Alabama

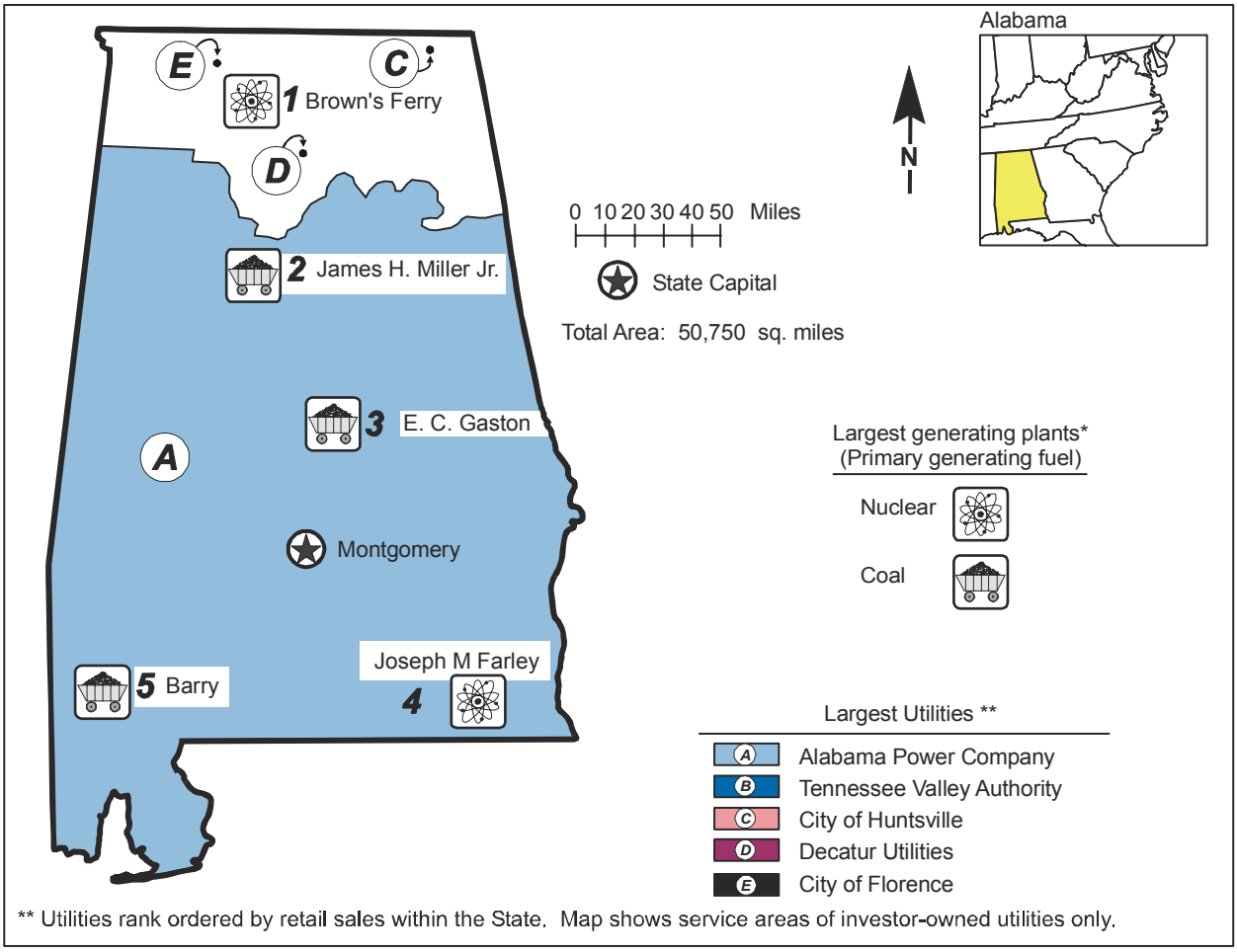

Alabama
E
C
1 Brown's Ferry
D
2 James H. Miller Jr.
3 E. C. Gaston
A
Montgomery
5 Barry
Joseph M Farley
4
N
0 10 20 30 40 50 Miles
State Capital
Total Area: 50,750 sq. miles
Largest generating plants*
(Primary generating fuel)
Nuclear
Coal
Largest Utilities **
A Alabama Power Company
B Tennessee Valley Authority
C City of Huntsville
D Decatur Utilities
E City of Florence
** Utilities rank ordered by retail sales within the State. Map shows service areas of investor-owned utilities only.

Table 1. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SERC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	22,683	12
Utility	21,462	9
Nonutility	1,222	21
Net Generation (megawatthours)	120,865,327	9
Utility	113,908,581	7
Nonutility	6,956,746	18
Emissions (thousand short tons)		
Sulfur Dioxide	476	10
Nitrogen Oxide	263	11
Carbon Dioxide	78,746	11
Sulfur Dioxide/sq. mile	9	13
Nitrogen Oxide/sq. mile	5	14
Carbon Dioxide/sq. mile	1,552	15
Electricity Consumption (MWh) (excludes line losses)	87,214,668	16
Utility Retail Electricity Sales (megawatthours)	80,401,079	15
Nonutility Retail Sales and Direct Use (megawatthours)	6,813,589	6
Utility Average Retail Price (cents/kWh)	5.54	38

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Browns Ferry	Nuclear	Tennessee Valley Authority	3,301
2. James H Miller Jr	Petroleum, Gas, Coal	Alabama Power Co	2,779
3. E C Gaston	Petroleum, Coal	Alabama Power Co	1,909
4. Joseph M Farley	Nuclear	Alabama Power Co	1,699
5. Barry	Petroleum, Gas, Coal	Alabama Power Co	1,660
6. Widows Creek	Petroleum, Coal	Tennessee Valley Authority	1,610
7. Colbert	Petroleum, Gas, Coal	Tennessee Valley Authority	1,579
8. Gorgas	Petroleum, Coal	Alabama Power Co	1,303
9. Greene County	Petroleum, Gas, Coal	Alabama Power Co	1,243
10. Wilson	Hydro	Tennessee Valley Authority	639

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Alabama Power Company	50,157,204	15,699,081	12,314,085	21,942,889	201,149
B. Tennessee Valley Authority	6,083,059	0	0	6,036,209	46,850
C. City of Huntsville	4,244,441	1,918,823	1,407,701	890,626	27,291
D. Decatur Utilities	1,523,766	358,141	274,555	883,381	7,689
E. City of Florence	1,131,276	589,749	383,353	147,339	10,835
Total	63,139,746	18,565,794	14,379,694	29,900,444	293,814
Percentage of Utility Sales	78.5	68.6	79.3	86.6	43.5

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	20,023	19,878	21,462	0.8	96.7	95.3	94.6
Coal	11,777	11,494	11,349	-0.4	56.9	55.1	50.0
Petroleum	65	388	30	-8.3	0.3	1.9	0.1
Gas	400	202	2,076	20.1	1.9	1.0	9.1
Nuclear	4,847	4,835	5,000	0.3	23.4	23.2	22.0
Hydroelectric	2,934	2,959	3,007	0.3	14.2	14.2	13.3
Total Nonutility	676	975	1,222	6.8	3.3	4.7	5.4
Coal	W	W	51	W	W	W	0.2
Petroleum	W	W	4	W	W	W	0.0
Gas	207	140	341	5.7	1.0	0.7	1.5
Petroleum/Gas Combined	W	W	132	W	W	W	0.6
Other	444	748	694	5.1	2.1	3.6	3.1
Total Industry	20,699	20,852	22,683	1.0	100.0	100.0	100.0
Coal	W	W	11,400	W	W	W	50.3
Petroleum	W	W	34	W	W	W	0.1
Gas	607	342	2,417	16.6	2.9	1.6	10.7
Petroleum/Gas Combined	W	W	132	W	W	W	0.6
Nuclear	4,847	4,835	5,000	0.3	23.4	23.2	22.0
Hydroelectric	2,934	2,959	3,007	0.3	14.2	14.2	13.3
Other	444	748	694	5.1	2.1	3.6	3.1

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

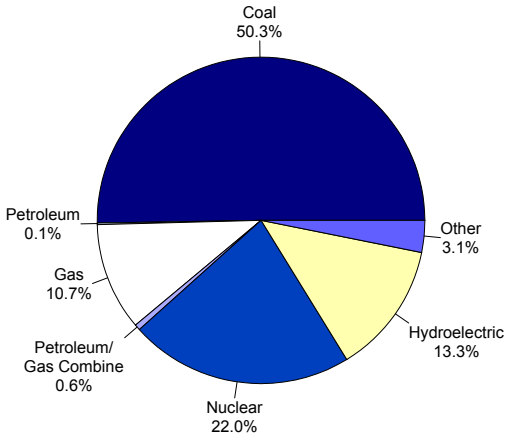


Figure 2. Industry Generation by Energy Source, 1999

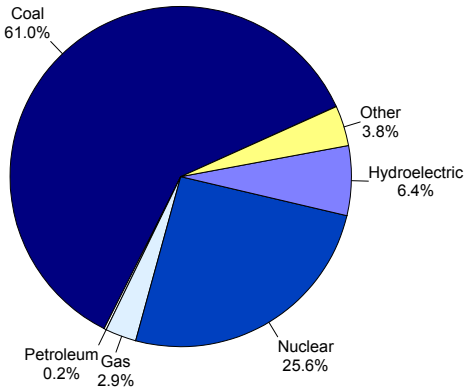


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	76,231,696	95,171,057	113,908,581	4.6	94.8	93.9	94.2
Coal	53,301,276	62,768,480	73,220,751	3.6	66.3	61.9	60.6
Petroleum	91,916	120,574	154,148	5.9	0.1	0.1	0.1
Gas	420,115	373,124	1,881,686	18.1	0.5	0.4	1.6
Nuclear	12,051,882	20,479,759	30,892,394	11.0	15.0	20.2	25.6
Hydroelectric	10,366,507	11,429,120	7,759,602	-3.2	12.9	11.3	6.4
Total Nonutility	4,161,725	6,182,179	6,956,746	5.9	5.2	6.1	5.8
Coal	493,954	597,662	542,515	1.0	0.6	0.6	0.4
Petroleum	101,892	135,260	131,224	2.9	0.1	0.1	0.1
Gas	984,988	1,335,669	1,675,866	6.1	1.2	1.3	1.4
Other	2,580,891	4,113,588	4,607,140	6.7	3.2	4.1	3.8
Total Industry	80,393,421	101,353,236	120,865,327	4.6	100.0	100.0	100.0
Coal	53,795,230	63,366,142	73,763,266	3.6	66.9	62.5	61.0
Petroleum	193,808	255,834	285,372	4.4	0.2	0.3	0.2
Gas	1,405,103	1,708,793	3,557,552	10.9	1.7	1.7	2.9
Nuclear	12,051,882	20,479,759	30,892,394	11.0	15.0	20.2	25.6
Hydroelectric	10,366,507	11,429,120	7,759,602	-3.2	12.9	11.3	6.4
Other	2,580,891	4,113,588	4,607,140	6.7	3.2	4.1	3.8

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	223.4	182.5	147.6	-4.5
Average heat value (Btu per pound)	12,094	12,088	10,963	-1.1
Average sulfur Content(percent)	1.5	1.3	1.0	-4.2
Petroleum (cents per million Btu) (1999 dollars)	675.0	438.8	326.0	-7.8
Average heat value (Btu per gallon)	137,207	137,865	139,143	0.1
Gas (cents per million Btu) (1999 dollars)	261.4	255.8	295.1	1.3
Average heat value (Btu per cubic foot)	1,030	1,011	1,011	-0.2

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	515	512	476	-0.9
Petroleum	*	*	*	-0.7
Other	0	*	*	0.0
Total	515	512	476	-0.9
Nitrogen Oxide				
Coal	191	206	253	3.2
Petroleum	*	*	*	7.5
Gas	*	8	6	32.7
Other	0	3	4	0.0
Total	191	218	263	3.6
Carbon Dioxide				
Coal	54,015	64,253	76,043	3.9
Petroleum	63	266	256	16.7
Gas	243	1,276	2,423	29.1
Other	0	6	25	0.0
Total	54,322	65,801	78,746	4.2

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

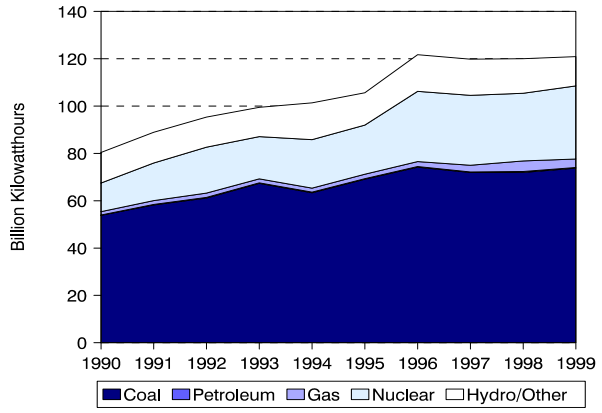


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

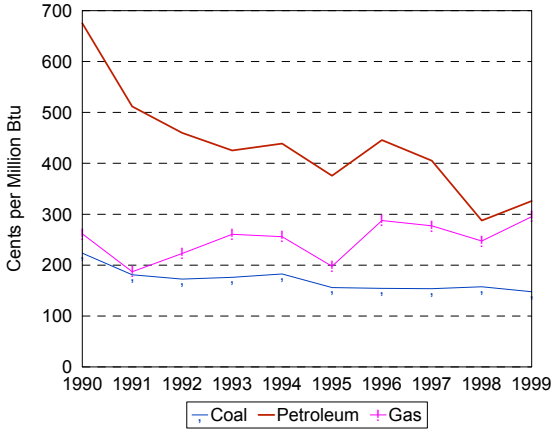


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

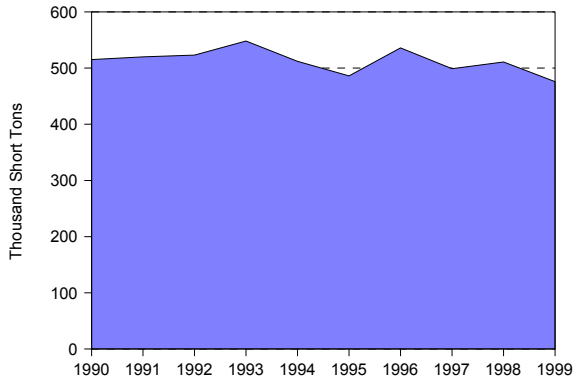


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

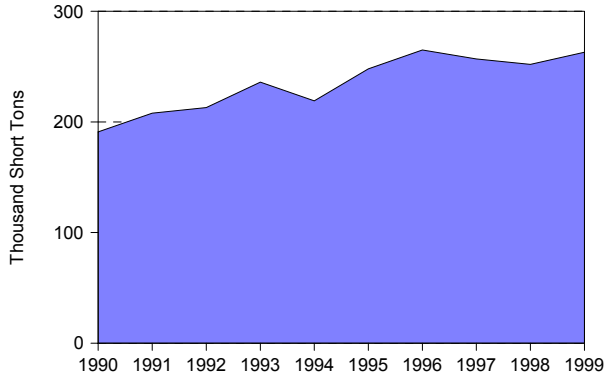


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

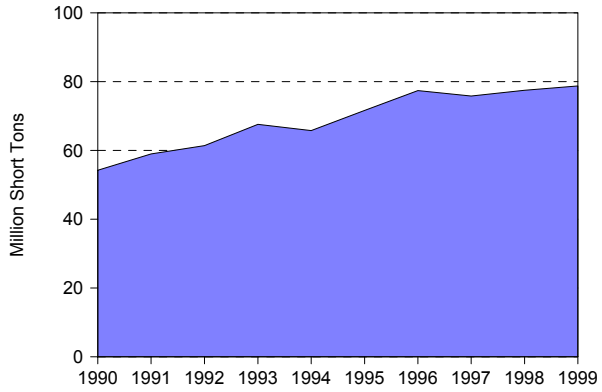


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

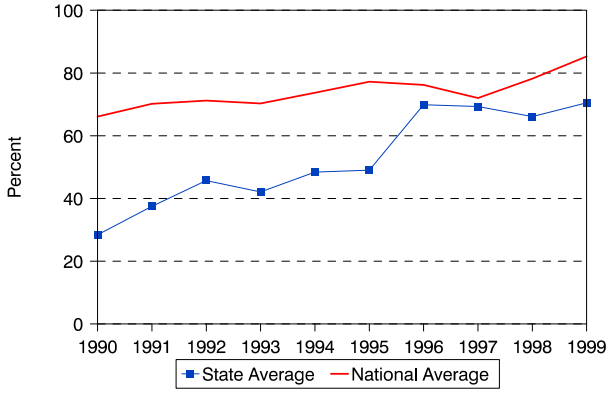


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	20,719	23,159	27,048	3.0	34.6	34.3	33.6
Commercial	10,979	11,844	18,145	5.7	18.3	17.5	22.6
Industrial	27,618	31,919	34,533	2.5	46.1	47.2	42.9
Other	610	659	676	1.1	1.0	1.0	0.8
Total	59,926	67,581	80,401	3.3	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,654	1,691	1,901	1.6	40.9	41.8	42.7
Commercial	894	873	1,188	3.2	22.1	21.6	26.6
Industrial	1,452	1,435	1,320	-1.1	35.9	35.5	29.6
Other	41	45	47	1.5	1.0	1.1	1.1
Total	4,042	4,045	4,456	1.1	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	7.99	7.30	7.03	NA	NA	NA	NA
Commercial	8.14	7.37	6.54	NA	NA	NA	NA
Industrial	5.26	4.50	3.82	NA	NA	NA	NA
Other	6.79	6.86	7.02	NA	NA	NA	NA
Total	6.75	5.99	5.54	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	1	36	1	24	62
Number of Retail Customers	1,303,541	452,510	23	468,925	2,224,999
Retail Sales (thousand megawatthours)	50,157	14,828	6,083	9,333	80,401
Percentage of Retail Sales	62.4	18.4	7.6	11.6	100.0
Revenue from Retail Sales (million dollars)	2,811	845	186	614	4,456
Percentage of Revenue	63.1	19.0	4.2	13.8	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.60	5.70	3.05	6.58	5.54

Alaska

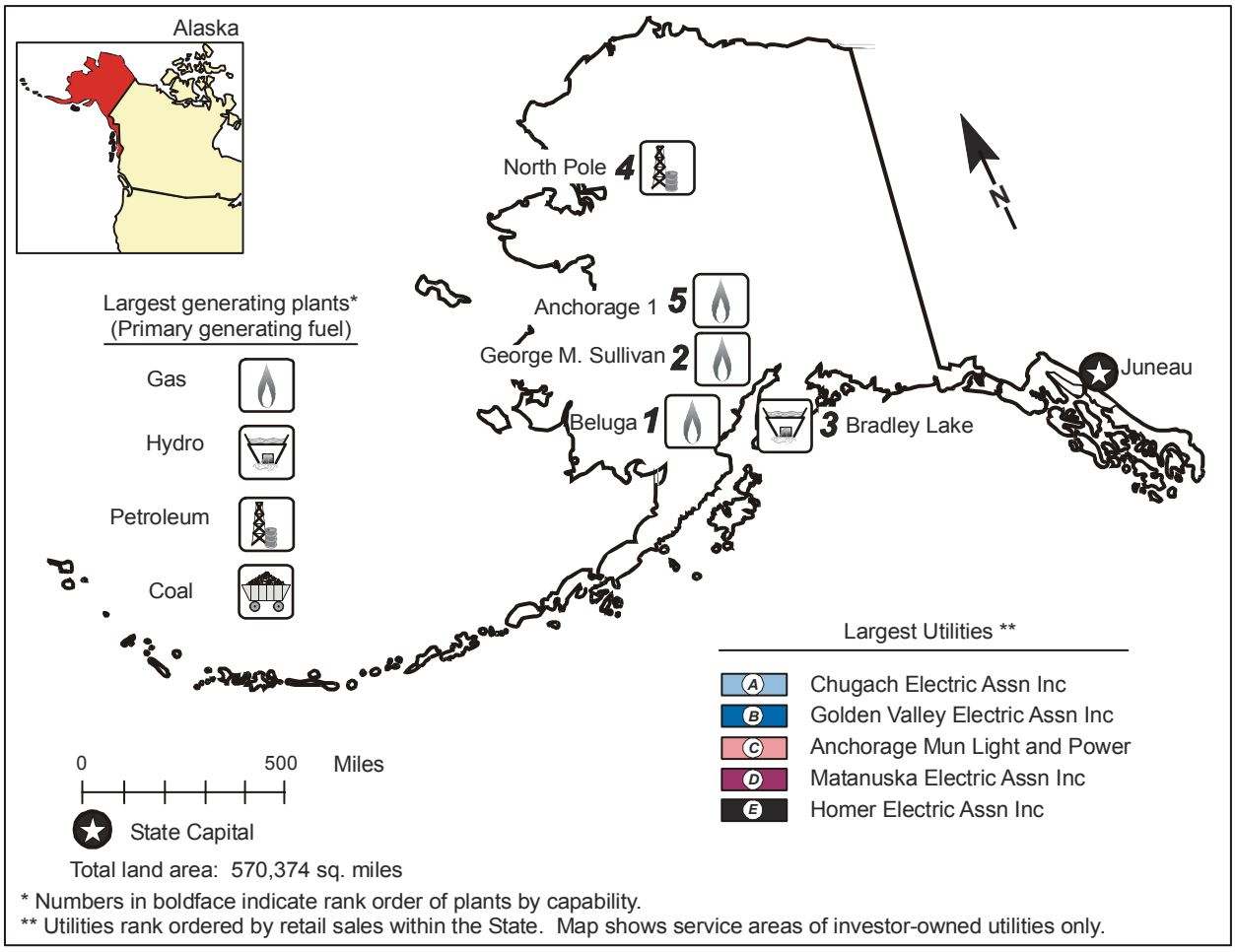

Alaska
North Pole 4
Anchorage 1 5
George M. Sullivan 2
Beluga 1
3 Bradley Lake
Juneau
N
Largest generating plants*
(Primary generating fuel)
Gas
Hydro
Petroleum
Coal
Largest Utilities **
A Chugach Electric Assn Inc
B Golden Valley Electric Assn Inc
C Anchorage Mun Light and Power
D Matanuska Electric Assn Inc
E Homer Electric Assn Inc
0
500
Miles
State Capital
Total land area: 570,374 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		Not Applicable
Primary Energy Source		Gas
Net Summer Capability (megawatts)	2,018	48
Utility	1,744	46
Nonutility	274	39
Net Generation (megawatthours)	5,811,625	49
Utility	4,609,315	47
Nonutility	1,202,310	39
Emissions (thousand short tons)		
Sulfur Dioxide	1	47
Nitrogen Oxide	12	46
Carbon Dioxide	4,380	46
Sulfur Dioxide/sq. mile	0	47
Nitrogen Oxide/sq. mile	0	49
Carbon Dioxide/sq. mile	8	49
Electricity Consumption (MWh) (excludes line losses)	6,352,097	50
Utility Retail Electricity Sales (megawatthours)	5,292,615	51
Nonutility Retail Sales and Direct Use (megawatthours)	1,059,482	29
Utility Average Retail Price (cents/kWh)	9.78	7

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Beluga	Gas	Chugach Electric Assn Inc	335
2. George M Sullivan	Petroleum, Gas	Municipality of Anchorage	220
3. Bradley Lake	Hydro	Alaska Electric G & T Coop Inc	108
4. North Pole	Petroleum	Golden Valley Elec Assn Inc	106
5. Anchorage 1	Petroleum, Gas	Municipality of Anchorage	79
6. Snettisham	Hydro	Alaska Electric Light&Power Co	78
7. Bernice Lake	Gas	Chugach Electric Assn Inc	62
8. Lemon Creek	Petroleum	Alaska Electric Light&Power Co	58
9. Eklutna	Hydro	Municipality of Anchorage	44
10. International	Gas	Chugach Electric Assn Inc	42

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
1. Chugach Electric Assn, Inc	1,085,968	508,689	537,936	34,539	4,804
2. Golden Valley Elec Assn, Inc	1,049,024	280,302	327,610	437,037	4,075
3. Anchorage Mun Light and Power	872,549	150,492	710,778	0	11,279
4. Matanuska Electric Assn, Inc	506,847	316,837	189,402	0	608
5. Homer Electric Assn, Inc	442,625	154,549	159,930	126,784	1,362
Total	3,957,013	1,410,869	1,925,656	598,360	22,128
Percentage of Utility Sales	75.0	76.0	81.0	71.0	11.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	1,542	1,737	1,744	1.4	84.4	86.8	86.4
Coal	56	54	25	-8.5	3.0	2.7	1.2
Petroleum	494	570	593	2.0	27.1	28.5	29.4
Gas	756	762	752	-0.1	41.4	38.1	37.3
Hydroelectric	236	352	374	5.3	12.9	17.6	18.5
Other	*	*	*	0.0	0.0	0.0	0.0
Total Nonutility	284	265	274	-0.4	15.6	13.2	13.6
Coal	W	W	82	W	W	W	4.0
Petroleum	W	W	56	W	W	W	2.8
Gas	W	W	130	W	W	W	6.4
Petroleum/Gas Combined	W	W	7	W	W	W	0.3
Other	W	W	0	W	W	W	0.0
Total Industry	1,826	2,003	2,018	1.1	100.0	100.0	100.0
Coal	W	W	107	W	W	W	5.3
Petroleum	W	W	649	W	W	W	32.2
Gas	W	W	882	W	W	W	43.7
Petroleum/Gas Combined	W	W	7	W	W	W	0.3
Hydroelectric	236	352	374	5.3	12.9	17.6	18.5
Other	W	W	*	W	W	W	0.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

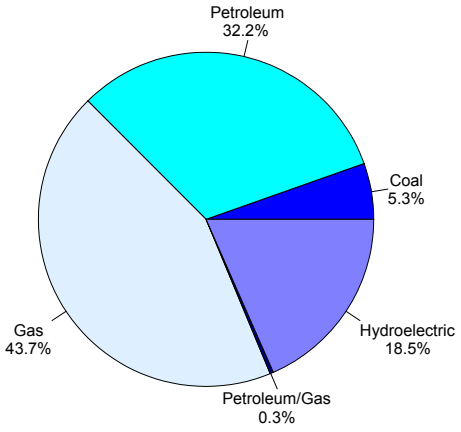


Figure 2. Industry Generation by Energy Source, 1999

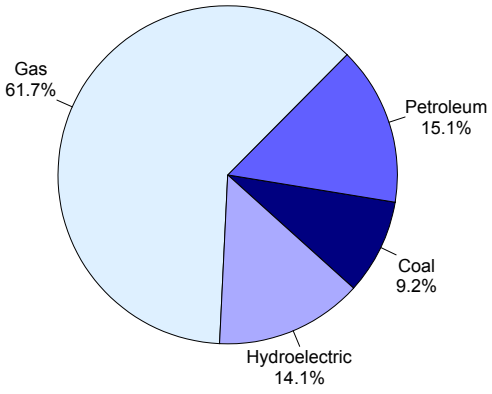


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	4,493,024	4,762,116	4,609,315	0.3	82.5	81.4	79.3
Coal	311,960	294,615	156,188	-7.4	5.7	5.0	2.7
Petroleum	336,905	441,197	798,039	10.1	6.2	7.5	13.7
Gas	2,869,638	2,680,897	2,838,480	-0.1	52.7	45.8	48.8
Hydroelectric	974,521	1,345,407	816,608	-1.9	17.9	23.0	14.1
Total Nonutility	953,238	1,087,385	1,202,310	2.6	17.5	18.6	20.7
Coal	W	W	376,474	W	W	W	6.5
Petroleum	106,850	113,977	78,417	-3.4	2.0	1.9	1.3
Gas	W	W	747,419	W	W	W	12.9
Other	W	W	0	W	W	W	0.0
Total Industry	5,446,262	5,849,501	5,811,625	0.7	100.0	100.0	100.0
Coal	W	W	532,662	W	W	W	9.2
Petroleum	443,755	555,174	876,456	7.9	8.1	9.5	15.1
Gas	W	W	3,585,899	W	W	W	61.7
Hydroelectric	974,521	1,345,407	816,608	-1.9	17.9	23.0	14.1
Other	W	W	0	W	W	W	0.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Gas (cents per million Btu) (1999 dollars)	0	123.3	159.3	0
Average heat value (Btu per cubic foot)	0	999	1,000	0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	1	1	1	-1.4
Petroleum	0	0	*	19.6
Total	1	1	1	-1.4
Nitrogen Oxide				
Coal	3	4	6	7.1
Petroleum	*	1	1	12.0
Gas	5	5	5	1.0
Total	8	10	12	4.3
Carbon Dioxide				
Coal	476	664	1,193	10.8
Petroleum	317	600	827	11.3
Gas	2,033	2,189	2,360	1.7
Other	0	0	1	0.0
Total	2,826	3,453	4,380	5.0

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

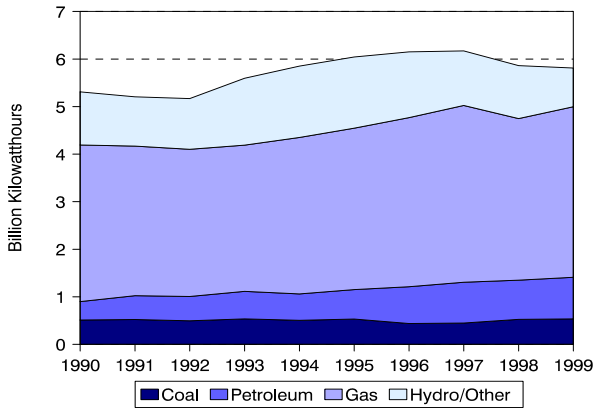


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

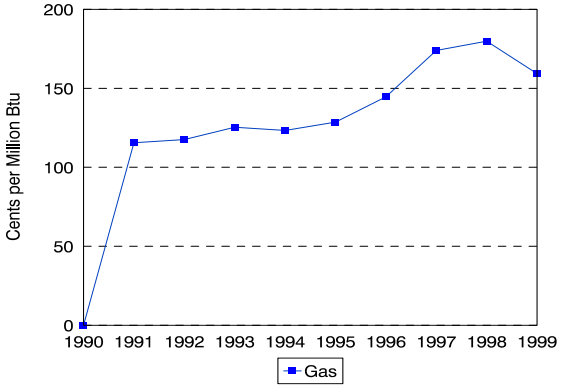


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

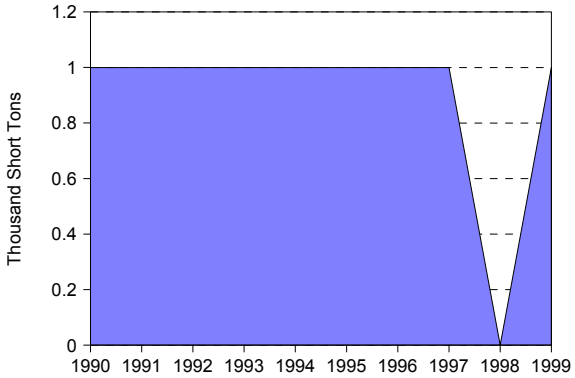


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

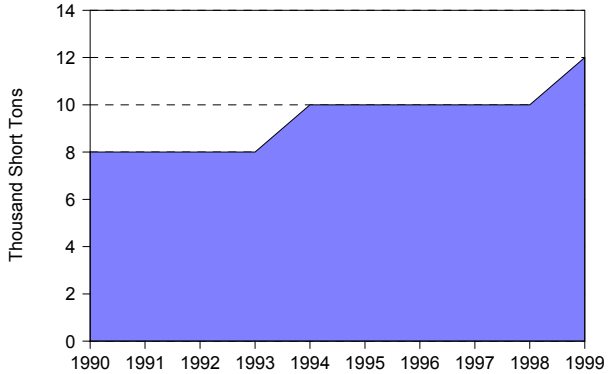


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

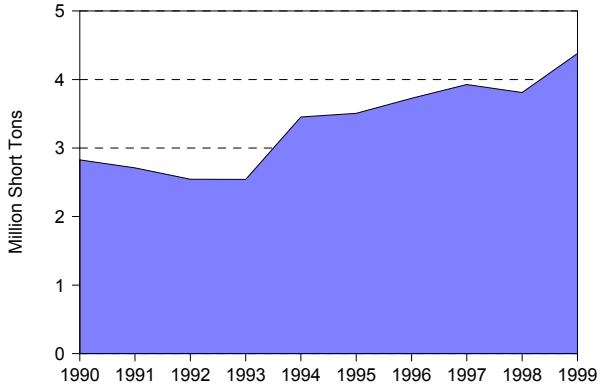


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	1,661	1,688	1,866	1.3	39.0	37.2	35.3
Commercial	1,972	2,155	2,385	2.1	46.4	47.5	45.1
Industrial	459	511	844	7.0	10.8	11.3	15.9
Other	161	179	198	2.3	3.8	3.9	3.7
Total	4,254	4,533	5,293	2.5	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	203	209	208	0.3	41.7	41.1	40.2
Commercial	215	227	219	0.2	44.0	44.8	42.4
Industrial	44	47	62	3.8	9.0	9.2	11.9
Other	26	25	28	0.9	5.3	4.8	5.4
Total	488	507	517	0.6	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	12.25	12.35	11.16	NA	NA	NA	NA
Commercial	10.91	10.54	9.20	NA	NA	NA	NA
Industrial	9.57	9.13	7.32	NA	NA	NA	NA
Other	16.01	13.72	14.16	NA	NA	NA	NA
Total	11.48	11.18	9.78	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	21	35	0	18	74
Number of Retail Customers	24,554	56,068	0	189,209	269,831
Retail Sales (thousand megawatthours)	441	1,377	0	3,475	5,293
Percentage of Retail Sales	8.3	26.0	0.0	65.7	100.0
Revenue from Retail Sales (million dollars)	52	133	0	332	517
Percentage of Revenue	10.0	25.7	0.0	64.2	100.0
Average Revenue per Kilowatthour (cents/kWh)	11.79	9.67	0.00	9.56	9.78

Arizona

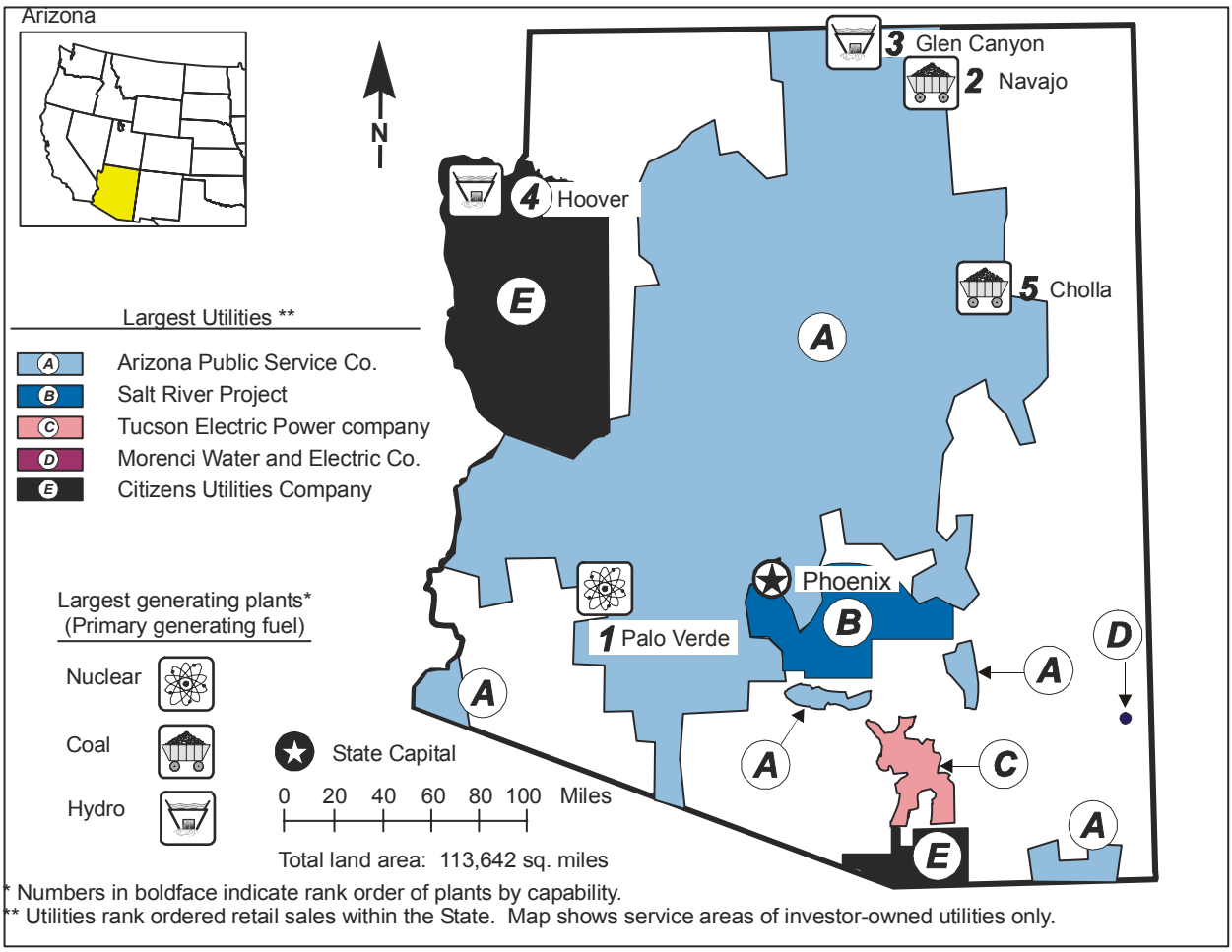

Arizona
N
3 Glen Canyon
2 Navajo
4 Hoover
5 Cholla
Largest Utilities **
A Arizona Public Service Co.
B Salt River Project
C Tucson Electric Power company
D Morenci Water and Electric Co.
E Citizens Utilities Company
Phoenix
1 Palo Verde
Largest generating plants*
(Primary generating fuel)
Nuclear
Coal
Hydro
State Capital
0 20 40 60 80 100 Miles
Total land area: 113,642 sq. miles
* Numbers in boldface indicate rank order of plants by capability.
** Utilities rank ordered retail sales within the State. Map shows service areas of investor-owned utilities only.

Table 1. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	15,260	21
Utility	15,091	19
Nonutility	168	42
Net Generation (megawatthours)	84,011,898	19
Utility	83,095,924	17
Nonutility	915,974	42
Emissions (thousand short tons)		
Sulfur Dioxide	64	32
Nitrogen Oxide	132	24
Carbon Dioxide	43,684	22
Sulfur Dioxide/sq. mile	1	39
Nitrogen Oxide/sq. mile	1	40
Carbon Dioxide/sq. mile	384	39
Electricity Consumption (MWh) (excludes line losses)	58,143,730	24
Utility Retail Electricity Sales (megawatthours)	57,661,946	23
Nonutility Retail Sales and Direct Use (megawatthours)	481,784	37
Utility Average Retail Price (cents/kWh)	7.23	14

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Palo Verde	Nuclear	Arizona Public Service Co	3,733
2. Navajo	Petroleum, Coal	Salt River Proj Ag I & P Dist	2,250
3. Glen Canyon	Hydro	Bureau of Reclamation	1,296
4. Hoover	Hydro	Bureau of Reclamation	1,040
5. Cholla	Gas, Petroleum, Coal	Arizona Public Service Co	995
6. Springerville	Petroleum, Coal	Tucson Electric Power Co	800
7. Coronado	Petroleum, Coal	Salt River Proj Ag I & P Dist	760
8. Agua Fria	Petroleum, Gas	Salt River Proj Ag I & P Dist	619
9. Apache Station	Gas, Coal	Arizona Electric Pwr Coop Inc	515
10. Irvington	Gas, Coal	Tucson Electric Power Co	497

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Arizona Public Service Company	20,961,836	8,774,822	9,431,119	2,661,018	94,877
B. Salt River Project	20,798,939	9,020,380	7,481,987	3,563,403	733,169
C. Tucson Electric Power Company	7,789,068	2,736,837	1,383,756	3,421,114	247,361
D. Morenci Water & Electric Co	1,561,713	13,088	9,798	1,538,827	0
E. Citizens Utilities Co	1,116,563	536,611	347,494	148,877	83,581
Total	52,228,119	21,081,738	18,654,154	11,333,239	1,158,988
Percentage of Utility Sales	91.0	94.0	94.0	91.0	40.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	14,906	15,098	15,091	0.1	99.3	98.9	98.9
Coal	5,116	5,119	5,311	0.4	34.1	33.5	34.8
Petroleum	78	100	240	13.3	0.5	0.7	1.6
Gas	3,306	3,236	2,919	-1.4	22.0	21.2	19.1
Nuclear	3,663	3,810	3,733	0.2	24.4	25.0	24.5
Hydroelectric	2,743	2,833	2,887	0.6	18.3	18.6	18.9
Other	0	0	1	0.0	0.0	0.0	0.0
Total Nonutility	105	160	168	5.4	0.7	1.1	1.1
Coal	W	W	63	W	W	W	0.4
Petroleum	W	W	17	W	W	W	0.1
Gas	W	W	60	W	W	W	0.4
Petroleum/Gas Combined	46	46	28	-5.4	0.3	0.3	0.2
Total Industry	15,011	15,258	15,260	0.2	100.0	100.0	100.0
Coal	W	W	5,374	W	W	W	35.2
Petroleum	W	W	257	W	W	W	1.7
Gas	W	W	2,979	W	W	W	19.5
Petroleum/Gas Combined	46	46	28	-5.4	0.3	0.3	0.2
Nuclear	3,663	3,810	3,733	0.2	24.4	25.0	24.5
Hydroelectric	2,743	2,833	2,887	0.6	18.3	18.6	18.9
Other	0	0	1	0.0	0.0	0.0	0.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

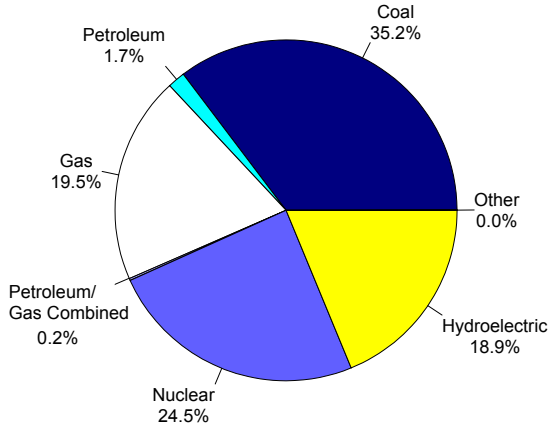


Figure 2. Industry Generation by Energy Source, 1999

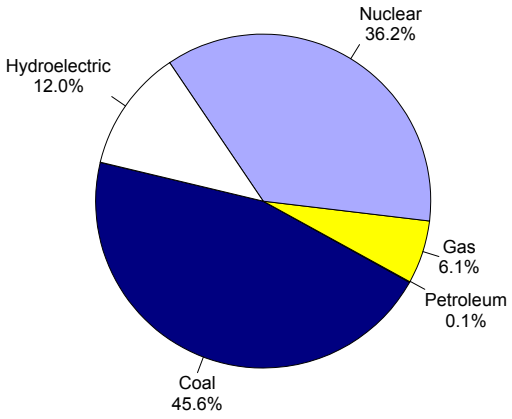


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	62,288,980	71,203,728	83,095,924	3.3	99.2	99.0	98.9
Coal	31,636,037	38,072,165	37,994,159	2.1	50.4	52.9	45.2
Petroleum	116,407	128,437	46,287	-9.7	0.2	0.2	0.1
Gas	2,271,504	2,162,370	4,557,054	8.0	3.6	3.0	5.4
Nuclear	20,597,689	23,170,894	30,415,572	4.4	32.8	32.2	36.2
Hydroelectric	7,667,343	7,669,862	10,082,852	3.1	12.2	10.7	12.0
Total Nonutility	485,186	728,685	915,974	7.3	0.8	1.0	1.1
Coal	W	W	323,864	W	W	W	0.4
Petroleum	35,449	23,724	4,088	-21.3	0.1	0.0	0.0
Gas	62,276	319,092	588,022	28.3	0.1	0.4	0.7
Other	W	W	0	W	W	W	0.0
Total Industry	62,774,166	71,932,413	84,011,898	3.3	100.0	100.0	100.0
Coal	W	W	38,318,023	W	W	W	45.6
Petroleum	151,856	152,161	50,375	-11.5	0.2	0.2	0.1
Gas	2,333,780	2,481,462	5,145,076	9.2	3.7	3.4	6.1
Nuclear	20,597,689	23,170,894	30,415,572	4.4	32.8	32.2	36.2
Hydroelectric	7,667,343	7,669,862	10,082,852	3.1	12.2	10.7	12.0
Other	W	W	0	W	W	W	0.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	173.3	150	132.7	-2.9
Average heat value (Btu per pound)	10,482	10,281	10,257	-0.2
Average sulfur Content (percent)	0.5	0.5	0.5	1.3
Petroleum (cents per million Btu) (1999 dollars)	540.7	467.4	479.8	-1.3
Average heat value (Btu per gallon)	142,833	142,149	138,692	-0.3
Average sulfur Content (percent)	0.9	0	0	-100.0
Gas (cents per million Btu) (1999 dollars)	287.1	237.7	264.3	-0.9
Average heat value (Btu per cubic foot)	1,034	1,023	1,011	-0.3

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	118	137	64	-6.5
Petroleum	*	*	*	-7.3
Total	118	138	64	-6.5
Nitrogen Oxide				
Coal	116	133	126	0.9
Petroleum	*	*	*	-9.4
Gas	4	3	6	6.8
Total	119	137	132	1.1
Carbon Dioxide				
Coal	33,603	40,849	40,407	2.1
Petroleum	90	139	44	-7.8
Gas	1,564	1,650	3,234	8.4
Total	35,257	42,637	43,684	2.4

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

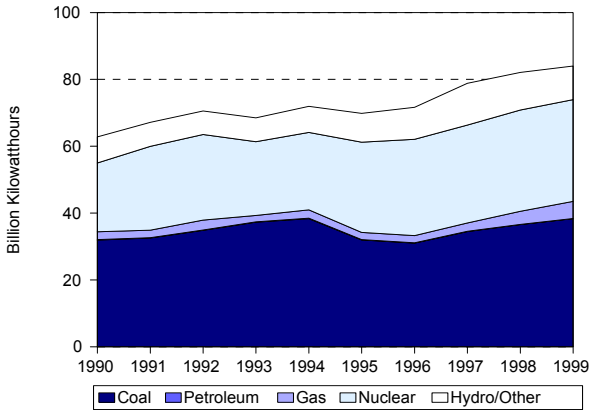


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

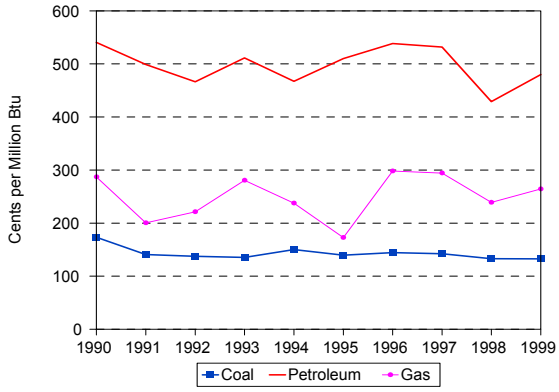


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

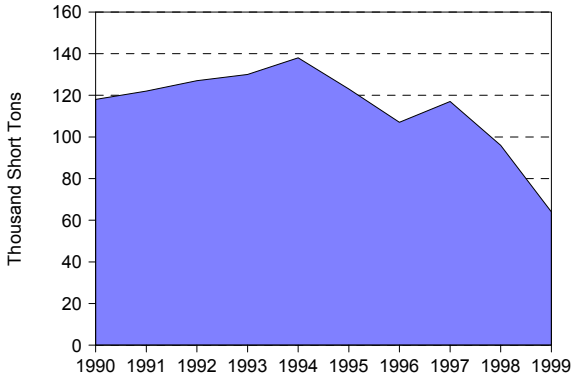


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

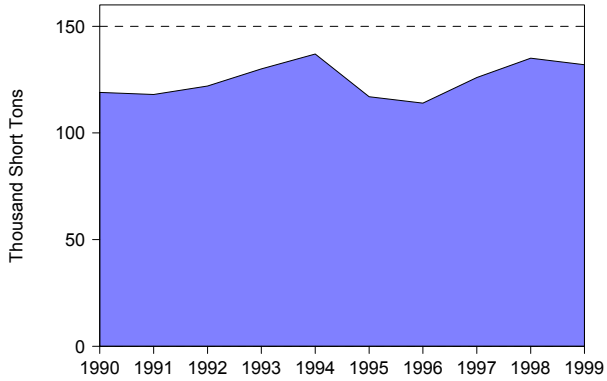


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

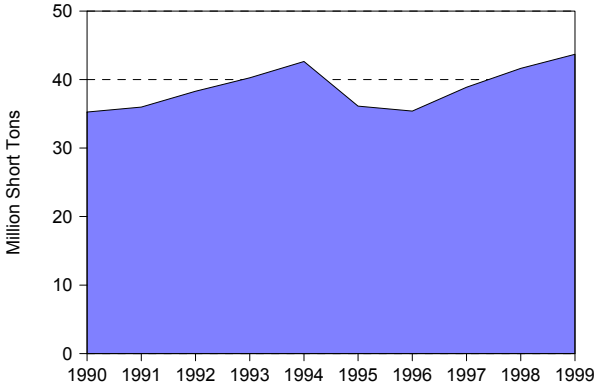


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

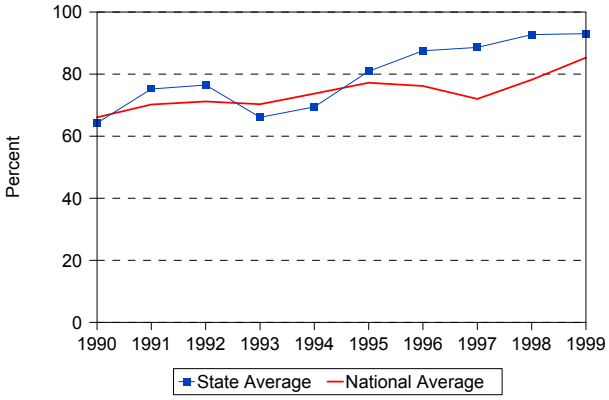


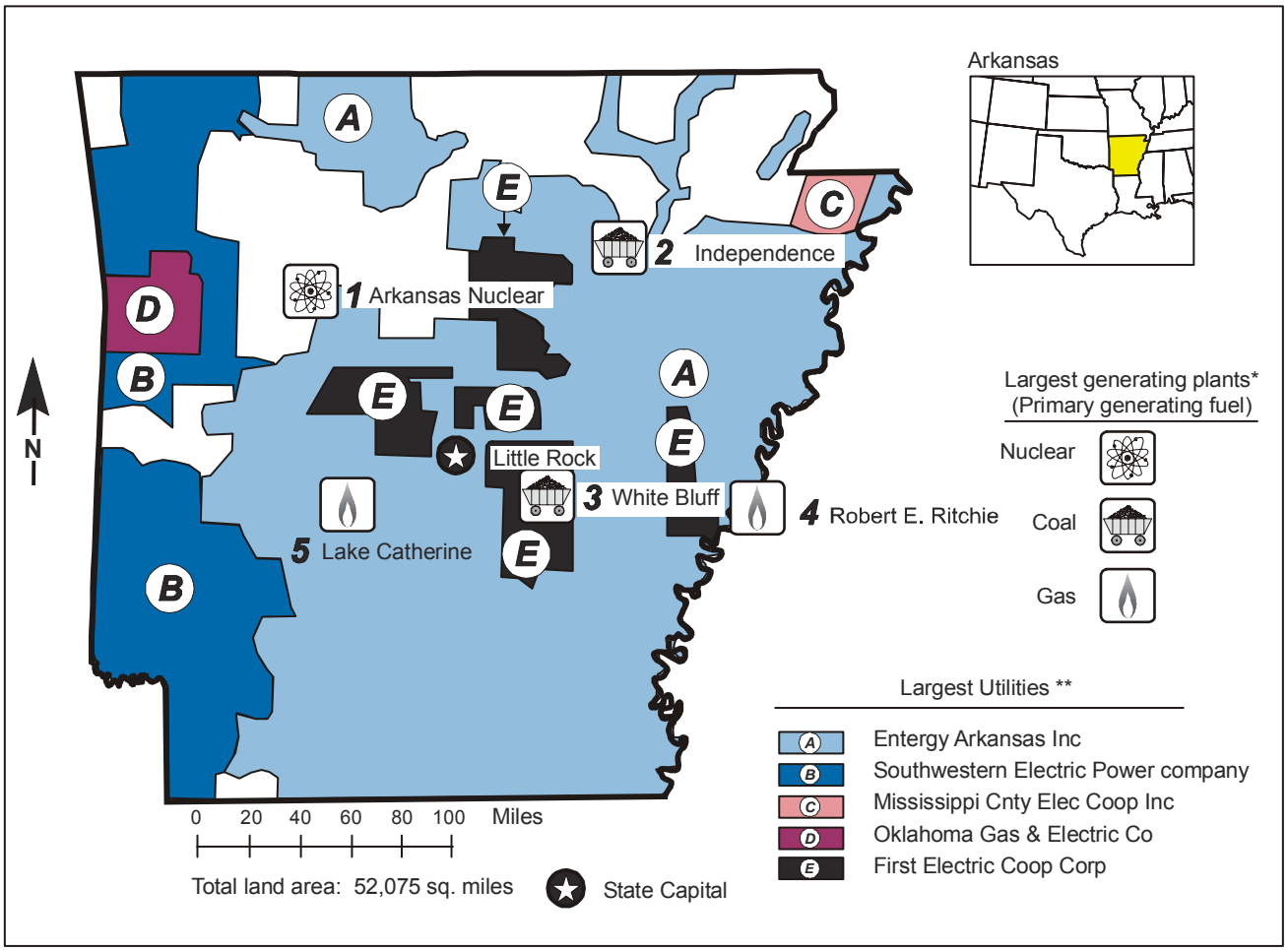
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	15,378	18,212	22,517	4.3	37.1	38.5	39.0
Commercial	13,731	15,625	19,776	4.1	33.1	33.0	34.3
Industrial	10,034	11,303	12,456	2.4	24.2	23.9	21.6
Other	2,327	2,142	2,912	2.5	5.6	4.5	5.0
Total	41,470	47,282	57,662	3.7	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,684	1,848	1,922	1.5	43.2	45.2	46.1
Commercial	1,379	1,419	1,484	0.8	35.4	34.7	35.6
Industrial	678	694	628	-0.8	17.4	17.0	15.1
Other	152	128	136	-1.3	3.9	3.1	3.3
Total	3,893	4,089	4,170	0.8	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	10.95	10.15	8.53	NA	NA	NA	NA
Commercial	10.04	9.08	7.51	NA	NA	NA	NA
Industrial	6.76	6.14	5.04	NA	NA	NA	NA
Other	6.55	5.97	4.66	NA	NA	NA	NA
Total	9.39	8.65	7.23	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	5	27	3	10	45
Number of Retail Customers	1,205,112	766,334	18,479	131,782	2,121,707
Retail Sales (thousand megawatthours)	31,443	22,649	1,342	2,229	57,662
Percentage of Retail Sales	54.5	39.3	2.3	3.9	100.0
Revenue from Retail Sales (million dollars)	2495	1467	36	172	4170
Percentage of Revenue	59.8	35.2	0.9	4.1	100.0
Average Revenue per Kilowatthour (cents/kWh)	7.94	6.48	2.67	7.72	7.23

Arkansas



* Numbers in boldface indicate rank order of plants by capability.
** Utilities rank ordered retail sales within the State. Map shows service areas of investor-owned utilities only.

Table 1. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SPP/SERC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	9,684	30
Utility	9,278	28
Nonutility	406	37
Net Generation (megawatthours)	46,621,562	28
Utility	44,130,705	27
Nonutility	2,490,857	33
Emissions (thousand short tons)		
Sulfur Dioxide	71	31
Nitrogen Oxide	97	31
Carbon Dioxide	30,639	33
Sulfur Dioxide/sq. mile	1	31
Nitrogen Oxide/sq. mile	2	31
Carbon Dioxide/sq. mile	588	31
Electricity Consumption (MWh) (excludes line losses)	42,234,024	29
Utility Retail Electricity Sales (megawatthours)	39,788,746	30
Nonutility Retail Sales and Direct Use (megawatthours)	2,445,278	18
Utility Average Retail Price (cents/kWh)	5.68	34

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Arkansas Nuclear One	Nuclear	Entergy Arkansas Inc	1,694
2. Independence	Petroleum, Coal	Entergy Arkansas Inc	1,600
3. White Bluff	Petroleum, Coal	Entergy Arkansas Inc	1,600
4. Robert E Ritchie	Gas	Entergy Arkansas Inc	861
5. Lake Catherine	Gas	Entergy Arkansas Inc	726
6. Flint Creek	Petroleum, Coal	Southwestern Electric Power Co	480
7. Bull Shoals	Hydro	USCE-Little Rock District	391
8. Cecil Lynch	Hydro	Entergy Arkansas Inc	193
9. Dardanelle	Hydro	USCE-Little Rock District	161
10. Ashdown	Other	Georgia Pacific Corp	153

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Entergy Arkansas, Inc	18,663,431	6,492,717	4,880,177	7,053,919	236,618
B. Southwestern Electric Power Co	3,547,222	902,672	835,262	1,709,424	99,864
C. Mississippi Cnty Elec Coop Inc	2,948,627	49,617	19,156	2,878,362	1,492
D. Oklahoma Gas & Electric Co	2,421,657	633,300	648,771	1,036,217	103,369
E. First Electric Coop Corp	1,302,769	831,209	141,936	270,740	58,884
Total	28,883,706	8,909,515	6,525,302	12,948,662	500,227
Percentage of Utility Sales	73.0	63.0	78.0	78.0	73.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	9,641	9,674	9,278	-0.4	95.7	95.7	95.8
Coal	3,817	3,817	3,680	-0.4	37.9	37.8	38.0
Petroleum	221	217	29	-20.2	2.2	2.2	0.3
Gas	2,620	2,620	2,454	-0.7	26.0	25.9	25.3
Nuclear	1,694	1,694	1,694	0.0	16.8	16.8	17.5
Hydroelectric	1,290	1,326	1,421	1.1	12.8	13.1	14.7
Total Nonutility	430	432	406	-0.6	4.3	4.3	4.2
Petroleum	W	W	0	W	W	W	0.0
Gas	78	110	23	-12.8	0.8	1.1	0.2
Petroleum/Gas Combined	W	W	119	W	W	W	1.2
Hydroelectric	W	W	1	W	W	W	0.0
Other	336	316	263	-2.7	3.3	3.1	2.7
Total Industry	10,071	10,106	9,684	-0.4	100.0	100.0	100.0
Coal	3,817	3,817	3,680	-0.4	37.9	37.8	38.0
Petroleum	W	W	29	W	W	W	0.3
Gas	2,698	2,730	2,476	-0.9	26.8	27.0	25.6
Petroleum/Gas Combined	W	W	119	W	W	W	1.2
Nuclear	1,694	1,694	1,694	0.0	16.8	16.8	17.5
Hydroelectric	W	W	1,422	W	W	W	14.7
Other	336	316	263	-2.7	3.3	3.1	2.7

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

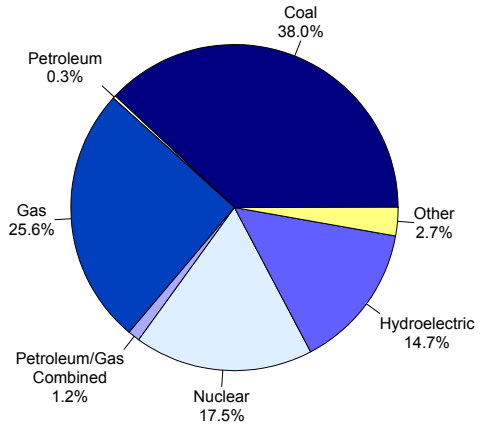


Figure 2. Industry Generation by Energy Source, 1999

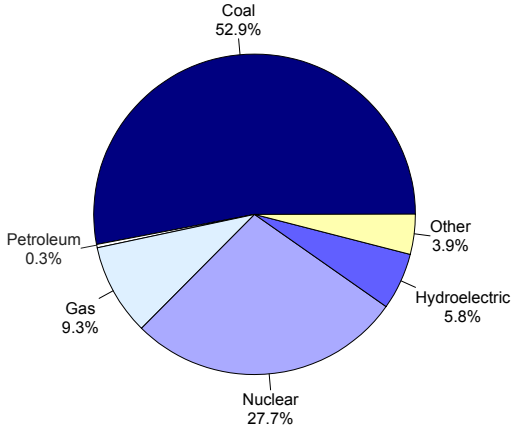


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	37,053,436	39,547,768	44,130,705	2.0	94.4	94.1	94.7
Coal	19,160,989	19,780,738	24,612,079	2.8	48.8	47.0	52.8
Petroleum	73,856	96,439	141,475	7.5	0.2	0.2	0.3
Gas	2,838,913	2,284,992	3,764,590	3.2	7.2	5.4	8.1
Nuclear	11,282,053	13,923,701	12,919,550	1.5	28.7	33.1	27.7
Hydroelectric	3,697,625	3,461,898	2,693,011	-3.5	9.4	8.2	5.8
Total Nonutility	2,200,935	2,499,600	2,490,857	1.4	5.6	5.9	5.3
Coal	W	W	59,073	W	W	W	0.1
Petroleum	W	W	15,960	W	W	W	0.0
Gas	699,063	963,196	581,176	-2.0	1.8	2.3	1.2
Hydroelectric	136	743	1,323	28.8	0.0	0.0	0.0
Other	1,447,724	1,461,106	1,833,325	2.7	3.7	3.5	3.9
Total Industry	39,254,371	42,047,368	46,621,562	1.9	100.0	100.0	100.0
Coal	W	W	24,671,152	W	W	W	52.9
Petroleum	W	W	157,435	W	W	W	0.3
Gas	3,537,976	3,248,188	4,345,766	2.3	9.0	7.7	9.3
Nuclear	11,282,053	13,923,701	12,919,550	1.5	28.7	33.1	27.7
Hydroelectric	3,697,761	3,462,641	2,694,334	-3.5	9.4	8.2	5.8
Other	1,447,724	1,461,106	1,833,325	2.7	3.7	3.5	3.9

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	195.3	174.9	145.6	-3.2
Average heat value (Btu per pound)	8,740	8,707	8,651	-0.1
Average sulfur Content (percent)	0.3	0.3	0.3	-2.5
Petroleum (cents per million Btu) (1999 dollars)	570.2	391.8	329.3	-5.9
Average heat value (Btu per gallon)	138,866	140,162	140,807	0.1
Average sulfur Content (percent)	0.1	1	0	-100.0
Gas (cents per million Btu) (1999 dollars)	186.7	199.1	253	3.4
Average heat value (Btu per cubic foot)	1,018	1,024	1,022	*

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	69	68	68	-0.1
Petroleum	*	*	3	38.0
Other	0	*	*	0.0
Total	69	68	71	0.3
Nitrogen Oxide				
Coal	78	73	89	1.4
Petroleum	*	*	1	27.7
Gas	4	5	6	5.3
Other	0	2	2	0.0
Total	82	80	97	1.9
Carbon Dioxide				
Coal	21,321	22,353	27,263	2.8
Petroleum	71	88	379	20.4
Gas	1,885	2,606	2,979	5.2
Other	0	46	17	0.0
Total	23,277	25,092	30,639	3.1

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

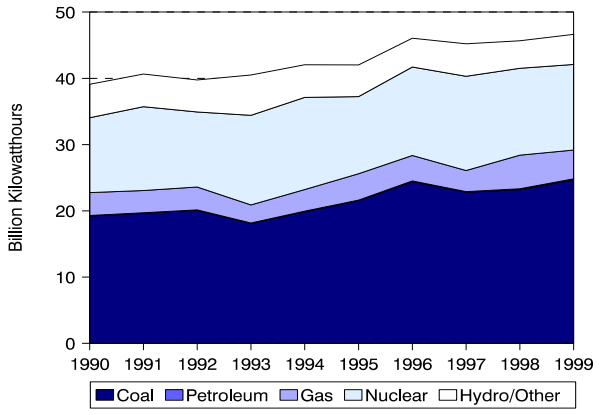


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

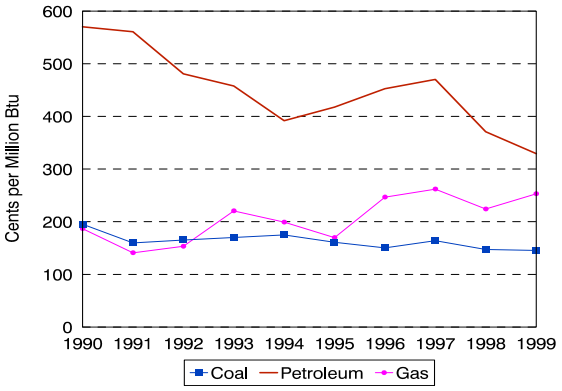


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

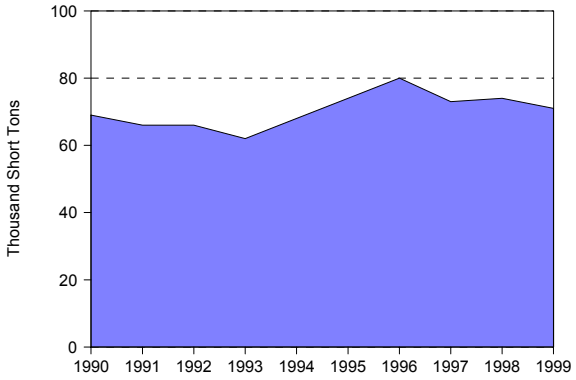


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

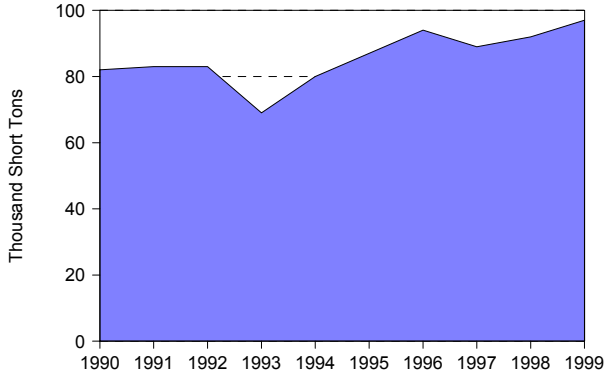


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

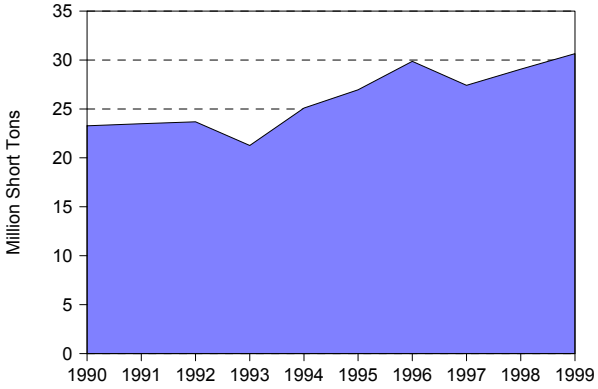


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

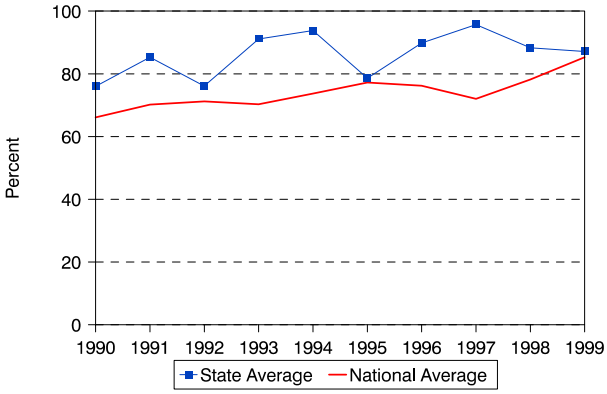


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	10,558	11,642	14,045	3.2	38.6	35.7	35.3
Commercial	6,075	6,866	8,374	3.6	22.2	21.0	21.0
Industrial	10,126	13,526	16,680	5.7	37.0	41.5	41.9
Other	606	585	690	1.4	2.2	1.8	1.7
Total	27,365	32,619	39,789	4.3	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,031	1,026	1,043	0.1	46.5	45.4	46.1
Commercial	511	515	488	-0.5	23.0	22.8	21.6
Industrial	625	679	688	1.1	28.2	30.0	30.4
Other	52	41	43	-2.0	2.3	1.8	1.9
Total	2,220	2,261	2,262	0.2	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	9.77	8.81	7.43	NA	NA	NA	NA
Commercial	8.42	7.51	5.82	NA	NA	NA	NA
Industrial	6.17	5.02	4.12	NA	NA	NA	NA
Other	8.58	7.05	6.26	NA	NA	NA	NA
Total	8.11	6.93	5.68	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	15	0	17	36
Number of Retail Customers	798,825	154,507	0	385,948	1,339,280
Retail Sales (thousand megawatthours)	24,758	5,143	0	9,888	39,789
Percentage of Retail Sales	62.2	12.9	0.0	24.9	100.0
Revenue from Retail Sales (million dollars)	1,449	275	0	538	2,262
Percentage of Revenue	64.1	12.2	0.0	23.8	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.85	5.34	0.00	5.44	5.68

