28	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	4.90	6	Coal-fired	18	
Industrial	3.50	7	Gas-fired	15	
Commercial	5.00	3	Hydroelectric	40	
Residential	5.82	4	Renewable	29	
Industry			Nonutility		
Capability (MW)	11,344	26	Capability (MW)	895	23
Generation (MWh)	51,142,373	25	Share of Capability (Percent) . . .	7.9	23
Capability/person			Generation (MWh)	4,790,063	18
(KWe/person)	3.46	18	Share of Generation (Percent) . .	9.4	19
Generation/person					
(MWh/person)	15.58	23			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	11	45			
Nitrogen Oxide	22	41			
Carbon Dioxide	7,077	42			
Sulfur Dioxide/sq. mile (Tons)	0.12	46			
Nitrogen Oxides/sq. mile (Tons)	0.23	47			
Carbon Dioxide/sq. mile (Tons)	73.72	47			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. John Day	Hydro	USCE-North Pacific Division	2,484	30
2. The Dalles	Hydro	USCE-North Pacific Division	1,961	41
3. Bonneville	Hydro	USCE-North Pacific Division	1,212	60
4. McNary	Hydro	USCE-North Pacific Division	1,127	45
5. Hermiston Generating	Renewable	Hermiston Generating Co LP	534	2

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Portland General Electric Co	911	431	337	132	10
B. PacifiCorp	728	316	224	184	4
C. City of Eugene	100	44	41	14	1
D. Central Lincoln People's Ut Dt	54	20	10	23	1
E. Oregon Trail El Cons Coop, Inc	37	16	11	9	2
Total	1,829	828	623	361	17
Percentage of Utility Sales	83	81	88	79	62

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	11,236	10,133	10,449	-0.8	97.3	97.1	92.1
Coal-fired	530	508	528	*	4.6	4.9	4.7
Petroleum-fired	6	6	--	--	0.1	0.1	0.0
Gas-fired	148	152	500	14.5	1.3	1.5	4.4
Dual-fired	448	448	352	-2.6	3.9	4.3	3.1
Nuclear	1,104	--	--	--	9.6	--	--
Hydroelectric	8,988	9,008	9,032	0.1	77.8	86.3	79.6
Renewable	11	11	37	14.0	0.1	0.1	0.3
Total Nonutility	314	300	895	12.3	2.7	2.9	7.9
Industry	11,550	10,433	11,344	-0.2	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

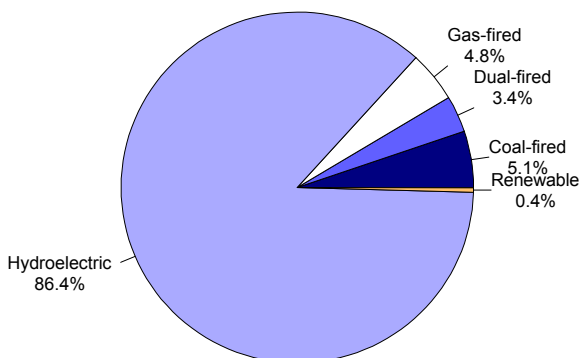


Figure 2. Utility Generation by Primary Energy Source, 1998

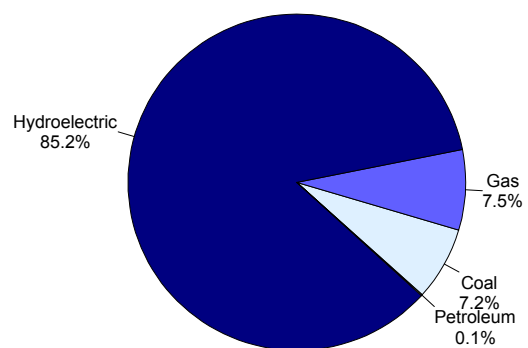


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	41,047,870	40,743,085	46,352,310	1.4	97.2	97.2	90.6
Coal	-29,808	3,502,742	3,348,089	*	-0.1	8.4	6.5
Petroleum	-6,530	32,365	33,127	*	*	0.1	0.1
Gas	--	1,687,456	3,466,916	--	--	4.0	6.8
Nuclear	6,338,763	-21,276	--	--	15.0	-0.1	--
Hydroelectric	34,646,196	35,531,031	39,504,178	1.5	82.0	84.8	77.2
Renewable	99,249	10,767	--	--	0.2	*	--
Total Nonutility Industry	1,199,062	1,166,500	4,790,063	16.6	2.8	2.8	9.4
Industry	42,246,932	41,909,585	51,142,373	2.1	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	139.0	112.2	108.9	-2.7
Petroleum	--	382.8	331.9	--
Gas	--	225.2	154.1	--

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	--	13	11	--
Nitrogen Oxides ^c	--	17	22	--
Carbon Dioxide ^c	--	4,628	7,077	--

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

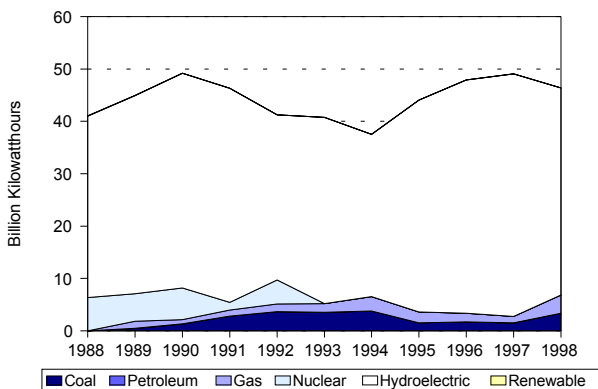


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

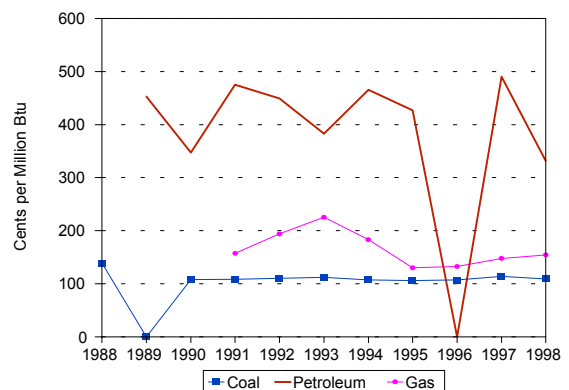


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

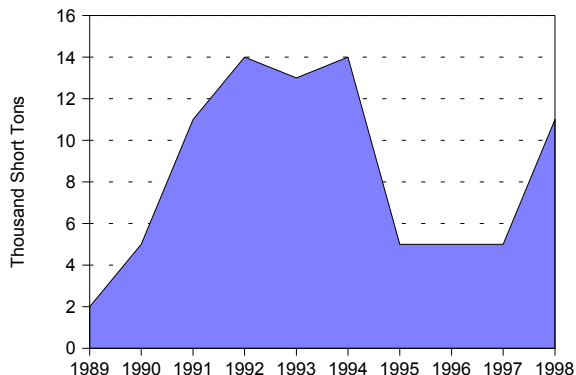


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

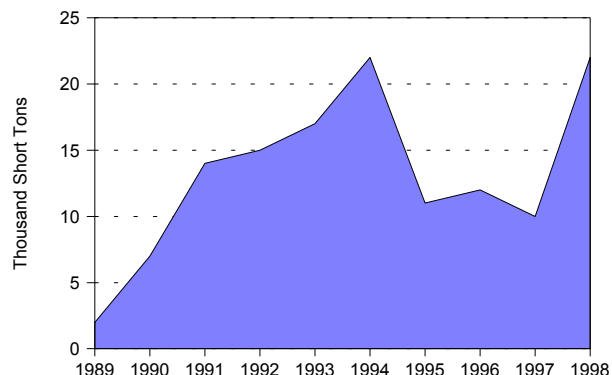


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

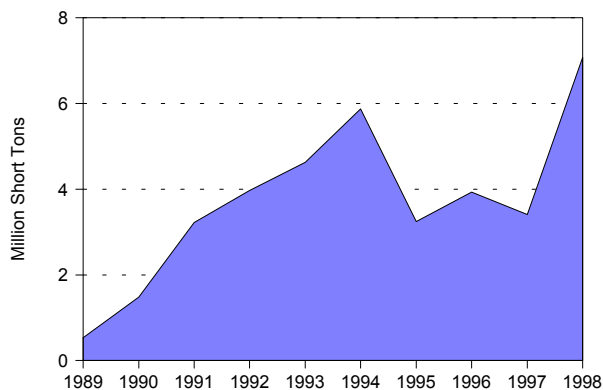


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998 (Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	14,338,450	16,696,260	17,496,101	2.2	36.5	37.4	38.8
Commercial ..	10,605,094	12,205,080	14,102,789	3.2	27.0	27.4	31.3
Industrial	13,632,937	15,012,281	13,070,033	-0.5	34.7	33.7	29.0
Other	735,750	664,281	413,784	-6.2	1.9	1.5	0.9
Total	39,312,233	44,577,902	45,082,707	1.5	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

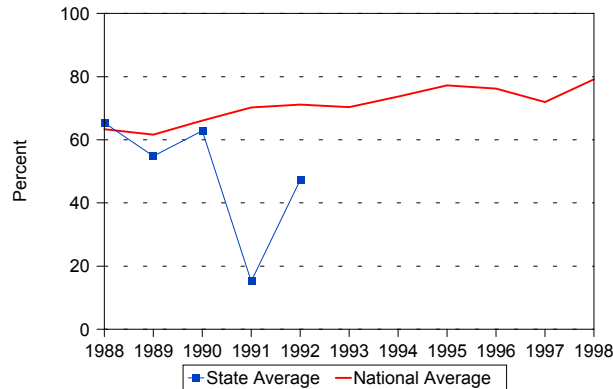


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	4	17	1	18	40
Number of Retail Customers	1,012,016	198,313	9	112,992	1,323,330
Retail Sales (MWh)	26,585,677	6,844,606	3,197,632	2,684,318	39,312,233
Percentage of Retail Sales	67.6	17.4	8.1	6.8	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,591	284	112	156	2,143
Percentage of Revenue	74.3	13.3	5.2	7.3	100.0
	1993				
Number of Utilities	3	17	1	19	40
Number of Retail Customers	1,067,147	218,109	8	153,241	1,438,505
Retail Sales (MWh)	29,822,638	8,127,750	2,972,248	3,655,266	44,577,902
Percentage of Retail Sales	66.9	18.2	6.7	8.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,577	330	66	200	2,174
Percentage of Revenue	72.5	15.2	3.0	9.2	100.0
	1998				
Number of Utilities	3	17	1	19	40
Number of Retail Customers	1,186,728	240,382	1	169,211	1,596,322
Retail Sales (MWh)	32,341,147	8,627,350	3,973	4,110,237	45,082,707
Percentage of Retail Sales	71.7	19.1	--	9.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,663	332	--	215	2,209
Percentage of Revenue	75.3	15.0	--	9.7	100.0

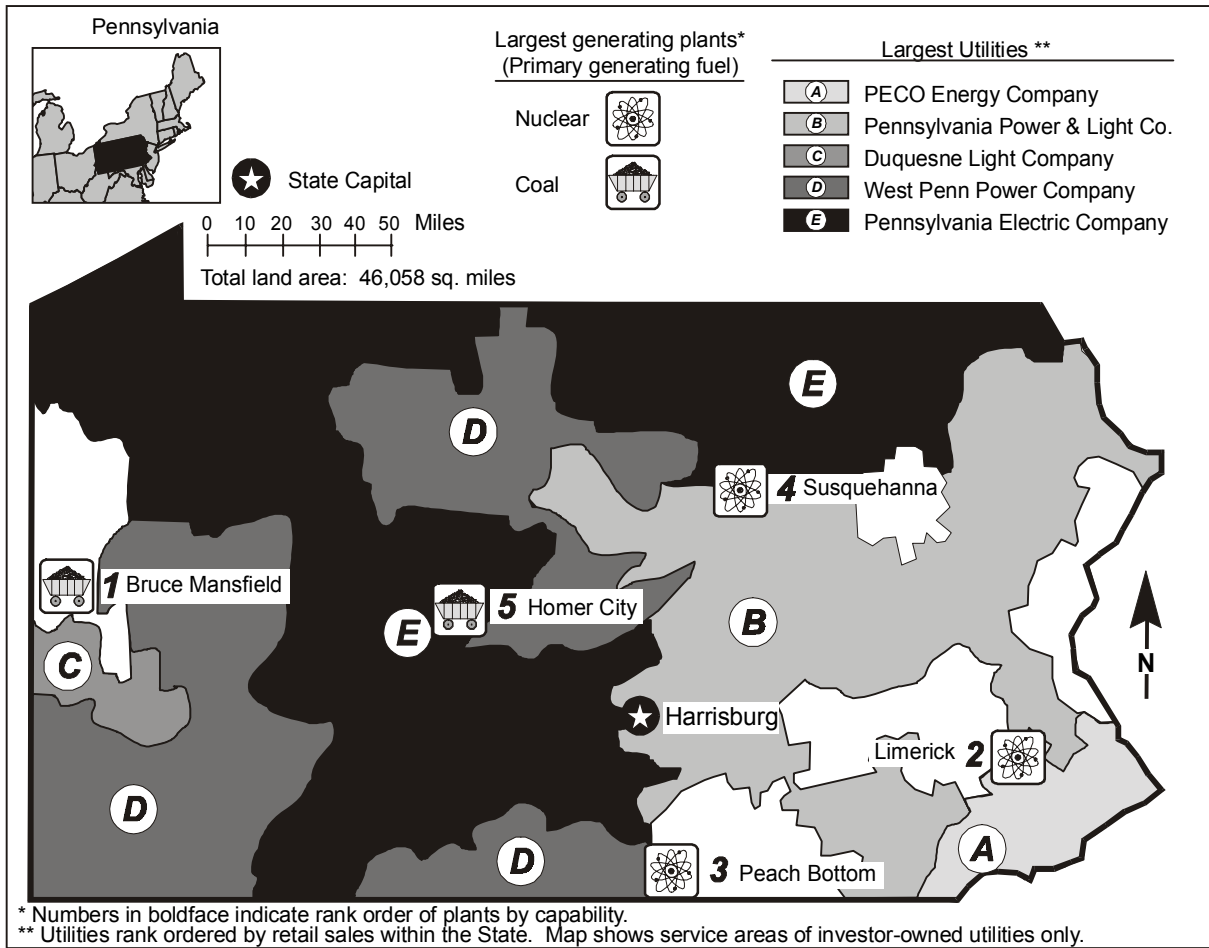


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		ECAR/MACC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	33,781	3
Primary Generating Fuel		Coal	Generation (MWh)	173,903,236	2
Population (as of 7/98)	12,002,329	6	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	7.86	40	Coal-fired	31	
Industrial	5.63	41	Petroleum-fired	30	
Commercial	8.26	40	Gas-fired	22	
Residential	9.93	40	Nuclear	17	
Industry			Hydroelectric	37	
Capability (MW)	36,563	4	Nonutility		
Generation (MWh)	191,134,032	2	Capability (MW)	2,781	9
Capability/person			Share of Capability (Percent) . . .	7.6	24
(KWe/person)	3.05	25	Generation (MWh)	17,230,796	8
Generation/person			Share of Generation (Percent) . .	9	20
(MWh/person)	15.92	21			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	1,096	2			
Nitrogen Oxide	335	6			
Carbon Dioxide	129,324	4			
Sulfur Dioxide/sq. mile (Tons)	23.79	4			
Nitrogen Oxides/sq. mile (Tons)	7.27	8			
Carbon Dioxide/sq. mile (Tons)	2,807.84	10			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Bruce Mansfield	Coal	Pennsylvania Power Co	2,360	22
2. Limerick	Nuclear	PECO Energy Co	2,249	12
3. Peach Bottom	Nuclear	PECO Energy Co	2,186	24
4. Susquehanna	Nuclear	PP&L Inc	2,184	15
5. Homer City	Coal	Pennsylvania Electric Co	1,884	29

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. PECO Energy Company	3,193	1,331	747	1,033	82
B. Pennsylvania Power & Light Co	2,361	951	826	561	23
C. Duquesne Light Company	1,072	405	468	183	16
D. West Penn Power Company	949	380	222	340	7
E. Pennsylvania Electric Company	873	318	306	243	6
Total	8,450	3,386	2,569	2,360	135
Percentage of Utility Sales	85	82	86	88	89

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	32,387	33,423	33,781	0.5	93.5	93.4	92.4
Coal-fired	17,501	17,480	17,386	-0.1	50.5	48.8	47.6
Petroleum-fired	4,991	4,875	2,391	-7.9	14.4	13.6	6.5
Gas-fired	88	19	85	-0.4	0.3	0.1	0.2
Dual-fired	223	428	2,914	33.1	0.6	1.2	8.0
Nuclear	7,692	8,709	9,035	1.8	22.2	24.3	24.7
Hydroelectric	1,892	1,912	1,970	0.4	5.5	5.3	5.4
Total Nonutility	2,259	2,379	2,781	2.3	6.5	6.6	7.6
Industry	34,645	35,802	36,563	0.6	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

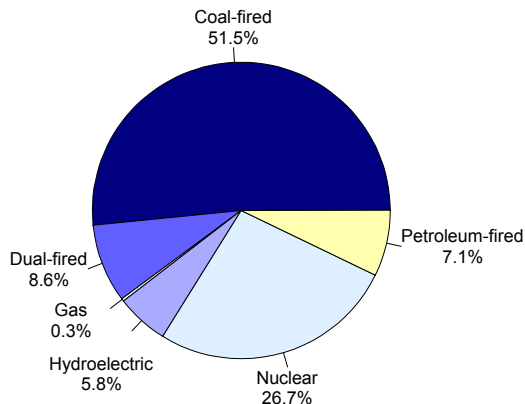


Figure 2. Utility Generation by Primary Energy Source, 1998

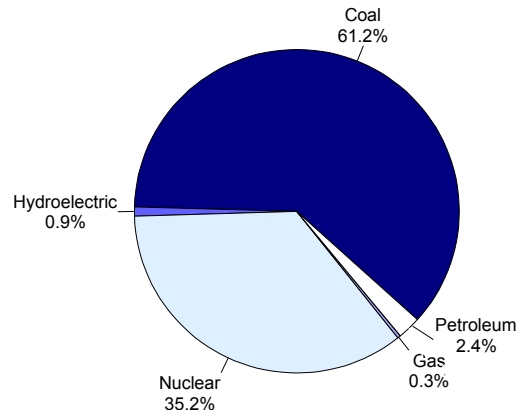


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	152,932,451	166,200,686	173,903,236	1.4	92.6	91.7	91.0
Coal	106,238,865	100,390,066	106,516,740	*	64.3	55.4	55.7
Petroleum	7,915,427	4,559,186	4,097,006	-7.1	4.8	2.5	2.1
Gas	211,139	796,697	572,172	11.7	0.1	0.4	0.3
Nuclear	37,862,331	59,330,534	61,149,224	5.5	22.9	32.7	32.0
Hydroelectric	704,690	1,124,203	1,568,094	9.3	0.4	0.6	0.8
Total Nonutility Industry	12,285,099	14,981,051	17,230,796	3.8	7.4	8.3	9.0
Industry	165,217,551	181,181,737	191,134,032	1.6	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	145.3	143.6	135.0	-0.8
Petroleum	245.8	255.8	225.7	-0.9
Gas	333.0	257.6	316.5	-0.6

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	1,258	1,157	1,096	-1.5
Nitrogen Oxides ^c	408	351	335	-2.2
Carbon Dioxide ^c	115,878	106,948	129,324	1.2

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

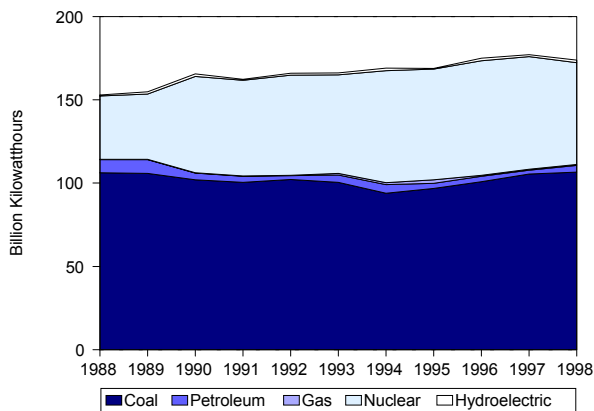


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

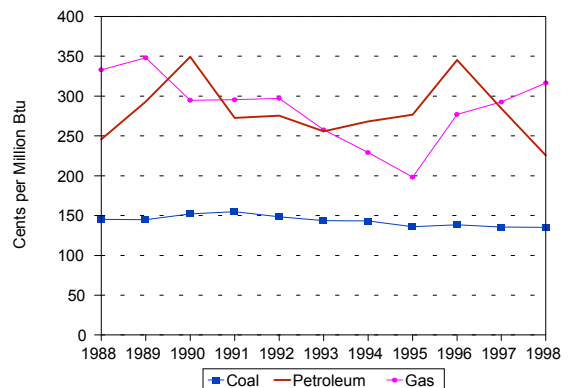


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

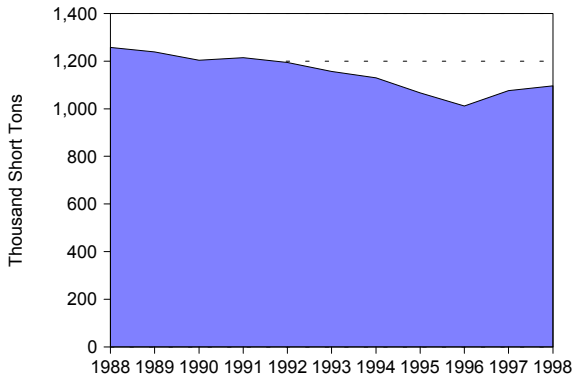


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

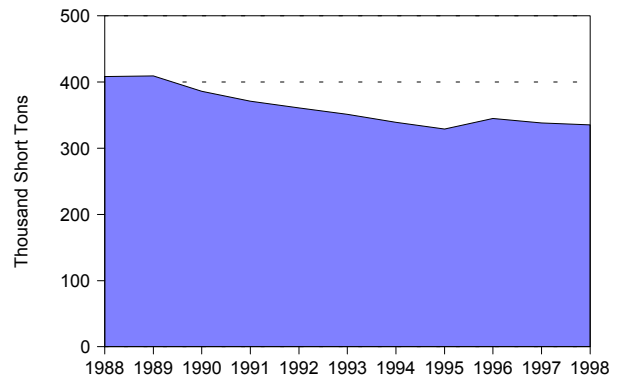


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

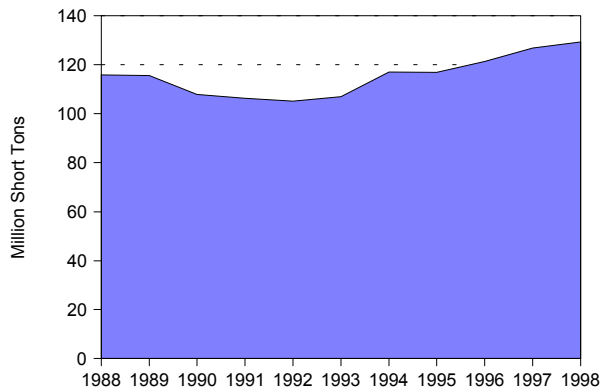


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	37,827,938	41,455,430	41,357,846	1.0	33.5	34.5	32.8
Commercial ..	27,334,294	32,251,642	36,187,624	3.2	24.2	26.9	28.7
Industrial	46,291,093	44,949,311	47,489,537	0.3	41.0	37.5	37.6
Other	1,438,133	1,325,111	1,223,027	-1.8	1.3	1.1	1.0
Total	112,891,456	119,981,494	126,258,034	1.3	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

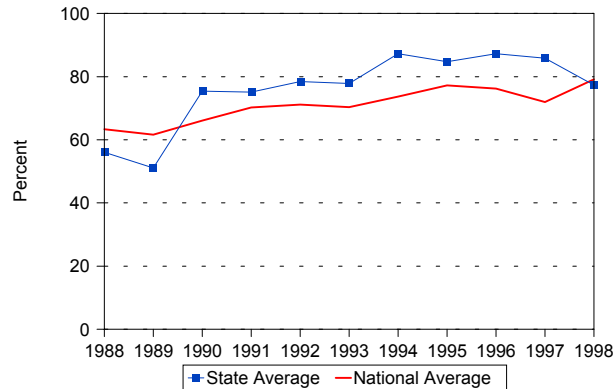


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	11	34	--	13	58
Number of Retail Customers	4,830,508	71,827	--	169,874	5,072,209
Retail Sales (MWh)	110,102,710	1,132,266	--	1,656,480	112,891,456
Percentage of Retail Sales	97.5	1.0	--	1.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	9,884	96	--	202	10,182
Percentage of Revenue	97.1	0.9	--	2.0	100.0
	1993				
Number of Utilities	11	34	--	12	57
Number of Retail Customers	5,079,450	75,862	--	180,212	5,335,524
Retail Sales (MWh)	116,904,778	1,226,548	--	1,850,168	119,981,494
Percentage of Retail Sales	97.4	1.0	--	1.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	10,148	99	--	211	10,458
Percentage of Revenue	97.0	1.0	--	2.0	100.0
	1998				
Number of Utilities	11	34	--	13	58
Number of Retail Customers	5,260,806	79,313	--	195,696	5,535,815
Retail Sales (MWh)	122,956,976	1,297,549	--	2,003,509	126,258,034
Percentage of Retail Sales	97.4	1.0	--	1.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	9,630	96	--	197	9,923
Percentage of Revenue	97.0	1.0	--	2.0	100.0

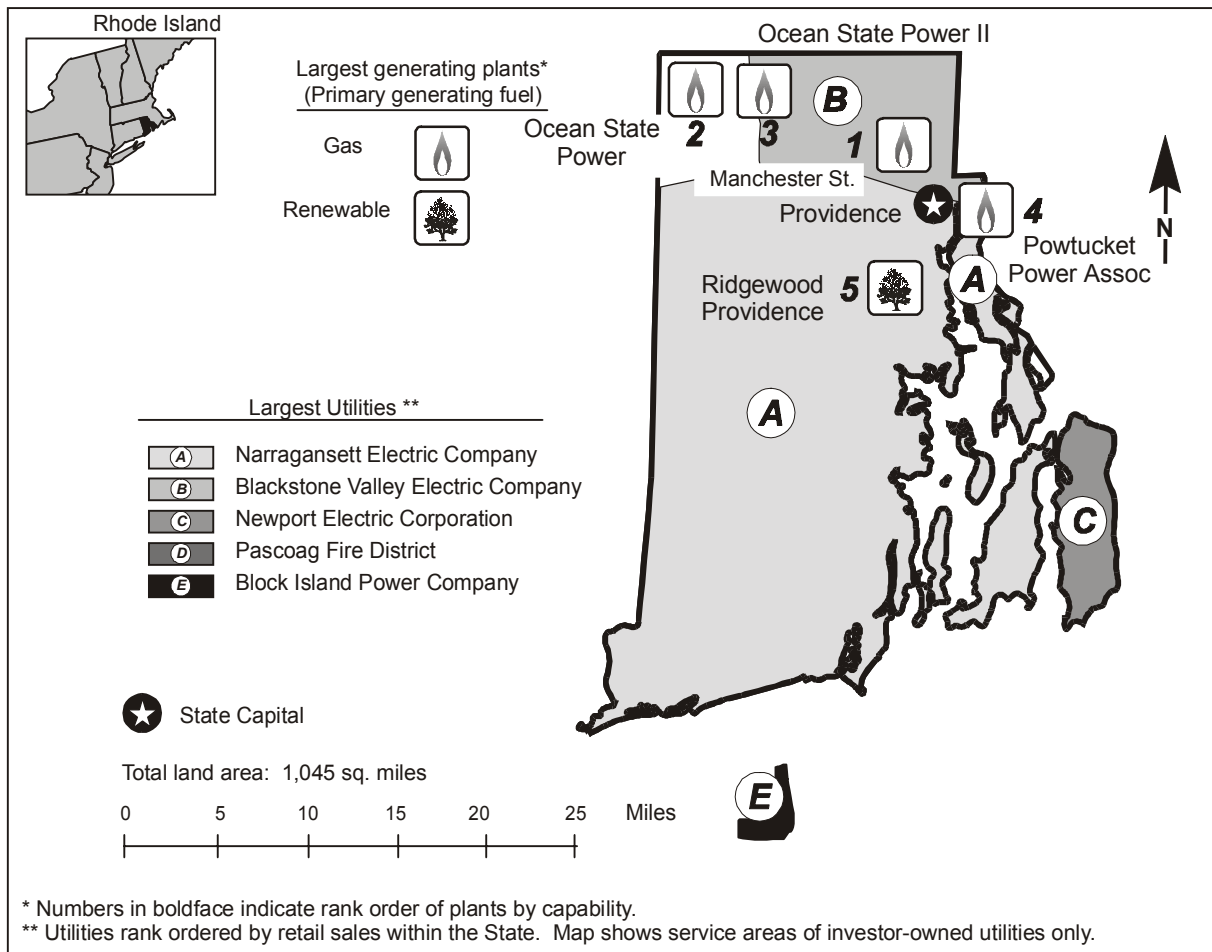


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		NPCC	Utility		
Net Exporter or Importer		Importer	Capability (MW)	7	51
Primary Generating Fuel		Petroleum	Generation (MWh)	2,061,351	50
Population (as of 7/98)	987,704	43	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	9.58	42	Petroleum-fired	6	
Industrial	7.61	46	Hydroelectric	68	
Commercial	9.26	41	Nonutility		
Residential	10.91	43	Capability (MW)	950	19
Industry			Share of Capability (Percent) . . .	99.3	1
Capability (MW)	957	50	Generation (MWh)	5,597,385	16
Generation (MWh)	7,658,736	47	Share of Generation (Percent) . .	73.1	1
Capability/person					
(KWe/person)	0.97	51			
Generation/person					
(MWh/person)	7.75	46			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	--	50			
Nitrogen Oxide	8	48			
Carbon Dioxide	3,766	47			
Sulfur Dioxide/sq. mile (Tons) . . . . .	.00	47			
Nitrogen Oxides/sq. mile (Tons)	7.32	7			
Carbon Dioxide/sq. mile (Tons)	3,604.02	5			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Manchester St	Gas	US Gen New England Inc	411	57
2. Ocean State Power	Gas	Ocean State Power Co	219	8
3. Ocean State Power II	Gas	Ocean State Power II	219	7
4. Pawtucket Power Asso	Gas	Pawtucket Power Associates LP	59	8
5. Ridgewood Providence	Renewable	Ridgewood Providence Power PLP	15	8

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Narragansett Electric Company	469	200	193	68	9
B. Blackstone Valley Electric Co	123	47	36	38	2
C. Newport Electric Corporation	59	24	22	3	10
D. Pascoag Fire District	4	2	*	1	*
E. Block Island Power Company	2	1	1	--	*
Total	658	275	253	109	20
Percentage of Utility Sales	100	100	100	100	100

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	259	153	7	-33.1	32.8	22.4	0.7
Petroleum-fired	28	68	5	-16.5	3.5	9.9	0.6
Dual-fired	229	84	--	--	29.1	12.3	--
Hydroelectric	1	1	1	0.1	0.2	0.2	0.2
Total Nonutility	529	531	950	6.7	67.2	77.6	99.3
Industry	788	684	957	2.2	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

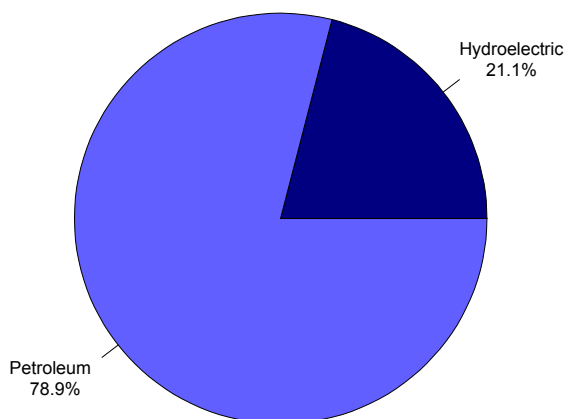


Figure 2. Utility Generation by Primary Energy Source, 1998

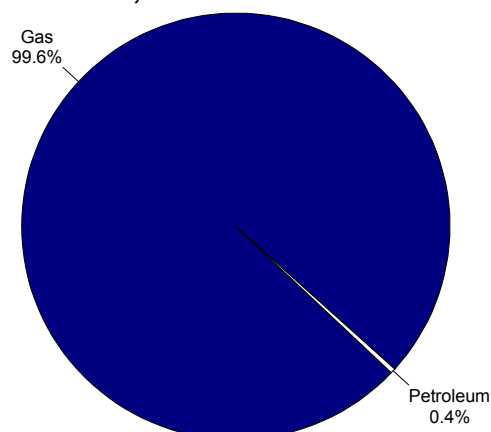


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	764,007	53,740	2,061,351	11.7	14.1	1.2	26.9
Petroleum	748,879	28,582	8,827	-38.9	13.8	0.6	0.1
Gas	15,128	25,158	2,052,524	72.6	0.3	0.5	26.8
Total Nonutility	4,643,715	4,582,943	5,597,385	2.1	85.9	98.8	73.1
Industry	5,407,722	4,636,683	7,658,736	3.9	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Petroleum	224.6	319.7	--	--
Gas	208.6	238.9	328.5	5.2

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	5	*	--	--
Nitrogen Oxides ^c	1	*	8	20.3
Carbon Dioxide ^c	761	57	3,766	19.4

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

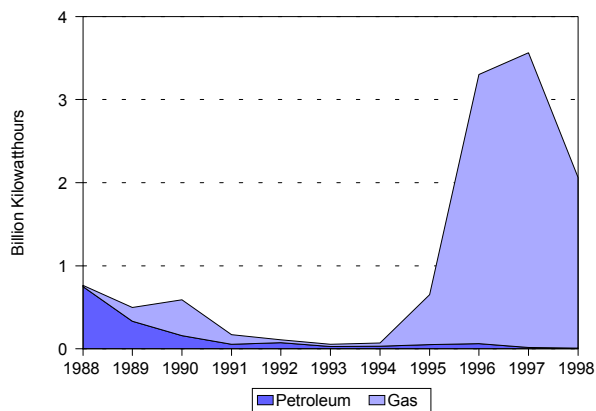


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

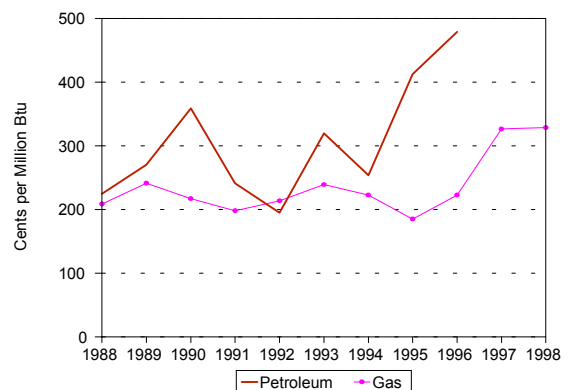


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

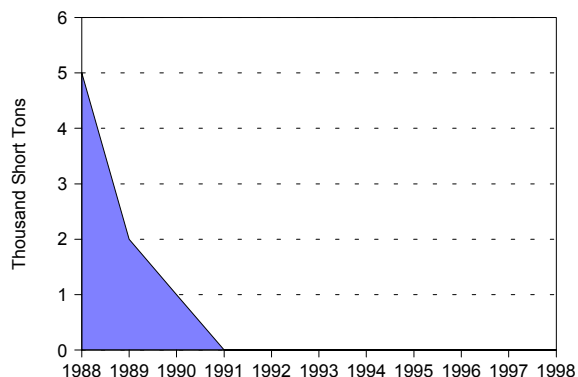


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

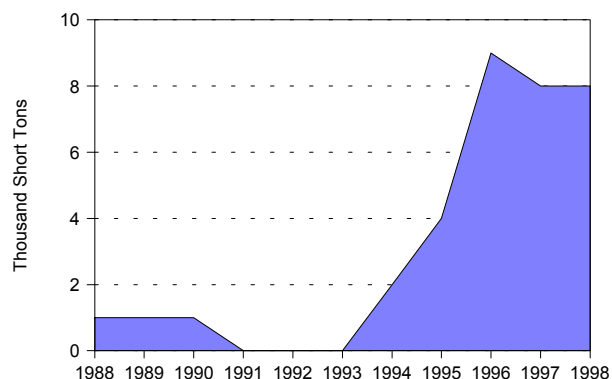


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

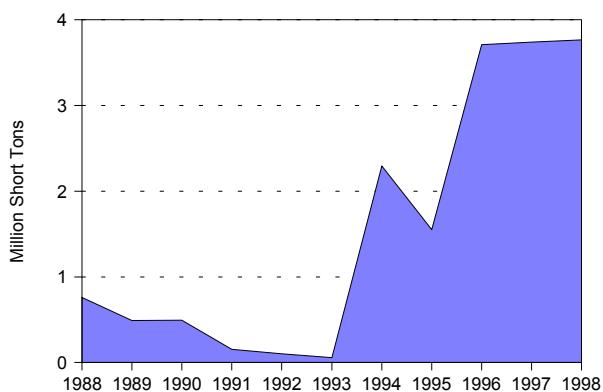


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	2,319,166	2,411,808	2,521,643	0.9	37.3	36.8	36.7
Commercial . .	2,353,745	2,532,213	2,730,649	1.7	37.8	38.7	39.8
Industrial	1,361,029	1,418,673	1,438,829	0.6	21.9	21.7	20.9
Other	185,654	185,744	177,222	-0.5	3.0	2.8	2.6
Total	6,219,593	6,548,438	6,868,343	1.1	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

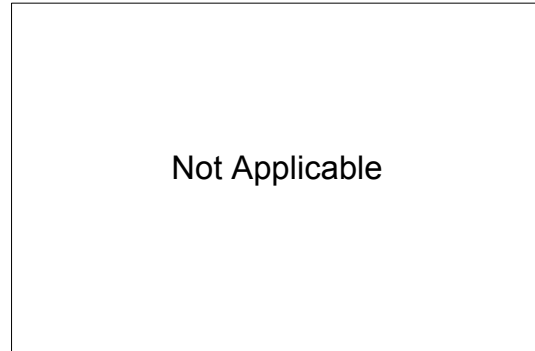


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	4	1	--	--	5
Number of Retail Customers	417,472	3,702	--	--	421,174
Retail Sales (MWh)	6,189,394	30,199	--	--	6,219,593
Percentage of Retail Sales	99.5	0.5	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	621	4	--	--	625
Percentage of Revenue	99.3	0.7	--	--	100.0
1993					
Number of Utilities	4	1	--	--	5
Number of Retail Customers	438,114	3,935	--	--	442,049
Retail Sales (MWh)	6,514,994	33,444	--	--	6,548,438
Percentage of Retail Sales	99.5	0.5	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	745	4	--	--	750
Percentage of Revenue	99.4	0.6	--	--	100.0
1998					
Number of Utilities	4	1	--	--	5
Number of Retail Customers	460,964	4,042	--	--	465,006
Retail Sales (MWh)	6,829,427	38,916	--	--	6,868,343
Percentage of Retail Sales	99.4	0.6	--	--	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	654	4	--	--	658
Percentage of Revenue	99.4	0.6	--	--	100.0