California

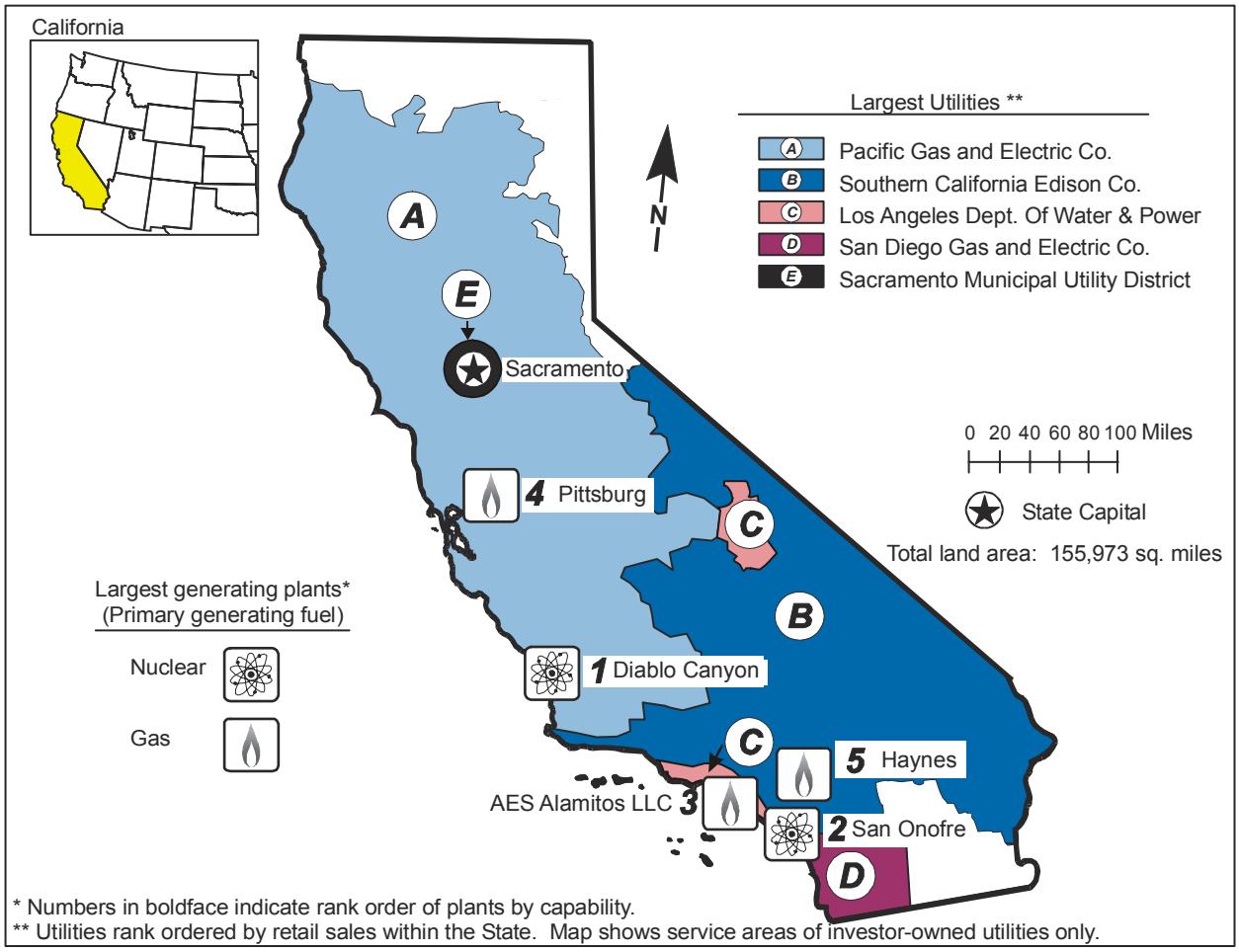

California
Largest Utilities **
A Pacific Gas and Electric Co.
B Southern California Edison Co.
C Los Angeles Dept. Of Water & Power
D San Diego Gas and Electric Co.
E Sacramento Municipal Utility District
N
Sacramento
4 Pittsburg
1 Diablo Canyon
5 Haynes
AES Alamitos LLC 3
2 San Onofre
0 20 40 60 80 100 Miles
State Capital
Total land area: 155,973 sq. miles
Largest generating plants*
(Primary generating fuel)
Nuclear
Gas
* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC
Primary Energy Source		Gas
Net Summer Capability (megawatts)	53,157	2
Utility	24,323	6
Nonutility	28,834	1
Net Generation (megawatthours)	191,584,475	3
Utility	87,874,809	14
Nonutility	103,709,666	1
Emissions (thousand short tons)		
Sulfur Dioxide	0	48
Nitrogen Oxide	134	22
Carbon Dioxide	71,411	13
Sulfur Dioxide/sq. mile	0	49
Nitrogen Oxide/sq. mile	1	42
Carbon Dioxide/sq. mile	458	36
Electricity Consumption (MWh) (excludes line losses)	260,935,606	2
Utility Retail Electricity Sales (megawatthours)	211,981,140	2
Unregulated Retail Electricity Sales (megawatthours)	22,849,739	2
Nonutility Retail Sales and Direct Use (megawatthours)	26,104,727	2
Utility Average Retail Price (cents/kWh)	9.34	9

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Diablo Canyon	Nuclear	Pacific Gas & Electric Co	2,160
2. San Onofre	Nuclear	Southern California Edison Co	2,150
3. AES Alamitos LLC	Gas	AES Southland LLC	2,108
4. Pittsburg Power	Gas	Southern Energy California	1,984
5. Haynes	Gas	Los Angeles City of	1,570
6. Ormond Beach Generating Station	Gas	Reliant Engy Ormand Beach LLC	1,500
7. Castaic	Hydro	Los Angeles City of	1,495
8. Duke Energy Moss Landing LLC	Gas	Duke Energy Moss Landing LLC	1,404
9. AES Redondo Beach LLC	Gas	AES Southland LLC	1,303
10. Geysers Unit 5-20	Other	Calpine Geyers LLC	1,246

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Pacific Gas and Electric Co	70,186,749	27,429,734	30,570,948	11,595,419	590,648
B. Southern California Edison Co	67,206,530	23,976,071	22,812,150	19,707,374	710,935
C. Los Angeles Dept of Wtr & Pwr	20,056,691	5,805,313	11,403,683	2,395,005	452,690
D. San Diego Gas & Electric Co	14,718,306	6,327,486	6,283,848	2,034,432	72,540
E. Sacramento Municipal Util Dist	9,284,751	3,944,244	794,849	4,470,519	75,139
Total	181,453,027	67,482,848	71,865,478	40,202,749	1,901,952
Percentage of Utility Sales	86.0	91.0	92.0	81.0	20.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	43,681	43,297	24,323	-6.3	80.7	81.0	45.8
Petroleum	3,201	1,783	526	-18.2	5.9	3.3	1.0
Gas	21,414	21,978	5,671	-13.7	39.6	41.1	10.7
Nuclear	4,746	4,310	4,310	-1.1	8.8	8.1	8.1
Hydroelectric	12,725	13,503	13,569	0.7	23.5	25.3	25.5
Other	1,595	1,723	248	-18.7	2.9	3.2	0.5
Total Nonutility	10,420	10,157	28,834	12.0	19.3	19.0	54.2
Coal	474	439	376	-2.6	0.9	0.8	0.7
Petroleum	144	219	498	14.8	0.3	0.4	0.9
Gas	3,708	4,483	13,632	15.6	6.9	8.4	25.6
Petroleum/Gas Combined	1,151	310	8,486	24.9	2.1	0.6	16.0
Hydroelectric	592	643	518	-1.5	1.1	1.2	1.0
Other	4,350	4,064	5,325	2.3	8.0	7.6	10.0
Total Industry	54,101	53,454	53,157	-0.2	100.0	100.0	100.0
Coal	474	439	376	-2.6	0.9	0.8	0.7
Petroleum	3,345	2,002	1,024	-12.3	6.2	3.7	1.9
Gas	25,123	26,461	19,303	-2.9	46.4	49.5	36.3
Petroleum/Gas Combined	1,151	310	8,486	24.9	2.1	0.6	16.0
Nuclear	4,746	4,310	4,310	-1.1	8.8	8.1	8.1
Hydroelectric	13,317	14,146	14,086	0.6	24.6	26.5	26.5
Other	5,945	5,786	5,573	-0.7	11.0	10.8	10.5

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

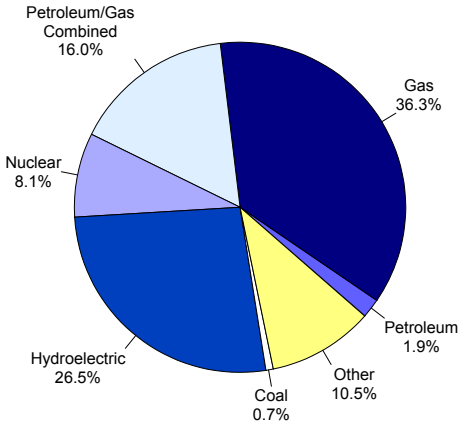


Figure 2. Industry Generation by Energy Source, 1999

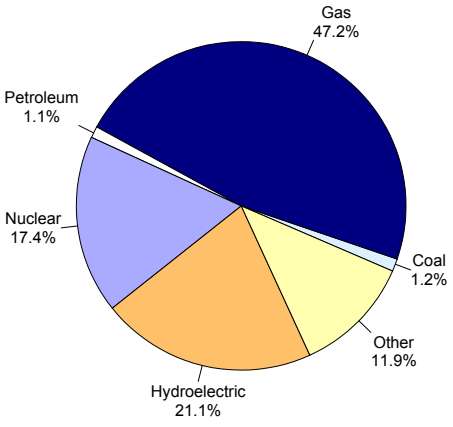


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	114,528,000	126,749,186	87,874,809	-2.9	67.0	67.3	45.9
Petroleum	4,385,235	1,862,719	51,769	-38.9	2.6	1.0	0.0
Gas	45,221,848	61,530,357	13,917,748	-12.3	26.5	32.7	7.3
Nuclear	32,692,807	33,752,237	33,371,857	0.2	19.1	17.9	17.4
Hydroelectric	23,794,524	22,852,078	38,842,389	5.6	13.9	12.1	20.3
Other	8,433,586	6,751,795	1,691,046	-16.4	4.9	3.6	0.9
Total Nonutility	56,442,219	61,451,104	103,709,667	7.0	33.0	32.7	54.1
Coal	2,535,795	3,427,498	2,376,045	-0.7	1.5	1.8	1.2
Petroleum	1,232,166	1,586,877	2,127,223	6.3	0.7	0.8	1.1
Gas	34,126,128	36,408,202	76,597,923	9.4	20.0	19.3	40.0
Hydroelectric	W	W	1,508,064	W	W	W	0.8
Other	W	W	21,100,412	W	W	W	11.0
Total Industry	170,970,219	188,200,290	191,584,476	1.3	100.0	100.0	100.0
Coal	2,535,795	3,427,498	2,376,045	-0.7	1.5	1.8	1.2
Petroleum	5,617,401	3,449,596	2,178,992	-10.0	3.3	1.8	1.1
Gas	79,347,976	97,938,559	90,515,671	1.5	46.4	52.0	47.2
Nuclear	32,692,807	33,752,237	33,371,857	0.2	19.1	17.9	17.4
Hydroelectric	W	W	40,350,453	W	W	W	21.1
Other	W	W	22,791,458	W	W	W	11.9

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Petroleum (cents per million Btu) (1999 dollars)	528.2	236.2	327.2	-5.2
Average heat value (Btu per gallon)	146,026	146,100	144,857	-0.1
Average sulfur Content(percent)	0.3	0.4	0	-100.0
Gas (cents per million Btu) (1999 dollars)	367.4	271.2	272.5	-3.3
Average heat value (Btu per cubic foot)	1,033	1,029	1,012	-0.2

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	0	*	0	0.0
Petroleum	8	4	*	-44.4
Other	0	0	0	0.0
Total	8	4	*	-43.8
Nitrogen Oxide				
Coal	0	13	9	0.0
Petroleum	6	6	7	1.1
Gas	57	78	107	7.3
Other	0	12	11	0.0
Total	63	109	134	8.7
Carbon Dioxide				
Coal	0	3,548	2,448	0.0
Petroleum	3,851	3,478	2,830	-3.4
Gas	27,202	57,061	64,692	10.1
Other	0	1,866	1,442	0.0
Total	31,054	65,952	71,412	9.7

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

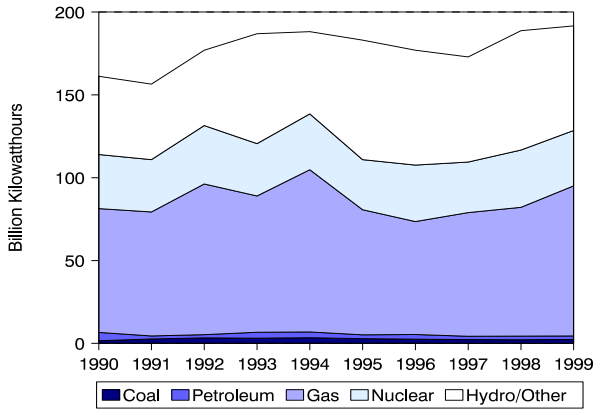


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

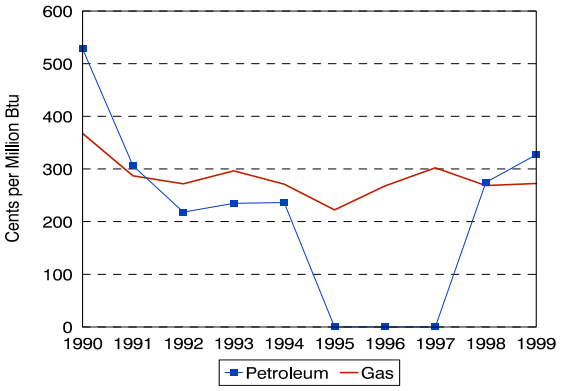


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

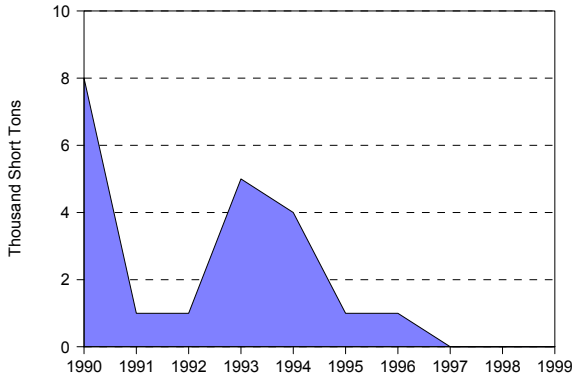


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

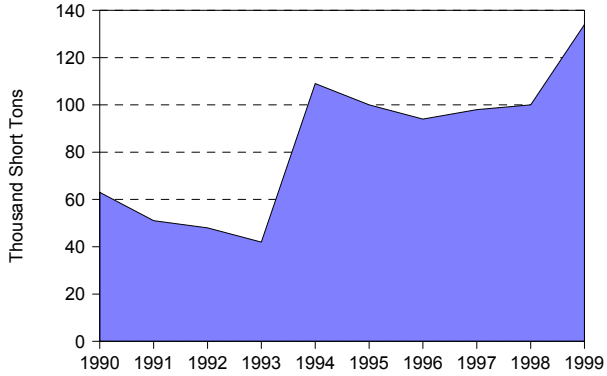


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

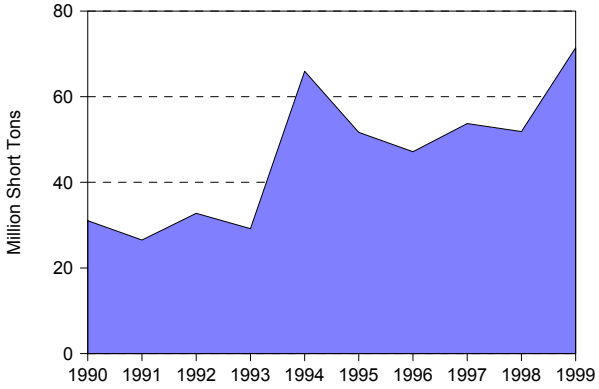


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

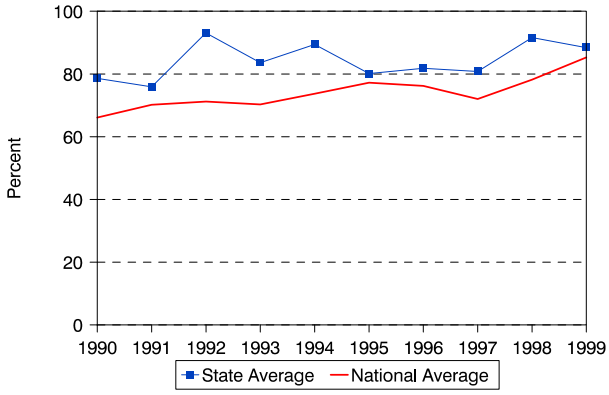


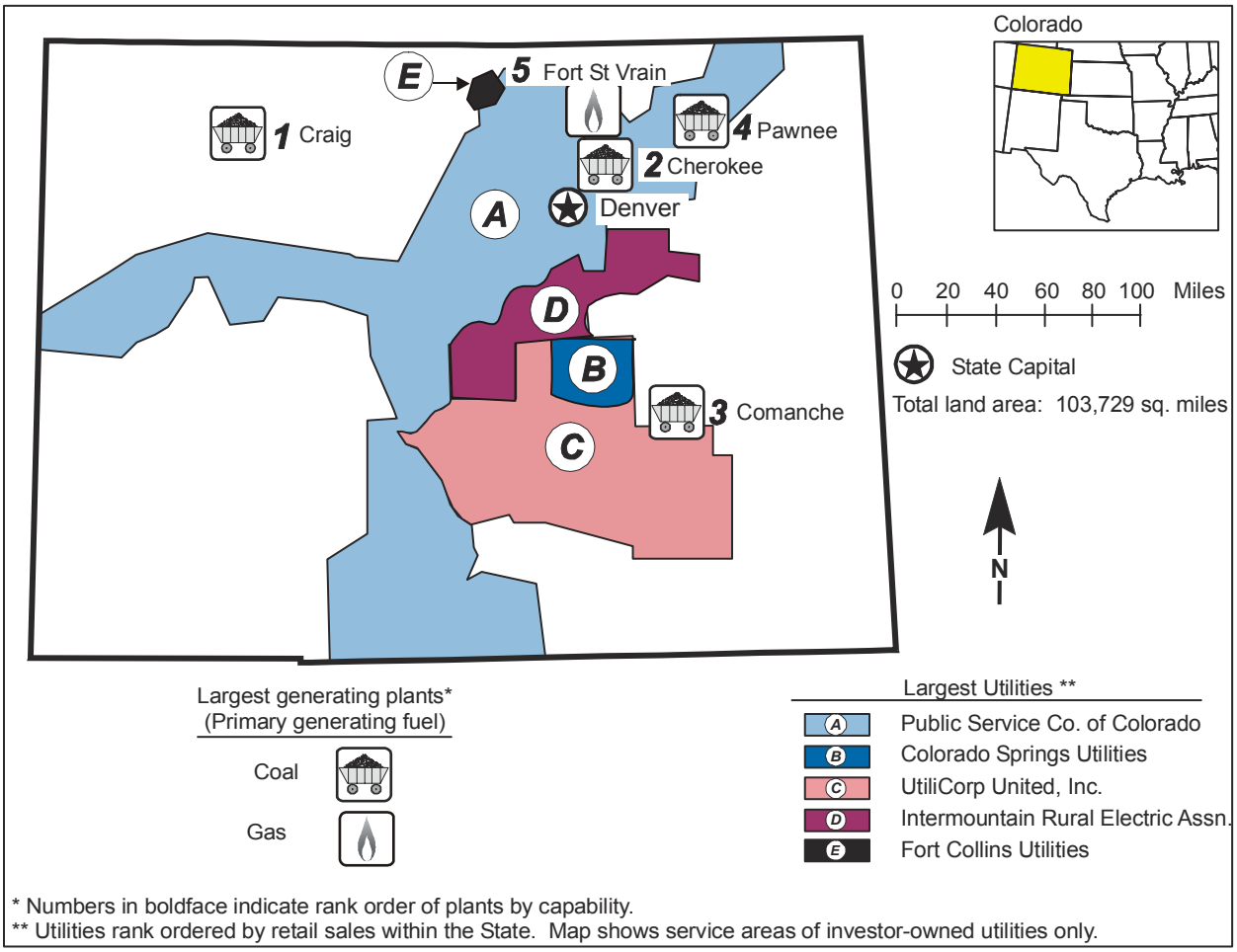
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	66,575	68,866	74,490	1.3	31.5	32.2	35.1
Commercial	79,691	76,925	78,154	-0.2	37.8	36.0	36.9
Industrial	55,892	59,864	49,595	-1.3	26.5	28.0	23.4
Other	8,935	8,030	9,743	1.0	4.2	3.8	4.6
Total	211,093	213,684	211,981	0.0	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	8,050	8,587	7,978	-0.1	35.6	37.6	40.3
Commercial	9,133	9,148	7,856	-1.7	40.4	40.1	39.7
Industrial	4,931	4,633	3,552	-3.6	21.8	20.3	17.9
Other	490	438	406	-2.1	2.2	1.9	2.0
Total	22,603	22,806	19,792	-1.5	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	12.09	12.47	10.71	NA	NA	NA	NA
Commercial	11.46	11.89	10.05	NA	NA	NA	NA
Industrial	8.82	7.74	7.16	NA	NA	NA	NA
Other	5.48	5.45	4.16	NA	NA	NA	NA
Total	10.71	10.67	9.34	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	6	34	2	4	46
Number of Retail Customers	10,040,653	2,845,132	108	13,487	12,899,380
Retail Sales (Thousand Megawatthours)	153,524	51,924	6,284	249	211,981
Percentage of Retail Sales	72.4	24.5	3.0	0.1	100.0
Revenue from Retail Sales (million dollars)	14,999	4,672	101	20	19,792
Percentage of Revenue	75.8	23.6	0.5	0.1	100.0
Average Revenue per Kilowatthour (cents/kWh)	9.77	9.00	1.61	7.89	9.34

Colorado



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	8,034	33
Utility	7,254	31
Nonutility	781	30
Net Generation (megawatthours)	39,530,448	32
Utility	36,167,349	32
Nonutility	3,363,099	29
Emissions (thousand short tons)		
Sulfur Dioxide	86	27
Nitrogen Oxide	138	20
Carbon Dioxide	38,635	24
Sulfur Dioxide/sq. mile	1	37
Nitrogen Oxide/sq. mile	1	36
Carbon Dioxide/sq. mile	372	40
Electricity Consumption (MWh) (excludes line losses)	40,955,315	30
Utility Retail Electricity Sales (megawatthours)	40,570,923	29
Nonutility Retail Sales and Direct Use (megawatthours)	384,392	39
Utility Average Retail Price (cents/kWh)	5.95	28

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Craig	Petroleum, Gas, Coal	Tri-State G & T Assn Inc	1,264
2. Cherokee	Gas, Coal	Public Service Co of Colorado	723
3. Comanche	Gas, Coal	Public Service Co of Colorado	660
4. Pawnee	Gas, Coal	Public Service Co of Colorado	505
5. Fort St Vrain	Gas	Public Service Co of Colorado	465
6. Hayden	Petroleum, Gas, Coal	Public Service Co of Colorado	446
7. Cabin Creek	Hydro	Public Service Co of Colorado	324
8. Rawhide	Petroleum, Coal	Platte River Power Authority	270
9. Ray D Nixon	Petroleum, Gas, Coal	Colorado Springs City of	268
10. Martin Drake	Gas, Coal	Colorado Springs City of	259

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Public Service Co of Colorado	23,337,607	7,052,920	11,436,253	4,611,645	236,789
B. Colorado Springs Utilities	3,879,256	1,128,256	1,254,000	1,347,000	150,000
C. UtiliCorp United, Inc	1,517,589	484,140	561,656	406,424	65,369
D. Intermountain Rural Elec Assn	1,207,637	769,038	364,732	65,276	8,591
E. Fort Collins Utilities	1,134,676	355,594	415,065	361,611	2,406
Total	31,076,765	9,789,948	14,031,706	6,791,956	463,155
Percentage of Utility Sales	77.0	75.0	83.0	71.0	51.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	6,633	6,675	7,254	1.0	95.4	91.3	90.3
Coal	4,945	4,954	4,981	0.1	71.1	67.7	62.0
Petroleum	221	222	180	-2.2	3.2	3.0	2.2
Gas	393	369	917	9.9	5.6	5.0	11.4
Hydroelectric	1,075	1,130	1,176	1.0	15.5	15.5	14.6
Total Nonutility	319	638	781	10.4	4.6	8.7	9.7
Coal	W	W	32	W	W	W	0.4
Petroleum	W	W	3	W	W	W	0.0
Gas	221	568	680	13.3	3.2	7.8	8.5
Petroleum/Gas Combined	W	W	28	W	W	W	0.4
Hydroelectric	29	30	32	1.1	0.4	0.4	0.4
Other	5	5	4	-0.6	0.1	0.1	0.1
Total Industry	6,952	7,313	8,034	1.6	100.0	100.0	100.0
Coal	W	W	5,013	W	W	W	62.4
Petroleum	W	W	183	W	W	W	2.3
Gas	613	937	1,597	11.2	8.8	12.8	19.9
Petroleum/Gas Combined	W	W	28	W	W	W	0.4
Hydroelectric	1,104	1,160	1,209	1.0	15.9	15.9	15.0
Other	5	5	4	-0.6	0.0	0.0	0.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

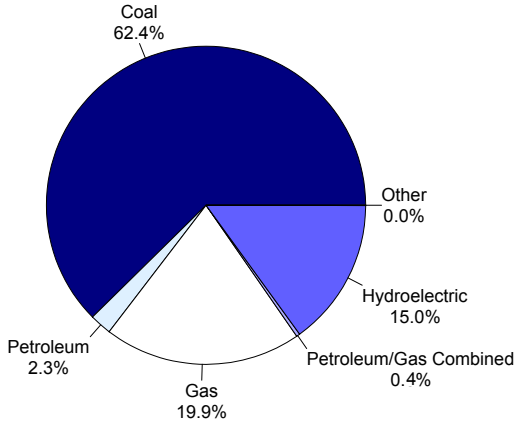


Figure 2. Industry Generation by Energy Source, 1999

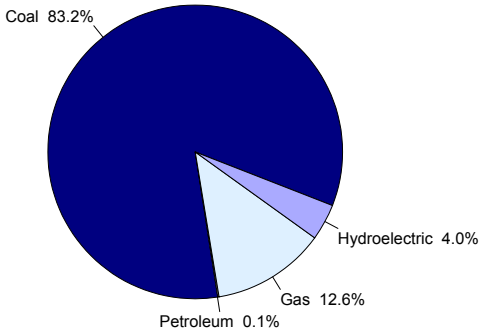


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	31,312,872	33,324,413	36,167,349	1.6	95.5	93.3	91.5
Coal	29,602,738	31,401,250	32,605,202	1.1	90.2	87.9	82.5
Petroleum	25,129	8,913	32,430	2.9	0.1	0.0	0.1
Gas	409,078	373,868	2,049,942	19.6	1.2	1.0	5.2
Hydroelectric	1,275,763	1,540,382	1,479,775	1.7	3.9	4.3	3.7
Other	164	0	0	-100.0	0.0	0.0	0.0
Total Nonutility	1,492,483	2,382,579	3,363,099	9.4	4.5	6.7	8.5
Coal	W	W	283,101	W	W	W	0.7
Petroleum	W	W	21,829	W	W	W	0.1
Gas	1,127,318	1,966,725	2,939,110	11.2	3.4	5.5	7.4
Hydroelectric	110,909	115,522	119,059	0.8	0.3	0.3	0.3
Other	W	W	0	W	W	W	0.0
Total Industry	32,805,355	35,706,992	39,530,448	2.1	100.0	100.0	100.0
Coal	W	W	32,888,303	W	W	W	83.2
Petroleum	W	W	54,259	W	W	W	0.1
Gas	1,536,396	2,340,593	4,989,052	14.0	4.7	6.6	12.6
Hydroelectric	1,386,672	1,655,904	1,598,834	1.6	4.2	4.6	4.0
Other	W	W	0	W	W	W	0.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	128.6	115.3	98.5	-2.9
Average heat value (Btu per pound)	9,808	9,946	9,749	-0.1
Average sulfur Content (percent)	0.4	0.4	0.4	0.1
Petroleum (cents per million Btu) (1999 dollars)	647.9	500.1	543.8	-1.9
Average heat value (Btu per gallon)	137,006	134,590	135,379	-0.1
Gas (cents per million Btu) (1999 dollars)	263.4	232	256.9	-0.3
Average heat value (Btu per cubic foot)	988	1,042	1,032	0.5

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	87	91	86	-0.2
Petroleum	*	0	*	-14.5
Total	87	91	86	-0.2
Nitrogen Oxide				
Coal	140	132	132	-0.6
Petroleum	*	*	*	2.1
Gas	1	3	6	27.3
Total	141	134	138	-0.2
Carbon Dioxide				
Coal	32,147	34,513	36,105	1.3
Petroleum	22	8	30	3.5
Gas	297	1,252	2,499	26.7
Other	0	0	1	0.0
Total	32,466	35,772	38,635	1.9

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

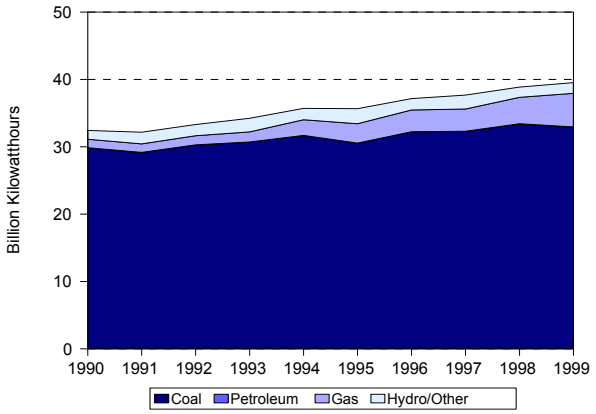


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

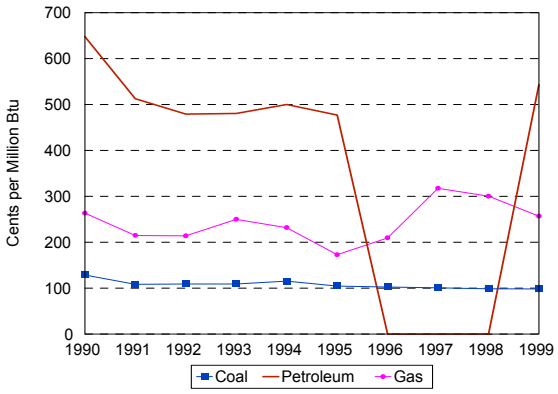


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

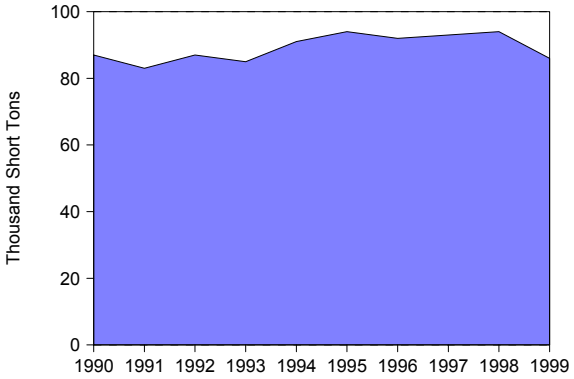


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

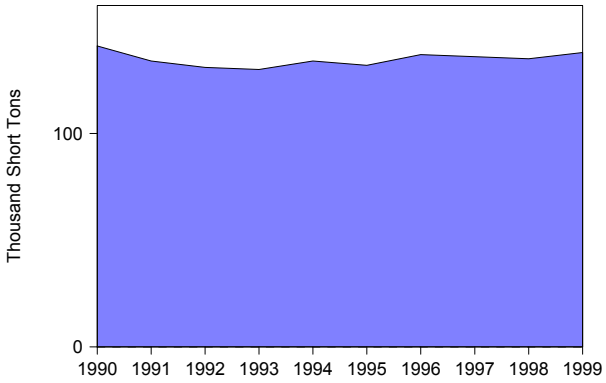


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

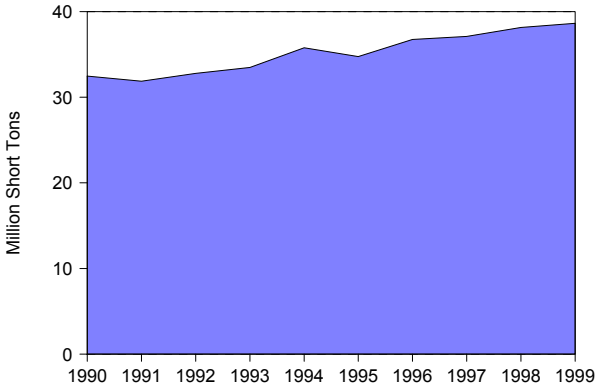


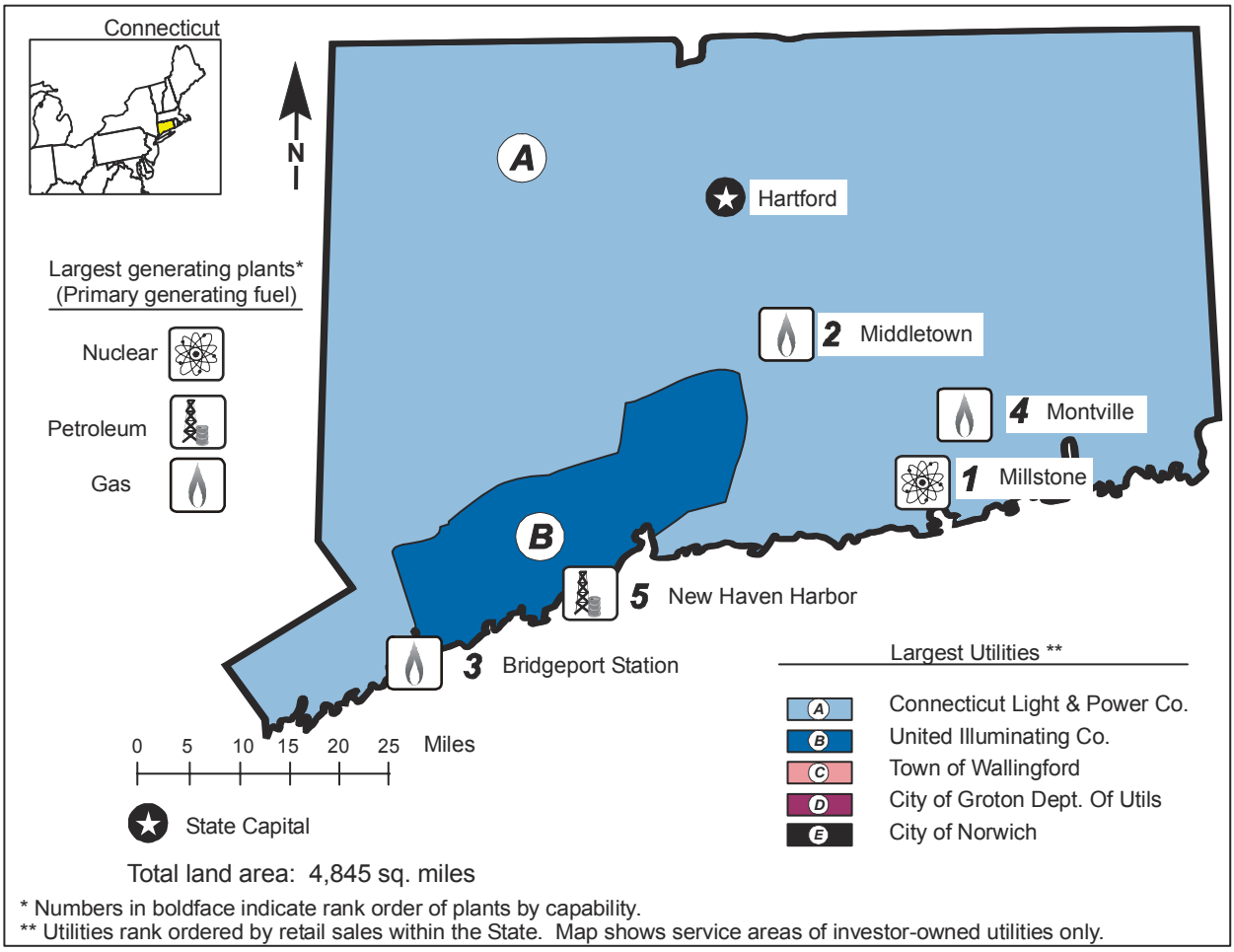
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	9,787	10,939	13,131	3.3	31.8	31.7	32.4
Commercial	13,553	12,953	17,006	2.5	44.0	37.5	41.9
Industrial	6,587	9,620	9,521	4.2	21.4	27.9	23.5
Other	867	990	913	0.6	2.8	2.9	2.3
Total	30,795	34,502	40,571	3.1	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	832	878	969	1.7	37.9	38.4	40.1
Commercial	930	848	954	0.3	42.3	37.1	39.5
Industrial	358	481	417	1.7	16.3	21.0	17.3
Other	76	80	75	-0.2	3.5	3.5	3.1
Total	2,197	2,287	2,415	1.0	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.50	8.03	7.38	NA	NA	NA	NA
Commercial	6.86	6.55	5.61	NA	NA	NA	NA
Industrial	5.44	4.99	4.38	NA	NA	NA	NA
Other	8.82	8.10	8.23	NA	NA	NA	NA
Total	7.13	6.63	5.95	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	2	29	1	28	60
Number of Retail Customers	1,275,002	344,312	13	428,385	2,047,712
Retail Sales (thousand megawatthours)	24,855	7,207	93	8,416	40,571
Percentage of Retail Sales	61.3	17.8	0.2	20.7	100.0
Revenue from Retail Sales (million dollars)	1,463	387	2	563	2,415
Percentage of Revenue	60.6	16.0	0.1	23.3	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.89	5.37	1.87	6.68	5.95

Connecticut



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		NPCC
Primary Energy Source		Nuclear
Net Summer Capability (megawatts)	7,077	34
Utility	2,919	40
Nonutility	4,158	9
Net Generation (megawatthours)	28,830,430	41
Utility	20,484,367	40
Nonutility	8,346,063	14
Emissions (thousand short tons)		
Sulfur Dioxide	27	40
Nitrogen Oxide	20	41
Carbon Dioxide	12,435	39
Sulfur Dioxide/sq. mile	5	19
Nitrogen Oxide/sq. mile	4	17
Carbon Dioxide/sq. mile	2,566	12
Electricity Consumption (MWh) (excludes line losses)	30,664,200	33
Utility Retail Electricity Sales (megawatthours)	29,803,004	33
Nonutility Retail Sales and Direct Use (megawatthours)	861,196	29
Utility Average Retail Price (cents/kWh)	9.96	6

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Millstone	Nuclear	Northeast Nuclear Energy Co	2,028
2. Middletown	Gas	Middletown Power LLC	853
3. Bridgeport Station	Gas	Wisvest Connecticut LLC	543
4. Montville Station	Gas	Montville Power LLC	495
5. New Haven Harbor	Petroleum	United Illuminating Co	466
6. Bridgeport Energy	Gas	Bridgeport Energy LLC	456
7. New Haven Harbor	Gas	Wisvest Connecticut LLC	422
8. NRG Devon Station	Coal	Devon Power LLC	349
9. NRG Norwalk Harbor G	Coal	Norwalk Harbor Power LLC	284
10. AES Thames Inc	Coal	AES Thames Inc	198

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Connecticut Light & Power Co	22,315,405	9,070,738	8,973,405	4,003,858	267,404
B. United Illuminating Company	5,652,050	2,053,927	2,388,240	1,161,856	48,027
C. Town of Wallingford	580,494	185,712	184,572	188,890	21,320
D. City of Groton Dept of Utils	565,722	103,740	107,205	343,489	11,288
E. City of Norwich	325,091	110,623	128,810	65,729	19,929
Total	29,438,762	11,524,740	11,782,232	5,763,822	367,968
Percentage of Utility Sales	99	99	100	99	71

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	7,141	6,733	2,919	-9.5	92.1	91.7	41.2
Coal	385	385	0	-100.0	5.0	5.2	0.0
Petroleum	3,335	2,738	756	-15.2	43.0	37.3	10.7
Gas	0	214	0	0.0	0.0	2.9	0.0
Nuclear	3,217	3,194	2,028	-5.0	41.5	43.5	28.7
Hydroelectric	140	137	135	-0.4	1.8	1.9	1.9
Other	64	64	0	-100.0	0.8	0.9	0.0
Total Nonutility	612	608	4,158	23.7	7.9	8.3	58.8
Coal	W	W	655	W	W	W	9.3
Petroleum	W	W	207	W	W	W	2.9
Gas	W	W	456	W	W	W	6.4
Petroleum/Gas Combined	200	167	2,565	32.8	2.6	2.3	36.2
Hydroelectric	21	21	20	-0.2	0.3	0.3	0.3
Other	138	135	255	7.0	1.8	1.8	3.6
Total Industry	7,754	7,340	7,077	-1.0	100.0	100.0	100.0
Coal	W	W	655	W	W	W	9.3
Petroleum	W	W	963	W	W	W	13.6
Gas	W	W	456	W	W	W	6.4
Petroleum/Gas Combined	200	167	2,565	32.8	2.6	2.3	36.2
Nuclear	3,217	3,194	2,028	-5.0	41.5	43.5	28.7
Hydroelectric	161	158	156	-0.4	2.1	2.2	2.2
Other	202	199	255	2.6	2.6	2.7	3.6

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

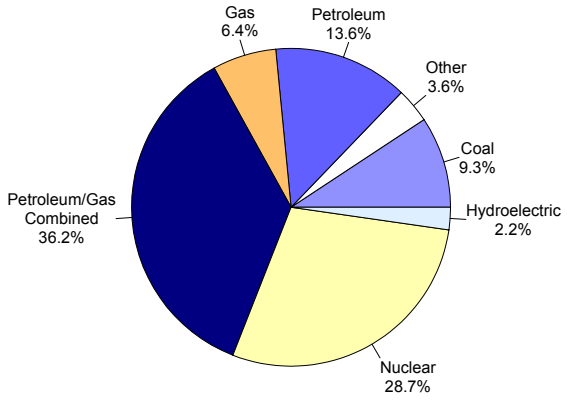


Figure 2. Industry Generation by Energy Source, 1999

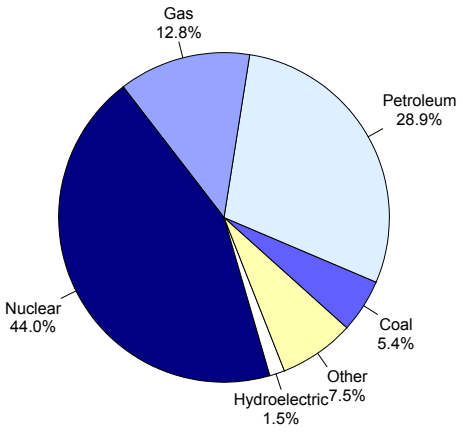


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	32,155,574	27,201,416	20,484,367	-4.9	89.7	87.1	71.1
Coal	2,351,049	2,104,045	0	-100.0	6.6	6.7	0.0
Petroleum	8,632,571	3,353,897	5,793,975	-4.3	24.1	10.7	20.1
Gas	471,836	732,277	1,179,841	10.7	1.3	2.3	4.1
Nuclear	19,776,250	20,159,938	12,675,262	-4.8	55.2	64.5	44.0
Hydroelectric	502,322	412,297	368,255	-3.4	1.4	1.3	1.3
Other	421,546	438,962	467,034	1.1	1.2	1.4	1.6
Total Nonutility	3,699,376	4,036,417	8,346,063	9.5	10.3	12.9	28.9
Coal	W	W	1,547,503	W	W	W	5.4
Petroleum	226,839	183,635	2,546,776	30.8	0.6	0.6	8.8
Gas	1,176,121	1,231,254	2,501,348	8.7	3.3	3.9	8.7
Hydroelectric	W	W	56,598	W	W	W	0.2
Other	978,049	1,031,137	1,693,838	6.3	2.7	3.3	5.9
Total Industry	35,854,950	31,237,833	28,830,430	-2.4	100.0	100.0	100.0
Coal	W	W	1,547,503	W	W	W	5.4
Petroleum	8,859,410	3,537,532	8,340,751	-0.7	24.7	11.3	28.9
Gas	1,647,957	1,963,531	3,681,189	9.3	4.6	6.3	12.8
Nuclear	19,776,250	20,159,938	12,675,262	-4.8	55.2	64.5	44.0
Hydroelectric	W	W	424,853	W	W	W	1.5
Other	1,399,595	1,470,099	2,160,872	4.9	3.9	4.7	7.5

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	212.9	177.4	169.3	-2.5
Average heat value (Btu per pound)	13,233	13,094	13,541	0.3
Average sulfur Content(percent)	0.5	0.5	0	-100.0
Petroleum (cents per million Btu) (1999 dollars)	301.5	253.1	223.5	-3.3
Average heat value (Btu per gallon)	150,789	151,052	152,337	0.1
Average sulfur Content(percent)	0.9	0.8	0.3	-12.3
Gas (cents per million Btu) (1999 dollars)	270.2	196	267.3	-0.1
Average heat value (Btu per cubic foot)	1,033	1,017	1,025	-0.1

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	10	8	0	-64.2
Petroleum	42	17	27	-4.9
Other	1	0	0	-100.0
Total	53	25	27	-7.3
Nitrogen Oxide				
Coal	8	11	5	-4.8
Petroleum	11	3	8	-3.3
Gas	*	1	3	26.4
Other	1	3	4	13.5
Total	20	18	20	*
Carbon Dioxide				
Coal	2,723	3,729	1,483	-6.5
Petroleum	7,663	3,239	7,620	-0.1
Gas	288	704	2,059	24.4
Other	586	1,603	1,273	9.0
Total	11,261	9,275	12,435	1.1

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

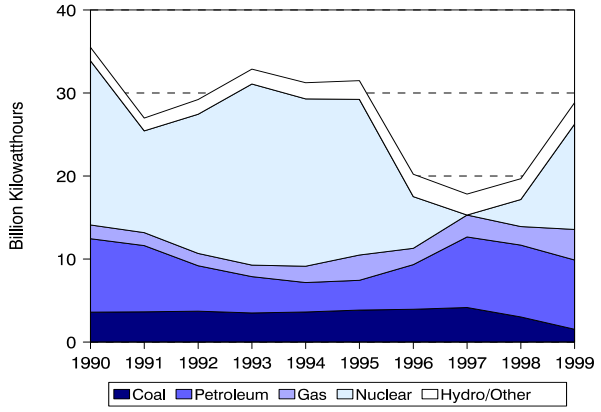


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

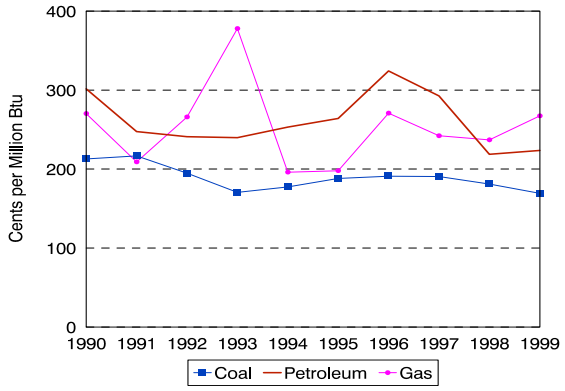


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

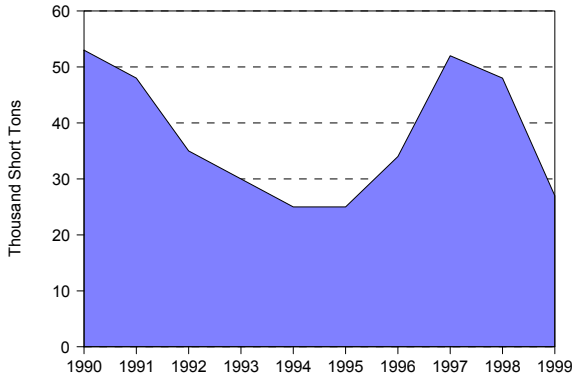


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

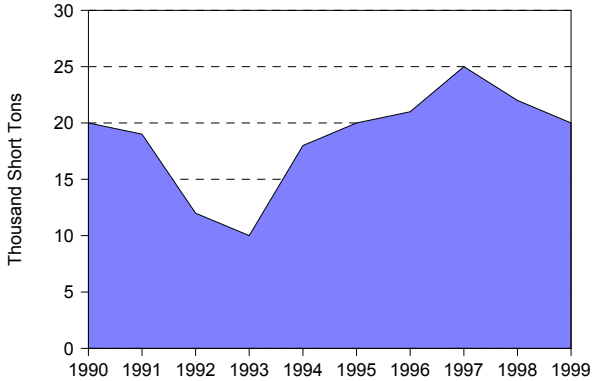


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

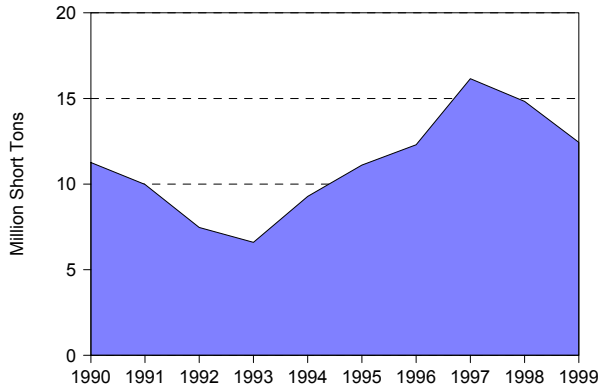


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

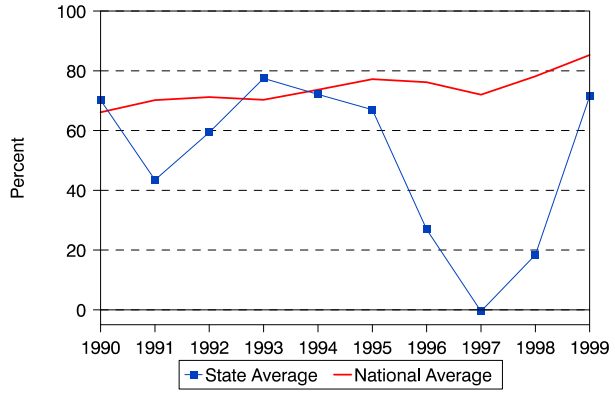


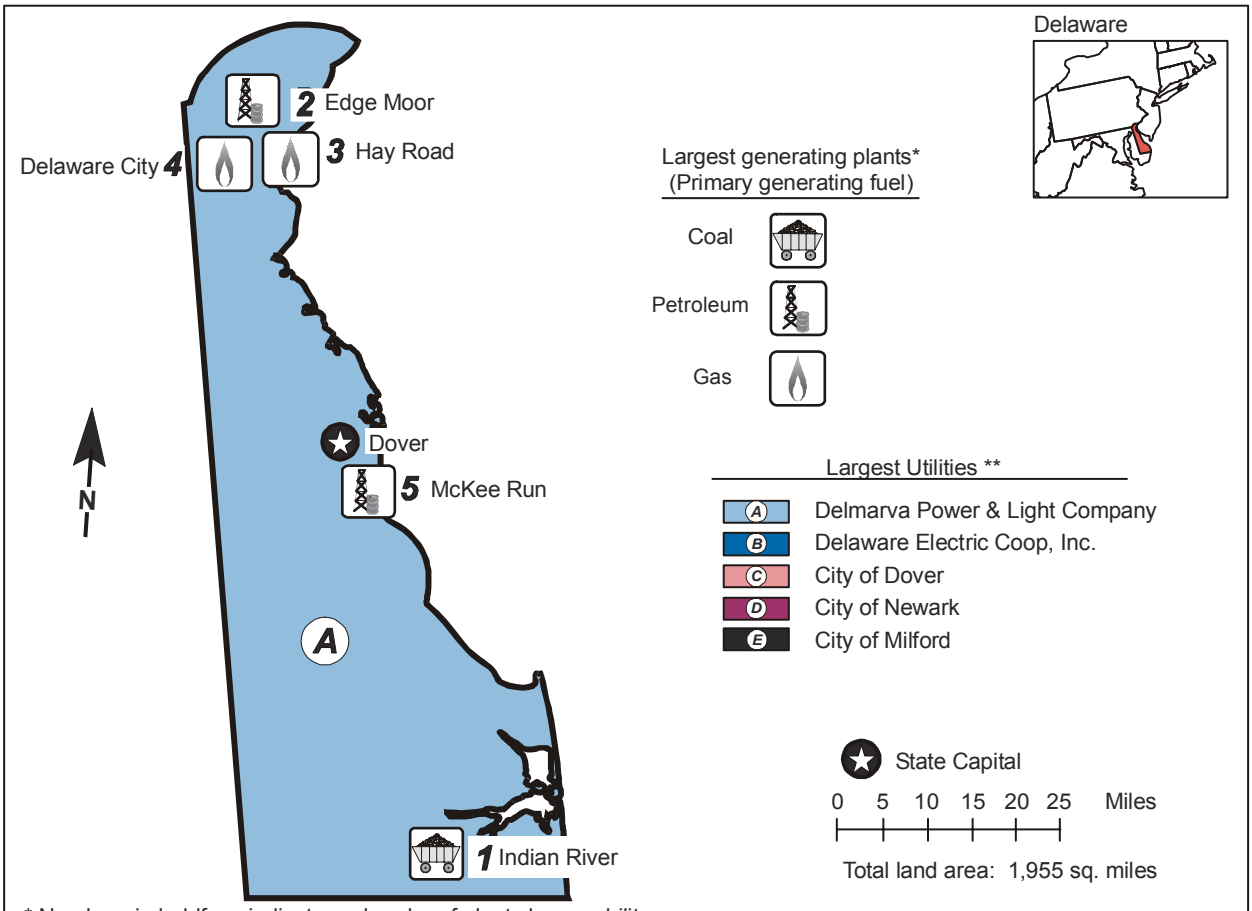
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	10,376	10,898	11,619	1.3	38.2	38.9	39.0
Commercial	10,342	10,845	11,834	1.5	38.0	38.7	39.7
Industrial	6,100	5,917	5,836	-0.5	22.4	21.1	19.6
Other	369	366	515	3.8	1.4	1.3	1.7
Total	27,187	28,026	29,803	1.0	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,258	1,364	1,332	0.6	41.7	43.8	44.9
Commercial	1,142	1,183	1,147	*	37.9	38.0	38.6
Industrial	558	510	433	-2.8	18.5	16.4	14.6
Other	57	56	56	-0.2	1.9	1.8	1.9
Total	3,015	3,113	2,968	-0.2	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	12.12	12.52	11.46	NA	NA	NA	NA
Commercial	11.04	10.91	9.69	NA	NA	NA	NA
Industrial	9.15	8.62	7.42	NA	NA	NA	NA
Other	15.54	15.28	10.93	NA	NA	NA	NA
Total	11.09	11.11	9.96	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	3	7	0	0	10
Number of Retail Customers	1,436,491	66,791	0	0	1,503,282
Retail Sales (thousand megawatthours)	27,998	1,805	0	0	29,803
Percentage of Retail Sales	93.9	6.1	0.0	0.0	100.0
Revenue from Retail Sales (million dollars)	2,831	137	0	0	2,968
Percentage of Revenue	95.4	4.6	0.0	0.0	100.0
Average Revenue per Kilowatthour (cents/kWh)	10.11	7.59	0.00	0.00	9.96

Delaware



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		MACC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	2,452	46
Utility	2,285	44
Nonutility	168	43
Net Generation (megawatthours)	6,877,054	47
Utility	6,239,372	45
Nonutility	637,682	45
Emissions (thousand short tons)		
Sulfur Dioxide	27	39
Nitrogen Oxide	13	45
Carbon Dioxide	6,074	44
Sulfur Dioxide/sq. mile	14	9
Nitrogen Oxide/sq. mile	7	10
Carbon Dioxide/sq. mile	3,107	8
Electricity Consumption (MWh) (excludes line losses)	11,162,836	43
Utility Retail Electricity Sales (megawatthours)	10,493,508	43
Unregulated Retail Electricity Sales (megawatthours)	58,865	15
Nonutility Retail Sales and Direct Use (megawatthours)	610,463	32
Utility Average Retail Price (cents/kWh)	7.12	16

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Indian River	Petroleum, Coal	Delmarva Power & Light Co	784
2. Edge Moor	Gas, Coal, Petroleum	Delmarva Power & Light Co	718
3. Hay Road	Petroleum, Gas	Delmarva Power & Light Co	511
4. Delaware City Plant	Petroleum	Motiva Enterprises LLC	141
5. McKee Run	Gas, Petroleum	Dover City of	136
6. Christiana	Petroleum	Delmarva Power & Light Co	45
7. Van Sant Station	Petroleum	Dover City of	39
8. Seaford Delaware Plant	Coal	E I DuPont De Nemours & Co	27
9. Delaware City	Petroleum	Delmarva Power & Light Co	16
10. West Substation	Petroleum	Delmarva Power & Light Co	15

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Delmarva Power & Light Company	8,242,796	2,498,698	2,843,180	2,862,886	38,032
B. Delaware Electric Coop, Inc	755,454	630,960	109,764	9,724	5,006
C. City of Dover	672,284	155,815	199,194	309,035	8,240
D. City of Newark	340,343	82,663	61,624	196,056	0
E. City of Milford	161,429	43,530	39,829	75,494	2,576
Total	10,172,306	3,411,666	3,253,591	3,453,195	53,854
Percentage of Utility Sales	97	97	97	97	100

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	1,965	2,269	2,285	1.7	91.7	92.8	93.2
Coal	919	931	1,027	1.2	42.9	38.1	41.9
Petroleum	858	827	747	-1.5	40.1	33.8	30.4
Gas	187	511	511	11.8	8.7	20.9	20.8
Total Nonutility	177	177	168	-0.6	8.3	7.2	6.8
Coal	W	W	27	W	W	W	1.1
Petroleum	0	0	130	0.0	0.0	0.0	5.3
Gas	W	W	1	W	W	W	0.0
Petroleum/Gas Combined	W	W	10	W	W	W	0.4
Other	W	W	0	W	W	W	0.0
Total Industry	2,141	2,446	2,452	1.5	100.0	100.0	100.0
Coal	W	W	1,054	W	W	W	43.0
Petroleum	858	827	877	0.2	40.1	33.8	35.7
Gas	W	W	512	W	W	W	20.9
Petroleum/Gas Combined	W	W	10	W	W	W	0.4
Other	W	W	0	W	W	W	0.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

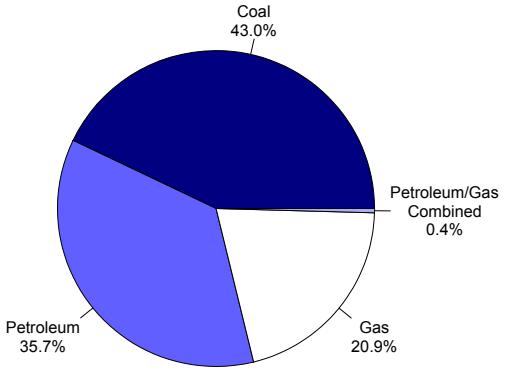


Figure 2. Industry Generation by Energy Source, 1999

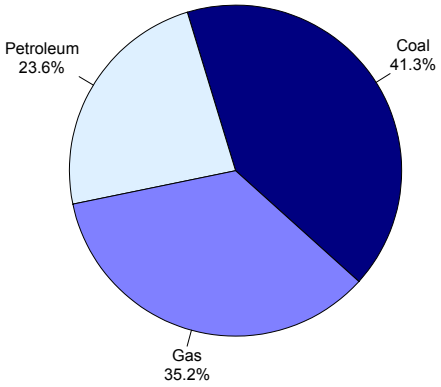


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	7,099,663	8,501,043	6,239,372	-1.4	90.5	92.1	90.7
Coal	4,904,473	4,754,309	2,762,460	-6.2	62.5	51.5	40.2
Petroleum	1,436,186	1,619,659	1,234,121	-1.7	18.3	17.5	17.9
Gas	759,004	2,127,075	2,242,791	12.8	9.7	23.0	32.6
Total Nonutility	741,836	729,234	637,682	-1.7	9.5	7.9	9.3
Coal	W	W	75,238	W	W	W	1.1
Petroleum	W	W	385,744	W	W	W	5.6
Gas	W	W	176,700	W	W	W	2.6
Other	W	W	0	W	W	W	0.0
Total Industry	7,841,499	9,230,277	6,877,054	-1.4	100.0	100.0	100.0
Coal	W	W	2,837,698	W	W	W	41.3
Petroleum	W	W	1,619,865	W	W	W	23.6
Gas	W	W	2,419,491	W	W	W	35.2
Other	W	W	0	W	W	W	0.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	220.0	176.9	158.9	-3.5
Average heat value (Btu per pound)	13035	12954	12935	-0.1
Average sulfur content (percent)	1.0	0.9	1.0	*
Petroleum (cents per million Btu) (1999 dollars)	337.3	283.1	243.9	-3.5
Average heat value (Btu per gallon)	151270	149735	150999	*
Average sulfur content (percent)	1.3	0.9	0.7	-7.0
Gas (cents per million Btu) (1999 dollars)	312.4	255.7	303.3	-0.3
Average heat value (Btu per cubic foot)	1054	1037	983	-0.8

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	37	35	23	-5.3
Petroleum	8	8	4	-7.4
Total	45	43	27	-5.6
Nitrogen Oxide				
Coal	20	18	9	-9.0
Petroleum	3	3	2	-1.4
Gas	1	2	2	9.1
Total	24	23	13	-6.3
Carbon Dioxide				
Coal	5,252	5,439	3,241	-5.2
Petroleum	1,371	1,933	1,567	1.5
Gas	459	1,100	1,266	11.9
Total	7,082	8,472	6,074	-1.7

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

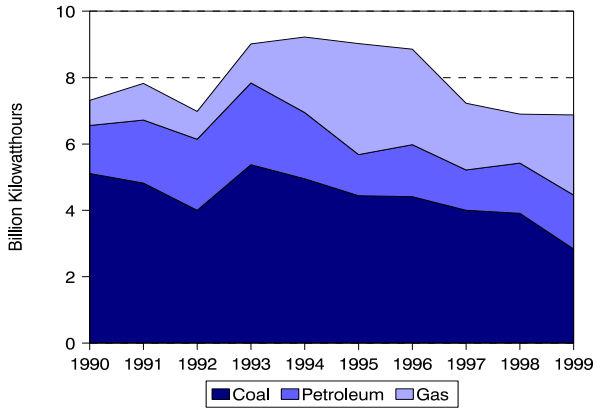


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

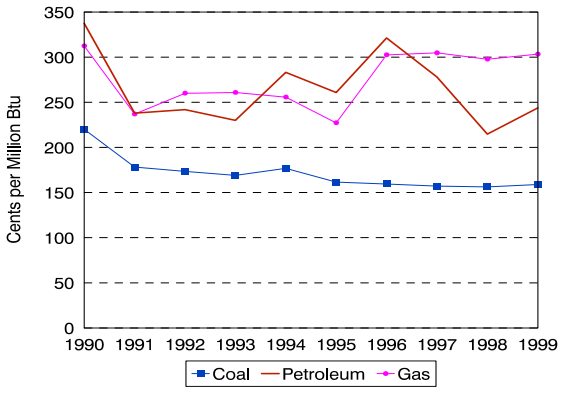


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

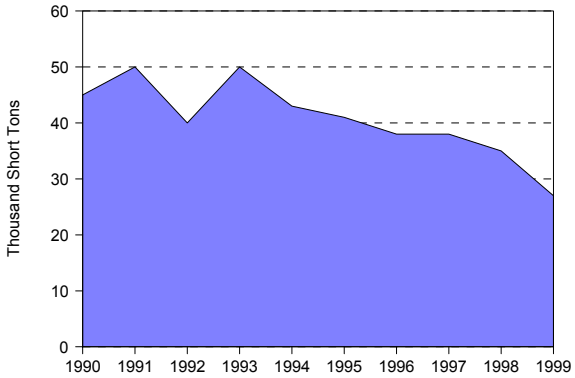


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

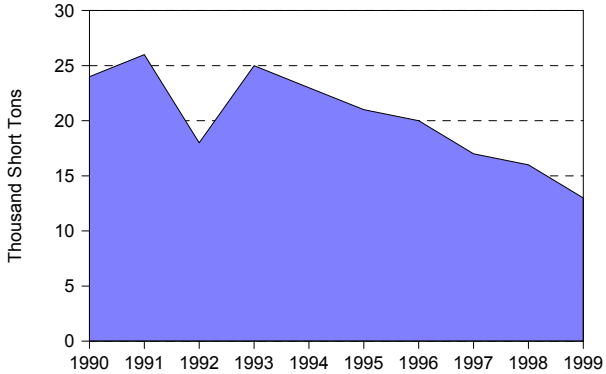


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

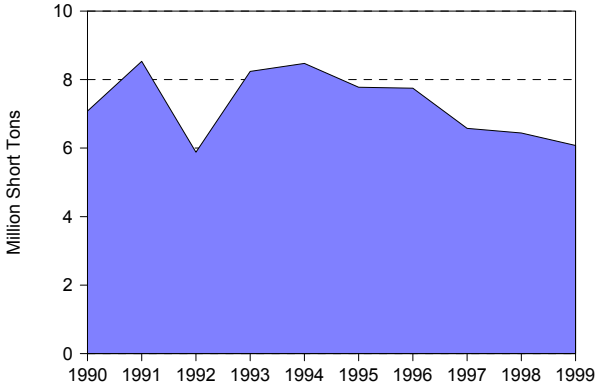


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	2,651	3,107	3,532	3.2	32.0	33.4	33.7
Commercial	2,311	2,685	3,348	4.2	27.9	28.9	31.9
Industrial	3,272	3,447	3,559	0.9	39.5	37.1	33.9
Other	50	60	54	0.8	0.6	0.6	0.5
Total	8,284	9,299	10,494	2.7	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	270	302	324	2.1	41.6	43.9	43.3
Commercial	193	205	248	2.8	29.8	29.8	33.1
Industrial	179	174	168	-0.7	27.6	25.3	22.5
Other	6	7	7	1.5	1.0	1.1	1.0
Total	648	688	747	1.6	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	10.17	9.72	9.17	NA	NA	NA	NA
Commercial	8.37	7.64	7.39	NA	NA	NA	NA
Industrial	5.47	5.05	4.73	NA	NA	NA	NA
Other	12.52	12.19	13.24	NA	NA	NA	NA
Total	7.82	7.40	7.12	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	1	9	0	1	11
Number of Retail Customers	264,269	49,387	0	56,844	370,500
Retail Sales (thousand megawatthours)	8,243	1,495	0	755	10,494
Percentage of Retail Sales	78.6	14.3	0.0	7.2	100.0
Revenue from Retail Sales (million dollars)	572	111	0	64	747
Percentage of Revenue	76.6	14.8	0.0	8.6	100.0
Average Revenue per Kilowatthour (cents/kWh)	6.94	7.41	0.00	8.51	7.12