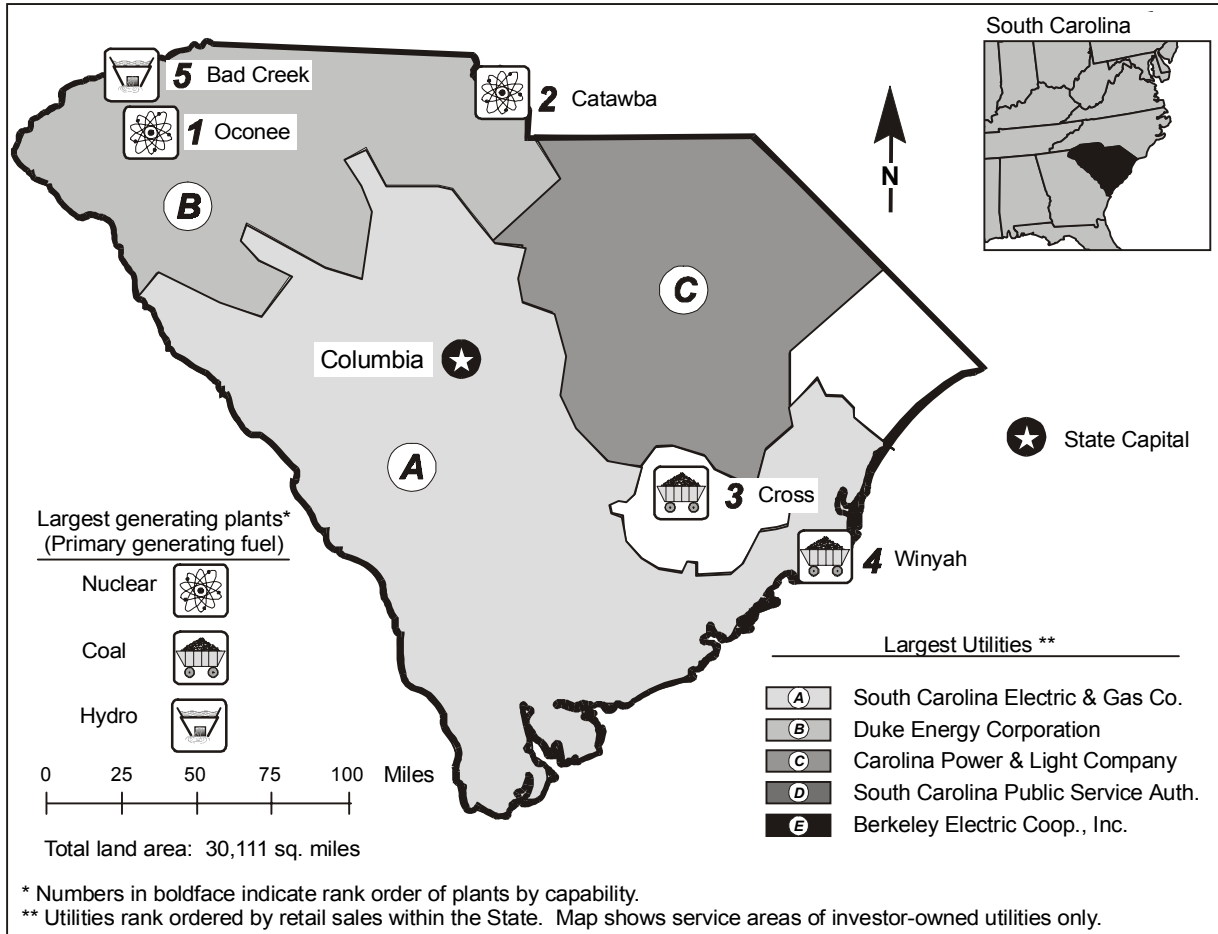


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SERC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	17,627	14
Primary Generating Fuel		Nuclear	Generation (MWh)	84,396,897	17
Population (as of 7/98)	3,839,578	26	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.53	13	Coal-fired	23	
Industrial	3.69	10	Petroleum-fired	27	
Commercial	6.24	18	Gas-fired	12	
Residential	7.5	23	Nuclear	19	
Industry			Hydroelectric	29	
Capability (MW)	18,116	17	Nonutility		
Generation (MWh)	87,244,314	18	Capability (MW)	489	32
Capability/person			Share of Capability (Percent) . . .	2.7	40
(KWe/person)	4.72	6	Generation (MWh)	2,847,417	30
Generation/person			Share of Generation (Percent) . .	3.3	38
(MWh/person)	22.72	7			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	250	17			
Nitrogen Oxide	95	32			
Carbon Dioxide	34,473	28			
Sulfur Dioxide/sq. mile (Tons)	8.31	17			
Nitrogen Oxides/sq. mile (Tons)	3.15	23			
Carbon Dioxide/sq. mile (Tons)	1,144.85	23			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Oconee	Nuclear	Duke Power Co	2,538	25
2. Catawba	Nuclear	Duke Power Co	2,258	13
3. Cross	Coal	South Carolina Pub Serv Auth	1,160	14
4. Winyah	Coal	South Carolina Pub Serv Auth	1,155	23
5. Bad Creek	Hydro	Duke Power Co	1,065	7

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. South Carolina Electric&Gas Co	1,128	507	366	226	29
B. Duke Energy Corporation	1,070	361	264	442	4
C. Carolina Power & Light Company	415	148	103	158	6
D. South Carolina Pub Serv Auth	380	80	84	212	3
E. Berkeley Electric Coop, Inc	79	64	8	5	3
Total	3,072	1,160	825	1,042	45
Percentage of Utility Sales	77	66	81	89	82

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	14,819	16,131	17,627	1.9	96.9	97.3	97.3
Coal-fired	4,818	4,812	6,007	2.5	31.5	29.0	33.2
Petroleum-fired	289	287	307	0.7	1.9	1.7	1.7
Gas-fired	78	10	18	-15.0	0.5	0.1	0.1
Dual-fired	1,152	1,211	1,414	2.3	7.5	7.3	7.8
Nuclear	6,346	6,364	6,431	0.1	41.5	38.4	35.5
Hydroelectric	2,136	3,448	3,450	5.5	14.0	20.8	19.0
Total Nonutility	472	452	489	0.4	3.1	2.7	2.7
Industry	15,291	16,583	18,116	1.9	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

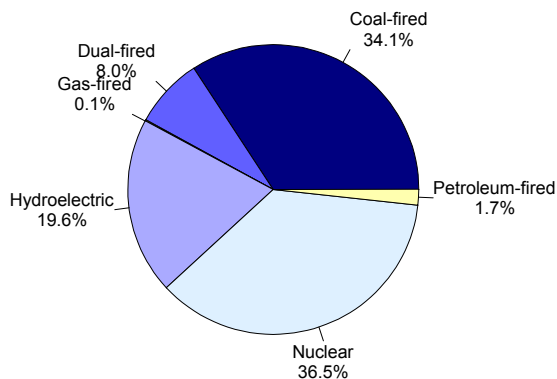


Figure 2. Utility Generation by Primary Energy Source, 1998

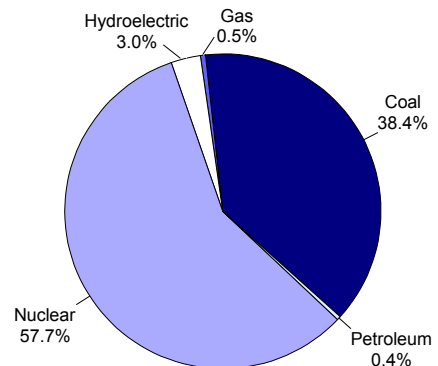


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	65,182,721	75,588,386	84,396,897	2.9	96.9	96.7	96.7
Coal	23,484,617	26,532,193	32,377,814	3.6	34.9	33.9	37.1
Petroleum	95,599	95,193	331,357	14.8	0.1	0.1	0.4
Gas	226,158	121,113	414,900	7.0	0.3	0.2	0.5
Nuclear	40,745,548	46,188,884	48,759,447	2.0	60.6	59.1	55.9
Hydroelectric	630,798	2,651,003	2,513,379	16.6	0.9	3.4	2.9
Total Nonutility	2,067,745	2,586,447	2,847,417	3.6	3.1	3.3	3.3
Industry	67,250,466	78,174,833	87,244,314	2.9	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	176.0	156.9	144.7	-2.1
Petroleum	373.6	425.5	327.6	-1.4
Gas	180.6	291.1	353.4	7.7

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	158	178	250	5.3
Nitrogen Oxides ^c	76	89	95	2.5
Carbon Dioxide ^c	23,668	26,979	34,473	4.3

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

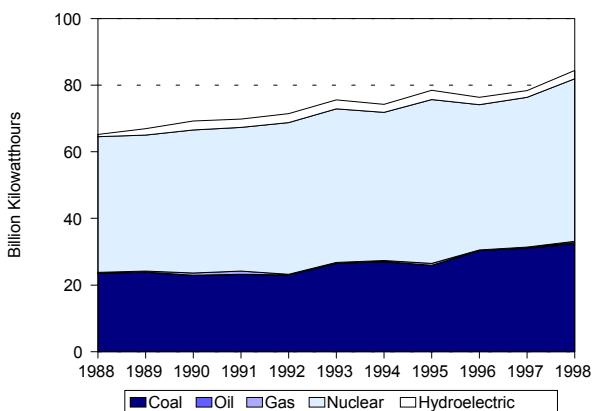


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

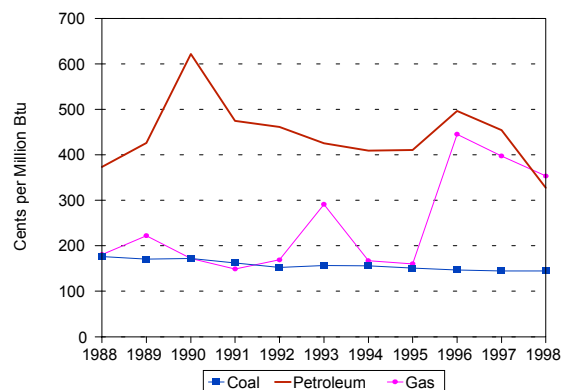


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

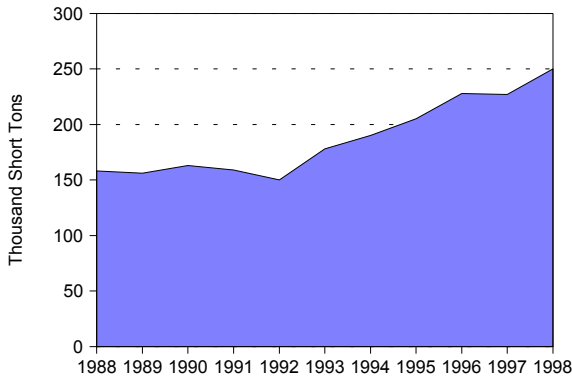


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

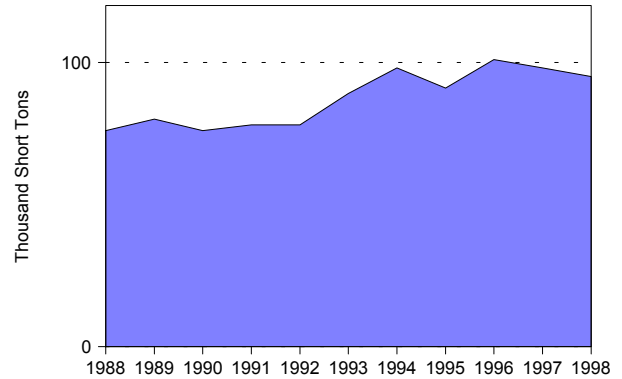


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

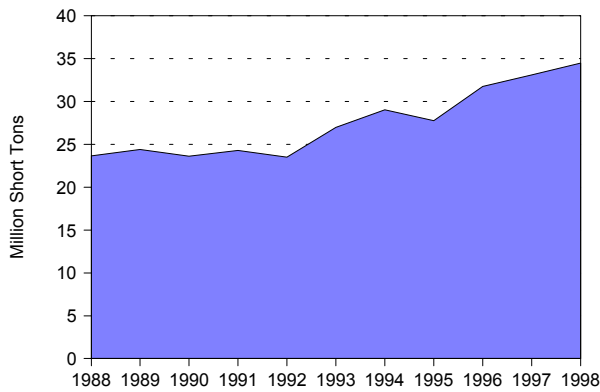


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	17,171,662	20,686,869	23,558,044	3.6	32.5	33.6	32.5
Commercial . .	10,790,307	13,176,636	16,370,078	4.7	20.4	21.4	22.6
Industrial	24,112,571	26,866,871	31,605,580	3.0	45.7	43.7	43.6
Other	734,093	802,349	920,184	2.5	1.4	1.3	1.3
Total	52,808,635	61,532,725	72,453,886	3.6	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

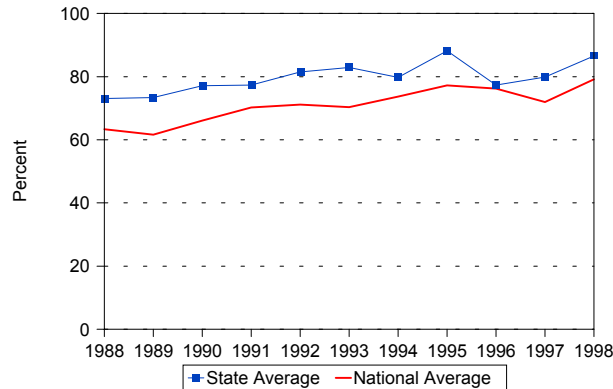


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	4	22	--	21	47
Number of Retail Customers	949,666	223,391	--	398,628	1,571,685
Retail Sales (MWh)	36,713,990	9,935,217	--	6,159,428	52,808,635
Percentage of Retail Sales	69.5	18.8	--	11.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,616	573	--	551	3,741
Percentage of Revenue	69.9	15.3	--	14.7	100.0
1993					
Number of Utilities	4	22	--	21	47
Number of Retail Customers	1,037,709	236,090	--	465,554	1,739,353
Retail Sales (MWh)	42,508,333	10,476,564	--	8,547,828	61,532,725
Percentage of Retail Sales	69.1	17.0	--	13.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,613	549	--	660	3,823
Percentage of Revenue	68.4	14.4	--	17.3	100.0
1998					
Number of Utilities	4	22	--	21	47
Number of Retail Customers	1,142,041	279,119	--	548,507	1,969,667
Retail Sales (MWh)	47,788,808	13,407,678	--	11,257,400	72,453,886
Percentage of Retail Sales	66.0	18.5	--	15.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,624	627	--	757	4,008
Percentage of Revenue	65.5	15.6	--	18.9	100.0

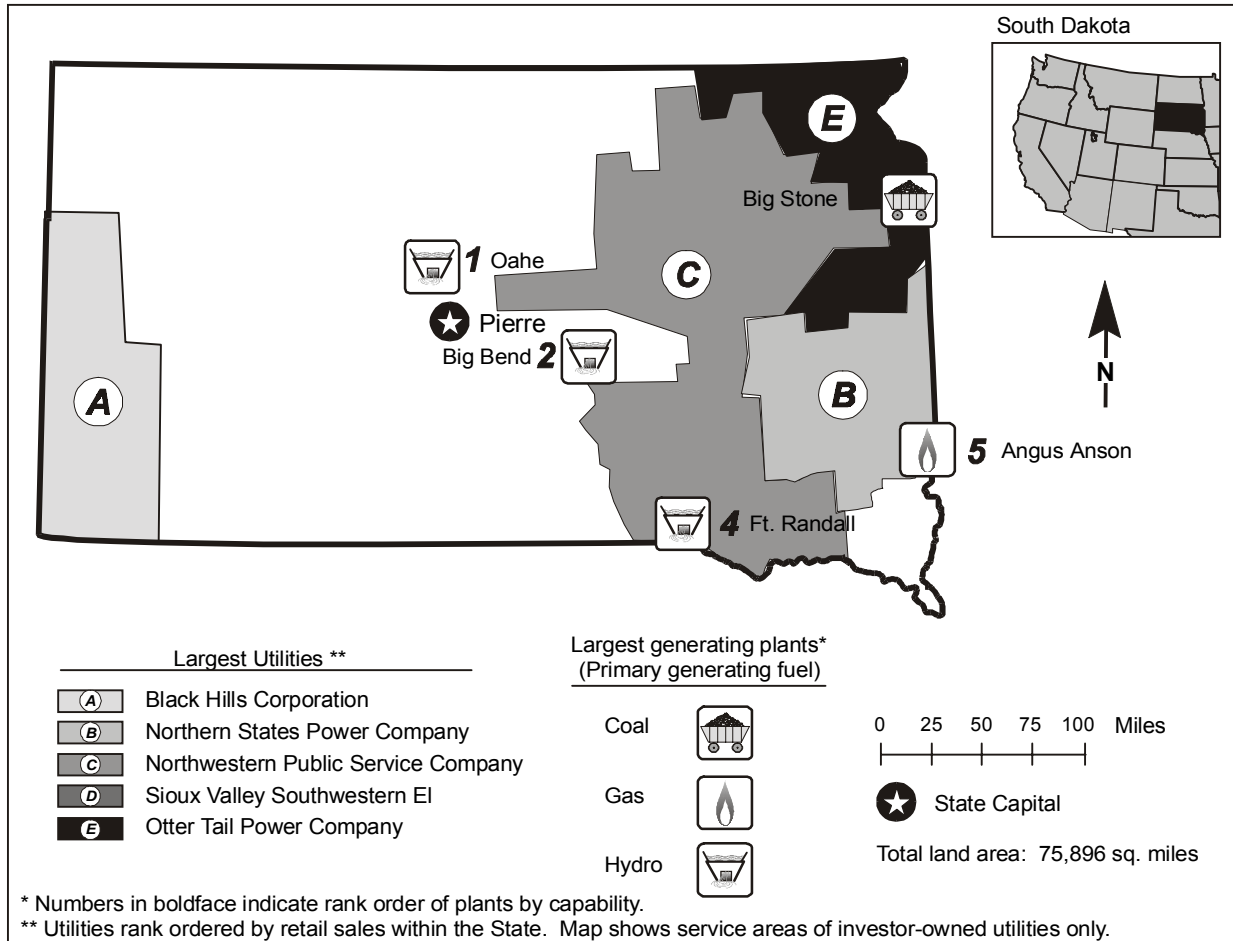


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)	WSCC/MAPP		Utility		
Net Exporter or Importer	Exporter		Capability (MW)	2,923	42
Primary Generating Fuel	Hydro		Generation (MWh)	9,088,990	44
Population (as of 7/98)	730,789	46	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.26	27	Coal-fired	24	
Industrial	4.44	29	Petroleum-fired	21	
Commercial	6.62	28	Gas-fired	12	
Residential	7.27	20	Hydroelectric	37	
Industry			Nonutility		
Capability (MW)	2,923	43	Capability (MW)	--	50
Generation (MWh)	9,088,990	46	Share of Capability (Percent) . . .	--	50
Capability/person			Generation (MWh)	--	50
(KWe/person)	4	11	Share of Generation (Percent) . .	--	50
Generation/person					
(MWh/person)	12.44	31			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	20	41			
Nitrogen Oxide	17	42			
Carbon Dioxide	3,621	48			
Sulfur Dioxide/sq. mile (Tons)	0.26	44			
Nitrogen Oxides/sq. mile (Tons)	0.22	48			
Carbon Dioxide/sq. mile (Tons)	47.71	48			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Oahe	Hydro	USCE-Missouri River District	786	36
2. Big Bend	Hydro	USCE-Missouri River District	536	34
3. Big Stone	Coal	Otter Tail Power Co	457	23
4. Fort Randall	Hydro	USCE-Missouri River District	352	44
5. Angus Anson	Gas	Northern States Power Co	232	4

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Black Hills Corporation	94	31	41	20	2
B. Northern States Power Company	84	36	17	30	1
C. Northwestern Public Service Co	73	32	32	8	1
D. Sioux Valley Southwestern El	19	14	4	1	*
E. Otter Tail Power Company	14	6	6	2	1
Total	284	118	101	60	5
Percentage of Utility Sales	58	49	67	72	28

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	2,628	2,733	2,923	1.2	100.0	100.0	100.0
Coal-fired	490	467	477	-0.3	18.6	17.1	16.3
Petroleum-fired	243	257	242	-0.1	9.3	9.4	8.3
Gas-fired	--	--	293	--	--	--	10.0
Dual-fired	92	189	104	1.4	3.5	6.9	3.6
Hydroelectric	1,803	1,820	1,806	*	68.6	66.6	61.8
Industry	2,628	2,733	2,923	1.2	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

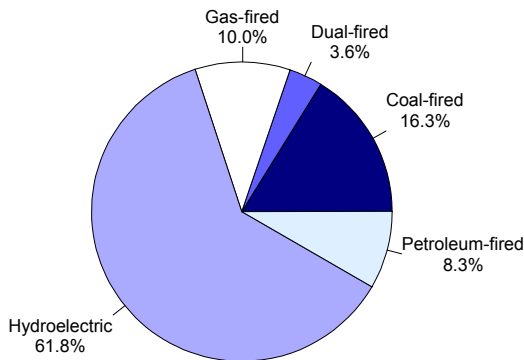


Figure 2. Utility Generation by Primary Energy Source, 1998

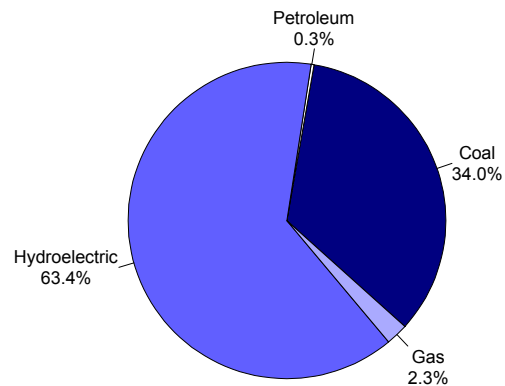


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	7,885,795	5,255,511	9,088,990	1.6	100.0	100.0	100.0
Coal	2,605,454	2,641,582	3,094,113	1.9	33.0	50.3	34.0
Petroleum	14,864	12,287	26,551	6.7	0.2	0.2	0.3
Gas	11,199	10,527	210,726	38.6	0.1	0.2	2.3
Hydroelectric	5,254,278	2,591,115	5,757,600	1.0	66.6	49.3	63.3
Industry	7,885,795	5,255,511	9,088,990	1.6	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	121.4	109.8	92.7	-2.9
Petroleum	401.7	467.2	--	--
Gas	--	237.8	176.7	--

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	31	31	20	-5.0
Nitrogen Oxides ^c	19	19	17	-1.4
Carbon Dioxide ^c	3,426	3,236	3,621	0.6

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

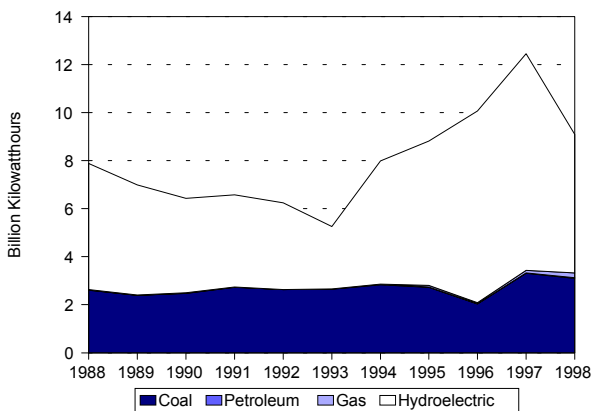


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

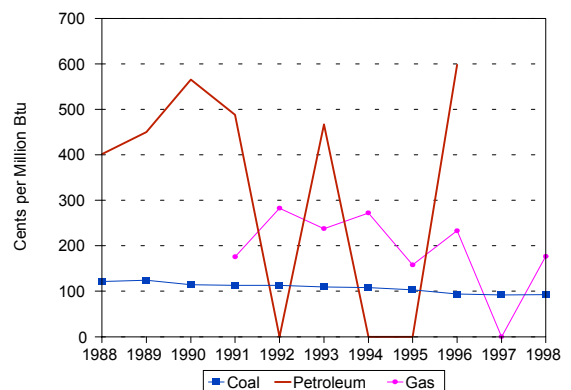


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

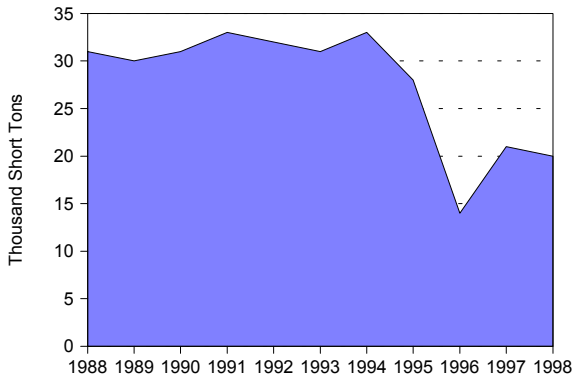


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

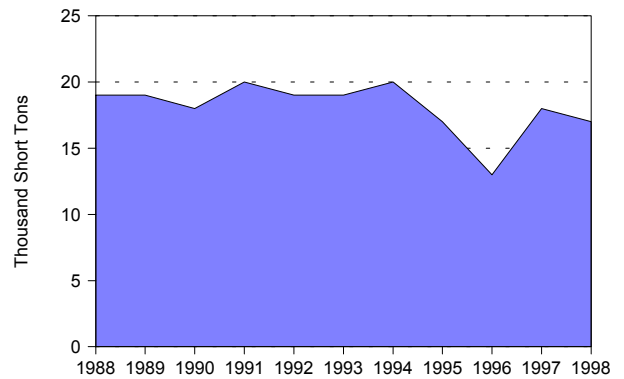


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

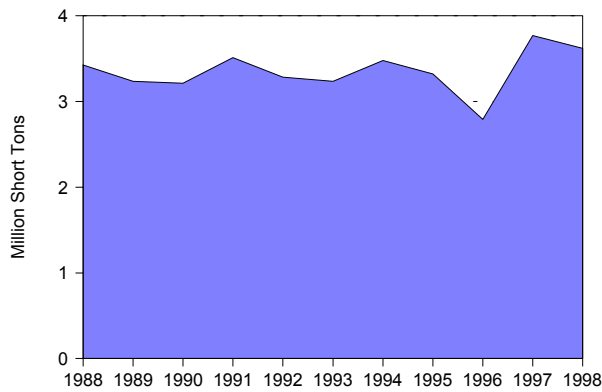
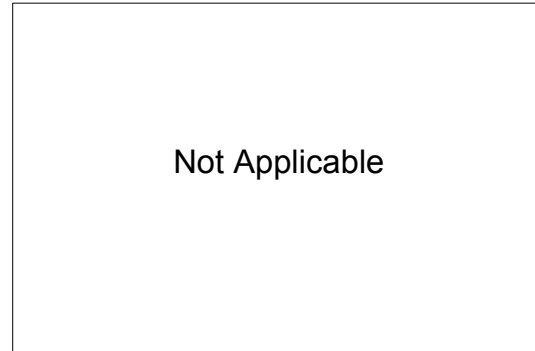


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	2,913,241	3,109,114	3,303,404	1.4	46.7	45.0	42.2
Commercial ..	1,359,208	1,620,793	2,262,750	5.8	21.8	23.5	28.9
Industrial	1,561,888	1,847,336	1,868,077	2.0	25.0	26.8	23.9
Other	400,385	327,464	389,800	-0.3	6.4	4.7	5.0
Total	6,234,717	6,904,707	7,824,031	2.6	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998**Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998**

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	6	34	1	36	77
Number of Retail Customers	175,155	46,311	17	106,459	327,942
Retail Sales (MWh)	3,340,996	863,872	193,401	1,836,448	6,234,717
Percentage of Retail Sales	53.6	13.9	3.1	29.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	265	44	2	162	473
Percentage of Revenue	56	9.3	0.4	34.3	100.0
	1993				
Number of Utilities	6	34	1	36	77
Number of Retail Customers	186,022	49,338	16	112,111	347,487
Retail Sales (MWh)	3,821,300	1,000,714	134,359	1,948,334	6,904,707
Percentage of Retail Sales	55.3	14.5	1.9	28.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	264	49	2	156	471
Percentage of Revenue	56	10.5	0.4	33.1	100.0
	1998				
Number of Utilities	6	34	1	33	74
Number of Retail Customers	201,149	53,413	16	120,419	374,997
Retail Sales (MWh)	4,379,399	1,144,376	162,536	2,137,720	7,824,031
Percentage of Retail Sales	56.0	14.6	2.1	27.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	282	54	2	151	489
Percentage of Revenue	57.6	11.0	0.5	31.0	100.0

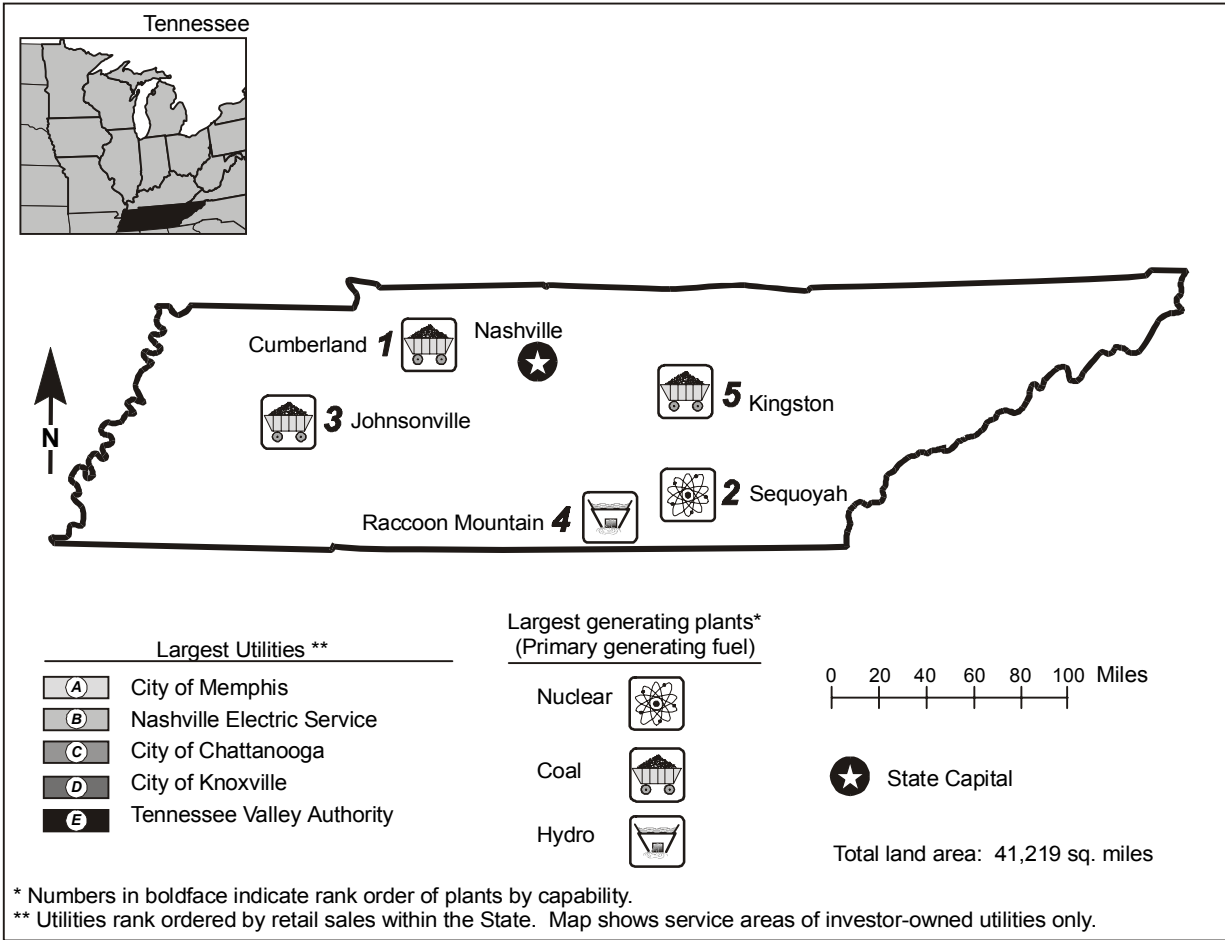


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		SERC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	17,546	15
Primary Generating Fuel		Coal	Generation (MWh)	94,142,638	13
Population (as of 7/98)	5,432,679	17	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.62	15	Coal-fired	36	
Industrial	4.17	21	Petroleum-fired	23	
Commercial	6.28	19	Gas-fired	27	
Residential	6.32	7	Nuclear	12	
Industry			Hydroelectric	37	
Capability (MW)	18,180	16	Nonutility		
Generation (MWh)	97,730,651	14	Capability (MW)	634	28
Capability/person			Share of Capability (Percent) . . .	3.5	39
(KWe/person)	3.35	20	Generation (MWh)	3,588,013	26
Generation/person			Share of Generation (Percent) . .	3.7	36
(MWh/person)	17.99	13			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	419	12			
Nitrogen Oxide	193	15			
Carbon Dioxide	58,054	15			
Sulfur Dioxide/sq. mile (Tons)	10.16	12			
Nitrogen Oxides/sq. mile (Tons)	4.69	15			
Carbon Dioxide/sq. mile (Tons)	1,408.43	18			

Table 2. Five Largest Plants, 1998

Plant	Energy Source	Operating Company	Net Capability (MW)	Age (Years)
1. Cumberland	Coal	Tennessee Valley Authority	2,448	25
2. Sequoyah	Nuclear	Tennessee Valley Authority	2,239	17
3. Johnsonville	Coal, Petroleum	Tennessee Valley Authority	2,152	47
4. Raccoon Mountain	Hydro	Tennessee Valley Authority	1,532	20
5. Kingston	Coal	Tennessee Valley Authority	1,434	44

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. City of Memphis	814	345	278	180	12
B. Nashville Electric Service	664	267	252	134	11
C. City of Chattanooga	321	125	113	78	4
D. City of Knoxville	300	140	98	57	5
E. Tennessee Valley Authority	261	--	--	260	1
Total	2,359	875	741	709	33
Percentage of Utility Sales	46	39	48	56	37

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	16,996	16,224	17,546	0.4	97.5	97.5	96.5
Coal-fired	9,289	8,691	8,604	-0.8	53.3	52.2	47.3
Petroleum-fired	1,152	1,080	1,252	0.9	6.6	6.5	6.9
Dual-fired	516	488	571	1.1	3.0	2.9	3.1
Nuclear	2,296	2,217	3,357	4.3	13.2	13.3	18.5
Hydroelectric	3,743	3,748	3,762	0.1	21.5	22.5	20.7
Total Nonutility	430	416	634	4.4	2.5	2.5	3.5
Industry	17,426	16,640	18,180	0.5	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

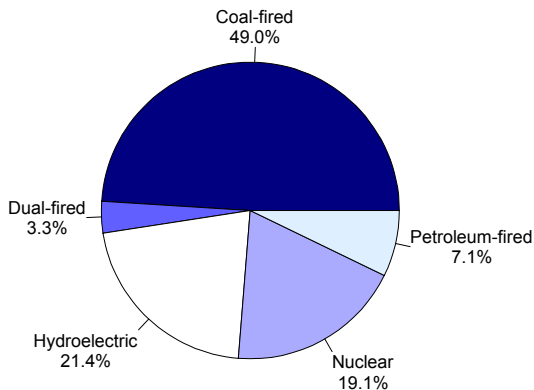


Figure 2. Utility Generation by Primary Energy Source, 1998

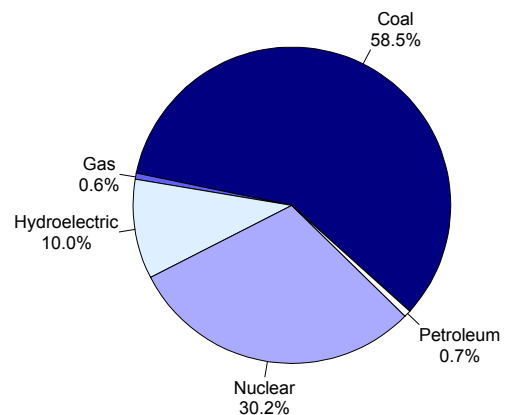


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	59,857,653	71,614,268	94,142,638	5.2	96.2	96.9	96.3
Coal	51,122,426	59,559,596	55,120,297	0.8	82.2	80.6	56.4
Petroleum	187,473	234,545	699,233	15.7	0.3	0.3	0.7
Gas	15,909	121,222	550,543	48.3	*	0.2	0.6
Nuclear	3,940,416	3,304,836	28,387,543	24.5	6.3	4.5	29.0
Hydroelectric	4,591,429	8,394,069	9,385,022	8.3	7.4	11.4	9.6
Total Nonutility	2,372,443	2,271,133	3,588,013	4.7	3.8	3.1	3.7
Industry	62,230,096	73,885,401	97,730,651	5.1	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	133.5	126.1	112.5	-1.9
Petroleum	350.9	431.3	304.5	-1.6

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	831	834	419	-7.3
Nitrogen Oxides ^c	198	225	193	-0.3
Carbon Dioxide ^c	50,998	59,124	58,054	1.4

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

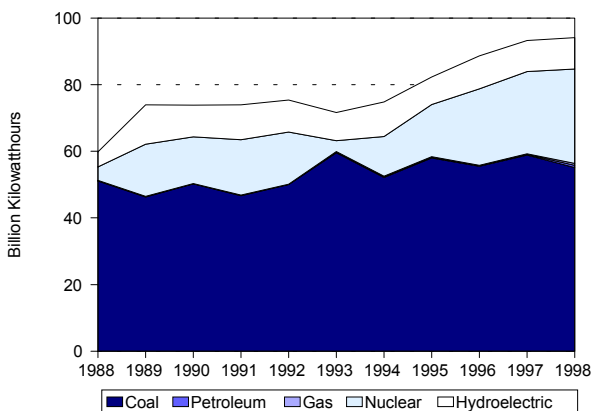


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

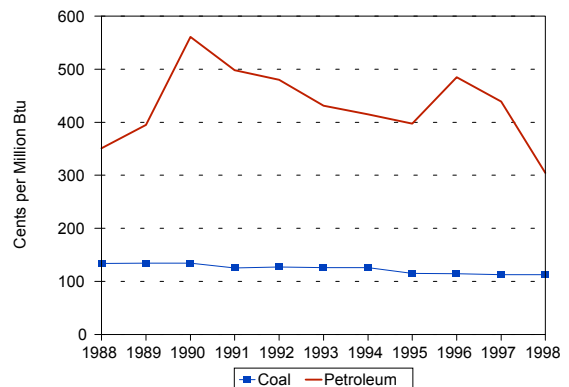


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

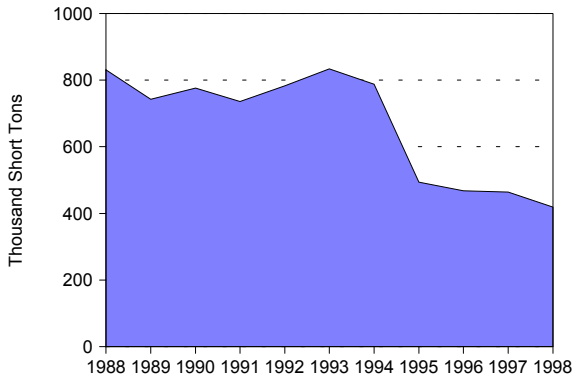


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

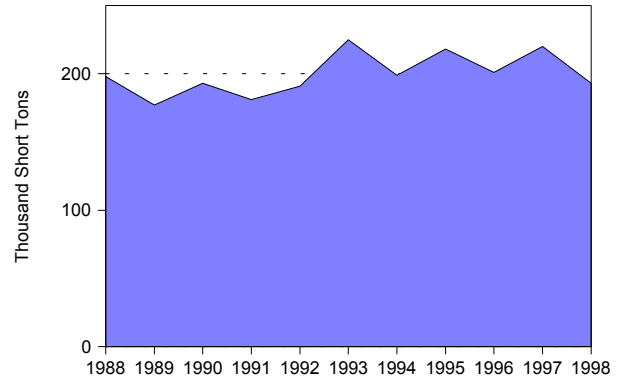


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

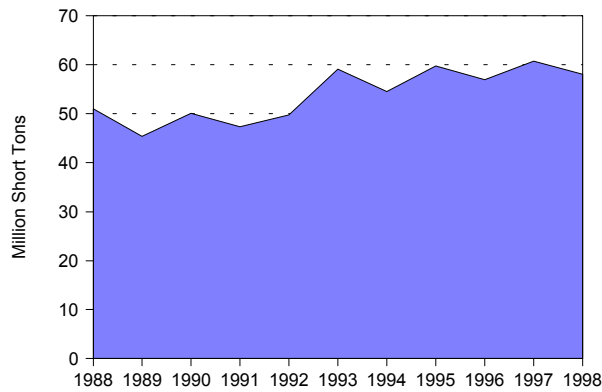


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	27,959,590	30,199,490	35,427,693	2.7	38.4	37.8	38.6
Commercial ..	9,501,526	5,174,642	24,840,012	11.3	13.0	6.5	27.1
Industrial	34,430,949	43,530,194	30,461,384	-1.3	47.3	54.5	33.2
Other	979,804	927,855	1,020,800	0.5	1.3	1.2	1.1
Total	72,871,861	79,832,181	91,749,889	2.6	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

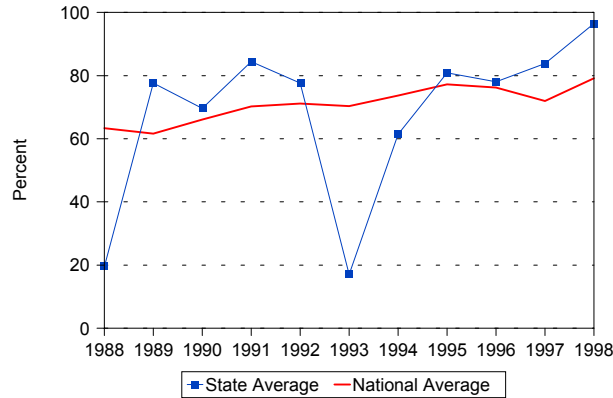


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	4	63	1	25	93
Number of Retail Customers	37,469	1,609,799	42	570,250	2,217,560
Retail Sales (MWh)	3,130,329	48,635,363	9,658,327	11,447,842	72,871,861
Percentage of Retail Sales	4.3	66.7	13.3	15.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	94	3,414	719	865	5,093
Percentage of Revenue	1.8	67	14.1	17	100
1993					
Number of Utilities	4	63	1	26	94
Number of Retail Customers	40,356	1,721,353	42	642,394	2,404,145
Retail Sales (MWh)	3,357,413	53,612,065	9,363,015	13,499,688	79,832,181
Percentage of Retail Sales	4.2	67.2	11.7	16.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	101	3,211	408	869	4,590
Percentage of Revenue	2.2	70	8.9	18.9	100.0
1998					
Number of Utilities	3	63	1	25	92
Number of Retail Customers	43,686	1,894,565	41	747,385	2,685,677
Retail Sales (MWh)	1,788,584	64,586,807	8,595,220	16,779,278	91,749,889
Percentage of Retail Sales	1.9	70.4	9.4	18.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	79	3,764	261	1,051	5,155
Percentage of Revenue	1.5	73	5.1	20.4	100.0

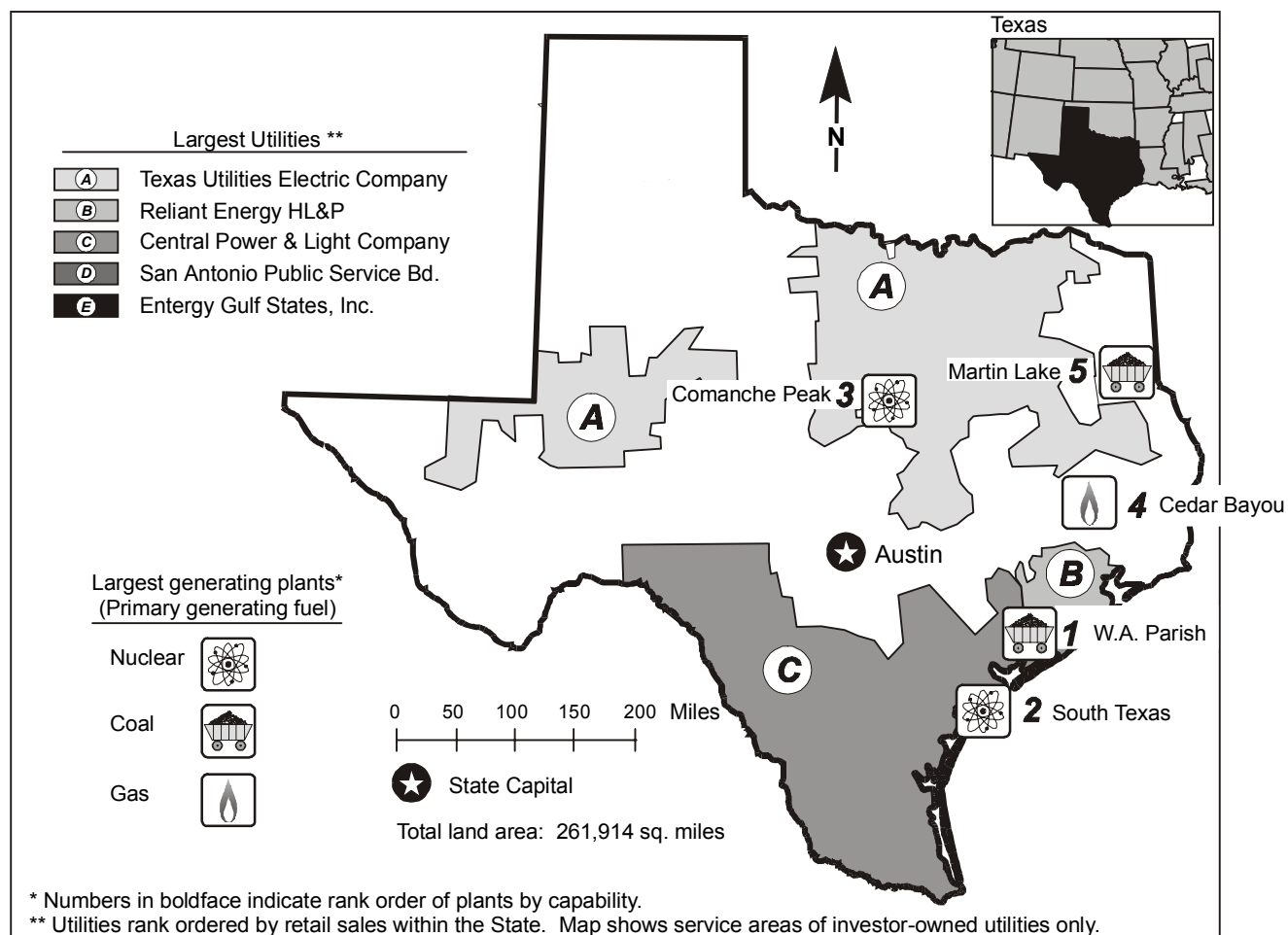


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)	ERCOT/SPP/WCSS/SERC		Utility		
Net Exporter or Importer		Importer	Capability (MW)	65,208	1
Primary Generating Fuel		Coal	Generation (MWh)	293,068,377	1
Population (as of 7/98)	19,712,389	2	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	6.07	25	Coal-fired	18	
Industrial	3.94	15	Petroleum-fired	32	
Commercial	6.57	27	Gas-fired	29	
Residential	7.65	26	Nuclear	8	
Industry			Hydroelectric	44	
Capability (MW)	74,582	1	Renewable	32	
Generation (MWh)	354,837,511	1	Nonutility		
Capability/person			Capability (MW)	9,374	2
(KWe/person)	3.78	13	Share of Capability (Percent) . . .	12.6	16
Generation/person			Generation (MWh)	61,769,134	2
(MWh/person)	18	11	Share of Generation (Percent) . .	17.4	11
Emissions (Thousand Short Tons)					
Sulfur Dioxide	585	8			
Nitrogen Oxide	741	1			
Carbon Dioxide	269,481	1			
Sulfur Dioxide/sq. mile (Tons)	2.23	29			
Nitrogen Oxides/sq. mile (Tons)	2.83	25			
Carbon Dioxide/sq. mile (Tons)	1,028.89	26			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. W A Parish	Coal, Gas	Houston Lighting & Power Co	3,654	40
2. South Texas	Nuclear	Houston Lighting & Power Co	2,500	10
3. Comanche Peak	Nuclear	Texas Utilities Electric Co	2,300	8
4. Cedar Bayou	Gas	Houston Lighting & Power Co	2,260	28
5. Martin Lake	Coal	Texas Utilities Electric Co	2,250	21

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Texas Utilities Electric Co	6,135	2,854	1,861	982	439
B. Reliant Energy HL&P	4,207	1,787	1,108	1,287	26
C. Central Power & Light Company	1,253	527	377	310	39
D. San Antonio Public Service Bd	874	429	151	194	100
E. Entergy Gulf States, Inc	726	289	167	252	19
Total	13,196	5,886	3,665	3,024	622
Percentage of Utility Sales	71	70	72	75	68

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	59,206	63,868	65,208	1.1	88.5	89.4	87.4
Coal-fired	18,432	19,335	19,731	0.8	27.6	27.1	26.5
Petroleum-fired	32	29	36	1.3	*	*	*
Gas-fired	8,354	7,050	9,184	1.1	12.5	9.9	12.3
Dual-fired	30,482	32,020	30,749	0.1	45.6	44.8	41.2
Nuclear	1,251	4,782	4,800	16.1	1.9	6.7	6.4
Hydroelectric	627	652	694	1.1	0.9	0.9	0.9
Renewable	29	*	14	-7.7	*	*	*
Total Nonutility	7,674	7,578	9,374	2.2	11.5	10.6	12.6
Industry	66,880	71,446	74,582	1.2	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

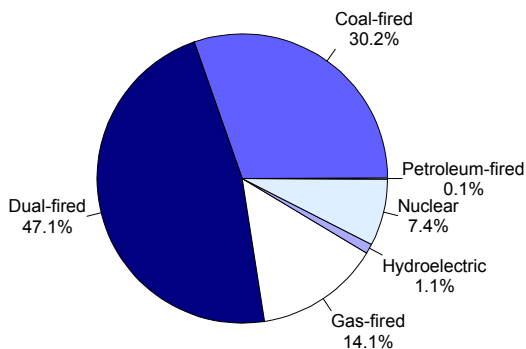


Figure 2. Utility Generation by Primary Energy Source, 1998

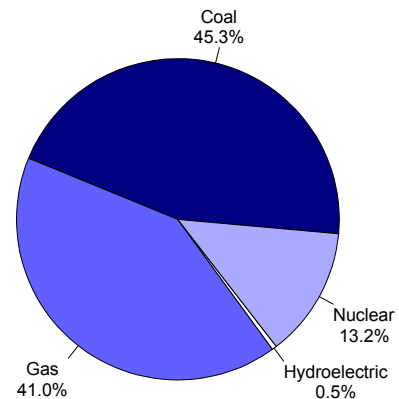


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	221,179,583	248,174,240	293,068,377	3.2	80.1	82.8	82.6
Coal	112,875,663	128,266,337	132,626,804	1.8	40.9	42.8	37.4
Petroleum	756,475	452,909	136,818	-17.3	0.3	0.2	*
Gas	102,520,604	104,966,938	120,200,589	1.8	37.1	35.0	33.9
Nuclear	3,791,793	12,406,774	38,685,129	29.4	1.4	4.1	10.9
Hydroelectric	1,235,048	1,786,405	1,418,903	1.6	0.4	0.6	0.4
Renewable	--	294,877	134	--	--	0.1	*
Total Nonutility Industry	55,027,439	51,380,031	61,769,134	1.3	19.9	17.2	17.4
Industry	276,207,022	299,554,271	354,837,511	2.8	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	147.2	143.5	123.9	-1.9
Petroleum	329.1	245.3	362.1	1.1
Gas	209.0	240.7	224.9	0.8

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	430	546	585	3.5
Nitrogen Oxides ^c	564	576	741	3.1
Carbon Dioxide ^c	187,176	205,847	269,481	4.1

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

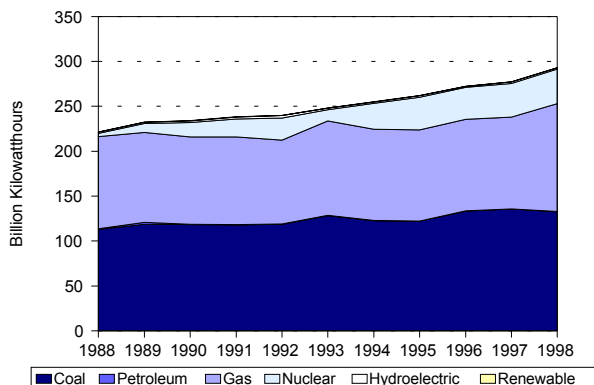


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

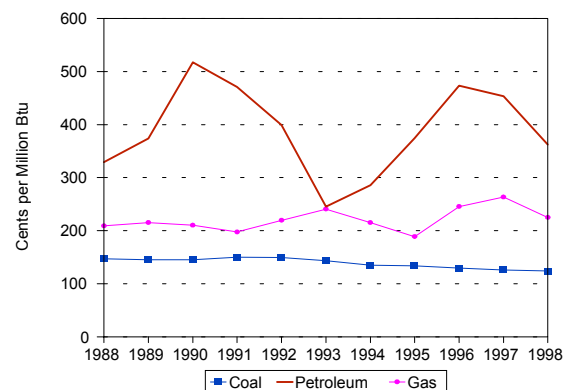


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

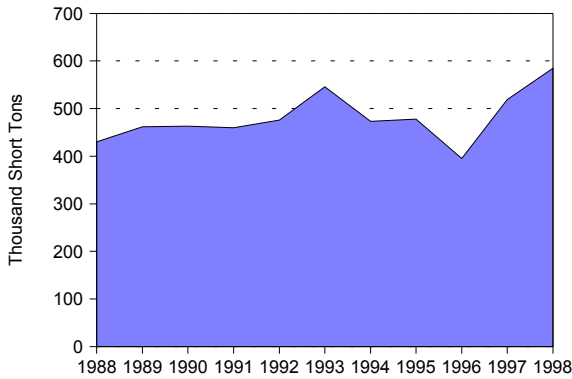


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

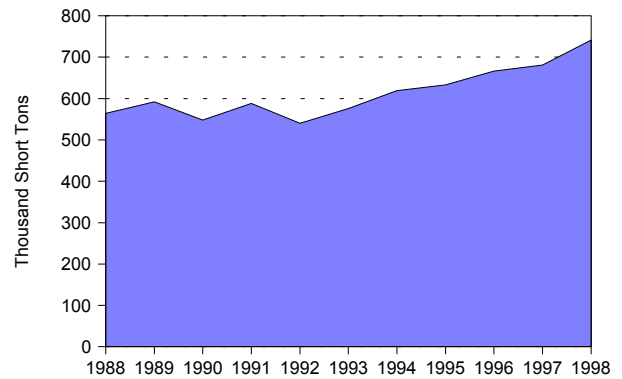


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

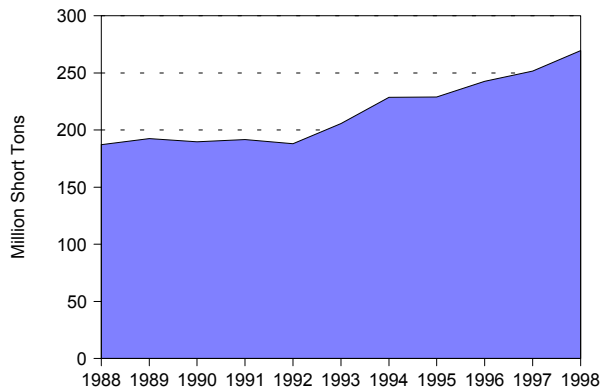


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	77,255,044	87,685,723	110,433,808	4.0	34.4	35.1	36.2
Commercial ..	59,196,847	64,331,490	77,231,316	3.0	26.4	25.7	25.3
Industrial	81,579,404	86,932,759	102,702,147	2.6	36.4	34.8	33.7
Other	6,314,571	11,134,441	14,337,493	9.5	2.8	4.4	4.7
Total	224,345,864	250,084,413	304,704,764	3.5	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

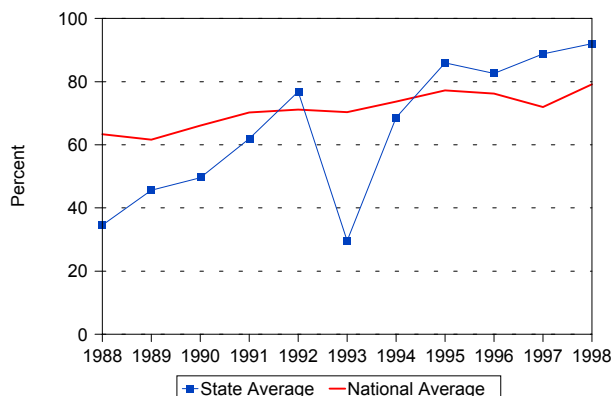


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	11	72	--	79	162
Number of Retail Customers	5,180,654	1,118,365	--	1,079,703	7,378,722
Retail Sales (MWh)	182,571,411	25,628,831	--	16,145,622	224,345,864
Percentage of Retail Sales	81.4	11.4	--	7.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	12,523	2,034	--	1,380	15,937
Percentage of Revenue	78.6	12.8	--	8.7	100.0
1993					
Number of Utilities	10	75	--	77	162
Number of Retail Customers	5,545,388	1,197,596	--	1,120,432	7,863,416
Retail Sales (MWh)	201,188,447	29,608,116	--	19,287,850	250,084,413
Percentage of Retail Sales	80.4	11.8	--	7.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	13,996	2,103	--	1,499	17,598
Percentage of Revenue	79.5	12.0	--	8.5	100.0
1998					
Number of Utilities	10	75	--	76	161
Number of Retail Customers	6,102,184	1,371,603	--	1,334,700	8,808,487
Retail Sales (MWh)	241,277,745	37,307,087	--	26,119,932	304,704,764
Percentage of Retail Sales	79.2	12.2	--	8.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	14,434	2,284	--	1,768	18,486
Percentage of Revenue	78.1	12.4	--	9.6	100.0

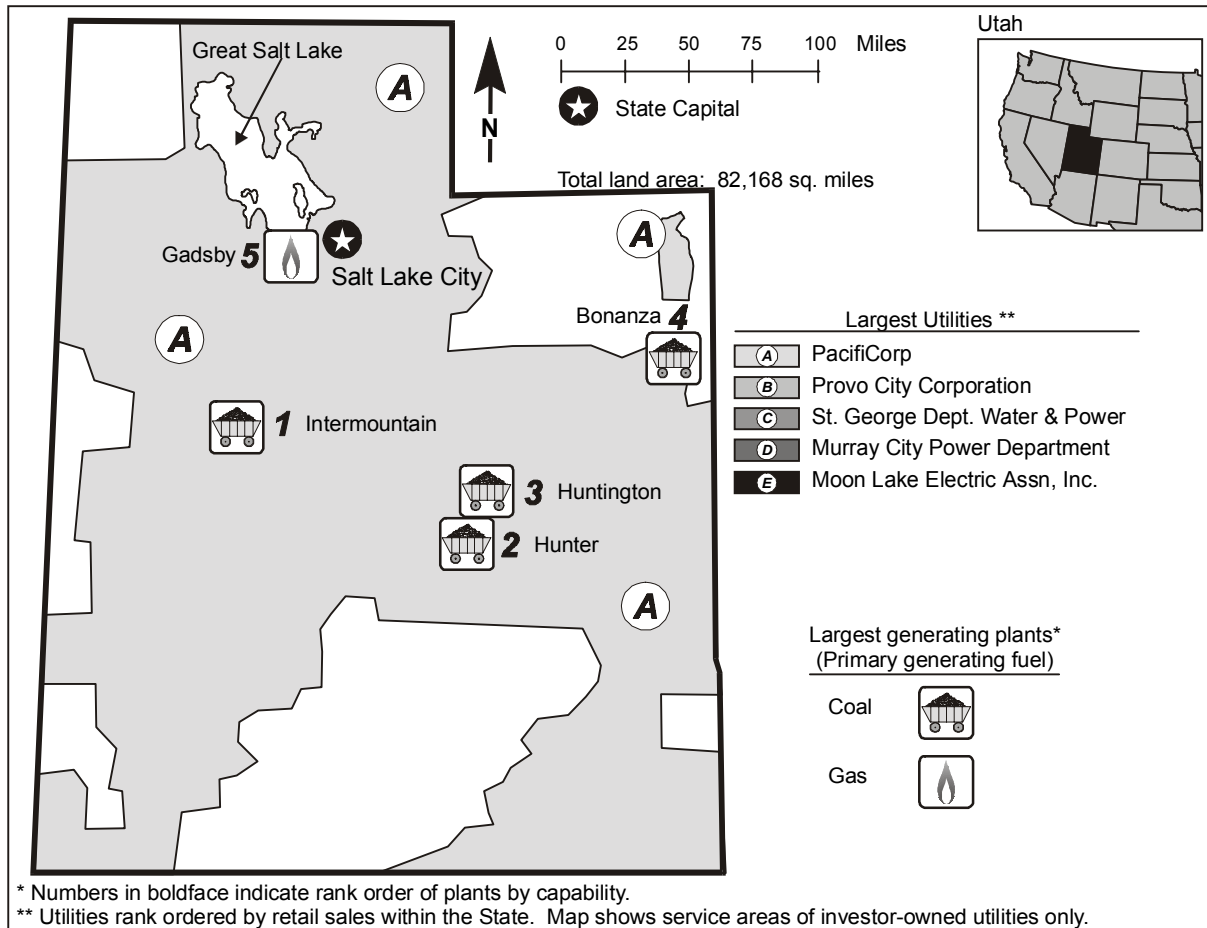


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	5,077	38
Primary Generating Fuel		Coal	Generation (MWh)	35,160,477	33
Population (as of 7/98)	2,100,562	34	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.16	8	Coal-fired	17	
Industrial	3.45	6	Petroleum-fired	18	
Commercial	5.71	11	Gas-fired	40	
Residential	6.84	12	Hydroelectric	41	
Industry			Renewable	13	
Capability (MW)	5,206	39	Nonutility		
Generation (MWh)	35,910,429	34	Capability (MW)	130	43
Capability/person			Share of Capability (Percent) . . .	2.5	41
(KWe/person)	2.48	34	Generation (MWh)	749,952	42
Generation/person			Share of Generation (Percent) . .	2.1	42
(MWh/person)	17.1	18			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	30	40			
Nitrogen Oxide	106	28			
Carbon Dioxide	34,895	27			
Sulfur Dioxide/sq. mile (Tons)	0.36	43			
Nitrogen Oxides/sq. mile (Tons)	1.29	38			
Carbon Dioxide/sq. mile (Tons)	424.68	36			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Intermountain	Coal	Los Angeles City of	1,640	12
2. Hunter	Coal	PacifiCorp	1,305	20
3. Huntington	Coal	PacifiCorp	895	24
4. Bonanza	Coal	Deseret Generation & Tran Coop	425	12
5. Gadsby	Gas	PacifiCorp	235	47

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. PacifiCorp	837	298	281	234	23
B. Provo City Corporation	40	14	20	6	--
C. St George Dept Water & Power	20	9	11	--	1
D. Murray City Power Department	20	6	13	--	*
E. Moon Lake Electric Assn, Inc	19	5	11	2	*
Total	935	332	337	242	24
Percentage of Utility Sales	88	84	88	93	75

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	4,744	4,812	5,077	0.8	98.3	97.2	97.5
Coal-fired	4,430	4,271	4,448	*	91.8	86.3	85.4
Petroleum-fired	24	25	33	3.8	0.5	0.5	0.6
Gas-fired	3	103	238	63.9	0.1	2.1	4.6
Dual-fired	125	124	57	-8.3	2.6	2.5	1.1
Hydroelectric	141	253	265	7.2	2.9	5.1	5.1
Renewable	21	35	35	5.6	0.4	0.7	0.7
Total Nonutility	82	136	130	5.2	1.7	2.8	2.5
Industry	4,826	4,948	5,206	0.8	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

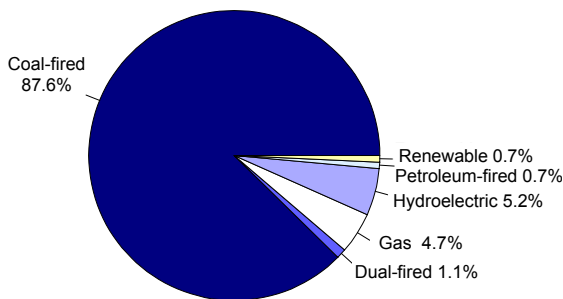


Figure 2. Utility Generation by Primary Energy Source, 1998

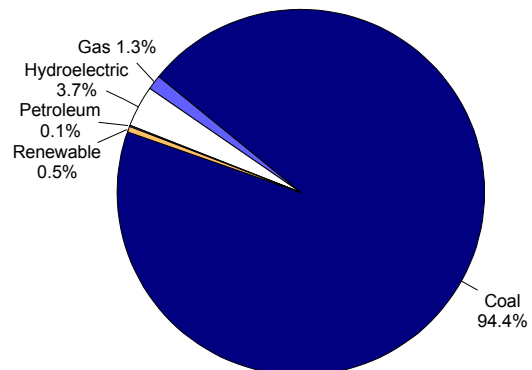


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	29,637,220	33,460,939	35,160,477	1.9	98.9	98.2	97.9
Coal	28,806,095	31,919,309	33,206,731	1.6	96.1	93.7	92.5
Petroleum	59,168	32,104	31,289	-6.8	0.2	0.1	0.1
Gas	4,624	542,969	463,348	66.8	*	1.6	1.3
Hydroelectric	593,108	818,409	1,299,052	9.1	2.0	2.4	3.6
Renewable	174,225	148,148	160,057	-0.9	0.6	0.4	0.4
Total Nonutility Industry	332,317	597,163	749,952	9.5	1.1	1.8	2.1
Industry	29,969,537	34,058,102	35,910,429	2.0	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	126.5	119.0	114.8	-1.1
Petroleum	398.4	539.1	439.5	1.1
Gas	--	217.6	202.5	--

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	26	32	30	1.7
Nitrogen Oxides ^c	97	97	106	1.0
Carbon Dioxide ^c	29,458	32,968	34,895	1.9

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

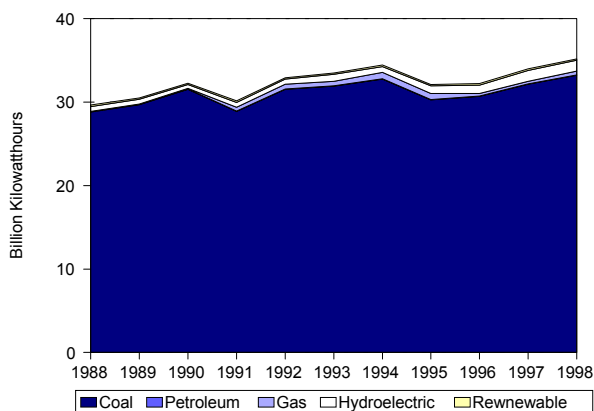


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

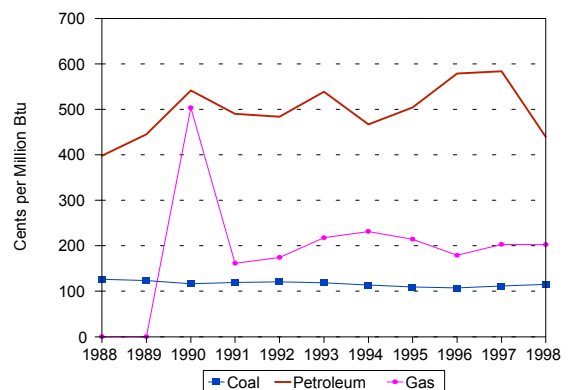


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

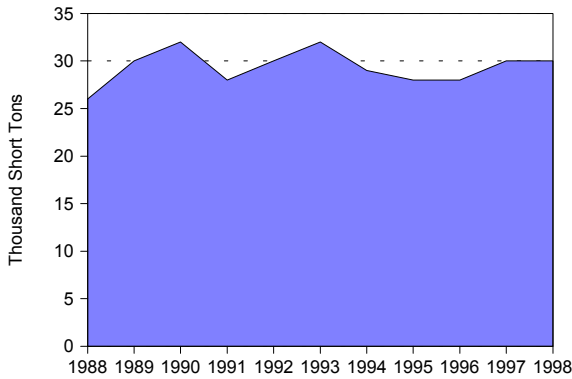


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

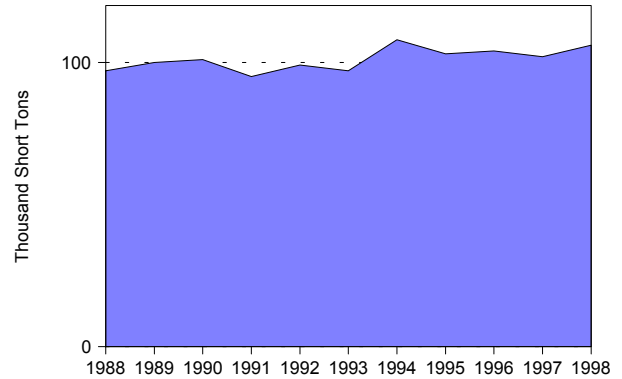


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

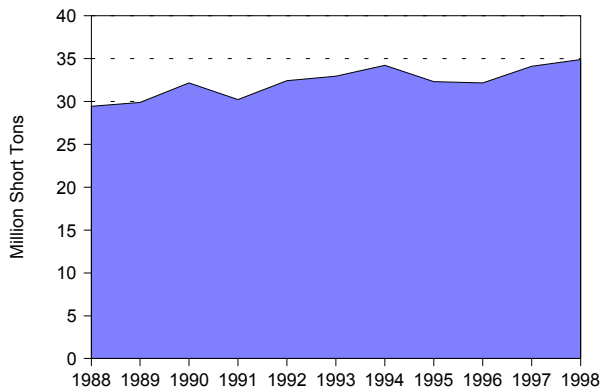


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	4,151,198	4,725,974	5,755,763	3.7	28.6	28.0	27.8
Commercial ..	4,243,922	5,019,969	6,708,937	5.2	29.3	29.8	32.4
Industrial	5,320,724	6,221,086	7,511,167	3.9	36.7	36.9	36.3
Other	790,746	900,100	724,459	-1.0	5.4	5.3	3.5
Total	14,506,585	16,867,129	20,700,326	4.0	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

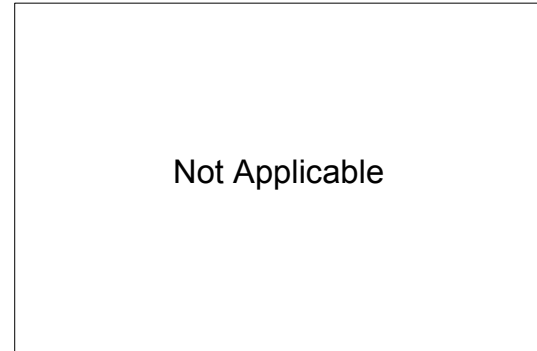


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	1	37	1	9	48
Number of Retail Customers	470,665	121,913	4	21,613	614,195
Retail Sales (MWh)	11,775,672	2,021,737	20,377	688,799	14,506,585
Percentage of Retail Sales	81.2	13.9	0.1	4.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	943	151	--	53	1,148
Percentage of Revenue	82.2	13.2	--	4.6	100.0
	1993				
Number of Utilities	1	41	1	9	52
Number of Retail Customers	518,912	143,449	8	24,538	686,907
Retail Sales (MWh)	13,601,266	2,534,112	65,786	665,965	16,867,129
Percentage of Retail Sales	80.6	15.0	0.4	3.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	773	171	1	44	989
Percentage of Revenue	78.2	17.3	0.1	4.4	100.0
	1998				
Number of Utilities	1	41	1	9	52
Number of Retail Customers	612,034	167,258	4	28,422	807,718
Retail Sales (MWh)	16,844,036	3,166,915	48,756	640,619	20,700,326
Percentage of Retail Sales	81.4	15.3	0.2	3.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	837	192	1	39	1,069
Percentage of Revenue	78.3	18.0	0.1	3.7	100.0

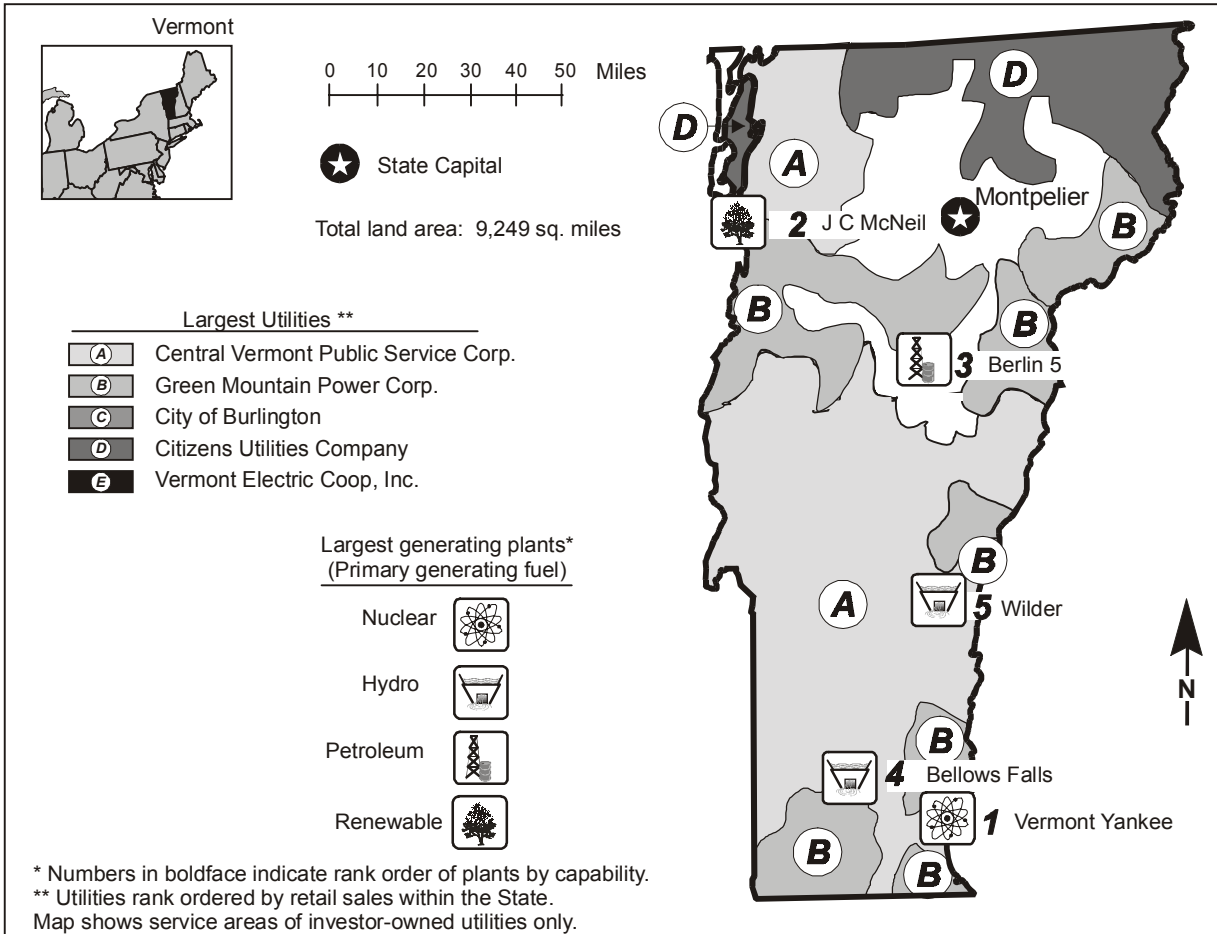


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		NPCC	Utility		
Net Exporter or Importer		Exporter	Capability (MW)	774	50
Primary Generating Fuel		Nuclear	Generation (MWh)	4,393,537	48
Population (as of 7/98)	590,579	49	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	9.83	45	Petroleum-fired	31	
Industrial	7.27	45	Nuclear	26	
Commercial	10.12	47	Hydroelectric	57	
Residential	11.61	46	Renewable	14	
Industry			Nonutility		
Capability (MW)	961	49	Capability (MW)	187	40
Generation (MWh)	4,909,009	50	Share of Capability (Percent) . . .	19.5	7
Capability/person			Generation (MWh)	515,472	45
(KWe/person)	1.63	48	Share of Generation (Percent) . .	10.5	18
Generation/person					
(MWh/person)	8.31	44			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	--	51			
Nitrogen Oxide	--	51			
Carbon Dioxide	60	51			
Sulfur Dioxide/sq. mile (Tons) . . . . .	.00	50			
Nitrogen Oxides/sq. mile (Tons)	0.01	51			
Carbon Dioxide/sq. mile (Tons)	6.45	50			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Vermont Yankee	Nuclear	Vermont Yankee Nucl Pwr Corp	500	26
2. J C McNeil	Renewable	Burlington City of	52	14
3. Berlin 5	Petroleum	Green Mountain Power Corp	41	26
4. Bellows Falls	Hydro	US Gen New England Inc	40	70
5. Wilder	Hydro	US Gen New England Inc	38	48