District of Columbia

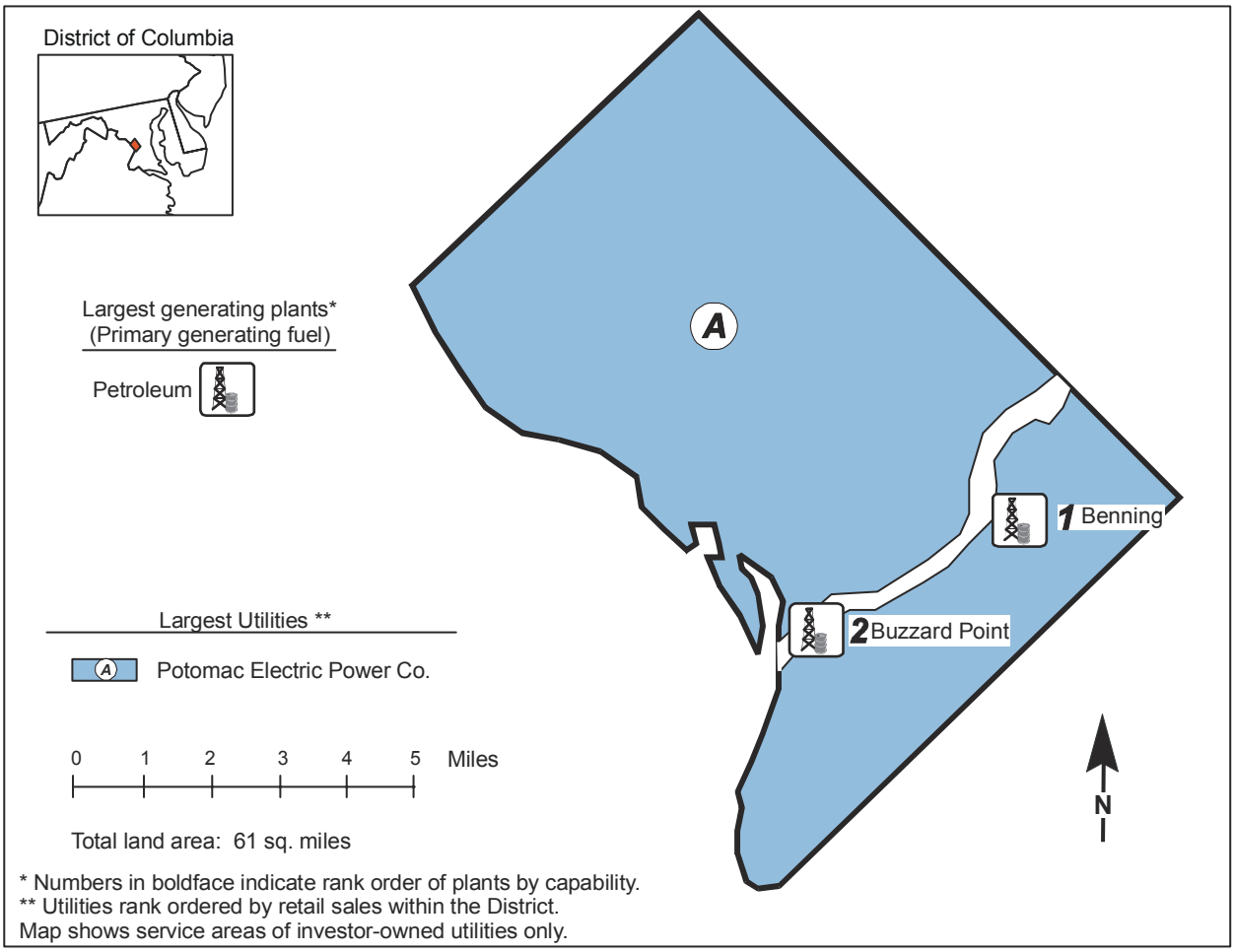


Table 1. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		MAAC
Primary Energy Source		Petroleum
Net Summer Capability (megawatts)	806	51
Utility	806	48
Net Generation (megawatthours)	230,003	51
Utility	230,003	50
Emissions (thousand short tons)		
Sulfur Dioxide	1	46
Nitrogen Oxide	0	49
Carbon Dioxide	259	49
Sulfur Dioxide/sq. mile	20	5
Nitrogen Oxide/sq. mile	5	15
Carbon Dioxide/sq. mile	4,247	2
Electricity Consumption (MWh) (excludes line losses)	10,417,813	44
Utility Retail Electricity Sales (megawatthours)	10,417,813	44
Utility Average Retail Price (cents/kWh)	7.45	13

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Benning	Petroleum	Potomac Electric Power Co	550
2. Buzzard Point	Petroleum	Potomac Electric Power Co	256

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Potomac Electric Power Company	10,417,813	1,642,704	8,146,217	249,201	379,691
B. Total	10,417,813	1,642,704	8,146,217	249,201	379,691
C. Percentage of Utility Sales	100	100	100	100	100

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	806	806	806	0.0	99.7	99.7	100.0
Petroleum	806	806	806	0.0	99.7	99.7	100.0
Total Nonutility	W	W	0	W	W	W	0.0
Coal	W	W	0	W	W	W	0.0
Total Industry	W	W	806	W	W	W	100.0
Coal	W	W	0	W	W	W	0.0
Petroleum	806	806	806	0.0	99.7	99.7	100.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

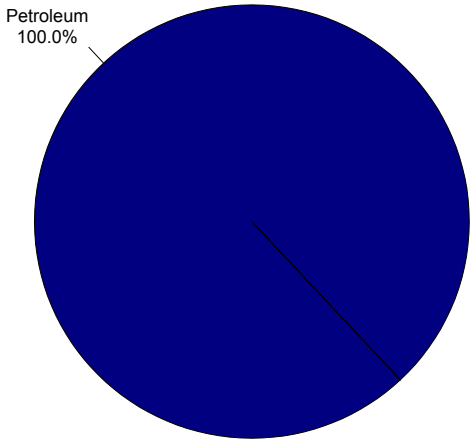


Figure 2. Industry Generation by Energy Source, 1999

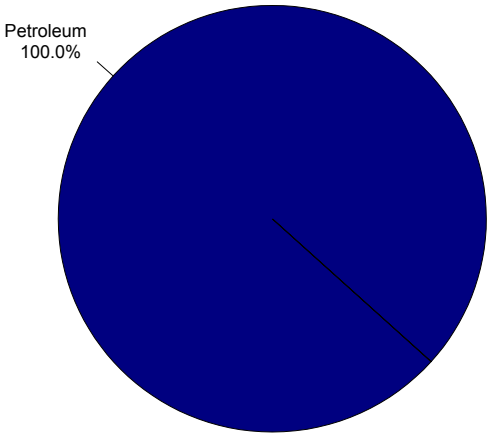


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	361,043	274,252	230,003	-4.9	100.0	100.0	100.0
Petroleum	361,043	274,252	230,003	-4.9	100.0	100.0	100.0
Total Industry	361,043	274,252	230,003	-4.9	100.0	100.0	100.0
Petroleum	361,043	274,252	230,003	-4.9	100.0	100.0	100.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Petroleum (cents per million Btu) (1999 dollars) . . .	440.4	356.3	339.5	-2.8
Average heat value (Btu per gallon)	143239	143271	143279	0.0
Average sulfur Content (percent)	0.9	0.9	1.0	0.6

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Petroleum	2	2	1	-7
Total	2	2	1	-7
Nitrogen Oxide				
Petroleum	*	*	*	-5
Total	*	*	*	-5
Carbon Dioxide				
Petroleum	413	315	259	-5
Total	413	315	259	-5

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

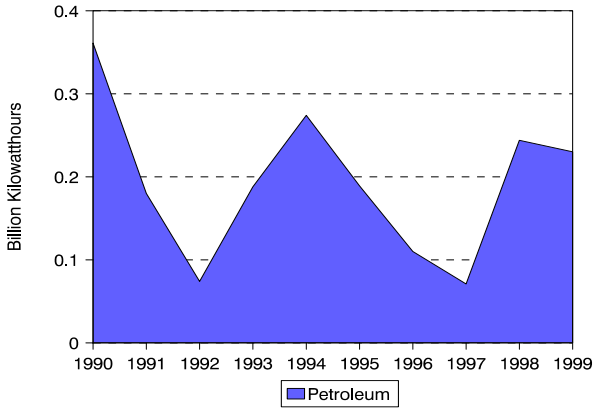


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

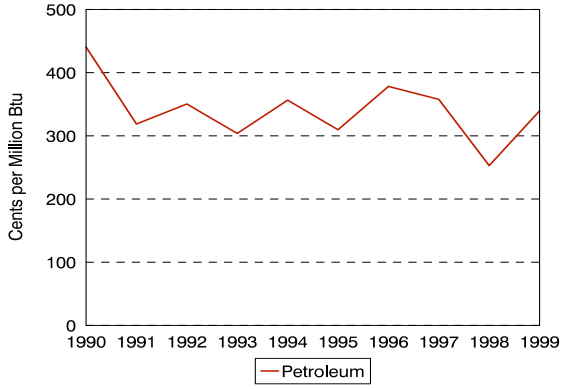


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

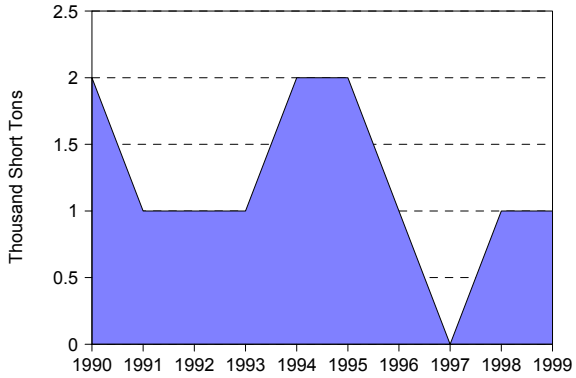


Figure 6. Estimated Carbon Dioxide Emissions, 1990-1999

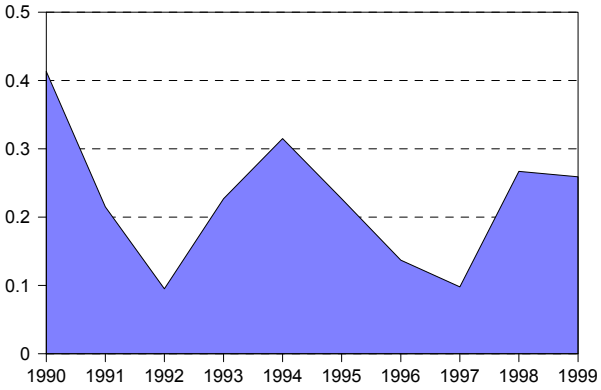


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	1,480	1,572	1,643	1.2	15.0	15.3	15.8
Commercial	5,073	8,093	8,146	5.4	51.5	78.6	78.2
Industrial	2,976	267	249	-24.1	30.2	2.6	2.4
Other	319	363	380	2.0	3.2	3.5	3.6
Total	9,848	10,295	10,418	0.6	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	109	128	131	2.1	15.4	16.0	16.9
Commercial	390	631	609	5.1	55.1	79.0	78.4
Industrial	186	14	11	-26.6	26.3	1.7	1.5
Other	22	27	25	1.2	3.1	3.3	3.2
Total	708	799	777	1.0	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	7.39	8.15	8.00	NA	NA	NA	NA
Commercial	7.69	7.80	7.47	NA	NA	NA	NA
Industrial	6.26	5.06	4.59	NA	NA	NA	NA
Other	7.00	7.34	6.55	NA	NA	NA	NA
Total	7.19	7.76	7.45	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	1	0	0	0	1
Number of Retail Customers	219,923	0	0	0	219,923
Retail Sales (thousand megawatthours)	10,418	0	0	0	10,418
Percentage of Retail Sales	100.0	0.0	0.0	0.0	100.0
Revenue from Retail Sales (million dollars)	777	0	0	0	777
Percentage of Revenue	100.0	0.0	0.0	0.0	100.0
Average Revenue per Kilowatthour (cents/kWh)	7.45	0.00	0.00	0.00	7.45

Florida

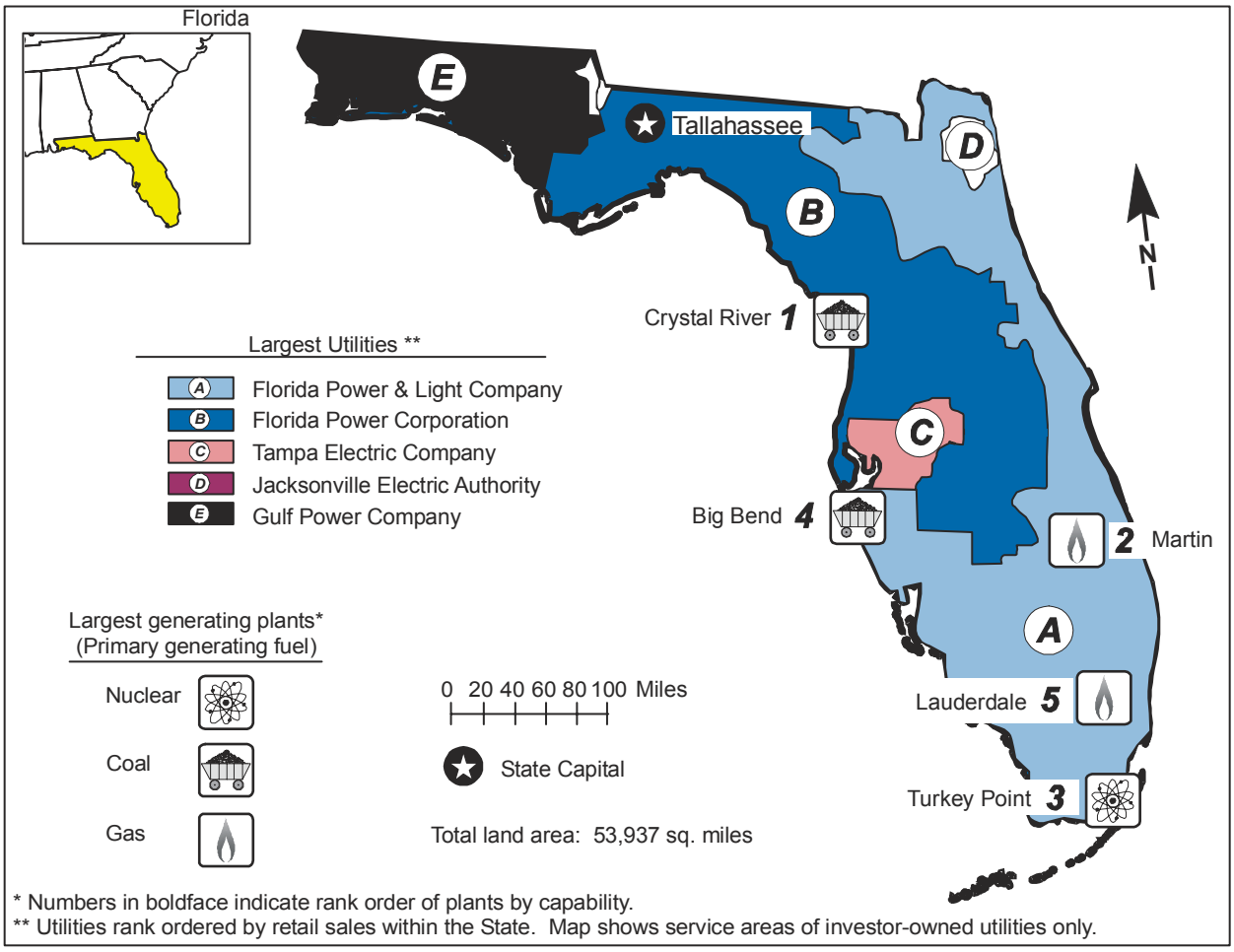

Florida
E
Tallahassee
D
B
N
Crystal River 1
Largest Utilities **
A Florida Power & Light Company
B Florida Power Corporation
C Tampa Electric Company
D Jacksonville Electric Authority
E Gulf Power Company
C
Big Bend 4
2 Martin
A
Largest generating plants*
(Primary generating fuel)
Nuclear
Coal
Gas
0 20 40 60 80 100 Miles
State Capital
Total land area: 53,937 sq. miles
Lauderdale 5
Turkey Point 3
* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		FRCC/SERC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	40,940	3
Utility	36,536	2
Nonutility	4,404	8
Net Generation (megawatthours)	186,928,382	4
Utility	166,914,264	2
Nonutility	20,014,118	7
Emissions (thousand short tons)		
Sulfur Dioxide	646	6
Nitrogen Oxide	357	6
Carbon Dioxide	126,408	4
Sulfur Dioxide/sq. mile	12	10
Nitrogen Oxide/sq. mile	7	11
Carbon Dioxide/sq. mile	2,344	13
Electricity Consumption (MWh) (excludes line losses)	193,394,452	3
Utility Retail Electricity Sales (megawatthours)	187,270,257	3
Nonutility Retail Sales and Direct Use (megawatthours)	6,124,195	7
Utility Average Retail Price (cents/kWh)	6.85	19

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Crystal River	Petroleum, Nuclear, Coal	Florida Power Corp	3,116
2. Martin	Petroleum, Gas	Florida Power & Light Co	2,581
3. Turkey Point	Gas, Petroleum, Nuclear	Florida Power & Light Co	2,208
4. Big Bend	Petroleum, Coal	Tampa Electric Co	1,843
5. Lauderdale	Petroleum, Gas	Florida Power & Light Co	1,700
6. St Lucie	Nuclear	Florida Power & Light Co	1,678
7. Port Everglades	Gas, Petroleum	Florida Power & Light Co	1,662
8. Manatee	Petroleum	Florida Power & Light Co	1,625
9. Seminole	Petroleum, Coal	Seminole Electric Coop Inc	1,316
10. St Johns River Power	Petroleum, Coal	Jacksonville Electric Authority	1,262

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Florida Power & Light Company	84,450,082	44,108,106	35,456,942	3,940,575	944,459
B. Florida Power Corporation	33,441,029	16,244,772	10,326,848	4,333,709	2,535,700
C. Tampa Electric Company	15,804,958	6,967,174	5,336,395	2,223,266	1,278,123
D. Jacksonville Electric Authority	10,768,701	4,514,824	3,340,441	2,827,874	85,562
E. Gulf Power Company	9,559,183	4,471,118	3,222,532	1,846,237	19,296
Total	154,023,953	76,305,994	57,683,158	15,171,661	4,863,140
Percentage of Utility Sales	82	81	84	82	84

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	32,714	35,487	36,536	1.2	94.2	91.5	89.2
Coal	9,971	10,037	10,770	0.9	28.7	25.9	26.3
Petroleum	11,161	14,862	12,153	0.9	32.1	38.3	29.7
Gas	7,721	6,719	9,665	2.5	22.2	17.3	23.6
Nuclear	3,813	3,822	3,898	0.2	11.0	9.9	9.5
Hydroelectric	48	47	47	-0.1	0.1	0.1	0.1
Other	0	0	3	0.0	0.0	0.0	0.0
Total Nonutility	2,004	3,287	4,404	9.1	5.8	8.5	10.8
Coal	W	W	793	W	W	W	1.9
Petroleum	47	22	25	-6.9	0.1	0.1	0.1
Gas	426	1,148	719	6.0	1.2	3.0	1.8
Petroleum/Gas Combined	270	362	1,500	21.0	0.8	0.9	3.7
Other	W	W	1,367	W	W	W	3.3
Total Industry	34,718	38,774	40,940	1.8	100.0	100.0	100.0
Coal	W	W	11,564	W	W	W	28.2
Petroleum	11,208	14,883	12,177	0.9	32.3	38.4	29.7
Gas	8,146	7,867	10,384	2.7	23.5	20.3	25.4
Petroleum/Gas Combined	270	362	1,500	21.0	0.8	0.9	3.7
Nuclear	3,813	3,822	3,898	0.2	11.0	9.9	9.5
Hydroelectric	48	47	47	-0.1	0.1	0.1	0.1
Other	W	W	1,370	W	W	W	3.3

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

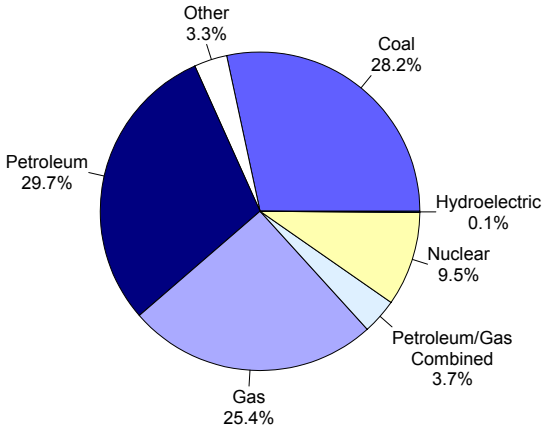


Figure 2. Industry Generation by Energy Source, 1999

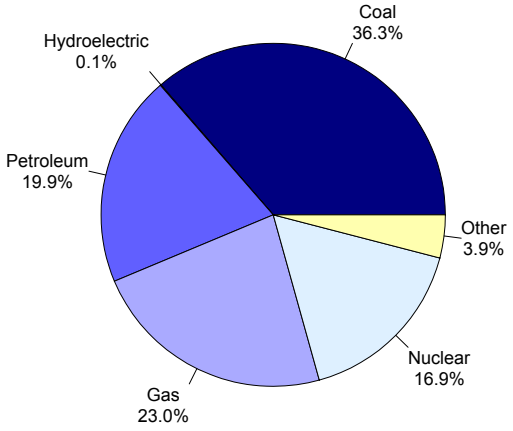


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	123,623,905	141,790,885	166,914,264	3.4	92.3	89.4	89.3
Coal	59,073,203	60,770,030	62,680,522	0.7	44.1	38.3	33.5
Petroleum	25,092,296	33,330,039	36,697,343	4.3	18.7	21.0	19.6
Gas	17,504,242	20,734,235	35,853,511	8.3	13.1	13.1	19.2
Nuclear	21,779,560	26,682,107	31,526,285	4.2	16.3	16.8	16.9
Hydroelectric	174,604	274,474	140,175	-2.4	0.1	0.2	0.1
Other	0	0	16,428	0.0	0.0	0.0	0.0
Total Nonutility	10,317,255	16,759,592	20,014,118	7.6	7.7	10.6	10.7
Coal	1,034,667	2,986,968	5,133,563	19.5	0.8	1.9	2.7
Petroleum	506,858	587,502	453,215	-1.2	0.4	0.4	0.2
Gas	2,190,356	6,072,683	7,081,069	13.9	1.6	3.8	3.8
Other	6,585,374	7,112,439	7,346,272	1.2	4.9	4.5	3.9
Total Industry	133,941,160	158,550,477	186,928,382	3.8	100.0	100.0	100.0
Coal	60,107,870	63,756,998	67,814,085	1.3	44.9	40.2	36.3
Petroleum	25,599,154	33,917,541	37,150,558	4.2	19.1	21.4	19.9
Gas	19,694,598	26,806,918	42,934,580	9.0	14.7	16.9	23.0
Nuclear	21,779,560	26,682,107	31,526,285	4.2	16.3	16.8	16.9
Hydroelectric	174,604	274,474	140,175	-2.4	0.1	0.2	0.1
Other	6,585,374	7,112,439	7,362,700	1.2	4.9	4.5	3.9

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	224.1	194.1	158.9	-3.8
Average heat value (Btu per pound)	12364	12293	12299	*
Average sulfur Content(percent)	1.7	1.6	1.5	-1.4
Petroleum (cents per million Btu) (1999 dollars)	365.9	247.0	245.6	-4.3
Average heat value (Btu per gallon)	151011	151378	152090	0.1
Average sulfur Content(percent)	1.2	1.4	1.4	1.6
Gas (cents per million Btu) (1999 dollars)	307.1	235.3	297.2	-0.4
Average heat value (Btu per cubic foot)	1011	1010	1044	0.3

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	469	446	356	-3.0
Petroleum	160	264	290	6.9
Other	0	*	*	0.0
Total	629	710	646	0.3
Nitrogen Oxide				
Coal	219	236	245	1.2
Petroleum	35	44	51	4.3
Gas	24	41	52	8.8
Other	0	9	9	0.0
Total	279	330	357	2.8
Carbon Dioxide				
Coal	59,495	64,089	68,325	1.5
Petroleum	22,008	29,828	33,258	4.7
Gas	11,124	14,622	22,446	8.1
Other	0	5,151	2,380	0.0
Total	92,628	113,690	126,408	3.5

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

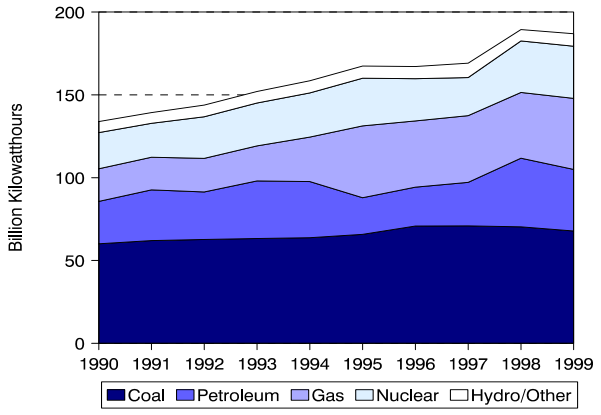


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

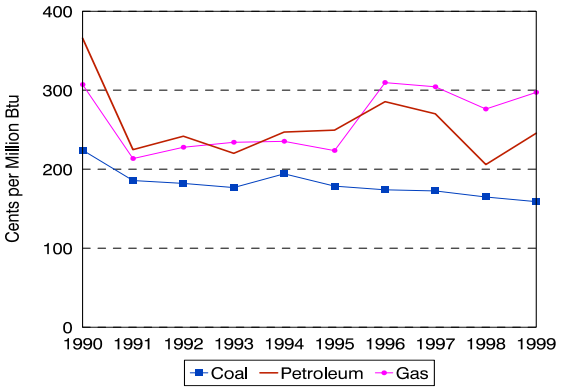


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

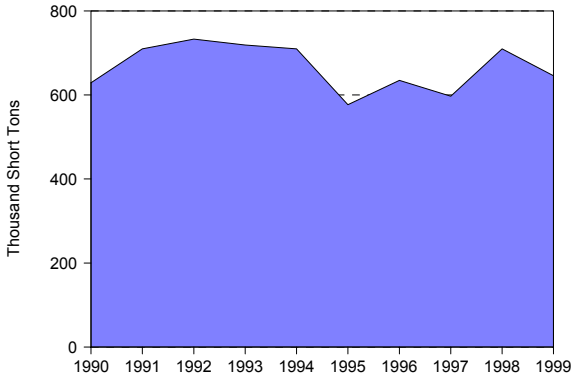


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

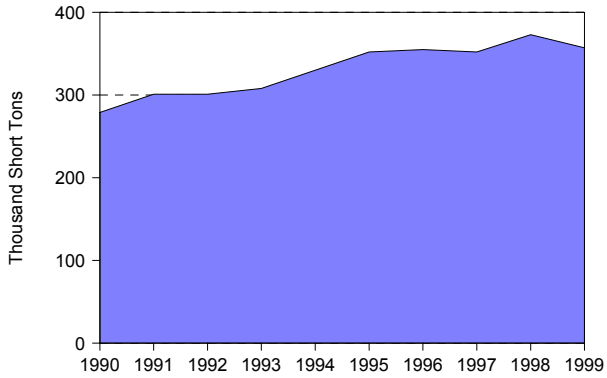


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

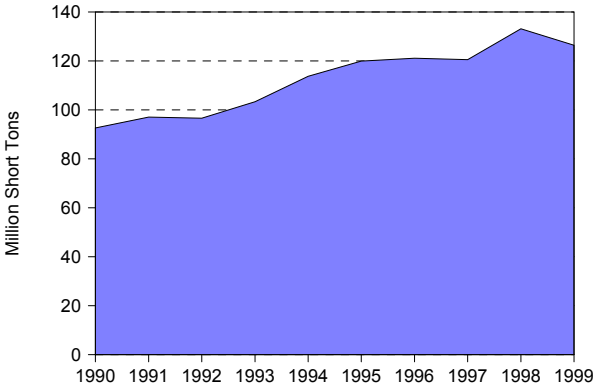


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

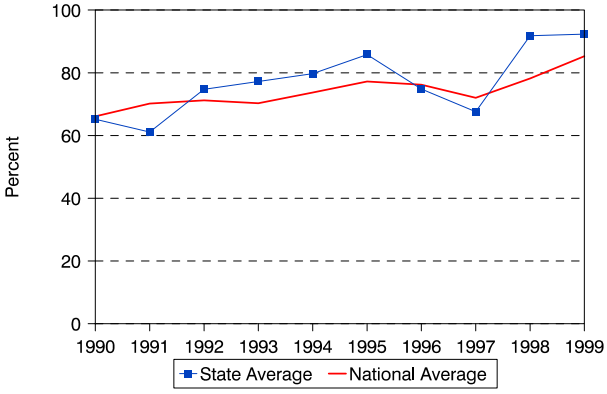


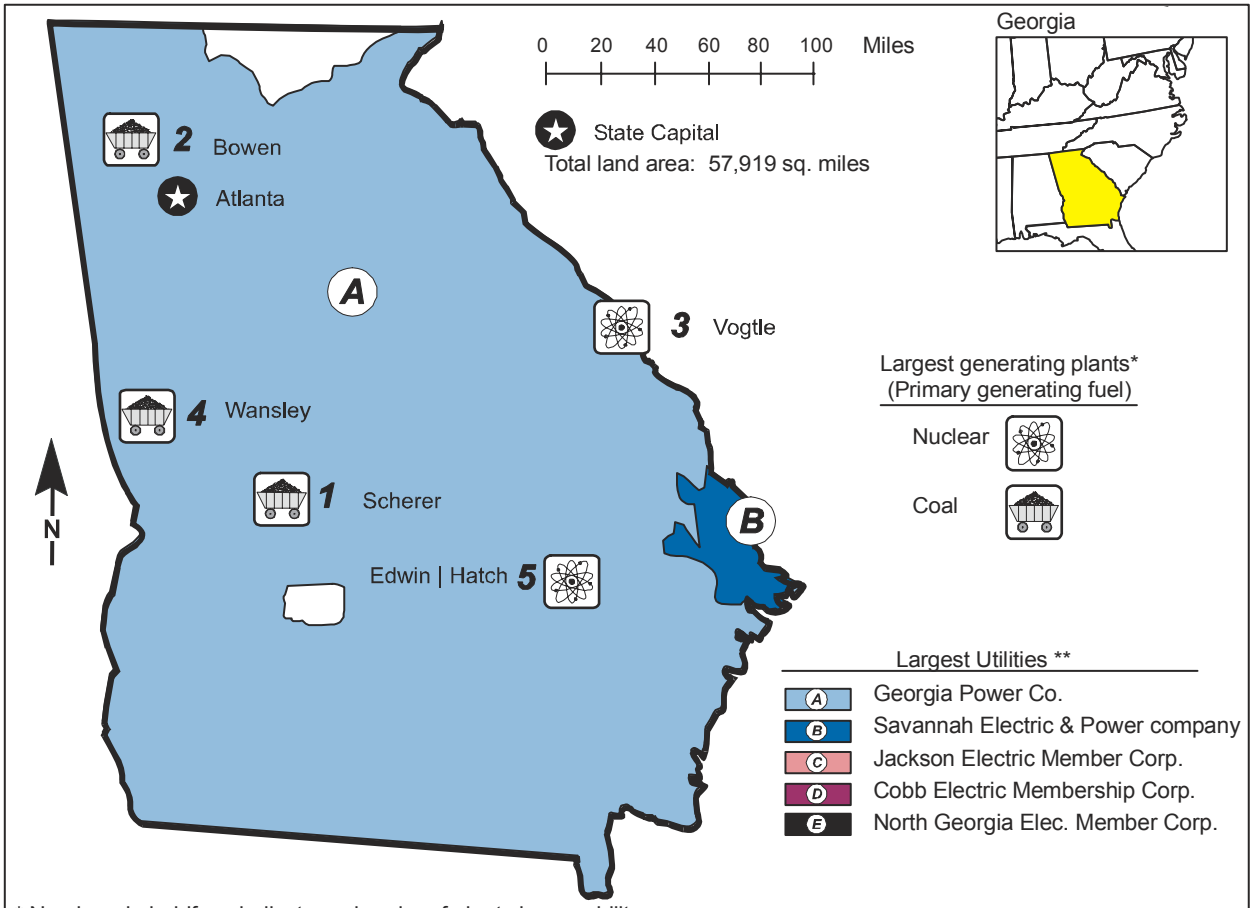
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	71,115	80,595	93,846	3.1	49.5	50.5	50.1
Commercial	51,342	57,447	69,055	3.3	35.8	36.0	36.9
Industrial	16,605	16,513	18,579	1.3	11.6	10.3	9.9
Other	4,473	4,989	5,790	2.9	3.1	3.1	3.1
Total	143,535	159,544	187,270	3.0	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	6,694	6,843	7,253	0.9	54.7	56.5	56.6
Commercial	4,143	3,982	4,297	0.4	33.9	32.9	33.5
Industrial	1,022	925	886	-1.6	8.4	7.6	6.9
Other	370	366	383	0.4	3.0	3.0	3.0
Total	12,229	12,116	12,819	0.5	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	9.41	8.49	7.73	NA	NA	NA	NA
Commercial	8.07	6.93	6.22	NA	NA	NA	NA
Industrial	6.16	5.6	4.77	NA	NA	NA	NA
Other	8.27	7.34	6.61	NA	NA	NA	NA
Total	8.52	7.59	6.85	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	5	32	0	16	53
Number of Retail Customers	6,055,612	1,117,516	0	788,233	7,961,361
Retail Sales (thousand megawatthours)	143,974	30,135	0	13,161	187,270
Percentage of Retail Sales	76.9	16.1	0.0	7.0	100.0
Revenue from Retail Sales (million dollars)	9,843	2,013	0	963	12,819
Percentage of Revenue	76.8	15.7	0.0	7.5	100.0
Average Revenue per Kilowatthour (cents/kWh)	6.84	6.68	0.00	7.32	6.85

Georgia



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SERC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	25,011	10
Utility	23,329	7
Nonutility	1,682	17
Net Generation (megawatthours)	117,680,805	10
Utility	110,536,794	9
Nonutility	7,144,011	17
Emissions (thousand short tons)		
Sulfur Dioxide	482	9
Nitrogen Oxide	226	12
Carbon Dioxide	82,049	10
Sulfur Dioxide/sq. mile	8	15
Nitrogen Oxide/sq. mile	4	20
Carbon Dioxide/sq. mile	1,417	18
Electricity Consumption (MWh) (excludes line losses)	118,446,678	9
Utility Retail Electricity Sales (megawatthours)	112,655,746	8
Nonutility Retail Sales and Direct Use (megawatthours)	5,790,932	8
Utility Average Retail Price (cents/kWh)	6.24	24

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Scherer	Petroleum, Coal	Georgia Power Co	3,346
2. Bowen	Petroleum, Coal	Georgia Power Co	3,249
3. Vogtle	Nuclear	Georgia Power Co	2,297
4. Wansley	Petroleum, Coal	Georgia Power Co	1,790
5. Edwin I Hatch	Nuclear	Georgia Power Co	1,741
6. Harllee Branch	Petroleum, Coal	Georgia Power Co	1,564
7. Yates	Petroleum, Gas, Coal	Georgia Power Co	1,265
8. Rocky Mountain Hydro	Hydro	Oglethorpe Power Corp	848
9. McIntosh	Petroleum, Gas, Coal	Savannah Electric & Power Co	802
10. Hammond	Petroleum, Coal	Georgia Power Co	784

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Georgia Power Company	70,972,000	19,404,709	23,715,486	27,300,355	551,450
B. Savannah Electric & Power Co	3,712,902	1,579,068	1,287,832	713,448	132,554
C. Jackson Electric Member Corp	3,054,510	1,751,435	801,323	383,878	117,874
D. Cobb Electric Membership Corp	2,788,555	1,790,652	696,485	185,570	115,848
E. North Georgia Elec Member Corp	2,355,992	1,192,758	436,813	710,587	15,834
Total	82,883,959	25,718,622	26,937,939	29,293,838	933,560
Percentage of Utility Sales	74.0	62.0	79.0	83.0	61.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	20,731	22,039	23,329	1.3	95.1	94.1	93.3
Coal	12,952	13,164	13,095	0.1	59.4	56.2	52.4
Petroleum	1,488	1,341	1,145	-2.9	6.8	5.7	4.6
Gas	96	841	1,564	36.3	0.4	3.6	6.3
Nuclear	3,726	3,840	4,038	0.9	17.1	16.4	16.1
Hydroelectric	2,469	2,853	3,488	3.9	11.3	12.2	13.9
Total Nonutility	1,071	1,393	1,682	5.1	4.9	5.9	6.7
Coal	120	42	137	1.5	0.6	0.2	0.5
Petroleum	64	206	115	6.7	0.3	0.9	0.5
Gas	110	74	41	-10.5	0.5	0.3	0.2
Petroleum/Gas Combined	85	392	657	25.4	0.4	1.7	2.6
Hydroelectric	14	14	12	-1.1	0.1	0.1	0.0
Other	678	666	721	0.7	3.1	2.8	2.9
Total Industry	21,802	23,432	25,011	1.5	100.0	100.0	100.0
Coal	13,072	13,206	13,232	0.1	60.0	56.4	52.9
Petroleum	1,552	1,547	1,259	-2.3	7.1	6.6	5.0
Gas	206	915	1,604	25.6	0.9	3.9	6.4
Petroleum/Gas Combined	85	392	657	25.4	0.4	1.7	2.6
Nuclear	3,726	3,840	4,038	0.9	17.1	16.4	16.1
Hydroelectric	2,482	2,866	3,501	3.9	11.4	12.2	14.0
Other	678	666	721	0.7	3.1	2.8	2.9

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

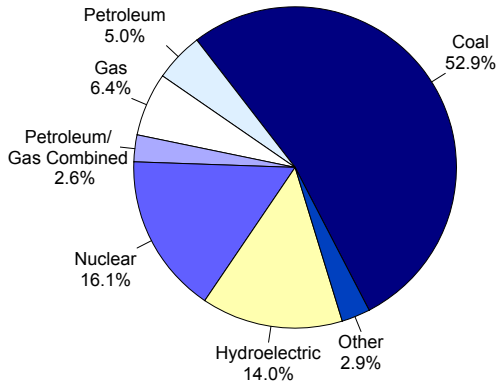


Figure 2. Industry Generation by Energy Source, 1999

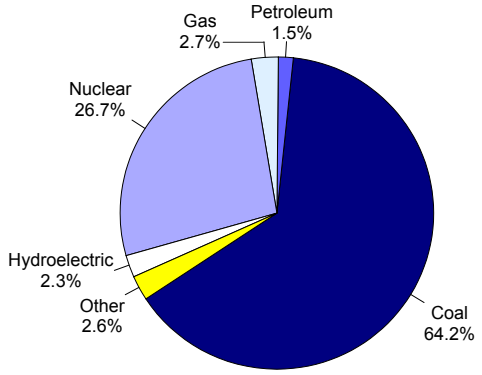


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	97,565,058	98,752,712	110,536,794	1.4	94.7	94.5	93.9
Coal	67,564,750	64,727,519	74,067,633	1.0	65.6	62.0	62.9
Petroleum	164,987	161,235	662,699	16.7	0.2	0.2	0.6
Gas	151,615	79,854	1,653,873	30.4	0.1	0.1	1.4
Nuclear	24,796,884	28,927,090	31,478,122	2.7	24.1	27.7	26.7
Hydroelectric	4,886,822	4,857,014	2,674,467	-6.5	4.7	4.6	2.3
Total Nonutility	5,425,088	5,706,215	7,144,011	3.1	5.3	5.5	6.1
Coal	961,857	921,662	1,505,319	5.1	0.9	0.9	1.3
Petroleum	349,759	782,075	1,057,542	13.1	0.3	0.7	0.9
Gas	948,824	715,929	1,494,895	5.2	0.9	0.7	1.3
Hydroelectric	56,114	53,829	28,621	-7.2	0.1	0.1	0.0
Other	3,108,534	3,232,720	3,057,635	-0.2	3.0	3.1	2.6
Total Industry	102,990,146	104,458,927	117,680,805	1.5	100.0	100.0	100.0
Coal	68,526,607	65,649,181	75,572,952	1.1	66.5	62.8	64.2
Petroleum	514,746	943,310	1,720,241	14.3	0.5	0.9	1.5
Gas	1,100,439	795,783	3,148,768	12.4	1.1	0.8	2.7
Nuclear	24,796,884	28,927,090	31,478,122	2.7	24.1	27.7	26.7
Hydroelectric	4,942,936	4,910,843	2,703,088	-6.5	4.8	4.7	2.3
Other	3,108,534	3,232,720	3,057,635	-0.2	3.0	3.1	2.6

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	216.5	184.6	154.6	-3.7
Average heat value (Btu per pound)	11,893	11,774	11,740	-0.1
Average sulfur Content(percent)	1.6	1.1	0.8	-7.6
Petroleum (cents per million Btu) (1999 dollars)	588.5	432.6	389.6	-4.5
Average heat value (Btu per gallon)	139,814	138,484	138,495	-0.1
Average sulfur Content(percent)	2.4	0	0	-100.0
Gas (cents per million Btu) (1999 dollars)	359.7	350.2	248.9	-4.0
Average heat value (Btu per cubic foot)	1,024	1,025	1,032	0.1

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	853	553	479	-6.2
Petroleum	1	1	3	17.4
Other	0	*	*	0.0
Total	853	554	482	-6.1
Nitrogen Oxide				
Coal	231	180	216	-0.7
Petroleum	*	1	2	30.1
Gas	*	1	4	41.3
Other	0	4	4	0.0
Total	232	186	226	-0.3
Carbon Dioxide				
Coal	67,294	65,538	78,498	1.7
Petroleum	158	1,069	1,237	25.7
Gas	113	386	2,277	39.6
Other	0	57	36	0.0
Total	67,565	67,049	82,049	2.2

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

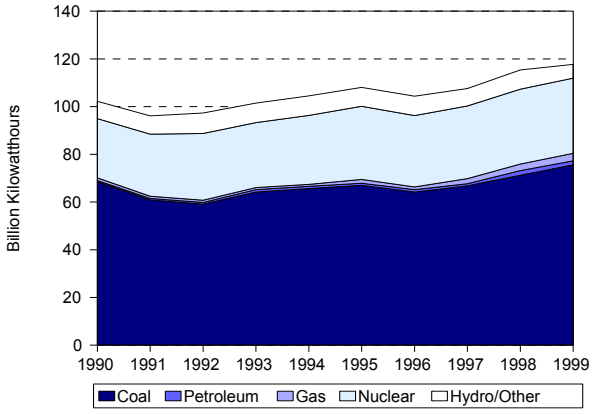


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

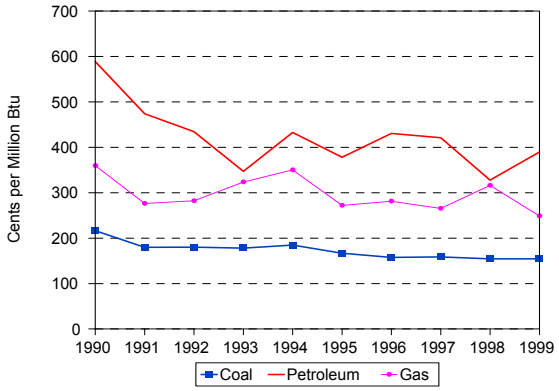


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

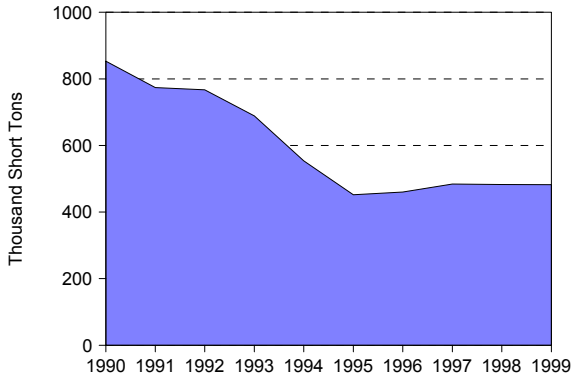


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

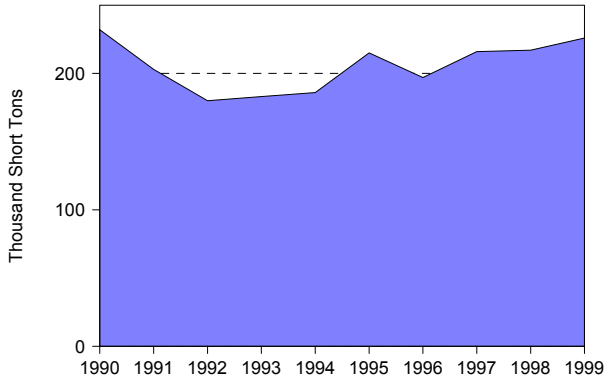


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

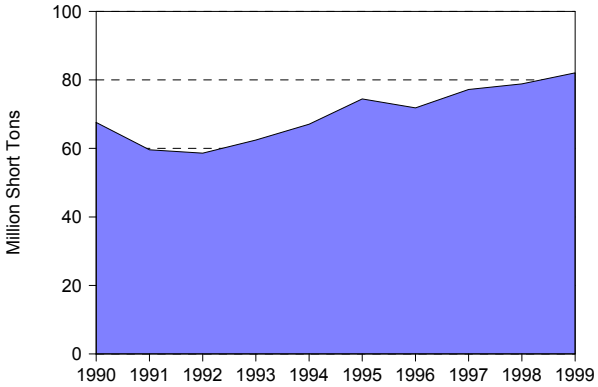


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

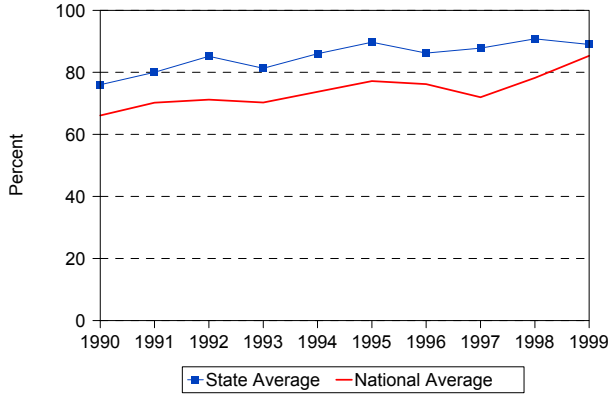


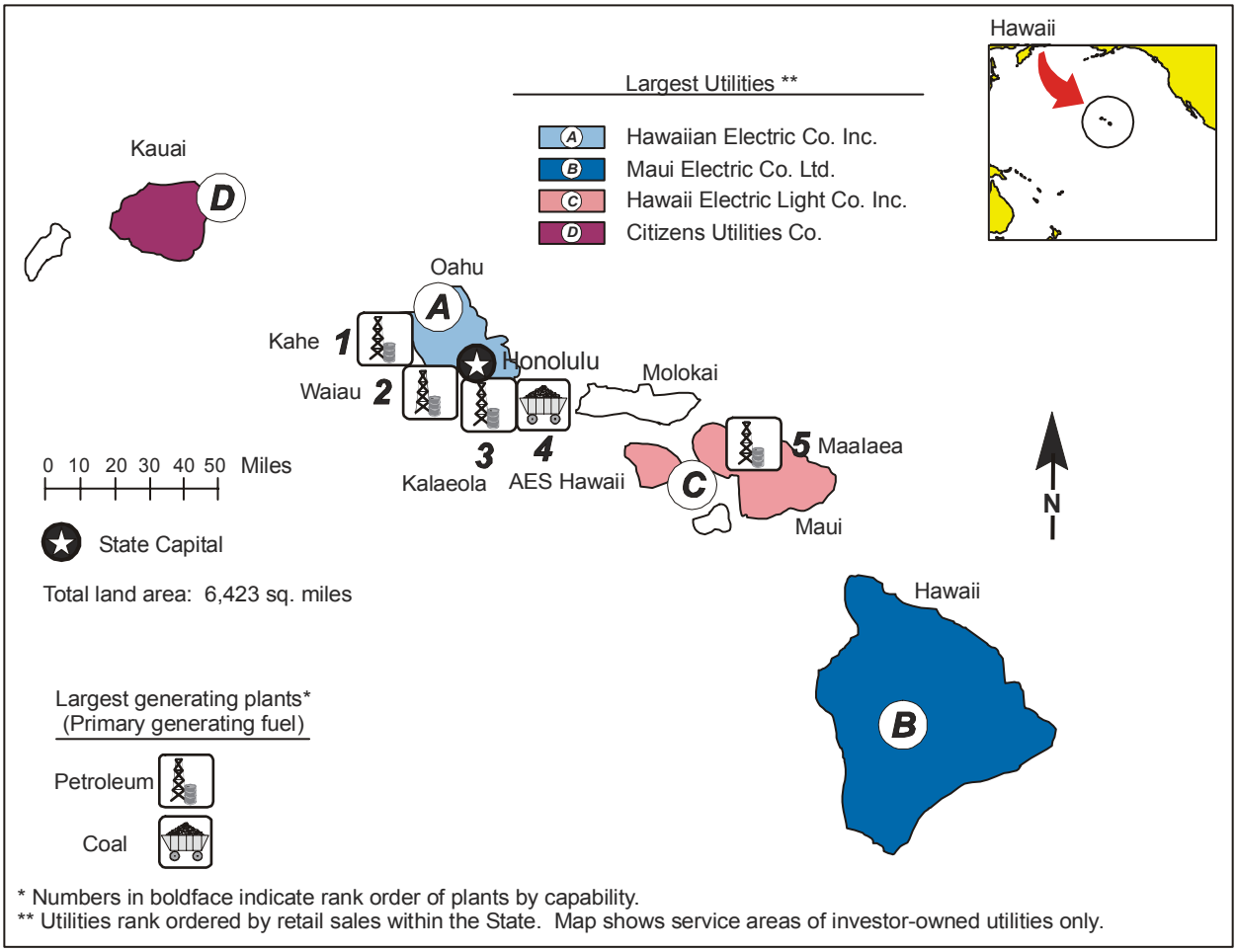
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	29,933	32,735	41,767	3.8	37.2	36.4	37.1
Commercial	22,868	26,161	34,093	4.5	28.4	29.1	30.3
Industrial	26,717	29,942	35,255	3.1	33.2	33.3	31.3
Other	922	1,075	1,541	5.9	1.1	1.2	1.4
Total	80,440	89,913	112,656	3.8	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	2,705	2,757	3,159	1.7	42.3	42.8	45.0
Commercial	2,031	2,093	2,272	1.3	31.8	32.5	32.3
Industrial	1,563	1,493	1,463	-0.7	24.5	23.2	20.8
Other	91	102	130	4.1	1.4	1.6	1.9
Total	6,389	6,446	7,025	1.1	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	9.04	8.42	7.56	NA	NA	NA	NA
Commercial	8.88	8.00	6.67	NA	NA	NA	NA
Industrial	5.85	4.99	4.15	NA	NA	NA	NA
Other	9.82	9.51	8.47	NA	NA	NA	NA
Total	7.94	7.17	6.24	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	2	53	0	43	98
Number of Retail Customers	1,982,155	320,723	0	1,429,267	3,732,145
Retail Sales (thousand megawatthours)	74,685	10,871	0	27,100	112,656
Percentage of Retail Sales	66.3	9.7	0.0	24.1	100.0
Revenue from Retail Sales (million dollars)	4368	682	0	1975	7025
Percentage of Revenue	62.2	9.7	0.0	28.1	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.85	6.27	0.00	7.29	6.24

Hawaii



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		Not Applicable
Primary Energy Source		Petroleum
Net Summer Capability (megawatts)	2,322	47
Utility	1,608	47
Nonutility	713	31
Net Generation (megawatthours)	10,502,515	46
Utility	6,452,068	44
Nonutility	4,050,447	25
Emissions (thousand short tons)		
Sulfur Dioxide	17	42
Nitrogen Oxide	18	43
Carbon Dioxide	8,867	41
Sulfur Dioxide/sq. mile	3	26
Nitrogen Oxide/sq. mile	3	26
Carbon Dioxide/sq. mile	1,380	20
Electricity Consumption (MWh) (excludes line losses)	9,968,043	46
Utility Retail Electricity Sales (megawatthours)	9,381,139	46
Nonutility Retail Sales and Direct Use (megawatthours)	586,904	36
Utility Average Retail Price (cents/kWh)	11.97	1

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Kahe	Petroleum	Hawaiian Electric Co Inc	582
2. Waiau	Petroleum	Hawaiian Electric Co Inc	457
3. Kalaeola Cogeneratio	Petroleum	Kalaeloa Partners LP	261
4. AES Hawaii Inc	Coal	AES Hawaii Inc	189
5. Maalaea	Petroleum	Maui Electric Co Ltd	168
6. Honolulu	Petroleum	Hawaiian Electric Co Inc	100
7. Port Allen	Petroleum	Citizens Utilities Co	97
8. H Power	Other	DFO Partnership	61
9. Hawaiian Coml&Sugar	Coal	Hawaiian Coml&Sugar Co Ltd	58
10. W H Hill	Petroleum	Hawaii Electric Light Co Inc	35

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Hawaiian Electric Company, Inc	6,997,936	1,845,973	2,103,176	3,003,394	45,393
B. Maui Electric Company, Ltd	1,064,739	359,243	341,484	358,620	5,392
C. Hawaii Electric Light Co, Inc	922,352	345,343	336,851	236,253	3,905
D. Citizens Communications Co	396,112	138,588	105,882	149,423	2,219
Total	9,381,139	2,689,147	2,887,393	3,747,690	56,909
Percentage of Utility Sales	100.0	100.0	100.0	100.0	100.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	1,487	1,602	1,608	0.9	64.9	67.7	69.3
Petroleum	1,483	1,598	1,590	0.8	64.8	67.6	68.5
Gas	0	0	15	0.0	0.0	0.0	0.6
Hydroelectric	3	3	4	0.6	0.1	0.1	0.2
Total Nonutility	804	764	713	-1.3	35.1	32.3	30.7
Coal	W	W	247	W	W	W	10.6
Petroleum	W	W	220	W	W	W	9.5
Gas	W	W	8	W	W	W	0.3
Petroleum/Gas Combined	W	W	59	W	W	W	2.5
Hydroelectric	14	23	25	6.4	0.6	1.0	1.1
Other	296	245	154	-7.0	12.9	10.3	6.7
Total Industry	2,290	2,366	2,322	0.1	100.0	100.0	100.0
Coal	W	W	247	W	W	W	10.6
Petroleum	W	W	1,810	W	W	W	78.0
Gas	W	W	23	W	W	W	1.0
Petroleum/Gas Combined	W	W	59	W	W	W	2.5
Hydroelectric	18	27	29	5.5	0.8	1.1	1.2
Other	296	245	154	-7.0	12.9	10.3	6.7

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

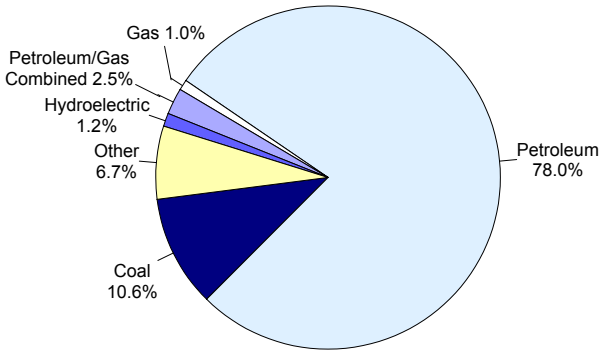


Figure 2. Industry Generation by Energy Source, 1999

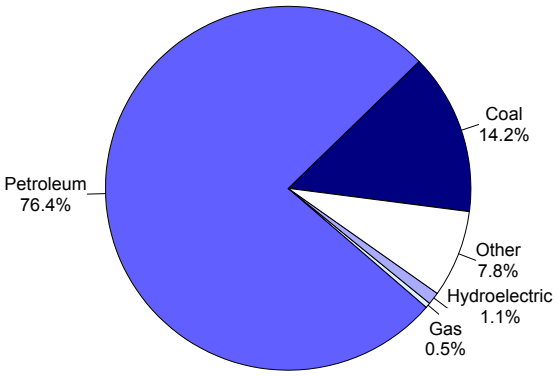


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	7,996,096	6,055,087	6,452,068	-2.4	72.5	59.7	61.4
Petroleum	7,967,354	6,036,282	6,429,429	-2.4	72.3	59.5	61.2
Hydroelectric	22,743	18,805	18,844	-2.1	0.2	0.2	0.2
Other	5,999	0	3,795	-5.0	0.1	0.0	0.0
Total Nonutility	3,029,484	4,089,893	4,050,447	3.3	27.5	40.3	38.6
Coal	W	W	1,494,558	W	W	W	14.2
Petroleum	1,208,511	1,265,595	1,593,839	3.1	11.0	12.5	15.2
Gas	W	W	49,511	W	W	W	0.5
Hydroelectric	56,773	122,442	98,718	6.3	0.5	1.2	0.9
Other	W	W	813,821	W	W	W	7.7
Total Industry	11,025,580	10,144,980	10,502,515	-0.5	100.0	100.0	100.0
Coal	W	W	1,494,558	W	W	W	14.2
Petroleum	9,175,865	7,301,877	8,023,268	-1.5	83.2	72.0	76.4
Gas	W	W	49,511	W	W	W	0.5
Hydroelectric	79,516	141,247	117,562	4.4	0.7	1.4	1.1
Other	W	W	817,616	W	W	W	7.8

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Petroleum (cents per million Btu) (1999 dollars)	503.3	296.1	319.9	-4.9
Average heat value (Btu per gallon)	148,883	149,700	149,492	*
Average sulfur Content(percent)	0.5	0.4	0.4	-0.6

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	0	0	0	0.0
Petroleum	26	18	17	-4.4
Total	26	18	17	-4.4
Nitrogen Oxide				
Coal	0	6	6	0.0
Petroleum	11	9	11	-0.7
Gas	0	1	0	0.0
Other	0	1	1	0.0
Total	11	17	18	5.0
Carbon Dioxide				
Coal	0	1,430	1,458	0.0
Petroleum	7,287	6,029	7,102	-0.3
Gas	0	164	38	0.0
Other	0	567	269	0.0
Total	7,287	8,190	8,867	2.2

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

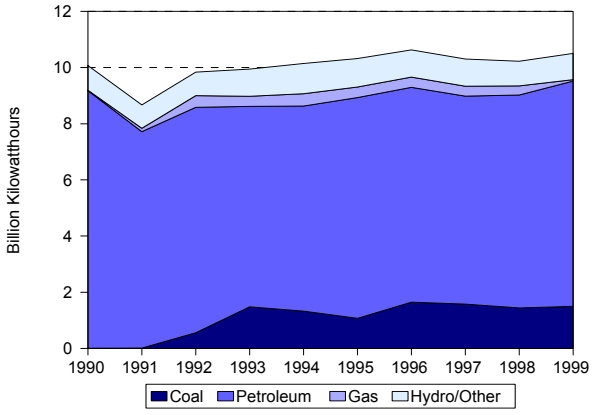


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 dollars)

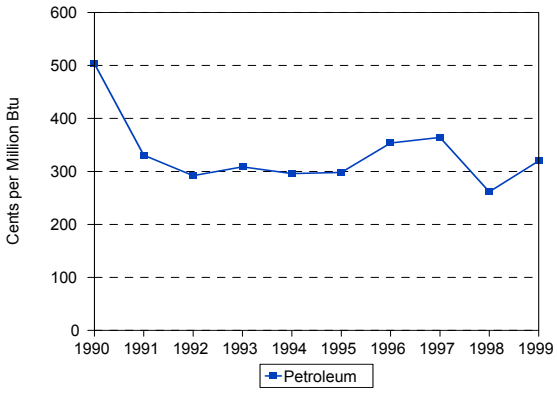


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

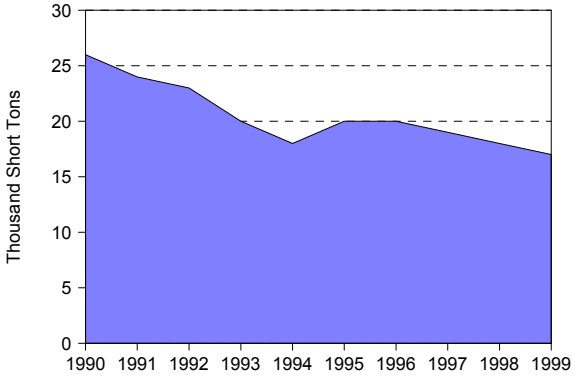


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

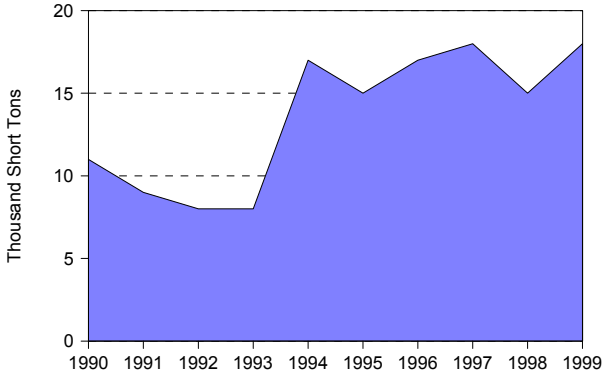


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

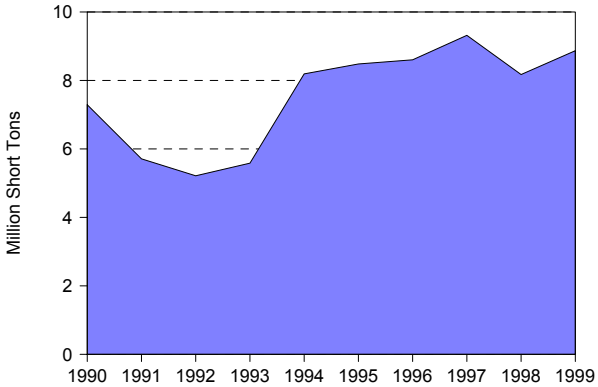


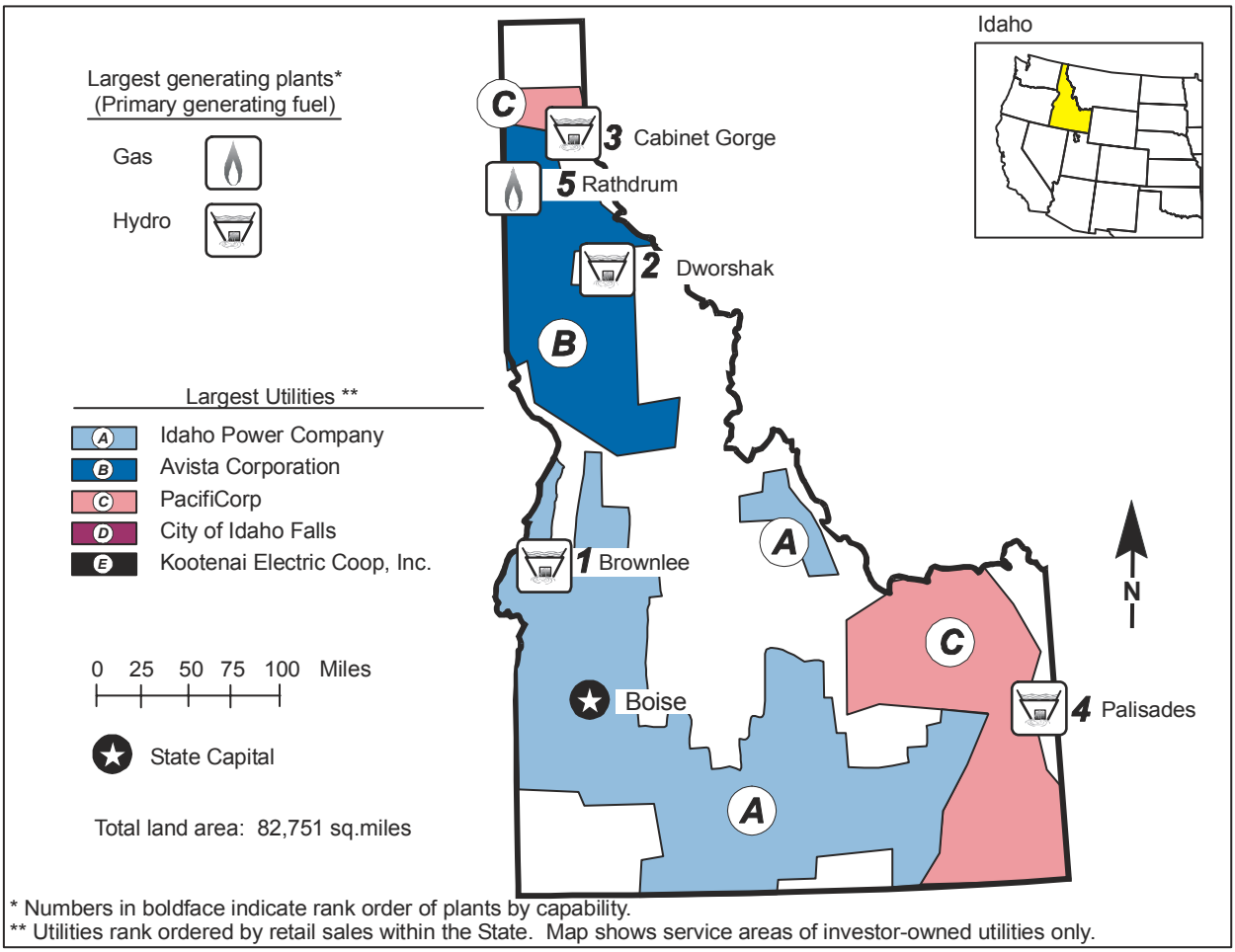
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	2,324	2,557	2,689	1.6	28.0	28.6	28.7
Commercial	2,194	2,543	2,887	3.1	26.4	28.4	30.8
Industrial	3,734	3,791	3,748	0.0	44.9	42.4	39.9
Other	58	58	57	-0.3	0.7	0.6	0.6
Total	8,311	8,948	9,381	1.4	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	289	347	384	3.2	31.8	33.3	34.2
Commercial	270	324	368	3.5	29.8	31.1	32.8
Industrial	342	365	364	0.7	37.7	35.0	32.4
Other	7	7	7	0.9	0.7	0.7	0.6
Total	908	1,043	1,123	2.4	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	12.42	13.59	14.30	NA	NA	NA	NA
Commercial	12.32	12.74	12.74	NA	NA	NA	NA
Industrial	9.17	9.62	9.70	NA	NA	NA	NA
Other	11.39	12.24	12.66	NA	NA	NA	NA
Total	10.93	11.66	11.97	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	0	0	0	4
Number of Retail Customers	421,581	0	0	0	421,581
Retail Sales (thousand megawatthours)	9,381	0	0	0	9,381
Percentage of Retail Sales	100.0	0.0	0.0	0.0	100.0
Revenue from Retail Sales (million dollars)	1123	0	0	0	1123
Percentage of Revenue	100.0	0.0	0.0	0.0	100.0
Average Revenue per Kilowatthour (cents/kWh)	11.97	0.00	0.00	0.00	11.97

Idaho



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC
Primary Energy Source		Hydro
Net Summer Capability (megawatts)	3,021	42
Utility	2,571	42
Nonutility	450	36
Net Generation (megawatthours)	14,403,948	43
Utility	12,456,120	42
Nonutility	1,947,828	36
Emissions (thousand short tons)		
Sulfur Dioxide	0	49
Nitrogen Oxide	0	51
Carbon Dioxide	228	50
Sulfur Dioxide/sq. mile	0	50
Nitrogen Oxide/sq. mile	0	51
Carbon Dioxide/sq. mile	3	51
Electricity Consumption (MWh) (excludes line losses)	22,833,365	37
Utility Retail Electricity Sales (megawatthours)	21,846,394	38
Nonutility Retail Sales and Direct Use	876,000	7
Utility Average Retail Price (cents/kWh)	110,971	46