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Central Vermont Pub Serv Corp	234	108	93	31	2
B. Green Mountain Power Corp	165	62	62	40	1
C. City of Burlington	31	8	10	13	*
D. Citizens Utilities Company	22	10	5	3	3
E. Vermont Electric Coop, Inc	15	12	1	1	--
Total	466	201	171	88	6
Percentage of Utility Sales	88	89	95	79	74

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	1,102	1,094	774	-3.9	93.8	93.9	80.5
Petroleum-fired	115	120	117	0.2	9.8	10.3	12.2
Nuclear	496	496	500	0.1	42.2	42.6	52.1
Hydroelectric	445	430	103	-15.0	37.8	36.9	10.8
Renewable	47	47	53	1.3	4.0	4.1	5.5
Total Nonutility	72	71	187	11.1	6.2	6.1	19.5
Industry	1,175	1,165	961	-2.2	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

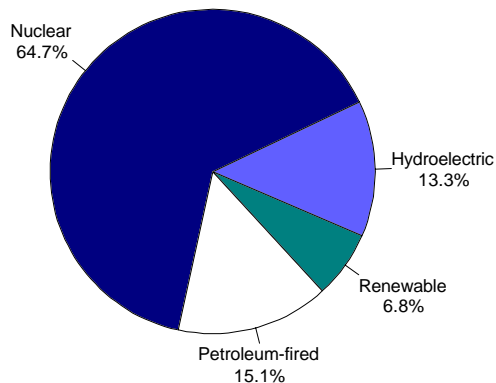


Figure 2. Utility Generation by Primary Energy Source, 1998

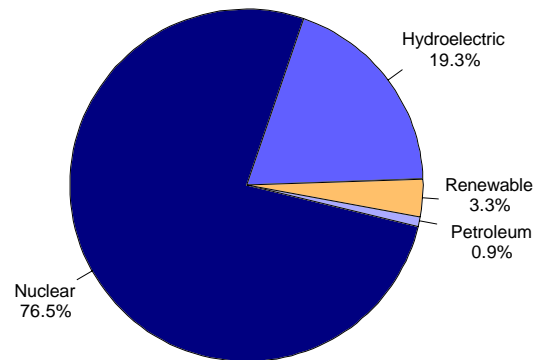


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	5,048,934	4,300,537	4,393,537	-1.5	96.4	92.6	89.5
Petroleum	25,722	4,805	41,265	5.4	0.5	0.1	0.8
Gas	--	20,558	827	--	--	0.4	*
Nuclear	4,113,835	3,372,148	3,357,696	-2.2	78.5	72.6	68.4
Hydroelectric	808,950	838,619	848,291	0.5	15.4	18.1	17.3
Renewable	100,427	64,407	145,458	4.2	1.9	1.4	3.0
Total Nonutility	189,037	343,704	515,472	11.8	3.6	7.4	10.5
Industry	5,237,971	4,644,241	4,909,009	-0.7	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Petroleum	--	485.1	327.1	--
Gas	--	201.6	286.1	--

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	0	*	--	--
Nitrogen Oxides ^c	*	*	*	-4.0
Carbon Dioxide ^c	60	22	60	-9.7

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

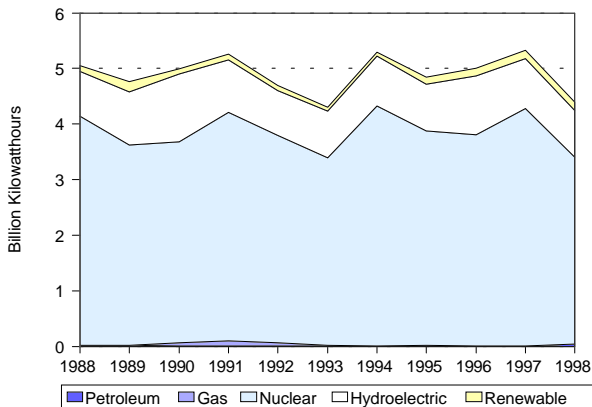


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998
(1998 Dollars)

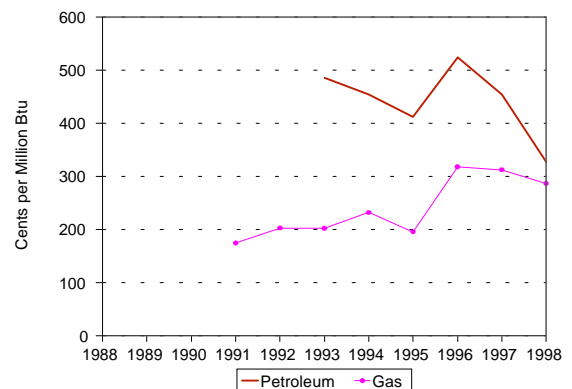


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

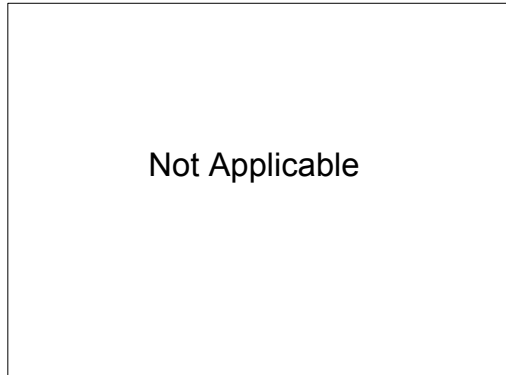


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

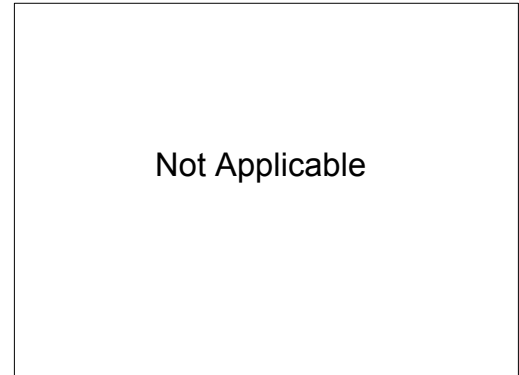


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

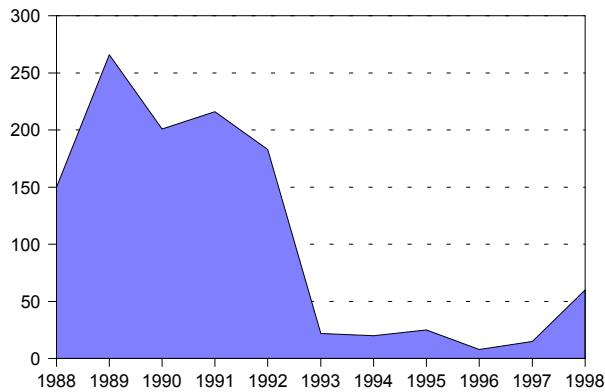


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	1,571,834	1,971,082	1,951,338	2.4	35.6	39.3	36.4
Commercial . .	1,452,914	1,569,895	1,786,461	2.3	32.9	31.3	33.3
Industrial	1,344,836	1,430,964	1,533,905	1.5	30.4	28.5	28.6
Other	46,298	43,617	91,554	7.9	1.0	0.9	1.7
Total	4,415,887	5,015,558	5,363,258	2.2	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

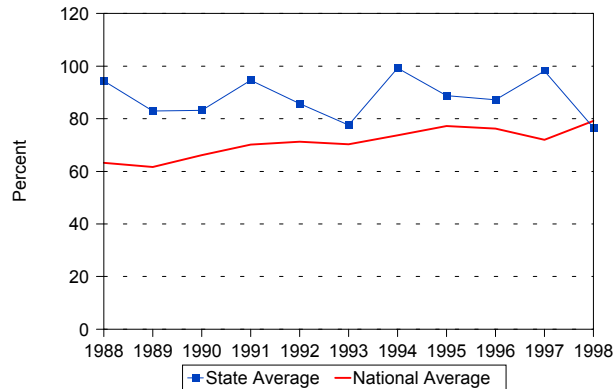


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	8	15	--	2	25
Number of Retail Customers	218,694	45,298	--	19,306	283,298
Retail Sales (MWh)	3,578,432	665,993	--	171,462	4,415,887
Percentage of Retail Sales	81.0	15.1	--	3.9	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	359	72	--	21	453
Percentage of Revenue	79.4	16.0	--	4.7	100.0
1993					
Number of Utilities	6	15	--	2	23
Number of Retail Customers	235,914	47,738	--	22,049	305,701
Retail Sales (MWh)	4,125,374	707,725	--	182,459	5,015,558
Percentage of Retail Sales	82.3	14.1	--	3.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	399	77	--	23	499
Percentage of Revenue	79.9	15.4	--	4.6	100.0
1998					
Number of Utilities	6	15	--	2	23
Number of Retail Customers	245,871	50,176	--	23,986	320,033
Retail Sales (MWh)	4,448,803	725,153	--	189,302	5,363,258
Percentage of Retail Sales	82.9	13.5	--	3.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	434	70	--	23	527
Percentage of Revenue	82.3	13.3	--	4.4	100.0

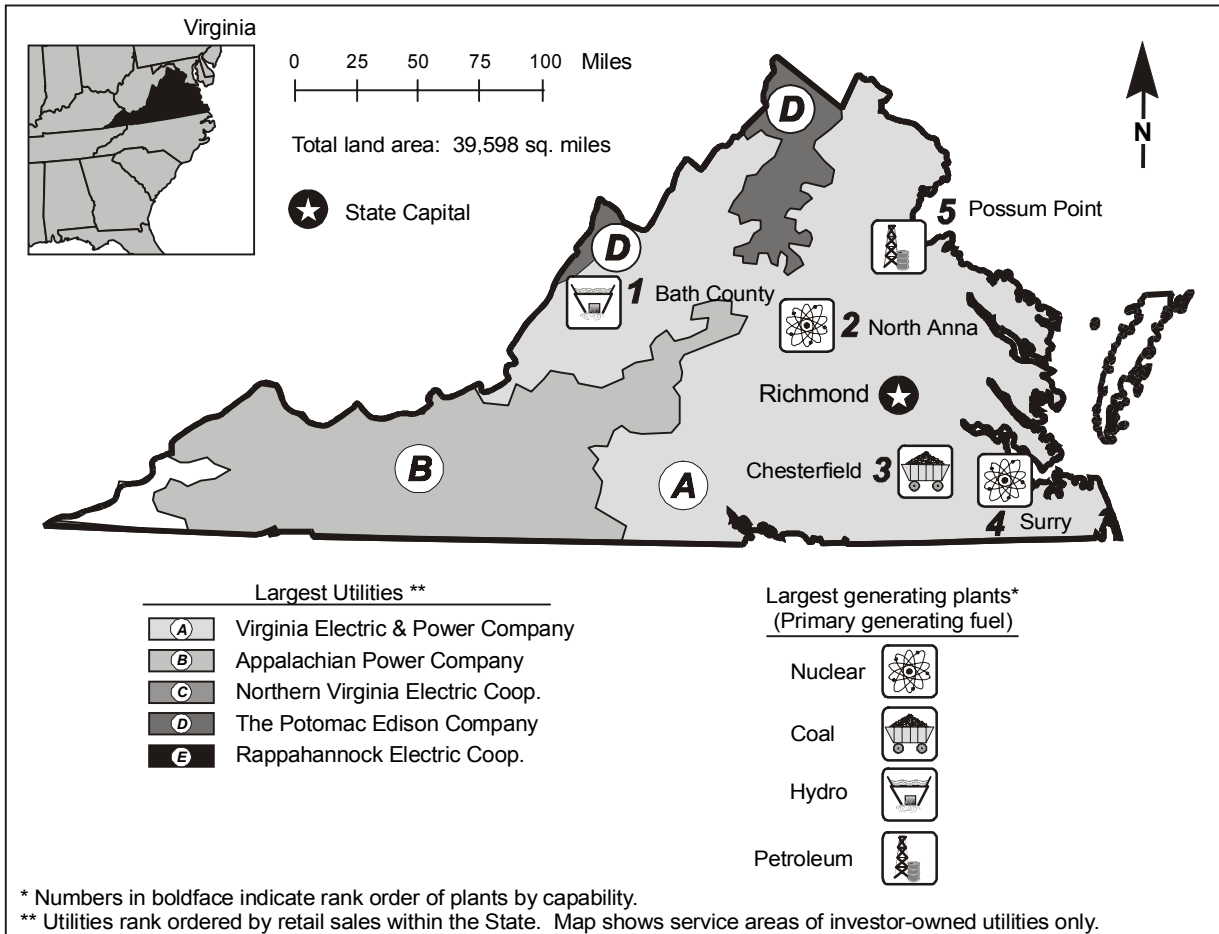


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)	ECAR/SERC/MAAC		Utility		
Net Exporter or Importer		Importer	Capability (MW)	15,314	18
Primary Generating Fuel		Coal	Generation (MWh)	63,814,565	21
Population (as of 7/98)	6,789,225	12	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.88	21	Coal-fired	32	
Industrial	3.82	12	Petroleum-fired	26	
Commercial	5.61	8	Gas-fired	6	
Residential	7.51	25	Nuclear	22	
Industry			Hydroelectric	21	
Capability (MW)	18,750	15	Renewable	13	
Generation (MWh)	72,198,147	21	Nonutility		
Capability/person			Capability (MW)	3,435	6
(KWe/person)	2.76	29	Share of Capability (Percent) . . .	18.3	9
Generation/person			Generation (MWh)	8,383,582	10
(MWh/person)	10.63	35	Share of Generation (Percent) . .	11.6	15
Emissions (Thousand Short Tons)					
Sulfur Dioxide	204	19			
Nitrogen Oxide	117	26			
Carbon Dioxide	41,897	21			
Sulfur Dioxide/sq. mile (Tons)	5.16	22			
Nitrogen Oxides/sq. mile (Tons)	2.94	24			
Carbon Dioxide/sq. mile (Tons)	1,058.06	24			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Bath County	Hydro	Virginia Electric & Power Co	2,100	13
2. North Anna	Nuclear	Virginia Electric & Power Co	1,791	20
3. Chesterfield	Coal, Gas	Virginia Electric & Power Co	1,776	46
4. Surry	Nuclear	Virginia Electric & Power Co	1,602	26
5. Possum Point	Petroleum, Coal	Virginia Electric & Power Co	1,329	50

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Virginia Electric & Power Co	3,713	1,761	1,155	374	423
B. Appalachian Power Company	661	300	122	207	31
C. Northern Virginia Elec Coop	158	103	43	12	*
D. The Potomac Edison Company	132	63	29	39	1
E. Rappahannock Electric Coop	120	80	8	32	1
Total	4,785	2,307	1,358	665	456
Percentage of Utility Sales	90	88	92	87	94

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	12,820	14,054	15,314	2.0	81.4	82.5	81.7
Coal-fired	4,225	4,217	5,099	2.1	26.8	24.8	27.2
Petroleum-fired	1,175	1,205	2,047	6.4	7.5	7.1	10.9
Gas-fired	15	259	545	49.0	0.1	1.5	2.9
Dual-fired	987	1,915	1,145	1.7	6.3	11.2	6.1
Nuclear	3,392	3,349	3,392	*	21.5	19.7	18.1
Hydroelectric	3,027	3,110	3,087	0.2	19.2	18.3	16.5
Renewable	*	*	*	*	*	*	*
Total Nonutility	2,927	2,983	3,435	1.8	18.6	17.5	18.3
Industry	15,748	17,037	18,750	2.0	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

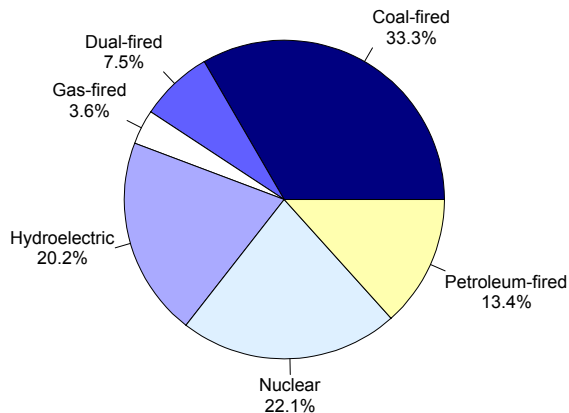


Figure 2. Utility Generation by Primary Energy Source, 1998

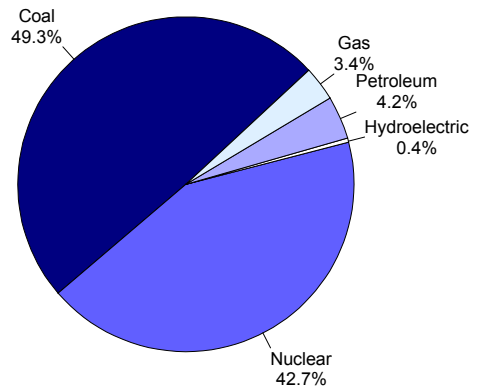


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	45,171,625	52,181,906	63,814,565	3.9	85.2	85.2	88.4
Coal	21,412,791	24,722,481	31,471,297	4.4	40.4	40.4	43.6
Petroleum	2,838,049	2,157,896	2,654,660	-0.7	5.4	3.5	3.7
Gas	101,647	2,139,635	2,198,665	40.7	0.2	3.5	3.0
Nuclear	21,037,202	22,688,763	27,234,399	2.9	39.7	37.1	37.7
Hydroelectric	-218,143	473,123	255,544	*	-0.4	0.8	0.4
Renewable	78	8	--	--	*	*	--
Total Nonutility Industry	7,871,159	9,048,774	8,383,582	0.7	14.8	14.8	11.6
Industry	53,042,784	61,230,680	72,198,147	3.5	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	155.1	146.6	137.8	-1.3
Petroleum	236.3	212.6	203.7	-1.6
Gas	204.9	278.6	295.4	4.1

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	159	191	204	2.8
Nitrogen Oxides ^c	75	83	117	5.0
Carbon Dioxide ^c	24,269	27,621	41,897	6.3

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

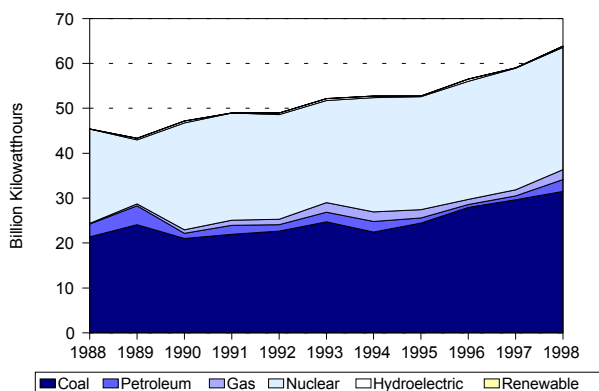


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

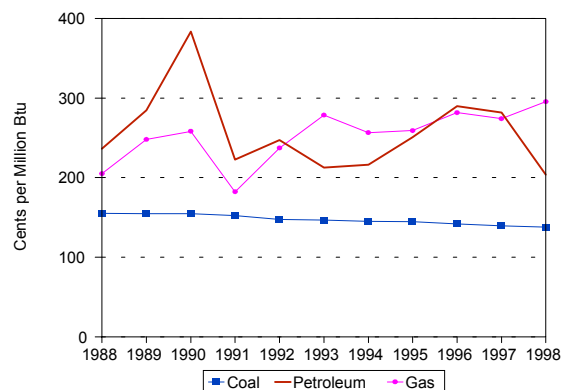


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

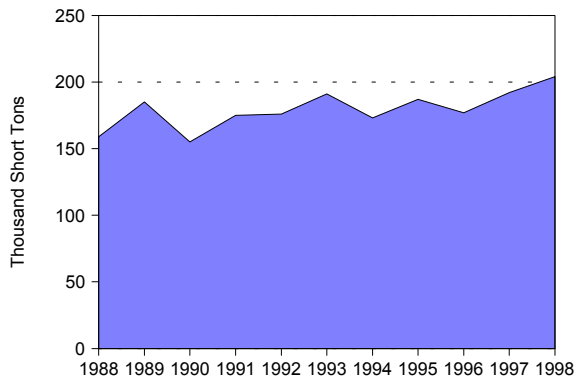


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

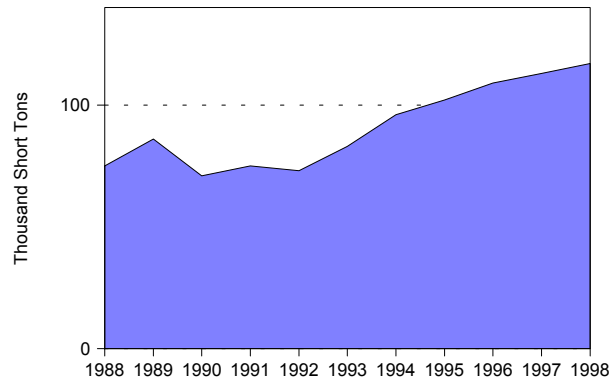


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

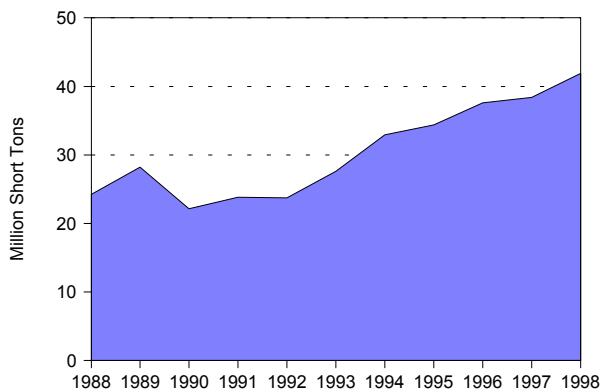


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	28,191,946	32,472,064	34,703,132	2.3	40.2	39.9	38.3
Commercial ..	18,767,531	22,726,975	26,176,251	3.8	26.8	27.9	28.9
Industrial	15,690,271	17,390,106	20,024,370	2.8	22.4	21.4	22.1
Other	7,465,352	8,782,636	9,704,770	3.0	10.6	10.8	10.7
Total	70,115,101	81,371,781	90,608,523	2.9	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

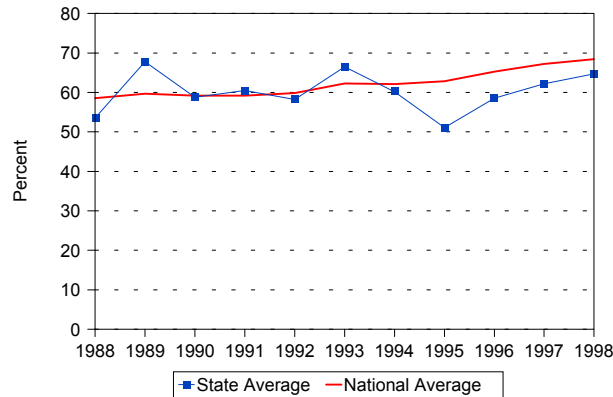


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
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 (million 1998 dollars) ^d	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
1993					
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 (million 1998 dollars) ^d	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
1998					
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 (million 1998 dollars) ^d	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

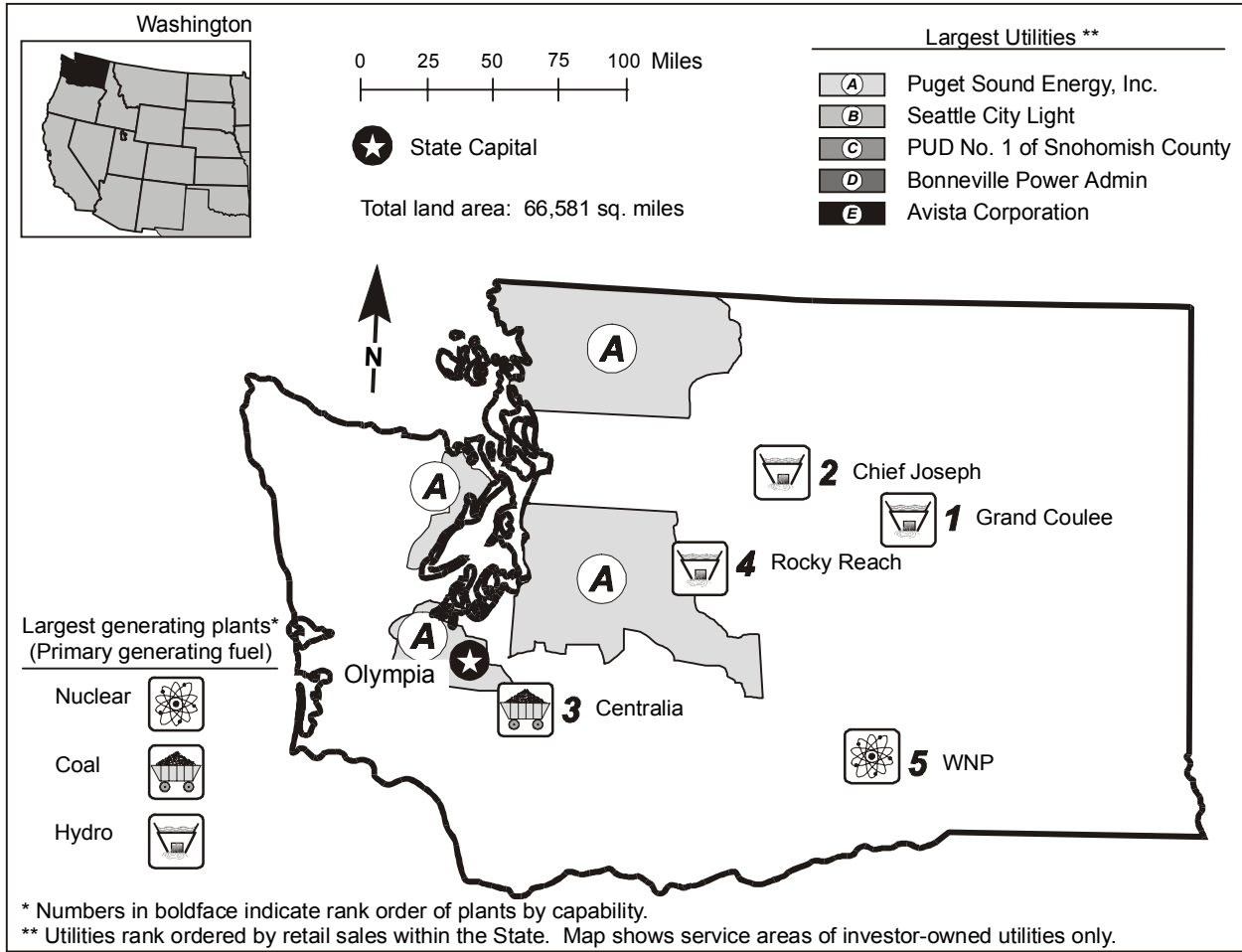


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC	Utility		
Net Exporter or Importer		Exporter	Capacity (MW)	25,235	8
Primary Generating Fuel		Hydro	Generation (MWh)	97,127,552	12
Population (as of 7/98)	5,687,832	15	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	4.03	2	Coal-fired	27	
Industrial	2.64	1	Petroleum-fired	25	
Commercial	4.81	2	Gas-fired	12	
Residential	5.03	1	Nuclear	14	
Industry			Hydroelectric	31	
Capacity (MW)	26,167	8	Renewable	9	
Generation (MWh)	102,074,362	12	Nonutility		
Capacity/person			Capacity (MW)	932	21
(KWe/person)	4.6	8	Share of Capacity (Percent) . . .	3.6	38
Generation/person			Generation (MWh)	4,946,810	17
(MWh/person)	17.95	14	Share of Generation (Percent) . .	4.8	33
Emissions (Thousand Short Tons)					
Sulfur Dioxide	64	33			
Nitrogen Oxide	52	37			
Carbon Dioxide	12,977	40			
Sulfur Dioxide/sq. mile (Tons)	0.96	36			
Nitrogen Oxides/sq. mile (Tons)	0.78	42			
Carbon Dioxide/sq. mile (Tons)	194.91	44			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Grand Coulee	Hydro	Bureau of Reclamation	7,079	57
2. Chief Joseph	Hydro	USCE-North Pacific Division	2,337	43
3. Centralia	Coal	PacifiCorp	1,340	26
4. Rocky Reach	Hydro	PUD No 1 of Chelan County	1,280	37
5. WNP	Nuclear	Washington Pub Pwr Supply Sys	1,123	14

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Puget Sound Energy, Inc	1,213	564	450	189	11
B. Seattle City Light	358	135	134	50	39
C. PUD No 1 of Snohomish County	279	161	86	31	2
D. Bonneville Power Admin	269	--	--	252	18
E. Avista Corporation	240	109	104	24	3
Total	2,358	968	774	545	71
Percentage of Utility Sales	64	61	72	61	54

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	24,146	24,259	25,235	0.5	98.1	97.1	96.4
Coal-fired	1,276	1,390	1,390	1.0	5.2	5.6	5.3
Petroleum-fired	173	173	62	-10.8	0.7	0.7	0.2
Gas-fired	--	--	248	--	--	--	0.9
Dual-fired	590	590	590	*	2.4	2.4	2.3
Nuclear	1,100	1,100	1,123	0.2	4.5	4.4	4.3
Hydroelectric	20,960	20,960	21,739	0.4	85.1	83.9	83.1
Renewable	47	46	83	6.6	0.2	0.2	0.3
Total Nonutility	479	731	932	7.7	1.9	2.9	3.6
Industry	24,625	24,990	26,167	0.7	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

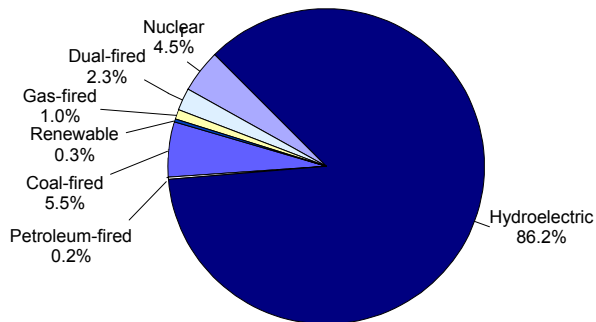


Figure 2. Utility Generation by Primary Energy Source, 1998

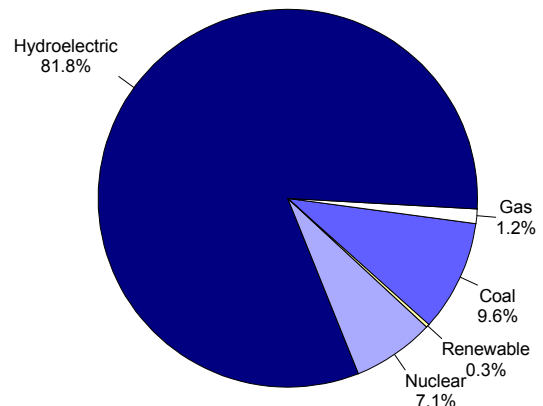


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	83,593,194	83,771,148	97,127,552	1.7	97.2	95.2	95.2
Coal	8,670,412	8,803,840	9,290,499	0.8	10.1	10.0	9.1
Petroleum	8,093	32,118	38,598	19.0	*	*	*
Gas	152,632	422,218	1,135,268	25.0	0.2	0.5	1.1
Nuclear	6,000,356	7,134,966	6,916,065	1.6	7.0	8.1	6.8
Hydroelectric	68,378,858	66,982,839	79,409,678	1.7	79.5	76.1	77.8
Renewable	382,843	395,167	337,444	-1.4	0.4	0.4	0.3
Total Nonutility Industry	2,385,540	4,204,638	4,946,810	8.4	2.8	4.8	4.8
Industry	85,978,734	87,975,786	102,074,362	1.9	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	155.2	136.0	148.7	-0.5
Petroleum	403.2	468.9	405.3	0.1
Gas	--	376.0	325.9	--

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	62	70	64	0.3
Nitrogen Oxides ^c	30	44	52	6.4
Carbon Dioxide ^c	9,945	9,982	12,977	3.0

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

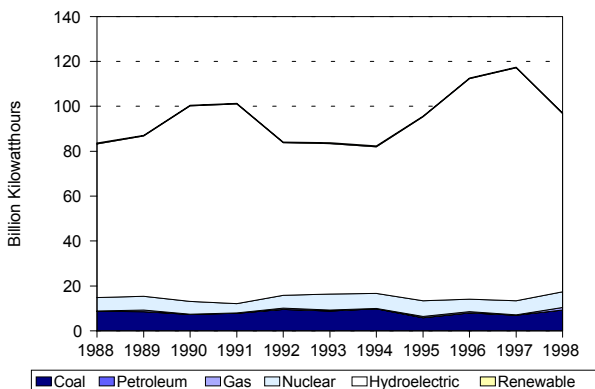


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

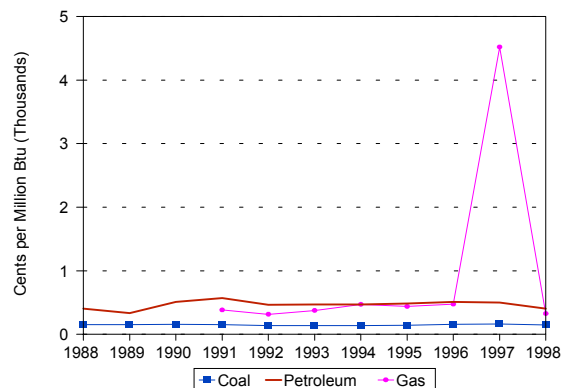


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

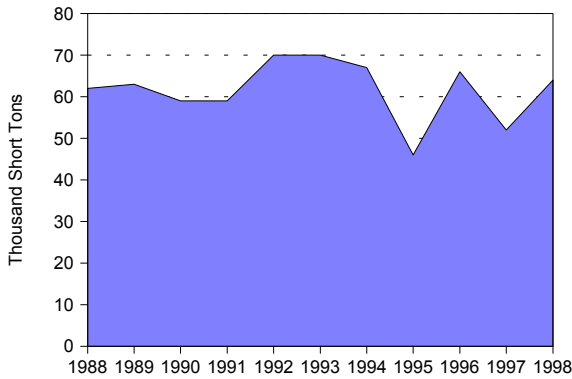


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

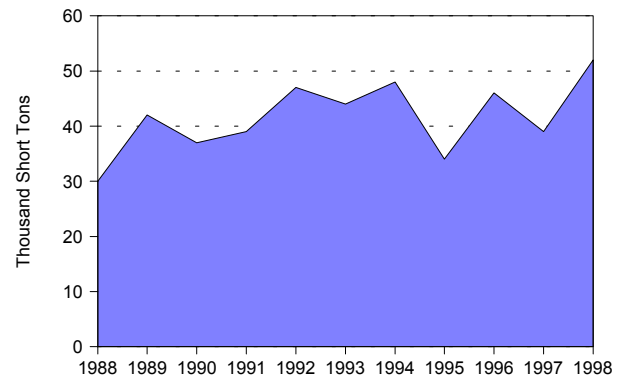


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

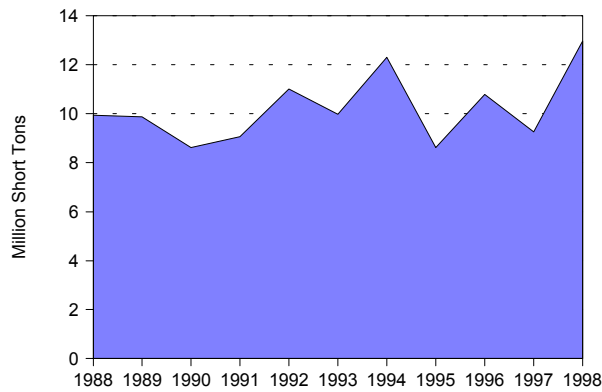


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	27,203,278	30,932,034	31,362,243	1.6	32.1	34.2	34.4
Commercial ..	16,921,896	19,530,991	22,234,549	3.1	19.9	21.6	24.4
Industrial	36,909,181	36,562,815	33,807,481	-1.0	43.5	40.4	37.1
Other	3,798,051	3,446,771	3,645,452	-0.4	4.5	3.8	4.0
Total	84,832,411	90,472,611	91,049,725	0.8	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

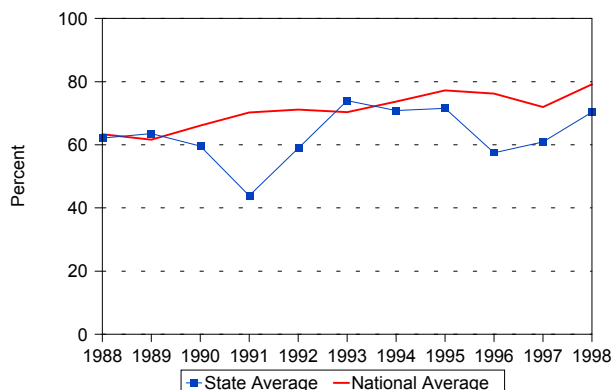


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	4	43	1	19	67
Number of Retail Customers	962,002	1,084,744	17	100,944	2,147,707
Retail Sales (MWh)	25,300,889	36,095,984	20,861,991	2,573,547	84,832,411
Percentage of Retail Sales	29.8	42.5	24.6	3.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,417	1,379	744	133	3,673
Percentage of Revenue	38.6	37.6	20.2	3.6	100.0
1993					
Number of Utilities	4	42	1	19	66
Number of Retail Customers	1,089,684	1,208,783	16	113,950	2,412,433
Retail Sales (MWh)	28,998,455	42,271,580	16,282,776	2,919,800	90,472,611
Percentage of Retail Sales	32.1	46.7	18.0	3.2	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,574	1,561	346	150	3,632
Percentage of Revenue	43.3	43.0	9.5	4.1	100.0
1998					
Number of Utilities	3	42	1	18	64
Number of Retail Customers	1,199,341	1,325,212	13	132,209	2,656,775
Retail Sales (MWh)	29,658,828	43,583,563	14,507,842	3,299,492	91,049,725
Percentage of Retail Sales	32.6	47.9	15.9	3.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,636	1,610	269	154	3,670
Percentage of Revenue	44.6	43.9	7.3	4.2	100.0