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Brownlee	Hydro	Idaho Power Co	728
2. Dworshak	Hydro	USCE-North Pacific Division	460
3. Cabinet Gorge	Hydro	Avista Corporation	241
4. Palisades	Hydro	Bureau of Reclamation	177
5. Rathdrum	Gas	Avista Corporation	136
6. Potlatch Corp Idaho	Other	Potlatch Corp	109
7. Lucky Peak Power Plant	Hydro	Boise Kuna Irrigat Dist et al	105
8. C J Strike	Hydro	Idaho Power Co	88
9. American Falls	Hydro	Idaho Power Co	86
10. Bliss	Hydro	Idaho Power Co	75

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Idaho Power Company	13,077,842	3,997,632	4,653,893	4,398,086	28,231
B. Avista Corporation	3,159,378	1,021,404	876,517	1,252,519	8,938
C. PacifiCorp	3,038,426	569,260	284,788	2,182,323	2,055
D. Idaho Falls Power	615,219	284,514	252,140	37,327	41,238
E. Kootenai Electric Coop, Inc	269,234	185,132	69,370	8,809	5,923
Total	20,160,099	6,057,942	6,136,708	7,879,064	86,385
Percentage of Utility Sales	92.0	89.0	95.0	95.0	29.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	2,282	2,500	2,571	1.3	85.2	85.9	85.1
Petroleum	56	6	6	-22.7	2.1	0.2	0.2
Gas	0	136	136	0.0	0.0	4.7	4.5
Hydroelectric	2,227	2,358	2,429	1.0	83.1	81.1	80.4
Total Nonutility	398	409	450	1.4	14.8	14.1	14.9
Coal	W	W	18	W	W	W	0.6
Gas	W	W	18	W	W	W	0.6
Nuclear	19	0	0	--	0.6	0.0	0.0
Hydroelectric	219	247	264	2.1	8.2	8.5	8.7
Other	W	W	150	W	W	W	5.0
Total Industry	2,680	2,909	3,021	1.3	100.0	100.0	100.0
Coal	W	W	18	W	W	W	0.6
Petroleum	56	6	6	-22.7	2.1	0.2	0.2
Gas	W	W	154	W	W	W	5.1
Nuclear	W	W	0	W	W	W	0.0
Hydroelectric	2,445	2,605	2,693	1.1	91.2	89.6	89.1
Other	145	145	150	0.4	5.4	5.0	5.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

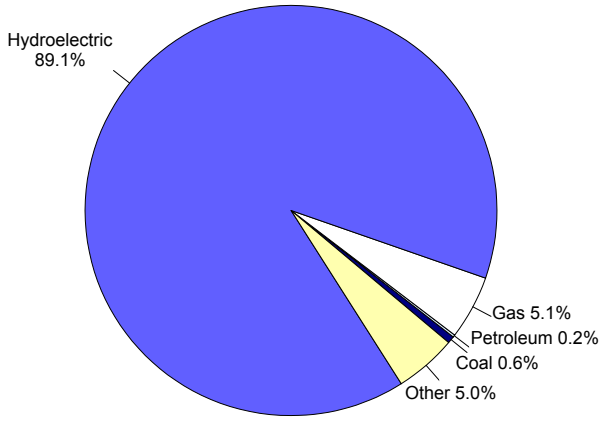


Figure 2. Industry Generation by Energy Source, 1999

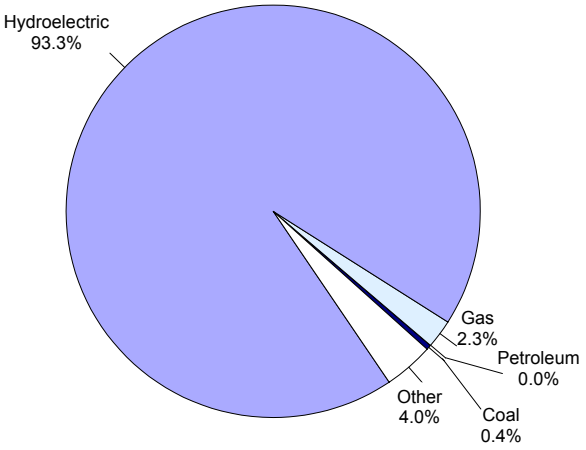


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	8,617,977	7,303,193	12,456,120	4.2	87.7	83.2	86.5
Petroleum	615	31	155	-14.2	0.0	0.0	0.0
Hydroelectric	8,617,362	7,303,162	12,455,965	4.2	87.7	83.2	86.5
Total Nonutility	1,203,731	1,479,128	1,947,828	5.5	12.3	16.8	13.5
Coal	W	W	58,752	W	W	W	0.4
Petroleum	W	W	928	W	W	W	0.0
Gas	W	W	330,733	W	W	W	2.3
Nuclear	112,686	51,987	0	--	1.2	0.5	0.0
Hydroelectric	505,521	615,621	987,081	7.7	5.1	7.0	6.9
Other	W	W	570,335	W	W	W	4.0
Total Industry	9,821,708	8,782,321	14,403,948	4.3	100.0	100.0	100.0
Coal	W	W	58,752	W	W	W	0.4
Petroleum	W	W	1,083	W	W	W	0.0
Gas	W	W	330,733	W	W	W	2.3
Nuclear	W	W	0	W	W	W	0.0
Hydroelectric	9,122,883	7,918,783	13,443,046	4.4	92.9	90.2	93.3
Other	W	W	570,335	W	W	W	4.0

Table 6. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	0	0	0	0.0
Other	0	0	0	0.0
Total	0	0	0	0.0
Petroleum	0	0	0	-100.0
Other	0	1	0	0.0
Total	0	1	0	-100.0
Carbon Dioxide				
Coal	0	43	60	0.0
Petroleum	1	*	1	5.1
Gas	0	144	167	0.0
Other	0	19	0	0.0
Total	1	206	228	89.3

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

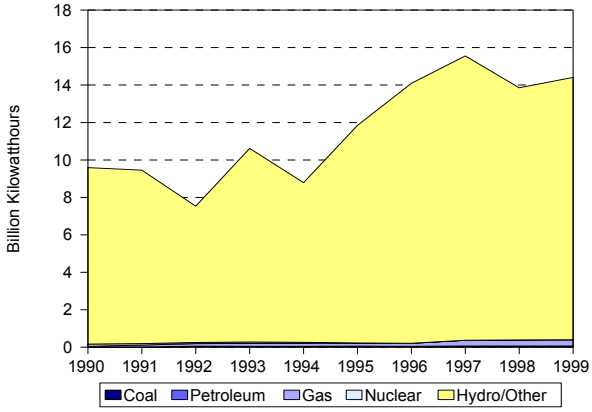


Figure 4. Estimated Nitrogen Oxide Emissions, 1990-1999

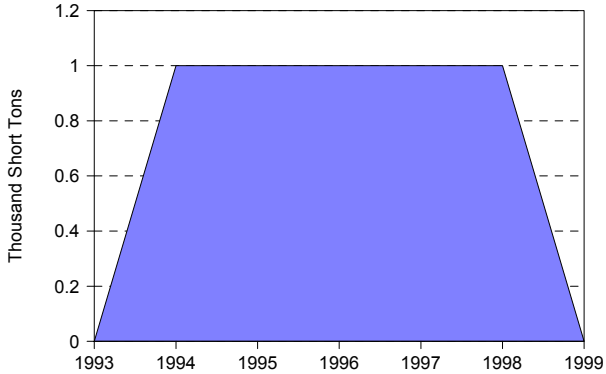


Figure 5. Estimated Carbon Dioxide Emissions, 1990-1999

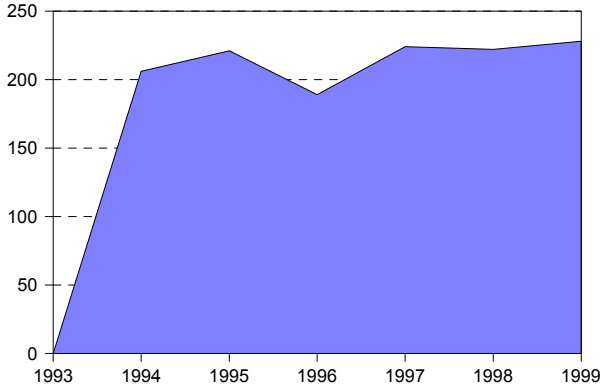


Figure 6. Nuclear Power Capacity Factor Comparison, 1990-1999

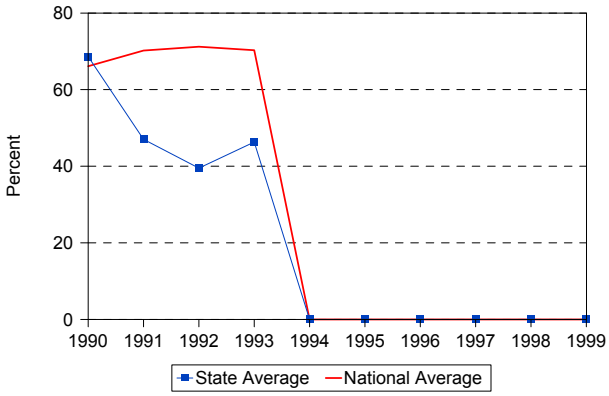


Table 7. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	5,626	6,222	6,806	2.1	31.3	31.3	31.2
Commercial	4,894	5,638	6,450	3.1	27.2	28.4	29.5
Industrial	7,165	7,647	8,295	1.6	39.8	38.5	38.0
Other	318	373	296	-0.8	1.8	1.9	1.3
Total	18,003	19,879	21,846	2.2	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	332	346	358	0.8	40.0	39.8	41.2
Commercial	252	269	271	0.8	30.4	30.9	31.2
Industrial	227	236	228	0.0	27.4	27.1	26.2
Other	18	19	13	-3.3	2.2	2.2	1.5
Total	829	869	870	0.5	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	5.90	5.56	5.26	NA	NA	NA	NA
Commercial	5.14	4.76	4.20	NA	NA	NA	NA
Industrial	3.17	3.08	2.74	NA	NA	NA	NA
Other	5.64	5.07	4.47	NA	NA	NA	NA
Total	4.60	4.37	3.98	NA	NA	NA	NA

Table 8. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	11	0	16	31
Number of Retail Customers	516461	38249	0	62348	617058
Retail Sales (thousand megawatthours)	19276	1089	0	1481	21846
Percentage of Retail Sales	88.2	5.0	0.0	6.8	100.0
Revenue from Retail Sales (million dollars)	747	47	0	75	870
Percentage of Revenue	85.9	5.4	0.0	8.7	100.0
Average Revenue per Kilowatthour (cents/kWh)	3.88	4.34	0.00	5.09	3.98

Illinois

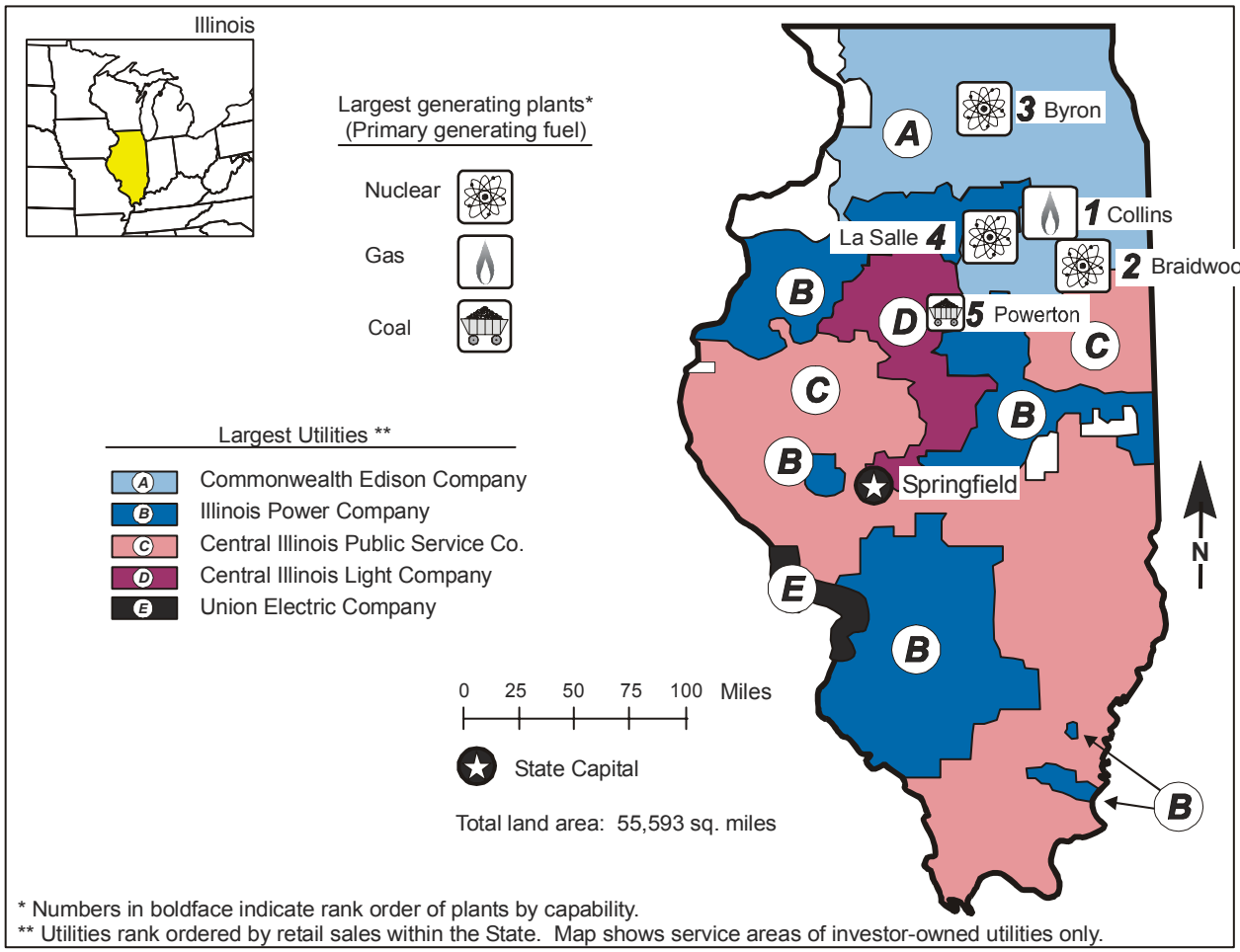

Illinois
Largest generating plants*
(Primary generating fuel)
Nuclear
Gas
Coal
Largest Utilities **
A Commonwealth Edison Company
B Illinois Power Company
C Central Illinois Public Service Co.
D Central Illinois Light Company
E Union Electric Company
0 25 50 75 100 Miles
State Capital
Total land area: 55,593 sq. miles
3 Byron
1 Collins
La Salle 4
2 Braidwood
5 Powerton
Springfield
N
* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		MAIN/MAPP
Primary Energy Source		Nuclear
Net Summer Capability (megawatts)	34,338	5
Utility	16,992	15
Nonutility	17,345	2
Net Generation (megawatthours)	163,589,206	5
Utility	149,807,865	4
Nonutility	13,781,341	10
Emissions (thousand short tons)		
Sulfur Dioxide	616	7
Nitrogen Oxide	381	4
Carbon Dioxide	92,986	8
Sulfur Dioxide/sq. mile	11	11
Nitrogen Oxide/sq. mile	7	9
Carbon Dioxide/sq. mile	1,673	14
Electricity Consumption (MWh) (excludes line losses).....	136,874,068	7
Utility Retail Electricity Sales (megawatthours)	132,236,849	5
Unregulated Retail Electricity Sales (megawatthours)	444,690	11
Nonutility Retail Sales and Direct Use (megawatthours)	4,192,529	11
Utility Average Retail Price (cents/kWh)	6.98	18

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Collins	Gas	Midwest Generation LLC	2,650
2. Braidwood	Nuclear	Commonwealth Edison Co	2,232
3. Byron	Nuclear	Commonwealth Edison Co	2,228
4. LaSalle	Nuclear	Commonwealth Edison Co	2,164
5. Powerton	Coal	Midwest Generation LLC	1,607
6. Baldwin Energy Compl	Coal	Dynegy Midwest Generation Inc	1,580
7. Dresden	Nuclear	Commonwealth Edison Co	1,568
8. Quad Cities	Nuclear	Commonwealth Edison Co	1,524
9. Joliet 29	Coal	Midwest Generation LLC	1,188
10. Kincaid Generation L	Coal	Kincaid Generation LLC	1,187

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Commonwealth Edison Company	83,500,597	23,715,724	29,124,844	22,473,975	8,186,054
B. Illinois Power Company	18,215,452	4,948,645	4,173,251	8,721,860	371,696
C. Central Illinois Pub Serv Co	8,538,572	2,990,412	2,735,722	2,647,412	165,026
D. Central Illinois Light Company	5,910,714	1,772,224	1,684,617	2,425,321	28,552
E. Union Electric Company	3,621,194	600,520	709,626	2,295,019	16,029
Total	119,786,529	34,027,525	38,428,060	38,563,587	8,767,357
Percentage of Utility Sales	91.0	86.0	92.0	93.0	96.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	32,602	32,952	16,992	-7.0	98.0	97.9	49.5
Coal	14,912	15,090	5,543	-10.4	44.8	44.8	16.1
Petroleum	4,480	2,448	989	-15.4	13.5	7.3	2.9
Gas	591	2,792	732	2.4	1.8	8.3	2.1
Nuclear	12,609	12,609	9,716	-2.9	37.9	37.4	28.3
Hydroelectric	10	12	12	2.6	0.0	0.0	0.0
Total Nonutility	680	719	17,345	43.3	2.0	2.1	50.5
Coal	330	386	10,486	46.9	1.0	1.1	30.5
Petroleum	8	8	95	31.1	0.0	0.0	0.3
Gas	209	233	4,674	41.2	0.6	0.7	13.6
Petroleum/Gas Combined	88	43	297	14.4	0.3	0.1	0.9
Nuclear	--	--	985	--	--	--	2.9
Hydroelectric	W	W	21	W	W	W	0.1
Other	W	W	788	W	W	W	2.3
Total Industry	33,282	33,671	34,338	0.3	100.0	100.0	100.0
Coal	15,242	15,476	16,029	0.6	45.8	46.0	46.7
Petroleum	4,489	2,456	1,084	-14.6	13.5	7.3	3.2
Gas	801	3,025	5,406	23.6	2.4	9.0	15.7
Petroleum/Gas Combined	88	43	297	14.4	0.3	0.1	0.9
Nuclear	12,609	12,609	10,701	-1.8	37.9	37.4	31.2
Hydroelectric	W	W	33	W	W	W	0.1
Other	26	31	788	46.2	0.1	0.1	2.3

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

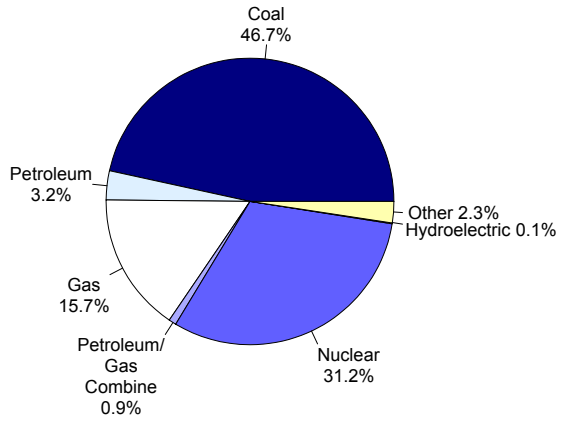


Figure 2. Industry Generation by Energy Source, 1999

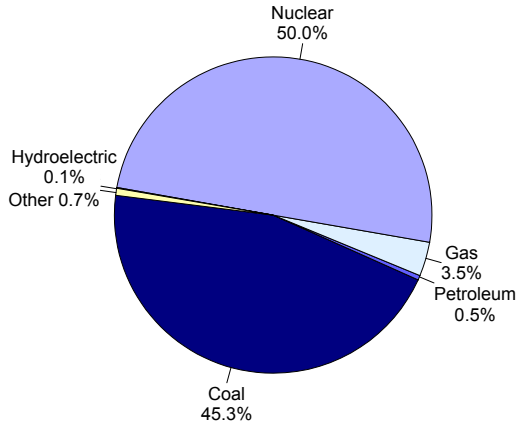


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	126,977,389	137,745,525	149,807,865	1.9	97.4	97.3	91.6
Coal	53,865,768	61,213,625	64,918,712	2.1	41.3	43.2	39.7
Petroleum	422,553	1,207,908	372,387	-1.4	0.3	0.9	0.2
Gas	740,926	2,624,471	3,041,941	17.0	0.6	1.9	1.9
Nuclear	71,887,302	72,654,499	81,355,951	1.4	55.2	51.3	49.7
Hydroelectric	60,840	45,022	52,030	-1.7	0.0	0.0	0.0
Other	0	0	66,844	0.0	0.0	0.0	0.0
Total Nonutility	3,336,039	3,820,474	13,792,776	17.1	2.6	2.7	8.4
Coal	1,484,316	1,879,757	9,236,673	22.5	1.1	1.3	5.6
Petroleum	W	W	392,402	W	W	W	0.2
Gas	1,534,514	1,530,088	2,625,589	6.1	1.2	1.1	1.6
Nuclear	--	--	381,183	--	--	--	0.2
Hydroelectric	W	W	90,064	W	W	W	0.1
Other	W	W	1,066,865	W	W	W	0.7
Total Industry	130,313,428	141,565,999	163,600,641	2.6	100.0	100.0	100.0
Coal	55,350,084	63,093,382	74,155,385	3.3	42.5	44.6	45.3
Petroleum	W	W	764,789	W	W	W	0.5
Gas	2,275,440	4,154,559	5,667,530	10.7	1.7	2.9	3.5
Nuclear	71,887,302	72,654,499	81,737,134	1.4	55.2	51.3	50.0
Hydroelectric	W	W	142,094	W	W	W	0.1
Other	W	W	1,133,709	W	W	W	0.7

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	212.3	175.3	143.7	-4.2
Average heat value (Btu per pound)	10,789	10,181	9,560	-1.3
Average sulfur Content(percent)	2.1	1.5	1	-7.5
Petroleum (cents per million Btu) (1999 dollars)	478.4	308.9	345	-3.6
Average heat value (Btu per gallon)	148,831	149,910	145,807	-0.2
Average sulfur Content(percent)	0.7	0.7	0.6	-1.3
Gas (cents per million Btu) (1999 dollars)	323.6	218.3	236.2	-3.4
Average heat value (Btu per cubic foot)	1,021	1,022	1,022	*

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	893	795	601	-4.3
Petroleum	4	12	16	16.5
Other	0	0	0	0.0
Total	897	806	616	-4.1
Nitrogen Oxide				
Coal	285	314	366	2.8
Petroleum	1	2	3	8.1
Gas	1	7	9	29.3
Other	0	2	3	0.0
Total	287	325	381	3.2
Carbon Dioxide				
Coal	59,969	69,082	86,622	4.2
Petroleum	1,111	1,503	1,147	0.3
Gas	538	3,121	4,684	27.2
Other	0	242	533	0.0
Total	61,619	73,947	92,986	4.7

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

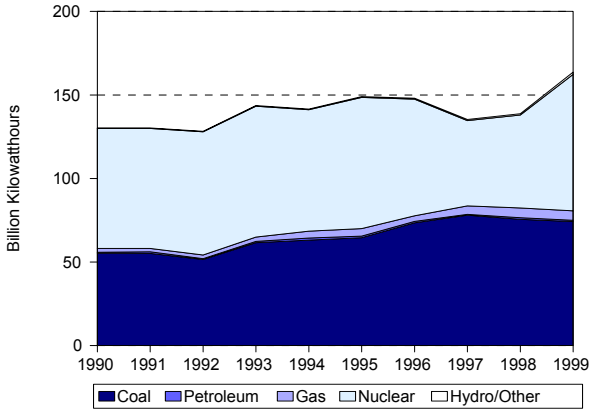


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

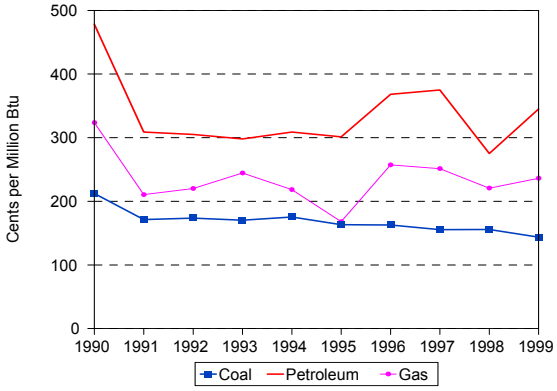


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

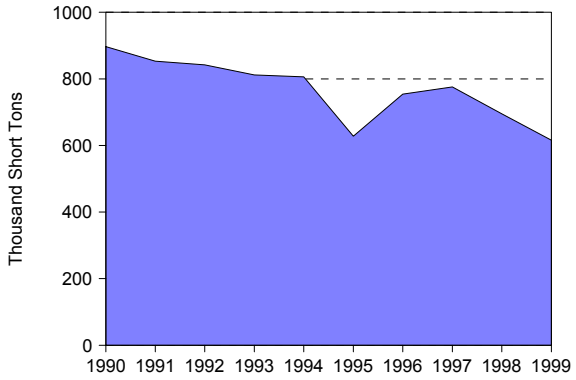


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

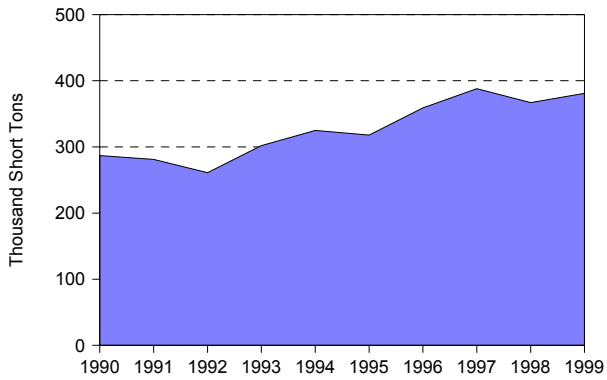


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

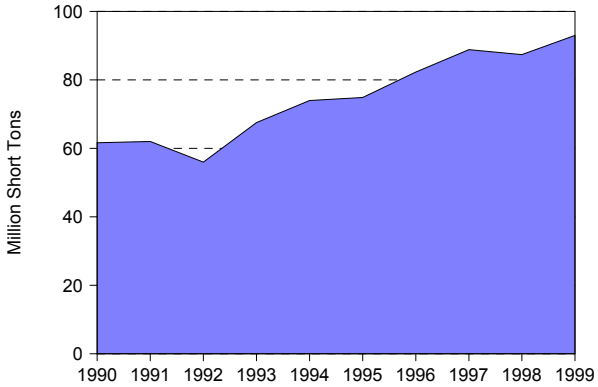


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

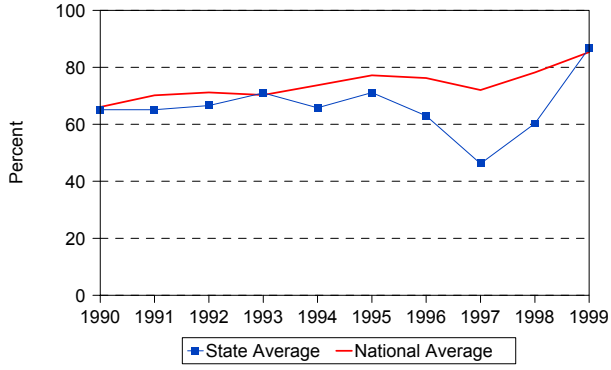


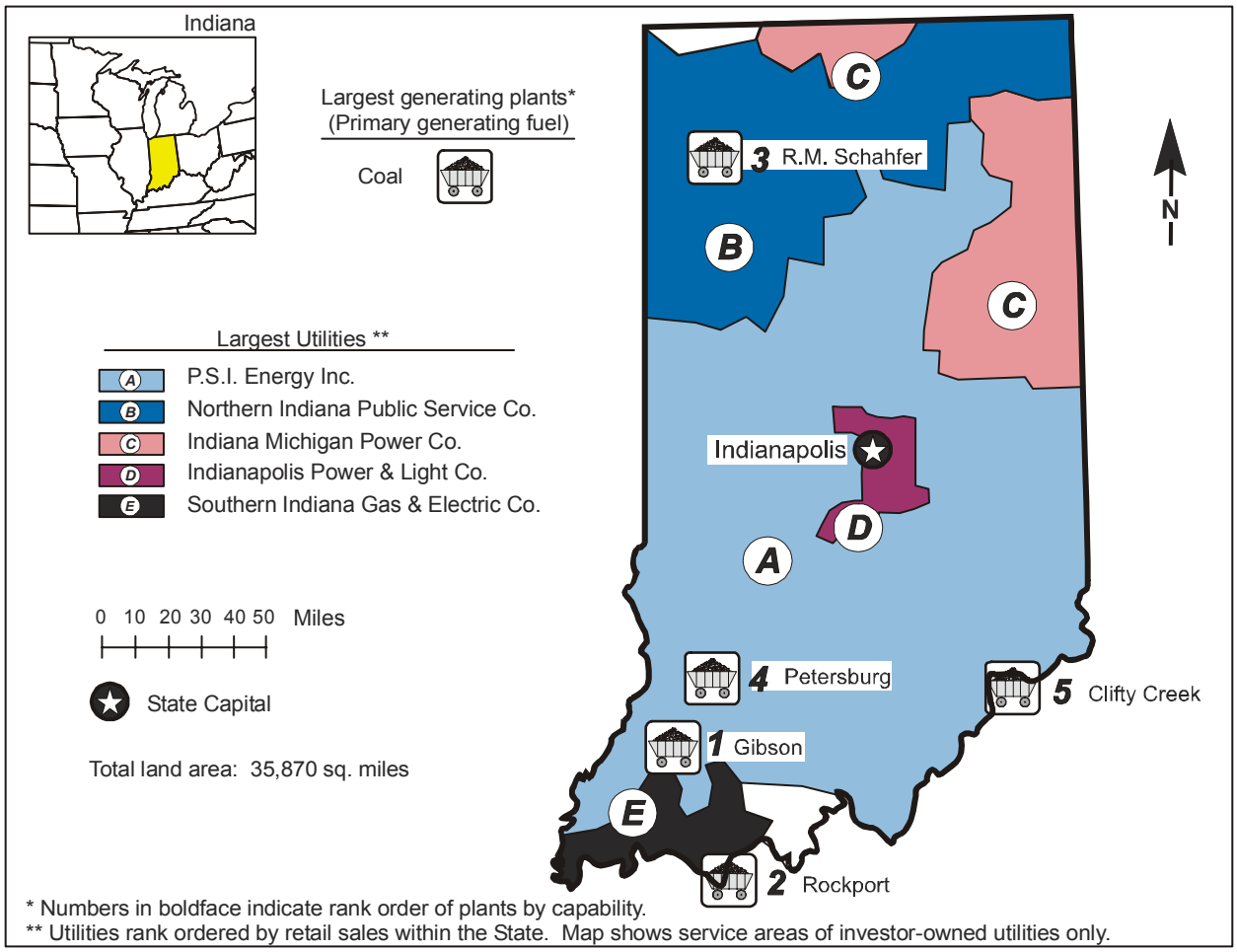
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	32,871	35,706	39,623	2.1	29.5	29.4	30.0
Commercial	31,734	35,663	41,891	3.1	28.4	29.3	31.7
Industrial	39,299	41,765	41,612	0.6	35.2	34.4	31.5
Other	7,672	8,356	9,111	1.9	6.9	6.9	6.9
Total	111,577	121,490	132,237	1.9	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	3,949	3,889	3,500	-1.3	39.0	39.6	37.9
Commercial	2,985	2,989	3,095	0.4	29.5	30.4	33.5
Industrial	2,570	2,362	2,088	-2.3	25.4	24.0	22.6
Other	622	590	542	-1.5	6.1	6.0	5.9
Total	10,126	9,830	9,226	-1.0	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	12.01	10.89	8.83	NA	NA	NA	NA
Commercial	9.41	8.38	7.39	NA	NA	NA	NA
Industrial	6.54	5.65	5.02	NA	NA	NA	NA
Other	8.11	7.06	5.95	NA	NA	NA	NA
Total	9.08	8.09	6.98	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	9	41	0	27	77
Number of Retail Customers	4,649,503	241,088	0	249,316	5,139,907
Retail Sales (thousand megawatthours)	122,149	5,932	0	4,156	132,237
Percentage of Retail Sales	92.4	4.5	0.0	3.1	100.0
Revenue from Retail Sales (million dollars)	8,493	363	0	370	9,226
Percentage of Revenue	92.1	3.9	0.0	4.0	100.0
Average Revenue per Kilowatthour (cents/kWh)	6.95	6.11	0.00	8.91	6.98

Indiana



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		ECAR
Primary Energy Source		Coal
Net Summer Capability (megawatts)	22,023	13
Utility	20,358	11
Nonutility	1,665	18
Net Generation (megawatthours)	121,593,549	8
Utility	114,182,827	6
Nonutility	7,410,722	16
Emissions (thousand short tons)		
Sulfur Dioxide	811	4
Nitrogen Oxide	490	2
Carbon Dioxide	128,131	2
Sulfur Dioxide/sq. mile	23	4
Nitrogen Oxide/sq. mile	14	1
Carbon Dioxide/sq. mile	3,572	6
Electricity Consumption (MWh) (excludes line losses)	101,718,120	11
Utility Retail Electricity Sales (megawatthours)	96,735,464	10
Nonutility Retail Sales and Direct Use (megawatthours)	4,982,656	9
Utility Average Retail Price (cents/kWh)	5.29	43

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Gibson	Petroleum, Coal	PSI Energy Inc	3,131
2. Rockport	Petroleum, Coal	Indiana Michigan Power Co	2,600
3. R M Schahfer	Gas, Petroleum, Coal	Northern Indiana Pub Serv Co	1,780
4. Petersburg	Petroleum, Coal	Indianapolis Power & Light Co	1,672
5. Clifty Creek	Petroleum, Coal	Indiana-Kentucky Electric Corp	1,209
6. Cayuga	Petroleum, Gas, Coal	PSI Energy Inc	1,096
7. Merom	Petroleum, Coal	Hoosier Energy R E C Inc	1,000
8. Tanners Creek	Petroleum, Coal	Indiana Michigan Power Co	980
9. Elmer W Stout	Gas, Petroleum, Coal	Indianapolis Power & Light Co	924
10. Wabash River	Gas, Petroleum, Coal	PSI Energy Inc	918

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. PSI Energy, Inc	26,080,752	7,871,763	6,653,941	11,488,756	66,292
B. Northern Indiana Pub Serv Co	15,627,599	2,996,650	3,293,898	9,198,314	138,737
C. Indiana Michigan Power Co	15,460,123	4,252,173	3,971,002	7,164,610	72,338
D. Indianapolis Power & Light Co	13,848,628	4,569,948	1,951,906	7,253,760	73,014
E. Southern Indiana Gas & Elec Co	5,110,945	1,371,579	1,304,009	2,415,990	19,367
Total	76,128,047	21,062,113	17,174,756	37,521,430	369,748
Percentage of Utility Sales	79.0	73.0	85.0	79.0	69.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	20,588	20,710	20,358	-0.1	96.4	96.3	92.4
Coal	19,556	19,192	18,566	-0.6	91.5	89.3	84.3
Petroleum	492	492	486	-0.1	2.3	2.3	2.2
Gas	473	958	1,247	11.4	2.2	4.5	5.7
Hydroelectric	66	69	59	-1.4	0.3	0.3	0.3
Total Nonutility	773	792	1,665	8.9	3.6	3.7	7.6
Coal	208	206	538	11.1	1.0	1.0	2.4
Petroleum	7	10	10	4.6	0.0	0.0	0.0
Gas	W	W	845	W	W	W	3.8
Petroleum/Gas Combined	391	314	255	-4.6	1.8	1.5	1.2
Other	6	6	18	12.5	0.0	0.0	0.1
Total Industry	21,362	21,502	22,023	0.3	100.0	100.0	100.0
Coal	19,765	19,398	19,104	-0.4	92.5	90.2	86.7
Petroleum	499	502	496	-0.1	2.3	2.3	2.3
Gas	W	W	2,092	W	W	W	9.5
Petroleum/Gas Combined	391	314	255	-4.6	1.8	1.5	1.2
Hydroelectric	66	69	59	-1.4	0.3	0.3	0.3
Other	6	6	18	12.5	0.0	0.0	0.1

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

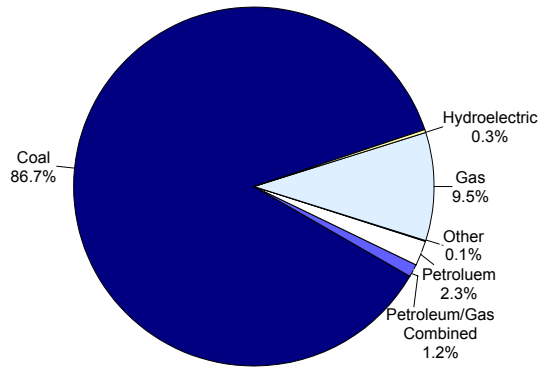


Figure 2. Industry Generation by Energy Source, 1999

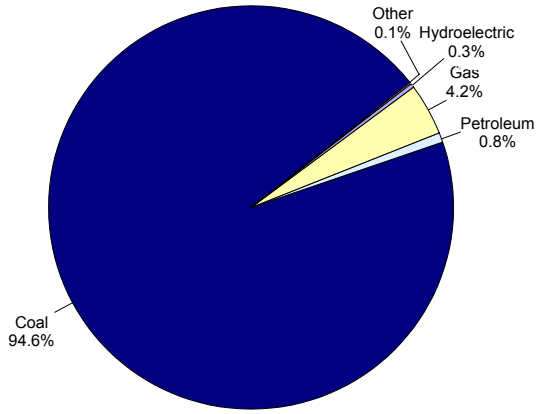


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	97,738,497	103,485,409	114,182,827	1.7	96.2	96.6	93.9
Coal	96,012,872	102,043,025	112,336,883	1.8	94.5	95.2	92.4
Petroleum	673,984	209,379	813,232	2.1	0.7	0.2	0.7
Gas	610,620	826,138	625,738	0.3	0.6	0.8	0.5
Hydroelectric	441,021	406,867	406,974	-0.9	0.4	0.4	0.3
Total Nonutility	3,809,191	3,696,552	7,410,722	7.7	3.8	3.4	6.1
Coal	912,681	878,399	2,654,606	12.6	0.9	0.8	2.2
Petroleum	W	W	116,689	W	W	W	0.1
Gas	2,666,045	2,624,457	4,516,263	6.0	2.6	2.4	3.7
Other	W	W	123,164	W	W	W	0.1
Total Industry	101,547,688	107,181,961	121,593,549	2.0	100.0	100.0	100.0
Coal	96,925,553	102,921,424	114,991,489	1.9	95.4	96.0	94.6
Petroleum	W	W	929,921	W	W	W	0.8
Gas	3,276,665	3,450,595	5,142,001	5.1	3.2	3.2	4.2
Hydroelectric	441,021	406,867	406,974	-0.9	0.4	0.4	0.3
Other	W	W	123,164	W	W	W	0.1

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	136.2	127.2	111.0	-2.2
Average heat value (Btu per pound)	10,562.0	10,535.0	10,620.0	0.1
Average sulfur Content(percent)	2.1	1.8	0.0	-100.0
Petroleum (cents per million Btu) (1999 dollars)	512.2	389.9	426.3	-2.0
Average heat value (Btu per gallon)	137,226.0	137,426.0	137,246.0	0.0
Average sulfur Content(percent)	0.0	0.0	0.2	0.0
Gas (cents per million Btu) (1999 dollars)	258.0	265.9	289.3	1.3
Average heat value (Btu per cubic foot)	1,002.0	1,023.0	1,026.0	0.3

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	1,384	1,131	810	-5.8
Petroleum	*	*	*	4.4
Total	1,385	1,131	811	-5.8
Nitrogen Oxide				
Coal	491	460	469	-0.5
Petroleum	*	*	*	3.7
Gas	1	32	21	43.4
Total	492	492	490	*
Carbon Dioxide				
Coal	101,519	107,970	124,260	2.3
Petroleum	199	324	459	9.7
Gas	386	1,996	3,328	27.1
Other	0	60	84	0.0
Total	102,104	110,350	128,131	2.6

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

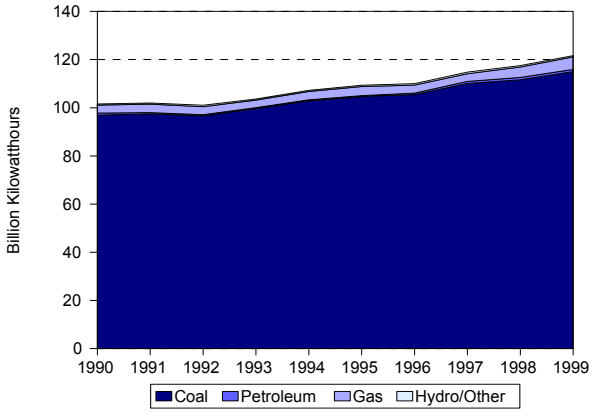


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

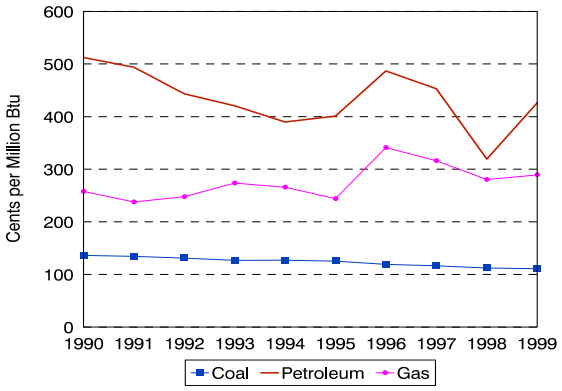


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

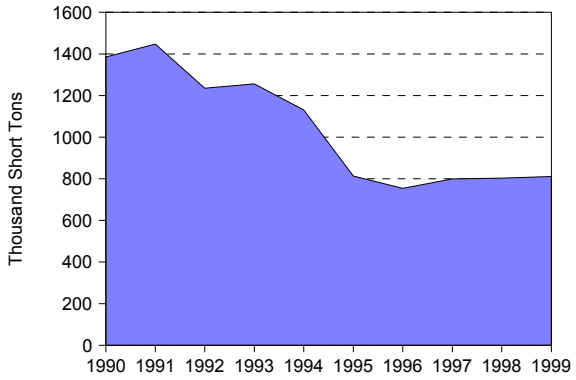


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

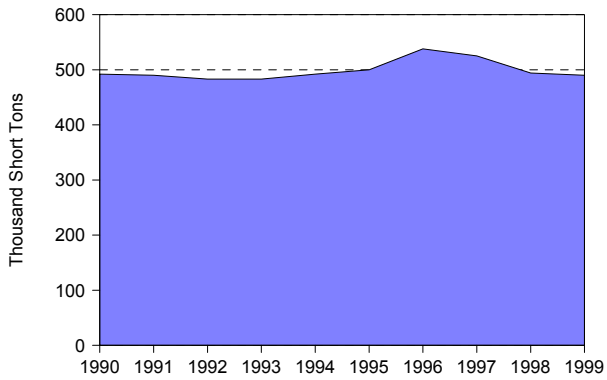


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

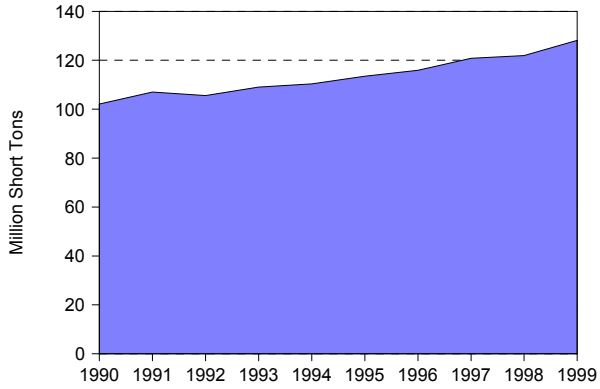


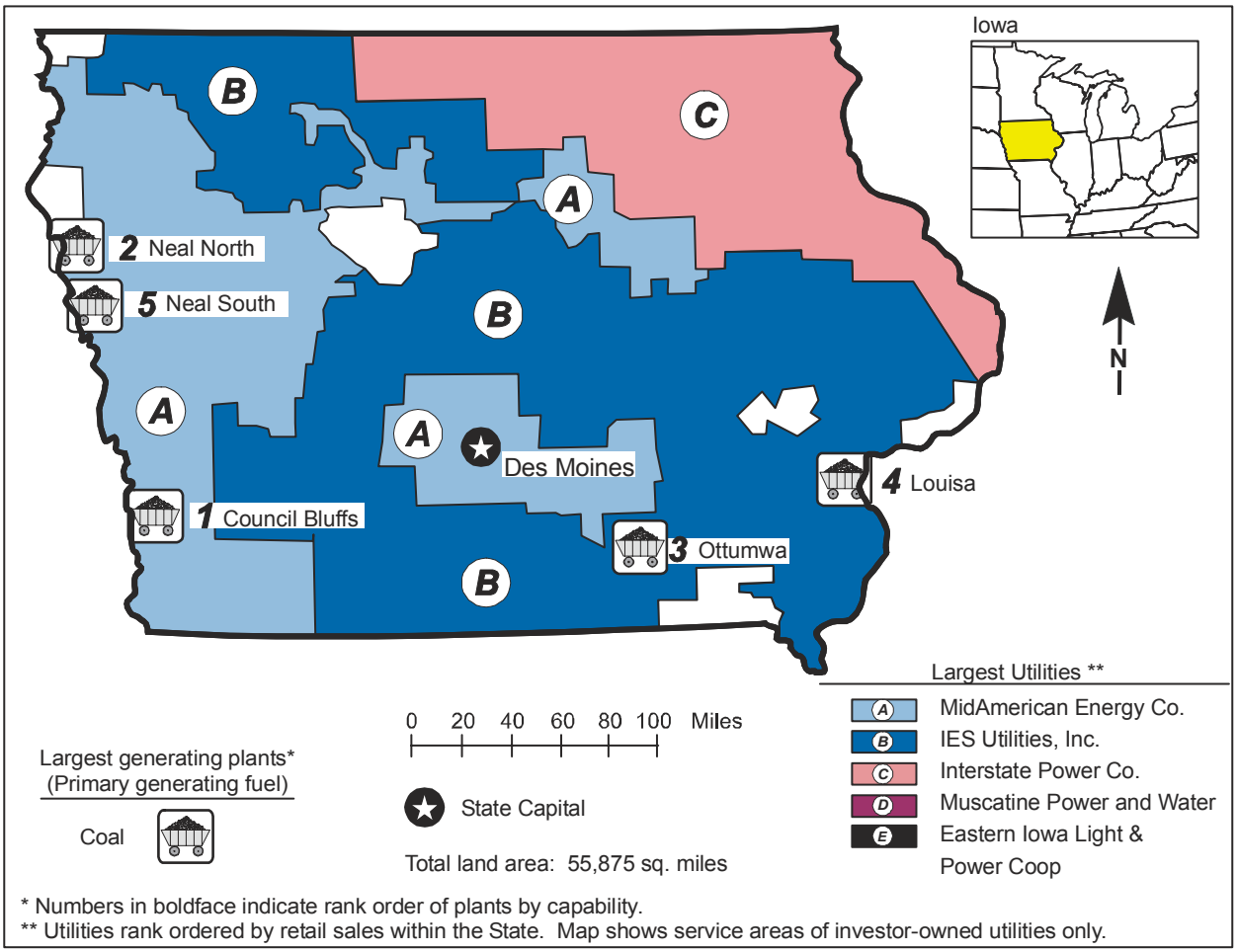
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	22,111	25,048	28,806	3.0	29.9	29.9	29.8
Commercial	15,502	17,462	20,161	3.0	20.9	20.8	20.8
Industrial	35,743	40,763	47,230	3.1	48.3	48.6	48.8
Other	626	534	539	-1.6	0.8	0.6	0.6
Total	73,982	83,808	96,735	3.0	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,840	1,852	2,005	1.0	38.3	38.6	39.2
Commercial	1,135	1,127	1,220	0.8	23.6	23.5	23.8
Industrial	1,764	1,766	1,840	0.5	36.7	36.8	35.9
Other	61	53	52	-1.8	1.3	1.1	1.0
Total	4,801	4,798	5,117	0.7	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.32	7.39	6.96	NA	NA	NA	NA
Commercial	7.32	6.45	6.05	NA	NA	NA	NA
Industrial	4.94	4.33	3.89	NA	NA	NA	NA
Other	9.78	9.84	9.70	NA	NA	NA	NA
Total	6.49	5.72	5.29	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	7	73	0	42	122
Number of Retail Customers	2,112,116	252,997	0	451,828	2,816,941
Retail Sales (thousand megawatthours)	80,705	7,373	0	8,657	96,735
Percentage of Retail Sales	83.4	7.6	0.0	9.0	100.0
Revenue from Retail Sales (million dollars)	4,183	388	0	545	5117
Percentage of Revenue	81.8	7.6	0.0	10.7	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.18	5.26	0.00	6.30	5.29

Iowa



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		MAPP
Primary Energy Source		Coal
Net Summer Capability (megawatts)	9,003	31
Utility	8,435	30
Nonutility	568	32
Net Generation (megawatthours)	38,842,106	33
Utility	37,032,053	31
Nonutility	1,810,053	37
Emissions (thousand short tons)		
Sulfur Dioxide	144	21
Nitrogen Oxide	157	18
Carbon Dioxide	37,990	25
Sulfur Dioxide/sq. mile	3	27
Nitrogen Oxide/sq. mile	3	24
Carbon Dioxide/sq. mile	680	29
Electricity Consumption (MWh) (excludes line losses)	39,461,216	31
Utility Retail Electricity Sales (megawatthours)	38,033,812	31
Nonutility Retail Sales and Direct Use (megawatthours)	1,427,404	26
Utility Average Retail Price (cents/kWh)	5.93	29

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Council Bluffs	Gas, Petroleum, Coal	MidAmerican Energy Co	972
2. Neal North	Gas, Coal	MidAmerican Energy Co	950
3. Ottumwa	Petroleum, Coal	MidAmerican Energy Co	714
4. Louisa	Petroleum, Gas, Coal	MidAmerican Energy Co	697
5. Neal South	Petroleum, Coal	MidAmerican Energy Co	624
6. Duane Arnold	Nuclear	IES Utilities Inc	520
7. Lansing	Petroleum, Coal	Interstate Power Co	325
8. Burlington	Petroleum, Gas, Coal	IES Utilities Inc	281
9. Muscatine Plant #1	Petroleum, Gas, Coal	Muscatine City of	253
10. M L Kapp	Gas, Coal	Interstate Power Co	235

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. MidAmerican Energy Company	14,226,720	4,264,711	3,335,202	5,647,898	978,909
B. IES Utilities, Inc	10,454,840	2,685,351	2,658,097	5,071,545	39,847
C. Interstate Power Company	4,205,350	854,837	419,825	2,891,362	39,326
D. Muscatine Power and Water	891,533	92,425	170,801	610,764	17,543
E. Eastern Iowa Light&Power Coop	881,263	240,991	31,157	606,092	3,023
Total	30,659,706	8,138,315	6,615,082	14,827,661	1,078,648
Percentage of Utility Sales	81	69	80	90	77

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	7,952	8,217	8,435	0.7	95.7	95.5	93.7
Coal	5,868	5,975	5,702	-0.3	70.6	69.4	63.3
Petroleum	659	755	932	3.9	7.9	8.8	10.4
Gas	771	847	938	2.2	9.3	9.8	10.4
Nuclear	530	515	520	-0.2	6.4	6.0	5.8
Hydroelectric	124	125	131	0.6	1.5	1.4	1.5
Other	0	*	212	0.0	0.0	0.0	2.4
Total Nonutility	354	387	568	5.4	4.3	4.5	6.3
Coal	210	210	292	3.7	2.5	2.4	3.2
Petroleum	W	W	68	W	W	W	0.8
Gas	W	W	0	W	W	W	0.0
Petroleum/Gas Combined	W	W	0	W	W	W	0.0
Hydroelectric	W	W	5	W	W	W	0.1
Other	W	W	202	W	W	W	2.2
Total Industry	8,306	8,604	9,003	0.9	100.0	100.0	100.0
Coal	6,078	6,185	5,994	-0.2	73.2	71.9	66.6
Petroleum	W	W	1,000	W	W	W	11.1
Gas	W	W	938	W	W	W	10.4
Petroleum/Gas Combined	W	W	0	W	W	W	0.0
Nuclear	530	515	520	-0.2	6.4	6.0	5.8
Hydroelectric	W	W	137	W	W	W	1.5
Other	2	7	414	83.5	0.0	0.1	4.6

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

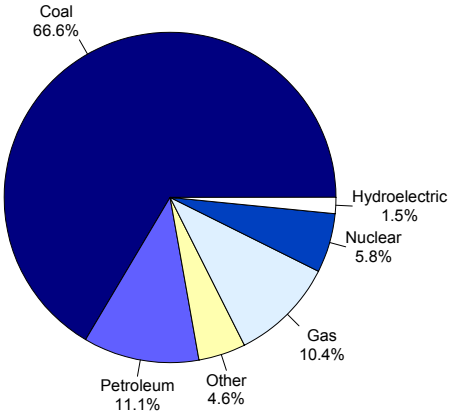


Figure 2. Industry Generation by Energy Source, 1999

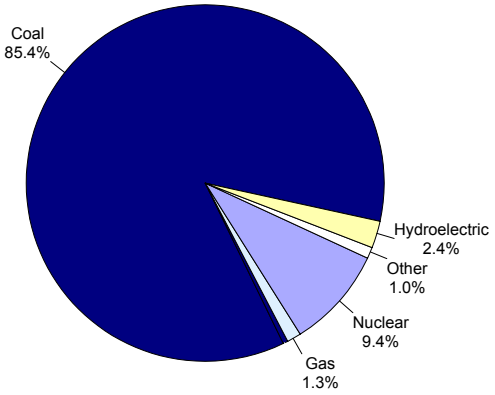


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	29,047,940	31,963,757	37,032,053	2.7	97.3	97.0	95.3
Coal	24,879,567	26,497,930	31,946,304	2.8	83.3	80.4	82.2
Petroleum	51,315	78,291	128,220	10.7	0.2	0.2	0.3
Gas	231,263	199,272	364,434	5.2	0.8	0.6	0.9
Nuclear	3,011,572	4,107,383	3,640,258	2.1	10.1	12.5	9.4
Hydroelectric	856,848	1,052,870	931,073	0.9	2.9	3.2	2.4
Other	17,375	28,011	21,764	2.5	0.1	0.1	0.1
Total Nonutility	818,340	983,186	1,810,053	9.2	2.7	3.0	4.7
Coal	753,026	825,270	1,228,611	5.6	2.5	2.5	3.2
Petroleum	1,982	22,880	40,379	39.8	0.0	0.1	0.1
Gas	39,303	76,454	145,727	15.7	0.1	0.2	0.4
Hydroelectric	W	W	14,549	W	W	W	0.0
Other	W	W	380,787	W	W	W	1.0
Total Industry	29,866,280	32,946,943	38,842,106	3.0	100.0	100.0	100.0
Coal	25,632,593	27,323,200	33,174,915	2.9	85.8	82.9	85.4
Petroleum	53,297	101,171	168,599	13.7	0.2	0.3	0.4
Gas	270,566	275,726	510,161	7.3	0.9	0.8	1.3
Nuclear	3,011,572	4,107,383	3,640,258	2.1	10.1	12.5	9.4
Hydroelectric	W	W	945,622	W	W	W	2.4
Other	W	W	402,551	W	W	W	1.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	135.5	108.1	82.1	-5.4
Average heat value (Btu per pound)	8,892	8,783	8,581	-0.4
Average sulfur Content(percent)	0.7	0.6	0.4	-6.0
Petroleum (cents per million Btu) (1999 dollars)	628	428.3	398.8	-4.9
Average heat value (Btu per gallon)	137,943	137,859	139,341	0.1
Gas (cents per million Btu) (1999 dollars)	369.1	345.2	313.7	-1.8
Average heat value (Btu per cubic foot)	1,006	1,006	1,004	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	171	154	139	-2.3
Petroleum	*	11	5	62.9
Other	*	*	*	11.2
Total	171	166	144	-1.9
Nitrogen Oxide				
Coal	136	136	155	1.5
Petroleum	*	1	1	29.9
Gas	1	*	1	4.5
Other	*	*	*	14.6
Total	137	137	157	1.5
Carbon Dioxide				
Coal	27,761	30,075	37,111	3.3
Petroleum	55	400	320	21.6
Gas	217	1,072	427	7.8
Other	35	54	132	16.0
Total	28,068	31,602	37,990	3.4

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

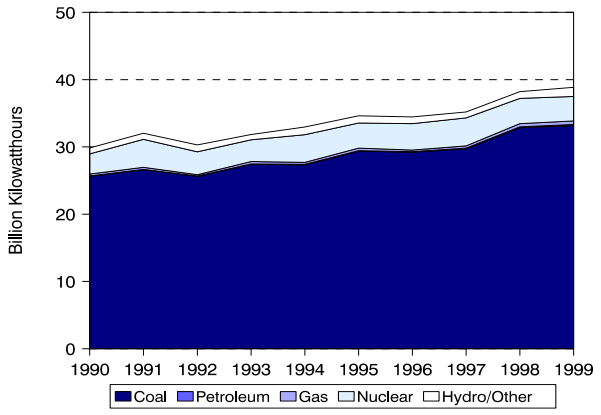


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

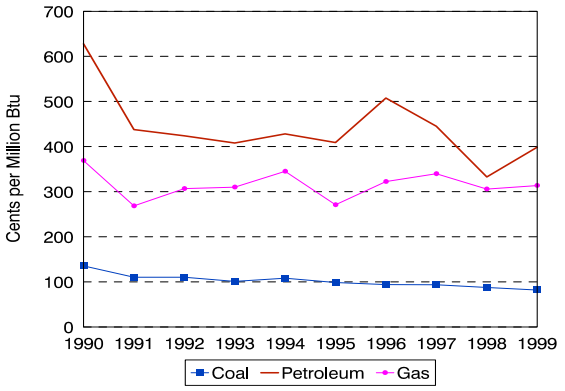


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

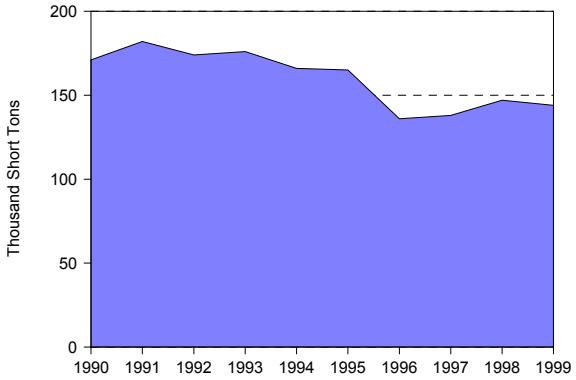


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

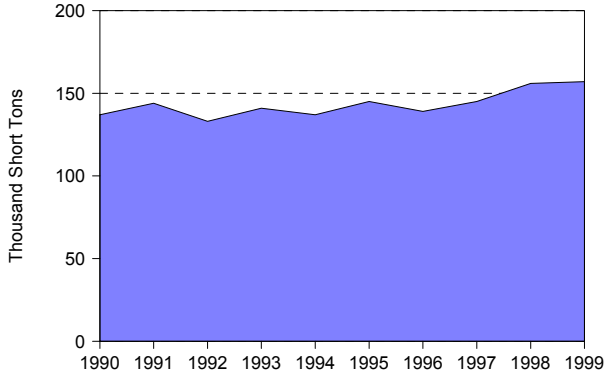


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

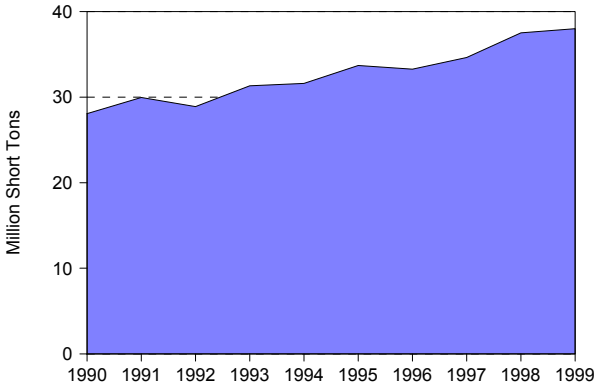


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

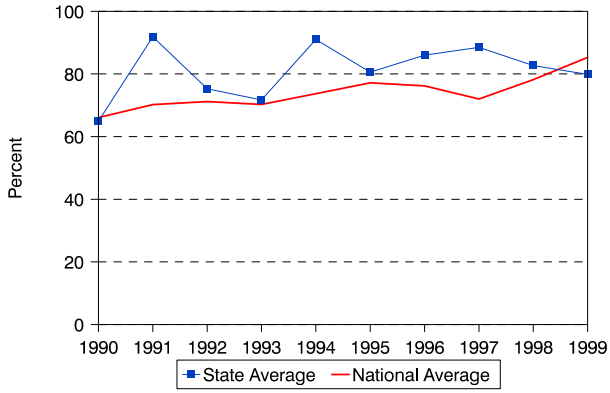


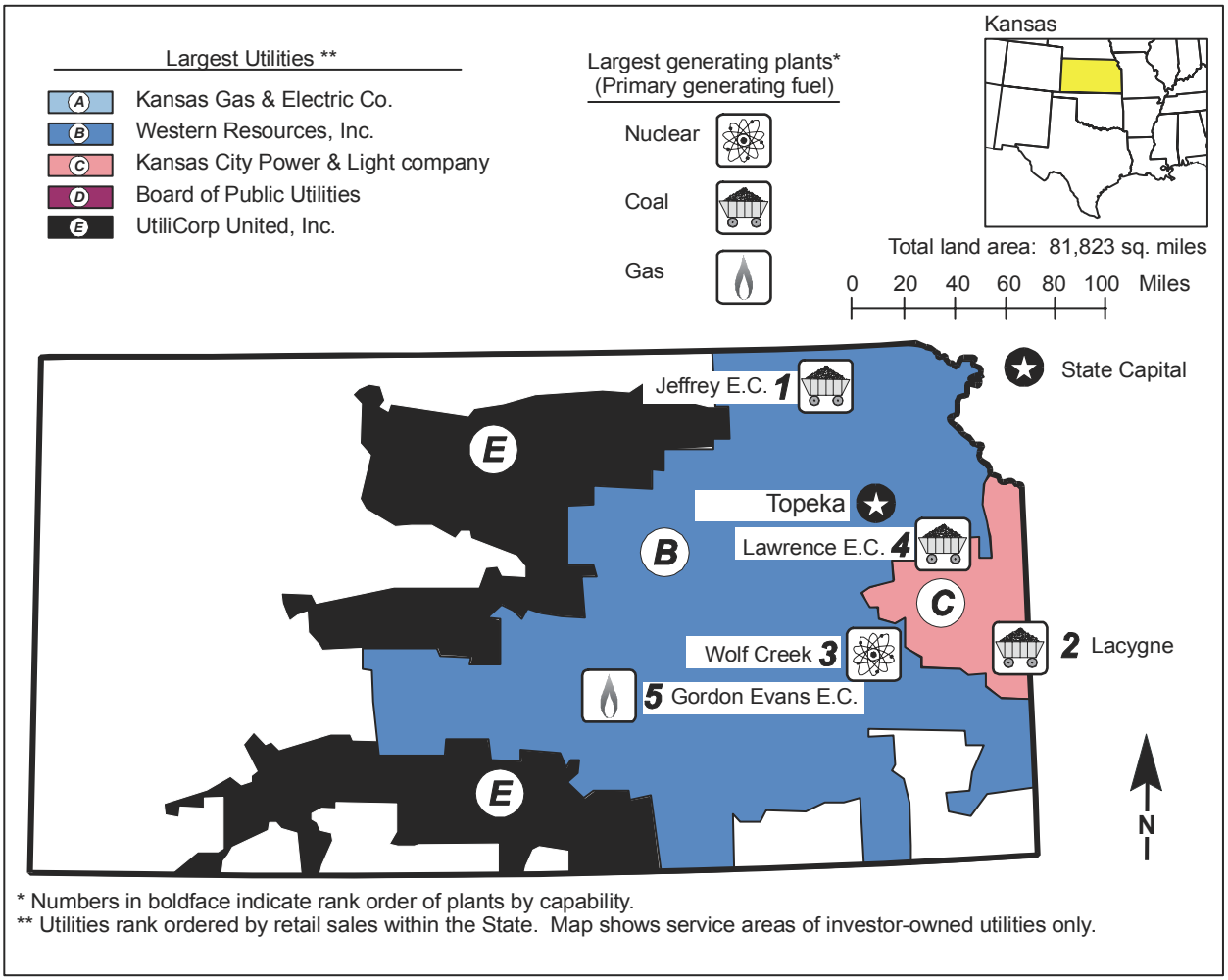
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	10,513	11,062	11,867	1.3	35.7	33.5	31.2
Commercial	6,727	7,477	8,269	2.3	22.8	22.6	21.7
Industrial	11,392	13,224	16,499	4.2	38.7	40.0	43.4
Other	804	1,276	1,399	6.3	2.7	3.9	3.7
Total	29,437	33,039	38,034	2.9	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	995	977	991	*	47.1	45.7	43.9
Commercial	511	516	533	0.5	24.2	24.1	23.7
Industrial	549	560	642	1.8	26.0	26.2	28.5
Other	59	83	88	4.6	2.8	3.9	3.9
Total	2,113	2,136	2,255	0.7	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	9.46	8.83	8.35	NA	NA	NA	NA
Commercial	7.59	6.9	6.45	NA	NA	NA	NA
Industrial	4.82	4.24	3.89	NA	NA	NA	NA
Other	7.32	6.5	6.3	NA	NA	NA	NA
Total	7.18	6.47	5.93	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	138	0	43	185
Number of Retail Customers	1,030,060	194,462	0	192,165	1,416,687
Retail Sales (thousand megawatthours)	28,979	4,769	0	4,285	38,034
Percentage of Retail Sales	76.2	12.5	0.0	11.3	100.0
Revenue from Retail Sales (million dollars)	1,706	258	0	292	2,255
Percentage of Revenue	75.6	11.4	0.0	12.9	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.89	5.40	0.00	6.81	5.93

Kansas



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SPP/MAPP
Primary Energy Source		Coal
Net Summer Capability (megawatts)	10,067	29
Utility	10,020	27
Nonutility	47	47
Net Generation (megawatthours)	42,070,297	30
Utility	42,002,924	29
Nonutility	67,373	49
Emissions (thousand short tons)		
Sulfur Dioxide	89	26
Nitrogen Oxide	137	21
Carbon Dioxide	36,417	28
Sulfur Dioxide/sq. mile	1	34
Nitrogen Oxide/sq. mile	2	33
Carbon Dioxide/sq. mile	445	37
Electricity Consumption (MWh) (excludes line losses)	33,865,932	32
Utility Retail Electricity Sales (megawatthours)	33,820,108	32
Nonutility Retail Sales and Direct Use (megawatthours)	45,824	50
Utility Average Retail Price (cents/kWh)	6.22	25

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Jeffrey EC	Petroleum, Coal	KPL Western Resources Co	2,227
2. Lacygne	Petroleum, Coal	Kansas City Power & Light Co	1,362
3. Wolf Creek	Nuclear	Wolf Creek Nuclear Oper Corp	1,170
4. Lawrence EC	Gas, Coal	KPL Western Resources Co	598
5. Gordon Evans EC	Petroleum, Gas	Kansas Gas & Electric Co	527
6. Hutchinson EC	Petroleum, Gas	KPL Western Resources Co	498
7. Holcomb	Gas, Coal	Sunflower Electric Power Corp	360
8. Murray Gill EC	Petroleum, Gas	Kansas Gas & Electric Co	332
9. Quindaro	Petroleum, Gas, Coal	Kansas City City of	316
10. Tecumseh EC	Gas, Coal	KPL Western Resources Co	284

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Western Resources, Inc	8,996,335	2,949,454	3,789,382	2,194,582	62,917
B. Kansas Gas & Electric Company	8,607,403	2,601,308	2,413,126	3,548,216	44,753
C. Kansas City Power & Light Co	4,934,348	2,129,647	2,372,187	410,913	21,601
D. Board of Public Utilities	2,223,243	507,320	816,155	854,696	45,072
E. UtiliCorp United, Inc	1,751,355	477,849	545,301	702,687	25,518
Total	26,512,684	8,665,578	9,936,151	7,711,094	199,861
Percentage of Utility Sales	78	76	84	75	46

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994 and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	9,578	9,715	10,020	0.5	99.5	99.5	99.5
Coal	5,064	5,220	5,325	0.6	52.6	53.5	52.9
Petroleum	622	613	520	-2.0	6.5	6.3	5.2
Gas	2,755	2,722	3,005	1.0	28.6	27.9	29.8
Nuclear	1,135	1,160	1,170	0.3	11.8	11.9	11.6
Hydroelectric	2	0	0	-100.0	0.0	0.0	0.0
Other	*	*	0	-100.0	0.0	0.0	0.0
Total Nonutility	44	49	47	0.6	0.5	0.5	0.5
Petroleum	W	W	4	W	W	W	0.0
Gas	4	36	38	30.2	0.0	0.4	0.4
Petroleum/Gas Combined	W	W	3	W	W	W	0.0
Hydroelectric	W	W	3	W	W	W	0.0
Total Industry	9,623	9,764	10,067	0.5	100.0	100.0	100.0
Coal	5,064	5,220	5,325	0.6	52.6	53.5	52.9
Petroleum	W	W	524	W	W	W	5.2
Gas	2,758	2,758	3,043	1.1	28.7	28.2	30.2
Petroleum/Gas Combined	W	W	3	W	W	W	0.0
Nuclear	1,135	1,160	1,170	0.3	11.8	11.9	11.6
Hydroelectric	W	W	3	W	W	W	0.0
Other	*	*	0	-100.0	0.0	0.0	0.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

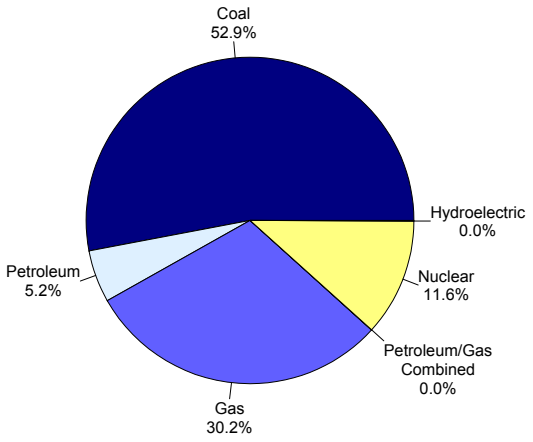


Figure 2. Industry Generation by Energy Source, 1999

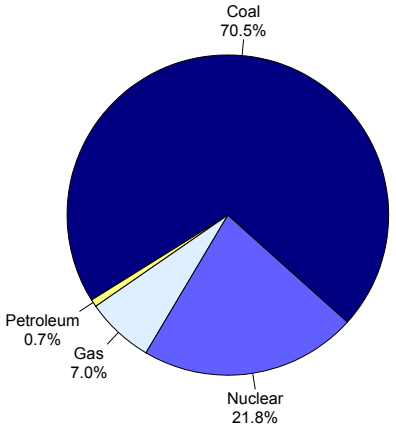


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	33,868,644	37,283,871	42,002,924	2.4	99.1	99.1	99.8
Coal	23,720,258	26,488,755	29,649,100	2.5	69.4	70.4	70.5
Petroleum	65,744	82,809	311,010	18.8	0.2	0.2	0.7
Gas	2,196,341	2,183,250	2,886,195	3.1	6.4	5.8	6.9
Nuclear	7,874,487	8,529,002	9,156,619	1.7	23.0	22.7	21.8
Hydroelectric	11,769	0	0	-100.0	0.0	0.0	0.0
Other	45	55	0	-100.0	0.0	0.0	0.0
Total Nonutility	324,518	335,997	67,373	-16.0	0.9	0.9	0.2
Petroleum	W	W	2,728	W	W	W	0.0
Gas	306,467	320,355	52,279	-17.8	0.9	0.9	0.1
Hydroelectric	W	W	12,367	W	W	W	0.0
Total Industry	34,193,162	37,619,868	42,070,297	2.3	100.0	100.0	100.0
Coal	23,720,258	26,488,755	29,649,100	2.5	69.4	70.4	70.5
Petroleum	W	W	313,738	W	W	W	0.7
Gas	2,502,808	2,503,605	2,938,474	1.8	7.3	6.7	7.0
Nuclear	7,874,487	8,529,002	9,156,619	1.7	23.0	22.7	21.8
Hydroelectric	W	W	12,367	W	W	W	0.0
Other	45	55	0	-100.0	0.0	0.0	0.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	150.6	111.9	95.4	-4.9
Average heat value (Btu per pound)	8948	8708	8628	-0.4
Average sulfur Content(percent)	0.6	0.5	0.4	-3.3
Petroleum (cents per million Btu) (1999 dollars) . . .	655.1	433.2	319.0	-7.7
Average heat value (Btu per gallon)	138177	138892	147609	0.7
Average sulfur Content(percent)	0.0	1.0	1.5	0.0
Gas (cents per million Btu) (1999 dollars)	213.1	209.7	234.1	1.0
Average heat value (Btu per cubic foot)	990	983	1010	0.2

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	85	70	87	0.3
Petroleum	1	*	2	5.6
Total	86	71	89	0.3
Nitrogen Oxide				
Coal	112	114	132	1.8
Petroleum	*	*	*	3.9
Gas	3	5	5	3.5
Total	116	119	137	1.9
Carbon Dioxide				
Coal	27,669	30,012	33,935	2.3
Petroleum	305	74	325	0.7
Gas	1,583	1,857	2,157	3.5
Total	29,556	31,943	36,417	2.3

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

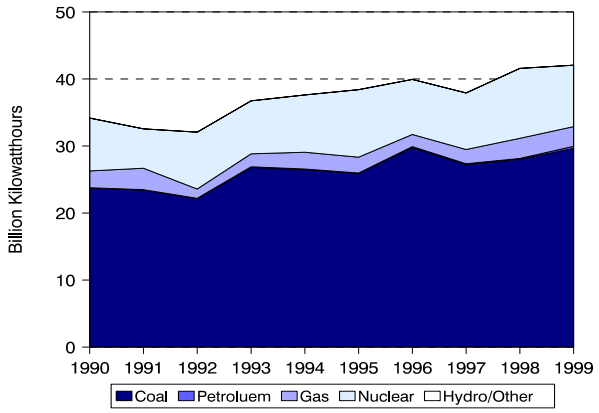


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

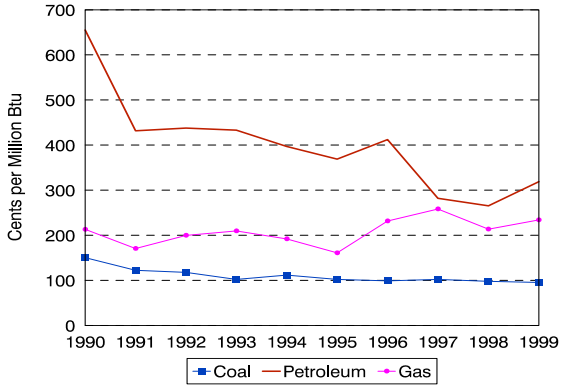


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

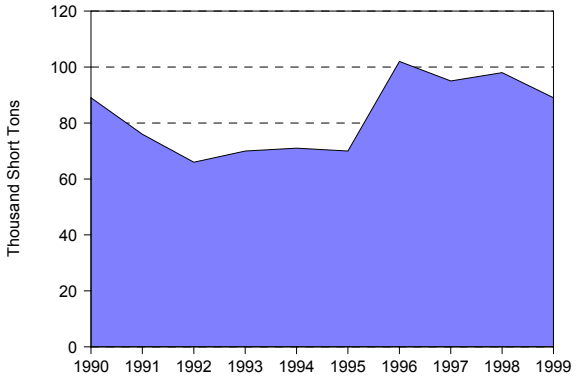


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

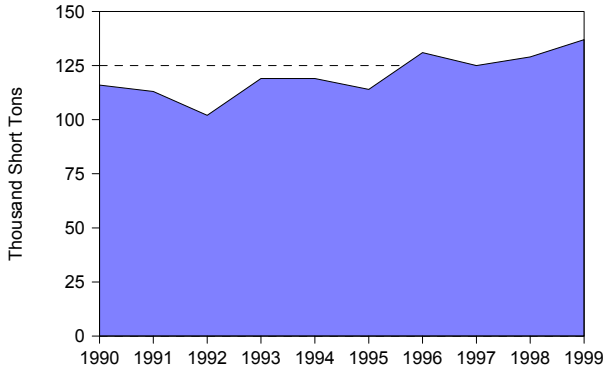


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

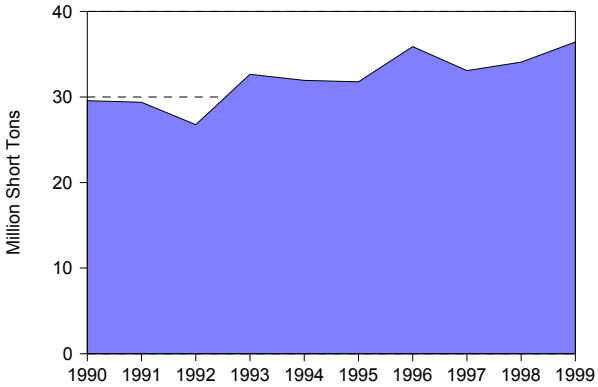


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

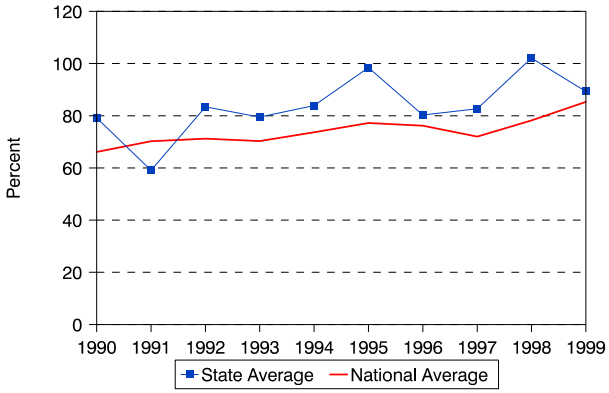


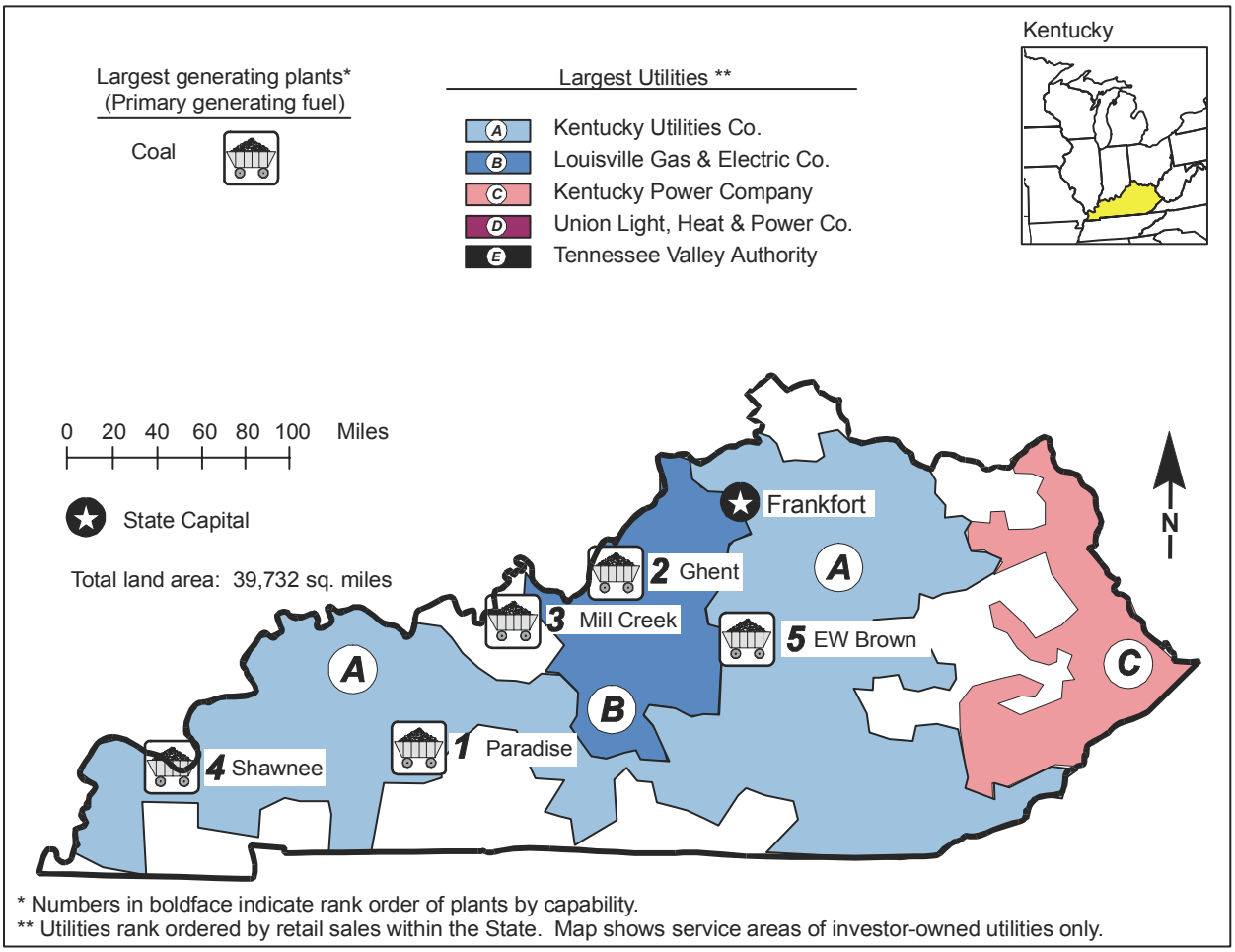
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	9,515	10,131	11,347	2.0	35.0	34.2	33.5
Commercial	9,169	10,111	11,822	2.9	33.8	34.1	35.0
Industrial	8,087	9,001	10,215	2.6	29.8	30.4	30.2
Other	378	371	436	1.6	1.4	1.3	1.3
Total	27,149	29,614	33,820	2.5	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	902	872	867	-0.4	41.7	40.8	41.3
Commercial	738	735	739	*	34.1	34.4	35.1
Industrial	484	484	457	-0.6	22.4	22.7	21.7
Other	37	44	39	0.4	1.7	2.1	1.8
Total	2,162	2,136	2,102	-0.3	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	9.48	8.61	7.64	NA	NA	NA	NA
Commercial	8.05	7.27	6.25	NA	NA	NA	NA
Industrial	5.99	5.38	4.47	NA	NA	NA	NA
Other	9.9	11.94	8.91	NA	NA	NA	NA
Total	7.96	7.21	6.22	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	6	119	0	31	156
Number of Retail Customers	902,528	232,872	0	194,634	1,330,034
Retail Sales (thousand megawatthours)	24,531	5,717	0	3,573	33,820
Percentage of Retail Sales	72.5	16.9	0.0	10.6	100.0
Revenue from Retail Sales (million dollars)	1,477	336	0	289	2,102
Percentage of Revenue	70.3	16.0	0.0	13.7	100.0
Average Revenue per Kilowatthour (cents/kWh)	6.02	5.88	0.00	8.08	6.22

Kentucky



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		ECAR/SERC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	16,542	20
Utility	14,708	20
Nonutility	1,834	15
Net Generation (megawatthours)	93,107,763	16
Utility	81,658,150	18
Nonutility	11,449,613	12
Emissions (thousand short tons)		
Sulfur Dioxide	796	5
Nitrogen Oxide	369	5
Carbon Dioxide	105,601	6
Sulfur Dioxide/sq. mile	20	6
Nitrogen Oxide/sq. mile	9	6
Carbon Dioxide/sq. mile	2,658	10
Electricity Consumption (MWh) (excludes line losses)	79,696,434	17
Utility Retail Electricity Sales (megawatthours)	79,098,015	16
Nonutility Retail Sales and Direct Use (megawatthours)	598,419	34
Utility Average Retail Price (cents/kWh)	4.17	49

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Paradise	Petroleum, Coal	Tennessee Valley Authority	2,203
2. Ghent	Petroleum, Coal	Kentucky Utilities Co	1,968
3. E W Brown	Petroleum, Gas, Coal	Kentucky Utilities Co	1,479
4. Mill Creek	Petroleum, Gas, Coal	Louisville Gas & Electric Co	1,470
5. Shawnee	Petroleum, Coal	Tennessee Valley Authority	1,330
6. Big Sandy	Petroleum, Coal	Kentucky Power Co	1,060
7. H L Spurlock	Petroleum, Coal	East Kentucky Power Coop Inc	850
8. East Bend	Petroleum, Coal	Cincinnati Gas & Electric Co	600
9. Cane Run	Petroleum, Gas, Coal	Louisville Gas & Electric Co	579
10. Green Station	Coal	Big Rivers Electric Corp	535

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Kentucky Utilities Company	15,481,497	5,073,758	3,578,032	5,452,062	1,377,645
B. Louisville Gas & Electric Co	11,203,916	3,679,666	3,290,604	3,046,640	1,187,006
C. Kenergy Corporation	8,043,913	628,812	134,848	7,239,669	40,584
D. Electric Energy, Inc	7,013,929	0	0	7,013,929	0
E. Tennessee Valley Authority	6,919,006	0	0	6,886,793	32,213
Total	48,662,261	9,382,236	7,003,484	29,639,093	2,637,448
Percentage of Utility Sales	62	42	53	74	81

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	15,511	15,507	14,708	-0.6	100.0	100.0	88.9
Coal	14,306	14,075	12,572	-1.4	92.2	90.8	76.0
Petroleum	185	184	122	-4.5	1.2	1.2	0.7
Gas	225	445	1,206	20.5	1.5	2.9	7.3
Hydroelectric	795	802	808	0.2	5.1	5.2	4.9
Total Nonutility	0	0	1,834	0.0	0.0	0.0	11.1
Coal	W	W	1,775	W	W	W	10.7
Petroleum	W	W	56	W	W	W	0.3
Other	W	W	4	W	W	W	0.0
Total Industry	15,511	15,507	16,542	0.7	100.0	100.0	100.0
Coal	W	W	14,347	W	W	W	86.7
Petroleum	W	W	178	W	W	W	1.1
Gas	225	445	1,206	20.5	1.5	2.9	7.3
Hydroelectric	795	802	808	0.2	5.1	5.2	4.9
Other	0	0	4	0.0	0.0	0.0	0.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

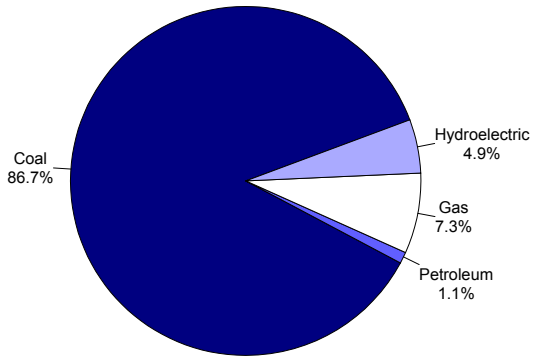


Figure 2. Industry Generation by Energy Source, 1999

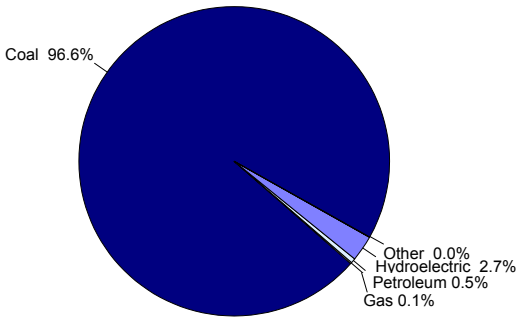


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	73,807,286	84,097,034	81,658,150	1.1	100.0	100.0	87.7
Coal	70,500,461	79,897,442	78,544,604	1.2	95.5	95.0	84.4
Petroleum	118,646	154,819	103,755	-1.5	0.2	0.2	0.1
Gas	27,796	31,183	453,219	36.4	0.0	0.0	0.5
Hydroelectric	3,160,383	4,013,590	2,556,572	-2.3	4.3	4.8	2.7
Total Nonutility	0	0	11,449,613	0.0	0.0	0.0	12.3
Coal	W	W	11,394,278	W	W	W	12.2
Petroleum	W	W	24,702	W	W	W	0.0
Gas	W	W	18,225	W	W	W	0.0
Other	W	W	12,409	W	W	W	0.0
Total Industry	73,807,286	84,097,034	93,107,763	2.6	100.0	100.0	100.0
Coal	W	W	89,938,882	W	W	W	96.6
Petroleum	W	W	128,457	W	W	W	0.1
Gas	W	W	471,444	W	W	W	0.5
Hydroelectric	3,160,383	4,013,590	2,556,572	-2.3	4.3	4.8	2.7
Other	W	W	12,409	W	W	W	0.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	144.6	126.9	105.8	-3.4
Average heat value (Btu per pound)	11558	11683	11582	*
Average sulfur Content (percent)	2.6	2.3	2.3	-1.5
Petroleum (cents per million Btu) (1999 dollars)	697.0	473.1	431.9	-5.2
Average heat value (Btu per gallon)	138945	138955	139505	*
Gas (cents per million Btu) (1999 dollars)	360.6	313.5	340.4	-0.6
Average heat value (Btu per cubic foot)	1020	1021	1025	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	900	890	796	-1.4
Petroleum	*	*	*	5.9
Total	900	891	796	-1.4
Nitrogen Oxide				
Coal	313	331	368	1.8
Petroleum	*	*	*	17.5
Gas	*	*	1	42.3
Total	313	331	369	1.9
Carbon Dioxide				
Coal	73,200	82,468	104,413	4.0
Petroleum	101	144	838	26.5
Gas	17	19	350	40.3
Total	73,318	82,630	105,601	4.1

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

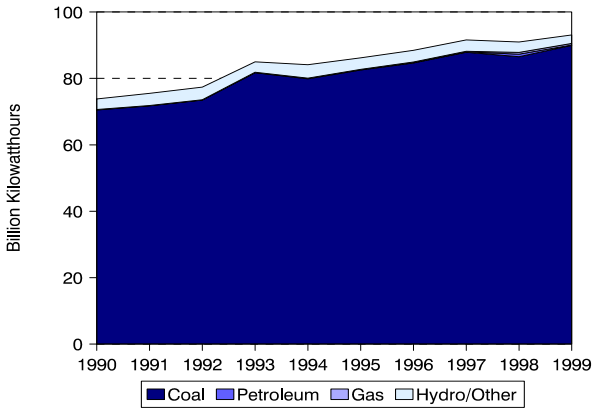


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

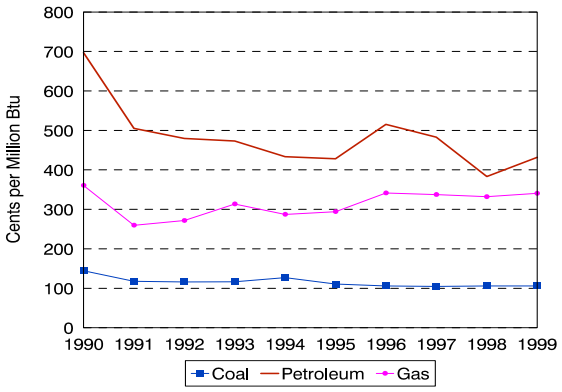


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

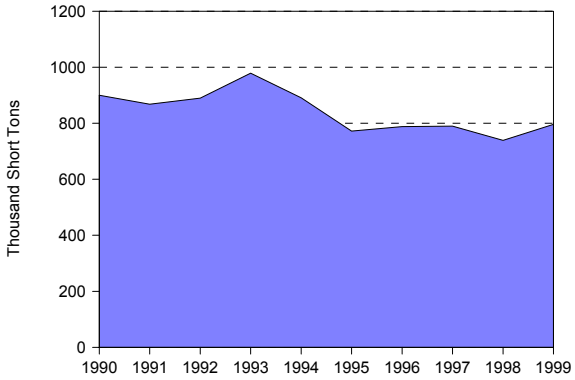


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

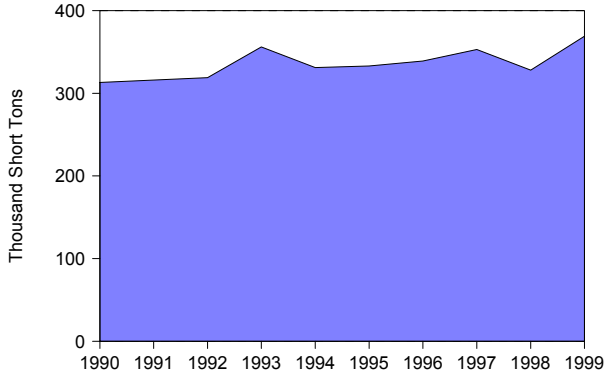


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

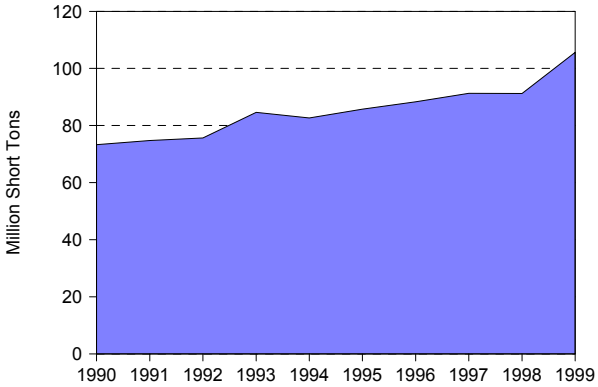


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	16,814	19,481	22,548	3.3	27.5	26.9	28.5
Commercial	9,252	10,095	13,222	4.0	15.1	13.9	16.7
Industrial	32,543	40,049	40,054	2.3	53.3	55.3	50.6
Other	2,488	2,861	3,274	3.1	4.1	3.9	4.1
Total	61,097	72,485	79,098	2.9	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,160	1,228	1,257	0.9	35.0	36.4	38.1
Commercial	602	582	696	1.6	18.2	17.3	21.1
Industrial	1,411	1,418	1,196	-1.8	42.6	42.0	36.3
Other	141	146	149	0.6	4.3	4.3	4.5
Total	3,315	3,373	3,299	*	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	6.9	6.3	5.58	NA	NA	NA	NA
Commercial	6.51	5.77	5.27	NA	NA	NA	NA
Industrial	4.34	3.54	2.99	NA	NA	NA	NA
Other	5.68	5.1	4.55	NA	NA	NA	NA
Total	5.43	4.65	4.17	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	6	30	1	25	62
Number of Retail Customers	1,113,081	198,234	23	680,009	1,991,347
Retail Sales (thousand megawatthours)	44,029	6,421	6,919	21,729	79,098
Percentage of Retail Sales	55.7	8.1	8.8	27.5	100.0
Revenue from Retail Sales (million dollars)	1,773	324	194	1,008	3,299
Percentage of Revenue	53.8	9.8	5.9	30.6	100.0
Average Revenue per Kilowatthour (cents/kWh)	4.03	5.04	2.80	4.64	4.17

Louisiana

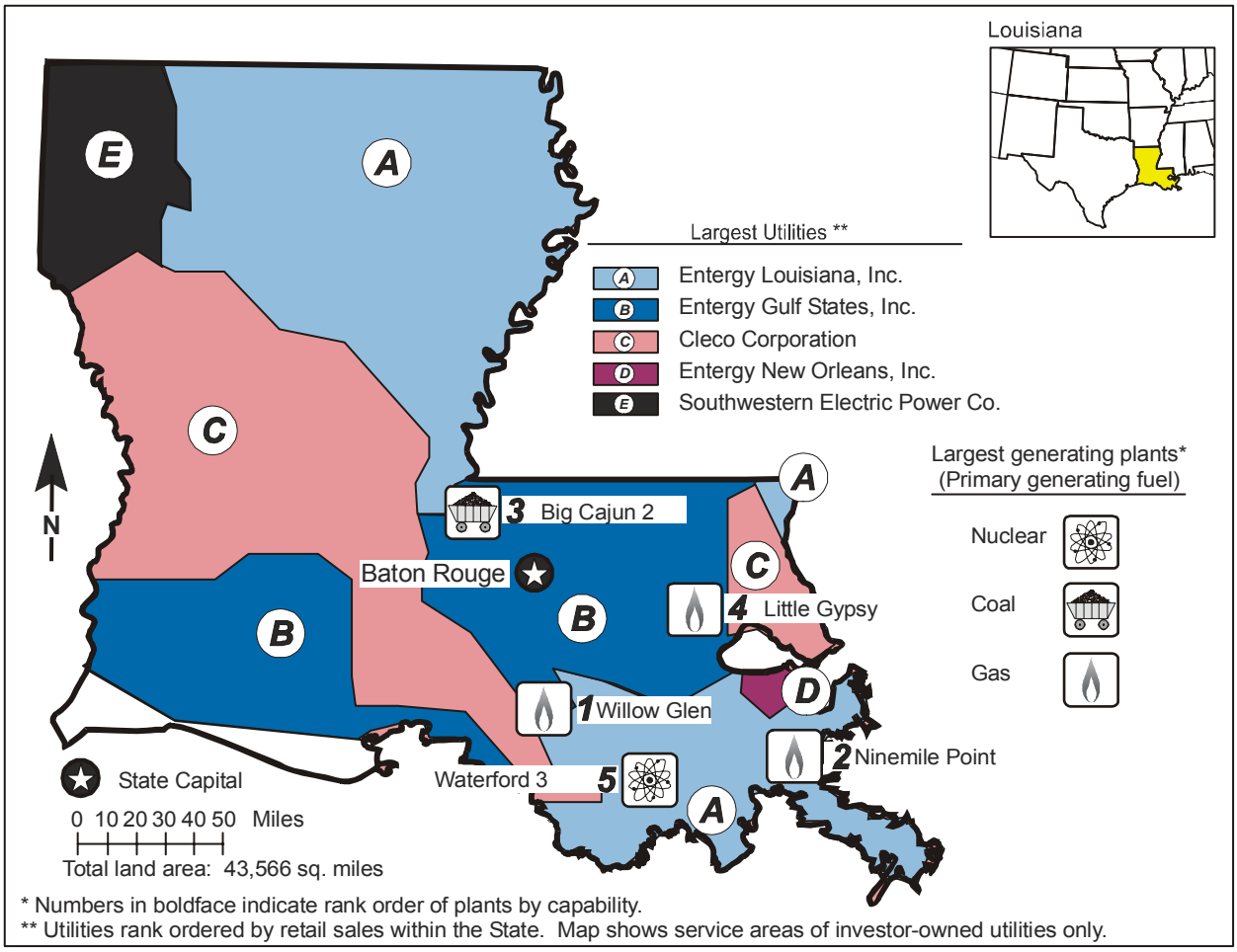

Louisiana
Largest Utilities **
A Entergy Louisiana, Inc.
B Entergy Gulf States, Inc.
C Cleco Corporation
D Entergy New Orleans, Inc.
E Southwestern Electric Power Co.
Largest generating plants*
(Primary generating fuel)
Nuclear
Coal
Gas
3 Big Cajun 2
Baton Rouge
4 Little Gypsy
1 Willow Glen
2 Ninemile Point
Waterford 3
5
N
State Capital
0 10 20 30 40 50 Miles
Total land area: 43,566 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SPP/SERC
Primary Energy Source		Gas
Net Summer Capability (megawatts)	20,202	14
Utility	16,339	17
Nonutility	3,863	10
Net Generation (megawatthours)	90,095,717	18
Utility	64,837,110	21
Nonutility	25,258,607	6
Emissions (thousand short tons)		
Sulfur Dioxide	128	22
Nitrogen Oxide	154	19
Carbon Dioxide	55,290	17
Sulfur Dioxide/sq. mile	3	25
Nitrogen Oxide/sq. mile	4	22
Carbon Dioxide/sq. mile	1,269	22
Electricity Consumption (MWh) (excludes line losses)	99,680,618	13
Utility Retail Electricity Sales (megawatthours)	78,266,678	17
Nonutility Retail Sales and Direct Use (megawatthours)	21,413,940	3
Utility Average Retail Price (cents/kWh)	5.81	33

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Willow Glen	Petroleum, Gas	Entergy Gulf States Inc	1,875
2. Ninemile Point	Petroleum, Gas	Entergy Louisiana Inc	1,736
3. Big Cajun 2	Petroleum, Coal	Cajun Electric Power Coop Inc	1,730
4. Little Gypsy	Petroleum, Gas	Entergy Louisiana Inc	1,193
5. Waterford 3	Nuclear	Entergy Louisiana Inc	1,075
6. Rodemacher	Gas, Coal	CLECO Corporation	963
7. Riverbend	Nuclear	Entergy Gulf States Inc	936
8. R S Nelson	Petroleum, Gas, Coal	Entergy Gulf States Inc	843
9. Michoud	Petroleum, Gas	Entergy New Orleans Inc	838
10. Waterford 1 & 2	Petroleum, Gas	Entergy Louisiana Inc	822

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Entergy Louisiana, Inc	29,095,658	8,354,190	5,221,419	15,051,633	468,416
B. Entergy Gulf States, Inc	19,515,257	4,325,731	4,079,787	10,911,315	198,424
C. Cleco Power, LLC	8,099,438	3,208,581	1,596,663	2,720,090	574,104
D. Entergy New Orleans, Inc	5,896,732	2,101,652	2,207,776	513,825	1,073,479
E. Southwestern Electric Power Co	5,013,193	2,003,332	1,554,849	1,249,238	205,774
Total	67,620,278	19,993,486	14,660,494	30,446,101	2,520,197
Percentage of Utility Sales	86	76	83	97	91

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	16,751	16,873	16,339	-0.3	85.8	85.9	80.9
Coal	3,343	3,343	3,453	0.4	17.1	17.0	17.1
Petroleum	17	231	11	-4.4	0.1	1.2	0.1
Gas	11,380	11,293	10,864	-0.5	58.3	57.5	53.8
Nuclear	2,011	2,006	2,011	0.0	10.3	10.2	10.0
Total Nonutility	2,767	2,763	3,863	3.8	14.2	14.1	19.1
Petroleum	39	198	240	22.5	0.2	1.0	1.2
Gas	2,140	1,810	2,935	3.6	11.0	9.2	14.5
Petroleum/Gas Combined	38	64	0	-100.0	0.2	0.3	0.0
Hydroelectric	W	W	199	W	W	W	1.0
Other	W	W	490	W	W	W	2.4
Total Industry	19,518	19,636	20,202	0.4	100.0	100.0	100.0
Coal	3,343	3,343	3,453	0.4	17.1	17.0	17.1
Petroleum	55	429	251	18.4	0.3	2.2	1.2
Gas	13,520	13,103	13,799	0.2	69.3	66.7	68.3
Petroleum/Gas Combined	38	64	0	-100.0	0.2	0.3	0.0
Nuclear	2,011	2,006	2,011	0.0	10.3	10.2	10.0
Hydroelectric	W	W	199	W	W	W	1.0
Other	368	508	490	3.2	1.9	2.6	2.4

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

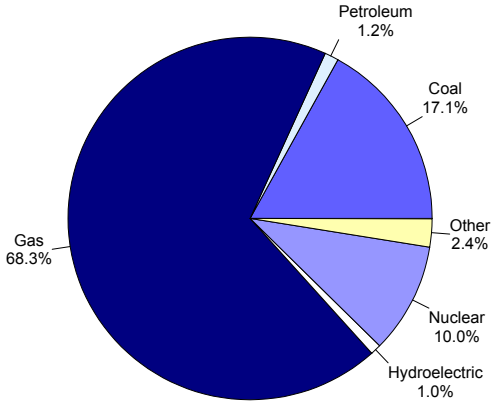


Figure 2. Industry Generation by Energy Source, 1999

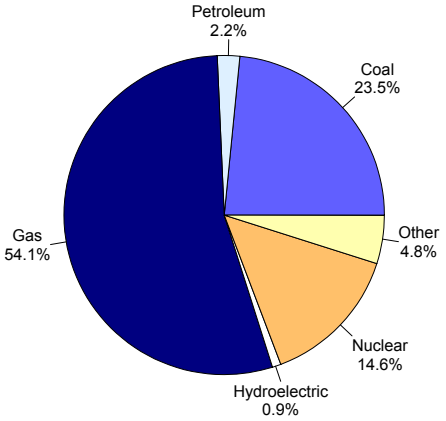


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	58,168,408	60,169,910	64,837,110	1.2	73.2	75.5	72.0
Coal	17,800,084	20,125,159	21,166,160	1.9	22.4	25.2	23.5
Petroleum	130,260	679,969	396,857	13.2	0.2	0.9	0.4
Gas	26,041,280	26,586,147	30,162,489	1.6	32.8	33.3	33.5
Nuclear	14,196,784	12,778,635	13,111,604	-0.9	17.9	16.0	14.6
Total Nonutility	21,277,612	19,558,550	25,258,607	1.9	26.8	24.5	28.0
Coal	W	W	17,603	W	W	W	0.0
Petroleum	W	W	1,554,411	W	W	W	1.7
Gas	16,193,138	13,562,409	18,573,952	1.5	20.4	17.0	20.6
Hydroelectric	W	W	801,826	W	W	W	0.9
Other	W	W	4,310,815	W	W	W	4.8
Total Industry	79,446,020	79,728,460	90,095,717	1.4	100.0	100.0	100.0
Coal	W	W	21,183,763	W	W	W	23.5
Petroleum	W	W	1,951,268	W	W	W	2.2
Gas	42,234,418	40,148,556	48,736,441	1.6	53.2	50.4	54.1
Nuclear	14,196,784	12,778,635	13,111,604	-0.9	17.9	16.0	14.6
Hydroelectric	W	W	801,826	W	W	W	0.9
Other	W	W	4,310,815	W	W	W	4.8

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	205.5	168.0	139.8	-4.2
Average heat value (Btu per pound)	8194	8136	8149	-0.1
Average sulfur Content (percent)	0.5	0.5	0.6	2.0
Petroleum (cents per million Btu) (1999 dollars)	450.3	294.0	204.2	-8.4
Average heat value (Btu per gallon)	144963	147869	154471	0.7
Average sulfur Content (percent)	0.6	1.0	1.4	10.0
Gas (cents per million Btu) (1999 dollars)	201.0	226.4	249.0	2.4
Average heat value (Btu per cubic foot)	1045	1046	1039	-0.1

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	98	125	81	-2.1
Petroleum	*	69	47	69.7
Other	0	*	*	0.0
Total	99	194	128	2.9
Nitrogen Oxide				
Coal	84	87	89	0.7
Petroleum	*	8	6	51.2
Gas	31	47	56	6.8
Other	0	2	3	0.0
Total	115	144	154	3.3
Carbon Dioxide				
Coal	19,757	22,570	22,416	1.4
Petroleum	114	4,151	3,840	47.8
Gas	16,084	24,284	29,016	6.8
Other	0	1	18	0.0
Total	35,955	51,006	55,290	4.9

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

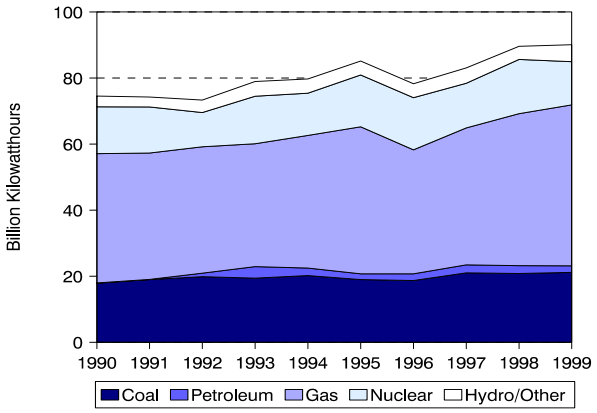


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

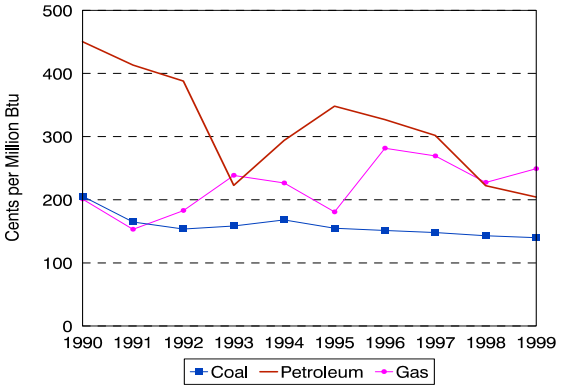


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

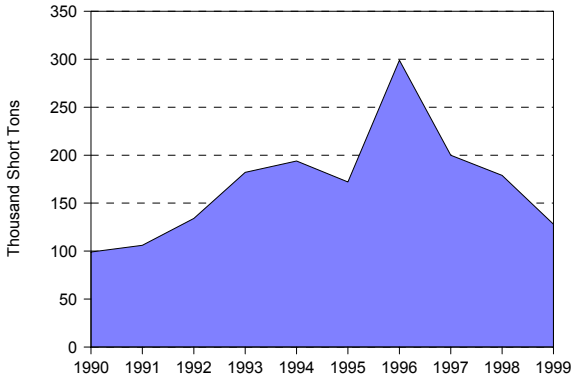


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

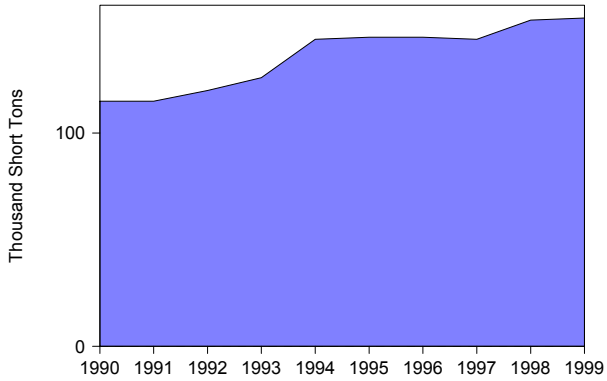


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

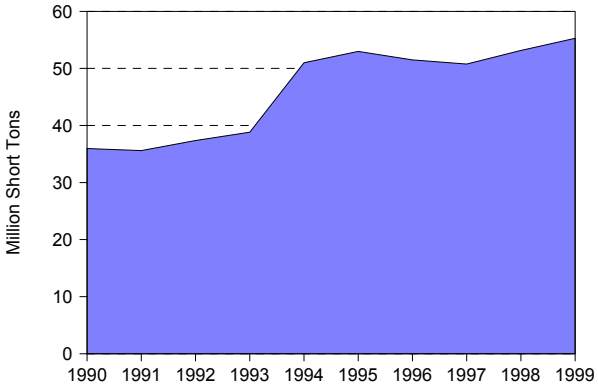


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

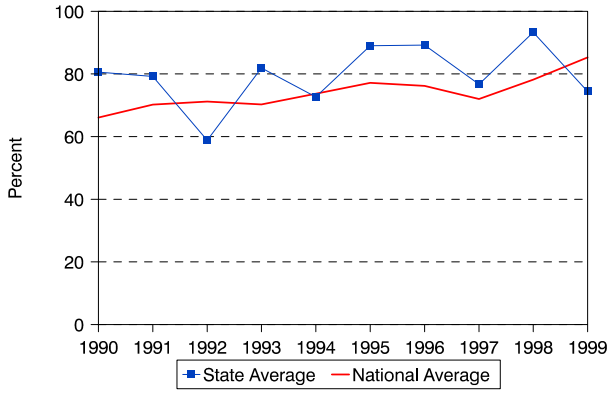


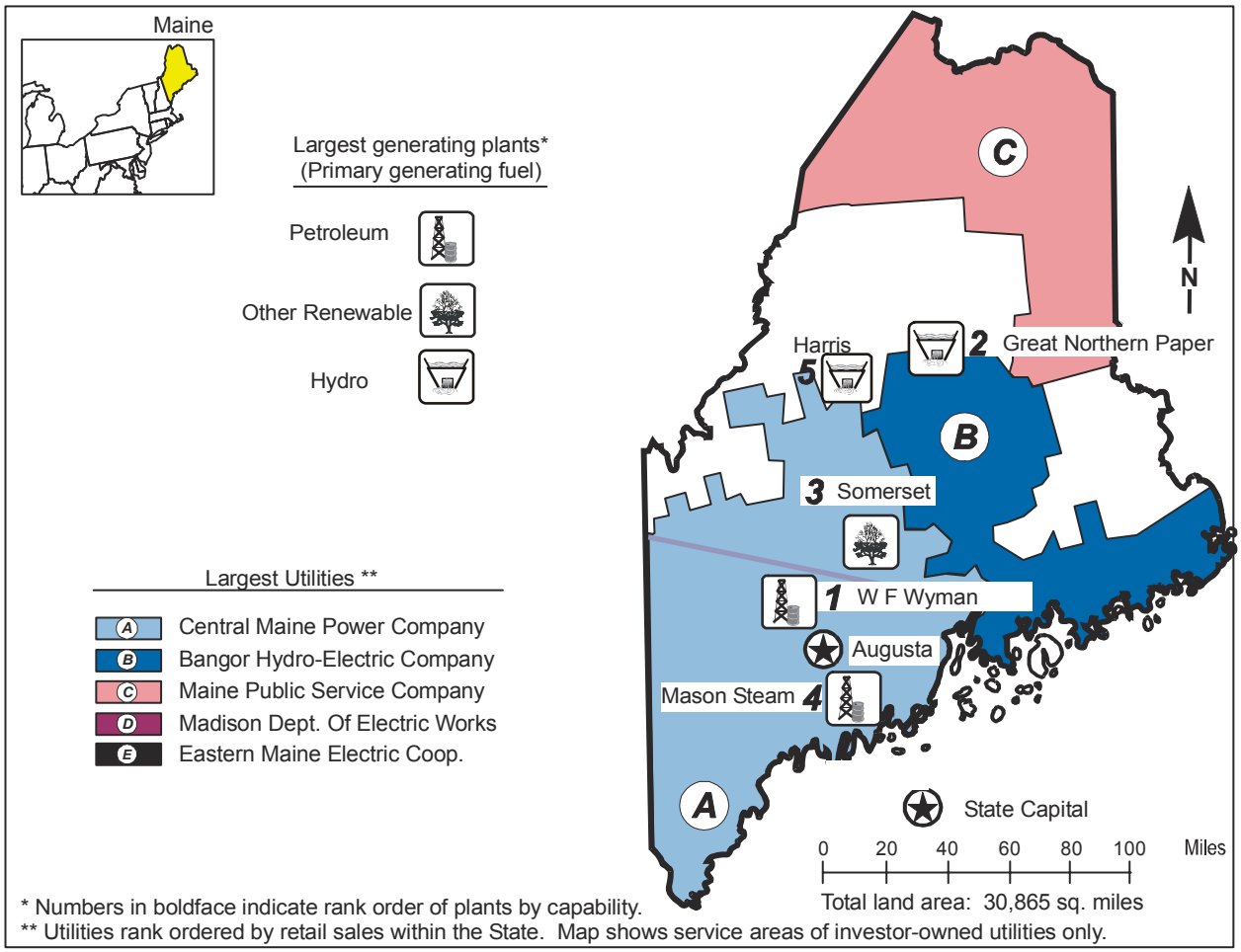
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	21,434	22,629	26,426	2.3	33.6	32.3	33.8
Commercial	13,814	15,041	17,581	2.7	21.6	21.4	22.5
Industrial	25,862	29,870	31,484	2.2	40.5	42.6	40.2
Other	2,716	2,593	2,776	0.2	4.3	3.7	3.5
Total	63,826	70,132	78,267	2.3	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,923	1,880	1,882	-0.2	41.4	40.6	41.4
Commercial	1,179	1,181	1,159	-0.2	25.4	25.5	25.5
Industrial	1,311	1,374	1,338	0.2	28.3	29.7	29.4
Other	226	193	172	-3.0	4.9	4.2	3.8
Total	4,639	4,628	4,550	-0.2	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.97	8.31	7.12	NA	NA	NA	NA
Commercial	8.53	7.85	6.59	NA	NA	NA	NA
Industrial	5.07	4.60	4.25	NA	NA	NA	NA
Other	8.33	7.43	6.20	NA	NA	NA	NA
Total	7.27	6.60	5.81	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	5	22	0	13	40
Number of Retail Customers	1,564,091	148,199	0	329,584	2,041,874
Retail Sales (thousand megawatthours)	67,620	4,099	0	6,548	78,267
Percentage of Retail Sales	86.4	5.2	0.0	8.4	100.0
Revenue from Retail Sales (million dollars)	3,832	269	0	449	4,550
Percentage of Revenue	84.2	5.9	0.0	9.9	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.67	6.57	0.00	6.86	5.81

Maine



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		NPCC
Primary Energy Source		Petrole
Net Summer Capability (megawatts)	2,956	43
Utility	88	50
Nonutility	2,868	13
Net Generation (megawatthours)	12,958,073	44
Utility	1,189,273	49
Nonutility	11,768,800	11
Emissions (thousand short tons)		
Sulfur Dioxide	5	45
Nitrogen Oxide	15	44
Carbon Dioxide	6,309	43
Sulfur Dioxide/sq. mile	0	44
Nitrogen Oxide/sq. mile	0	45
Carbon Dioxide/sq. mile	204	44
Electricity Consumption (MWh) (excludes line losses)	15,530,372	40
Utility Retail Electricity Sales (megawatthours)	11,943,634	41
Nonutility Retail Sales and Direct Use (megawatthours)	3,586,738	13
Utility Average Retail Price (cents/kWh)	9.77	8

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. William F Wyman	Gas	FPL Energy Maine Hydro LLC	813
2. Great Northern Paper	Other	Great Northern Paper Inc	295
3. Somerset Plant	Other	S D Warren	106
4. Mason Steam	Gas	FPL Energy Mason LLC	104
5. Harris	Hydro	FPL Energy Maine Hydro LLC	102
6. Rumford Cogeneration	Coal	Mead Corp	95
7. Androscoggin Cogener	Gas	Androscoggin Energy LLC	93
8. Bucksport Maine	Gas	Champion International Corp	85
9. Androscoggin Mill	Gas	IPC-Androscoggin Mill	80
10. S D Warren Co 2	Other	S D Warren Co	78

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Central Maine Power Company	9,144,308	2,843,873	2,701,855	3,563,794	34,786
B. Bangor Hydro-Electric Company	1,766,395	545,050	548,008	664,280	9,057
C. Maine Public Service Company	511,361	170,481	183,424	149,979	7,477
D. Madison Dept of Electric Works	190,686	14,837	3,333	171,869	647
E. Eastern Maine Electric Coop	107,856	52,464	18,374	34,464	2,554
Total	11,720,606	3,626,705	3,454,994	4,584,386	54,521
Percentage of Utility Sales	98	98	99	98	89

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	2,407	2,433	88	-30.8	63.8	63.6	3.0
Petroleum	1,126	1,109	54	-28.7	29.8	29.0	1.8
Nuclear	860	870	0	-100.0	22.8	22.7	0.0
Hydroelectric	420	422	34	-24.4	11.1	11.0	1.1
Other	0	32	0	0.0	0.0	0.8	0.0
Total Nonutility	1,368	1,394	2,868	8.6	36.2	36.4	97.0
Coal	W	W	95	W	W	W	3.2
Petroleum	W	W	32	W	W	W	1.1
Gas	W	W	0	W	W	W	0.0
Petroleum/Gas Combined	0	0	1,205	0.0	0.0	0.0	40.8
Hydroelectric	352	351	749	8.8	9.3	9.2	25.3
Other	662	692	788	2.0	17.5	18.1	26.7
Total Industry	3,775	3,827	2,956	-2.7	100.0	100.0	100.0
Coal	W	W	95	W	W	W	3.2
Petroleum	W	W	86	W	W	W	2.9
Gas	W	W	0	W	W	W	0.0
Petroleum/Gas Combined	0	0	1,205	0.0	0.0	0.0	40.8
Nuclear	860	870	0	-100.0	22.8	22.7	0.0
Hydroelectric	772	773	782	0.2	20.4	20.2	26.5
Other	662	724	788	2.0	17.5	18.9	26.7

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

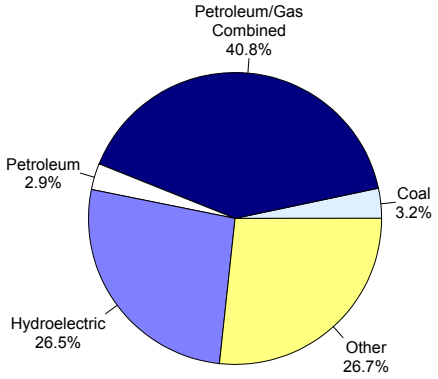


Figure 2. Industry Generation by Energy Source, 1999

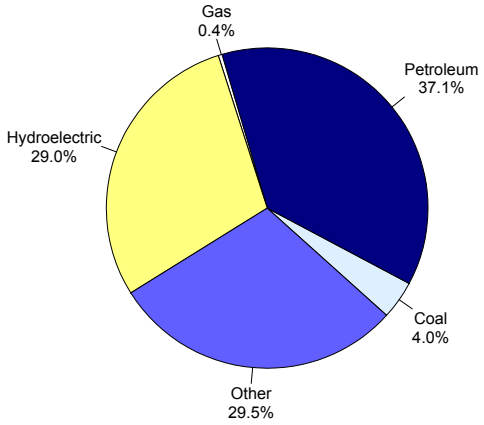


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	9,063,595	9,015,544	1,189,273	-20.2	56.0	53.8	9.2
Petroleum	2,092,804	701,843	673,031	-11.8	12.9	4.2	5.2
Nuclear	4,860,727	6,631,984	0	-100.0	30.1	39.5	0.0
Hydroelectric	2,110,064	1,681,717	516,242	-14.5	13.0	10.0	4.0
Total Nonutility	7,111,057	7,753,095	11,768,800	5.8	44.0	46.2	90.8
Coal	W	W	514,847	W	W	W	4.0
Petroleum	1,032,138	1,205,589	4,136,429	16.7	6.4	7.2	31.9
Gas	W	W	48,938	W	W	W	0.4
Hydroelectric	2,036,873	1,836,774	3,241,951	5.3	12.6	11.0	25.0
Other	3,516,896	3,907,714	3,826,636	0.9	21.7	23.3	29.5
Total Industry	16,174,652	16,768,639	12,958,073	-2.4	100.0	100.0	100.0
Coal	W	W	514,847	W	W	W	4.0
Petroleum	3,124,942	1,907,432	4,809,460	4.9	19.3	11.4	37.1
Gas	W	W	48,938	W	W	W	0.4
Nuclear	4,860,727	6,631,984	0	-100.0	30.1	39.5	0.0
Hydroelectric	4,146,937	3,518,491	3,758,193	-1.1	25.6	21.0	29.0
Other	3,516,896	3,907,714	3,826,636	0.9	21.7	23.3	29.5

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Petroleum (cents per million Btu) (1999 dollars)	337.6	233.4	177.9	-6.9
Average heat value (Btu per gallon)	149,992	150,208	150,839	0.1
Average sulfur Content (percent)	0.9	1.2	1.0	1.4

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	0	0	0	0.0
Petroleum	11	5	5	-8.1
Other	0	*	*	0.0
Total	11	5	5	-8.1
Nitrogen Oxide				
Coal	0	3	2	0.0
Petroleum	3	3	8	13.5
Other	0	4	5	0.0
Total	3	10	15	21.8
Carbon Dioxide				
Coal	0	892	684	0.0
Petroleum	1,912	2,057	5,154	11.6
Gas	0	10	38	0.0
Other	0	727	433	0.0
Total	1,912	3,686	6,309	14.2

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

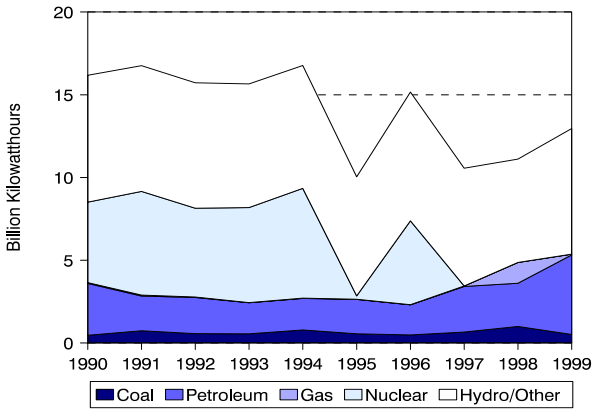


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

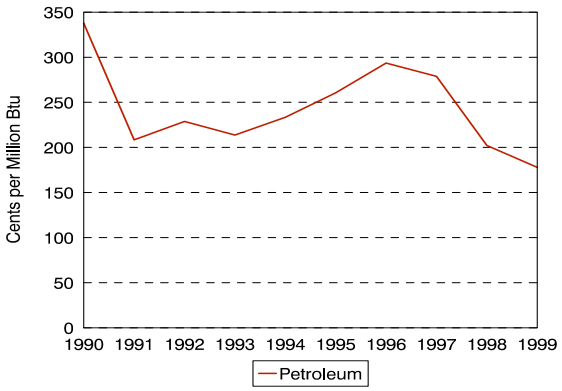


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

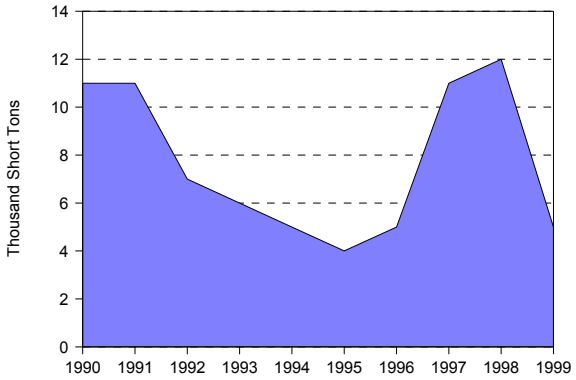


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

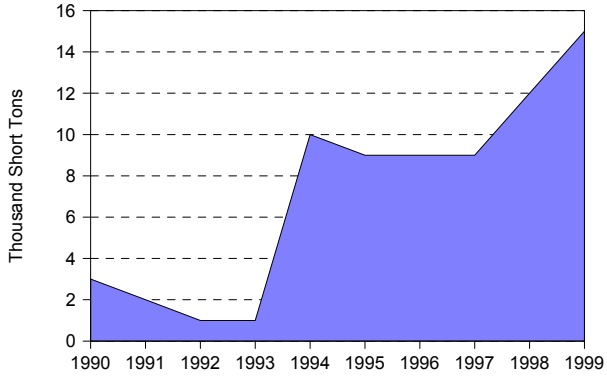


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

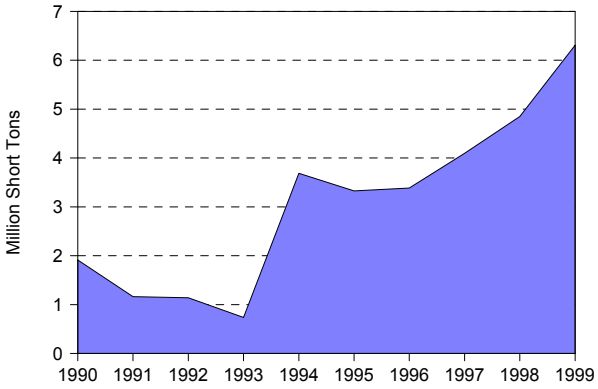


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

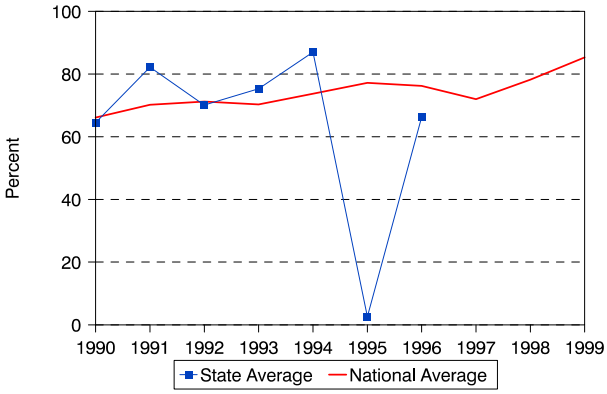


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	3,932	3,692	3,704	-0.7	34.1	31.8	31
Commercial	2,673	2,812	3,491	3.0	23.2	24.2	29.2
Industrial	4,750	4,952	4,687	-0.1	41.2	42.7	39.2
Other	174	151	61	-10.9	1.5	1.3	0.5
Total	11,529	11,606	11,944	0.4	100	100	100
Retail Sales Revenue							
(million 1999 dollars)							
Residential	443	496	484	1.0	41.4	40.7	41.5
Commercial	260	312	367	3.9	24.3	25.6	31.4
Industrial	343	388	301	-1.4	32.1	31.8	25.8
Other	23	24	15	-4.6	2.1	2	1.3
Total	1,068	1,220	1,167	1.0	100	100	100
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	11.26	13.44	13.07	NA	NA	NA	NA
Commercial	9.72	11.09	10.51	NA	NA	NA	NA
Industrial	7.22	7.84	6.42	NA	NA	NA	NA
Other	13.14	15.97	24.29	NA	NA	NA	NA
Total	9.26	10.51	9.77	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	3	5	0	3	11
Number of Retail Customers	695,022	14,515	0	13,979	723,516
Retail Sales (thousand megawatthours)	11,422	404	0	118	11,944
Percentage of Retail Sales	95.6	3.4	0.0	1.0	100.0
Revenue from Retail Sales (million dollars)	1,130	24	0	13	1,167
Percentage of Revenue	96.8	2.1	0.0	1.1	100.0
Average Revenue per Kilowatthour (cents/kWh)	9.89	5.93	0.00	11.15	9.77

Maryland

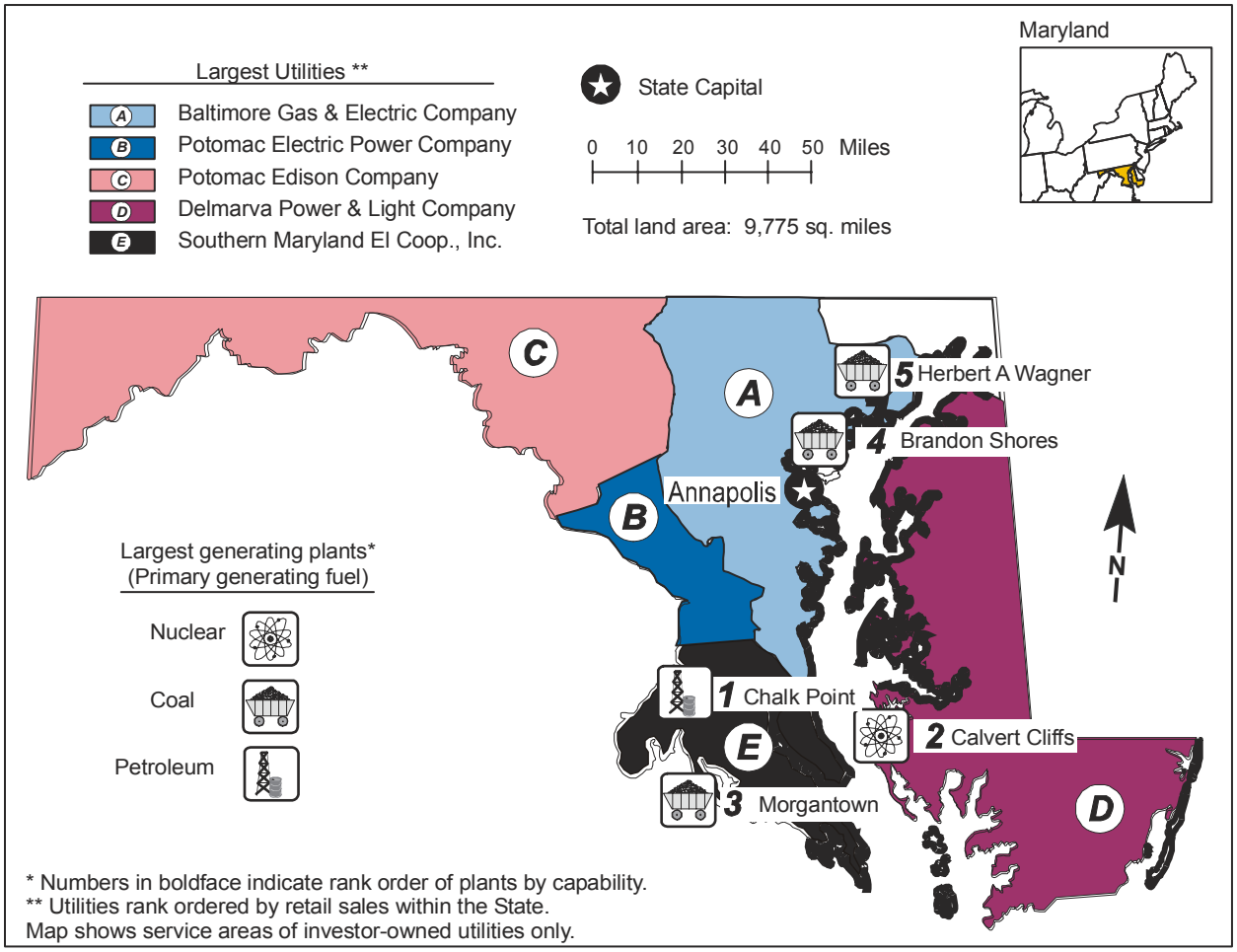

Largest Utilities **
A Baltimore Gas & Electric Company
B Potomac Electric Power Company
C Potomac Edison Company
D Delmarva Power & Light Company
E Southern Maryland El Coop., Inc.
State Capital
0 10 20 30 40 50 Miles
Total land area: 9,775 sq. miles
Maryland
Largest generating plants*
(Primary generating fuel)
Nuclear
Coal
Petroleum
5 Herbert A Wagner
4 Brandon Shores
Annapolis
1 Chalk Point
2 Calvert Cliffs
3 Morgantown
N
* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		ECAR/MACC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	11,789	26
Utility	10,955	25
Nonutility	834	28
Net Generation (megawatthours)	51,733,460	26
Utility	49,323,828	25
Nonutility	2,409,632	34
Emissions (thousand short tons)		
Sulfur Dioxide	306	14
Nitrogen Oxide	97	32
Carbon Dioxide	36,040	29
Sulfur Dioxide/sq. mile	31	2
Nitrogen Oxide/sq. mile	10	5
Carbon Dioxide/sq. mile	3,687	5
Electricity Consumption (MWh) (excludes line losses)	59,683,571	23
Utility Retail Electricity Sales (megawatthours)	59,086,225	22
Nonutility Retail Sales and Direct Use (megawatthours)	597,346	35
Utility Average Retail Price (cents/kWh)	7.04	17

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Chalk Point	Gas, Petroleum, Coal	Potomac Electric Power Co	2,423
2. Calvert Cliffs	Nuclear	Baltimore Gas & Electric Co	1,675
3. Morgantown	Petroleum, Coal	Potomac Electric Power Co	1,412
4. Brandon Shores	Petroleum, Coal	Baltimore Gas & Electric Co	1,296
5. Herbert A Wagner	Gas, Petroleum, Coal	Baltimore Gas & Electric Co	1,020
6. Dickerson	Petroleum, Gas, Coal	Potomac Electric Power Co	837
7. Conowingo	Hydro	PECO Energy Co	512
8. C P Crane	Petroleum, Coal	Baltimore Gas & Electric Co	399
9. Perryman	Petroleum, Gas	Baltimore Gas & Electric Co	350
10. Panda Brandywine LP	Gas	Panda Brandywine LP	256