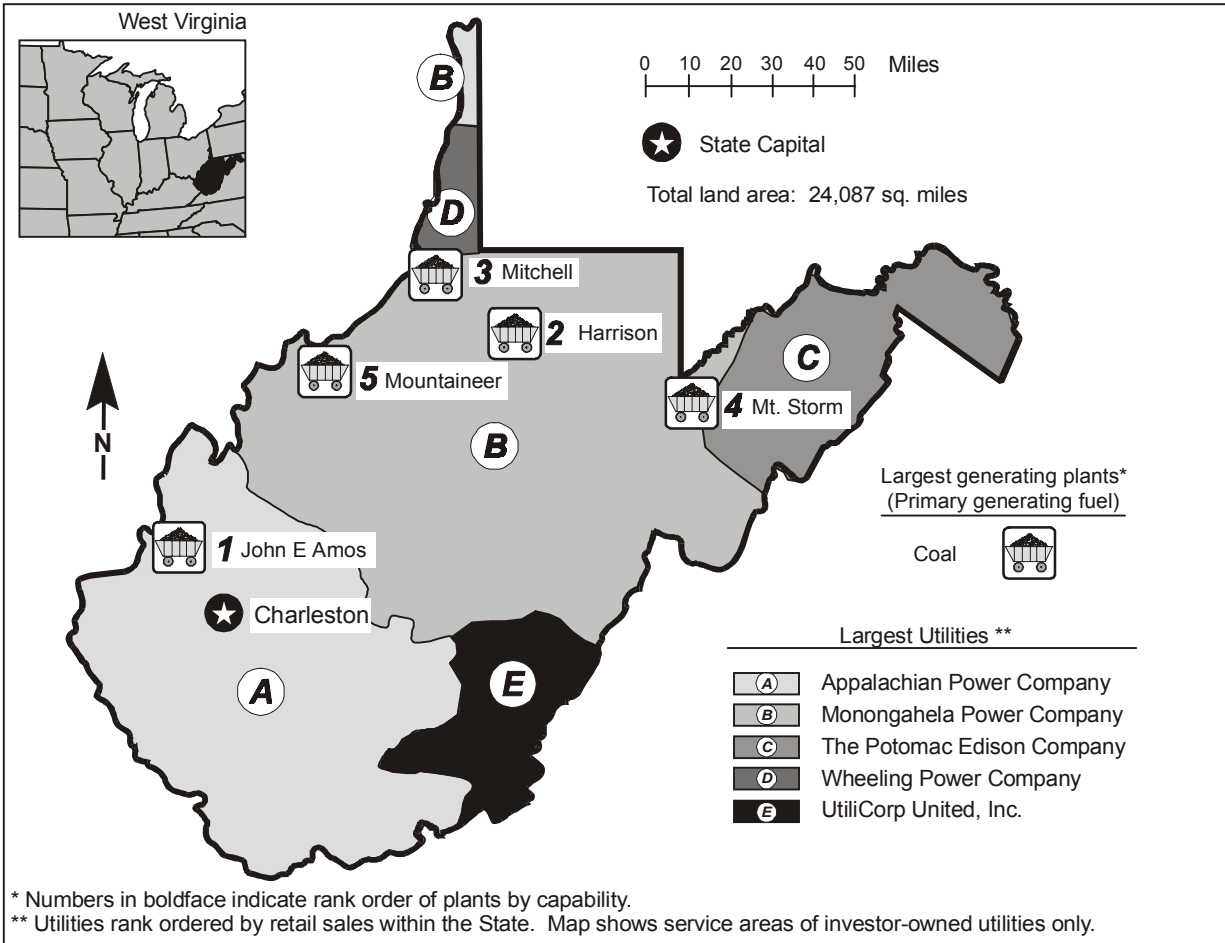


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		ECAR	Utility		
Net Exporter or Importer		Exporter	Capacity (MW)	14,495	20
Primary Generating Fuel		Coal	Generation (MWh)	89,605,447	14
Population (as of 7/98)	1,811,688	35	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.07	7	Coal-fired	28	
Industrial	3.78	11	Petroleum-fired	31	
Commercial	5.56	7	Hydroelectric	68	
Residential	6.29	6	Nonutility		
Industry			Capacity (MW)	570	30
Capability (MW)	15,065	22	Share of Capability (Percent) . . .	3.8	37
Generation (MWh)	92,822,187	15	Generation (MWh)	3,216,740	29
Capability/person			Share of Generation (Percent) . .	3.5	37
(KWe/person)	8.32	2			
Generation/person					
(MWh/person)	51.24	2			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	853	3			
Nitrogen Oxide	311	8			
Carbon Dioxide	91,161	7			
Sulfur Dioxide/sq. mile (Tons)	35.41	1			
Nitrogen Oxides/sq. mile (Tons)	12.9	3			
Carbon Dioxide/sq. mile (Tons)	3,784.64	3			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. John E Amos	Coal	Appalachian Power Co	2,900	27
2. Harrison	Coal	Monongahela Power Co	1,920	26
3. Mitchell	Coal	Ohio Power Co	1,600	27
4. Mt Storm	Coal	Virginia Electric & Power Co	1,599	33
5. Mountaineer (1301)	Coal	Appalachian Power Co	1,300	18

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Appalachian Power Company	598	259	162	174	3
B. Monongahela Power Company	482	185	116	179	2
C. The Potomac Edison Company	136	74	33	29	1
D. Wheeling Power Company	84	25	20	37	1
E. UtiliCorp United, Inc	28	17	9	2	1
Total	1,328	559	340	421	8
Percentage of Utility Sales	99	98	99	100	92

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	14,499	14,448	14,495	*	95.2	95.5	96.2
Coal-fired	14,304	14,328	14,381	0.1	93.9	94.7	95.5
Petroleum-fired	12	12	12	*	0.1	0.1	0.1
Hydroelectric	183	108	102	-6.3	1.2	0.7	0.7
Total Nonutility	729	675	570	-2.7	4.8	4.5	3.8
Industry	15,228	15,122	15,065	-0.1	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Plant Type, 1998

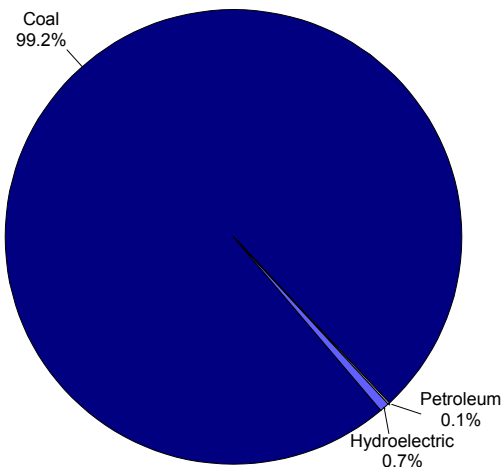


Figure 2. Utility Generation by Primary Energy Source, 1998

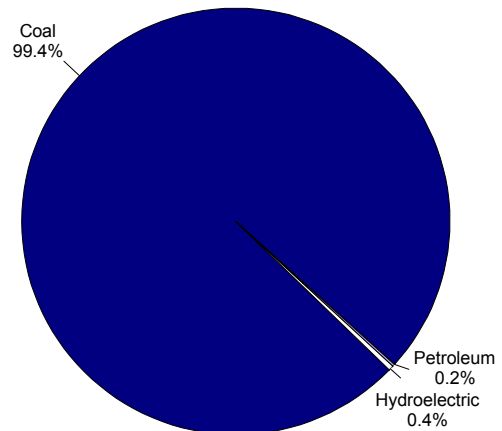


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	81,314,288	71,078,069	89,605,447	1.1	96.6	95.1	96.5
Coal	80,746,611	70,491,516	89,007,644	1.1	96.0	94.3	95.9
Petroleum	260,355	210,975	194,277	-3.2	0.3	0.3	0.2
Gas	9,827	13,461	42,195	17.6	*	*	*
Hydroelectric	297,495	362,117	361,331	2.2	0.4	0.5	0.4
Total Nonutility	2,833,493	3,671,094	3,216,740	1.4	3.4	4.9	3.5
Industry	84,147,781	74,749,163	92,822,187	1.1	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	144.1	141.8	122.2	-1.8
Petroleum	395.8	461.9	370.9	-0.7
Gas	389.2	435.5	351.4	-1.1

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	947	1,017	853	-1.2
Nitrogen Oxides ^c	328	270	311	-0.6
Carbon Dioxide ^c	80,872	70,847	91,161	1.3

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

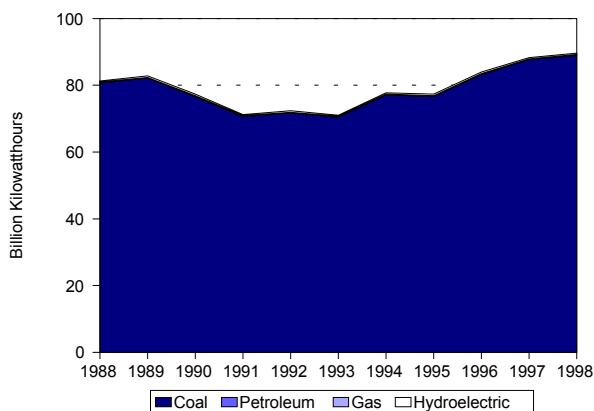


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

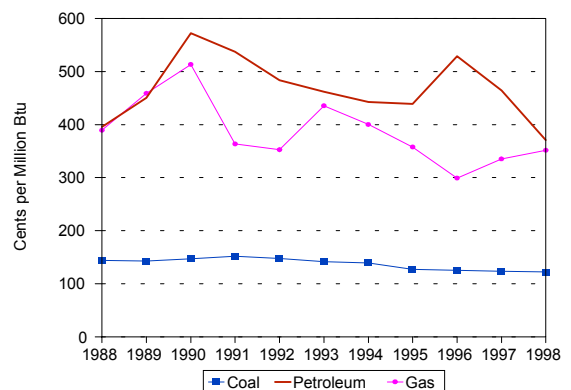


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

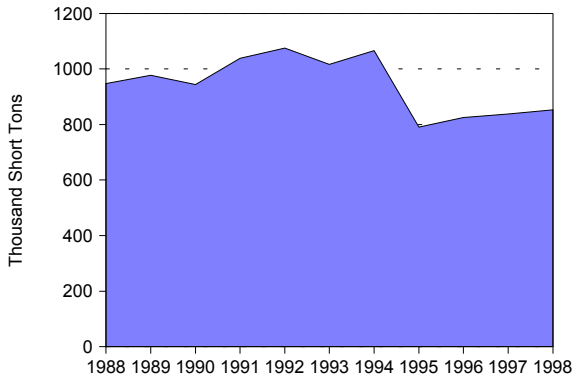


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

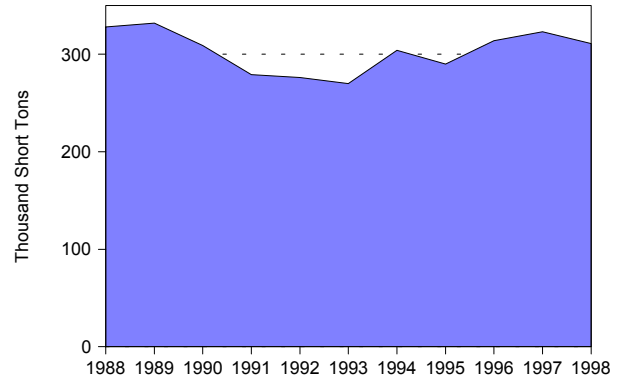


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

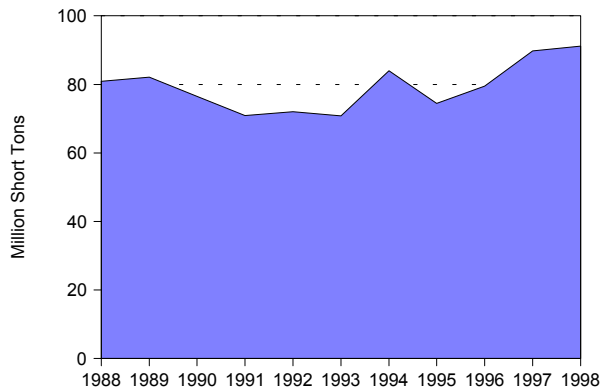


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	7,548,776	8,682,375	9,053,002	2.0	33.7	35.5	34.1
Commercial ..	4,823,408	5,480,458	6,207,810	2.8	21.5	22.4	23.4
Industrial	9,925,196	10,187,147	11,161,136	1.3	44.3	41.7	42.1
Other	90,590	91,545	89,313	-0.2	0.4	0.4	0.3
Total	22,387,970	24,441,525	26,511,261	1.9	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

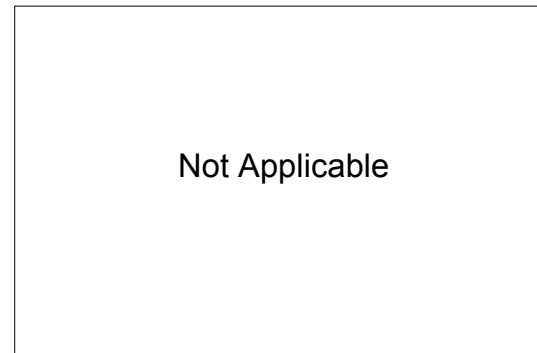


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	13	2	--	3	18
Number of Retail Customers	832,918	3,477	--	7,430	843,825
Retail Sales (MWh)	22,275,510	54,566	--	57,894	22,387,970
Percentage of Retail Sales	99.5	0.2	--	0.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,352	4	--	6	1,361
Percentage of Revenue	99.3	0.3	--	0.4	100.0
	1993				
Number of Utilities	12	2	--	3	17
Number of Retail Customers	876,626	3,504	--	7,777	887,907
Retail Sales (MWh)	24,315,551	55,216	--	70,758	24,441,525
Percentage of Retail Sales	99.5	0.2	--	0.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,394	4	--	7	1,405
Percentage of Revenue	99.2	0.3	--	0.5	100.0
	1998				
Number of Utilities	12	2	--	3	17
Number of Retail Customers	923,193	3,487	--	8,365	935,045
Retail Sales (MWh)	26,372,311	58,541	--	80,409	26,511,261
Percentage of Retail Sales	99.5	0.2	--	0.3	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	1,334	4	--	7	1,345
Percentage of Revenue	99.2	0.3	--	0.5	100.0

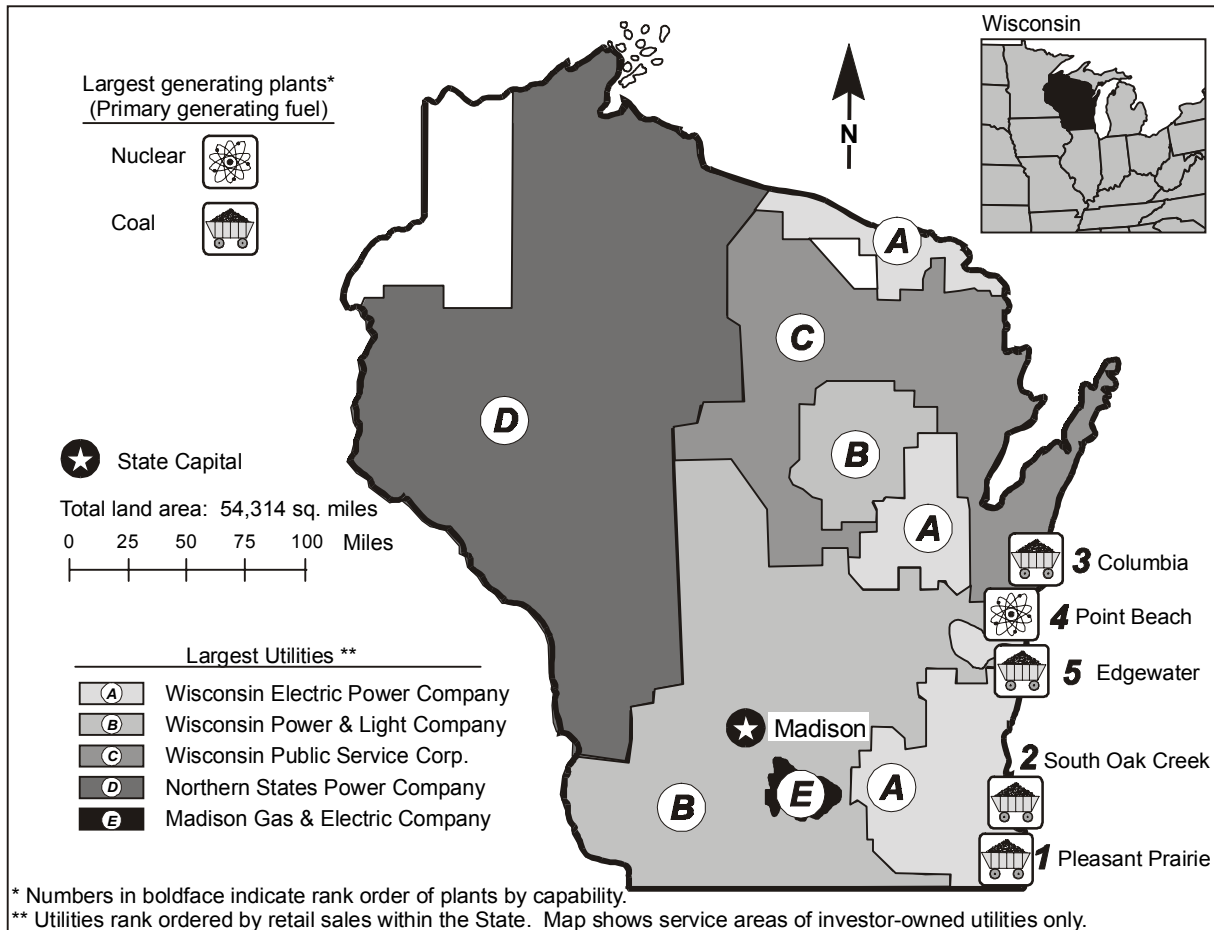


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		MAIN/MAPP	Utility		
Net Exporter or Importer		Importer	Capacity (MW)	11,863	24
Primary Generating Fuel		Coal	Generation (MWh)	52,529,065	22
Population (as of 7/98)	5,222,124	18	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	5.44	12	Coal-fired	28	
Industrial	3.86	13	Petroleum-fired	25	
Commercial	5.87	12	Gas-fired	14	
Residential	7.17	19	Nuclear	26	
Industry			Hydroelectric	55	
Capacity (MW)	12,759	24	Renewable	47	
Generation (MWh)	56,355,885	22	Nonutility		
Capacity/person			Capacity (MW)	896	22
(KWe/person)	2.44	35	Share of Capacity (Percent)	7	25
Generation/person			Generation (MWh)	3,826,820	25
(MWh/person)	10.79	34	Share of Generation (Percent)	6.8	27
Emissions (Thousand Short Tons)					
Sulfur Dioxide	209	18			
Nitrogen Oxide	195	14			
Carbon Dioxide	49,092	20			
Sulfur Dioxide/sq. mile (Tons)	3.85	25			
Nitrogen Oxides/sq. mile (Tons)	3.58	21			
Carbon Dioxide/sq. mile (Tons)	903.86	27			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Pleasant Prairie	Coal	Wisconsin Electric Power Co	1,202	18
2. South Oak Creek	Coal	Wisconsin Electric Power Co	1,155	39
3. Columbia	Coal	Wisconsin Power & Light Co	1,070	23
4. Point Beach	Nuclear	Wisconsin Electric Power Co	1,016	29
5. Edgewater	Coal	Wisconsin Power & Light Co	832	47

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Wisconsin Electric Power Co	1,416	559	478	365	14
B. Wisconsin Power & Light Co	465	195	107	158	5
C. Wisconsin Public Service Corp	417	161	138	114	4
D. Northern States Power Company	296	118	57	118	4
E. Madison Gas & Electric Company	167	59	82	12	14
Total	2,762	1,092	862	767	41
Percentage of Utility Sales	82	80	91	76	80

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	10,713	10,938	11,863	1.1	94.3	95.5	93.0
Coal-fired	7,283	7,276	7,198	-0.1	64.1	63.6	56.4
Petroleum-fired	770	799	854	1.1	6.8	7.0	6.7
Gas-fired	54	246	235	17.7	0.5	2.1	1.8
Dual-fired	549	577	1,579	12.4	4.8	5.0	12.4
Nuclear	1,500	1,496	1,494	*	13.2	13.1	11.7
Hydroelectric	456	440	443	-0.3	4.0	3.8	3.5
Renewable	100	104	61	-5.4	0.9	0.9	0.5
Total Nonutility	649	511	896	3.6	5.7	4.5	7.0
Industry	11,363	11,449	12,759	1.3	100.0	100.0	100.00

Figure 1. Utility Generating Capability by Plant Type, 1998

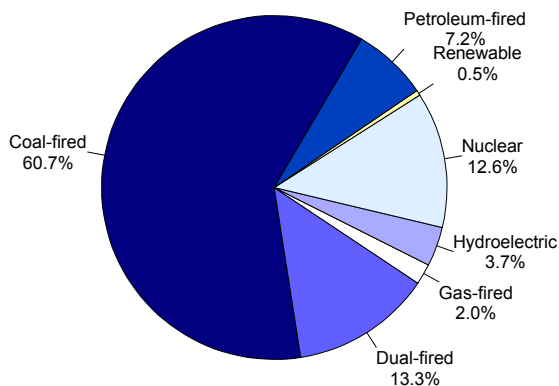


Figure 2. Utility Generation by Primary Energy Source, 1998

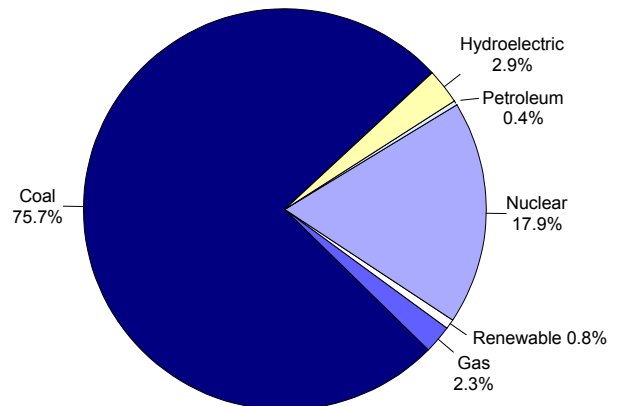


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	45,002,806	47,762,861	52,529,065	1.7	95.3	95.1	93.2
Coal	31,867,453	33,558,049	39,785,759	2.5	67.5	66.8	70.6
Petroleum	96,786	105,173	200,225	8.4	0.2	0.2	0.4
Gas	180,128	224,276	1,187,522	23.3	0.4	0.4	2.1
Nuclear	11,464,455	11,464,574	9,397,174	-2.2	24.3	22.8	16.7
Hydroelectric	1,230,168	2,191,053	1,517,765	2.4	2.6	4.4	2.7
Renewable	163,815	219,736	440,620	11.6	0.3	0.4	0.8
Total Nonutility Industry	2,215,107	2,474,440	3,826,820	6.3	4.7	4.9	6.8
Industry	47,217,913	50,237,301	56,355,885	2.0	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	146.4	121.0	107.4	-3.4
Petroleum	364.5	408.7	348.9	-0.5
Gas	325.2	263.0	264.1	-2.3

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	297	182	209	-3.8
Nitrogen Oxides ^c	170	164	195	1.5
Carbon Dioxide ^c	36,526	37,827	49,092	3.3

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

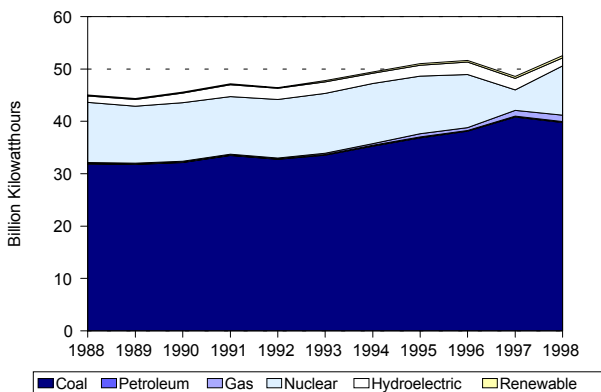


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

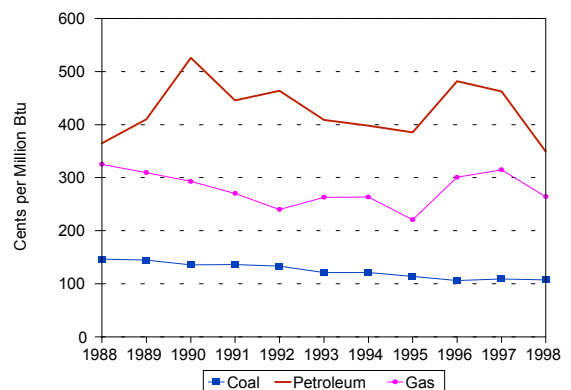


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

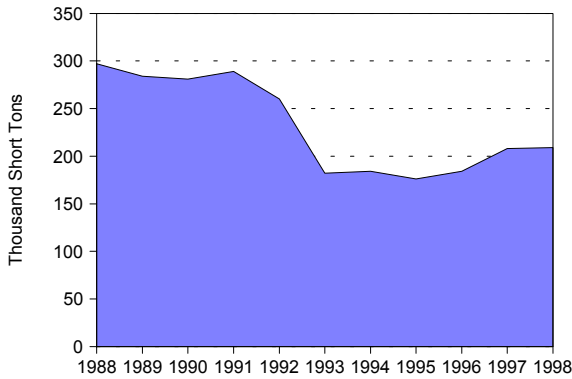


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

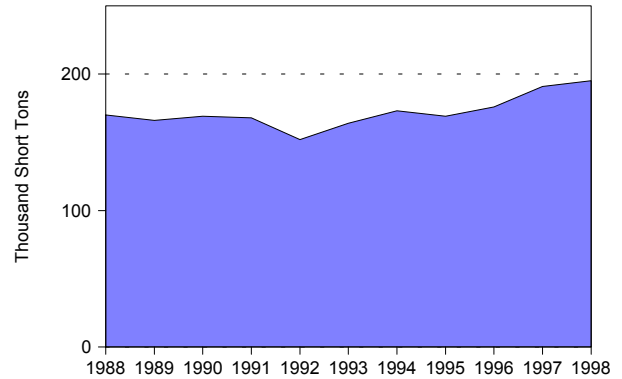


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

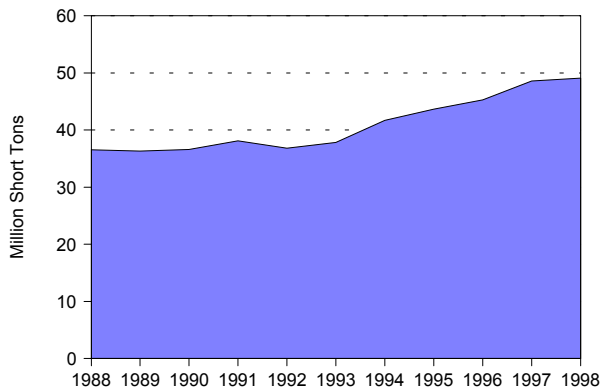


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	16,383,114	17,373,396	19,087,369	1.7	34.2	32.7	30.8
Commercial ..	12,136,676	13,710,449	16,192,557	3.3	25.4	25.8	26.1
Industrial	18,551,902	21,410,441	26,040,150	3.8	38.8	40.3	42.0
Other	794,029	662,116	741,145	-0.8	1.7	1.3	1.2
Total	47,865,729	53,156,402	62,061,221	2.9	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

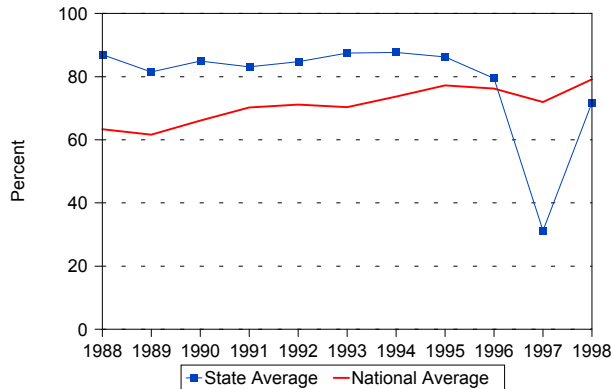


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	13	82	--	28	123
Number of Retail Customers	1,824,960	200,780	--	173,496	2,199,236
Retail Sales (MWh)	40,876,777	4,730,282	--	2,258,670	47,865,729
Percentage of Retail Sales	85.4	9.9	--	4.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,829	295	--	204	3,328
Percentage of Revenue	85	8.9	--	6.1	100.0
1993					
Number of Utilities	12	82	--	26	120
Number of Retail Customers	1,938,349	215,026	--	188,928	2,342,303
Retail Sales (MWh)	44,872,447	5,817,386	--	2,466,569	53,156,402
Percentage of Retail Sales	84.4	10.9	--	4.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,720	310	--	202	3,232
Percentage of Revenue	84.2	9.6	--	6.3	100.0
1998					
Number of Utilities	12	82	--	26	120
Number of Retail Customers	2,090,032	235,020	--	211,664	2,536,716
Retail Sales (MWh)	52,241,855	6,992,375	--	2,826,991	62,061,221
Percentage of Retail Sales	84.2	11.3	--	4.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	2,844	329	--	203	3,376
Percentage of Revenue	84.2	9.7	--	6.0	100.0

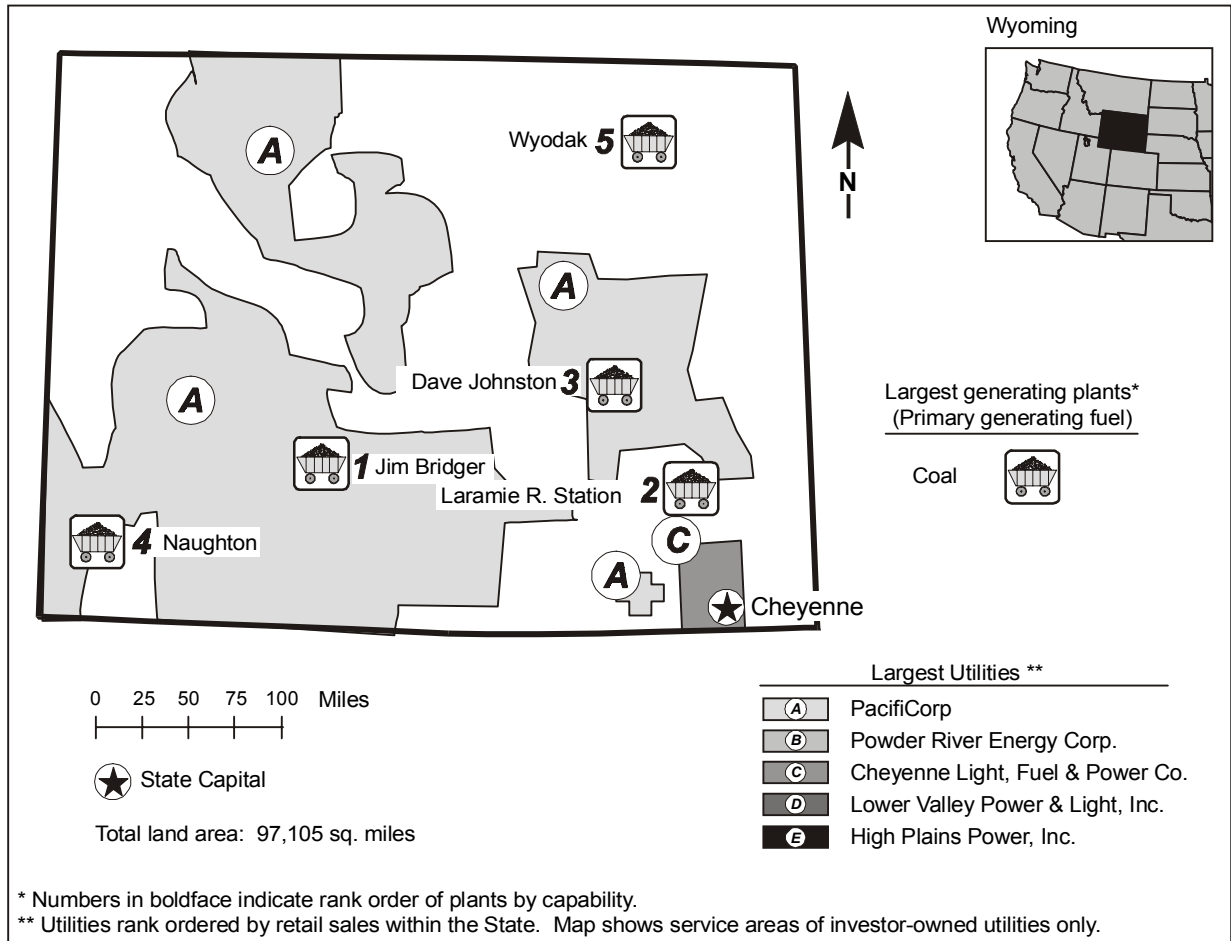


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC	Utility		
Net Exporter or Importer		Exporter	Capacity (MW)	6,018	33
Primary Generating Fuel		Coal	Generation (MWh)	44,699,071	26
Population (as of 7/98)	480,045	51	Average Age of Plants (years)		
Average Electricity Price (cents/kWh) ^a	4.31	4	Coal-fired	22	
Industrial	3.38	5	Petroleum-fired	35	
Commercial	5.25	4	Hydroelectric	43	
Residential	6.28	5	Nonutility		
Industry			Capacity (MW)	95	46
Capability (MW)	6,112	36	Share of Capability (Percent) ...	1.5	43
Generation (MWh)	45,347,670	30	Generation (MWh)	648,599	43
Capability/person			Share of Generation (Percent) ..	1	43
(KWe/person)	12.73	1			
Generation/person					
(MWh/person)	94.47	1			
Emissions (Thousand Short Tons)					
Sulfur Dioxide	91	29			
Nitrogen Oxide	191	16			
Carbon Dioxide	49,575	19			
Sulfur Dioxide/sq. mile (Tons)	0.94	37			
Nitrogen Oxides/sq. mile (Tons)	1.96	30			
Carbon Dioxide/sq. mile (Tons)	510.53	32			

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Jim Bridger	Coal	PacifiCorp	2,110	24
2. Laramie R Station	Coal	Basin Electric Power Coop	1,668	17
3. Dave Johnston	Coal	PacifiCorp	772	39
4. Naughton	Coal	PacifiCorp	700	35
5. Wyodak	Coal	PacifiCorp	335	20

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. PacifiCorp	275	50	51	171	3
B. Powder River Energy Corp	56	9	21	27	--
C. Cheyenne Light Fuel & Power Co	37	12	14	11	1
D. Lower Valley Power & Light Inc	24	14	10	--	--
E. High Plains Power, Inc	23	8	4	11	--
Total	416	92	99	220	4
Percentage of Utility Sales	83	73	76	94	40

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	5,682	5,869	6,018	0.6	100.0	100.0	100.0
Coal-fired	5,410	5,567	5,710	0.6	95.2	94.9	94.9
Petroleum-fired	18	15	10	-6.0	0.3	0.3	0.2
Hydroelectric	251	287	298	1.9	4.4	4.9	4.9
Renewable	4	--	--	--	0.1	--	--
Total Nonutility	W	W	95	--	--	--	--
Industry	W	W	6,112	--	--	--	--

Figure 1. Utility Generating Capability by Plant Type, 1998

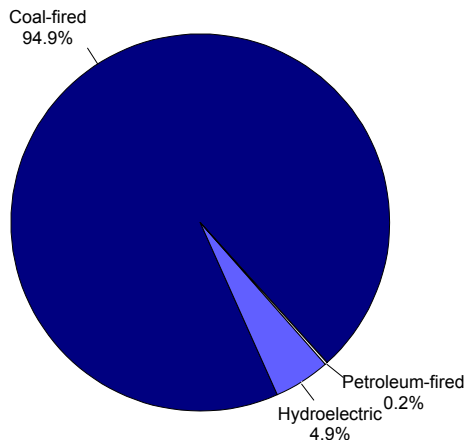


Figure 2. Utility Generation by Primary Energy Source, 1998

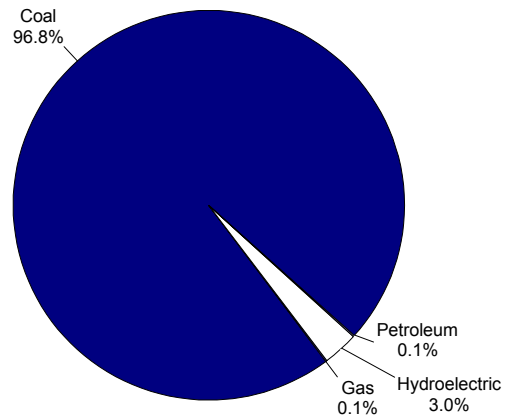


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	39,147,353	40,154,595	44,699,071	1.5	100.0	100.0	100.0
Coal	38,278,681	39,301,199	43,287,140	1.4	97.8	97.9	96.8
Petroleum	61,832	56,970	42,871	-4.0	0.2	0.1	0.1
Gas	18,018	8,999	26,738	4.5	*	*	0.1
Hydroelectric	788,959	787,427	1,342,322	6.1	2.0	2.0	3.0
Renewable	-138	--	--	--	*	--	--
Total Nonutility Industry	W	W	648,599	--	--	--	--
	W	W	45,347,670	--	--	--	--

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	84.0	79.9	78.6	-0.7
Petroleum	379.7	473.0	405.5	0.7
Gas	367.9	329.7	796.0	8.9

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	111	76	91	-2.2
Nitrogen Oxides ^c	175	171	191	1.0
Carbon Dioxide ^c	43,307	44,276	49,575	1.5

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

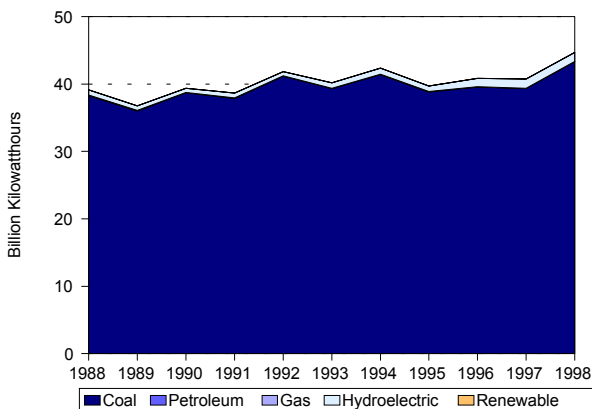


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

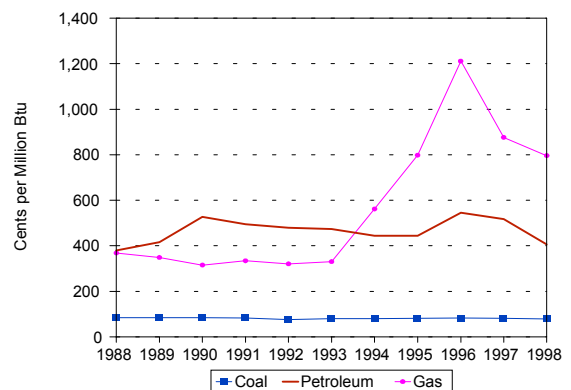


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

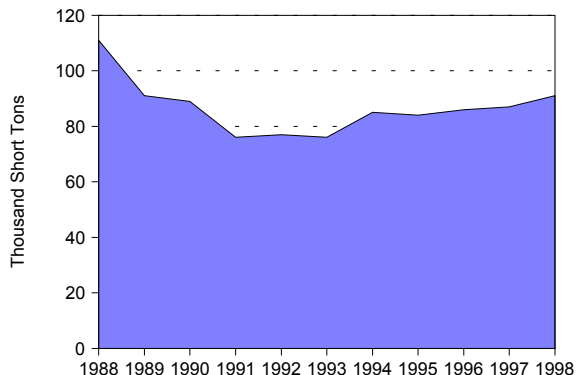


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

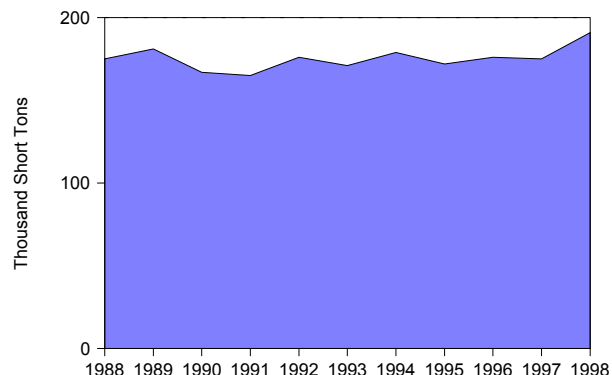


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

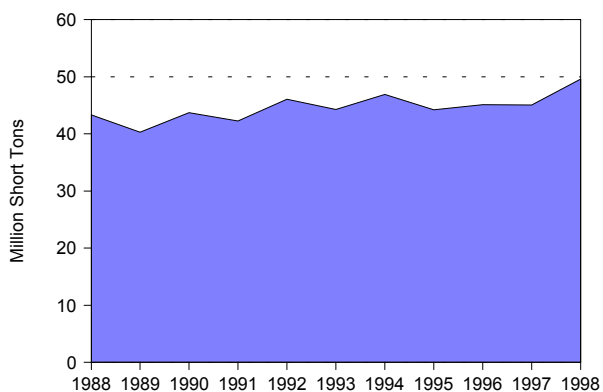


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential . . .	1,764,027	1,906,135	2,012,635	1.5	16.1	16.0	17.3
Commercial ..	2,061,654	2,493,448	2,490,006	2.1	18.8	21.0	21.4
Industrial	6,980,458	7,363,451	6,950,163	*	63.7	61.9	59.7
Other	158,150	122,153	187,762	1.9	1.4	1.0	1.6
Total	10,964,289	11,885,187	11,640,566	0.7	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

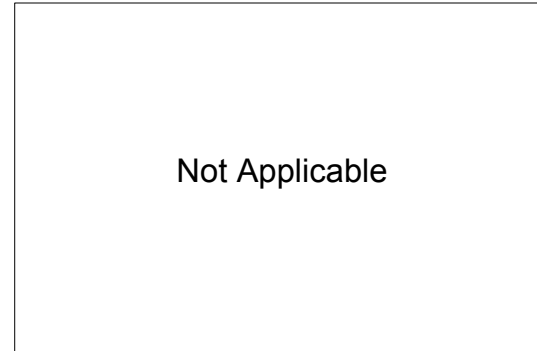


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	7	12	1	17	37
Number of Retail Customers	174,467	22,046	8	47,903	244,424
Retail Sales (MWh)	8,538,593	371,535	29,623	2,024,538	10,964,289
Percentage of Retail Sales	77.9	3.4	0.3	18.5	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	436	24	--	144	604
Percentage of Revenue	72.2	3.9	--	23.9	100.0
1993					
Number of Utilities	6	13	1	17	37
Number of Retail Customers	174,175	22,900	6	50,781	247,862
Retail Sales (MWh)	9,318,930	401,476	26,128	2,138,653	11,885,187
Percentage of Retail Sales	78.4	3.4	0.2	18.0	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	398	24	--	133	556
Percentage of Revenue	71.6	4.4	0.1	24.0	100.0
1998					
Number of Utilities	5	13	1	16	35
Number of Retail Customers	169,298	24,721	7	73,425	267,451
Retail Sales (MWh)	8,437,688	449,777	26,407	2,726,694	11,640,566
Percentage of Retail Sales	72.5	3.9	0.2	23.4	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	337	26	--	139	502
Percentage of Revenue	67.1	5.2	0.1	27.7	100.0

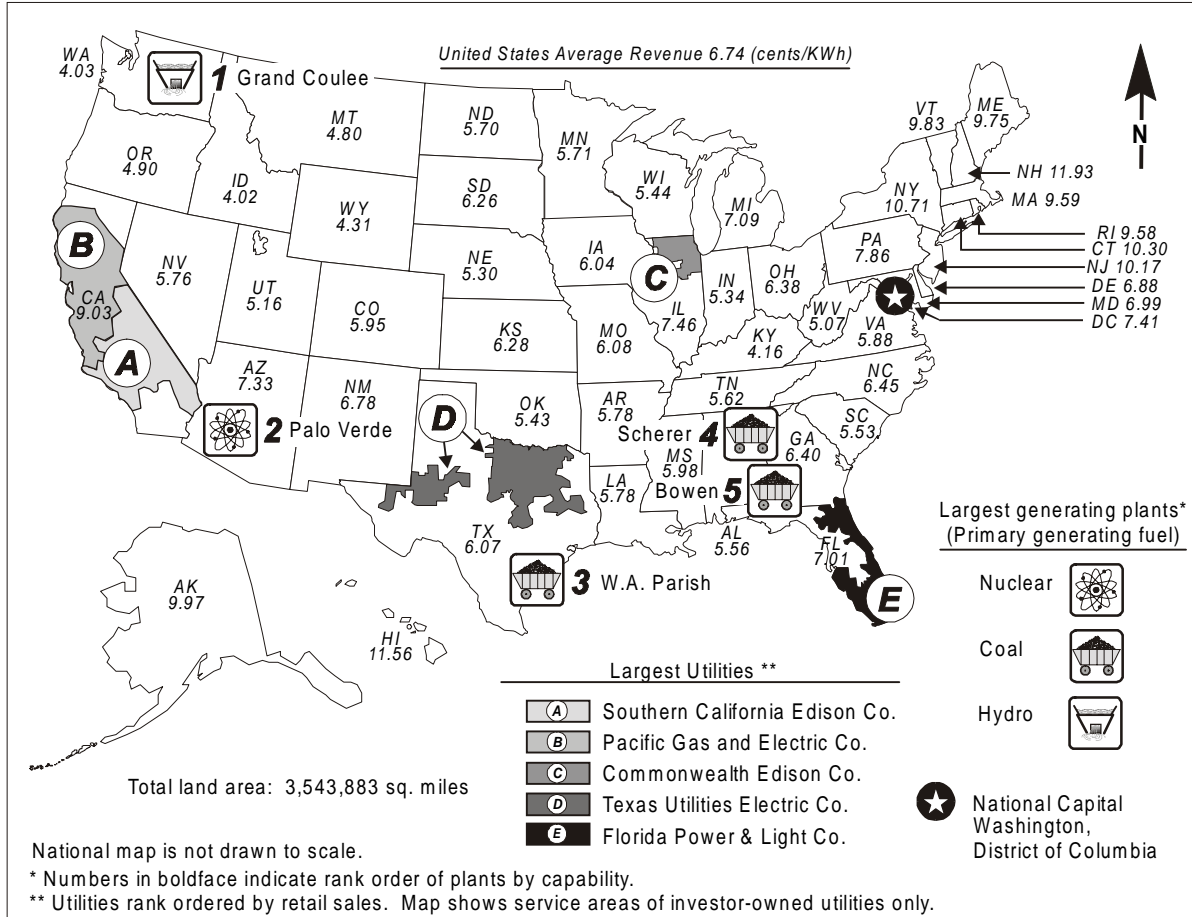


Table 1. 1998 U.S. Summary Statistics

Item	Value	Highest	Lowest
Primary Generating Fuel	Coal	--	--
Population (as of 7/98)	270,248,003	CA	WY
Average Electricity Price (cents/kWh)	6.74	NH	ID
Industrial (cents/kWh)	4.48	NH	WA
Commercial (cents/kWh)	7.41	HI	ID
Residential (cents/kWh)	8.26	NH	WA
INDUSTRY			
Capability (MWe)	775,884	TX	DC
Generation (MWh)	3,617,873,059	TX	DC
Capability/person (KWe/person)	2.87	WY	RI
Generation/person (MWh/person)	13,387.23	WY	DC
Emissions (Thousand Short Tons)			
Sulfur Dioxide	12,433	OH	VT
Nitrogen Oxide	7,902	TX	VT
Carbon Dioxide	2,455,267	TX	VT
Sulfur Dioxide/sq. mile (Tons)	3.51	WV	ID
Nitrogen Oxides/sq. mile (Tons)	2.23	IN	VT
Carbon Dioxide/sq. mile (Tons)	694.07	DC	ID
UTILITY			
Capability (MW)	686,692	TX	RI
Generation (MWh)	3,212,170,791	TX	DC
NONUTILITY			
Capability (MW)	89,193	CA	NE
Share of Capability (Percent)	3,051.60	RI	SD
Generation (MWh)	405,702,268	CA	NE
Share of Generation (Percent)	11	RI	SD

Table 2. Five Largest Plants, 1998

Plant	Energy Source ^b	Operating Company	Net Capability (MW)	Age (Years)
1. Grand Coulee	Hydro	Bureau of Reclamation	7,079	57
2. Palo Verde	Nuclear	Arizona Public Service Co	3,733	12
3. W A Parish	Coal, Gas	Houston Lighting & Power Co	3,654	40
4. Scherer	Coal	Georgia Power Co	3,443	16
5. Bowen	Coal	Georgia Power Co	3,302	27

Table 3. Top Five Utilities Ranked by Retail Sales Revenue Within the State, 1998
(Million Dollars)

Utility	All Sectors	Residential	Commercial	Industrial	Other
A. Southern California Edison Co	7,105	2,777	2,726	1,526	76
B. Pacific Gas and Electric Co	7,032	2,891	3,138	931	72
C. Commonwealth Edison Company ...	6,687	2,552	2,188	1,407	541
D. Texas Utilities Electric Co	6,135	2,854	1,861	982	439
E. Florida Power & Light Company	6,097	3,579	2,239	197	82
Total	33,057	14,653	12,151	5,042	1,210
Percentage of Utility Sales	15	16	17	11	18

Table 4. Electric Power Industry Generating Capability by Plant Type, 1988, 1993, and 1998
(Megawatts Electric)

Plant Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	677,654	699,971	686,692	0.1	92.6	92.7	88.5
Coal-fired	294,685	300,795	299,739	0.2	40.3	39.8	38.6
Petroleum-fired	54,983	47,815	39,752	-3.5	7.5	6.3	5.1
Gas-fired	16,080	17,027	26,232	5.6	2.2	2.3	3.4
Dual-fired	124,802	137,172	127,183	0.2	17.1	18.2	16.4
Nuclear	94,695	99,041	97,070	0.3	12.9	13.1	12.5
Hydroelectric	90,284	95,910	94,424	0.5	12.3	12.7	12.2
Renewable	2,124	2,211	2,293	0.9	0.3	0.3	0.3
Total Nonutility	54,067	54,984	89,193	5.7	7.4	7.3	11.5
Industry	731,721	754,955	775,885	0.6	100.0	100.0	100.0

Figure 1. Utility Generating Capability by Primary Energy Source, 1998

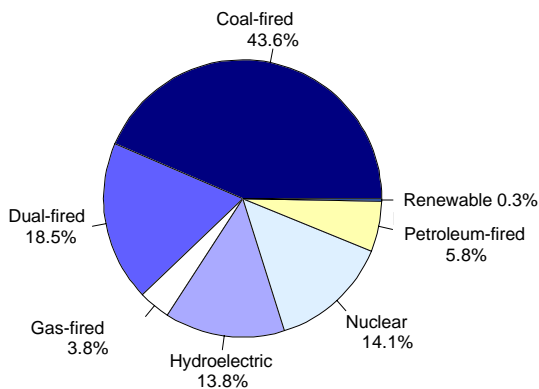


Figure 2. Utility Generation by Primary Energy Source, 1998

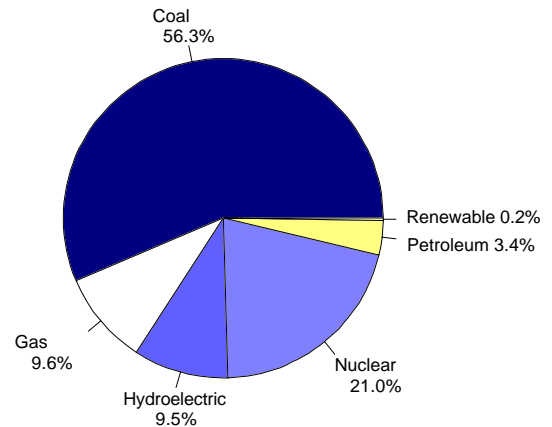


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Total Utility	2,704,250,058	2,882,524,766	3,212,170,791	1.9	90.5	90.2	88.8
Coal	1,540,652,774	1,639,151,186	1,807,479,829	1.8	51.6	51.3	50.0
Petroleum	148,899,561	99,538,857	110,157,895	-3.3	5.0	3.1	3.0
Gas	252,800,704	258,915,301	309,222,404	2.3	8.5	8.1	8.5
Nuclear	526,973,047	610,291,214	673,702,104	2.8	17.6	19.1	18.6
Hydroelectric	222,939,683	265,062,757	304,402,562	3.5	7.5	8.3	8.4
Renewable	11,984,288	9,565,451	7,205,997	-5.5	0.4	0.3	0.2
Total Nonutility	283,944,270	314,399,053	405,702,268	4.0	9.5	9.8	11.2
Industry	2,988,194,328	3,196,923,819	3,617,873,059	2.1	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988, 1993, and 1998
(Cents per Million Btu, 1998 Dollars)

Fuel	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Coal	146.6	138.5	125.2	-1.7
Petroleum	243.9	243.3	213.6	-1.5
Gas	226.3	256.0	238.1	0.6

Table 7. Electric Power Industry Emissions Estimates, 1988, 1993, and 1998
(Thousand Short Tons)

Emission Type	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)
Sulfur Dioxide	15,713	14,986	12,433	-2.6
Nitrogen Oxides ^c	7,170	7,052	7,902	1.1
Carbon Dioxide ^c	1,908,681	1,988,724	2,455,267	2.8

Figure 3. Utility Generation of Electricity by Primary Energy Source, 1988-1998

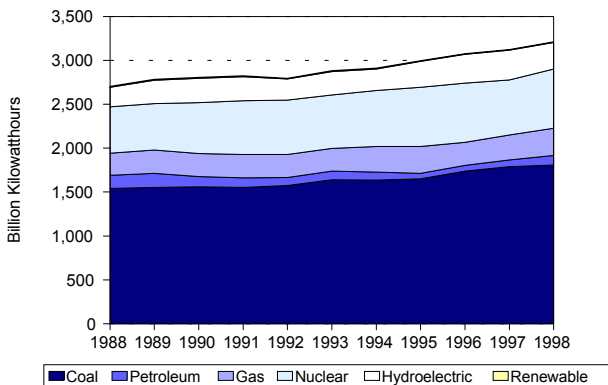


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998 (1998 Dollars)

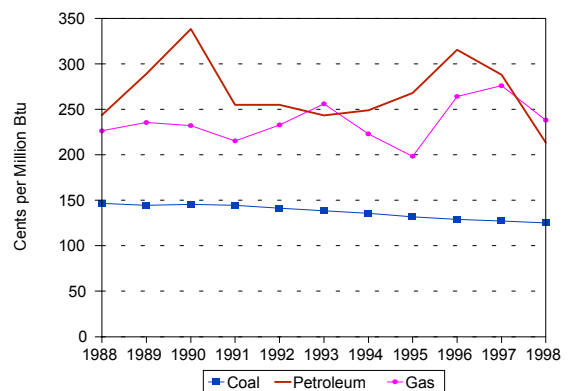


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

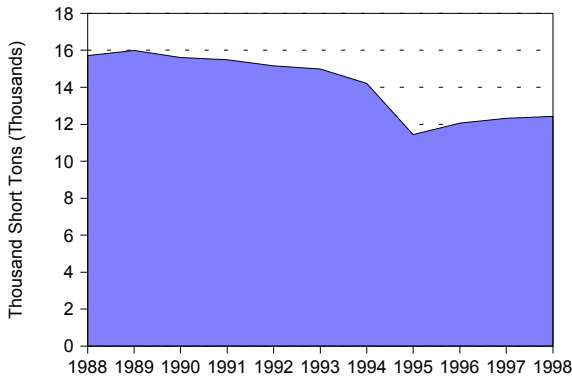


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

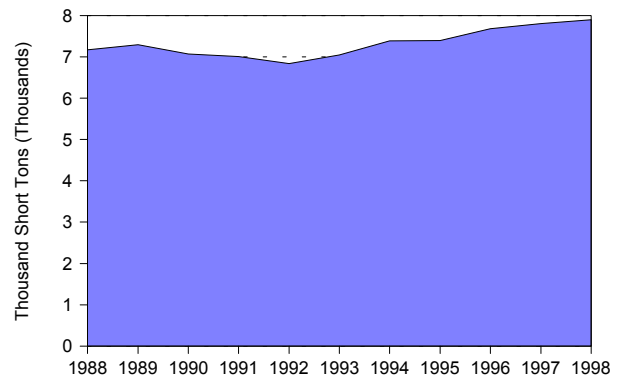


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

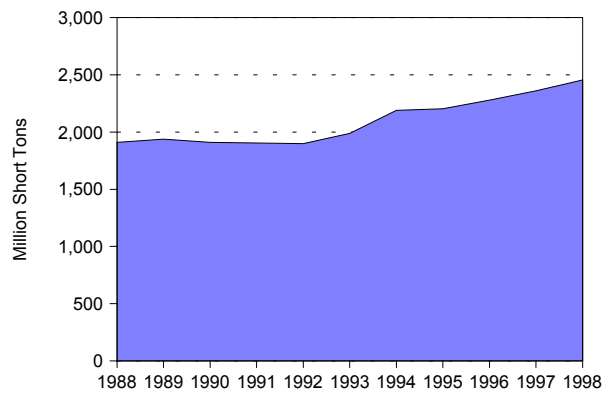


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998 (Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential	892,866,149	994,780,818	1,127,734,988	2.6	34.6	34.8	34.8
Commercial	699,100,173	794,573,370	968,528,009	3.7	27.1	27.8	29.9
Industrial	896,498,130	977,164,250	1,040,037,873	1.7	34.8	34.1	32.1
Other	89,598,080	94,943,902	103,517,589	1.6	3.5	3.3	3.2
Total	2,578,062,481	2,861,462,340	3,239,818,459	2.6	100.0	100.0	100.0

**Figure 8. Nuclear Power Capacity Factor
1988-1998**

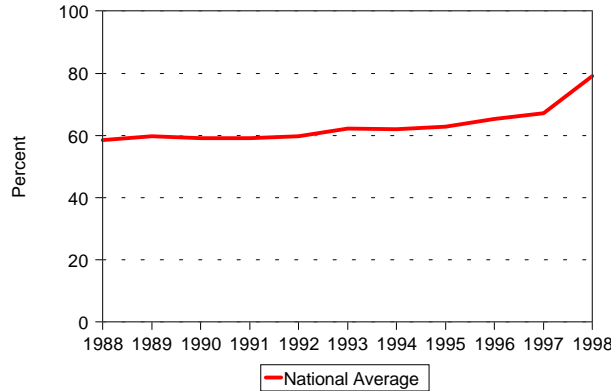


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

Item	Investor-Owned	Public	Federal	Cooperative	Total
	1988				
Number of Utilities	229	1,931	5	901	3,066
Number of Retail Customers	81,144,502	14,697,040	517	10,985,414	106,827,473
Retail Sales (MWh)	1,979,137,007	364,525,876	51,092,718	183,306,880	2,578,062,481
Percentage of Retail Sales	76.8	14.1	2.0	7.1	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	162,668	26,238	2,483	15,868	207,257
Percentage of Revenue	78.5	12.7	1.2	7.7	100.0
	1993				
Number of Utilities	216	1,950	6	883	3,055
Number of Retail Customers	86,843,054	15,641,717	28,411	12,221,795	114,734,977
Retail Sales (MWh)	2,186,888,993	406,997,935	46,369,888	221,205,524	2,861,462,340
Percentage of Retail Sales	76.4	14.2	1.6	7.7	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	172,487	27,285	1,412	17,056	218,240
Percentage of Revenue	79.0	12.5	0.6	7.8	100.0
	1998				
Number of Utilities	205	1,951	7	852	3,015
Number of Retail Customers	91,889,360	18,002,349	33,544	14,115,259	124,040,512
Retail Sales (MWh)	2,427,733,133	485,692,301	46,631,180	279,761,845	3,239,818,459
Percentage of Retail Sales	74.9	15.0	1.4	8.6	100.0
Revenue from Retail Sales (million 1998 dollars) ^d	168,502	30,107	1,109	18,628	218,346
Percentage of Revenue	77.2	13.8	0.5	8.5	100.0

Notes and Sources

Map Notes

Note: Most of the data contained in the maps are from EIA. However, utility service territories are based on the following:

Source: Electric Light and Power, Electric Power Generating and Transmission Systems Map of the U.S. and Canada, Third Edition, Rennwell Publishing Co. (Tulsa, OK, 1996).

Table Notes

Table 1:

^aThe rankings for Average electricity prices are in ascending order, unlike the other rankings, which are in descending order. Average electricity price does not include sales by power marketers and traditional electric utilities in deregulated markets.

Notes: Emissions of carbon dioxide (CO₂), nitrogen oxides (NO_x), and sulfur dioxide (SO₂) incorporate the August 1998 Air Pollutant Emissions Factors (AP-42 5th release) of the Environmental Protection Agency (see Technical Notes Appendix D). Estimates are for steam-electric plants 1 megawatts and larger, based on fuel consumption data. "Renewable" is electricity produced from wind, photovoltaic, geothermal, wood and woodwaste, municipal solid waste, landfill gases, and other renewable sources connected to electric utility distribution systems.

Average age by fuel is capability

weighted and is based on commercial operation date.

Sources: Population - U.S. Bureau of the Census "Internet Release," December 29, 1999. Utility Capability -Energy Information Administration (EIA), Form EIA-860A, "Annual Electricity Generator Report - Utility." Utility Generation -EIA, Form EIA-759, "Monthly Power Plant Report." Nonutility Capability EIA, Form EIA-860B, "Annual Electricity Generator Report - Nonutility. Nonutility Generation - EIA, Form EIA-867, "Annual Nonutility Power Producer Report." Emissions - EIA, Form EIA-767, "Steam-Electric Plant Operation and Design Report." Export/Import - EIA, "State Energy Data Report 1997 - Consumption Estimates, DOE/EIA-0214(97) (Washington DC, September 1999) p. 9. Average Revenue - EIA, Form EIA-861, "Annual Electric Utility Report."

* = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Table 2:

^bFuels used in more than 10 percent of capability are also listed, in descending order. Jet fuel and kerosene are included as "petroleum." Plant age is based on oldest unit and refers to its commercial operation date.

Source: Energy Information Administration (EIA), Form EIA-860A, "Annual Electric Generator Report - Utility and EIA, Form EIA-860B, "Annual Electric Generator Report - Nonutility."

Table 3:

Note: Total may not equal sum of components due to independent rounding.

Source: Energy Information Administration (EIA), Form EIA-861, "Annual Electric Utility Report."

* = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Table 4:

Note: Percentage share by plant type is based on industry data except for States with "W;" for those States (five in total) percentage share of fuel is based on utility data. Totals may not equal sum of components due to independent rounding. "Renewable" is capability that may use either wind, photovoltaic, geothermal, wood and woodwaste, municipal solid waste, landfill gases, or other renewable sources and it connected to electric utility distribution systems. 1988 nonutility data are estimates based on 1989 nameplate capacity.

Source: Energy Information Administration (EIA), Form EIA-860A, "Annual Electric Generator Report - Utility," EIA 860B, "Annual Electric Generator Report - Nonutility," and EIA-867, "Annual Nonutility Power Producers Report," for 1998 forward.

* = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Table 5:

Note: Percentage share by fuel is based on industry data except for States with "W", for those States (five in total) percentage share is based on total utility data. Totals may not equal sum of components due to independent rounding. "Renewable" is electricity produced from wind, photovoltaic, geothermal, wood and woodwaste, municipal solid waste, landfill gases and other renewable sources connected to electric utility distribution systems. Hydroelectricity includes pumped storage. 1988 nonutility data are estimates based on 1989 and 1992 gross generation.

Source: Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report," Form EIA-867, "Annual Nonutility Power Producers Report."

* = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Table 6:

Source: Federal Energy Regulatory Commission (FERC), FERC Form-423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

* = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Table 7:

^c As of 1993, CO₂ emissions data from the emission factor for light oil and NO_x emissions reduction from control technologies have been revised due to a software problem-- (see Technical Notes Appendix D)-- historical data were revised to reflect these changes. Note: Emissions of CO₂, NO_x, and SO₂ incorporate the August 1998 Air Pollutant Emissions Factors (AP-42 5th release) of the Environmental Protection Agency (see Technical Notes Appendix C). Estimates are for steam-electric plants 1 megawatt and larger, based on fuel consumption data. Nonutility emissions were not collected until 1989; therefore, the emissions presented for 1988 are estimates based on 1989 and 1992 data.

Source: Energy Information Administration (EIA), Form EIA-767, "Steam-Electric Plant Operation and Design Report," and Form EIA-867, "Annual Nonutility Power Producers Report," and EIA 860B, "Annual Electric Generator Report - Nonutility".

Table 8:

Note: Retail sales does not include sales by power marketers and traditional electric utilities in deregulated markets. Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration (EIA), Form EIA-861, "Annual Electric Utility Report."

* = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Table 9:

^d Sales include Residential, Commercial, Industrial, and Other, which include sales for public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

Note: Total may not equal sum of components due to independent rounding.

Source: Energy Information Administration (EIA), Form EIA-861, "Annual Electric Utility Report."

* = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Figure Notes

Figure 1:

Note: "Renewable" is capability that uses either wind, photovoltaic, geothermal, wood and woodwaste, municipal solid waste, landfill gases or other renewable sources and is connected to electric utility distribution systems.

Source: Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report."

Figure 2:

Note: "Renewable" is electricity produced from wind, photovoltaic, geothermal, wood and woodwaste, municipal solid waste, landfill gases, and other renewable sources connected to electric utility distribution systems.

Source: Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report."

Figure 3:

Note: "Renewable" is electricity produced from wind, photovoltaic, geothermal, wood and woodwaste, municipal solid waste, landfill gases, and other renewable sources connected to electric utility distribution systems.

Source: Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report;" Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Coal and Quality of Fuels for Energy Plants."

Figure 4:

Source: Energy Information Administration (EIA), Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Coal and Quality of Fuels for Energy Plants."

Figure 5:

Source: Energy Information Administration (EIA), Form EIA-767, "Steam-Electric Plant Operation and Design Report," and Form EIA-867, "Annual Nonutility Power Producer Report." Nonutility emissions were not collected until 1989; therefore, the emissions presented for 1988 are based on 1989 and 1992 data.

Figure 6:

Source: Energy Information Administration (EIA), Form EIA-767, "Steam-Electric Plant Operation and Design Report," and Form EIA-867, "Annual Nonutility Power Producer Report." Nonutility emissions were not collected until 1989; therefore, the emissions presented for 1988 are based on 1989 and 1992 data.

Figure 7:

Source: Energy Information Administration (EIA), Form EIA-767, "Steam-Electric Plant Operation and Design Report," and Form EIA-867, "Annual Nonutility Power Producer Report." Nonutility emissions were not collected until 1989; therefore, the emissions presented for 1988 are based on 1989 and 1992 data.

Figure 8:

Note: The annual capacity factors are calculated as the actual yearly net generation divided by the maximum possible generation for the year. That fraction is then multiplied by 100 to obtain a percentage. The maximum possible generation is the number of hours in a year multiplied by the net summer capability at the end of the year.

Source: Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report;" and Form EIA-860, "Annual Electric Generator Report."

Appendix A

**Major Characteristics
of U.S. Utilities and
Nonutilities and the
1998 State Electricity
Statistics Table**

Table A1. U.S. Electric Utilities by Type of Ownership

Ownership	Major Characteristics
<p>Investor-Owned Utilities (IOUs)</p> <p>IOUs account for about three-quarters of all utility generation and capacity. There are 239 in the United States, and they operate in all States except Nebraska. They are also referred to as privately owned utilities.</p>	<ul style="list-style-type: none"> • Earn a return for investors; either distribute their profits to stockholders as dividends or reinvest the profits • Are granted service monopolies in certain geographic areas • Have obligation to serve and to provide reliable electric power • Are regulated by State and sometimes Federal governments, which in turn approve rates that allow a fair rate of return on investment • Most are operating companies that provide basic services for generation, transmission, and distribution
<p>Federally Owned Utilities</p> <p>There are 10 Federally owned utilities in the United States, and they operate in all areas except the Northeast, the upper Midwest, and Hawaii.</p>	<ul style="list-style-type: none"> • Power not generated for profit • Publicly owned utilities, cooperatives, and other nonprofit entities are given preference in purchasing from them • Primarily producers and wholesalers • Producing agencies are the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation, the International Water and Boundary Commission, U.S. Bureau of Indian Affairs, and Tennessee Valley Authority. • The electricity generated by these agencies is marketed by Federal power marketing administrations in DOE (Bonneville Power Administration, Southeastern Power Administration, Southwestern Power Administration, and Western Area Power Administration) • The Alaska Power Administration is in the process of being privatized per Public Law 104-58 enacted on November 28, 1995 • The Tennessee Valley Authority is the largest producer of electricity in this category and markets at both wholesale and retail levels
<p>Other Publicly Owned Utilities</p> <p>Other publicly owned utilities include: Municipals Public Power Districts State Authorities Irrigation Districts Other State Organizations</p> <p>There are 2,009 in the United States.</p>	<ul style="list-style-type: none"> • Are non-profit State and local government agencies • Serve at cost; return excess funds to the consumers in the form of community contributions, economic and efficient facilities, and reduced rates • Most municipals just distribute power, although some large ones produce and transmit; they are financed from municipal treasuries and revenue bonds • Public power districts and projects are concentrated in Nebraska, Washington, Oregon, Arizona, and California; voters in a public power district elect commissioners or directors to govern the district independent of any municipal government • Irrigation districts may have still other forms of organization (e.g., in the Salt River Project Agricultural Improvement and Power District in Arizona, votes for the Board of Directors are apportioned according to the size of land holdings) • State authorities, such as the New York Power Authority and the South Carolina Public Service Authority, are agencies of their respective State governments
<p>Cooperatively Owned Utilities</p> <p>There are 912 cooperatively owned utilities in the United States, and they operate in all States except Connecticut, Hawaii, Rhode Island, and the District of Columbia.</p>	<ul style="list-style-type: none"> • Owned by members (small rural farms and communities) • Provide service mostly to members only • Incorporated under State law and directed by an elected board of directors which, in turn, selects a manager • The Rural Utilities Service (formerly the Rural Electrification Administration) in the U.S. Department of Agriculture was established under the Rural Electrification Act of 1936 with the purpose of extending credit to cooperatives to provide electric service to small rural communities (usually fewer than 1,500 consumers) and farms where it was relatively expensive to provide service

Source: Energy Information Administration, *Electric Power Annual 1998*, Volume II, DOE/EIA-0348(98)/2 (Washington, DC, December 1999).

Table A2. Major Characteristics of U.S. Nonutilities by Type¹

Type	Major Characteristics
Cogenerators (QF)	<ul style="list-style-type: none"> • Are qualified under PURPA by meeting certain ownership, operating, and efficiency criteria established by FERC • Sequentially produce electric energy and another form of energy, such as heat or steam, using the same fuel source • Are guaranteed that utilities will purchase their output at a price based on the utility's "avoided cost" and will provide backup service at nondiscriminatory rates
Small Power Producers (QF)	<ul style="list-style-type: none"> • Are qualified under PURPA by meeting certain ownership, operating, and efficiency criteria, established by FERC • Use biomass, waste, renewable resources (water, wind, solar), or geothermal as a primary energy source • Fossil fuels can be used but renewable resources must provide at least 75 percent of the total energy input • Are guaranteed that utilities will purchase their output at a price based on the utility's "avoided cost" and will provide backup service at nondiscriminatory rates
Exempt Wholesale Generators	<ul style="list-style-type: none"> • Creation authorized by EPACT • Are exempt from PUHCA's corporate and geographic restrictions • Are wholesale producers; do not sell retail • Do not possess significant transmission facilities • Utilities are not required to purchase their electricity • Are regulated but usually may charge market-based rates
Cogenerators (Non-QF)	<ul style="list-style-type: none"> • Are not qualified under the provisions of PURPA • Are nonutilities, utilizing a cogenerating technology, which may themselves consume part of the electricity they cogenerate
Noncogenerators (Non-QF)	<ul style="list-style-type: none"> • Are not qualified under the provisions of PURPA • Do not utilize a cogenerating technology
<p>¹There were 2,110 nonutilities in the United States in 1998. QF = Qualifying facility (under PURPA). Note: An entity can be any combination of cogenerator QF, small power producer QF, and exempt wholesale generator. Source: Energy Information Administration, <i>Electric Power Annual 1998</i>, Volume II, DOE/EIA-0348(98)/2 (Washington, DC, December 1999).</p>	

Table A3. Miscellaneous Industry Statistics by States, 1998

State	Importer/ Exporter	States Primary Fuel	Utility Average Electricity Price (cents/kWh)	Utility Average Electricity Price Rank (98)	Industry Capability	Industry Generation	Industry Sulfur Dioxide Emissions (thousand short tons)	Industry Nitrogen Oxide Emissions (thousand short tons)	Industry Carbon Dioxide Emissions (thousand short tons)	Industry Sulfur Dioxide Emissions Rank (98)	Industry Nitrogen Oxide Emissions Rank (98)	Industry Carbon Dioxide Emissions Rank (98)
Alabama	Exporter	Coal	5.56	14	22,372	120,032,763	511	252	77,489	9	11	11
Alaska	N/A	Gas	9.97	46	2,093	5,861,188	*	10	3,809	47	47	46
Arizona	Exporter	Coal	7.33	37	15,254	82,080,348	96	135	41,642	27	22	22
Arkansas	Exporter	Coal	5.78	20	10,013	45,661,884	74	92	29,054	28	33	33
California	Importer	Hydro	9.03	41	52,349	188,757,867	*	100	51,856	48	30	17
Colorado	Importer	Coal	5.95	22	7,613	33,851,092	94	135	38,142	28	21	23
Connecticut	Importer	Petroleum	10.30	48	6,565	19,669,157	48	22	14,830	37	40	39
Delaware	Importer	Coal	6.88	33	2,452	6,898,584	35	16	6,439	39	43	43
District of Columbia	Importer	Petroleum	7.41	38	806	243,975	1	*	267	46	50	49
Florida	Importer	Coal	7.01	35	40,151	189,458,656	710	373	133,115	6	4	3
Georgia	Exporter	Coal	6.40	30	25,082	115,327,447	483	217	78,814	10	12	10
Hawaii	N/A	Petroleum	11.56	50	2,353	10,226,750	18	15	8,170	42	44	41
Idaho	Importer	Hydro	4.02	1	3,001	13,848,749	--	1	222	49	49	50
Illinois	Exporter	Coal	7.46	39	32,493	138,746,800	695	367	87,361	7	5	8
Indiana	Exporter	Coal	5.34	10	21,808	117,520,960	803	494	121,905	4	3	5
Iowa	Importer	Coal	6.04	24	8,702	38,205,016	147	156	37,506	21	18	25
Kansas	Exporter	Coal	6.28	28	9,965	41,585,227	98	129	34,069	26	24	30
Kentucky	Exporter	Coal	4.16	3	16,007	90,936,825	739	328	91,233	5	7	6
Louisiana	Importer	Gas	5.78	19	20,372	89,622,382	179	153	53,161	20	19	16
Maine	Importer	Petroleum	9.75	44	2,825	11,116,096	12	12	4,849	44	46	45
Maryland	Importer	Coal	6.99	34	11,582	50,649,541	265	102	35,434	16	29	26
Massachusetts	Importer	Coal	9.59	43	10,328	45,817,498	98	51	30,080	25	38	32
Michigan	Importer	Coal	7.09	36	24,634	100,566,070	411	299	80,164	13	9	9
Minnesota	Exporter	Coal	5.71	17	10,118	47,418,129	83	140	37,773	31	20	24
Mississippi	Importer	Gas	5.98	23	7,538	34,433,901	128	71	23,184	23	35	35
Missouri	Exporter	Coal	6.08	26	16,389	75,192,842	265	269	71,031	15	10	13
Montana	Exporter	Hydro	4.80	5	5,065	28,460,516	18	63	20,044	43	36	37
Nebraska	Exporter	Coal	5.30	9	5,827	28,796,791	56	95	21,242	34	31	36
Nevada	Importer	Coal	5.76	18	6,389	30,590,359	54	76	24,617	35	34	34
New Hampshire	Exporter	Nuclear	11.93	51	2,850	16,102,737	51	14	5,577	36	45	44
New Jersey	Importer	Nuclear	10.17	47	16,625	53,666,002	44	51	19,411	38	39	38

See notes at end of table.

Table A3. Miscellaneous Industry Statistics by States, 1998 (Continued)

State	Importer/ Exporter	States Primary Fuel	Utility Average Electricity Price (cents/kWh)	Utility Average Electricity Price Rank (98)	Industry Capability	Industry Generation	Industry Sulfur Dioxide Emissions (thousand short tons)	Industry Nitrogen Oxide Emissions (thousand short tons)	Industry Carbon Dioxide Emissions (thousand short tons)	Industry Sulfur Dioxide Emissions Rank (98)	Industry Nitrogen Oxide Emissions Rank (98)	Industry Carbon Dioxide Emissions Rank (98)
New Mexico	Exporter	Coal	6.78	32	5,531	32,341,707	120	128	32,879	24	25	31
New York	Importer	Nuclear	10.71	49	34,963	144,553,274	268	130	64,048	14	23	14
North Carolina	Importer	Coal	6.45	31	22,845	121,371,988	448	215	73,681	11	13	12
North Dakota	Exporter	Coal	5.70	16	4,691	30,671,950	144	112	34,286	22	27	29
Ohio	Importer	Coal	6.38	29	27,095	147,943,088	1,316	535	133,274	1	2	2
Oklahoma	Exporter	Coal	5.43	11	13,451	56,190,603	89	162	49,603	30	17	18
Oregon	Exporter	Hydro	4.90	6	11,344	51,142,373	11	22	7,077	45	41	42
Pennsylvania	Exporter	Coal	7.86	40	36,563	191,134,032	1,096	335	129,324	2	6	4
Rhode Island	Importer	Petroleum	9.58	42	957	7,658,736	--	8	3,766	50	48	47
South Carolina	Exporter	Nuclear	5.53	13	18,116	87,244,314	250	95	34,473	17	32	28
South Dakota	Exporter	Hydro	6.26	27	2,923	9,088,990	20	17	3,621	41	42	48
Tennessee	Exporter	Coal	5.62	15	18,180	97,730,651	419	193	58,054	12	15	15
Texas	Importer	Coal	6.07	25	74,582	354,837,511	585	741	269,481	8	1	1
Utah	Exporter	Coal	5.16	8	5,206	35,910,429	30	106	34,895	40	28	27
Vermont	Exporter	Nuclear	9.83	45	961	4,909,009	--	--	60	51	51	51
Virginia	Importer	Coal	5.88	21	18,750	72,198,147	204	117	41,897	19	26	21
Washington	Exporter	Hydro	4.03	2	26,167	102,074,362	64	52	12,977	33	37	40
West Virginia	Exporter	Coal	5.07	7	15,065	92,822,187	853	311	91,161	3	8	7
Wisconsin	Importer	Coal	5.44	12	12,759	56,355,885	209	195	49,092	18	14	20
Wyoming	Exporter	Coal	4.31	4	6,112	45,347,670	91	191	49,575	29	16	19

-- = Not applicable.