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Baltimore Gas & Electric Co	29,264,078	11,349,276	13,194,090	4,350,108	370,604
B. Potomac Electric Power Company	13,791,429	5,370,933	7,743,494	451,766	225,236
C. The Potomac Edison Company	8,256,426	2,529,570	1,541,123	4,172,085	13,648
D. Delmarva Power & Light Company	3,772,336	1,797,562	1,438,409	523,576	12,789
E. Southern Maryland El Coop, Inc	2,630,164	1,554,631	711,694	186,285	177,554
Total	57,714,433	22,601,972	24,628,810	9,683,820	799,831
Percentage of Utility Sales	98	97	99	97	98

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	9,758	10,837	10,955	1.3	97.1	97.3	92.9
Coal	3,975	4,631	4,647	1.8	39.6	41.6	39.4
Petroleum	2,479	2,648	2,673	0.8	24.7	23.8	22.7
Gas	1,225	1,353	1,448	1.9	12.2	12.2	12.3
Nuclear	1,650	1,675	1,675	0.2	16.4	15.0	14.2
Hydroelectric	428	530	512	2.0	4.3	4.8	4.3
Total Nonutility	290	299	834	12.5	2.9	2.7	7.1
Coal	W	W	246	W	W	W	2.1
Petroleum	W	W	2	W	W	W	0.0
Gas	W	W	146	W	W	W	1.2
Petroleum/Gas Combined	W	W	348	W	W	W	3.0
Hydroelectric	0	0	19	0.0	0.0	0.0	0.2
Other	65	65	74	1.5	0.6	0.6	0.6
Total Industry	10,047	11,137	11,789	1.8	100.0	100.0	100.0
Coal	W	W	4,893	W	W	W	41.5
Petroleum	W	W	2,675	W	W	W	22.7
Gas	W	W	1,594	W	W	W	13.5
Petroleum/Gas Combined	W	W	348	W	W	W	3.0
Nuclear	1,650	1,675	1,675	0.2	16.4	15.0	14.2
Hydroelectric	428	530	531	2.4	4.3	4.8	4.5
Other	65	65	74	1.5	0.6	0.6	0.6

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

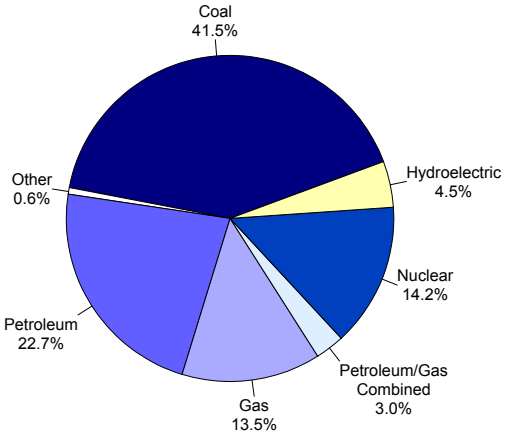


Figure 2. Industry Generation by Energy Source, 1999

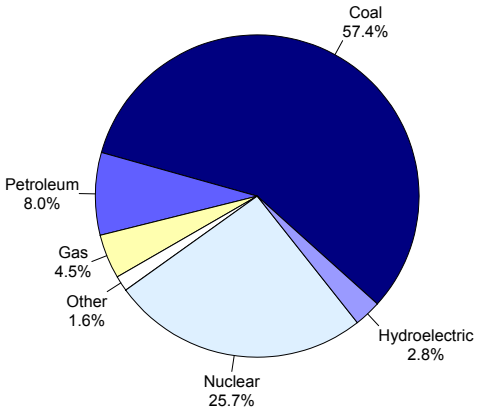


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	31,497,406	43,765,565	49,323,828	5.1	95.1	96.5	95.3
Coal	23,299,412	25,394,481	29,352,347	2.6	70.3	56.0	56.7
Petroleum	3,328,080	4,133,533	3,897,208	1.8	10.0	9.1	7.5
Gas	1,319,588	992,607	1,339,520	0.2	4.0	2.2	2.6
Nuclear	1,251,416	11,235,408	13,312,335	30.0	3.8	24.8	25.7
Hydroelectric	2,298,910	2,009,536	1,422,418	-5.2	6.9	4.4	2.7
Total Nonutility	1,629,073	1,575,545	2,409,632	4.4	4.9	3.5	4.7
Coal	W	W	349,170	W	W	W	0.7
Petroleum	W	W	266,441	W	W	W	0.5
Gas	W	W	976,049	W	W	W	1.9
Hydroelectric	0	0	1,779	0.0	0.0	0.0	0.0
Other	531,881	522,379	816,193	4.9	1.6	1.2	1.6
Total Industry	33,126,479	45,341,110	51,733,460	5.1	100.0	100.0	100.0
Coal	W	W	29,701,517	W	W	W	57.4
Petroleum	W	W	4,163,649	W	W	W	8.0
Gas	W	W	2,315,569	W	W	W	4.5
Nuclear	1,251,416	11,235,408	13,312,335	30.0	3.8	24.8	25.7
Hydroelectric	2,298,910	2,009,536	1,424,197	-5.2	6.9	4.4	2.8
Other	531,881	522,379	816,193	4.9	1.6	1.2	1.6

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	199.7	169.6	137.9	-4.0
Average heat value (Btu per pound)	12734	12824	12943	0.2
Average sulfur Content (percent)	1.4	1.2	1.1	-2.8
Petroleum (cents per million Btu) (1999 dollars)	382.7	266.9	257.4	-4.3
Average heat value (Btu per gallon)	149603	150636	151073	0.1
Average sulfur Content (percent)	1.2	1.4	1.0	-2.1
Gas (cents per million Btu) (1999 dollars)	296.6	269.2	307.6	0.4
Average heat value (Btu per cubic foot)	1042	1043	1040	*

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	250	218	284	1.4
Petroleum	26	32	22	-1.7
Other	0	0	0	0.0
Total	276	249	306	1.1
Nitrogen Oxide				
Coal	83	88	83	0.1
Petroleum	6	5	5	-1.6
Gas	2	18	6	13.2
Other	0	1	2	0.0
Total	91	113	97	0.7
Carbon Dioxide				
Coal	23,104	26,424	29,946	2.9
Petroleum	3,662	4,163	4,027	1.1
Gas	1,051	1,262	1,632	5.0
Other	0	549	435	0.0
Total	27,816	32,398	36,040	2.9

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

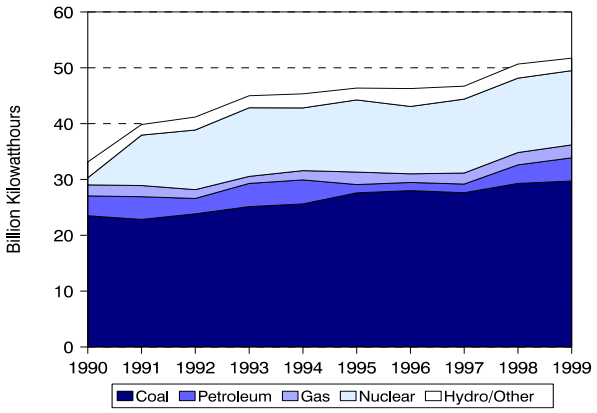


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

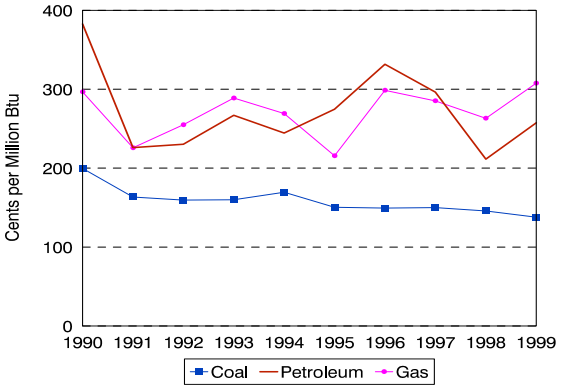


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

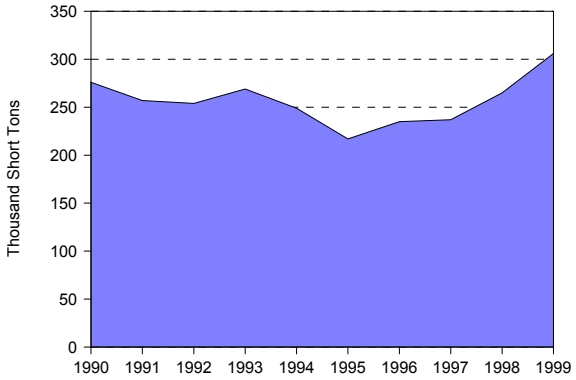


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

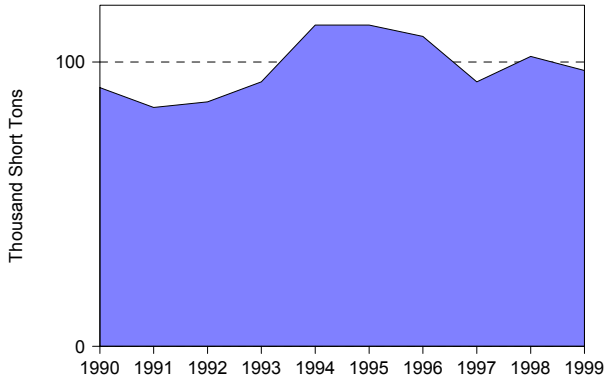


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

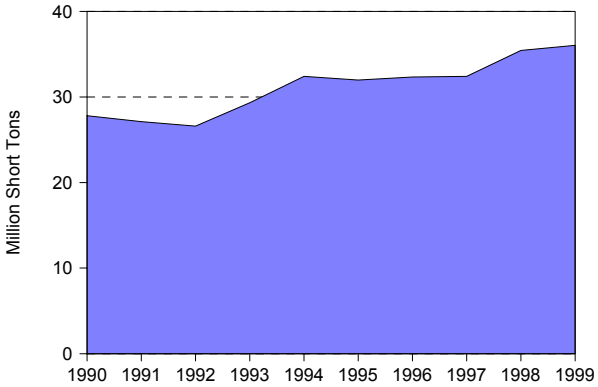


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

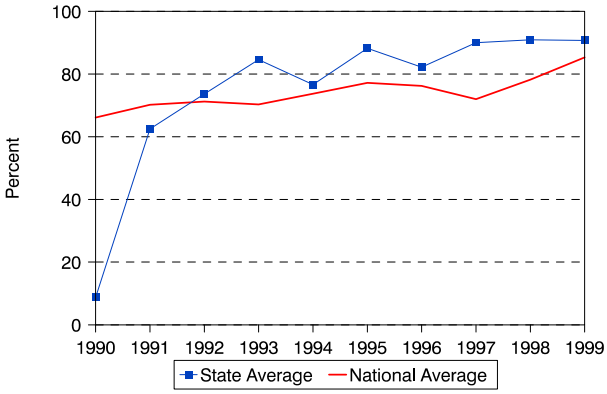


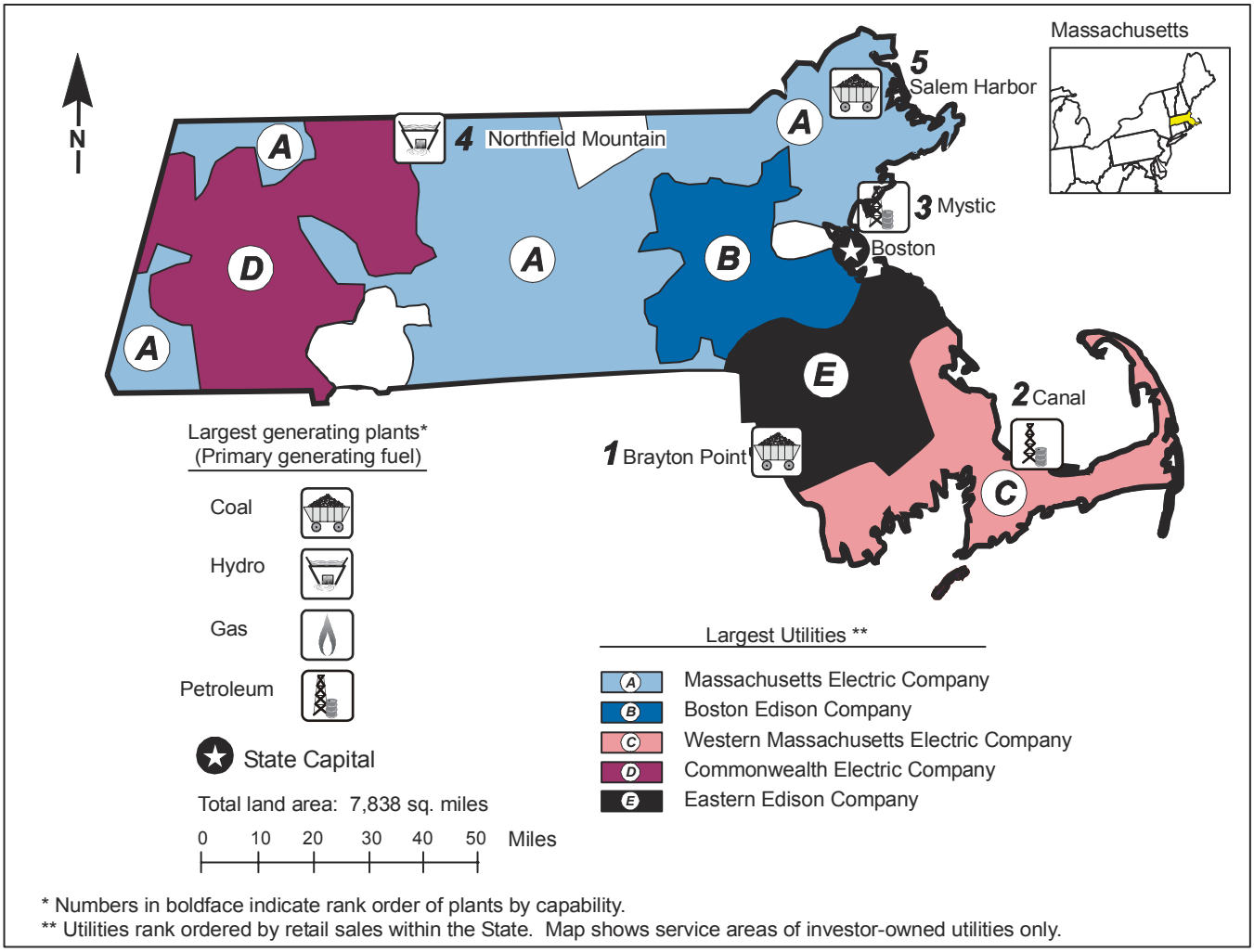
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	19,102	21,666	23,342	2.3	38.6	39.6	39.5
Commercial	10,452	13,254	24,988	10.2	21.1	24.2	42.3
Industrial	19,308	19,037	9,936	-7.1	39.0	34.8	16.8
Other	672	794	819	2.2	1.4	1.4	1.4
Total	49,534	54,752	59,086	2.0	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,671	1,983	1,959	1.8	44.2	47.2	47.1
Commercial	850	1,040	1,703	8.0	22.5	24.8	41.0
Industrial	1,192	1,100	423	-10.9	31.5	26.2	10.2
Other	68	74	72	0.7	1.8	1.8	1.7
Total	3,780	4,198	4,158	1.1	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.75	9.15	8.39	NA	NA	NA	NA
Commercial	8.13	7.85	6.82	NA	NA	NA	NA
Industrial	6.17	5.78	4.26	NA	NA	NA	NA
Other	10.07	9.36	8.77	NA	NA	NA	NA
Total	7.63	7.67	7.04	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	5	0	3	12
Number of Retail Customers	1,986,771	30,895	0	157,223	2,174,889
Retail Sales (thousand megawatthours)	55,084	692	0	3,310	59,086
Percentage of Retail Sales	93.2	1.2	0.0	5.6	100.0
Revenue from Retail Sales (million dollars)	3,859	40	0	259	4,158
Percentage of Revenue	92.8	1.0	0.0	6.2	100.0
Average Revenue per Kilowatthour (cents/kWh)	7.00	5.83	0.00	7.82	7.04

Massachusetts



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		NPCC
Primary Energy Source		Petrole
Net Summer Capability (megawatts)	11,805	25
Utility	2,214	45
Nonutility	9,591	6
Net Generation (megawatthours)	41,525,594	31
Utility	4,359,511	48
Nonutility	37,166,083	4
Emissions (thousand short tons)		
Sulfur Dioxide	113	23
Nitrogen Oxide	91	33
Carbon Dioxide	47,766	21
Sulfur Dioxide/sq. mile	14	8
Nitrogen Oxide/sq. mile	12	3
Carbon Dioxide/sq. mile	6,094	1
Electricity Consumption (MWh) (excludes line losses)	54,162,546	25
Utility Retail Electricity Sales (megawatthours)	47,820,780	25
Unregulated Retail Electricity Sales (megawatthours)	1,586,664	5
Nonutility Retail Sales and Direct Use (megawatthours)	4,755,102	10
Utility Average Retail Price (cents/kWh)	9.16	10

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Brayton Pt	Coal	US Gen New England Inc	1,497
2. Canal Plant	Gas	Southern Energy Canal LLC	1,164
3. Sithe Mystic LLC	Gas	Sithe New England Holdings LLC	1,098
4. Northfield Mountain	Hydro	Western Massachusetts Elec Co	1,080
5. Salem Harbor	Coal	US Gen New England Inc	725
6. Pilgrim Nuclear Powe	Nuclear	Entergy Nuclear Generation Co	670
7. Sithe New Boston LLC	Gas	Sithe New England Holdings LLC	630
8. Bear Swamp	Other	US Gen New England Inc	585
9. Stony Brook	Petroleum, Gas	Massachusetts Mun Whls Elec Co	474
10. Bellingham Cogenerat	Gas	Northeast Energy Assoc LP	382

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Massachusetts Electric Company	15,657,428	6,251,888	6,105,112	3,236,853	63,575
B. Boston Edison Company	12,864,155	3,809,126	7,484,619	1,454,728	115,682
C. Western Massachusetts Elec Co	3,885,392	1,394,296	1,468,457	999,032	23,607
D. Commonwealth Electric Company	3,665,492	1,798,145	1,518,491	332,727	16,129
E. Eastern Edison Company	2,827,205	1,232,258	1,152,745	425,778	16,424
Total	38,899,672	14,485,713	17,729,424	6,449,118	235,417
Percentage of Utility Sales	81	83	87	69	42

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	9,910	9,287	2,214	-15.3	88.9	85.4	18.8
Coal	1,723	1,675	146	-24.0	15.5	15.4	1.2
Petroleum	5,216	4,132	547	-22.2	46.8	38.0	4.6
Gas	289	953	302	0.5	2.6	8.8	2.6
Nuclear	831	665	0	-100.0	7.5	6.1	0.0
Hydroelectric	1,851	1,861	1,219	-4.5	16.6	17.1	10.3
Other	0	*	*	0.0	0.0	0.0	0.0
Total Nonutility	1,233	1,591	9,591	25.6	11.1	14.6	81.2
Coal	W	W	1,837	W	W	W	15.6
Petroleum	118	93	681	21.6	1.1	0.9	5.8
Gas	101	501	1,100	30.4	0.9	4.6	9.3
Petroleum/Gas Combined	644	586	4,279	23.4	5.8	5.4	36.2
Nuclear	--	--	670	--	--	--	5.7
Hydroelectric	W	W	706	W	W	W	6.0
Other	273	318	317	1.7	2.4	2.9	2.7
Total Industry	11,143	10,878	11,805	0.6	100.0	100.0	100.0
Coal	W	W	1,983	W	W	W	16.8
Petroleum	5,334	4,225	1,229	-15.1	47.9	38.8	10.4
Gas	390	1,454	1,402	15.3	3.5	13.4	11.9
Petroleum/Gas Combined	644	586	4,279	23.4	5.8	5.4	36.2
Nuclear	831	665	670	-2.4	7.5	6.1	5.7
Hydroelectric	W	W	1,925	W	W	W	16.3
Other	273	318	317	1.7	2.4	2.9	2.7

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

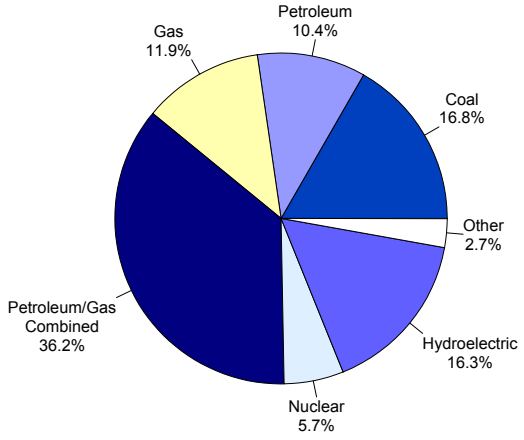


Figure 2. Industry Generation by Energy Source, 1999

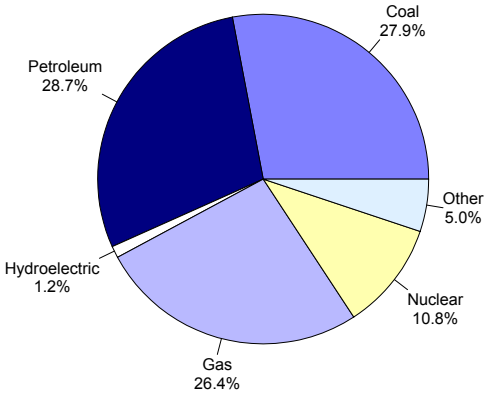


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	36,478,610	27,466,049	4,359,511	-21.0	85.3	72.4	10.5
Coal	11,273,069	10,209,727	1,073,628	-23.0	26.4	26.9	2.6
Petroleum	14,556,403	9,561,302	300,040	-35.0	34.1	25.2	0.7
Gas	5,279,993	3,736,177	865,627	-18.2	12.4	9.9	2.1
Nuclear	5,069,620	3,858,569	1,930,943	-10.2	11.9	10.2	4.7
Hydroelectric	299,525	100,274	189,273	-5.0	0.7	0.3	0.5
Total Nonutility	6,269,359	10,447,090	37,159,862	21.9	14.7	27.6	89.5
Coal	W	W	10,500,757	W	W	W	25.3
Petroleum	552,564	340,927	11,622,903	40.3	1.3	0.9	28.0
Gas	3,746,923	7,752,114	10,077,725	11.6	8.8	20.4	24.3
Nuclear	--	--	2,565,990	--	--	--	6.2
Hydroelectric	W	W	300,470	W	W	W	0.7
Other	1,591,890	2,050,209	2,092,018	3.1	3.7	5.4	5.0
Total Industry	42,747,969	37,913,139	41,519,373	-0.3	100.0	100.0	100.0
Coal	W	W	11,574,385	W	W	W	27.9
Petroleum	15,108,967	9,902,229	11,922,943	-2.6	35.3	26.1	28.7
Gas	9,026,916	11,488,291	10,943,352	2.2	21.1	30.3	26.4
Nuclear	5,069,620	3,858,569	4,496,933	-1.3	11.9	10.2	10.8
Hydroelectric	W	W	489,743	W	W	W	1.2
Other	1,591,890	2,050,209	2,092,018	3.1	3.7	5.4	5.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	210.2	183.2	173.4	-2.1
Average heat value (Btu per pound)	13062	12814	13160	0.1
Average sulfur Content (percent)	1.2	0.9	0.9	-3.9
Petroleum (cents per million Btu) (1999 dollars)	347.2	286.4	243.2	-3.9
Average heat value (Btu per gallon)	150311	150871	149853	*
Average sulfur Content (percent)	1.7	1.4	0.9	-6.2
Gas (cents per million Btu) (1999 dollars)	291.1	244.7	265.3	-1.0
Average heat value (Btu per cubic foot)	1052	1037	1026	-0.3

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	99	69	58	-5.7
Petroleum	126	52	55	-8.9
Other	0	0	0	0.0
Total	225	121	113	-7.4
Nitrogen Oxide				
Coal	39	25	54	3.6
Petroleum	21	8	21	-0.1
Gas	6	8	12	7.3
Other	0	4	4	0.0
Total	67	45	91	3.5
Carbon Dioxide				
Coal	10,885	10,015	20,608	7.3
Petroleum	12,443	6,325	19,050	4.8
Gas	3,274	4,472	6,800	8.5
Other	0	3,201	1,308	0.0
Total	26,602	24,013	47,766	6.7

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

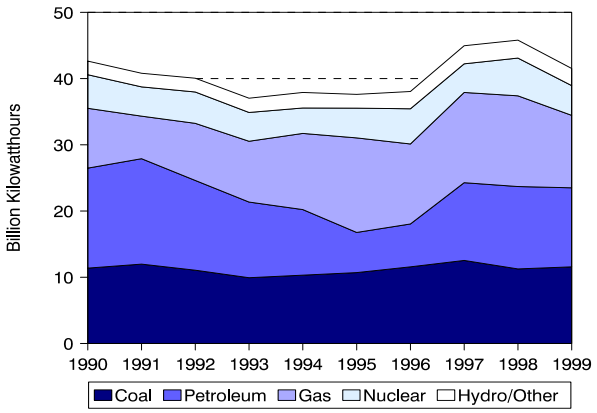


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

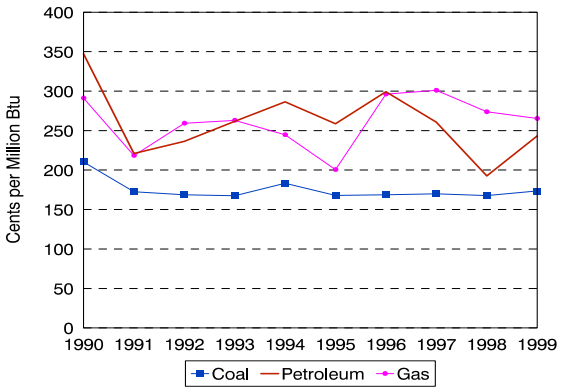


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

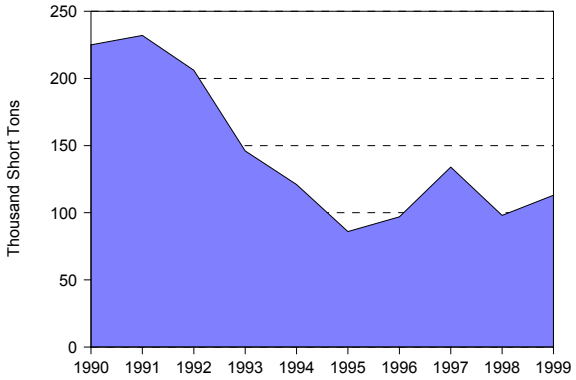


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

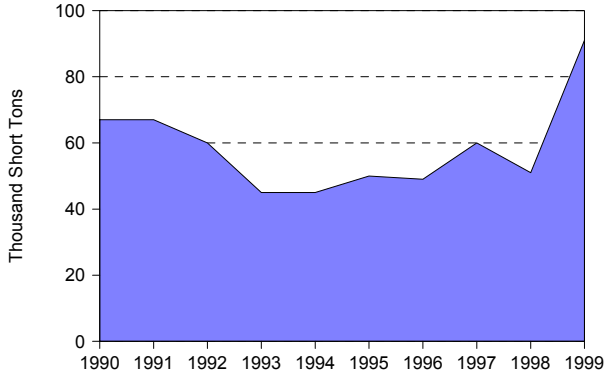


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

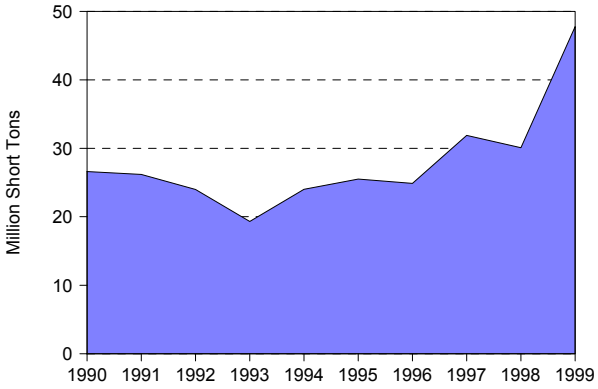


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

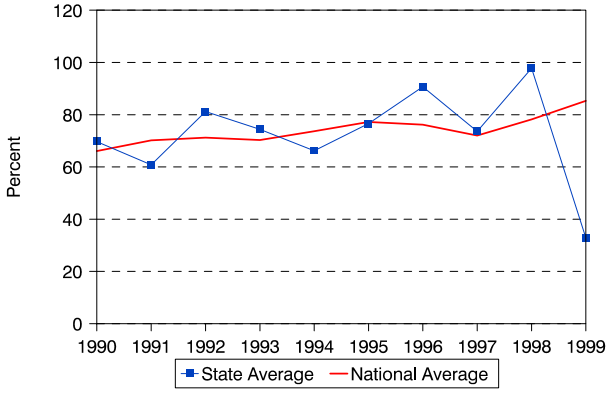


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	15,581	16,049	17,392	1.2	34.3	34.8	36.4
Commercial	18,565	19,371	20,459	1.1	40.9	42	42.8
Industrial	10,157	9,710	9,409	-0.8	22.3	21.1	19.7
Other	1,138	961	560	-7.6	2.5	2.1	1.2
Total	45,442	46,091	47,821	0.6	100	100	100
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,823	1,941	1,755	-0.4	37.4	38.6	40
Commercial	1,925	2,061	1,821	-0.6	39.5	41	41.6
Industrial	971	896	729	-3.1	19.9	17.8	16.6
Other	150	132	77	-7.2	3.1	2.6	1.8
Total	4,869	5,031	4,382	-1.2	100	100	100
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	11.70	12.10	10.09	NA	NA	NA	NA
Commercial	10.37	10.64	8.90	NA	NA	NA	NA
Industrial	9.56	9.23	7.75	NA	NA	NA	NA
Other	13.20	13.75	13.73	NA	NA	NA	NA
Total	10.71	10.92	9.16	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	9	40	0	0	49
Number of Retail Customers	2,459,487	367,606	0	0	2,827,093
Retail Sales (thousand megawatthours)	40,985	6,836	0	0	47,821
Percentage of Retail Sales	85.71	14.29	0	0	100
Revenue from Retail Sales (million dollars)	3,767	615	0	0	4,382
Percentage of Revenue	85.96	14.04	0	0	100
Average Revenue per Kilowatthour (cents/kWh)	9.19	9	0	0	9.16

Michigan

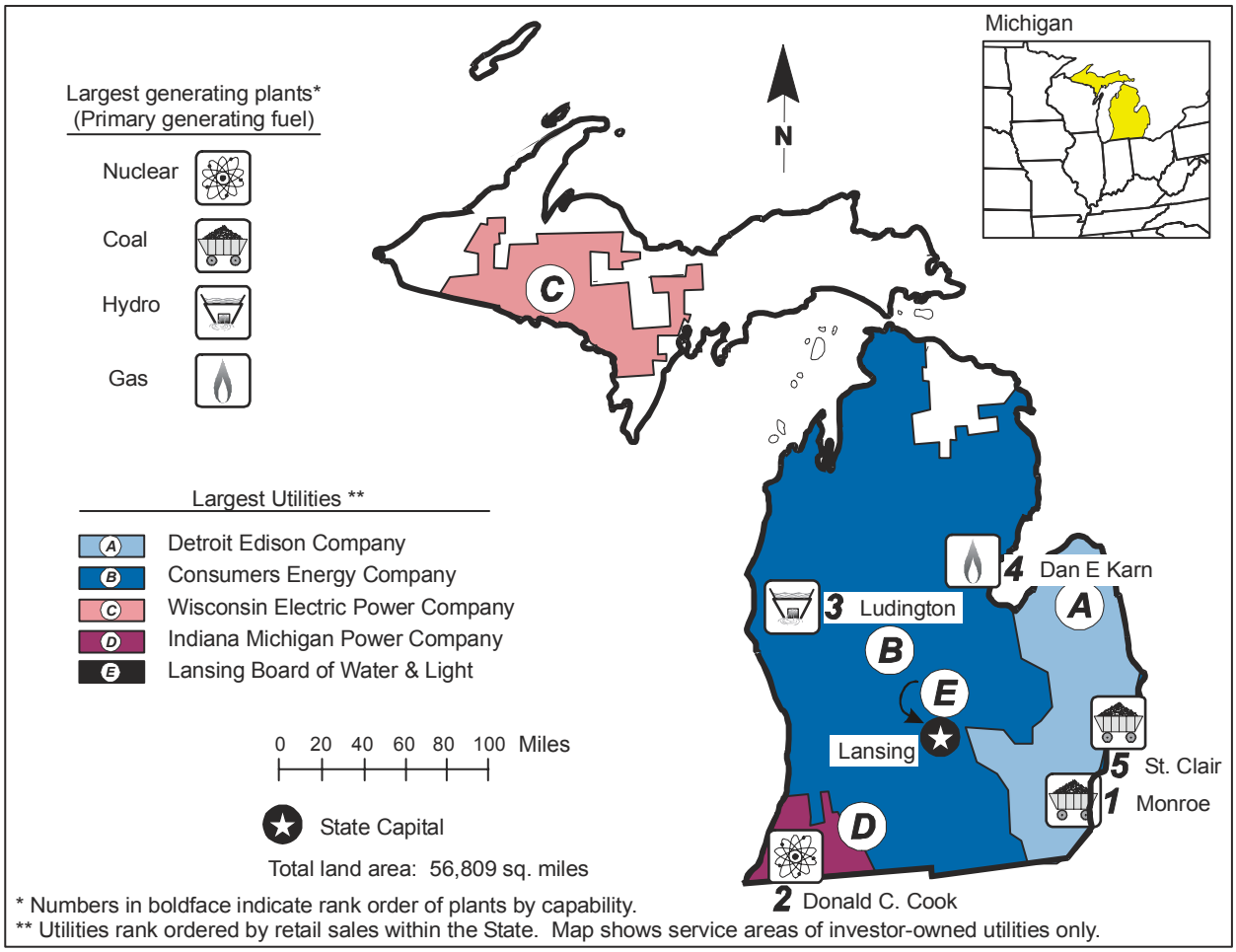

Michigan
Largest generating plants*
(Primary generating fuel)
Nuclear
Coal
Hydro
Gas
N
C
Largest Utilities **
A Detroit Edison Company
B Consumers Energy Company
C Wisconsin Electric Power Company
D Indiana Michigan Power Company
E Lansing Board of Water & Light
0 20 40 60 80 100 Miles
State Capital
Total land area: 56,809 sq. miles
4 Dan E Karn
3 Ludington
A
B
E
Lansing
5 St. Clair
1 Monroe
D
2 Donald C. Cook
* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		ECAR/MAPP/MAIN
Primary Energy Source		Coal
Net Summer Capability (megawatts)	25,461	9
Utility	22,374	8
Nonutility	3,087	12
Net Generation (megawatthours)	103,350,379	13
Utility	87,874,695	15
Nonutility	15,475,684	9
Emissions (thousand short tons)		
Sulfur Dioxide	401	12
Nitrogen Oxide	302	8
Carbon Dioxide	83,764	9
Sulfur Dioxide/sq. mile	7	17
Nitrogen Oxide/sq. mile	5	13
Carbon Dioxide/sq. mile	1,474	17
Electricity Consumption (MWh) (excludes line losses)	107,010,499	10
Utility Retail Electricity Sales (megawatthours)	103,479,677	9
Unregulated Retail Electricity Sales (megawatthours)	501,329	9
Nonutility Retail Sales and Direct Use (megawatthours)	3,029,493	15
Utility Average Retail Price (cents/kWh)	7.14	15

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Monroe	Petroleum, Coal	Detroit Edison Co	3,014
2. Donald C Cook	Petroleum, Coal	Indiana Michigan Power Co	2,060
3. Ludington	Hydro	Consumers Energy Co	1,872
4. Dan E Karn	Gas, Petroleum, Coal	Consumers Energy Co	1,791
5. St Clair	Petroleum, Gas, Coal	Detroit Edison Co	1,681
6. Midland Cogeneration	Gas	State St Bank Trust Co	1,666
7. Belle River	Petroleum, Gas, Coal	Detroit Edison Co	1,490
8. J H Campbell	Petroleum, Coal	Consumers Energy Co	1,412
9. Fermi	Petroleum, Nuclear	Detroit Edison Co	1,152
10. Greenwood	Petroleum, Gas	Detroit Edison Co	1,001

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Detroit Edison Company	49,822,240	14,064,096	19,546,640	15,863,779	347,725
B. Consumers Energy Company	35,754,796	11,447,338	10,748,734	13,339,546	219,178
C. Wisconsin Electric Power Co	2,923,501	154,276	137,695	2,629,321	2,209
D. Indiana Michigan Power Co	2,879,769	1,099,219	697,170	1,071,567	11,813
E. Lansing Board of Water & Light	2,307,666	562,630	1,067,140	639,448	38,448
Total	93,687,972	27,327,559	32,197,379	33,543,661	619,373
Percentage of Utility Sales	91	89	92	91	65

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	22,315	22,413	22,374	0.0	88.7	89.0	87.9
Coal	11,931	11,928	11,573	-0.3	47.4	47.3	45.5
Petroleum	3,460	3,235	2,634	-3.0	13.8	12.8	10.3
Gas	713	1,082	2,131	12.9	2.8	4.3	8.4
Nuclear	4,007	3,967	3,921	-0.2	15.9	15.7	15.4
Hydroelectric	2,203	2,201	2,115	-0.5	8.8	8.7	8.3
Other	0	0	1	0.0	0.0	0.0	0.0
Total Nonutility	2,847	2,780	3,087	0.9	11.3	11.0	12.1
Coal	221	628	356	5.4	0.9	2.5	1.4
Petroleum	4	2	7	7.8	0.0	0.0	0.0
Gas	2,145	1,706	2,201	0.3	8.5	6.8	8.6
Petroleum/Gas Combined	143	28	80	-6.2	0.6	0.1	0.3
Hydroelectric	W	W	27	W	W	W	0.1
Other	W	W	416	W	W	W	1.6
Total Industry	25,162	25,193	25,461	0.1	100.0	100.0	100.0
Coal	12,152	12,556	11,929	-0.2	48.3	49.8	46.9
Petroleum	3,464	3,238	2,641	-3.0	13.8	12.9	10.4
Gas	2,858	2,788	4,332	4.7	11.4	11.1	17.0
Petroleum/Gas Combined	143	28	80	-6.2	0.6	0.1	0.3
Nuclear	4,007	3,967	3,921	-0.2	15.9	15.7	15.4
Hydroelectric	W	W	2,141	W	W	W	8.4
Other	307	388	417	3.5	1.2	1.5	1.6

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

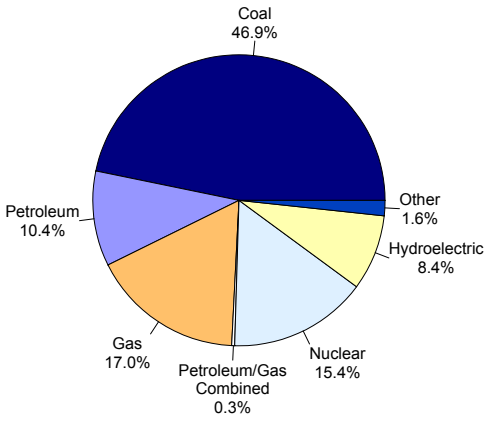


Figure 2. Industry Generation by Energy Source, 1999

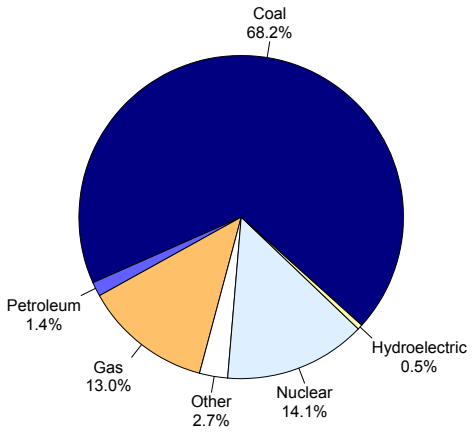


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	89,058,681	83,720,636	87,874,695	-0.1	87.1	85.1	85.0
Coal	65,295,742	67,538,611	69,118,017	0.6	63.9	68.6	66.9
Petroleum	689,461	655,860	1,282,696	7.1	0.7	0.7	1.2
Gas	665,142	656,757	2,448,449	15.6	0.7	0.7	2.4
Nuclear	21,610,500	14,144,281	14,590,711	-4.3	21.1	14.4	14.1
Hydroelectric	797,836	725,127	434,822	-6.5	0.8	0.7	0.4
Total Nonutility	13,183,848	14,669,921	15,475,684	1.8	12.9	14.9	15.0
Coal	W	W	1,383,306	W	W	W	1.3
Petroleum	178,451	188,501	204,095	1.5	0.2	0.2	0.2
Gas	9,371,276	9,799,739	10,963,368	1.8	9.2	10.0	10.6
Hydroelectric	150,452	142,293	91,037	-5.4	0.1	0.1	0.1
Other	W	W	2,833,877	W	W	W	2.7
Total Industry	102,242,529	98,390,557	103,350,379	0.1	100.0	100.0	100.0
Coal	W	W	70,501,323	W	W	W	68.2
Petroleum	867,912	844,361	1,486,791	6.2	0.8	0.9	1.4
Gas	10,036,418	10,456,496	13,411,817	3.3	9.8	10.6	13.0
Nuclear	21,610,500	14,144,281	14,590,711	-4.3	21.1	14.4	14.1
Hydroelectric	948,288	867,420	525,859	-6.3	0.9	0.9	0.5
Other	W	W	2,833,877	W	W	W	2.7

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	193.8	164.4	130.6	-4.3
Average heat value (Btu per pound)	11131	10925	10487	-0.7
Average sulfur Content (percent)	0.7	0.7	0.6	-1.4
Petroleum (cents per million Btu) (1999 dollars)	388.2	322.7	289.2	-3.2
Average heat value (Btu per gallon)	146014	146577	149118	0.2
Average sulfur Content (percent)	0.8	0.8	1.0	1.5
Gas (cents per million Btu) (1999 dollars)	255.2	262.2	252.3	-0.1
Average heat value (Btu per cubic foot)	224	403	608	11.8

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	365	393	395	0.9
Petroleum	3	4	6	7.1
Other	0	0	0	0.0
Total	368	397	401	0.9
Nitrogen Oxide				
Coal	283	298	280	-0.1
Petroleum	1	1	3	11.0
Gas	4	11	15	15.8
Other	0	3	5	0.0
Total	288	313	303	0.5
Carbon Dioxide				
Coal	66,616	73,111	73,524	1.1
Petroleum	752	933	1,640	9.0
Gas	710	5,766	7,771	30.5
Other	0	688	829	0.0
Total	68,078	80,498	83,764	2.3

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

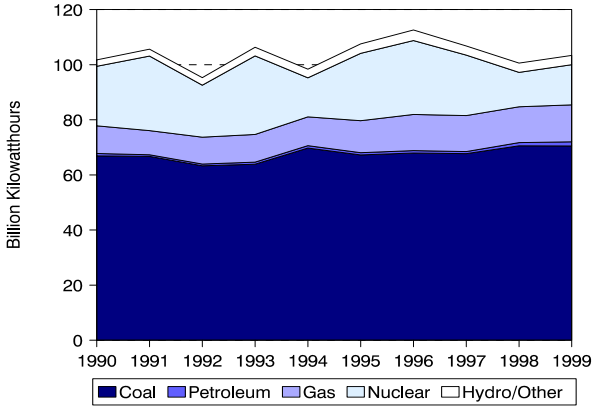


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

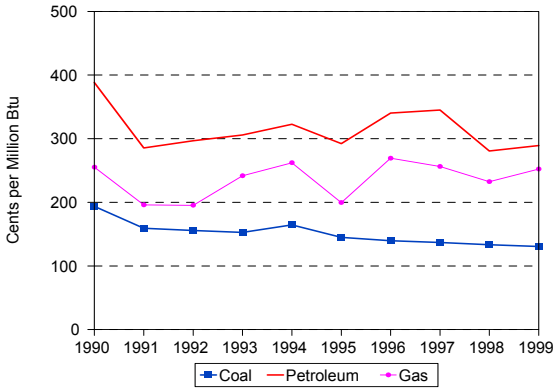


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

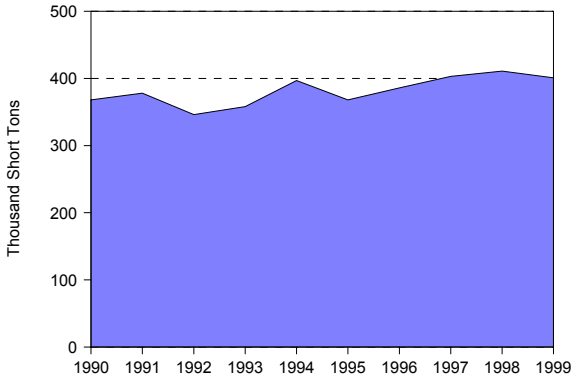


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

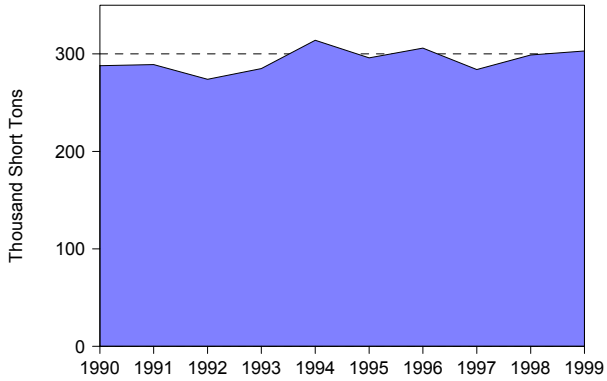


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

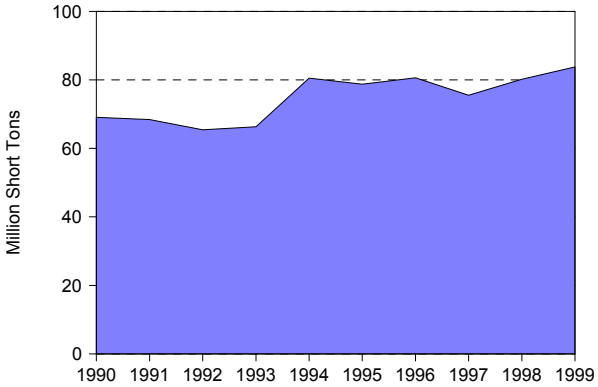


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

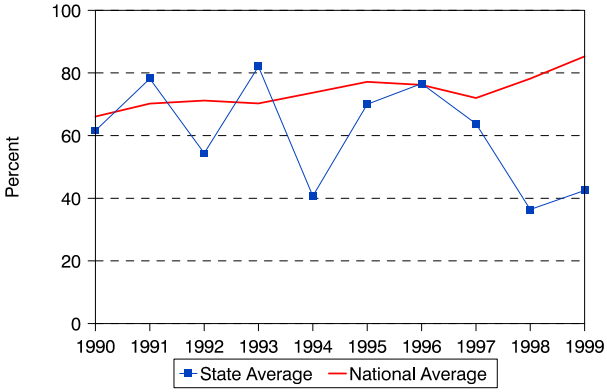


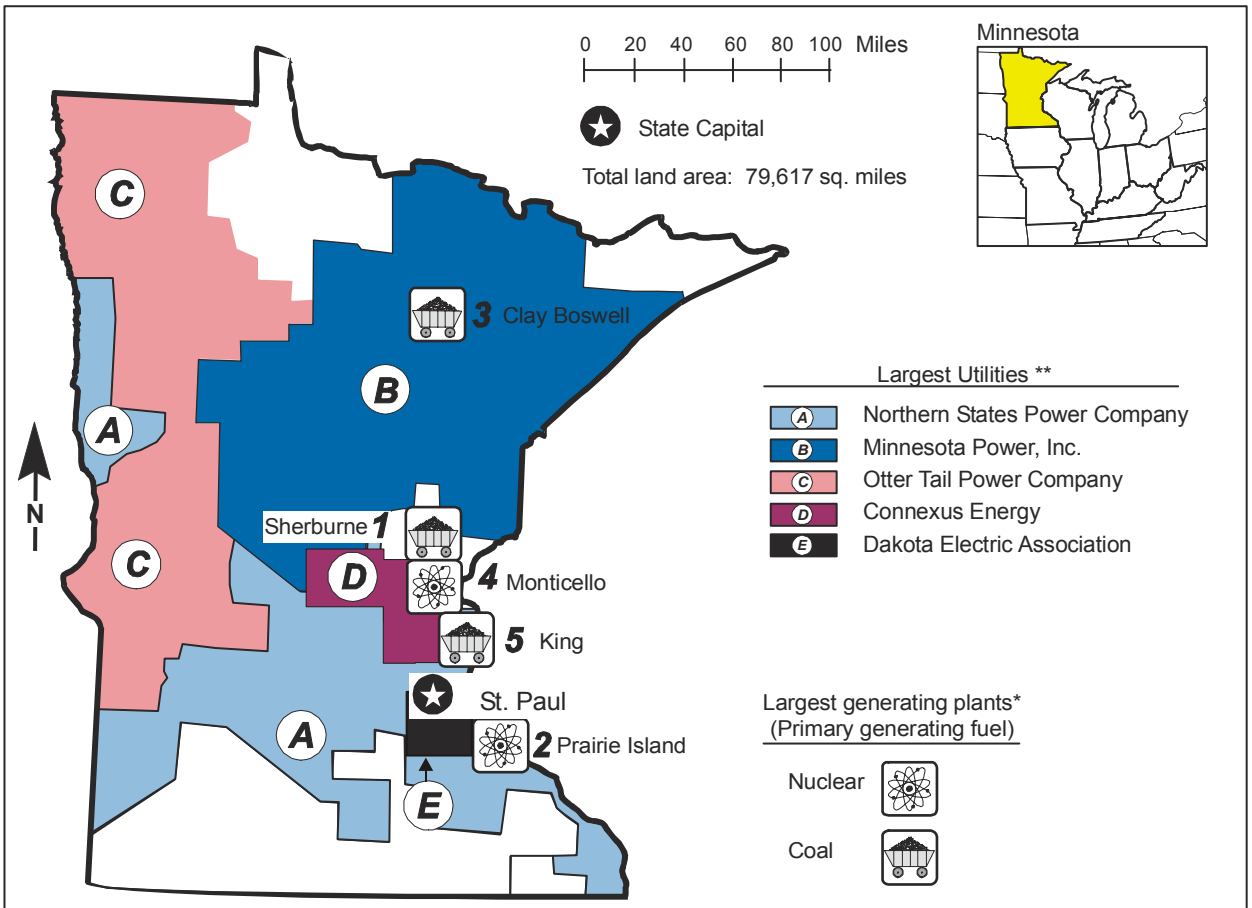
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour, by Sector 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	25,319	27,174	30,661	2.1	30.7	29.8	29.6
Commercial	20,610	30,412	35,062	6.1	25.0	33.4	33.9
Industrial	35,062	32,717	36,808	0.5	42.6	35.9	35.6
Other	1,376	857	948	-4.1	1.7	0.9	0.9
Total	82,367	91,160	103,480	2.6	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	2,401	2,454	2,676	1.2	33.9	34.8	36.2
Commercial	2,033	2,631	2,755	3.4	28.7	37.3	37.3
Industrial	2,484	1,873	1,860	-3.2	35.1	26.5	25.2
Other	166	99	96	-5.9	2.3	1.4	1.3
Total	7,084	7,056	7,387	0.5	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	9.48	9.03	8.73	NA	NA	NA	NA
Commercial	9.86	8.65	7.86	NA	NA	NA	NA
Industrial	7.09	5.72	5.05	NA	NA	NA	NA
Other	12.08	11.50	10.17	NA	NA	NA	NA
Total	8.60	7.74	7.14	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	9	41	0	10	60
Number of Retail Customers	3,994,111	288,243	0	251,877	4,534,231
Retail Sales (thousand megawatthours)	93,529	7,543	0	2,407	103,480
Percentage of Retail Sales	90.4	7.3	0.0	2.3	100.0
Revenue from Retail Sales (million dollars)	6,704	478	0	205	7,387
Percentage of Revenue	90.8	6.5	0.0	2.8	100.0
Average Revenue per Kilowatthour (cents/kWh)	7.17	6.34	0.00	8.54	7.14

Minnesota



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		MAPP
Primary Energy Source		Coal
Net Summer Capability (megawatts)	10,157	28
Utility	8,987	29
Nonutility	1,170	22
Net Generation (megawatthours)	48,607,258	27
Utility	44,153,826	26
Nonutility	4,453,432	24
Emissions (thousand short tons)		
Sulfur Dioxide	85	28
Nitrogen Oxide	134	23
Carbon Dioxide	36,538	27
Sulfur Dioxide/sq. mile	1	35
Nitrogen Oxide/sq. mile	2	32
Carbon Dioxide/sq. mile	459	35
Electricity Consumption (MWh) (excludes line losses)	60,169,575	22
Utility Retail Electricity Sales (megawatthours)	57,399,085	24
Nonutility Retail Sales and Direct Use (megawatthours)	2,770,490	16
Utility Average Retail Price (cents/kWh)	5.83	32

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Sherburne Co	Petroleum, Coal	Northern States Power Co	2,313
2. Prairie Island	Nuclear	Northern States Power Co	1,049
3. Clay Boswell	Petroleum, Coal	Minnesota Power Inc	1,020
4. Monticello	Nuclear	Northern States Power Co	578
5. King	Gas, Petroleum, Coal	Northern States Power Co	571
6. Black Dog	Gas, Coal	Northern States Power Co	446
7. Riverside	Gas, Petroleum, Coal	Northern States Power Co	372
8. Inver Hills	Gas	Northern States Power Co	334
9. High Bridge	Gas, Coal	Northern States Power Co	267
10. Cogentrix LSP Cottag	Gas	LSP Cottage Grove LP	252

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Northern States Power Company	28,291,721	7,501,116	4,470,017	16,078,337	242,251
B. Minnesota Power, Inc.	8,429,549	882,486	1,035,771	6,435,924	75,368
C. Otter Tail Power Company	1,754,138	447,716	588,393	683,659	34,370
D. Connexus Energy	1,452,854	850,220	517,718	66,814	18,102
E. Dakota Electric Association	1,403,637	692,015	273,514	423,028	15,080
Total	41,331,899	10,373,553	6,885,413	23,687,762	385,171
Percentage of Utility Sales	72	58	63	85	53

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	8,834	8,951	8,987	0.2	93.7	93.6	88.5
Coal	5,757	5,742	5,605	-0.3	61.1	60.0	55.2
Petroleum	1,004	1,065	1,013	0.1	10.6	11.1	10.0
Gas	307	353	459	4.6	3.3	3.7	4.5
Nuclear	1,540	1,564	1,627	0.6	16.3	16.4	16.0
Hydroelectric	137	142	136	-0.1	1.5	1.5	1.3
Other	88	85	146	5.8	0.9	0.9	1.4
Total Nonutility	595	613	1,170	7.8	6.3	6.4	11.5
Coal	348	345	337	-0.3	3.7	3.6	3.3
Petroleum	W	W	36	W	W	W	0.4
Gas	W	W	263	W	W	W	2.6
Petroleum/Gas Combined	W	W	11	W	W	W	0.1
Hydroelectric	64	64	65	0.1	0.7	0.7	0.6
Other	132	165	457	14.8	1.4	1.7	4.5
Total Industry	9,428	9,564	10,157	0.8	100.0	100.0	100.0
Coal	6,105	6,086	5,942	-0.3	64.8	63.6	58.5
Petroleum	W	W	1,049	W	W	W	10.3
Gas	W	W	722	W	W	W	7.1
Petroleum/Gas Combined	W	W	11	W	W	W	0.1
Nuclear	1,540	1,564	1,627	0.6	16.3	16.4	16.0
Hydroelectric	201	206	201	0.0	2.1	2.2	2.0
Other	220	250	604	11.8	2.3	2.6	5.9

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

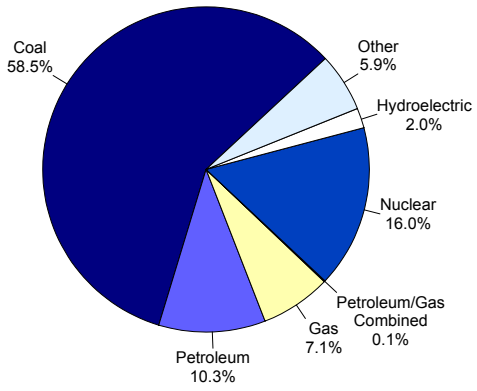


Figure 2. Industry Generation by Energy Source, 1999

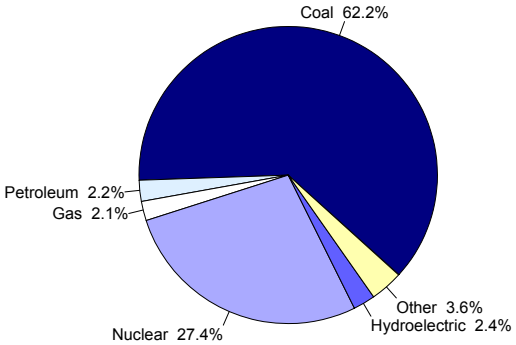


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	41,549,628	40,917,280	44,153,826	0.7	94.4	93.2	90.8
Coal	27,587,603	26,399,834	28,366,977	0.3	62.7	60.1	58.4
Petroleum	440,740	596,987	674,398	4.8	1.0	1.4	1.4
Gas	326,083	451,625	522,633	5.4	0.7	1.0	1.1
Nuclear	12,139,302	12,223,620	13,315,562	1.0	27.6	27.8	27.4
Hydroelectric	657,574	831,074	857,323	3.0	1.5	1.9	1.8
Other	398,326	414,140	416,933	0.5	0.9	0.9	0.9
Total Nonutility	2,459,083	3,001,642	4,453,432	6.8	5.6	6.8	9.2
Coal	1,429,505	1,733,648	1,870,474	3.0	3.2	3.9	3.8
Petroleum	W	W	409,878	W	W	W	0.8
Gas	201,348	207,238	494,999	10.5	0.5	0.5	1.0
Hydroelectric	238,649	307,660	321,610	3.4	0.5	0.7	0.7
Other	579,098	741,235	1,356,471	9.9	1.3	1.7	2.8
Total Industry	44,008,711	43,918,922	48,607,258	1.1	100.0	100.0	100.0
Coal	29,017,108	28,133,482	30,237,451	0.5	65.9	64.1	62.2
Petroleum	W	W	1,084,276	W	W	W	2.2
Gas	527,431	658,863	1,017,632	7.6	1.2	1.5	2.1
Nuclear	12,139,302	12,223,620	13,315,562	1.0	27.6	27.8	27.4
Hydroelectric	896,223	1,138,734	1,178,933	3.1	2.0	2.6	2.4
Other	977,424	1,155,375	1,773,404	6.8	2.2	2.6	3.6

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	151.7	124.3	109.6	-3.5
Average heat value (Btu per pound)	8788	8821	8883	0.1
Average sulfur Content (percent)	0.5	0.5	0.4	-1.7
Petroleum (cents per million Btu) (1999 dollars) . . .	646.4	458.3	420.9	-4.6
Average heat value (Btu per gallon)	137627	138488	137596	0.0
Gas (cents per million Btu) (1999 dollars)	232.8	232.7	266.3	1.5
Average heat value (Btu per cubic foot)	1003	1005	1011	0.1

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	83	85	84	0.2
Petroleum	*	*	*	-5.0
Other	1	1	1	0.0
Total	84	86	85	0.2
Nitrogen Oxide				
Coal	121	132	129	0.7
Petroleum	*	*	*	8.8
Gas	1	1	2	10.5
Other	1	3	3	7.5
Total	123	136	134	0.9
Carbon Dioxide				
Coal	30,990	34,165	33,927	1.0
Petroleum	42	59	805	38.9
Gas	328	532	874	11.5
Other	596	1,112	932	5.1
Total	31,956	35,868	36,538	1.5

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

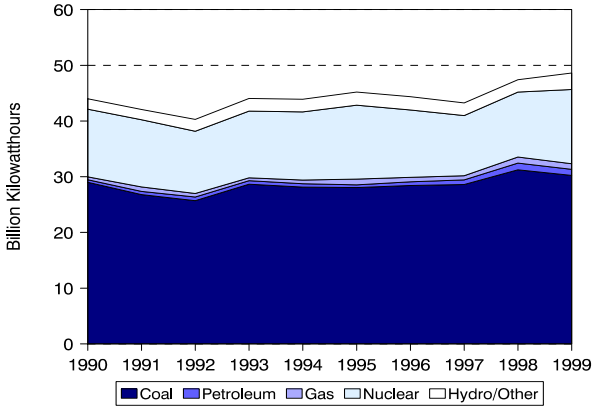


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

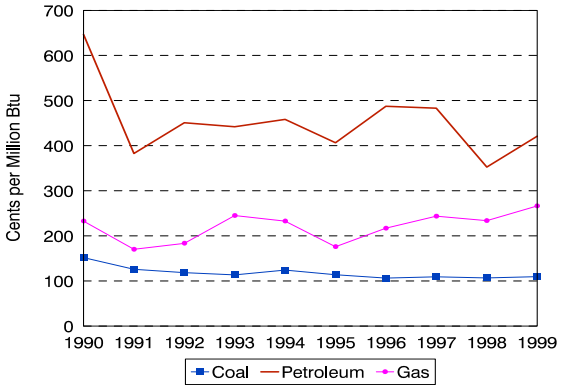


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

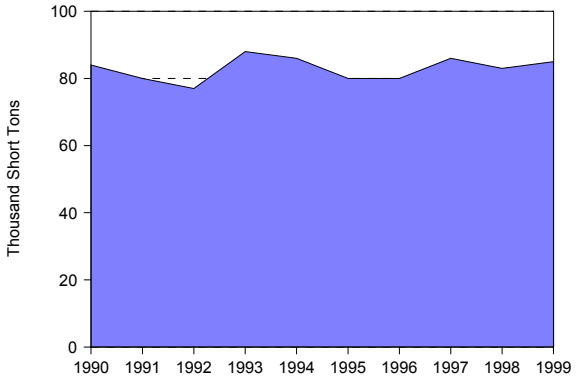


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

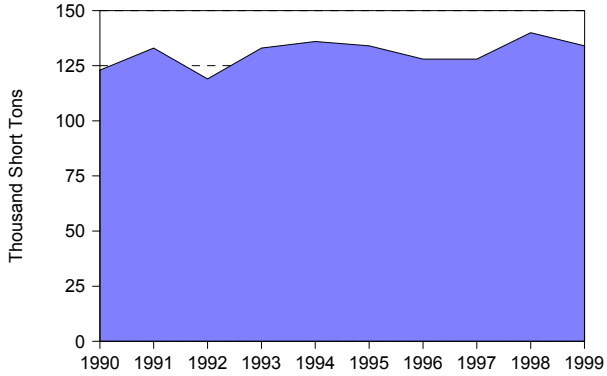


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

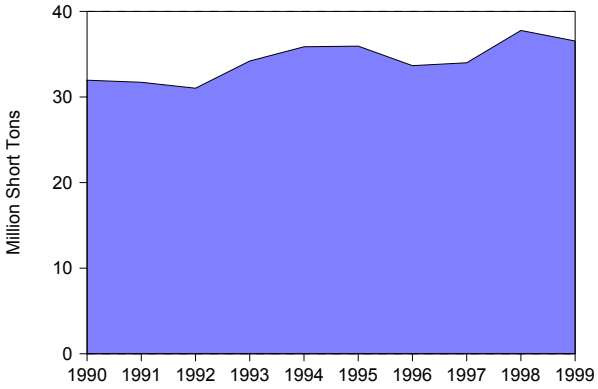


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

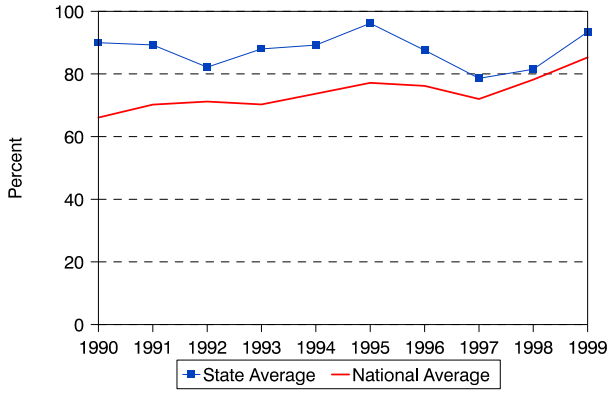


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	14,858	16,007	17,998	2.1	31.5	31.3	31.4
Commercial	8,086	8,997	10,909	3.4	17.1	17.6	19.0
Industrial	23,497	25,451	27,764	1.9	49.8	49.8	48.4
Other	727	701	729	0.0	1.5	1.4	1.3
Total	47,167	51,155	57,399	2.2	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,224	1,251	1,334	1.0	40.2	39.8	39.9
Commercial	585	613	688	1.8	19.2	19.5	20.6
Industrial	1,179	1,224	1,267	0.8	38.7	38.9	37.9
Other	59	55	55	-0.9	1.9	1.8	1.6
Total	3,047	3,143	3,344	1.0	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.24	7.81	7.41	NA	NA	NA	NA
Commercial	7.24	6.81	6.31	NA	NA	NA	NA
Industrial	5.02	4.81	4.56	NA	NA	NA	NA
Other	8.14	7.87	7.49	NA	NA	NA	NA
Total	6.46	6.14	5.83	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	5	125	1	47	178
Number of Retail Customers	1,352,560	313,133	3	610,099	2,275,795
Retail Sales (thousand megawatthours)	39,233	8,064	43	10,059	57,399
Percentage of Retail Sales	68.4	14.1	0.1	17.5	100.0
Revenue from Retail Sales (million dollars)	2,228	455	1	661	3,344
Percentage of Revenue	66.6	13.6	0.0	19.8	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.68	5.64	1.35	6.57	5.83

Mississippi

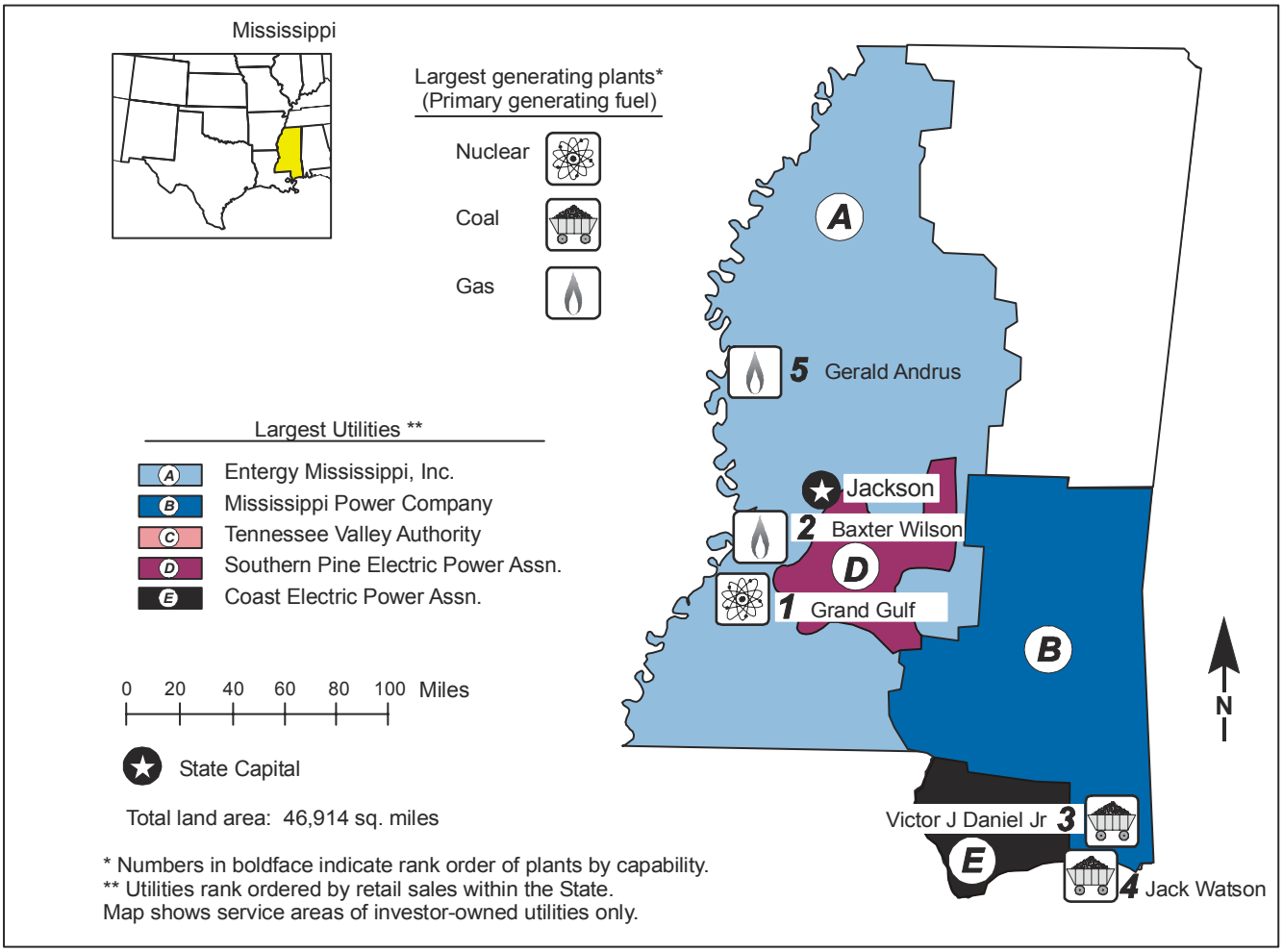


Table 1. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SERC/SPP
Primary Energy Source		Coal
Net Summer Capability (megawatts)	8,099	32
Utility	6,817	32
Nonutility	1,283	20
Net Generation (megawatthours)	34,914,939	35
Utility	32,212,133	34
Nonutility	2,702,806	32
Emissions (thousand short tons)		
Sulfur Dioxide	106	24
Nitrogen Oxide	71	36
Carbon Dioxide	22,918	35
Sulfur Dioxide/sq. mile	2	28
Nitrogen Oxide/sq. mile	2	35
Carbon Dioxide/sq. mile	489	34
Electricity Consumption (MWh) (excludes line losses)	46,404,007	28
Utility Retail Electricity Sales (megawatthours)	43,979,792	28
Nonutility Retail Sales and Direct Use (megawatthours)	2,424,215	20
Utility Average Retail Price (cents/kWh)	5.65	35

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Grand Gulf	Nuclear	Entergy Operations Inc	1,204
2. Baxter Wilson	Petroleum, Gas	Entergy Mississippi Inc	1,161
3. Victor J Daniel Jr	Petroleum, Coal	Mississippi Power Co	1,017
4. Jack Watson	Petroleum, Gas, Coal	Mississippi Power Co	997
5. Gerald Andrus	Gas, Petroleum	Entergy Mississippi Inc	680
6. Caledonia Power Faci	Gas	Caledonia Power I LLC	519
7. R D Morrow	Petroleum, Coal	South Mississippi El Pwr Assn	400
8. New Albany Power Fac	Gas	New Albany Power I LLC	367
9. Rex Brown	Petroleum, Gas	Entergy Mississippi Inc	308
10. Moselle	Petroleum, Gas	South Mississippi El Pwr Assn	260

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Entergy Mississippi, Inc	12,517,845	4,753,342	4,155,622	3,245,508	363,373
B. Mississippi Power Company	9,543,133	2,248,255	2,847,342	4,407,445	40,091
C. Tennessee Valley Authority	3,203,103	0	0	3,203,103	0
D. Southern Pine Elec Power Assn	1,552,840	712,543	264,916	574,662	719
E. Coast Electric Power Assn	1,251,799	848,687	177,666	207,197	18,249
Total	28,068,720	8,562,827	7,445,546	11,637,915	422,432
Percentage of Utility Sales	64	52	67	74	55

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	7,016	7,114	6,817	-0.3	95.1	95.2	84.2
Coal	2,244	2,228	2,121	-0.6	30.4	29.8	26.2
Petroleum	894	125	35	-30.2	12.1	1.7	0.4
Gas	2,736	3,619	3,456	2.6	37.1	48.4	42.7
Nuclear	1,142	1,143	1,204	0.6	15.5	15.3	14.9
Total Nonutility	361	362	1,283	15.1	4.9	4.8	15.8
Petroleum	W	W	0	W	W	W	0.0
Gas	W	W	973	W	W	W	12.0
Petroleum/Gas Combined	W	W	34	W	W	W	0.4
Hydroelectric	0	0	3	0.0	0.0	0.0	0.0
Other	326	326	272	-2.0	4.4	4.4	3.4
Total Industry	7,377	7,477	8,099	1.0	100.0	100.0	100.0
Coal	2,244	2,228	2,121	-0.6	30.4	29.8	26.2
Petroleum	W	W	35	W	W	W	0.4
Gas	W	W	4,430	W	W	W	54.7
Petroleum/Gas Combined	W	W	34	W	W	W	0.4
Nuclear	1,142	1,143	1,204	0.6	15.5	15.3	14.9
Hydroelectric	0	0	3	0.0	0.0	0.0	0.0
Other	326	326	272	-2.0	4.4	4.4	3.4

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

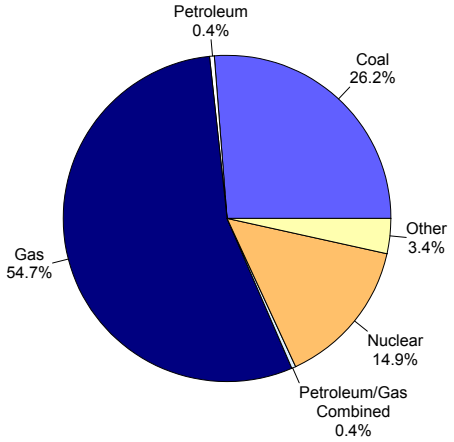


Figure 2. Industry Generation by Energy Source, 1999

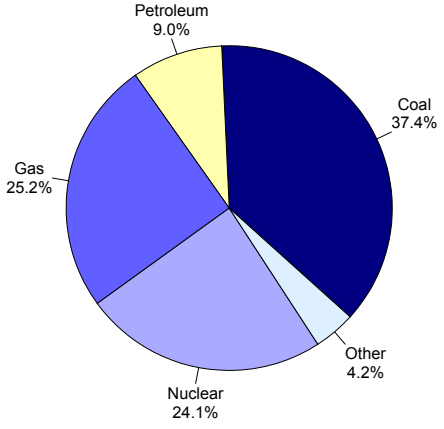


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	22,923,971	26,222,313	32,212,133	3.9	90.4	91.0	92.3
Coal	9,445,584	8,889,624	13,037,100	3.6	37.2	30.8	37.3
Petroleum	705,474	1,106,209	3,141,934	18.1	2.8	3.8	9.0
Gas	5,350,782	6,611,781	7,604,883	4.0	21.1	22.9	21.8
Nuclear	7,422,131	9,614,699	8,428,216	1.4	29.3	33.4	24.1
Total Nonutility	2,443,045	2,600,420	2,702,806	1.1	9.6	9.0	7.7
Coal	W	W	5,408	W	W	W	0.0
Petroleum	W	W	3,229	W	W	W	0.0
Gas	657,814	644,854	1,208,973	7.0	2.6	2.2	3.5
Hydroelectric	0	0	5,554	0.0	0.0	0.0	0.0
Other	1,670,310	1,881,778	1,479,642	-1.3	6.6	6.5	4.2
Total Industry	25,367,016	28,822,733	34,914,939	3.6	100.0	100.0	100.0
Coal	W	W	13,042,508	W	W	W	37.4
Petroleum	W	W	3,145,163	W	W	W	9.0
Gas	6,008,596	7,256,635	8,813,856	4.3	23.7	25.2	25.2
Nuclear	7,422,131	9,614,699	8,428,216	1.4	29.3	33.4	24.1
Hydroelectric	0	0	5,554	0.0	0.0	0.0	0.0
Other	1,670,310	1,881,778	1,479,642	-1.3	6.6	6.5	4.2

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	200.5	171.5	155.2	-2.8
Average heat value (Btu per pound)	12,543	11,312	11,062	-1.4
Average sulfur Content(percent)	1.6	1	0.7	-8.5
Petroleum (cents per million Btu) (1999 dollars)	294.9	179.1	154.1	-7.0
Average heat value (Btu per gallon)	151,229	152,706	157,968	0.5
Average sulfur Content(percent)	2.9	2.4	2.8	-0.6
Gas (cents per million Btu) (1999 dollars)	213.9	207.2	242.6	1.4
Average heat value (Btu per cubic foot)	1,036	1,043	1,027	-0.1

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	105	76	68	-4.7
Petroleum	11	16	38	14.6
Other	0	0	0	0.0
Total	116	92	106	-1.0
Nitrogen Oxide				
Coal	36	30	51	4.1
Petroleum	1	2	5	16.3
Gas	8	12	15	7.0
Other	0	0	1	0.0
Total	45	44	71	5.3
Carbon Dioxide				
Coal	9,912	9,258	13,411	3.4
Petroleum	661	976	2,563	16.3
Gas	3,885	5,610	6,945	6.7
Total	14,458	15,845	22,918	5.3

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

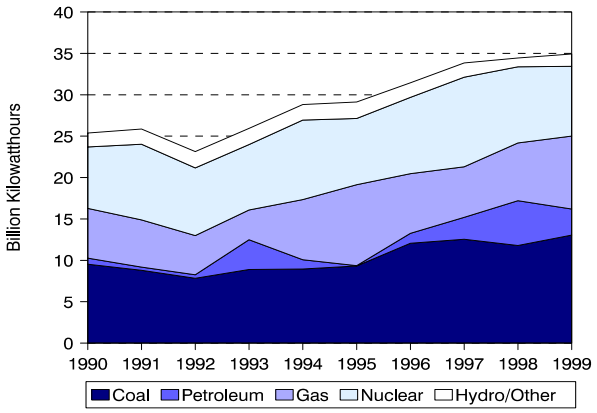


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

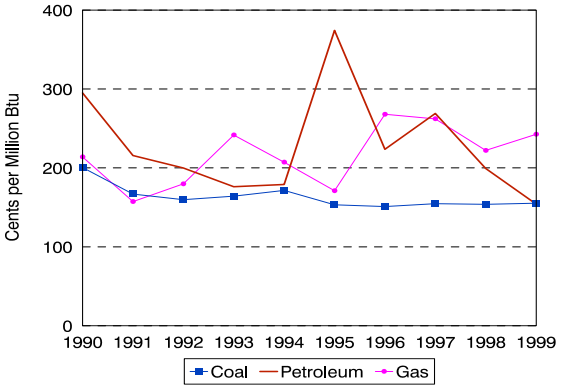


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

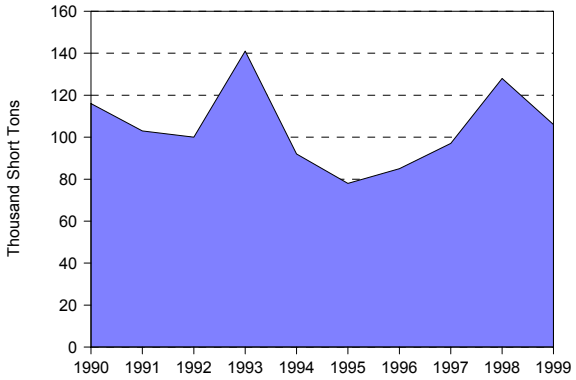


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

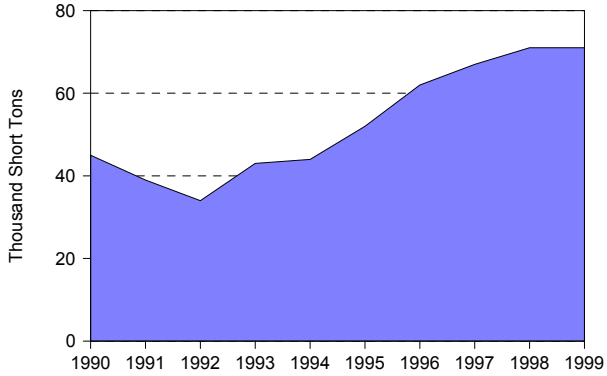


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

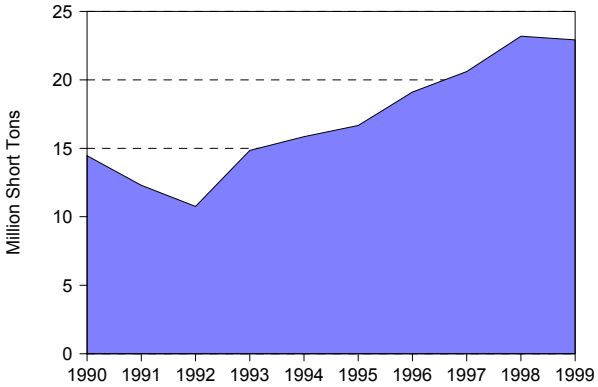


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

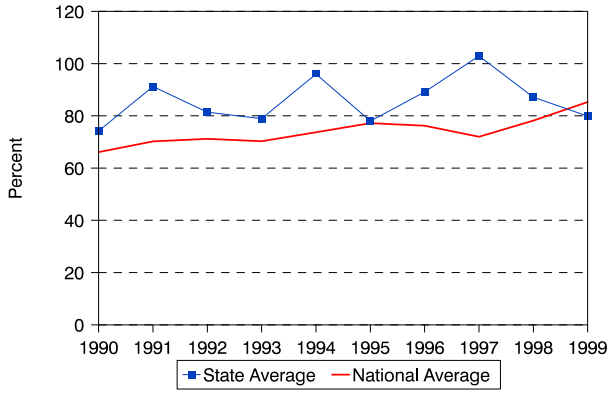


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	12,266	13,642	16,321	3.2	38.2	37.3	37.1
Commercial	6,746	7,094	11,151	5.7	21.0	19.4	25.4
Industrial	12,454	15,256	15,735	2.6	38.8	41.6	35.8
Other	661	635	772	1.7	2.1	1.7	1.8
Total	32,127	36,627	43,980	3.5	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,024	1,051	1,102	0.8	43.0	43.5	44.3
Commercial	589	559	690	1.8	24.8	23.1	27.8
Industrial	701	746	632	-1.1	29.5	30.9	25.4
Other	64	60	61	-0.5	2.7	2.5	2.5
Total	2,378	2,417	2,486	0.5	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.34	7.71	6.75	NA	NA	NA	NA
Commercial	8.73	7.88	6.19	NA	NA	NA	NA
Industrial	5.63	4.89	4.02	NA	NA	NA	NA
Other	9.72	9.39	7.93	NA	NA	NA	NA
Total	7.4	6.6	5.65	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	2	23	1	25	51
Number of Retail Customers	582,434	129,801	8	633,720	1,345,963
Retail Sales (thousand megawatthours)	22,061	4,199	3,203	14,517	43,980
Percentage of Retail Sales	50.2	9.6	7.3	33.0	100.0
Revenue from Retail Sales (million dollars)	1,207	251	89	940	2,486
Percentage of Revenue	48.5	10.1	3.6	37.8	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.47	5.97	2.77	6.47	5.65

Missouri

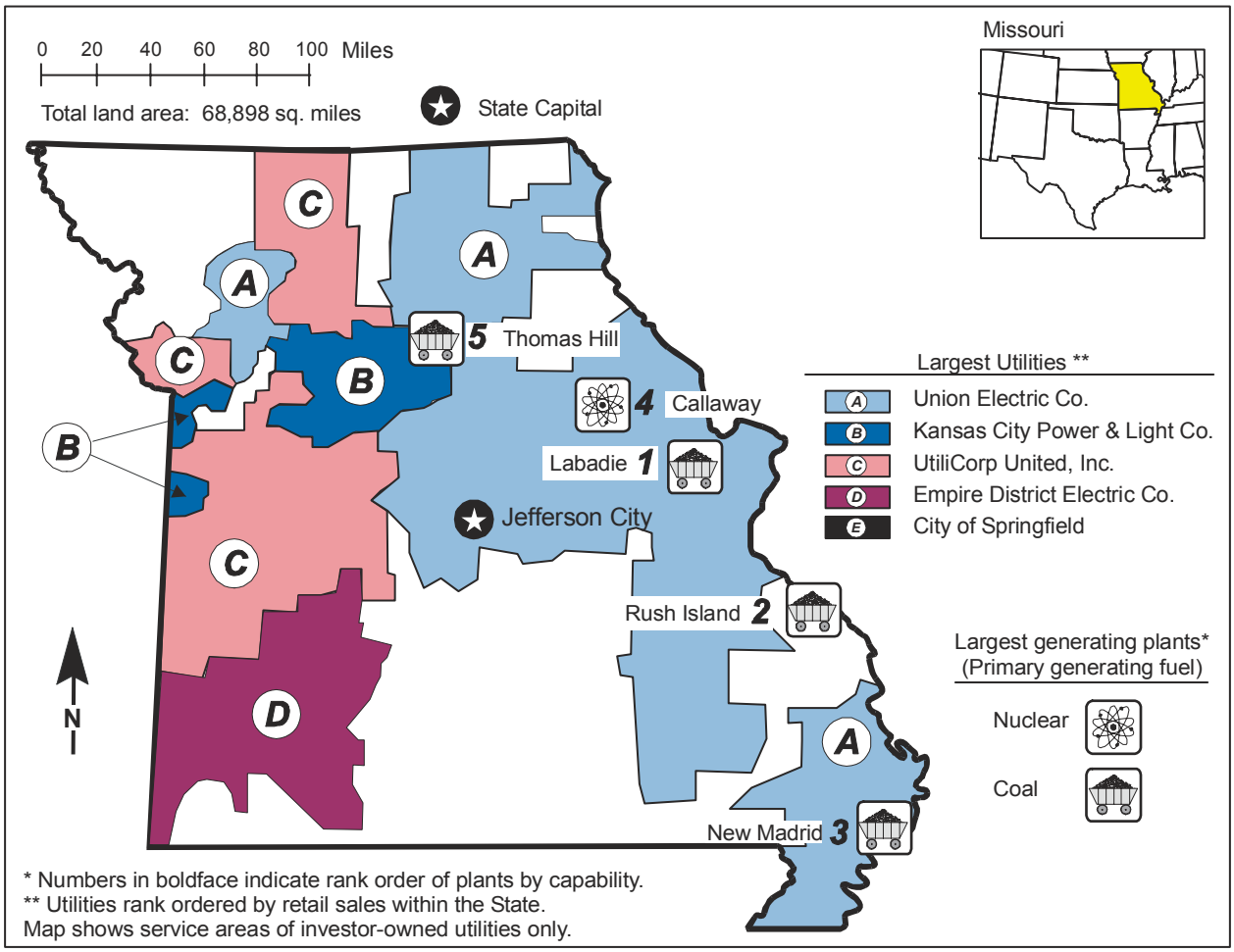

0 20 40 60 80 100 Miles
Total land area: 68,898 sq. miles
State Capital
Missouri
5 Thomas Hill
4 Callaway
Labadie 1
Jefferson City
Rush Island 2
New Madrid 3
N
Largest Utilities **
Union Electric Co.
Kansas City Power & Light Co.
UtiliCorp United, Inc.
Empire District Electric Co.
City of Springfield
Largest generating plants*
(Primary generating fuel)
Nuclear
Coal
* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SPP/MAIN
Primary Energy Source		Coal
Net Summer Capability (megawatts)	16,858	18
Utility	16,755	16
Nonutility	103	45
Net Generation (megawatthours)	73,827,206	21
Utility	73,504,882	19
Nonutility	322,324	46
Emissions (thousand short tons)		
Sulfur Dioxide	248	16
Nitrogen Oxide	285	10
Carbon Dioxide	69,697	14
Sulfur Dioxide/sq. mile	4	23
Nitrogen Oxide/sq. mile	4	18
Carbon Dioxide/sq. mile	1,012	25
Electricity Consumption (MWh) (excludes line losses)	69,365,180	20
Utility Retail Electricity Sales (megawatthours)	68,975,652	20
Unregulated Retail Electricity Sales (megawatthours)	69,318	14
Nonutility Retail Sales and Direct Use (megawatthours)	320,210	42
Utility Average Retail Price (cents/kWh)	6.07	26

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Labadie	Petroleum, Coal	Union Electric Co	2,296
2. Rush Island	Petroleum, Coal	Union Electric Co	1,166
3. New Madrid	Petroleum, Coal	Associated Electric Coop Inc	1,160
4. Callaway	Nuclear	Union Electric Co	1,127
5. Thomas Hill	Petroleum, Coal	Associated Electric Coop Inc	1,120
6. Sioux	Petroleum, Other, Coal	Union Electric Co	950
7. Meramec	Other, Petroleum, Gas	Union Electric Co	865
8. Iatan	Petroleum, Coal	Kansas City Power & Light Co	670
9. Hawthorn	Petroleum, Gas, Coal	Kansas City Power & Light Co	617
10. Montrose	Petroleum, Coal	Kansas City Power & Light Co	510

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Union Electric Company	29,944,529	11,272,101	11,973,014	6,577,415	121,999
B. Kansas City Power & Light Co	8,407,803	2,158,316	3,887,898	2,313,321	48,268
C. UtiliCorp United, Inc	4,456,267	1,956,822	1,404,543	703,887	391,015
D. Empire District Electric Co	3,397,896	1,323,989	1,159,072	829,010	85,825
E. City of Springfield	2,575,588	798,478	1,310,695	466,415	0
Total	48,782,083	17,509,706	19,735,222	10,890,048	647,107
Percentage of Utility Sales	71	63	82	68	62

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	15,180	15,488	16,755	1.1	99.3	99.3	99.4
Coal	10,733	10,811	10,889	0.2	70.2	69.3	64.6
Petroleum	1,498	1,617	1,181	-2.6	9.8	10.4	7.0
Gas	763	835	2,359	13.4	5.0	5.3	14.0
Nuclear	1,125	1,115	1,127	0.0	7.4	7.1	6.7
Hydroelectric	1,062	1,110	1,200	1.4	6.9	7.1	7.1
Total Nonutility	111	111	103	-0.8	0.7	0.7	0.6
Coal	104	96	91	-1.5	0.7	0.6	0.5
Petroleum	W	W	9	W	W	W	0.1
Gas	W	W	3	W	W	W	0.0
Petroleum/Gas Combined	W	W	0	W	W	W	0.0
Total Industry	15,291	15,599	16,858	1.1	100.0	100.0	100.0
Coal	10,837	10,908	10,980	0.1	70.9	69.9	65.1
Petroleum	W	W	1,189	W	W	W	7.1
Gas	W	W	2,362	W	W	W	14.0
Petroleum/Gas Combined	W	W	0	W	W	W	0.0
Nuclear	1,125	1,115	1,127	0.0	7.4	7.1	6.7
Hydroelectric	1,062	1,110	1,200	1.4	6.9	7.1	7.1

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

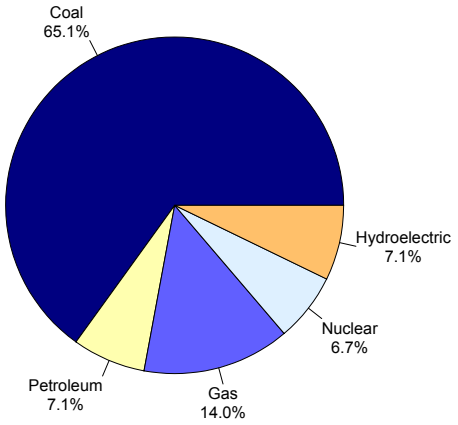


Figure 2. Industry Generation by Energy Source, 1999

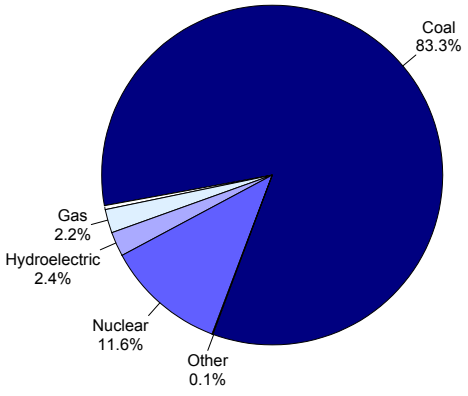


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	59,010,858	61,519,090	73,504,882	2.5	99.4	99.4	99.6
Coal	48,501,751	48,592,766	61,249,846	2.6	81.7	78.5	83.0
Petroleum	89,342	730,820	280,945	13.6	0.2	1.2	0.4
Gas	265,870	338,101	1,597,302	22.0	0.4	0.5	2.2
Nuclear	7,998,039	10,006,491	8,586,646	0.8	13.5	16.2	11.6
Hydroelectric	2,155,856	1,844,136	1,740,319	-2.4	3.6	3.0	2.4
Other	0	6,776	49,824	0.0	0.0	0.0	0.1
Total Nonutility	342,067	361,543	322,324	-0.7	0.6	0.6	0.4
Coal	W	W	268,917	W	W	W	0.4
Petroleum	W	W	12,259	W	W	W	0.0
Gas	W	W	38,661	W	W	W	0.1
Other	W	W	2,487	W	W	W	0.0
Total Industry	59,352,925	61,880,633	73,827,206	2.5	100.0	100.0	100.0
Coal	W	W	61,518,763	W	W	W	83.3
Petroleum	W	W	293,204	W	W	W	0.4
Gas	W	W	1,635,963	W	W	W	2.2
Nuclear	7,998,039	10,006,491	8,586,646	0.8	13.5	16.2	11.6
Hydroelectric	2,155,856	1,844,136	1,740,319	-2.4	3.6	3.0	2.4
Other	W	W	52,311	W	W	W	0.1

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	163.4	120.1	92.6	-6.1
Average heat value (Btu per pound)	10,400	9,718	8,948	-1.6
Average sulfur Content (percent)	2	1	0.3	-18.0
Petroleum (cents per million Btu) (1999 dollars)	526.7	303.9	381.5	-3.5
Average heat value (Btu per gallon)	141,148	145,181	138,034	-0.2
Average sulfur Content (percent)	2.6	2.2	0	-100.0
Gas (cents per million Btu) (1999 dollars)	207.9	207.1	265.6	2.8
Average heat value (Btu per cubic foot)	1,018	1,000	1,003	-0.2

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	770	508	239	-12.2
Petroleum	3	6	9	11.5
Other	0	0	*	0.0
Total	774	514	248	-11.9
Nitrogen Oxide				
Coal	253	228	281	1.2
Petroleum	*	2	1	12.6
Gas	*	1	3	20.9
Other	0	0	*	0.0
Total	254	231	285	1.3
Carbon Dioxide				
Coal	51,238	51,960	67,970	3.2
Petroleum	182	1,019	564	13.4
Gas	214	285	1,158	20.7
Other	0	0	6	0.0
Total	51,634	53,264	69,697	3.4

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

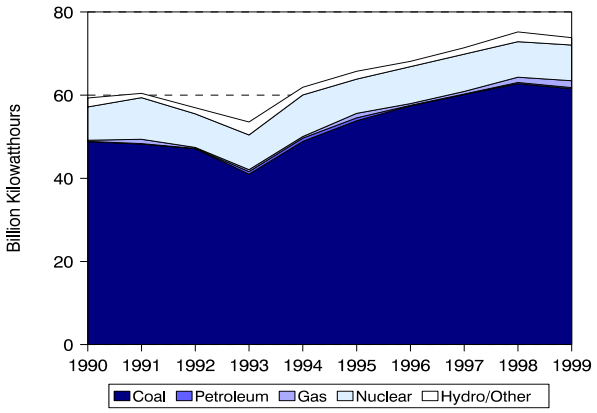


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

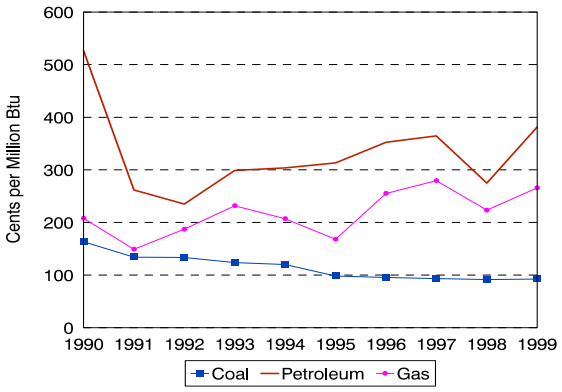


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

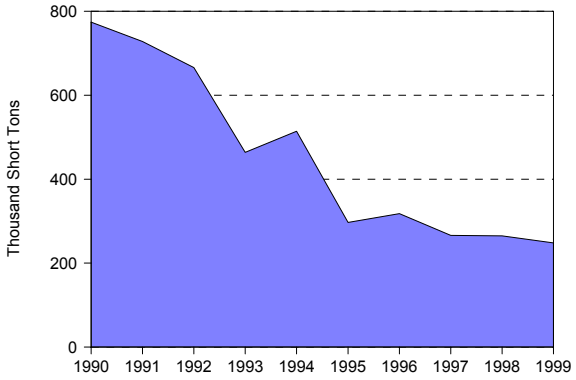


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

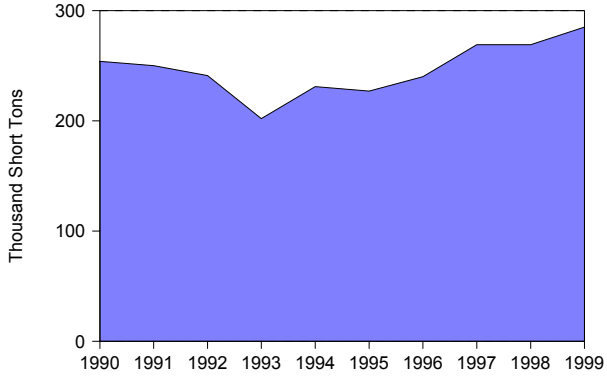


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

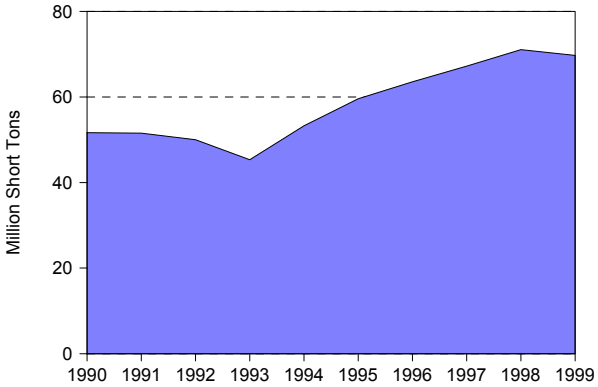


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

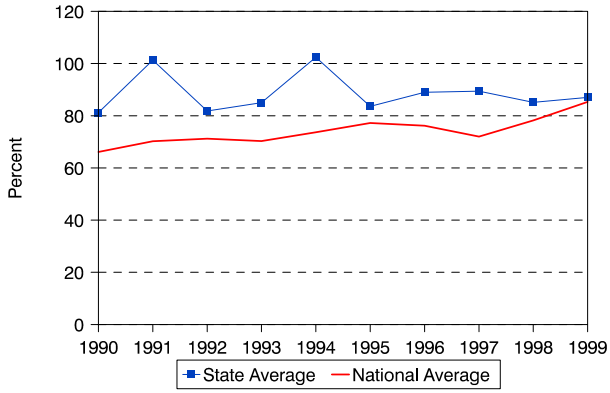


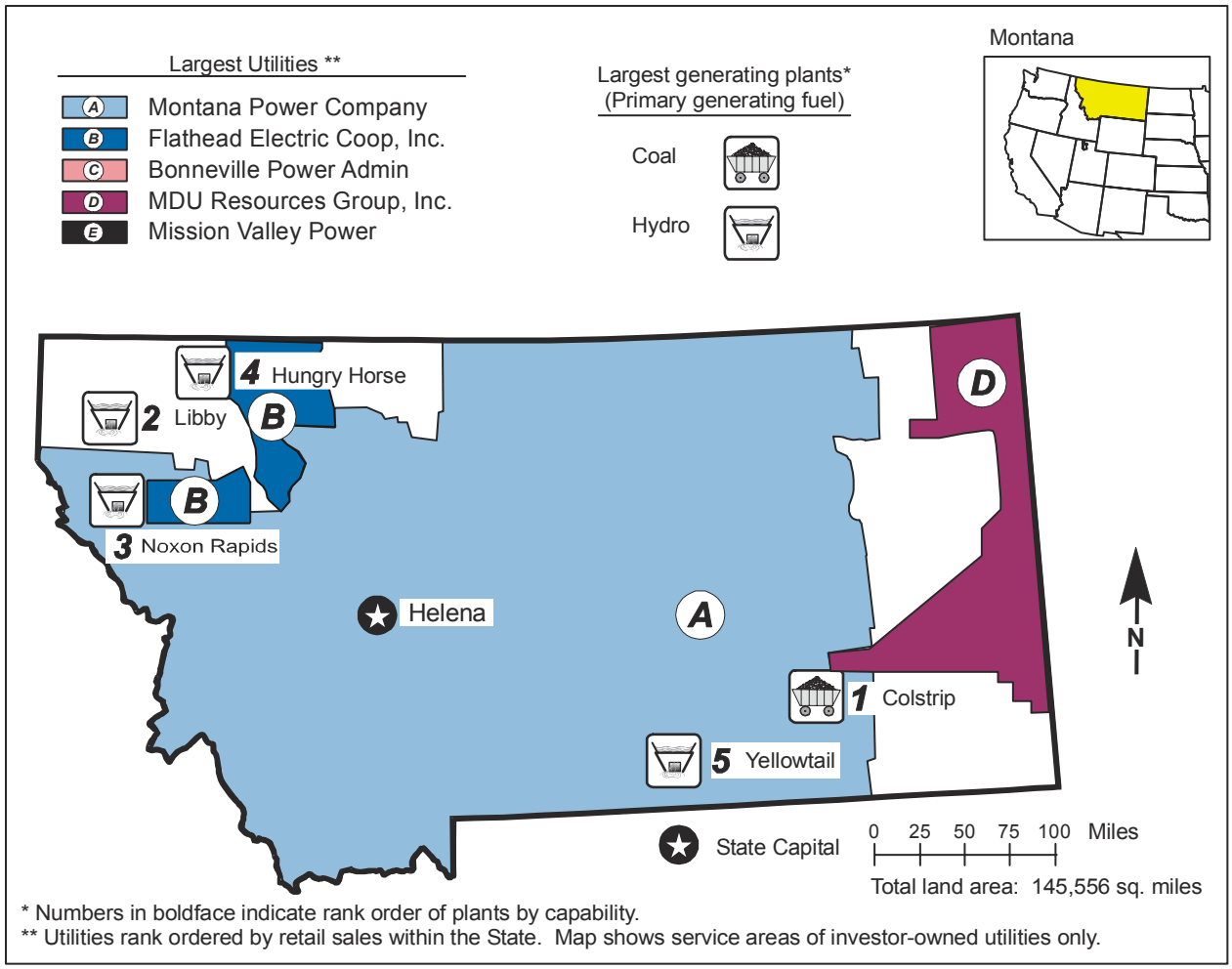
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	21,652	24,057	27,766	2.8	40.1	40.3	40.3
Commercial	18,469	20,614	24,042	3.0	34.3	34.5	34.9
Industrial	12,937	14,106	16,122	2.5	24.0	23.6	23.4
Other	866	916	1,046	2.1	1.6	1.5	1.5
Total	53,925	59,693	68,976	2.8	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,929	1,914	1,976	0.3	45.7	46.8	47.2
Commercial	1,445	1,394	1,436	-0.1	34.2	34.1	34.3
Industrial	775	712	707	-1.0	18.4	17.4	16.9
Other	71	71	65	-1.0	1.7	1.7	1.6
Total	4,220	4,091	4,184	-0.1	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.91	7.96	7.12	NA	NA	NA	NA
Commercial	7.82	6.76	5.97	NA	NA	NA	NA
Industrial	5.99	5.04	4.38	NA	NA	NA	NA
Other	8.25	7.72	6.26	NA	NA	NA	NA
Total	7.83	6.85	6.07	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	5	88	0	44	137
Number of Retail Customers	1,751,194	374,112	0	611,639	2,736,945
Retail Sales (thousand megawatthours)	47,874	9,418	0	11,684	68,976
Percentage of Retail Sales	69.4	13.7	0.0	16.9	100.0
Revenue from Retail Sales (million dollars)	2,965	527	0	692	4,184
Percentage of Revenue	70.9	12.6	0.0	16.5	100.0
Average Revenue per Kilowatthour (cents/kWh)	6.19	5.59	0.00	5.92	6.07

Montana



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC/MAPP
Primary Energy Source		Coal
Net Summer Capability (megawatts)	5,829	38
Utility	2,997	39
Nonutility	2,832	14
Net Generation (megawatthours)	31,482,591	38
Utility	27,596,974	38
Nonutility	3,885,617	26
Emissions (thousand short tons)		
Sulfur Dioxide	17	43
Nitrogen Oxide	65	37
Carbon Dioxide	20,805	36
Sulfur Dioxide/sq. mile	0	46
Nitrogen Oxide/sq. mile	0	46
Carbon Dioxide/sq. mile	143	46
Electricity Consumption (MWh) (excludes line losses)	13,457,013	41
Utility Retail Electricity Sales (megawatthours)	12,131,855	40
Unregulated Retail Electricity Sales (megawatthours)	1,149,744	6
Nonutility Retail Sales and Direct Use (megawatthours)	175,414	43
Utility Average Retail Price (cents/kWh)	5.01	45

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Colstrip	Coal	PPL Montana LLC	1,971
2. Libby	Hydro	USCE-North Pacific Division	604
3. Noxon Rapids	Hydro	Avista Corporation	554
4. Hungry Horse	Hydro	Bureau of Reclamation	428
5. Yellowtail	Hydro	Bureau of Reclamation	288
6. Fort Peck	Hydro	USCE-Missouri River District	209
7. Kerr	Hydro	PPL Montana LLC	206
8. Corette	Coal	PPL Montana LLC	173
9. Thompson Falls	Hydro	PPL Montana LLC	93
10. Yellowstone Energy L	Petroleum	Yellowstone Energy LP	62

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Montana Power Company	5,300,855	1,824,887	2,071,312	1,294,894	109,762
B. Flathead Electric Coop, Inc	2,491,808	397,971	150,746	1,926,643	16,448
C. Bonneville Power Admin	1,507,104	0	0	1,507,104	0
D. MDU Resources Group, Inc	498,495	139,375	187,980	156,622	14,518
E. Mission Valley Power	306,571	166,906	91,680	24,537	23,448
Total	10,104,833	2,529,139	2,501,718	4,909,800	164,176
Percentage of Utility Sales	83	69	83	96	49

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	4,912	4,907	2,997	-5.3	98.8	98.8	51.4
Coal	2,260	2,260	792	-11.0	45.4	45.5	13.6
Petroleum	0	0	5	0.0	0.0	0.0	0.1
Gas	120	120	53	-8.7	2.4	2.4	0.9
Hydroelectric	2,520	2,514	2,147	-1.8	50.7	50.6	36.8
Other	13	13	0	-100.0	0.3	0.3	0.0
Total Nonutility	60	60	2,832	53.4	1.2	1.2	48.6
Coal	W	W	2,183	W	W	W	37.4
Petroleum	W	W	62	W	W	W	1.1
Hydroelectric	W	W	577	W	W	W	9.9
Other	W	W	11	W	W	W	0.2
Total Industry	4,972	4,967	5,829	1.8	100.0	100.0	100.0
Coal	W	W	2,975	W	W	W	51.0
Petroleum	W	W	67	W	W	W	1.2
Gas	120	120	53	-8.7	2.4	2.4	0.9
Hydroelectric	W	W	2,724	W	W	W	46.7
Other	23	23	11	-8.1	0.5	0.5	0.2

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

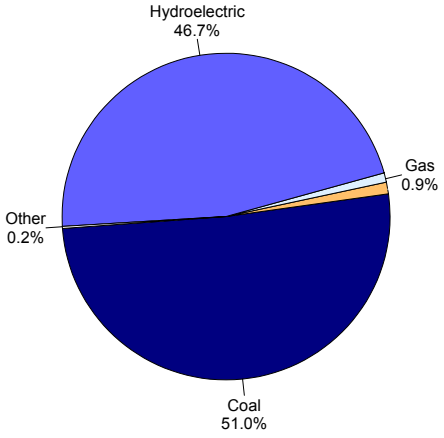


Figure 2. Industry Generation by Energy Source, 1999

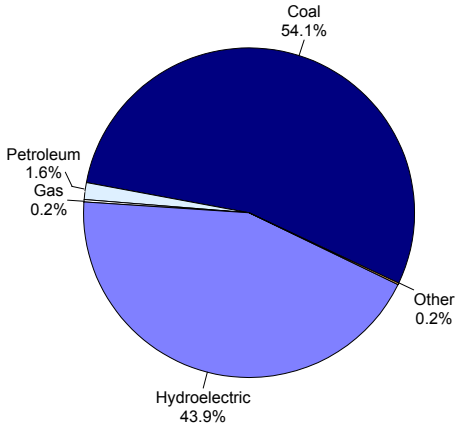


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	25,718,975	24,705,228	27,596,974	0.8	98.8	98.2	87.7
Coal	14,902,659	16,487,675	15,981,559	0.8	57.3	65.5	50.8
Petroleum	27,369	18,421	14,532	-6.8	0.1	0.1	0.0
Gas	41,173	60,784	20,167	-7.6	0.2	0.2	0.1
Hydroelectric	10,672,287	8,096,388	11,580,716	0.9	41.0	32.2	36.8
Other	75,487	41,960	0	-100.0	0.3	0.2	0.0
Total Nonutility	311,324	447,621	3,885,617	32.4	1.2	1.8	12.3
Coal	W	W	1,052,012	W	W	W	3.3
Petroleum	W	W	491,955	W	W	W	1.6
Gas	W	W	48,813	W	W	W	0.2
Hydroelectric	W	W	2,241,346	W	W	W	7.1
Other	W	W	51,491	W	W	W	0.2
Total Industry	26,030,299	25,152,849	31,482,591	2.1	100.0	100.0	100.0
Coal	W	W	17,033,571	W	W	W	54.1
Petroleum	W	W	506,487	W	W	W	1.6
Gas	W	W	68,980	W	W	W	0.2
Hydroelectric	W	W	13,822,062	W	W	W	43.9
Other	W	W	51,491	W	W	W	0.2

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	81.2	75.7	72.7	-1.2
Average heat value (Btu per pound)	8564	8500	8435	-0.2
Average sulfur Content (percent)	0.6	0.7	0.7	1.6
Petroleum (cents per million Btu) (1999 dollars)	658.4	505.3	491.0	-3.2
Average heat value (Btu per gallon)	141000	141000	140100	-0.1
Gas (cents per million Btu) (1999 dollars)	175.9	125.4	184.5	0.5
Average heat value (Btu per cubic foot)	1218	1055	1092	-1.2

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	17	21	17	-0.1
Petroleum	0	0	0	-11.5
Total	17	21	17	-0.1
Nitrogen Oxide				
Coal	63	62	64	0.2
Petroleum	*	*	1	56.4
Gas	*	*	*	1.5
Total	63	63	65	0.3
Carbon Dioxide				
Coal	16,859	19,286	19,892	1.8
Petroleum	16	16	836	55.3
Gas	30	46	69	9.7
Other	0	0	9	0.0
Total	16,905	19,348	20,805	2.3

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

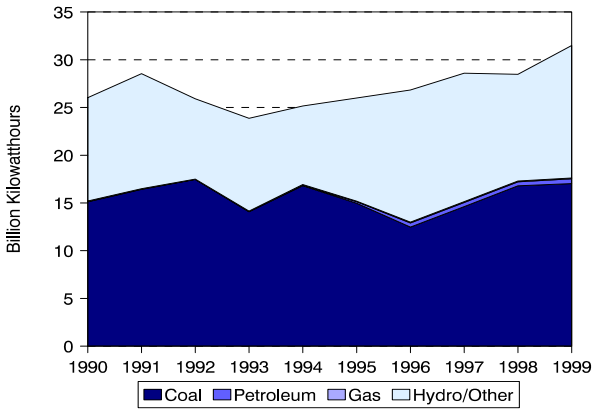


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

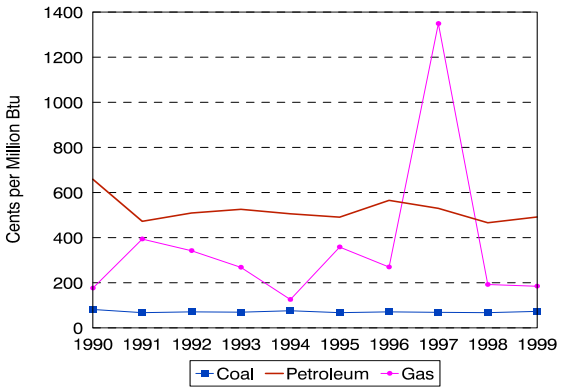


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

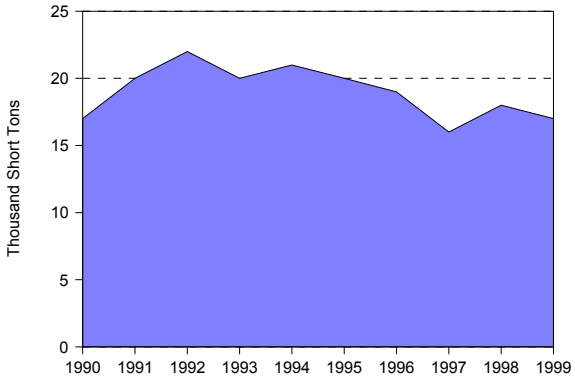


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

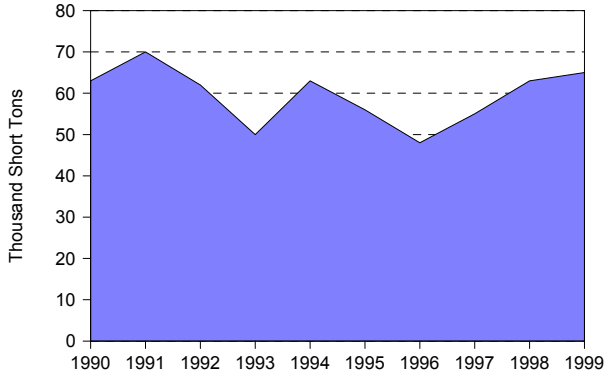


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

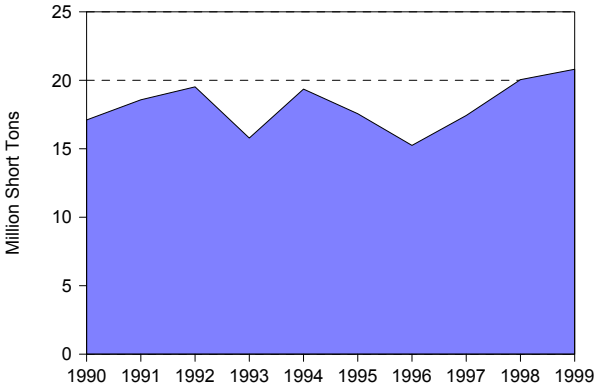


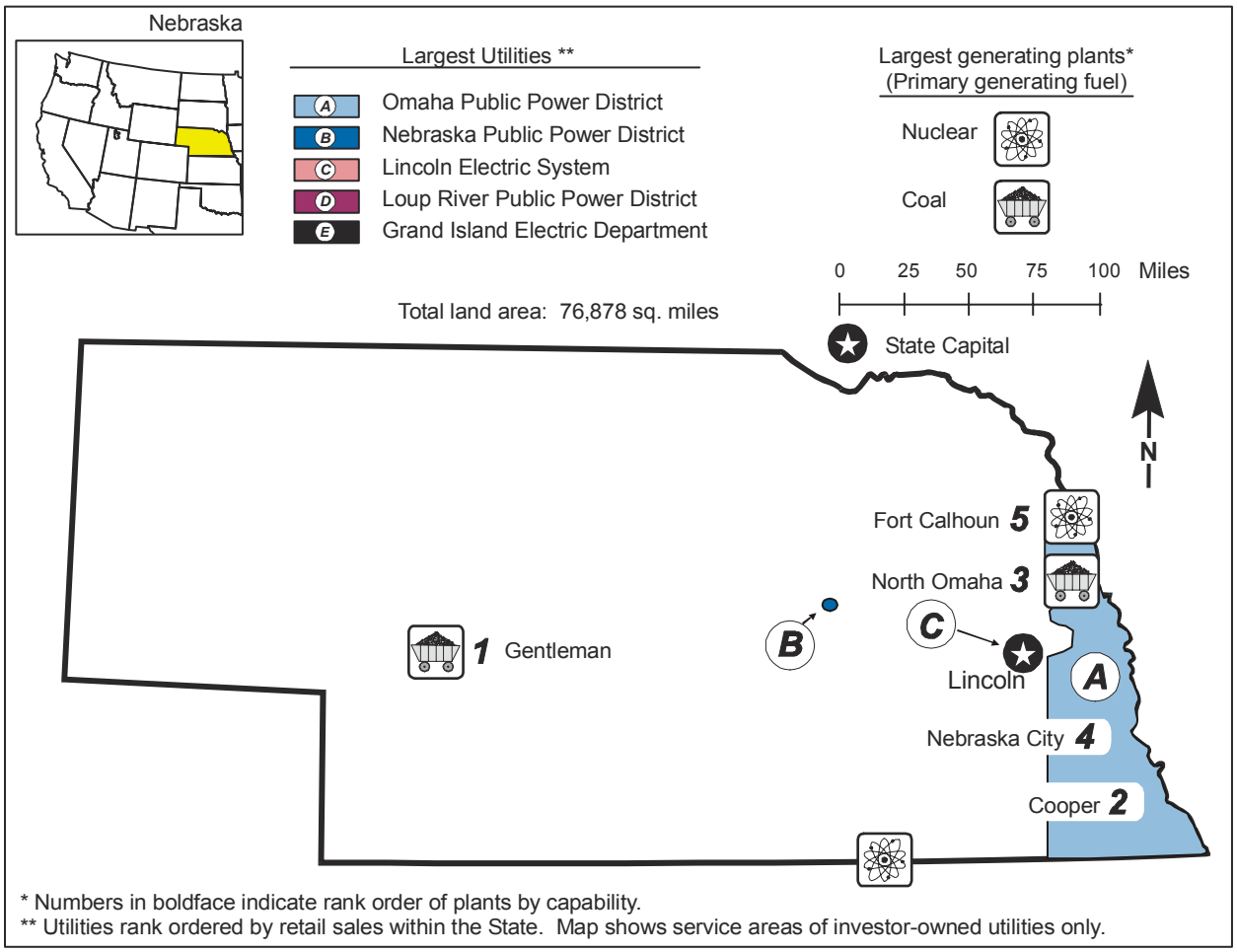
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	3,358	3,567	3,664	1.0	25.6	27.0	30.2
Commercial	2,738	3,096	3,025	1.1	20.9	23.5	24.9
Industrial	6,529	5,961	5,108	-2.7	49.8	45.2	42.1
Other	499	561	334	-4.4	3.8	4.3	2.8
Total	13,125	13,184	12,132	-0.9	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	222	232	249	1.3	35.2	35.8	40.9
Commercial	155	175	192	2.4	24.7	26.9	31.6
Industrial	227	214	145	-4.8	36.0	33.1	23.9
Other	26	27	21	-2.1	4.1	4.2	3.5
Total	629	648	607	-0.4	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	6.60	6.50	6.78	NA	NA	NA	NA
Commercial	5.67	5.64	6.35	NA	NA	NA	NA
Industrial	3.47	3.60	2.84	NA	NA	NA	NA
Other	5.16	4.90	6.34	NA	NA	NA	NA
Total	4.79	4.92	5.01	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	5	1	3	30	39
Number of Retail Customers	320,186	836	15,637	143,969	480,628
Retail Sales (thousand megawatthours)	6,056	14	1,843	4,219	12,132
Percentage of Retail Sales	49.9	0.1	15.2	34.8	100.0
Revenue from Retail Sales (million dollars)	370	1	43	193	607
Percentage of Revenue	61.0	0.1	7.0	31.9	100.0
Average Revenue per Kilowatthour (cents/kWh)	6.12	5.23	2.31	4.59	5.01

Nebraska



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC/MAPP
Primary Energy Source		Coal
Net Summer Capability (megawatts)	5,846	37
Utility	5,829	34
Nonutility	16	49
Net Generation (megawatthours)	30,057,082	40
Utility	29,980,967	37
Nonutility	76,115	48
Emissions (thousand short tons)		
Sulfur Dioxide	58	33
Nitrogen Oxide	91	34
Carbon Dioxide	20,471	37
Sulfur Dioxide/sq. mile	1	38
Nitrogen Oxide/sq. mile	1	39
Carbon Dioxide/sq. mile	266	42
Electricity Consumption (MWh) (excludes line losses)	22,886,127	36
Utility Retail Electricity Sales (megawatthours)	22,810,012	36
Nonutility Retail Sales and Direct Use (megawatthours)	76,115	48
Utility Average Retail Price (cents/kWh)	5.31	42

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Gentleman	Petroleum, Gas, Coal	Nebraska Public Power District	1,365
2. Cooper	Nuclear	Nebraska Public Power District	758
3. North Omaha	Gas, Coal	Omaha Public Power District	663
4. Nebraska City	Petroleum, Coal	Omaha Public Power District	632
5. Fort Calhoun	Nuclear	Omaha Public Power District	476
6. Sheldon	Gas, Coal	Nebraska Public Power District	225
7. Sarpy County	Petroleum, Gas	Omaha Public Power District	212
8. Rokeby	Petroleum, Gas	Lincoln Electric System	172
9. Lon Wright	Petroleum, Gas, Coal	Fremont City of	120
10. Canaday	Petroleum, Gas	Nebraska Public Power District	113

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Omaha Public Power District	8,145,388	2,719,020	3,025,455	2,315,924	84,989
B. Nebraska Public Power District	3,068,010	919,912	860,210	1,085,579	202,309
C. Lincoln Electric System	2,620,847	898,085	935,639	530,915	256,208
D. Loup River Public Power Dist	908,175	198,470	130,544	543,707	35,454
E. Grand Island Electric Dept	569,159	167,302	131,628	262,155	8,074
Total	15,311,579	4,902,789	5,083,476	4,738,280	587,034
Percentage of Utility Sales	67	62	76	69	44

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	5,452	5,518	5,829	0.7	99.8	99.8	99.7
Coal	3,094	3,112	3,181	0.3	56.7	56.3	54.4
Petroleum	370	342	528	4.0	6.8	6.2	9.0
Gas	565	643	723	2.8	10.4	11.6	12.4
Nuclear	1,254	1,254	1,234	-0.2	23.0	22.7	21.1
Hydroelectric	168	167	162	-0.4	3.1	3.0	2.8
Other	0	0	2	0.0	0.0	0.0	0.0
Total Nonutility	8	8	16	7.9	0.2	0.2	0.3
Coal	W	W	7	W	W	W	0.1
Petroleum	W	W	4	W	W	W	0.1
Gas	W	W	1	W	W	W	0.0
Other	0	0	3	0.0	0.0	0.0	0.1
Total Industry	5,460	5,526	5,846	0.8	100.0	100.0	100.0
Coal	W	W	3,189	W	W	W	54.5
Petroleum	W	W	532	W	W	W	9.1
Gas	W	W	724	W	W	W	12.4
Nuclear	1,254	1,254	1,234	-0.2	23.0	22.7	21.1
Hydroelectric	168	167	162	-0.4	3.1	3.0	2.8
Other	0	0	5	0.0	0.0	0.0	0.1

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

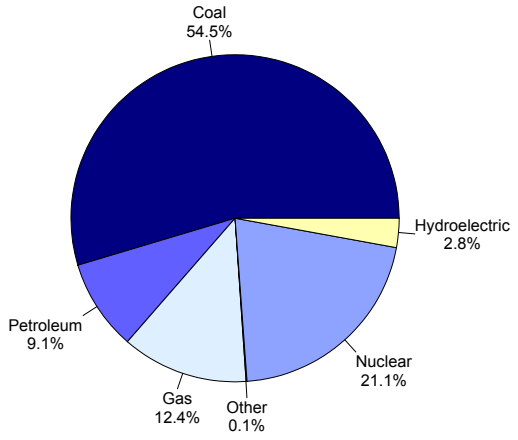


Figure 2. Industry Generation by Energy Source, 1999

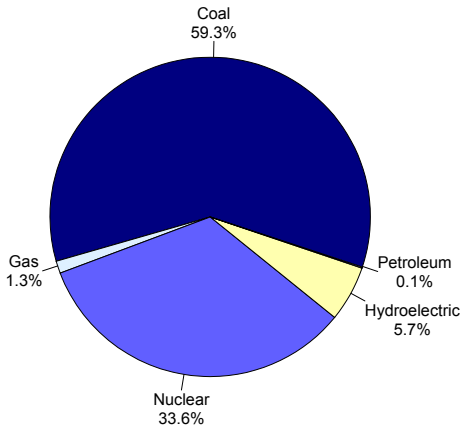


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	21,630,677	21,945,525	29,980,967	3.7	99.8	99.8	99.7
Coal	12,658,464	14,002,015	17,794,136	3.9	58.4	63.7	59.2
Petroleum	12,981	18,201	28,807	9.3	0.1	0.1	0.1
Gas	307,841	258,764	347,902	1.4	1.4	1.2	1.2
Nuclear	7,511,298	6,345,330	10,091,092	3.3	34.7	28.9	33.6
Hydroelectric	1,140,093	1,311,883	1,719,030	4.7	5.3	6.0	5.7
Other	0	9,332	0	0.0	0.0	0.0	0.0
Total Nonutility	38,251	37,606	76,115	7.9	0.2	0.2	0.3
Coal	W	W	44,371	W	W	W	0.1
Petroleum	0	0	816	0.0	0.0	0.0	0.0
Gas	W	W	30,928	W	W	W	0.1
Total Industry	21,668,928	21,983,131	30,057,082	3.7	100.0	100.0	100.0
Coal	W	W	17,838,507	W	W	W	59.3
Petroleum	12,981	18,201	29,623	9.6	0.1	0.1	0.1
Gas	W	W	378,830	W	W	W	1.3
Nuclear	7,511,298	6,345,330	10,091,092	3.3	34.7	28.9	33.6
Hydroelectric	1,140,093	1,311,883	1,719,030	4.7	5.3	6.0	5.7
Other	0	9,332	0	0.0	0.0	0.0	0.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	91.2	83.5	55.4	-5.4
Average heat value (Btu per pound)	8561	8571	8498	-0.1
Average sulfur Content (percent)	0.4	0.3	0.3	-2.0
Petroleum (cents per million Btu) (1999 dollars)	852.6	438.7	431.5	-7.3
Average heat value (Btu per gallon)	138043	137641	137673	*
Gas (cents per million Btu) (1999 dollars)	243.4	223.9	281.1	1.6
Average heat value (Btu per cubic foot)	946	987	995	0.6

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	51	54	58	1.5
Petroleum	*	*	*	14.9
Total	51	54	58	1.5
Nitrogen Oxide				
Coal	74	73	90	2.1
Petroleum	*	*	*	9.9
Gas	*	*	1	3.8
Total	75	74	91	2.2
Carbon Dioxide				
Coal	14,398	15,935	20,157	3.8
Petroleum	14	20	34	10
Gas	205	173	280	3.5
Total	14,617	16,129	20,471	3.8

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

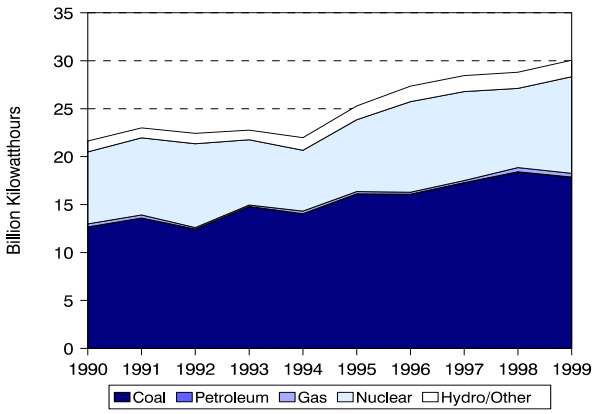


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

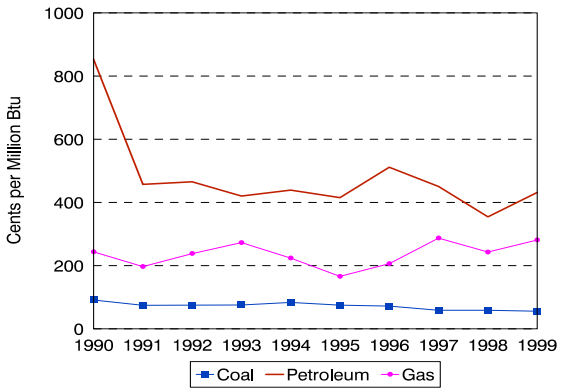


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

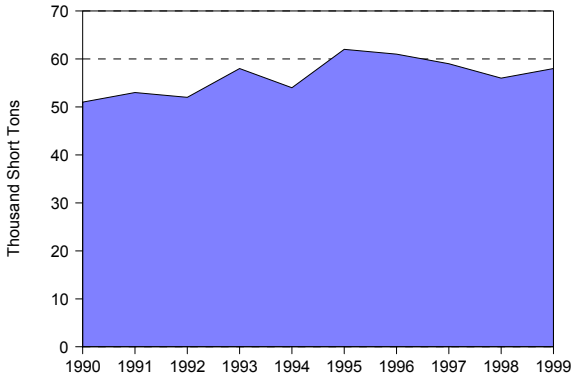


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

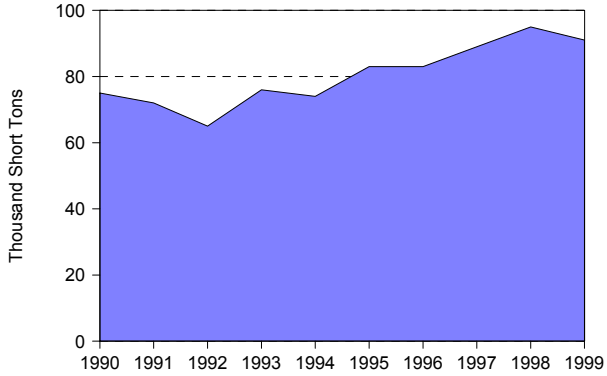


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

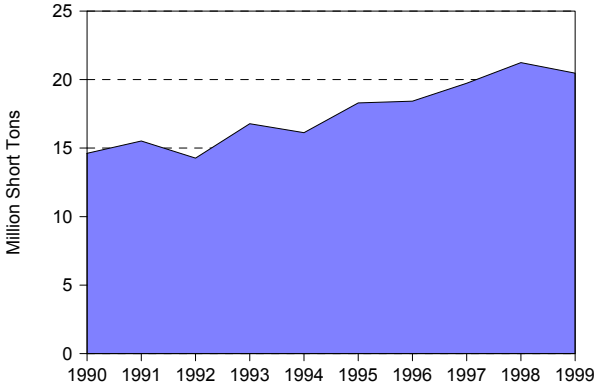


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

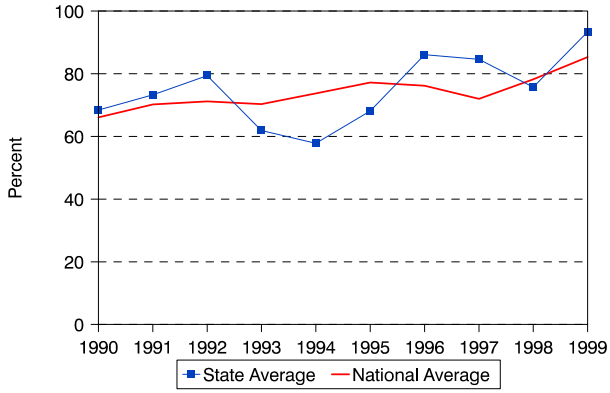


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	6,800	7,379	7,929	1.7	38.0	37.1	34.8
Commercial	5,086	5,809	6,661	3.0	28.5	29.2	29.2
Industrial	4,618	5,345	6,883	4.5	25.8	26.9	30.2
Other	1,364	1,340	1,336	-0.2	7.6	6.7	5.9
Total	17,868	19,873	22,810	2.8	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	513	508	517	0.1	42.5	42.7	42.7
Commercial	353	354	362	0.3	29.3	29.7	29.9
Industrial	234	233	246	0.5	19.4	19.6	20.3
Other	106	96	86	-2.2	8.8	8.0	7.1
Total	1,206	1,190	1,212	0.0	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	7.54	6.88	6.52	NA	NA	NA	NA
Commercial	6.94	6.09	5.44	NA	NA	NA	NA
Industrial	5.08	4.35	3.57	NA	NA	NA	NA
Other	7.73	7.13	6.47	NA	NA	NA	NA
Total	6.75	5.99	5.31	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	0	151	1	10	162
Number of Retail Customers	0	865,002	12	20,701	885,715
Retail Sales (thousand megawatthours)	0	22,194	145	472	22,810
Percentage of Retail Sales	0.0	97.3	0.6	2.1	100.0
Revenue from Retail Sales (million dollars)	0	1,175	2	35	1,212
Percentage of Revenue	0.0	97.0	0.2	2.9	100.0
Average Revenue per Kilowatthour (cents/kWh) (1999 dollars)	0.00	5.29	1.33	7.40	5.31

Nevada

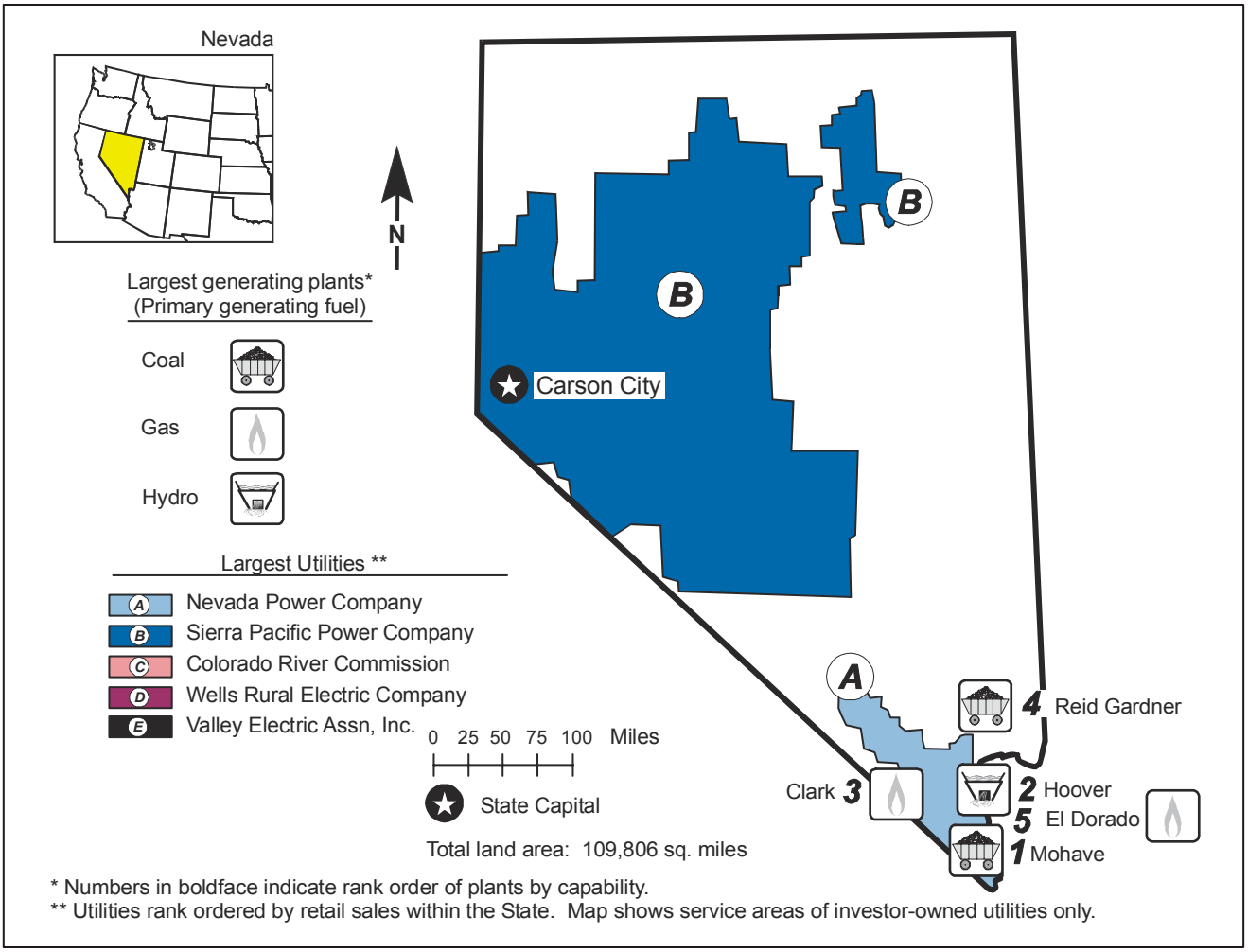

Nevada
N
Largest generating plants*
(Primary generating fuel)
Coal
Gas
Hydro
Largest Utilities **
A Nevada Power Company
B Sierra Pacific Power Company
C Colorado River Commission
D Wells Rural Electric Company
E Valley Electric Assn, Inc.
0 25 50 75 100 Miles
State Capital
Total land area: 109,806 sq. miles
B
B
Carson City
A
4 Reid Gardner
Clark 3
2 Hoover
5 El Dorado
1 Mohave
* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC
Primary Energy Source		Coal
Net Summer Capability (megawatts)		35
Utility	7,019	35
Nonutility	5,434	19
Net Generation (megawatthours)	1,585	36
Utility	32,800,480	39
Nonutility	26,485,602	20
Emissions (thousand short tons)	6,314,878	
Sulfur Dioxide		35
Nitrogen Oxide	50	35
Carbon Dioxide	80	34
Sulfur Dioxide/sq. mile	26,590	41
Nitrogen Oxide/sq. mile	0	43
Carbon Dioxide/sq. mile	1	43
Electricity Consumption (MWh) (excludes line losses)	242	35
Utility Retail Electricity Sales (megawatthours)	26,415,926	35
Nonutility Retail Sales and Direct Use (megawatthours)	26,253,307	44
Utility Average Retail Price (cents/kWh)	162,619	30