N/A = Not available.

(*) = Nonzero value less than 0.5.

Appendix B

**State Agencies
Concerned With
Electric Power**

Appendix B

State Agencies Concerned With Electric Power

Regulatory Commissions

Alabama Public Service Commission
PO Box 991
Montgomery, AL 36101

Alaska Public Utilities Commission
1016 West Sixth Avenue, Suite 400
Anchorage, AK 99501-1963

Arizona Corporation Commission
Utilities Division
1200 West Washington
Phoenix, AZ 85007-2996

Arkansas Public Service Commission
1000 Center
P.O. Box 400
Little Rock, AR 72203-0400

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

The Colorado Public Utilities Commission
1580 Logan Street, Office Level 2
Denver, CO 80203

Connecticut Department of Public Utility Control
Central Office-Ten Franklin Square
New Britain, CT 06051

Delaware Public Service Commission
861 Silver Lake Boulevard
Cannon Building, Suite 100
Dover, DE 19904

District of Columbia Public Service Commission
450 5th Street, NW
Washington, DC 20001

Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Georgia Public Service Commission
47 Trinity Avenue
Atlanta, GA 30334

Hawaii Public Utilities Commission
465 South King Street
Kekuanao'a Building, # 103
Honolulu, HI 96813

Idaho Public Utilities Commission
PO Box 83720
Boise, ID 83720-0074

Illinois Commerce Commission
527 E. Capitol Avenue
P.O. Box 19280
Springfield, IL 62794-9280

Indiana Utility Regulatory Commission
302 West Washington Street Suite E306
Indianapolis, IN 46204

Iowa Utilities Board
350 Maple Street
Des Moines, IA 50319

Kansas Corporation Commission
1500 SW Arrowhead Road
Topeka, KS 66604

Kentucky Public Service Commission
730 Schenkel Lane
P.O. Box 615
Frankfort, KY 40602 - 0615

Louisiana Public Service Commission
One American Place
Suite 1630
Post Office Box 91154
Baton Rouge, LA 70821-9154

Maine Public Utilities Commission
242 State Street
18 State House Station
Augusta, ME 04333-0018

Maryland Public Service Commission
William Donald Schaefer Tower
6 St. Paul Street
Baltimore, MD 21202

Massachusetts Department of Telecommunications
and Energy
100 Cambridge Street
Boston, MA 02202

Michigan Public Service Commission
P.O. Box 30221
Lansing, MI 48909

Minnesota Public Utilities Commission
121 7th Place East
Suite 350
St. Paul, MN 55101-2147

Mississippi Public Service Commission
Walter Sillers State Office Bldg.
P.O. Box 1174
Jackson, MS 39215-1174

Missouri Public Service Commission
PO Box 360
Harry S Truman State Office Building, Fifth Floor
Jefferson City, MO 65102

Montana Public Service Commission
1701 Prospect Ave - P.O. Box 202601
Helena, MT 59620-2601

Nebraska Public Service Commission
300 The Atrium, 1200 N Street
P.O. Box 94927
Lincoln, NE 68509-4927

Nevada Public Utilities Commission
1150 East Williams St.
Carson City, NV 89701-3109

New Hampshire Public Utilities Commission
8 Old Suncook Road
Concord, NH 03301

New Jersey Board of Public Utilities
2 Gateway Center
Newark, NJ 07102

New Mexico Public Utility Commission
224 East Palace Avenue, Marian Hall
Santa Fe, NM 87501

New York State Public Service Commission
Department of Public Service
3 Empire State Plaza
Albany, NY 12223-1350

North Carolina Utilities Commission
PO Box 29510
Raleigh, NC 27626-0510

North Dakota Public Service Commission
Public Utilities Division
North Dakota Public Service Commission
600 East Boulevard
Bismarck, ND 58505-0480

Public Utilities Commission of Ohio
180 E. Broad St.
Columbus, OH 43215-3793

Oklahoma Corporation Commission
2101 N. Lincoln Blvd.
Oklahoma City, OK. 73152-2000

Oregon Public Utility Commission
550 Capitol Street N.E.
Salem, OR 97310-1380

Pennsylvania Public Utilities Commission
PO Box 3265
Harrisburg, PA 17105-3265

Rhode Island Public Utilities Commission
100 Orange Street
Providence, RI 02903

Public Service Commission of South Carolina
111 Doctors Circle
P.O. Drawer 11649
Columbia, SC 29211

South Dakota Public Utilities Commission
Capitol Building, 1st floor
500 East Capitol Avenue
Pierre, SD 57501-5070

Tennessee Regulatory Authority
460 James Robertson Parkway
Nashville, TN 37243-0505

Public Utilities Commission of Texas
1701 North Congress Avenue, PO Box 13326
Austin, TX 78711-3326

Public Service Commission of Utah
Heber M. Wells Building, 4th Floor
160 East 300 South
Salt Lake City, UT 84111

Vermont Public Service Board
112 State Street (Chittenden Bank Building)
Drawer 20
Montpelier, VT 05620-2701

The Virginia State Corporation Commission
P.O. Box 1197
Richmond, VA 23218

Washington Utilities and Transportation Commission
1300 South Evergreen Park Dr., SW
Olympia, WA 98504-7250

Public Service Commission of West Virginia
201 Brooks Street
Charleston, WV 25323

Wisconsin Public Service Commission
610 North Whitney Way
P.O. Box 7854
Madison, WI 53707-7854

Wyoming Public Service Commission
2515 Warren Avenue, Hansen Building, Suite 300
Cheyenne, WY 82002

State Environmental Offices

Alabama Department of Environmental Management
P.O. Box 301463
Montgomery, AL 36130-1463

Alaska Division of Air and Water Quality
Department of Environmental Conservation
410 Willoughby Avenue, Suite 105
Juneau, AK 99801-1795

Arizona Department of Environmental Quality
3033 North Central Avenue
Phoenix, AZ 85012

Arkansas Department of Pollution Control and Ecology
8001 National Drive
Little Rock, AR 72209

California Environmental Protection Agency
555 Capitol Mall Suite 525
Sacramento, CA 95814

Colorado Department of Public Health & Environment
4300 Cherry Creek Drive South
Denver, CO 80222-1530

Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

District of Columbia Environmental Regulation Administration
Air Resources Management
2100 Martin Luther King Ave., SE
Washington, DC 20020

State of Delaware
Department of Natural Resources & Environmental Control
89 Kings Highway
Dover, DE 19901

Florida Department of Environmental Protection
3900 Commonwealth Blvd.
Tallahassee, FL 32399-3000

Georgia Environmental Protection Division
Air Protection Branch
4244 International Parkway
Suite 120
Atlanta, GA 30354

Hawaii Environmental Health Administration
Hawaii Department of Health
1250 Punchbowl Street
Honolulu, HI 96813

Idaho Division of Environmental Quality
1410 N Hilton
Boise, ID 83706

Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, IL 62794-9276

Indiana Department of Environmental Management
Indiana Government Center North
100 N. Senate
P.O. Box 6015
Indianapolis, IN 46206-6015

Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, IA 50322

Kansas Department of Health and Environment
Landon State Office Building,
Topeka, KS 66612

Kentucky Department for Environmental Protection
Division for Air Quality
803 Schenkel Lane
Frankfort, KY 40601-1403

Louisiana Department of Environmental Quality
7290 Bluebonnet Blvd
Baton Rouge, LA 70810

Maine Department of Environmental Protection
17 State House Station
Augusta ME 04333-0017

Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224.

Massachusetts Department of Environmental
Protection
One Winter Street
4th Floor
Boston, MA 02108

Michigan Department of Environmental Quality
Air Quality Division
Hollister Building, 4th Floor
P.O. Box 30260
106 W. Allegan
Lansing, MI 48909-7760

Minnesota Pollution Control Agency
520 Lafayette Road N.
St. Paul, MN 55155-4194

Mississippi Department of Environmental Quality
P.O. Box 20305
Jackson, MS 39289-1305

Missouri Department of Natural Resources
Division of Environmental Quality
Air Pollution Control Program
P. O. Box 176, Jefferson City, MO 65102

Montana Department of Environmental Quality
1520 E. Sixth Avenue
Helena, MT 59620

Nebraska Department of Environmental Quality
1200 "N" Street, Suite 400
PO Box 98922
Lincoln, NE 68509

Nevada Division of Environmental Protection
333 West Nye Lane
Room 138
Carson City, NV 89706-0851

New Hampshire Department of Environmental
Services
6 Hazen Drive
PO Box 95
Concord, NH 03302-0095.

New Jersey Department of Environmental Protection
401 E. State Street
7th Floor, East Wing
P.O. Box 402
Trenton, NJ 08625-0402

New Mexico Environment Department
Harold S. Runnels Building
1190 St. Francis Dr.
Santa Fe, NM 87505-4182

New York State Department of Environmental
Conservation
50 Wolf Road
Albany, NY 12233-1016

North Carolina Department of Environment and
Natural Resources
512 North Salisbury Street
Post Office Box 27687
Raleigh, NC 27611-7687

North Dakota Health Department
Environmental Health Section
1200 Missouri Ave.
P.O. Box 5520
Bismarck, ND 58506-5520

Ohio Environmental Protection Agency
1800 Watermark Drive
P.O. Box 1049
Columbus, OH 43216-1049

Oklahoma Department of Environmental Quality
P.O. Box 1677
Oklahoma City, OK 73101-1677

Oregon Department of Environmental Quality
811 SW 6th Ave.
Portland, OR 97204-1390

Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building
400 Market Street
Harrisburg, PA 17105

Rhode Island Department of Environmental
Management
235 Promenade Street
Providence, RI 02908

South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

South Dakota Department of Environment and
Natural Resources
Joe Foss Building
523 E. Capitol
Pierre, SD 57501

Tennessee Department of Environment and
Conservation
21st Floor, L&C Tower
401 Church Street
Nashville, TN 37243

Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, TX 78711-3087

Utah Department of Environmental Quality
P.O. Box 144810-4810
168 North 1950 West
Salt Lake City, UT 84114-4810

Vermont Air Pollution Control Division
103 South Main Street. Building 3 South
Waterbury, VT 05671

Virginia Department of Environmental Quality
P.O. Box 10009
Richmond, VA 23240

Washington Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Wisconsin Dept. of Natural Resources
P.O. Box 7921
Madison, WI 53707-7921

West Virginia Division of Environmental Protection
10 McJunkin Road
Nitro, WV 25143

Wyoming Department of Environmental Quality
122 West 25th Street, Herschler Building
Cheyenne, WY 82002

Appendix C

Technical Notes

Appendix C

Technical Notes

Sources of Data

State Electricity Profiles is prepared by the Electric Power Division; Office of Coal, Nuclear, Electric and Alternate Fuels; Energy Information Administration (EIA); U.S. Department of Energy (DOE). Data published in the *State Electricity Profiles* are compiled from several forms filed annually by electric utilities and one form filed annually by nonutility power producers. Those forms are: the Form EIA-759, "Monthly Power Plant Report"; the Form EIA-860, "Annual Electric Generator Report." the Form EIA-861, "Annual Electric Utility Report"; the Federal Energy Regulatory Commission (FERC) Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others"; the FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants"; the Form EIA-767, "Steam-Electric Plant Operation and Design Report"; and the Form EIA-867, "Annual Nonutility Power Producer Report." Each form is summarized below.

Form EIA-759

The Form EIA-759 is a mandatory survey of operators of electric utility plants producing electric power for public use. The Form EIA-759 is used to collect monthly data on net generation, consumption of coal, petroleum, and natural gas; and end-of-the-month stocks of coal and petroleum for a sample of plants by fuel-type and State. Remaining plants are surveyed annually to form an annual census of all plants. Summary data from the Form EIA-759 are also published in the *Electric Power Monthly (EPM)*, the *Monthly Energy Review (MER)*, and the *Annual Energy Review (AER)*. These reports present aggregated data for electric utilities at the U.S., Census division, and North American Electric Reliability Council Region (NERC) levels.

Instrument and Design History. Prior to 1936, the Bureau of the Census and the U.S. Geological Survey collected, compiled, and published data on the electric power industry. In 1936, the Federal Power Commission (FPC) assumed all data collection and

publication responsibilities for the electric power industry and implemented the FPC Form 4. The Federal Power Act, Sections 311 and 312, and FPC Order 141 define the legislative authority to collect power production data. The Form EIA-759 replaced the FPC Form 4 in January 1982.

Data Processing. The Form EIA-759, along with a return envelope, is mailed to respondents approximately 4 working days before the end of the month. The respondents' names are obtained from a computerized mailing address file. The completed forms are to be returned to the EIA by the 10th working day after the end of the reporting month. After receipt, data from the completed forms are manually logged in and edited before being keypunched for automatic data processing. An edit program checks the data for errors not found during manual editing. The electric utility companies are telephoned to obtain data in cases of missing reports and to verify data when questions arise during editing. Following EIA approval, the data are made available for public use.

Form EIA-861

The Form EIA-861 is a mandatory census of electric utilities in the United States, its territories, and Puerto Rico. The Form EIA-861 data contained in this publication are for the United States only. The survey is used to collect information on power production and sales of electricity and demand-side management information from approximately 3,200 electric utilities. The data collected are used to update the electric utility frame data base maintained by the EIA. This data base supports queries from the Executive Branch, Congress, other public agencies, and the general public. Summary data from the Form EIA-861 are also contained in the *Electric Power Monthly*; the *Electric Sales and Revenue*; the *Financial Statistics of Major U.S. Investor-Owned Electric Utilities*; the *Financial Statistics of Major U.S. Publicly Owned Electric Utilities*; the *Annual Energy Outlook*; the *U.S. Electric Utility Demand-Side Management*; and the *Electric Trade in the United States*. These reports present

aggregate totals for electric utilities on national, State, and regional levels by ownership type.

Demand-side management data collected on the Form EIA-861 are estimated by electric utilities based on engineering data or statistical analysis. The utilities also use a variety of verification methodologies for these estimates. The Energy Policy Act (EPACT) of 1992, Section 171(a), mandated that EIA verify DSM data estimates and the methodologies used for estimation and verification. In response to this mandate, EIA conducted a study of DSM estimation methodologies and DSM verification methodologies. The report describes typical estimation methodologies and DSM verification methodologies, as well as the difficulties in reaching broad conclusions concerning the quality of savings estimates reported to EIA. The report is featured in the EIA publication, *U.S. Electric Utility Demand-Side Management 1993*, released in July 1995.

Instrument and Design History. The Form EIA-861 was implemented in January 1985 to collect data as of year-end 1984. The Federal Administration Act of 1974 (Public Law 93-275) defines the legislative authority to collect these data.

Data Processing. The Form EIA-861 is mailed to the respondents to collect data as of the end of the calendar year. The completed forms are to be returned to the EIA by April 30. The data are entered into the interactive on-line system. Internal edit checks are performed to verify that current data total across and between schedules and are comparable to data reported the previous year. Edit checks are also performed to compare data reported on the Form EIA-861 and similar data reported on the Forms EIA-826, "Monthly Electric Utility Sales and Revenue Report with State Distributions," the FERC Form 1, and the Form EIA-412. These are utility-level checks. Respondents are telephoned to obtain clarification of reported data and to obtain missing data.

FERC Form 1

The FERC Form 1 is a mandatory restricted-universe census of major investor-owned electric utilities in the United States having, in each of the last three consecutive years, sales or transmission service that exceeds one or more of the following: (1) 1 million megawatthours of total annual sales, (2) 100 megawatthours of annual sales for resale, (3) 500 megawatthours of annual power exchanges delivered, or (4) 500 megawatthours of annual wheeling for others (deliveries plus losses). All major U.S. investor-owned

electric utilities, licensees, or others subject to the Federal Power Act of 1935 must submit this form annually to the FERC. Classification of such entities is provided in the FERC Uniform System of Accounts Prescribed for Public Utilities and Licensees Subject to the Provisions of the Federal Power Act. Approximately 179 electric utilities are classified as major. Excluded from the summary data are the independent power producers and cooperatives jurisdictional to the FERC.

The FERC Form 1 is used to collect data on income and earnings, taxes, depreciation and amortization, distribution of salaries and wages, electric operating revenues, electric maintenance expenses, generating plant statistics, planned construction data, year-end balance sheets, and general corporate information. Respondents are required to report data on historical plant cost and power production expenses for their hydroelectric plants with a generator nameplate capacity of 10 or more megawatts; each steam-electric plant with a generator nameplate capacity of 25 or more megawatts; and each gas-turbine plant with a generator nameplate capacity of 10 or more megawatts. Less detailed data are required for other plants.

This data base supports queries from the Executive Branch, Congress, other public agencies, and the general public. Summary and detailed data from the FERC Form 1 are also contained in the *State Energy Data Report*; the *Financial Statistics of Major U.S. Investor-Owned Electric Utilities* (through 1996 only); the *State Energy Price and Expenditure Report*; the *Annual Energy Review*; and the *Electric Trade in the United States*. These reports present aggregate totals for electric utilities on a national level, by State, and by ownership type.

Instrument and Design History. The Federal Power Commission's (FPC) Form 1, the predecessor of the FERC Form 1, was implemented in 1935 by the FPC. When the FPC was merged with the DOE in October 1977, the processing of data on the survey became the responsibility of the EIA. In 1991, the collection responsibility reverted to the FERC. This mandatory survey is conducted in accordance with the FERC *Uniform System of Accounts Prescribed for Private Utilities and Licensees*.

Data Processing. The completed surveys, both hard copy and diskettes, are returned to the FERC on or before April 30, containing data for the preceding calendar year. A copy of each survey and diskette is forwarded to the EIA for processing. Manual editing of the reported data is completed prior to data entry.

Additional edit checks of the data are performed through computer programs. The program edits include both deterministic checks, in which records are checked for the presence of data in required fields, and statistical checks, in which the data are checked against a range of values based on historical data values and for logical or mathematical consistency with data elements reported in the survey. Discrepancies found in the data, as a result of these checks, are resolved either by the processing office or by further information obtained from a telephone call to the respondent company. Effective for 1997, FERC Form 1 data is as accepted as of August 1, 1998, from the FERC World Wide Web site (<http://www.ferc.fed.us>).

Form EIA-767

The Form EIA-767 is a mandatory restricted-universe census of all electric power plants with a total existing or planned organic- or nuclear-fueled steam-electric generator nameplate rating of 10 or more megawatts. The entire form is filed by approximately 700 power plants with a nameplate capacity of 100 or more megawatts. An additional 200 power plants with a nameplate capacity between 10 and 100 megawatts submit information only on fuel consumption/quality, boiler/generator configuration, and flue-gas desulfurization equipment, if applicable. The Form EIA-767 is used to collect data annually on plant operations and equipment design (including boiler, generator, cooling system, flue gas desulfurization, flue gas particulate collectors, and stack data). Data from the Form EIA-767 are used for economic, regulatory, and environmental analyses conducted by the DOE and the Environmental Protection Agency.

This data base supports queries from the Executive Branch, Congress, other public agencies, and the general public. These reports present aggregate totals for electric utilities on a national level, by State, and by ownership type.

Instrument and Design History. The Federal Energy Administration Act of 1974 (Public Law 93-275) defines the legislative authority to collect these data. The predecessor form, FPC-67, "Steam-Electric Plant Air and Water Quality Control Data," was used to collect data from 1969 to 1980, when the form number was changed to Form EIA-767. In 1982, the form was completely redesigned and given the name Form EIA-767, "Steam-Electric Plant Operation and Design Report." In 1986, the respondent universe of 700 was increased to 900 to include plants with nameplate capacity from 10 megawatts to 100 megawatts. Respondents for these

200 additional plants complete only pages 1, 5, 6, and, if applicable, 13, and 14.

Data Processing. The Form EIA-767 is mailed to respondents in January to collect data as of the end of the preceding calendar year. The completed forms are to be returned to the EIA by May 1. Equipment design data for each respondent are preprinted from the applicable data base. Respondents are instructed to verify all preprinted data and to supply missing data. The data are manually reviewed before being keyed for automatic data processing. Computer programs containing additional edit checks are run. Respondents are telephoned to obtain correction or clarification of reported data and to obtain missing data, as a result of the manual and automatic editing process.

Form EIA-860A

The Form EIA-860A is a mandatory census of electric utilities in the United States that operate power plants or plan to operate a power plant within 5 years of the reporting year. The survey is used to collect data on existing power plants from the electric utilities and their 5-year plans for constructing new plants, and modifying and retiring existing plants. Data on the survey are collected at the generating unit level. These data are then aggregated by energy source, geographic area, and prime mover. Final data from the Form EIA-860A are also summarized in the *Inventory of Electric Utility Power Plants in the United States*.

Instrument and Design History. The Form EIA-860A was implemented in January 1999 to collect data as of January 1, 1999. Form EIA-860A replaced Form EIA-860. The Federal Energy Administration Act of 1974 (Public Law 93-275) defines the legislative authority to collect these data.

Data Processing. The Form EIA-860A is mailed to approximately 900 respondents in December of each year and the completed forms are to be returned to the EIA by February 15 containing data as of January 1 of the following year. Respondents have the option of filing Form EIA-860A directly with the EIA or through an agent such as the respondent's regional electric reliability council. Data reported through the regional electric reliability councils are submitted to the EIA electronically from the North American Electric Reliability Council (NERC). Data for each respondent are preprinted from the applicable data base. Respondents are instructed to verify all preprinted data and to supply missing data. The data are manually edited before being keyed for automatic data processing. Computer programs containing additional edit checks are run. Respondents are telephoned to obtain correction or clarification of reported data and to obtain missing data, as a result of the manual and

automatic editing process. After EIA approval, the data are made available for public use.

Form EIA-860B

In 1998, the Form EIA-867, "Annual Nonutility Power Producer Report," was renamed Form EIA-860B, "Annual Electric Generator Report - Nonutility." The Form EIA-860B is a mandatory survey of all existing and planned nonutility electric generating facilities in the United States with a total generator nameplate capacity of 1 or more megawatts. In 1992, the reporting threshold of the Form EIA-867 was lowered to include all facilities with a combined nameplate capacity of 1 or more megawatts. Previously, data were collected every 3 years from facilities with a nameplate capacity between 1 and 5 megawatts. Planned generators are defined as a proposal by a company to install electric generating equipment at an existing or planned facility. The proposal is based on the owner having obtained (1) all environmental and regulatory approvals, (2) a contract for the electric energy, or (3) financial closure on the facility. The Form consists of Schedules I, "Identification and Certification;" Schedule II, "Facility Information"; Schedule III, "North American Industry Classification System"; Schedule IVA, "Facility Fuel Information"; Schedule IVB, "Facility Thermal and Generation Information"; Schedule V, "Facility Environmental Information"; and Schedule VI, "Electric Generator Information."

Submission of the Form EIA-860B is required from all facilities that have a combined facility nameplate capacity of 1 megawatt or more. Schedule V, "Facility Environmental Information" is only required of those facilities of 25 megawatts or more.

The form is used to collect data on the installed capacity, energy consumption, generation, and electric energy sales to electric utilities and other nonutilities by facility. Additionally, the form is used to collect data on the quality of fuels burned and the types of environmental equipment used by the respondent.

Instrument and Design History. The Form EIA-867 was implemented in December 1989 to collect data as of year-end 1989. In 1998, the Form EIA-867 "Annual Nonutility Power Producer Report," form number and name has been changed to Form EIA-860B, "Annual Electric Generator Report - Nonutility." The Federal Energy Administration Act of 1984 (Public Law 93-275) defines the legislative authority to collect these data.

Data Processing. The Form EIA-860B is mailed to the respondents in January to collect data as of the end of the preceding calendar year. Static data for each respondent are preprinted from the previous year, and the respondents are

instructed to verify all preprinted information and to supply the missing data. The completed forms are to be returned to the EIA by April 30. The response rate for all facilities for which addresses were confirmed was 100 percent. The data are manually edited before being keyed for automated data processing. Computer programs containing additional edit checks are run. Respondents are telephoned to obtain corrections or clarifications of reported data and to obtain missing data as a result of the manual and automated editing.

Data Quality. The Manufacturing Energy Consumption Survey (MECS) produces detailed estimates of manufacturing electricity generation by industry and Census Division on a triennial basis. The data are published in the *Manufacturing Energy Consumption Survey, Consumption of Energy*. Gross generation by nonutility power producers by major industry groups, and Census division, for 1994 through 1998 presented in this report, are reasonable given the growth in manufacturing on site generation.

Data for the Form EIA-860B are collected from all existing and planned nonutility generating facilities in the United States with a total generator nameplate capacity of 1 or more megawatts. These data are aggregated to provide geographic totals for selected States and at the Census division and national levels. The Form EIA-867 data are considered confidential (1994 through 1997). Therefore, suppression of some data is necessary to protect the confidentiality of the individual respondent data. See "Confidentiality of the Data" in this section for further information on the nondisclosure of data. In 1998, the Form EIA-860B data that are confidential are planned units that have sales to other end-users.

Allocating Capacity. The installed capacity for nonutility generating units is allocated to one energy source using the following algorithms:

- For generating units using a single fossil energy source, the capacity is allocated totally to that energy source.
- For generating units that use hydraulic, geothermal, solar, biomass, or wind energy, the capacity is allocated to that energy source (even if a secondary fuel is burned).
- For generating units using a combination of fossil energy and renewable energy sources, capacity is classified as fossil or renewable based on the greatest percentage of Btu consumed when summed.
- To allocate capacity by fuel within the fossil energy and renewable energy sources, the single fuel within that energy source with the greatest percentage of Btu consumed is used.

Allocating Generation. The generation for nonutility facilities is allocated to one energy source using the following algorithms:

- For generating units that use energy sources that are not burned (hydraulic, geothermal, nuclear, solar, or wind energy), the generation is allocated to that energy source (even if a secondary fuel is burned).
- For facilities having generating units using energy sources that are burned, the generation is allocated based on the percentage of Btu consumed. This algorithm assumes that unit efficiency is the same for all energy sources.

Gross-to-Net Generation Conversion Methodology. Gross electricity generation data from the Form EIA-860B, reported by generator, are aggregated to provide totals by energy source and geographic area. Nonutility power producers report gross electricity generated on the Form EIA-860B, unlike electric utilities that report net generation on various EIA and FERC forms. Nonutilities generally do not measure and record electrical consumption used solely for the production of electricity. Nonutility generators and associated auxiliary equipment are often an integral part of a manufacturing or other industrial process and individual watt-hour meters are not generally installed on auxiliary equipment.

Estimated values for net generation from nonutility power producers were developed by EIA using gross generation, prime mover, fuels, and type of air pollution control data reported on the Form EIA-860B. The difference between gross and net generation—sometimes called parasitic load—is the electricity consumed by auxiliary equipment and environmental control devices such as pumps, fans, coal pulverizers, particulate collectors, and flue gas desulfurization (FGD) units. In smaller power plants rotating auxiliaries are almost always electric motors. In large power plants that produce steam, rotating auxiliaries can be powered by either steam turbines or electric motors and sometimes both because of cold startup requirements.

This methodology for estimating net generation from gross generation is based on determining typical energy consumption for auxiliary electrical equipment associated with electrical generators. For instance, wind turbines have none of the auxiliaries common to a coal-burning power plant such as a coal pulverizers, fans, and emission controls. On the other hand, windfarms do consume electricity since automatic, computer-based control systems are used to control blade pitch and speed thereby affecting generator electricity output.

Shown below are the conversion factors used to estimate net generation by nonutility generators. The factors are typical of a modern electric power plant but could vary significantly between individual plants. Net generation is calculated by multiplying the appropriate conversion factor by the reported gross electrical generation.

Prime Mover Type	Gross-to-Net Generation Conversion Factor
Gas (Combustion) Turbine	.98
Steam Turbine . . . . .	.97 ^a
Internal Combustion . . . . .	.98
Wind Turbine . . . . .	.99
Solar-Photovoltaic . . . . .	.99
Hydraulic Turbine . . . . .	.99
Fuel Cell . . . . .	.99
Other . . . . .	.97

^aFactor reduced by .01 if the facility has flue gas particulate collectors and another .03 if the facility has flue gas desulfurization (FGD) equipment. Facilities under 25 megawatts and burning coal in traditional boilers (e.g., not fluidized bed boilers) are assumed to have particulate and FGD equipment.

These conversion factors were estimated by the staff of the Office of Coal, Nuclear, Electric and Alternate Fuels, Energy Information Administration. The primary reference used in developing the conversion factors was *Steam, Its Generation and Use*, 40th Edition, Babcock & Wilcox, Barberton, Ohio.

Emissions for the Production of Electricity Methodology. Emissions for nonutility power producers include emissions from cogeneration facilities that produce electric power as an integral part of a manufacturing or other thermal consuming process. Emissions are directly proportional to the quantities of fuels consumed. To calculate emissions for the production of electricity, a methodology was developed to estimate the consumption of fuel associated for the production of electricity by cogeneration facilities. The methodology is based on net generation heat rates by primary fuel and prime-mover. The primary fuel is the predominant energy source for the generator based on fuel consumption at the facility expressed in total Btu by fuel type. The heat rates were estimated by the staff of the Office of Coal, Nuclear, Electric and Alternate Fuels; Energy Information Administration. The primary reference used in developing the conversion factors was *TAG--Technical Assessment Guide*, Volume 1: Electricity Supply—1986, Electric Power Research Institute, Palo Alto, California, December 1986. The procedure to estimate the fuel consumed for the production of electricity is to calculate net generation by primary fuel

and prime-mover (see gross-to-net generation methodology), multiply the net generation by the appropriate heat rate to obtain total Btu consumed for the production of electricity, and apportion by the total Btu weighted by energy source.

Net generation heat rates by primary fuel and prime mover are as follows:

Prime Mover	Heat Rate (Btu/kWh - net) By Primary Fuel			
	Coal	Petroleum	Natural Gas	Other
Gas (Combustion Turbine)				
Single Cycle	N/A	14,000	14,500	N/A
Combined Cycle	N/A	8,100	8,200	N/A
Steam Turbine				
Single Cycle	10,200	9,600	9,600	16,500
Combined Cycle	9,000	9,000	9,000	10,500
Internal Combustion	N/A	11,700	11,700	N/A
Other	10,200	11,700	11,700	10,500

Nameplate Capacity to Summer Capability Conversion Methodology. Form EIA-860B, "Annual Electric Generator Report - Nonutility," collects nameplate capacity for electric generating units. Estimated values for net summer capability from nameplate capacity are aggregated to provide a U.S. total. The methodology used for estimating summer capability from nameplate capacity is based on data submitted for the Form EIA-860A.

Business Classification. The nonutility industry consists of all manufacturing, agricultural, forestry, transportation, finance, service and administrative industries, based on the Office of Management and Budget's Standard Industrial Classification (SIC) Manual.¹ In 1997, the SIC Manual name was changed to North American Industry Classification System (NAICS). The following is a list from the Form EIA-860B of the main classifications and the category of primary business activity within each classification.

Agriculture, Forestry, and Fishing

- 111 Agriculture production-crops
- 112 Agriculture production, livestock and animal specialties
- 115 Agricultural services
- 113 Forestry
- 114 Fishing, hunting, and trapping

Mining

- 2122 Metal mining
- 2121 Coal mining
- 211 Oil and gas extraction
- 2123 Mining and quarrying of nonmetallic minerals except fuels

Construction

23

Manufacturing

- 311 Food and kindred products
- 3122 Tobacco products
- 314 Textile and mill products
- 315 Apparel and other finished products made from fabrics and similar materials
- 321 Lumber and wood products, except furniture
- 337 Furniture and fixtures
- 322 Paper and allied products (other than 322122 or 32213)
 - 322122 Paper mills, except building paper
 - 32213 Paperboard mills
- 323 Printing and publishing
- 325 Chemicals and allied products (other than 325188, 325211, 32512, or 325311)
 - 325188 Industrial Inorganic Chemicals
 - 325211 Plastics materials and resins
 - 32512 Industrial organic chemicals
 - 325311 Nitrogenous fertilizers
- 324 Petroleum refining and related industries (other than 32411)
- 32411 Petroleum refining
- 326 Rubber and miscellaneous plastic products

¹Office of Management and Budget, *Standard Industrial Classification Manual, 1972* (Washington, DC, 1987).

316 Leather and leather products
 327 Stone, clay, glass, and concrete products (other than 32731)
 32731 Cement, hydraulic
 331 Primary metal industries (other than 331111 or 331312)
 331111 Blast furnaces and steel mills
 331312 Primary aluminum
 332 Fabricated metal products, except machinery and transportation equipment
 333 Industrial and commercial equipment and components except computer equipment
 335 Electronic and other electrical equipment and components except computer equipment
 336 Transportation equipment
 3345 Measuring, analyzing, and controlling instruments, photographic, medical, and optical goods, watches and clocks
 339 Miscellaneous manufacturing industries

Transportation and Public Utilities

482 Railroad transportation
 485 Local and suburban transit and interurban highway passenger transport
 484 Motor freight transportation and warehousing
 491 United States Postal Service
 483 Water transportation
 481 Transportation by air
 486 Pipelines, except natural gas
 487 Transportation services
 513 Communications
 22 Electric, gas, and sanitary services
 2212 Natural gas transmission
 2213 Water supply
 22132 Sewerage systems
 562212 Refuse systems
 22131 Irrigation systems

Wholesale Trade

421 to 422

Retail Trade

441 to 454

Finance, Insurance, and Real Estate

521 to 533

Services

721 Hotels
 812 Personal services
 514 Business services
 8111 Automotive repair, services, and parking
 811 Miscellaneous repair services
 512 Motion pictures

713 Amusement and recreation services
 622 Health services
 541 Legal services
 611 Education services
 624 Social services
 712 Museums, art galleries, and botanical and zoological gardens
 813 Membership organizations
 561 Engineering, accounting, research, management, and related services
 814 Private households
 514199 Miscellaneous services

92 Public Administration

92

Other (explain):

Historically, (Tables 56 and 60) show cogeneration facilities reporting the Standard Classification Code (SIC) that identified the user of the electric and/or thermal energy. Beginning in 1993, the SIC code was broadened to include the SIC code(s) of the producing facility based on the facilities consumption. This revision provides an alternative method of comparing power needs and utilization within the nonutility power industry. In 1998 all the tables are based on North American Industry Classification System. Tables A1 and A2 show the installed capacity and gross generation of electricity by the producing energy group, respectively.

Quality of Data

The Office of Coal, Nuclear, Electric and Alternate Fuels (CNEAF) is responsible for routine data improvement and quality assurance activities. All operations in this office are done in accordance with formal standards established by the EIA. These standards are the measuring rod necessary for quality statistics. Data improvement efforts include verification of data-keyed input by automatic computerized methods, editing by subject matter specialists, and follow up on nonrespondents. The CNEAF office supports the quality assurance efforts of the data collectors by providing advisory reviews of the structure of information requirements, and of proposed designs for new and revised data collection forms and systems. Once implemented, the actual performance of working data collection systems is also validated. Computerized respondent data files are checked to identify those who fail to respond to the survey. By law, nonrespondents may be fined or otherwise penalized for not filing a mandatory EIA data form. Before invoking the law, the EIA tries to obtain the required information by encouraging cooperation of nonrespondents.

Completed forms received by the CNEAF office are sorted, screened for completeness of reported information, and keyed onto computer tapes for storage and transfer to random access data bases for computer processing. The information coded on the computer tapes is manually spot-checked against the forms to certify accuracy of the tapes. To ensure the quality standards established by the EIA, formulas that use the past history of data values in the data base have been designed and implemented to check data input for errors automatically. Data values that fall outside the ranges prescribed in the formulas are verified by telephoning respondents to resolve any discrepancies.

Data Editing System

Data from the form surveys are edited using automated systems. The edit includes both deterministic checks, in which records are checked for the presence of required fields and their validity; and statistical checks, in which estimation techniques are used to validate data according to their behavior in the past and in comparison to other current fields.

Confidentiality of the Data

In general, the 1998 data collected on the forms used for input to this report are not confidential. However, data from the Form EIA-867, "Annual Nonutility Power Producer Report, (1994-1997)" are considered confidential and must adhere to EIA's "Policy on the Disclosure of Individually Identifiable Energy Information in the Possession of the EIA" (45 *Federal Register* 59812 (1980)). In order to protect the confidentiality of individual respondent's data, a procedure was developed to suppress the data for publication. The procedure is described as follows.

Disclosure of Data

Certain data reported on the Form EIA-860B, "Annual Electric Generator Report - Nonutility," are confidential. In order to protect the confidentiality of data for an individual respondent, a policy was implemented to ensure that the reporting of survey data would not associate those data with a particular company. The final phase in the data quality assurance and control procedures is to determine which data must be suppressed (withheld) during publication to provide the necessary confidentiality for respondents that operate in small reporting areas. These procedures are performed as follows:

- **Primary Withholding Based on the Number of Respondents in a Cell**—All cells with three or fewer respondents are suppressed.
- **Residual Withholding Dominance Rule**—All cells containing four or more respondents are tested using a linear sensitivity rule.
- **Complementary Suppression**—All tables are reviewed to identify cells that should have data withheld to prevent disclosure of already suppressed cells. An example of this concept, when U.S. totals are available, would be the complementary suppression of a second State in order to prevent the derivation of an initially suppressed State.

The withholding/suppression of data is performed as an adjunct to Quality Assurance (QA) procedures. The work is performed by survey editors and the QA staff and is reviewed by the survey manager before being submitted to the division level QA review.

All sensitive cells identified in the withholding analysis are denoted with the symbol/letter "W." The use of the symbol/letter applies to primary, complementary and inter-table suppressions as well as all withheld data.

Rounding Rules for Data

Given a number with r digits to the left of the decimal and $d+t$ digits in the fraction part, with d being the place to which the number is to be rounded and t being the remaining digits which will be truncated, this number is rounded to $r+d$ digits by adding 5 to the $(r+d+1)$ th digit when the number is positive or by subtracting 5 when the number is negative. The t digits are then truncated at the $(r+d+1)$ th digit. The symbol for a rounded number truncated to zero is (*).

CNEAF Data Revision and Policy

The Office of Coal, Nuclear, Electric and Alternate Fuels has adopted the following policy with respect to the revision and correction of recurrent data in energy publications:

- Annual survey data collected by this office are published either as preliminary or final when first appearing in a data report. Data initially released as preliminary will be so noted in the report. These data will be revised, if necessary, and declared final in the next publication of the data.

- All monthly and quarterly survey data collected by this office are published as preliminary. These data are revised only after the completion of the 12-month cycle of the data. No revisions are made to the published data before this unless approved by the Office Director.
- The magnitude of changes due to revisions experienced in the past will be included in the data reports, so that the reader can assess the accuracy of the data.
- After data are published as final, corrections will be made only in the event of a greater than one percent difference at the national level. Corrections for differences that are less than the before-mentioned threshold are left to the discretion of the Office Director.

The *Electric Power Annual Volume II* presents the most current annual data available to the EIA. The statistics may differ from those published previously in EIA publications due to corrections, revisions, or other adjustments to the data subsequent to its original release. On a chapter basis, the status (preliminary versus final) of the data contained in the EPA follows:

- **U.S. Electric Utility Retail Sales and Revenue**
Data on sales, revenue, and average revenue per kilowatthour from the Form EIA-861 for 1998 are final.
- **U.S. Electric Utility Financial Statistics**
Financial data from the Federal Energy Regulatory Commission Form 1 and the Form EIA-412 for 1998 are preliminary.
- **U.S. Electric Utility Environmental Statistics**
Data from the Form EIA-767 for 1997 are final. Data for 1998 are preliminary. A comparison of preliminary versus final data at the national level for 1998 will be provided in the *Electric Power Annual Volume II 1999*.
- **U.S. Electric Power Transactions**
All data from the Forms EIA-411, EIA-860A, and EIA-861 are final. Data from the Form FE-781R are preliminary for 1998.
- **U.S. Electric Utility Demand-Side Management**
All data on demand-side management from the Form EIA-861 are final.

- **U.S. Nonutility Power Producers**
Data from the Form EIA-867 for 1994 through 1997 are final. Data from Form EIA-860B for 1998 are preliminary.

Air Emissions

This section describes the methodology employed to calculate estimates of sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon dioxide (CO₂) emissions from utility and nonutility electric generating plants.

Utility Air Emissions

The following describes the methodology employed to calculate estimates of SO₂, NO_x, and CO₂ emissions from power plants operated by electric utilities. These air emissions are estimated using information contained on Form EIA-767, "Steam-Electric Plant Operation and Design Report." Form EIA-767 collects information annually for all U.S. power plants with a total existing or planned organic- or nuclear-fueled steam-electric generator nameplate rating of 10 megawatts (MW) or larger. Power plants with a total generator nameplate rating of 100 MW or more must complete the entire form, providing, among other things, information about fuel consumption and quality, legal air emission limits, and flue gas desulfurization (FGD) efficiency. Power plants with a total generator nameplate rating from 10 MW to less than 100 MW complete only part of the form, including information on fuel consumption and FGD sulfur removal efficiency, if applicable.

Uncontrolled Air Pollutant Emissions. Uncontrolled air pollutant emissions are those emissions that would occur in the absence of any control equipment. Uncontrolled SO₂, NO_x, and CO₂ emissions are determined by multiplying the quantity of fuel burned by an emission factor. An emission factor is the average quantity of a pollutant released from a boiler when a unit of fuel is burned.

The source of the SO₂ and NO_x emission factors, when available, is the Environmental Protection Agency report AP-42, "Compilation of Air Pollutant Emission Factors" (Tables A3 and A5).² Emissions of SO₂ and NO_x have been revised from the updated Air Pollutant Emissions Factor (AP-42 5th edition, through Supplement E) of the Environmental Protection Agency on July 1999. Environmental Protection Agency emission factors are

² *Compilation of Air Pollutant Emission Factors, Vol. 1: Stationary Point and Area Sources (AP-42); 5th Edition (through Supplement E)* Research Triangle Park, North Carolina, July 1999.

based on boiler type, firing configuration, and fuel burned. The methodology for determining emissions of CO₂ has been revised since the 1997 publication.

The coefficients for determining emissions of CO₂ from electric utility power plants come from the publication, *Emissions of Greenhouse Gases in the United States* (DOE/EIA-0573). The nonutility coefficients were developed to be consistent with the utility coefficients.

Methodology

The methodology for developing the CO₂ emission estimates for steam utility plants and nonsteam utility plants (calculations done on a plant basis by fuel), as well as for nonutility plants (calculations done on a facility basis by fuel), is as follows:

Steam Utility Plants

Step 1. Sum of Monthly Consumption (EIA-767) times Monthly Average Btu Content (EIA-767) divided by Total Annual Consumption (EIA-767) = Weighted Annual Btu Content Factor.

Step 2. Annual Consumption (EIA-767) times Weighted Annual Btu Content Factor (Step 1) = Annual Btu Consumption.

Step 3. Annual Btu Consumption (Step 2) times CO₂ factors = Annual CO₂ Emissions.

Step 4. Reduce Annual CO₂ Emissions (Step 3) by 1 percent to assume 99 percent burn factor.

Step 5. Divide Annual CO₂ Emissions (Step 4) by 2000 to obtain result in short tons.

Nonsteam Utility Plants

Step 1(a). If monthly EIA-759 and monthly FERC-423 is available: Sum of Monthly Consumption (EIA-759) times Monthly Average Btu Content (FERC-423) divided by Total Annual Consumption = Weighted Annual Btu Content Factor.

Step 1(b). If monthly EIA-759 is available, but not monthly FERC-423: Sum of Monthly Consumption (EIA-759) times Average Monthly Btu Content (calculated from FERC-423) divided by Total Annual Consumption = Weighted Annual Btu Content Factor.

Step 1(c). If only annual EIA-759 is available: Annual Consumption (EIA-759) times Average Annual Btu Content (calculated from FERC-423) divided by Total Annual Consumption = Weighted Annual Btu Content Factor.

Step 2. Annual Consumption (EIA-759) times Weighted Annual Btu Content Factor (Step 1) = Annual Btu Consumption.

Step 3. Annual Btu Consumption (Step 2) x CO₂ Factors = Annual CO₂ Emissions.

Step 4. Reduce Annual CO₂ Emissions (Step 3) by 1 percent to assume 99 percent burn factor.

Step 5. Divide Annual CO₂ Emissions (Step 4) by 2000 to obtain result in short tons.

Coal Rank and Emissions. In 1992, a special study of the relationship between the heat and carbon content of coal was completed by the Energy Information Administration's Analysis and Systems Division of the Office of Coal, Nuclear, Electric and Alternate Fuels. The hypothesis underlying this study was that the ratio of carbon-to-heat content varies not only by coal rank (i.e., anthracite, bituminous, subbituminous, and lignite), but also by geographic location of the coal. In this study, the hypothesis was tested and the results of the analysis supported the hypothesis. That is, it was concluded from the analysis that coal rank and location of the coal are significant factors in the variation of the ratio of carbon-to-heat content. After this determination, a set of emission factors, by rank and State were derived on the basis of data contained in EIA's Coal Analysis File.³

In editions prior to 1992 of this publication, separate conversion factors by coal rank were published and used to estimate emissions of CO₂. The special study by EIA concluded that since geographic location of coal in addition to rank of coal is a significant factor in determining the carbon/heat content relationship, the use of emission factors that consider both of these elements may yield more accurate estimates of CO₂ emissions. The emission factors for coal were developed in the units of pounds of CO₂ per million Btu of coal.

The emission factors for CO₂ (Table A4) from coal are applied by power plant, based on the rank, amount of coal received, and the State from which the coal

³For a description of methodology and data use to develop the EIA CO₂ emission factors, see B. D. Hong and E. R. Slatick, "Carbon Dioxide Emission Factors for Coal," Energy Information Administration, *Quarterly Coal Report, January-March 1994*, DOE/EIA-0121(94/1Q) (Washington, DC, August 1994).

originated, as reported in FERC Form 423, "Cost and Quality of Fuels for Electric Utility Plants." Thus, a weighted average emissions factor is obtained by plant and multiplied by the quantity of coal consumed by plant, as reported on Form EIA-767, "Steam-Electric Plant Operation and Design Report," to determine the emissions of CO₂. The emission factors for CO₂ are based on 100-percent combustion of the carbon in the fuel. Since a small percentage of the carbon in the coal is not converted to CO₂, this publication assumes 99 percent combustion. The 1 percent of emissions is deducted at the State/National level. The emissions at the State level are based on the State in which the plant is located.

Uncontrolled emissions of SO₂ and NO_x do not always accurately depict the quantity of emissions released into the atmosphere because they fail to reflect reductions from control equipment and/or operating technologies. Consequently, controlled emissions are calculated to provide a more accurate estimate of actual utility air emission.

Controlled Sulfur Dioxide Emissions. Because of environmental regulations controlling SO₂ emissions, many utilities are required to install FGD units at their coal-fired plants.⁴ FGD units typically remove between 70 to 90 percent of SO₂ from the boiler flue gas although higher removal efficiencies can be achieved. Electric utilities report both sulfur removal efficiency (percent) and their most stringent SO₂ emission limits on the Form EIA-767. To determine controlled SO₂ emissions, the uncontrolled emissions are reduced by the annual average removal efficiencies reported on the Form EIA-767. This emission is the controlled emission. As a check, the controlled emission is compared with the most stringent legal limit reported on the Form EIA-767. The controlled emission should be less than the legal limit because research indicates that utilities routinely remove more SO₂ than required to assure an operating margin of safety. If the controlled emission is not less than the most stringent legal limit, it implies that the utility is out of legal compliance and could be subject to fines and other penalties.

Utilities are permitted to take credit for sulfur that remains in bottom ash—ash remaining in the bottom of the furnace after the coal is burned. For example, if a utility is required to remove 90 percent of the sulfur in the coal and 3 percent remains in the ash, it has to remove only 87 percent using scrubbers. This credit is included in emissions data in this report. It is likely,

however, that in many cases the credit is not taken. In order to take the ash credit, utilities need to monitor the coal consumed on a daily basis; this is both time-consuming and costly. To the extent that utilities do not take the ash credit, emissions might be slightly overstated.

Sulfur Dioxide Emission Comparison. Title IV of the Clean Air Act Amendments of 1990 requires annual sulfur dioxide (SO₂) emissions from electric power plants to be reduced 10 million tons below their 1990 level by the year 2010. The Clean Air Act required electric utility units covered under the Acid Rain Program (units 25 megawatts and greater) to be equipped with continuous emission monitoring systems (CEMS). CEMS is the industry standard for measuring and recording hourly SO₂, nitrogen oxide (NO_x), and carbon dioxide (CO₂) emissions. In 1994, the first 263 utility units covered under the Acid Rain Program were required to install CEMS and submit a year's worth of emissions data to the Environmental Protection Agency (EPA). In 1995, the operators of more than 2,000 additional units were required to measure and report emissions data. EPA published 1996 CEMS emissions data by state and plant in its publication *Acid Rain Program, Emissions Scorecard 1996* (EPA430/R-97-025).

Preliminary 1996 CEMS data for about 1,000 power plants was received from EPA just prior to the publication deadline. A comparison was made between SO₂ emissions data from electric utility plants for which both EPA and EIA collected data. On a national basis, the data collected by EPA is 2.5 percent higher than SO₂ emissions calculated by EIA.

Controlled Nitrogen Oxide Emissions. The controlled NO_x emission is calculated by applying the appropriate reduction factor in Table A6. Prior to 1995 for utility boilers with regulated nitrogen oxide emission limits, the annual controlled estimate used was the lesser of the controlled estimate or the annual limitation.

When more than one control technology is reported, the highest single reduction factor is used to estimate the annual controlled NO_x emission.

A degree of complexity is added to this approach, however, because air emission standards are not reported in consistent units. In some rare instances, emission standards are reported in units that cannot be directly compared with estimated uncontrolled emission

⁴Flue gas desulfurization units may also reduce sulfur dioxide emissions from plants that burn oil and petroleum coke.

rates. Examples of such standards are ones that specify the concentration of NO_x allowed in the flue gas or the ambient concentration of NO_x (parts per million). In cases where these types of standards are reported, the uncontrolled emission estimate is used. Such standards are uncommon, however, and do not significantly affect the results.

Carbon Dioxide Emissions. There are no Federal regulations that limit CO₂ emissions. Information pertinent to the estimation of controlled CO₂ emissions is not collected on the Form EIA-767; therefore, no estimates of controlled CO₂ emissions are made.

Air Emissions from Small Plants. The Form EIA-767 does not collect data for generators powered by internal combustion engines, gas turbines, combined cycle units (for example, gas turbines with waste heat boilers), and boilers at steam-electric plants with a total nameplate capacity of less than 10 MW. Accordingly, utility air emission from these generators are not estimated by the methodology. An estimate of air emissions from these generating units based on a similar methodology using 1991 fuel consumption data reported on the Form EIA-759, "Monthly Power Plant Report," was performed. Results of this effort indicate that the emissions of SO₂, NO_x, and CO₂ from utility sources not included on the Form EIA-767, are less than 0.1, 1.2, and 1.1 percent, respectively, of total utility air emissions.

Nonutility Air Emissions

The following describes the methodology employed to calculate estimates of SO₂, NO_x, and CO₂ emissions from power plants operated by nonutilities. The emissions are estimated using information contained on Form EIA-860B, "Annual Nonutility Power Producer Report." Form EIA-860B collects information annually from all nonutility power producers with a total generator nameplate rating of 1 megawatt (MW) or more, including cogenerators, small power producers, and other nonutility electricity generators. Facilities with a total generator nameplate rating of 1 MW or more must complete the entire form, providing, among other things, information about fuel consumption and quality. Facilities with a combined nameplate capacity of less than 25 megawatts are not required to complete Schedule V "Facility Environmental Information" of the Form EIA-860B.

⁵ *Compilation of Air Pollutant Emission Factors, Vol. I: Stationary Point and Area Sources (AP-42)*, 5th Edition (through Supplement E) Research Triangle Park, North Carolina, July 1999.

⁶ Boilers with a gross heat rate of 100 million Btu per hour or greater.

Uncontrolled Emissions. Uncontrolled air pollutant emissions are those emissions that would occur in the absence of any control equipment. Uncontrolled SO₂, NO_x, and CO₂ emissions are determined by multiplying the quantity of fuel burned by an emission factor. An emission factor is the average quantity of a pollutant released from a boiler when a unit of fuel is burned. As with electric utilities, the source of both the SO₂ and NO_x emission factors, when available, is the Environmental Protection Agency report AP-42, "Compilation of Air Pollutant Emission Factors."⁵

However, the boiler type and firing configuration are not reported on the Form EIA-860B so all boilers are assumed to be large boilers⁶ with pulverized coal firing and dry bottoms. For other types of prime movers (for example, gas turbines, combined cycle, and internal combustion engines) the same set of emission factors are used.

The methodology for determining emissions of from nonutility electric power plants has been CO₂ revised. The new methodology uses the results of the coal study discussed under "Utility Air Emissions." Based on the coal rank, the quality of coal received and its State of origin, weighted average emission factors are determined by State for electric utility plants. It is assumed that nonutility plants located in the same State as utility plants obtain coal from the same State. The weighted emission factors by State for utility coal-fired plants are multiplied by the coal consumption reported for nonutility plants in the respective State on Form EIA-860B. The methodology developed for CO₂ emission estimates for nonutility plants is as follows:

Step 1. Annual Consumption (EIA-860B) times Average Annual Btu Content (calculated from FERC-423) divided by Total Annual Consumption = Weighted Annual Btu Content Factor.

Step 2. Annual Consumption (EIA-860B) times Weighted Annual Btu Content Factor (Step 1) = Annual Btu Consumption.

Step 3. Annual Btu Consumption (Step 2) x CO₂ Factors = Annual CO₂ Emissions.

Step 4. Reduce Annual CO₂ Emissions (Step 3) by 1 percent to assume 99 percent burn factor.

Step 5. Divide Annual CO₂ Emissions (Step 4) by 2000 to obtain result in short tons.

Uncontrolled emissions of SO₂ and NO_x do not always accurately depict the quantity of emissions released into the atmosphere because they fail to reflect reductions from control equipment and operating technologies. Consequently, controlled emissions are calculated to provide a more accurate estimate of actual nonutility air emissions.

Controlled Sulfur Dioxide Emissions. The Clean Air Act of 1971 established Federal emission limits for new fossil-fueled steam generators—1.2 pounds of SO₂ per million Btu of solid fossil fuel consumed and 0.8 pounds for liquid fossil fuels. The Clean Air Act of 1978 established even more stringent sulfur dioxide emission limits. The revised law mandates the installation of flue gas desulfurization (FGD) equipment at some new industrial and commercial facilities built after June 19, 1984, and requires that these facilities remove 90 percent of the SO₂ in the flue gases. Nonutilities report whether they have FGD equipment at their facilities and the date of first electrical generation on the Form EIA-860B. Air emission limits are based on the date construction began. It is assumed that it takes two years from the start of construction to the date of first electrical generation as reported on the form.

Controlled SO₂ emissions are calculated for respondents reporting FGD equipment or fluidized bed combustion. For facilities reporting first electrical generation before August 1973, no reductions are assumed. For facilities reporting first electrical generation between August 1973 and June 1986, the controlled emission is estimated as the lesser of either: the uncontrolled emission, or a weighted average of 1.2 and 0.8 pounds of SO₂ per million Btu of solid and liquid fossil fuel consumed, respectively. For facilities reporting first electrical generation after June 1986, the controlled emission is estimated as the lesser of either: the uncontrolled emission reduced by 90 percent, or a weighted average of 1.2 and 0.8 pounds of SO₂ per million Btu of solid and liquid fossil fuel consumed, respectively.

Facilities with a total nameplate rating between 5 MW and 25 MW are not required to report whether they have FGD units. Controlled SO₂ emissions for these facilities are calculated based on the year electricity was first generated at the facility as reported on the Form EIA-860B. For facilities reporting electrical generation before August 1973, no control equipment is assumed

and the controlled SO₂ emission is equal to the uncontrolled emission as calculated above. For facilities reporting the date of their first electrical generation as between August 1973 and August 1980, the controlled SO₂ emission is estimated as the lesser of either: the uncontrolled SO₂ emission, or 1.2 pound of SO₂ per million Btu of fuel consumed. For facilities reporting their first electrical generation after August 1980, the controlled SO₂ emission is estimated as the lesser of either: the uncontrolled emission reduced by 80 percent, or 1.2 pounds of sulfur dioxide per million Btu of fuel consumed.

Controlled Nitrogen Oxide Emissions. Nonutilities with a total facility nameplate rating of 25 MW or more are required to report on the Form EIA-860B whether they have any NO_x control equipment and its type. Controlled NO_x emissions estimates are based on assumed removal efficiencies for the different types of NO_x control equipment. The percent removal efficiencies of the NO_x control equipment and/or operating technologies are shown in Table A6.

The controlled NO_x emission is calculated by reducing the uncontrolled emission by the appropriate reduction percentage based on the NO_x technology. In cases where more than one type of technology is reported, the highest single reduction percentage of the equipment reported is applied.

Facilities with a total nameplate rating between 5 MW and 25 MW are not required to report whether they have NO_x reduction equipment. However, the Clean Air Act limits NO_x emissions to 0.8 pounds per million Btu of fuel consumed. Controlled NO_x emissions for these facilities are calculated based on the year electricity was first generated at the facility as reported on the Form EIA-860B. For facilities reporting electrical generation before August 1973, no control equipment is assumed and the controlled NO_x emission is estimated to be equal to the uncontrolled emission as calculated above. For facilities reporting the first date of electrical generation after August 1973, the controlled NO_x emission is estimated as the lesser of either: the uncontrolled NO_x emission, or 0.8 pounds of NO_x per million Btu of fuel consumed.

Controlled Carbon Dioxide Emissions. There are no Federal regulations that limit CO₂ emissions. Information pertinent to the estimation of controlled CO₂ emissions is not collected on the Form EIA-860B; therefore, no estimates of controlled CO₂ emissions are provided.

included in emissions data in this report. It is likely, however, that in many cases the credit is not taken. In order to take the ash credit, utilities need to monitor the coal consumed on a daily basis; this is both time-consuming and costly. To the extent that utilities do not take the ash credit, emissions might be slightly overstated.

Sulfur Dioxide Emission Comparison. Title IV of the Clean Air Act Amendments of 1990 requires annual sulfur dioxide (SO_2) emissions from electric power plants to be reduced 10 million tons below their 1990 level by the year 2010. The Clean Air Act required electric utility units covered under the Acid Rain Program (units 25 megawatts and greater) to be equipped with continuous emission monitoring systems (CEMS). CEMS are the industry standard for measuring and recording hourly SO_2 , nitrogen oxide (NO_x), and carbon dioxide (CO_2) emissions. In 1994, the first 263 utility units covered under the Acid Rain Program were required to install CEMS and submit a year's worth of emissions data to the Environmental Protection Agency (EPA). In 1995, the operators of more than 2,000 additional units were required to measure and report emissions data. EPA published 1994 CEMS emissions data by state and plant in its publication *Acid Rain Program, Emissions Scorecard 1994 (EPA430/R-95-012)*.

Preliminary 1995 CEMS data for about 1,000 power plants was received from EPA just prior to the publication deadline. A comparison was made between SO_2 emissions data from 719 electric utility plants for which both EPA and EIA collected data for 1995. On a national basis, the data collected by EPA is 5 percent higher than SO_2 emissions calculated by EIA. When 1995 CEMS data are finalized by EPA, EIA plans to conduct a plant-by-plant comparison of CEMS and EIA-calculated SO_2 , NO_x , and CO_2 emissions.

Controlled Nitrogen Oxide Emissions. The controlled NO_x emission is calculated by applying the appropriate reduction factor in Table A5. Prior to 1995 for utility boilers with regulated nitrogen oxide emission limits, the annual controlled estimate used was the lesser of the controlled estimate or the annual limitation. When more than one control technology is reported, the highest single reduction factor is used to estimate the annual controlled NO_x emission.

Carbon Dioxide Emissions. There are no Federal regulations that limit CO_2 emissions. Information pertinent to the estimation of controlled CO_2 emissions is not collected on the Form EIA-767; therefore, no estimates of controlled CO_2 emissions are made.

A degree of complexity is added to this approach, however, because air emission standards are not reported in consistent units. In some rare instances, emission standards are reported in units that cannot be directly compared with estimated uncontrolled emission rates. Examples of such standards are ones that specify the concentration of NO_x allowed in the flue gas or the ambient concentration of NO_x (parts per million). In cases where these types of standards are reported, the uncontrolled emission estimate is used. Such standards are uncommon, however, and do not significantly affect the results.

Air Emissions from Small Plants. The Form EIA-767 does not collect data for generators powered by internal combustion engines, gas turbines, combined cycle units (for example, gas turbines with waste heat boilers), and boilers at steam-electric plants with a total nameplate capacity of less than 10 MW. Accordingly, utility air emission from these generators are not estimated by the methodology. An estimate of air emissions from these generating units based on a similar methodology using 1991 fuel consumption data reported on the Form EIA-759, "Monthly Power Plant Report," was performed. Results of this effort indicate that the emissions of SO_2 , NO_x , and CO_2 from .*.cb utility sources not included on the Form EIA-767, are less than 0.1, 1.2, and 1.1 percent, respectively, of total utility air emissions.

Nonutility Air Emissions

The following describes the methodology employed to calculate estimates of SO_2 , NO_x , and CO_2 emissions from power plants operated by nonutilities. The emissions are estimated using information contained on Form EIA-867, "Annual Nonutility Power Producer Report." Form EIA-867 collects information annually from all nonutility power producers with a total generator nameplate rating of 1 megawatt (MW) or more, including cogenerators, small power producers, and other nonutility electricity generators. Facilities with a total generator nameplate rating of 1 MW or more must complete the entire form, providing, among other things, information about fuel consumption and quality. Facilities with a combined nameplate capacity of less than 25 megawatts are not required to complete Schedule V "Facility Environmental Information" of the Form EIA-867.

Uncontrolled Emissions. Uncontrolled air pollutant emissions are those emissions that would occur in the absence of any control equipment. Uncontrolled SO_2 , NO_x , and CO_2 emissions are determined by multiplying the quantity of fuel burned by an emission factor. An emission factor is the average quantity of a pollutant

released from a boiler when a unit of fuel is burned. As with electric utilities, the source of both the SO_2 and NO_x emission factors, when available, is the Environmental Protection Agency report AP-42, "Compilation of Air Pollutant Emission Factors."⁷ However, the boiler type and firing configuration are not reported on the Form EIA-867 so all boilers are assumed to be large boilers⁸ with pulverized coal firing and dry bottoms.

For other types of prime movers (for example, gas turbines, combined cycle, and internal combustion engines) the same set of emission factors are used. The methodology for determining emissions of CO_2 from nonutility electric power plants has been revised. The new methodology uses the results of the coal study discussed under "Utility Air Emissions." Based on the coal rank, the quality of coal received and its State of origin, weighted average emission factors are determined by State for electric utility plants. It is assumed that nonutility plants located in the same State as utility plants obtain coal from the same State. The weighted emission factors by State for utility coal-fired plants are multiplied by the coal consumption reported for nonutility plants in the respective State on Form EIA-867.

Uncontrolled emissions of SO_2 and NO_x do not always accurately depict the quantity of emissions released into the atmosphere because they fail to reflect reductions from control equipment and operating technologies. Consequently, controlled emissions are calculated to provide a more accurate estimate of actual nonutility air emissions.

Controlled Sulfur Dioxide Emissions. The Clean Air Act of 1971 established Federal emission limits for new fossil-fueled steam generators—1.2 pounds of SO_2 per million Btu of solid fossil fuel consumed and 0.8 pounds for liquid fossil fuels. The Clean Air Act of 1978 established even more stringent sulfur dioxide emission limits. The revised law mandates the installation of flue gas desulfurization (FGD) equipment at some new industrial and commercial facilities built after June 19, 1984, and requires that these facilities remove 90 percent of the SO_2 in the flue gases. Nonutilities report whether they have FGD equipment at their facilities and the date of first electrical generation on the Form EIA-867. Air emission limits are based on the date construction began. It is assumed that it takes two years from the

start of construction to the date of first electrical generation, as reported on the form.

Controlled SO_2 emissions are calculated for respondents reporting FGD equipment or fluidized bed combustion. For facilities reporting first electrical generation before August 1973, no reductions are assumed. For facilities reporting first electrical generation between August 1973 and June 1986, the controlled emission is estimated as the lesser of either: the uncontrolled emission, or a weighted average of 1.2 and 0.8 pounds of SO_2 per million Btu of solid and liquid fossil fuel consumed, respectively. For facilities reporting first electrical generation after June 1986, the controlled emission is estimated as the lesser of either: the uncontrolled emission reduced by 90 percent, or a weighted average of 1.2 and 0.8 pounds of SO_2 per million Btu of solid and liquid fossil fuel consumed, respectively.

Facilities with a total nameplate rating between 5 MW and 25 MW are not required to report whether they have FGD units. Controlled SO_2 emissions for these facilities are calculated based on the year electricity was first generated at the facility as reported on the Form EIA-867. For facilities reporting electrical generation before August 1973, no control equipment is assumed and the controlled SO_2 emission is equal to the uncontrolled emission as calculated above. For facilities reporting the date of their first electrical generation as between August 1973 and August 1980, the controlled SO_2 emission is estimated as the lesser of either: the uncontrolled SO_2 emission, or 1.2 pound of SO_2 per million Btu of fuel consumed. For facilities reporting their first electrical generation after August 1980, the controlled SO_2 emission is estimated as the lesser of either: the uncontrolled emission reduced by 80 percent, or 1.2 pounds of sulfur dioxide per million Btu of fuel consumed.

Controlled Nitrogen Oxide Emissions. Nonutilities with a total facility nameplate rating of 25 MW or more are required to report on the Form EIA-867 whether they have any NO_x control equipment and its type. Controlled NO_x emissions estimates are based on assumed removal efficiencies for the different types of NO_x control equipment. The percent removal efficiencies of the NO_x control equipment and/or operating technologies are shown in Table A5.

⁷"*Compilation of Air Pollutant Emission Factors*, Vol. I: Stationary Point and Area Sources (AP-42)," 5th Edition (including Supplement A) Research Triangle Park, North Carolina, January 1996.

⁸Boilers with a gross heat rate of 100 million Btu per hour or greater.

The controlled NO_x emission is calculated by reducing the uncontrolled emission by the appropriate reduction percentage based on the NO_x technology. In cases where more than one type of technology is reported, the highest single reduction percentage of the equipment reported is applied. Facilities with a total nameplate rating between 5 MW and 25 MW are not required to report whether they have NO_x reduction equipment. However, the Clean Air Act limits NO_x emissions to 0.8 pounds per million Btu of fuel consumed. Controlled NO_x emissions for these facilities are calculated based on the year electricity was first generated at the facility as reported on the Form EIA-867. For facilities reporting

electrical generation before August 1973, no control equipment is assumed and the controlled NO_x emission is estimated to be equal to the uncontrolled emission as calculated above. For facilities reporting the first date of electrical generation after August 1973, the controlled NO_x emission is estimated as the lesser of either: the uncontrolled NO_x emission, or 0.8 pounds of NO_x per million Btu of fuel consumed. *Controlled Carbon Dioxide Emissions.* There are no Federal regulations that limit CO_2 emissions. Information pertinent to the estimation of controlled CO_2 emissions is not collected on the Form EIA-867; therefore, no estimates of controlled CO_2 emissions are provided.

Glossary

Anthracite: A hard, black lustrous coal, often referred to as hard coal, containing a high percentage of fixed carbon and a low percentage of volatile matter. Comprises three groups classified according to the following ASTM Specification D388-84, on a dry mineral-matter-free basis:

	Fixed Carbon Limits		Volatile Matter	
	GE	LT	GT	LE
Meta-Anthracite	98	--	--	2
Anthracite	92	98	2	8
Semianthracite	86	92	8	14

Average Revenue per Kilowatthour: The average revenue per kilowatthour of electricity sold by sector (residential, commercial, industrial, or other) and geographic area (State, Census division, and national), is calculated by dividing the total monthly revenue by the corresponding total monthly sales for each sector and geographic area.

Baseload: The minimum amount of electric power delivered or required over a given period of time at a steady rate.

Baseload Capacity: The generating equipment normally operated to serve loads on an around-the-clock basis.

Baseload Plant: A plant, usually housing high-efficiency steam-electric units, which is normally operated to take all or part of the minimum load of a system, and which consequently produces electricity at an essentially constant rate and runs continuously. These units are operated to maximize system mechanical and thermal efficiency and minimize system operating costs.

Btu (British Thermal Unit): A standard unit for measuring the quantity of heat energy equal to the quantity of heat required to raise the temperature of 1 pound of water by 1 degree Fahrenheit.

Capability: The maximum load that a generating unit, generating station, or other electrical apparatus can carry under specified conditions for a given period of time without exceeding approved limits of temperature and stress.

Capacity: The amount of electric power delivered or required for which a generator, turbine, transformer, transmission circuit, station, or system is rated by the manufacturer.

Coal: A black or brownish-black solid combustible substance formed by the partial decomposition of vegetable matter without access to air. The rank of coal, which includes anthracite, bituminous coal, sub-bituminous coal, and lignite, is based on fixed carbon, volatile matter, and heating value. Coal rank indicates the progressive alteration from lignite to anthracite. Lignite contains approximately 9 to 17 million Btu per ton. The contents of subbituminous and bituminous coal range from 16 to 24 million Btu per ton and from 19 to 30 million Btu per ton, respectively. Anthracite contains approximately 22 to 28 million Btu per ton.

Electric Utility: A corporation, person, agency, authority, or other legal entity or instrumentality that owns and/or operates facilities within the United States, its territories, or Puerto Rico for the generation, transmission, distribution, or sale of electric energy primarily for use by the public and files forms listed in the Code of Federal Regulations, Title 18, Part 141. Facilities that qualify as cogenerators or small power producers under the Public Utility Regulatory Policies Act (PURPA) are not considered electric utilities.

Energy: The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks. Electrical energy is usually measured in kilowatthours, while heat energy is usually measured in British thermal units.

Generating Unit: Any combination of physically connected generator(s), reactor(s), boiler(s), combustion turbine(s), or other prime mover(s) operated together to produce electric power.

Generation (Electricity): The process of producing electric energy by transforming other forms of energy; also, the amount of electric energy produced, expressed in watthours (Wh).

Gross Generation: The total amount of electric energy produced by the generating units at a generating station or stations, measured at the generator terminals.

Net Generation: Gross generation less the electric energy consumed at the generating station for station use.

Generator Nameplate Capacity: The full-load continuous rating of a generator, prime mover, or other electric power production equipment under specific conditions as designated by the manufacturer. Installed generator nameplate rating is usually indicated on a nameplate physically attached to the generator.

Geothermal Plant: A plant in which the prime mover is a steam turbine. The turbine is driven either by steam produced from hot water or by natural steam that derives its energy from heat found in rocks or fluids at various depths beneath the surface of the earth. The energy is extracted by drilling and/or pumping.

Gigawatt (GW): One billion watts.

Gigawatthour (GWh): One billion watthours.

Heavy Oil: The fuel oils remaining after the lighter oils have been distilled off during the refining process. Except for start-up and flame stabilization, virtually all petroleum used in steam plants is heavy oil.

Hydroelectric Plant: A plant in which the turbine generators are driven by falling water.

Industrial: The industrial sector is generally defined as manufacturing, construction, mining, agriculture, fishing and forestry establishments (Standard Industrial Classification [SIC] codes 01-39). The utility may classify industrial service using the SIC codes, or based on demand or annual usage exceeding some specified limit. The limit may be set by the utility based on the rate schedule of the utility.

Inoperable Capacity: Utility-owned or operated capacity that is totally or partially out of service for reasons such as: environmental restrictions, legal or regulatory restrictions, extensive modifications or repair, or capacity specified as being in a mothballed state.

Kilowatt (kW): One thousand watts.

Kilowatthour (kWh): One thousand watthours.

Light Oil: Lighter fuel oils distilled off during the refining process. Virtually all petroleum used in internal combustion and gas-turbine engines is light oil.

Megawatt (MW): One million watts.

Megawatthour (MWh): One million watthours.

Natural Gas: A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in porous geological formations beneath the earth's surface, often in association with petroleum. The principal constituent is methane.

Net Capability: The maximum load-carrying ability of the equipment, exclusive of station use, under specified conditions for a given time interval, independent of the characteristics of the load. (Capability is determined by design characteristics, physical conditions, adequacy of prime mover, energy supply, and operating limitations such as cooling and circulating water supply and temperature, headwater and tailwater elevations, and electrical use.)

Net Summer Capability: The steady hourly output, which generating equipment is expected to supply to system load exclusive of auxiliary power, as demonstrated by tests at the time of summer peak demand.

Nonutility Power Producer: A corporation, person, agency, authority, or other legal entity or instrumentality that owns electric generating capacity and is not an electric utility. Nonutility power producers include qualifying cogenerators, qualifying small power producers, and other nonutility generators (including independent power producers) without a designated franchised service area, and which do not file forms listed in the Code of Federal Regulations, Title 18, Part 141.

North American Electric Reliability Council (NERC): A council formed in 1968 by the electric utility industry to promote the reliability and adequacy of bulk power supply in the electric utility systems of North America. NERC consists of ten regional reliability councils and encompasses essentially all the power regions of the contiguous United States, Canada, and Mexico. The NERC Regions are:

ASCC - Alaskan System Coordination Council

ECAR - East Central Area Reliability Coordination Agreement

ERCOT - Electric Reliability Council of Texas

MAIN - Mid-America Interconnected Network

MAAC - Mid-Atlantic Area Council

MAPP - Mid-Continent Area Power Pool

NPCC - Northeast Power Coordinating Council

SERC - Southeastern Electric Reliability Council

SPP - Southwest Power Pool

WSCC - Western Systems Coordinating Council

Nuclear Fuel: Fissionable materials that have been enriched to such a composition that, when placed in a nuclear reactor, will support a self-sustaining fission chain reaction, producing heat in a controlled manner for process use.

Nuclear Power Plant: A facility in which heat produced in a reactor by the fissioning of nuclear fuel is used to drive a steam turbine.

Operable Nuclear Unit: A nuclear unit is "operable" after it completes low-power testing and is granted authorization to operate at full power. This occurs when it receives its full power amendment to its operating license from the Nuclear Regulatory Commission.

Petroleum: A mixture of hydrocarbons existing in the liquid state found in natural underground reservoirs, often associated with gas. Petroleum includes fuel oil No. 2, No. 4, No. 5, No. 6; topped crude; Kerosene; and jet fuel.

Petroleum Coke: See Coke (Petroleum).

Petroleum (Crude Oil): A naturally occurring, oily, flammable liquid composed principally of hydrocarbons. Crude oil is occasionally found in springs or pools but usually is drilled from wells beneath the earth's surface.

Photovoltaic Energy: Photovoltaic energy is energy radiated by the sun as electromagnetic waves (electromagnetic radiation) that is converted at electric utilities into electricity by means of solar (photovoltaic) cells or concentrating (focusing) collectors.

Public Street and Highway Lighting: Public street and highway lighting includes electricity supplied and

services rendered for the purposes of lighting streets, highways, parks, and other public places; or for traffic or other signal system service, for municipalities, or other divisions or agencies of State or Federal governments.

Pumped-Storage Hydroelectric Plant: A plant that usually generates electric energy during peak-load periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available to do so. When additional generating capacity is needed, the water can be released from the reservoir through a conduit to turbine generators located in a power plant at a lower level.

Railroad and Railway Services: Railroad and railway services include electricity supplied and services rendered to railroads and interurban and street railways, for general railroad use, including the propulsion of cars or locomotives, where such electricity is supplied under separate and distinct rate schedules.

Residential: The residential sector is defined as private household establishments which consume energy primarily for space heating, water heating, air conditioning, lighting, refrigeration, cooking and clothes drying. The classification of an individual consumer's account, where the use is both residential and commercial, is based on principal use. Apartment houses are also included.

Retail: Sales covering electrical energy supplied for residential, commercial, and industrial end-use purposes. Other small classes, such as agriculture and street lighting, also are included in this category.

Revenue: The total amount of money received by a firm from sales of its products and/or services, gains from the sales or exchange of assets, interest and dividends earned on investments, and other increases in the owner's equity except those arising from capital adjustments.

Sales: The amount of kilowatthours sold in a given period of time; usually grouped by classes of service, such as residential, commercial, industrial, and other. Other sales include public street and highway lighting, other sales to public authorities and railways, and interdepartmental sales.

Short Ton: A unit of weight equal to 2,000 pounds.

Steam-Electric Plant (Conventional): A plant in which the prime mover is a steam turbine. The steam used to

drive the turbine is produced in a boiler where fossil fuels are burned.

Subbituminous Coal: Subbituminous coal, or black lignite, is dull black and generally contains 20 to 30 percent moisture. The heat content of subbituminous coal ranges from 16 to 24 million Btu per ton as received and averages about 18 million Btu per ton. Subbituminous coal, mined in the western coal fields, is used for generating electricity and space heating.

Sulfur: One of the elements present in varying quantities in coal which contributes to environmental degradation when coal is burned. In terms of sulfur content by

weight, coal is generally classified as low (less than or equal to 1 percent), medium (greater than 1 percent and less than or equal to 3 percent), and high (greater than 3 percent). Sulfur content is measured as a percent by weight of coal on an "as received" or a "dry" (moisture-free, usually part of a laboratory analysis) basis.

Watt: The electrical unit of power. The rate of energy transfer equivalent to 1 ampere flowing under a pressure of 1 volt at unity power factor.

Watthour (Wh): An electrical energy unit of measure equal to 1 watt of power supplied to, or taken from, an electric circuit steadily for 1 hour.