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Mohave	Gas, Coal	Southern California Edison Co	1,580
2. Hoover	Hydro	Bureau of Reclamation	1,039
3. Clark	Gas	Nevada Power Co	684
4. Reid Gardner	Petroleum, Coal	Nevada Power Co	605
5. El Dorado Energy	Gas	El Dorado Energy LLC	558
6. Valmy	Petroleum, Coal	Sierra Pacific Power Co	532
7. Tracy	Petroleum, Gas	Sierra Pacific Power Co	402
8. AES Cayuga	Coal	AES Cayuga	275
9. Fort Churchill	Petroleum, Gas	Sierra Pacific Power Co	226
10. Nevada Sun Peak Proj	Gas	Nevada Sun Peak LP	179

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Nevada Power Company	15,337,607	6,134,665	3,034,868	5,445,560	722,514
B. Sierra Pacific Power Company	7,926,186	1,717,464	2,506,486	3,689,662	12,574
C. Colorado River Commission	783,463	0	29,766	753,697	0
D. Wells Rural Electric Company	651,239	42,771	37,291	565,677	5,500
E. Valley Electric Assn, Inc	448,084	176,397	113,515	158,089	83
Total	25,146,579	8,071,297	5,721,926	10,612,685	740,671
Percentage of Utility Sales	96.0	96.0	95.0	98.0	77.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	4,944	5,478	5,434	1.1	91.1	88.1	77.4
Coal	2,692	2,717	2,806	0.5	49.6	43.7	40.0
Petroleum	79	260	46	-5.8	1.5	4.2	0.7
Gas	1,142	1,455	1,533	3.3	21.0	23.4	21.8
Hydroelectric	1,031	1,046	1,049	0.2	19.0	16.8	14.9
Total Nonutility	485	740	1,585	14.1	8.9	11.9	22.6
Coal	0	0	275	0.0	0.0	0.0	3.9
Gas	269	301	918	14.6	5.0	4.8	13.1
Petroleum/Gas Combined	W	W	179	W	W	W	2.5
Hydroelectric	4	4	4	0.9	0.1	0.1	0.1
Other	212	257	209	-0.1	3.9	4.1	3.0
Total Industry	5,429	6,218	7,019	2.9	100.0	100.0	100.0
Coal	2,692	2,717	3,081	1.5	49.6	43.7	43.9
Petroleum	79	260	46	-5.8	1.5	4.2	0.7
Gas	1,411	1,756	2,451	6.3	26.0	28.2	34.9
Petroleum/Gas Combined	W	W	179	W	W	W	2.5
Hydroelectric	1,034	1,050	1,053	0.2	19.1	16.9	15.0
Other	212	257	209	-0.1	3.9	4.1	3.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

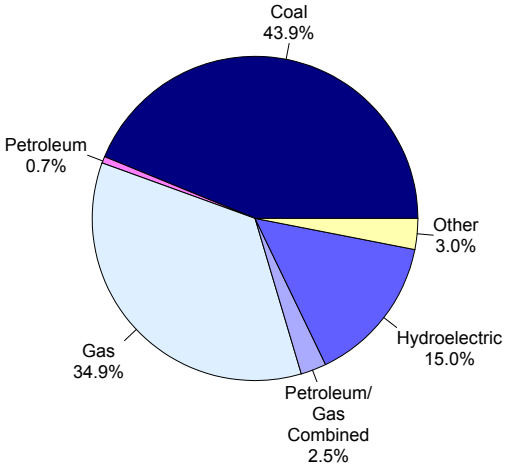


Figure 2. Industry Generation by Energy Source, 1999

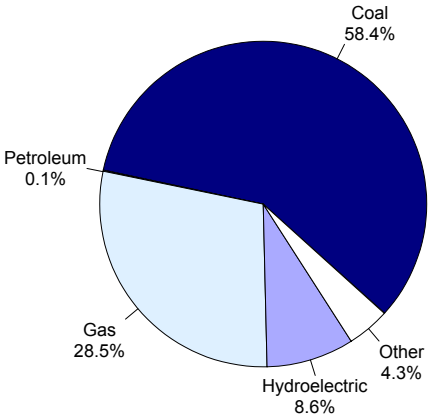


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	19,286,260	20,519,076	26,485,602	3.6	89.9	83.4	80.7
Coal	15,053,277	15,324,714	16,907,530	1.3	70.2	62.3	51.5
Petroleum	284,108	166,446	35,418	-20.7	1.3	0.7	0.1
Gas	2,217,027	3,162,156	6,735,492	13.1	10.3	12.9	20.5
Hydroelectric	1,731,848	1,865,760	2,807,162	5.5	8.1	7.6	8.6
Total Nonutility	2,171,119	4,072,379	6,314,878	12.6	10.1	16.6	19.3
Coal	0	0	2,250,407	0.0	0.0	0.0	6.9
Petroleum	W	W	1,322	W	W	W	0.0
Gas	1,178,969	2,398,802	2,617,132	9.3	5.5	9.8	8.0
Hydroelectric	W	W	20,509	W	W	W	0.1
Other	W	W	1,425,509	W	W	W	4.3
Total Industry	21,457,379	24,591,455	32,800,480	4.8	100.0	100.0	100.0
Coal	15,053,277	15,324,714	19,157,937	2.7	70.2	62.3	58.4
Petroleum	W	W	36,740	W	W	W	0.1
Gas	3,395,996	5,560,958	9,352,624	11.9	15.8	22.6	28.5
Hydroelectric	W	W	2,827,671	W	W	W	8.6
Other	W	W	1,425,509	W	W	W	4.3

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	180.7	156.5	129.4	-3.6
Average heat value (Btu per pound)	11,122	11,291	11,257	0.1
Average sulfur Content(percent)	0.5	0.5	0.5	-1.5
Petroleum (cents per million Btu) (1999 dollars)	381	358.9	452.6	1.9
Average heat value (Btu per gallon)	148,234	148,197	139,110	-0.7
Average sulfur Content(percent)	0.9	0.8	0	-100
Gas (cents per million Btu) (1999 dollars)	237.1	210	242.3	0.2
Average heat value (Btu per cubic foot)	1,031	1,033	1,037	0.1

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	53	53	50	-0.6
Petroleum	1	1	*	-29.3
Total	54	53	50	-0.9
Nitrogen Oxide				
Coal	57	63	69	2.1
Petroleum	*	*	*	-26.0
Gas	3	6	11	14.5
Total	61	69	80	3.1
Carbon Dioxide				
Coal	17,487	18,822	21,309	2.2
Petroleum	278	152	41	-19.1
Gas	1,447	3,197	5,240	15.4
Total	19,212	22,171	26,590	3.7

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

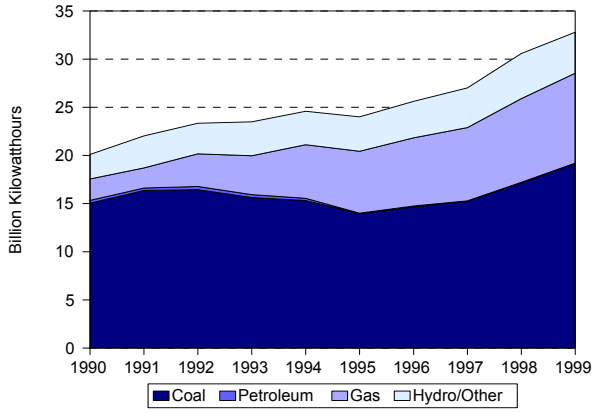


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

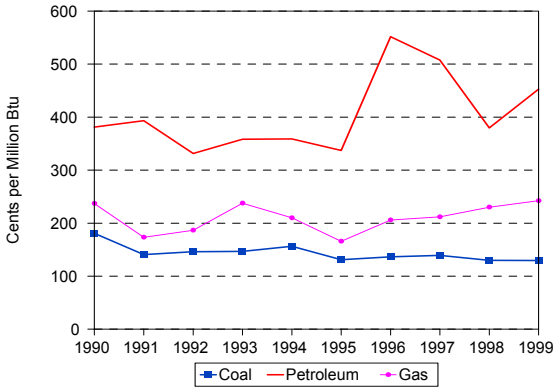


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

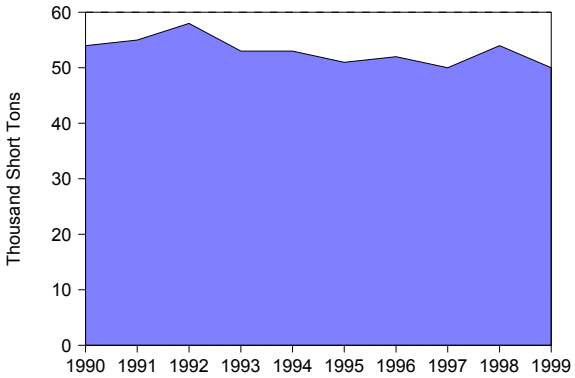


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

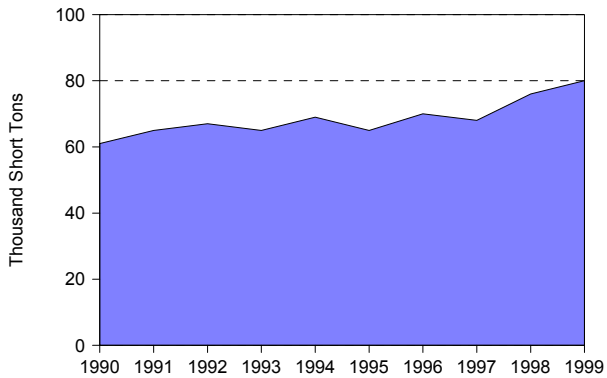


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

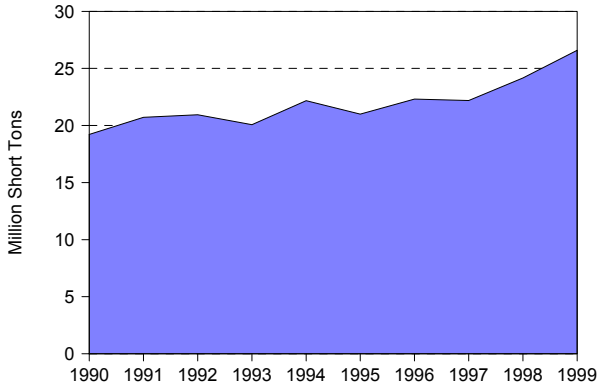


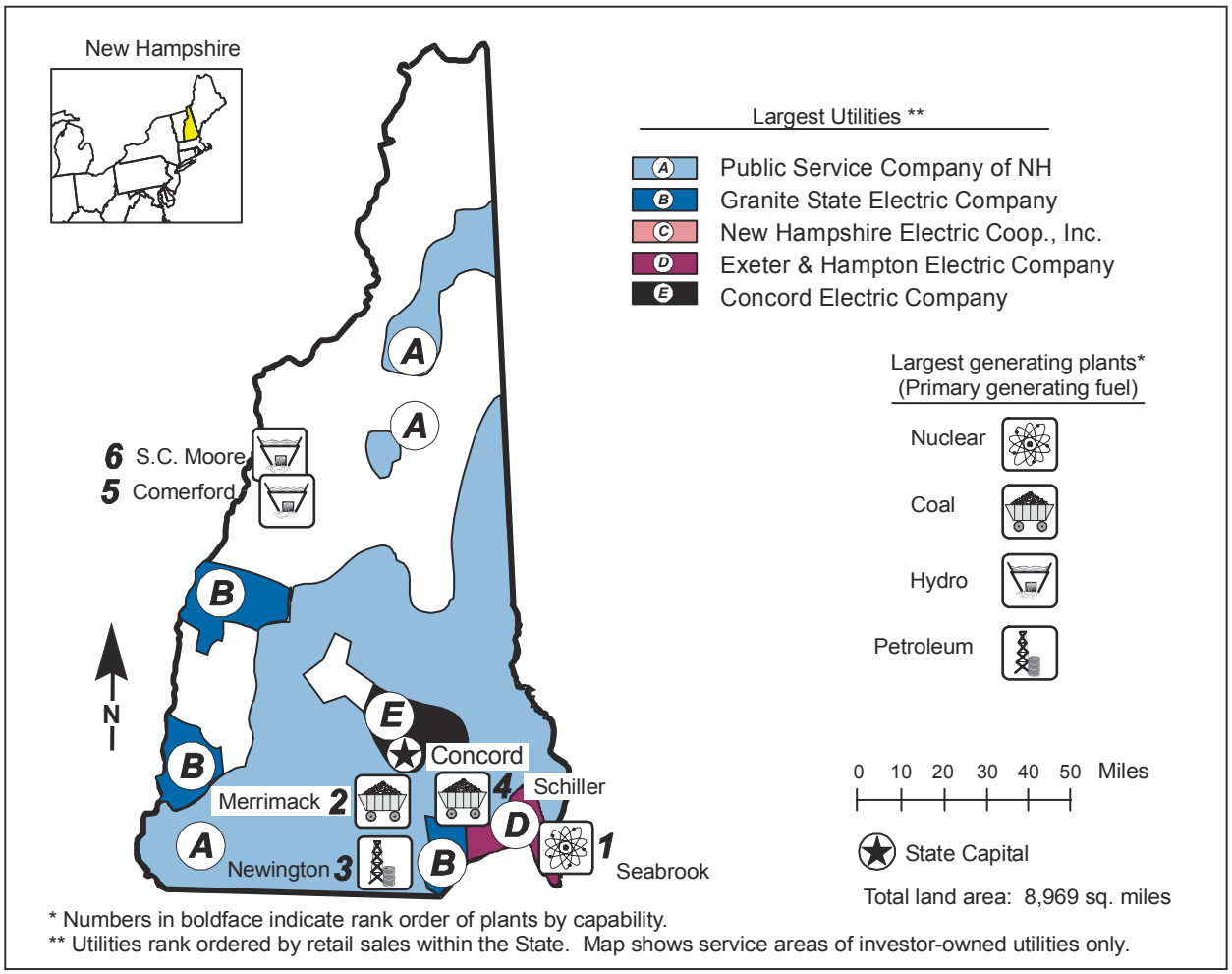
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	5,540	6,845	8,386	4.7	33.9	34.2	31.9
Commercial	3,866	4,612	6,049	5.1	23.6	23.0	23.0
Industrial	6,263	7,775	10,861	6.3	38.3	38.8	41.4
Other	684	805	958	3.8	4.2	4.0	3.6
Total	16,352	20,036	26,253	5.4	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	383	534	598	5.1	35.9	38.4	38.4
Commercial	290	351	403	3.7	27.2	25.2	25.9
Industrial	356	462	518	4.2	33.4	33.2	33.3
Other	37	46	38	0.2	3.5	3.3	2.4
Total	1,066	1,393	1,556	4.3	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	6.91	7.81	7.13	NA	NA	NA	NA
Commercial	7.49	7.61	6.66	NA	NA	NA	NA
Industrial	5.69	5.94	4.77	NA	NA	NA	NA
Other	5.44	5.66	3.94	NA	NA	NA	NA
Total	6.52	6.95	5.93	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	8	1	9	22
Number of Retail Customers	822915	21148	2	26735	870800
Retail Sales (thousand megawatthours)	23320	1323	92	1518	26253
Percentage of Retail Sales	88.8	5.0	0.4	5.8	100.0
Revenue from Retail Sales (million dollars)	1447	39	0	70	1556
Percentage of Revenue	93.0	2.5	0.0	4.5	100.0
Average Revenue per Kilowatthour Average (cents/kWh)	6.21	2.92	0.26	4.58	5.93

New Hampshire



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		NPCC
Primary Energy Source		Nuclear
Net Summer Capability (megawatts)	2,851	45
Utility	2,294	43
Nonutility	557	33
Net Generation (megawatthours)	16,205,923	42
Utility	13,875,659	41
Nonutility	2,330,264	35
Emissions (thousand short tons)		
Sulfur Dioxide	48	36
Nitrogen Oxide	11	47
Carbon Dioxide	5,382	45
Sulfur Dioxide/sq. mile	5	21
Nitrogen Oxide/sq. mile	1	38
Carbon Dioxide/sq. mile	600	30
Electricity Consumption (MWh) (excludes line losses)	10,350,798	45
Utility Retail Electricity Sales (megawatthours)	9,722,869	45
Unregulated Retail Electricity Sales (megawatthours)	165,209	12
Nonutility Retail Sales and Direct Use (megawatthours)	462,720	39
Utility Average Retail Price (cents/kWh)	11.75	2

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Seabrook	Nuclear	North Atlantic Engy Serv Corp	1,161
2. Merrimack	Petroleum, Coal	Public Service Co of NH	468
3. Newington	Gas, Petroleum	Public Service Co of NH	408
4. Schiller	Gas, Petroleum, Coal	Public Service Co of NH	162
5. Comerford	Hydro	US Gen New England Inc	137
6. S C Moore	Hydro	US Gen New England Inc	137
7. Berlin Gorham	Hydro	Pulp & Paper of America LLC	44
8. Pinetree Power Tamwo	Other	Pinetree Power Tamworth Inc	24
9. Bridgewater Power Co	Other	Bridgewater Power Co LP	19
10. Amoskeag	Hydro	Public Service Co of NH	18

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Public Service Company of NH	6,957,064	2,446,914	2,536,347	1,951,616	22,187
B. Granite State Electric Company	754,128	249,554	379,572	121,812	3,190
C. New Hampshire Elec Coop, Inc	600,874	358,381	203,250	37,687	1,556
D. Exeter & Hampton Electric Co	558,048	251,413	127,434	150,075	29,126
E. Concord Electric Company	516,685	156,373	143,897	146,852	69,563
Total	9,386,799	3,462,635	3,390,500	2,408,042	125,622
Percentage of Utility Sales	97.0	97.0	97.0	96.0	98.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	2,638	2,500	2,294	-1.5	91.0	90.8	80.5
Coal	622	578	578	-0.8	21.5	21.0	20.3
Petroleum	546	489	492	-1.2	18.8	17.8	17.2
Nuclear	1,150	1,150	1,161	0.1	39.7	41.8	40.7
Hydroelectric	319	283	64	-16.3	11.0	10.3	2.2
Total Nonutility	261	252	557	8.8	9.0	9.2	19.5
Petroleum	14	19	20	3.8	0.5	0.7	0.7
Petroleum/Gas Combined	0	0	13	0.0	0.0	0.0	0.5
Hydroelectric	89	89	376	17.3	3.1	3.2	13.2
Other	158	144	148	-0.7	5.5	5.2	5.2
Total Industry	2,899	2,752	2,851	-0.2	100.0	100.0	100.0
Coal	622	578	578	-0.8	21.5	21.0	20.3
Petroleum	560	508	511	-1.0	19.3	18.5	17.9
Petroleum/Gas Combined	0	0	13	0.0	0.0	0.0	0.5
Nuclear	1,150	1,150	1,161	0.1	39.7	41.8	40.7
Hydroelectric	409	372	440	0.8	14.1	13.5	15.4
Other	158	144	148	-0.7	5.5	5.2	5.2

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

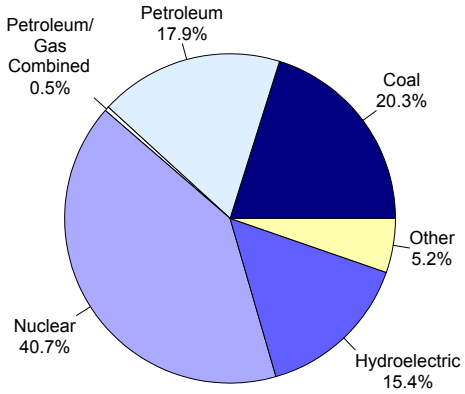


Figure 2. Industry Generation by Energy Source, 1999

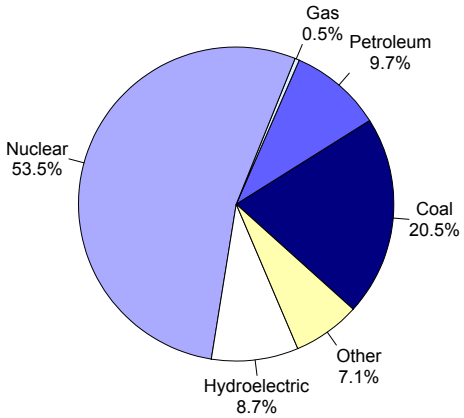


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	10,810,155	11,888,117	13,875,659	2.8	87.0	87.9	85.6
Coal	2,959,203	3,181,654	3,328,263	1.3	23.8	23.5	20.5
Petroleum	2,293,037	1,352,611	1,486,482	-4.7	18.5	10.0	9.2
Gas	0	114,587	45,461	0.0	0.0	0.8	0.3
Nuclear	4,080,691	6,203,747	8,676,237	8.7	32.8	45.9	53.5
Hydroelectric	1,477,224	1,035,518	339,216	-15.1	11.9	7.7	2.1
Total Nonutility	1,614,818	1,639,256	2,330,264	4.2	13.0	12.1	14.4
Petroleum	64,407	100,049	86,151	3.3	0.5	0.7	0.5
Gas	0	0	29,411	0.0	0.0	0.0	0.2
Hydroelectric	426,148	426,200	1,072,066	10.8	3.4	3.2	6.6
Other	1,124,264	1,113,006	1,142,637	0.2	9.0	8.2	7.1
Total Industry	12,424,973	13,527,373	16,205,923	3.0	100.0	100.0	100.0
Coal	2,959,203	3,181,654	3,328,263	1.3	23.8	23.5	20.5
Petroleum	2,357,444	1,452,660	1,572,633	-4.4	19.0	10.7	9.7
Gas	0	114,587	74,872	0.0	0.0	0.8	0.5
Nuclear	4,080,691	6,203,747	8,676,237	8.7	32.8	45.9	53.5
Hydroelectric	1,903,372	1,461,718	1,411,282	-3.3	15.3	10.8	8.7
Other	1,124,264	1,113,006	1,142,637	0.2	9.0	8.2	7.1

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	215.9	166.1	151.5	-3.9
Average heat value (Btu per pound)	13,303	13,032	13,133	-0.1
Average sulfur Content(percent)	1.8	1.5	1.3	-3.3
Petroleum (cents per million Btu) (1999 dollars)	275	217.8	213.6	-2.8
Average heat value (Btu per gallon)	154,329	153,466	153,222	-0.1
Average sulfur Content(percent)	1.9	1.5	1.6	-2
Gas (cents per million Btu) (1999 dollars)	0	228.9	261	0
Average heat value (Btu per cubic foot)	0	1,015	1,024	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	41	37	34	-2.0
Petroleum	24	12	14	-6.4
Other	0	0	0	0.0
Total	66	49	48	-3.4
Nitrogen Oxide				
Coal	18	19	8	-9.2
Petroleum	2	1	1	-6.4
Gas	0	*	*	0.0
Other	0	2	2	0.0
Total	20	22	11	-6.7
Carbon Dioxide				
Coal	3,063	3,263	3,388	1.1
Petroleum	2,151	1,670	1,774	-2.1
Gas	0	75	41	0.0
Other	0	273	179	0.0
Total	5,214	5,282	5,382	0.3

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

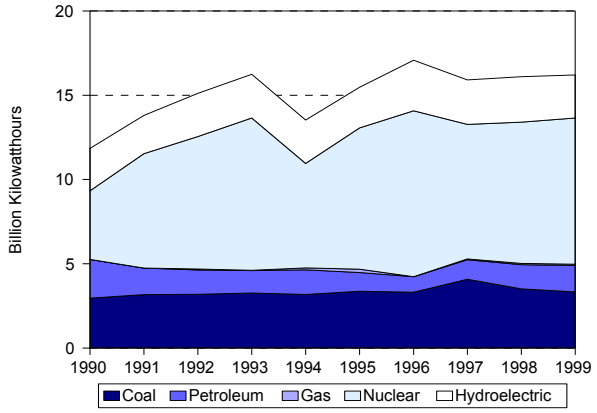


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

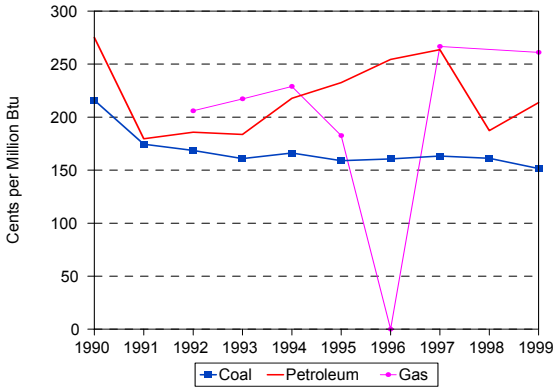


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

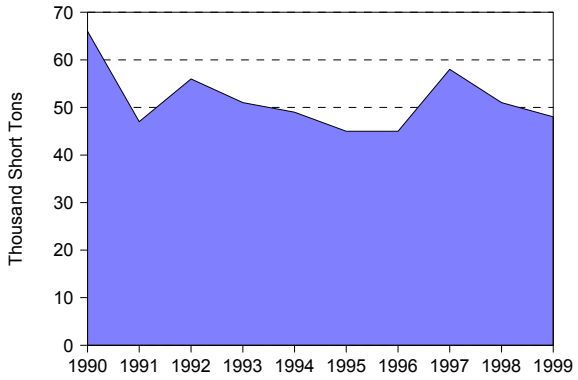


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

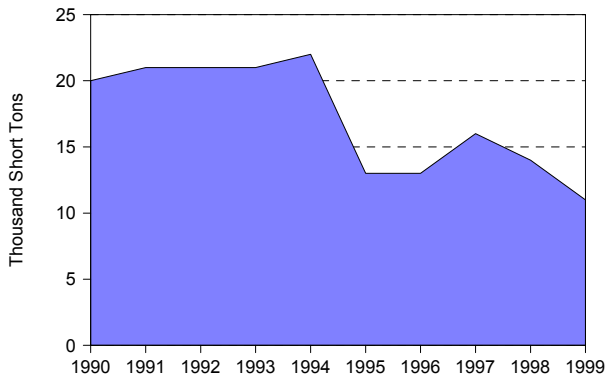


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

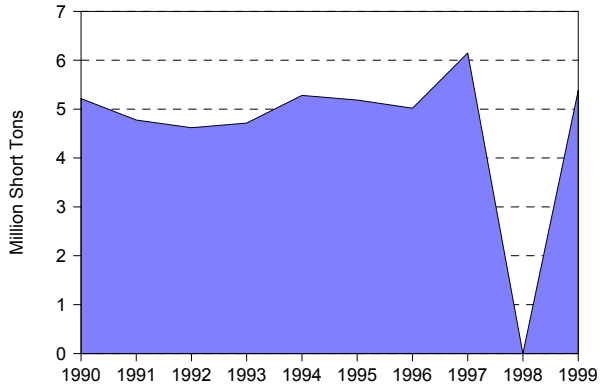


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

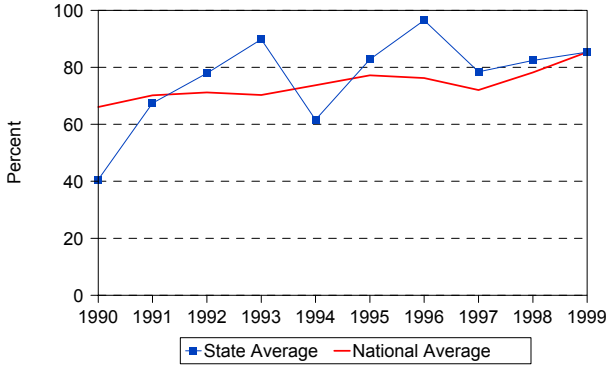


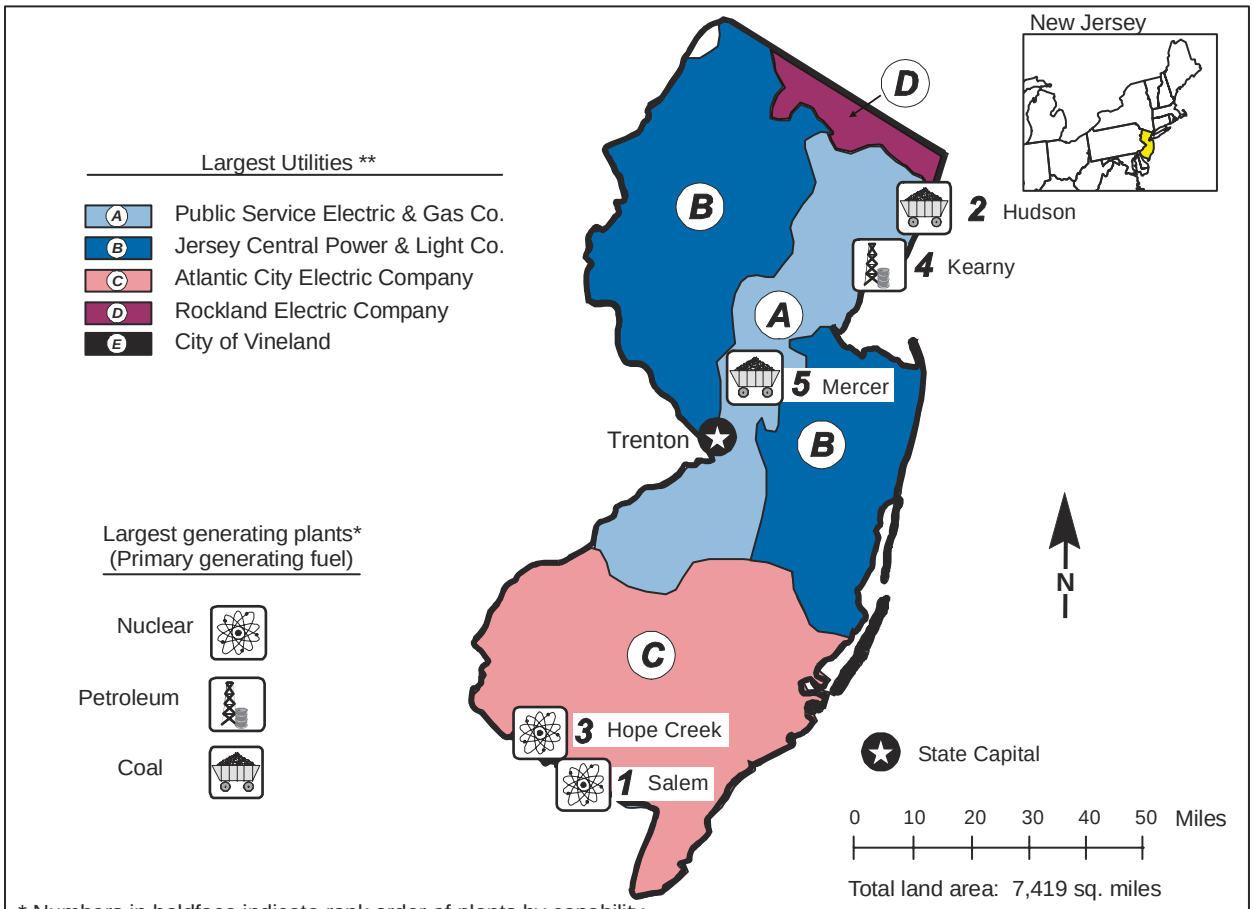
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	3,444	3,431	3,572	0.4	38.4	38.3	36.7
Commercial	2,010	3,221	3,512	6.4	22.4	36.0	36.1
Industrial	3,418	2,182	2,511	-3.4	38.1	24.4	25.8
Other	107	122	128	2.1	1.2	1.4	1.3
Total	8,980	8,956	9,723	0.9	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	431	483	494	1.5	43.6	43.7	43.3
Commercial	231	383	400	6.3	23.4	34.7	35.0
Industrial	309	222	231	-3.2	31.3	20.1	20.2
Other	16	18	16	-0.1	1.7	1.6	1.4
Total	989	1,106	1,142	1.6	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	12.52	14.08	13.84	NA	NA	NA	NA
Commercial	11.51	11.91	11.39	NA	NA	NA	NA
Industrial	9.05	10.17	9.21	NA	NA	NA	NA
Other	15.44	14.58	12.78	NA	NA	NA	NA
Total	11.01	12.35	11.75	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	6	5	0	1	12
Number of Retail Customers	542764	10887	0	70311	623962
Retail Sales (thousand megawatthours)	8956	166	0	601	9723
Percentage of Retail Sales	92.1	1.7	0.0	6.2	100.0
Revenue from Retail Sales (million dollars)	1029	16	0	98	1142
Percentage of Revenue	90.1	1.4	0.0	8.6	100.0
Average Revenue per Kilowatthour (cents/kWh)	11.49	9.35	0.00	16.25	11.75

New Jersey



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		MACC
Primary Energy Source		Nuclear
Net Summer Capability (megawatts)	16,651	19
Utility	12,085	24
Nonutility	4,566	7
Net Generation (megawatthours)	56,994,767	23
Utility	38,867,608	30
Nonutility	18,127,159	8
Emissions (thousand short tons)		
Sulfur Dioxide	48	37
Nitrogen Oxide	53	38
Carbon Dioxide	19,688	38
Sulfur Dioxide/sq. mile	6	18
Nitrogen Oxide/sq. mile	7	7
Carbon Dioxide/sq. mile	2,654	11
Electricity Consumption (MWh) (excludes line losses)	73,140,489	19
Utility Retail Electricity Sales (megawatthours)	70,581,680	19
Unregulated Retail Electricity Sales (megawatthours)	121,473	13
Nonutility Retail Sales and Direct Use (megawatthours)	2,437,336	19
Utility Average Retail Price (cents/kWh)	9.99	5

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Salem	Petroleum, Nuclear	Public Service Electric & Gas Co	2,250
2. Hudson	Petroleum, Gas, Coal	Public Service Electric & Gas Co	1,120
3. Hope Creek	Nuclear	Public Service Electric & Gas Co	1,031
4. Kearny	Gas, Petroleum	Public Service Electric & Gas Co	804
5. Mercer	Petroleum, Gas, Coal	Public Service Electric & Gas Co	777
6. Bergen	Petroleum, Gas	Public Service Electric & Gas Co	696
7. Linden Cogen Plant	Gas	Cogen Tech Linden Venture LP	679
8. Linden	Petroleum, Gas	Public Service Electric & Gas Co	647
9. Burlington	Petroleum, Gas	Public Service Electric & Gas Co	629
10. Oyster Creek	Nuclear	GPU Nuclear Corp	619

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Public Service Electric & Gas Co	40,289,444	11,747,256	19,932,648	8,229,498	380,042
B. Jersey Central Power & Light Co	18,951,186	7,973,874	7,618,222	3,277,837	81,253
C. Atlantic City Electric Company	8,831,691	3,715,022	3,807,566	1,262,531	46,572
D. Rockland Electric Company	1,432,604	621,167	740,244	64,633	6,560
E. City of Vineland	467,668	130,232	118,774	214,497	4,165
Total	69,972,593	24,187,551	32,217,454	13,048,996	518,592
Percentage of Utility Sales	99	99	99	100	99

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	13,730	13,500	12,085	-1.4	86.7	81.5	72.6
Coal	1,652	1,634	1,643	-0.1	10.4	9.9	9.9
Petroleum	3,784	2,967	2,373	-5.1	23.9	17.9	14.3
Gas	4,101	4,657	3,807	-0.8	25.9	28.1	22.9
Nuclear	3,863	3,862	3,862	0.0	24.4	23.3	23.2
Hydroelectric	330	380	400	2.2	2.1	2.3	2.4
Total Nonutility	2,107	3,055	4,566	9.0	13.3	18.5	27.4
Coal	W	W	477	W	W	W	2.9
Petroleum	10	1	12	2.2	0.1	0.0	0.1
Gas	397	917	915	9.7	2.5	5.5	5.5
Petroleum/Gas Combined	1,519	1,472	2,946	7.6	9.6	8.9	17.7
Hydroelectric	W	W	14	W	W	W	0.1
Other	170	170	203	2.0	1.1	1.0	1.2
Total Industry	15,837	16,555	16,651	0.6	100.0	100.0	100.0
Coal	W	W	2,120	W	W	W	12.7
Petroleum	3,794	2,968	2,385	-5.0	24.0	17.9	14.3
Gas	4,498	5,574	4,722	0.5	28.4	33.7	28.4
Petroleum/Gas Combined	1,519	1,472	2,946	7.6	9.6	8.9	17.7
Nuclear	3,863	3,862	3,862	0.0	24.4	23.3	23.2
Hydroelectric	W	W	414	W	W	W	2.5
Other	170	170	203	2.0	1.1	1.0	1.2

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

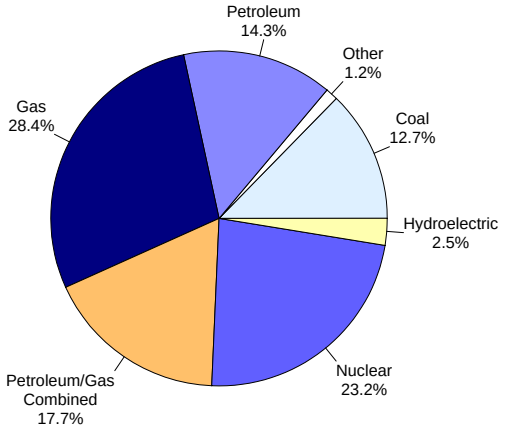


Figure 2. Industry Generation by Energy Source, 1999

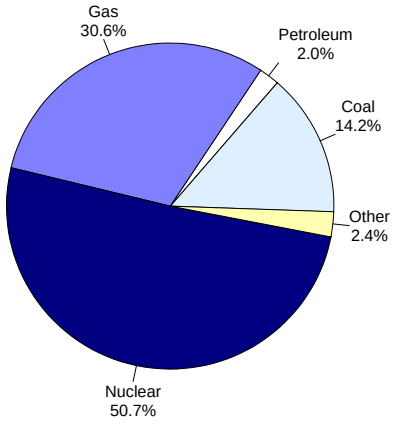


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	36,488,596	31,931,596	38,867,608	0.7	75.5	65.8	68.2
Coal	7,057,820	4,646,622	6,387,952	-1.1	14.6	9.6	11.2
Petroleum	1,831,935	1,656,066	531,959	-12.8	3.8	3.4	0.9
Gas	3,978,001	3,666,307	3,122,217	-2.7	8.2	7.6	5.5
Nuclear	23,770,387	22,129,335	28,970,893	2.2	49.2	45.6	50.8
Hydroelectric	-149,547	-166,734	-145,413	-0.3	-0.3	-0.3	-0.3
Total Nonutility	11,818,563	16,581,896	18,127,159	4.9	24.5	34.2	31.8
Coal	W	W	1,745,747	W	W	W	3.1
Petroleum	284,120	501,025	638,417	9.4	0.6	1.0	1.1
Gas	11,063,981	13,904,816	14,348,134	2.9	22.9	28.7	25.2
Hydroelectric	W	W	17,303	W	W	W	0.0
Other	438,331	1,135,382	1,377,559	13.6	0.9	2.3	2.4
Total Industry	48,307,159	48,513,492	56,994,767	1.9	100.0	100.0	100.0
Coal	W	W	8,133,699	W	W	W	14.3
Petroleum	2,116,055	2,157,091	1,170,376	-6.4	4.4	4.4	2.1
Gas	15,041,982	17,571,123	17,470,351	1.7	31.1	36.2	30.7
Nuclear	23,770,387	22,129,335	28,970,893	2.2	49.2	45.6	50.8
Hydroelectric	W	W	-128,110	W	W	W	-0.2
Other	438,331	1,135,382	1,377,559	13.6	0.9	2.3	2.4

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	218.3	198.4	145.4	-4.4
Average heat value (Btu per pound)	13,429	13,341	13,150	-0.2
Average sulfur content (percent)	1.2	1.3	1.1	-0.2
Petroleum (cents per million Btu) (1999 dollars)	435.9	316.8	288.2	-4.5
Average heat value (Btu per gallon)	148,299	148,378	149,297	0.1
Average sulfur content (percent)	0.4	0.4	0.4	0.5
Gas (cents per million Btu) (1999 dollars)	263.2	228.8	298.9	1.4
Average heat value (Btu per cubic foot)	1,032	1,035	1,031	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	69	48	46	-4.4
Petroleum	5	4	2	-11.8
Other	0	0	0	0.0
Total	74	53	48	-4.8
Nitrogen Oxide				
Coal	40	27	31	-2.6
Petroleum	3	2	1	-14.4
Gas	6	12	18	12.9
Other	0	3	3	0.0
Total	49	45	53	1.0
Carbon Dioxide				
Coal	7,850	6,331	8,922	1.4
Petroleum	1,796	1,953	782	-8.8
Gas	2,745	7,519	8,970	14.1
Other	0	2,065	1,014	0.0
Total	12,391	17,868	19,688	5.3

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

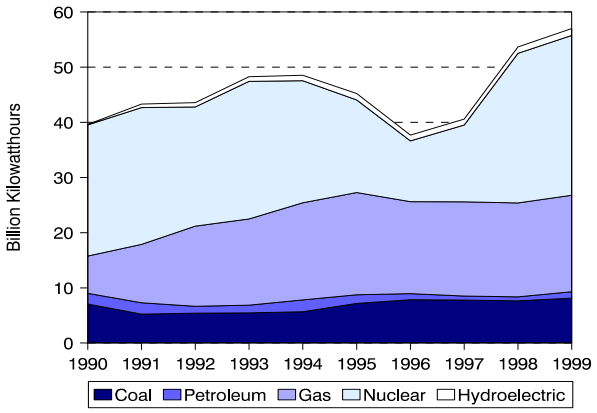


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

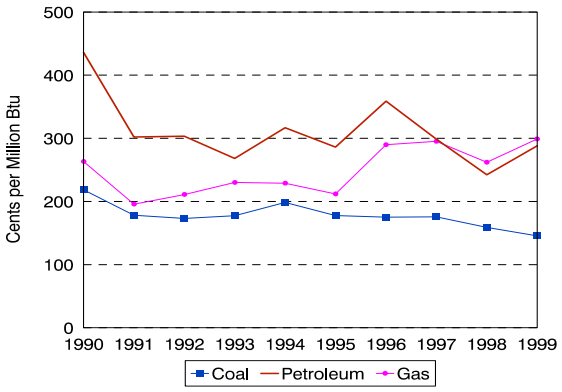


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

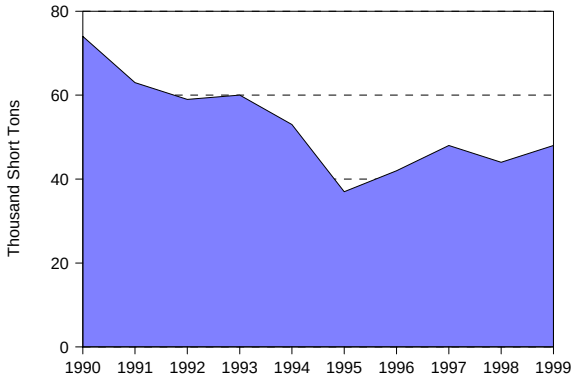


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

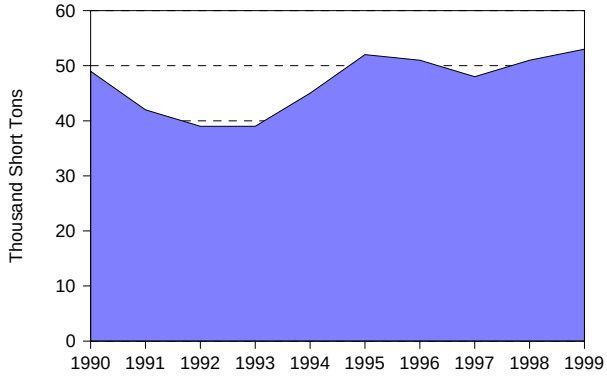


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

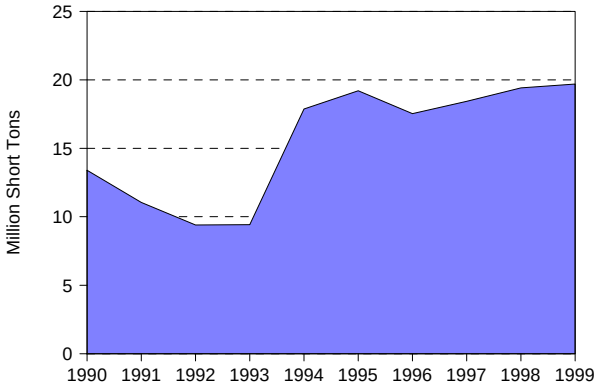


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

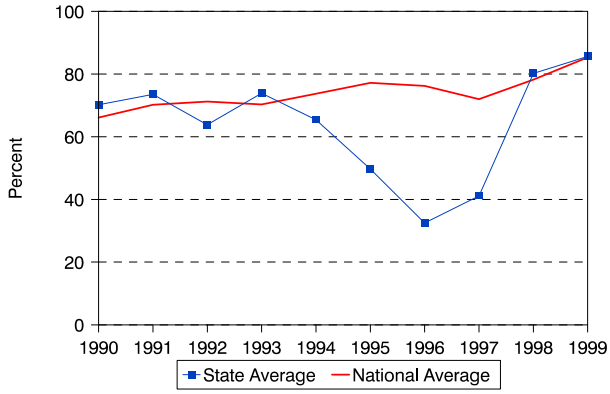


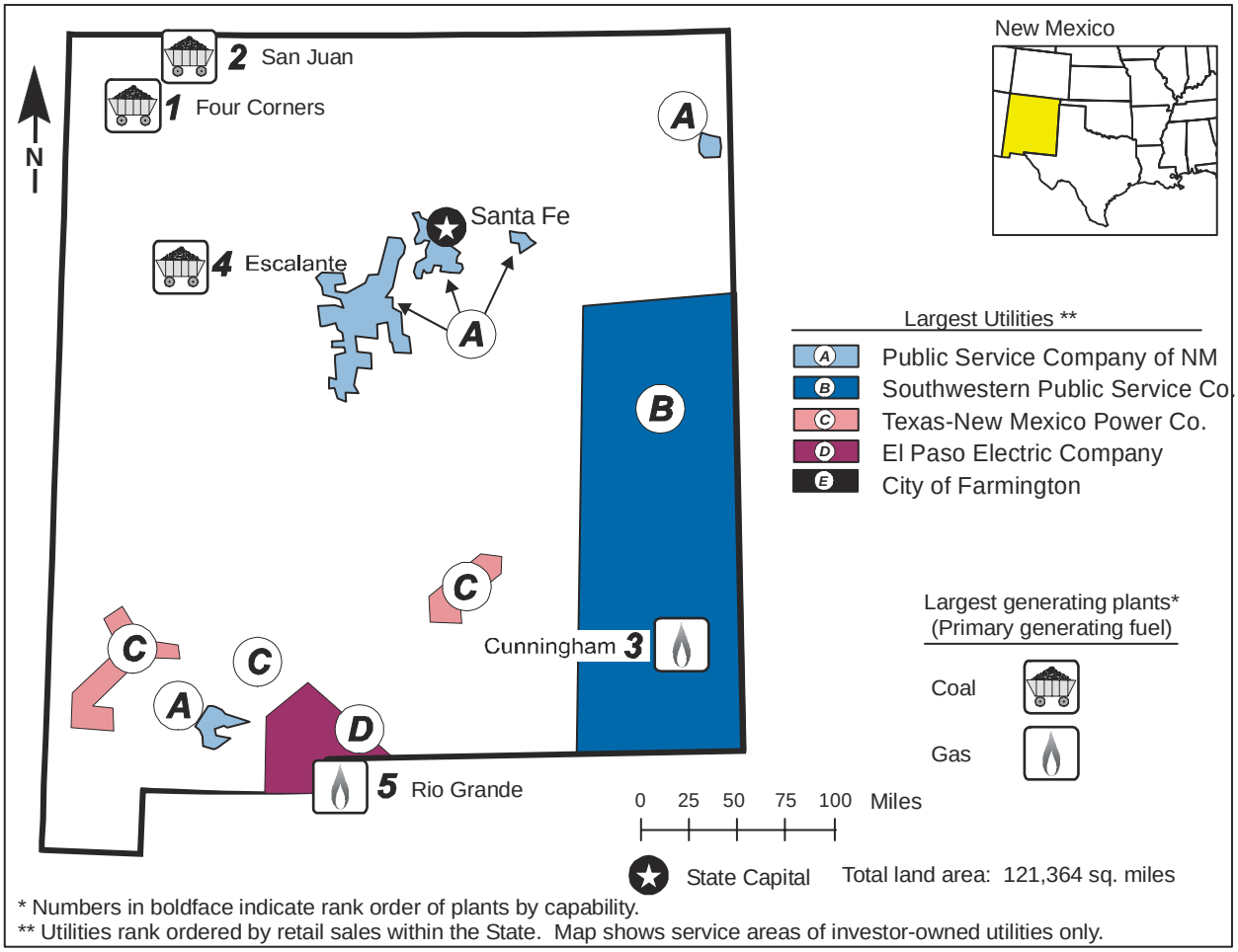
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	20,498	22,154	24,550	2.0	32.6	33.4	34.8
Commercial	26,839	29,358	32,436	2.1	42.7	44.3	45.9
Industrial	15,041	14,251	13,071	-1.5	23.9	21.5	18.5
Other	479	495	525	1.0	0.8	0.8	0.7
Total	62,857	66,258	70,582	1.3	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	2,572	2,789	2,798	0.9	37.2	38.3	39.7
Commercial	2,907	3,152	3,160	0.9	42.0	43.3	44.8
Industrial	1,341	1,235	1,005	-3.1	19.4	17.0	14.3
Other	93	96	91	-0.1	1.3	1.3	1.3
Total	6,912	7,273	7,054	0.2	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	12.55	12.59	11.40	NA	NA	NA	NA
Commercial	10.83	10.74	9.74	NA	NA	NA	NA
Industrial	8.92	8.67	7.69	NA	NA	NA	NA
Other	19.33	19.32	17.43	NA	NA	NA	NA
Total	11.00	10.98	9.99	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	9	0	1	14
Number of Retail Customers	3,540,274	54,471	0	10,731	3,605,476
Retail Sales (thousand megawatthours)	69,505	954	0	123	70,582
Percentage of Retail Sales	98.47	1.35	0	0.17	100
Revenue from Retail Sales (million dollars)	6,960	82	0	13	7,054
Percentage of Revenue	98.66	1.16	0	0.18	100
Average Revenue per Kilowatthour (cents/kWh)	10.01	8.55	0	10.3	9.99

New Mexico



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SPP/WSCC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	5,539	39
Utility	5,299	36
Nonutility	240	40
Net Generation (megawatthours)	32,581,151	37
Utility	31,654,480	35
Nonutility	926,671	41
Emissions (thousand short tons)		
Sulfur Dioxide	56	34
Nitrogen Oxide	127	25
Carbon Dioxide	32,592	32
Sulfur Dioxide/sq. mile	0	40
Nitrogen Oxide/sq. mile	1	41
Carbon Dioxide/sq. mile	269	41
Electricity Consumption (MWh) (excludes line losses)	18,655,992	39
Utility Retail Electricity Sales (megawatthours)	17,997,502	39
Unregulated Retail Electricity Sales (megawatthours)	43,800	16
Nonutility Retail Sales and Direct Use (megawatthours)	614,690	32
Utility Average Retail Price (cents/kWh)	6.58	20

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Four Corners	Gas, Coal	Arizona Public Service Co	2,040
2. San Juan	Petroleum, Coal	Public Service Co of NM	1,643
3. Cunningham	Gas	Southwestern Public Service Co	511
4. Escalante	Gas, Coal	Plains Elec Gen&Trans Coop Inc	247
5. Rio Grande	Petroleum, Gas	El Paso Electric Co	246
6. Maddox	Gas	Southwestern Public Service Co	184
7. Reeves	Gas	Public Service Co of NM	154
8. Chino Mines Co	Gas	Phelps Dodge Corp	64
9. Milagro Cogeneration	Gas	Williams Field Services	52
10. Animas	Hydro, Gas	Farmington City of	50

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Public Service Company of NM	6,803,583	2,027,099	2,980,935	1,559,155	236,394
B. Southwestern Public Service Co	3,033,224	771,212	830,265	1,318,369	113,378
C. Texas-New Mexico Power Company	1,662,651	226,344	244,126	1,175,936	16,245
D. El Paso Electric Company	1,163,289	409,335	373,268	25,134	355,552
E. City of Farmington	783,608	186,432	303,648	289,168	4,360
Total	13,446,355	3,620,422	4,732,242	4,367,762	725,929
Percentage of Utility Sales	75	78	80	74	47

Table 4. Electric Power Industry Generating Capability by Primary Energy Source
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	5,042	5,078	5,299	0.6	97.3	96.5	95.7
Coal	3,899	3,901	3,942	0.1	75.2	74.1	71.2
Petroleum	24	24	0	-100.0	0.5	0.4	0.0
Gas	1,063	1,096	1,275	2.0	20.5	20.8	23.0
Hydroelectric	57	58	82	4.2	1.1	1.1	1.5
Total Nonutility	141	183	240	6.1	2.7	3.5	4.3
Petroleum	W	W	66	W	W	W	1.2
Gas	96	96	107	1.2	1.9	1.8	1.9
Petroleum/Gas Combined	W	W	65	W	W	W	1.2
Other	2	2	2	-0.6	0.0	0.0	0.0
Total Industry	5,183	5,261	5,539	0.7	100.0	100.0	100.0
Coal	3,899	3,901	3,942	0.1	75.2	74.1	71.2
Petroleum	W	W	66	W	W	W	1.2
Gas	1,159	1,192	1,382	2.0	22.4	22.6	24.9
Petroleum/Gas Combined	W	W	65	W	W	W	1.2
Hydroelectric	57	58	82	4.2	1.1	1.1	1.5
Other	2	2	2	-0.6	0.0	0.0	0.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

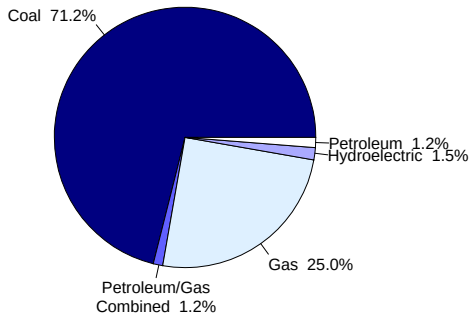


Figure 2. Industry Generation by Energy Source, 1999

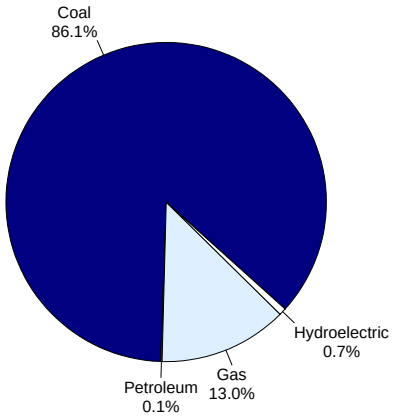


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	28,491,171	30,018,011	31,654,480	1.2	98.9	98.8	97.2
Coal	25,826,928	26,752,349	28,067,704	0.9	89.6	88.0	86.1
Petroleum	34,081	22,929	40,133	1.8	0.1	0.1	0.1
Gas	2,424,727	3,029,843	3,303,933	3.5	8.4	10.0	10.1
Hydroelectric	205,435	212,890	242,710	1.9	0.7	0.7	0.7
Total Nonutility	329,020	372,638	926,671	12.2	1.1	1.2	2.8
Petroleum	W	W	3,748	W	W	W	0.0
Gas	313,347	359,069	922,923	12.8	1.1	1.2	2.8
Other	W	W	0	W	W	W	0.0
Total Industry	28,820,191	30,390,649	32,581,151	1.4	100.0	100.0	100.0
Coal	25,826,928	26,752,349	28,067,704	0.9	89.6	88.0	86.1
Petroleum	W	W	43,881	W	W	W	0.1
Gas	2,738,074	3,388,912	4,226,856	4.9	9.5	11.2	13.0
Hydroelectric	205,435	212,890	242,710	1.9	0.7	0.7	0.7
Other	W	W	0	W	W	W	0.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	159.8	153.8	132.9	-2.0
Average heat value (Btu per pound)	9,117	9,043	9,132	*
Average sulfur Content (percent)	0.8	0.8	0.8	*
Petroleum (cents per million Btu) (1999 dollars) . . .	635.8	507.5	502.3	-2.6
Average heat value (Btu per gallon)	138,099	136,000	136,000	-0.2
Average sulfur Content (percent)	1	0	0	-100.0
Gas (cents per million Btu) (1999 dollars)	231.3	212.4	228.2	-0.1
Average heat value (Btu per cubic foot)	1,034	1,022	1,013	-0.2

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	60	63	56	-0.7
Petroleum	*	*	*	-24.5
Total	60	63	56	-0.7
Nitrogen Oxide				
Coal	128	117	122	-0.5
Petroleum	*	*	*	-1.3
Gas	3	4	5	7.1
Total	131	121	127	-0.3
Carbon Dioxide				
Coal	29,102	28,666	29,972	0.3
Petroleum	31	24	32	0.3
Gas	1,507	2,134	2,588	6.2
Total	30,640	30,824	32,592	0.7

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

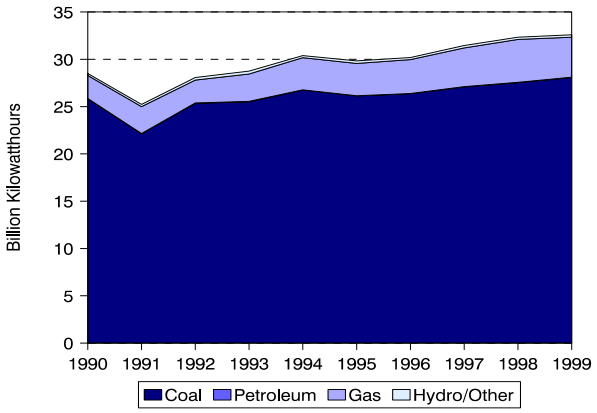


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

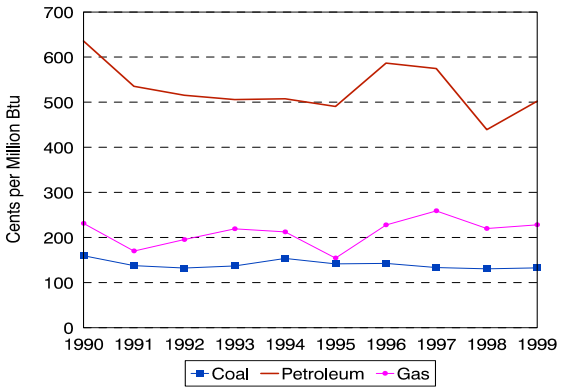


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

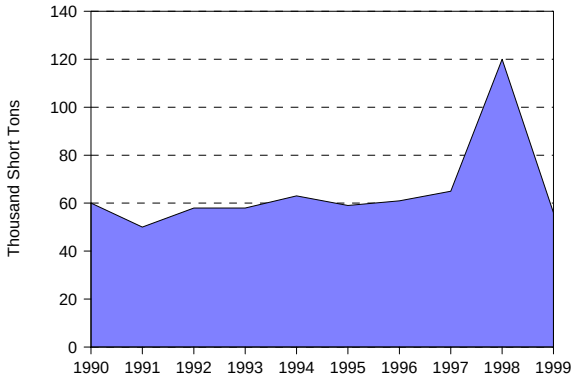


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

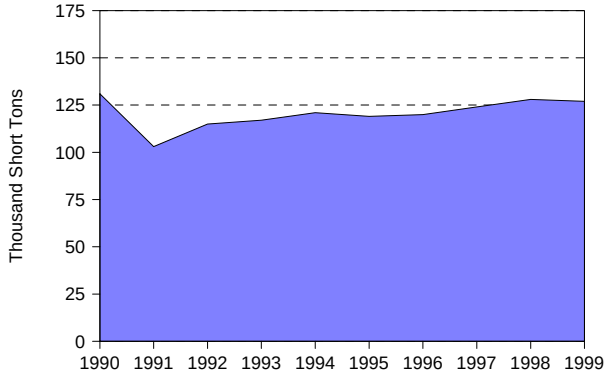


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

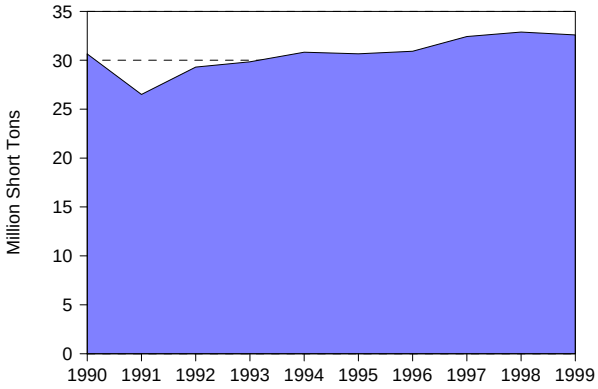


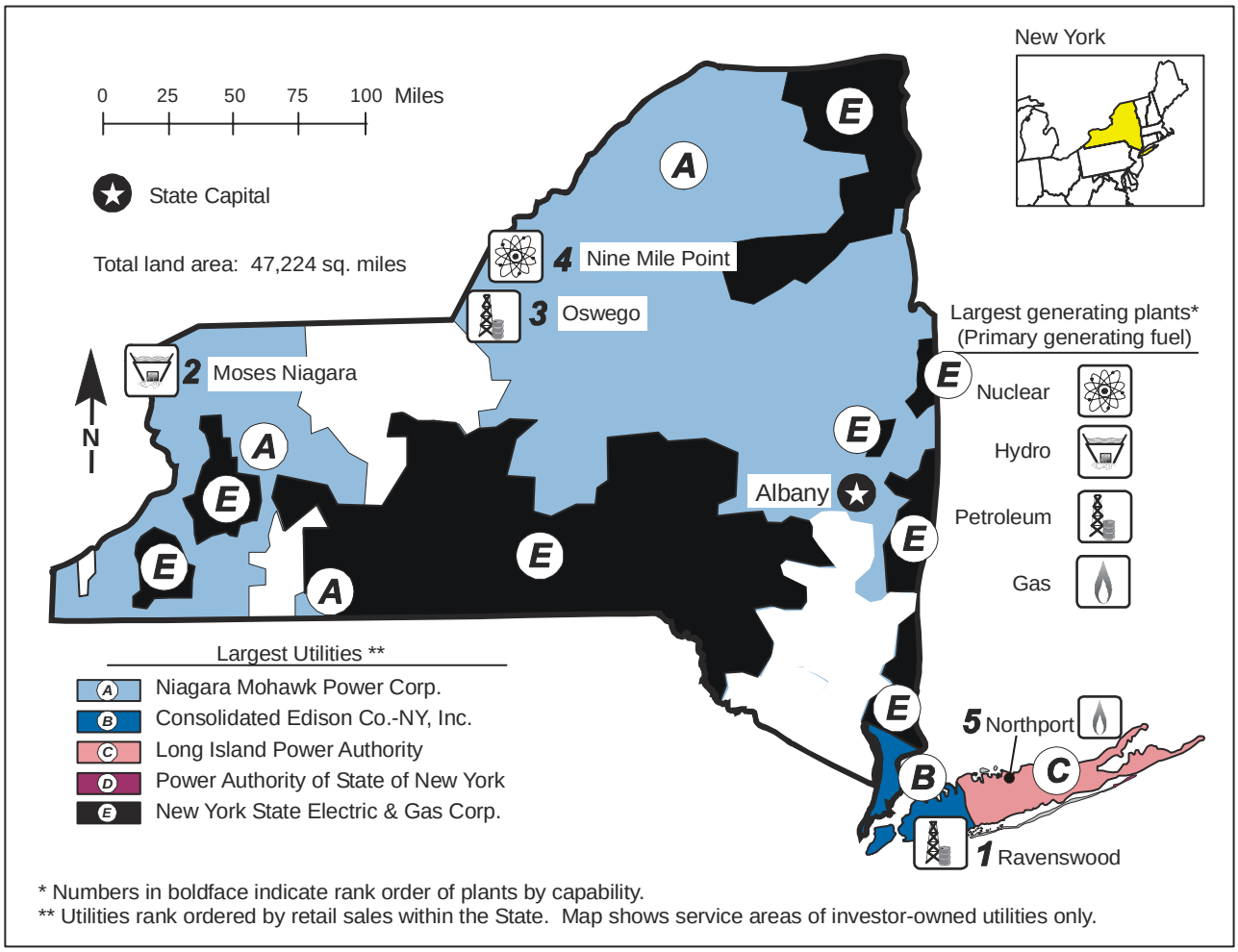
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	3,566	4,080	4,645	3.0	25.8	25.7	25.8
Commercial	4,464	4,970	5,887	3.1	32.3	31.3	32.7
Industrial	4,413	5,184	5,922	3.3	31.9	32.7	32.9
Other	1,378	1,625	1,543	1.3	10	10.3	8.6
Total	13,821	15,859	17,998	3	100	100	100
Retail Sales Revenue							
(million 1999 dollars)							
Residential	386	407	401	0.4	32.5	33.1	33.8
Commercial	440	450	443	0.1	37	36.6	37.4
Industrial	266	266	252	-0.6	22.4	21.6	21.3
Other	96	107	89	-0.9	8.1	8.7	7.5
Total	1,188	1,230	1,184	*	100	100	100
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	10.82	9.97	8.62	NA	NA	NA	NA
Commercial	9.85	9.06	7.53	NA	NA	NA	NA
Industrial	6.03	5.13	4.25	NA	NA	NA	NA
Other	7	6.61	5.76	NA	NA	NA	NA
Total	8.6	7.76	6.58	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	8	1	21	34
Number of Retail Customers	579,073	72,831	5	174,923	826,832
Retail Sales (thousand megawatthours)	12,663	1,647	181	3,507	17,998
Percentage of Retail Sales	70.4	9.2	1.0	19.5	100.0
Revenue from Retail Sales (million dollars)	836	112	3	232	1,184
Percentage of Revenue	70.6	9.5	0.3	19.6	100.0
Average Revenue per Kilowatthour (cents/kWh)	6.61	6.81	1.91	6.63	6.58

New York



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		NPCC
Primary Energy Source		Nuclear
Net Summer Capability (megawatts)	33,742	6
Utility	17,679	13
Nonutility	16,063	3
Net Generation (megawatthours)	144,642,987	6
Utility	97,009,440	11
Nonutility	47,633,547	3
Emissions (thousand short tons)		
Sulfur Dioxide	161	19
Nitrogen Oxide	126	26
Carbon Dioxide	64,596	15
Sulfur Dioxide/sq. mile	3	24
Nitrogen Oxide/sq. mile	3	27
Carbon Dioxide/sq. mile	1,368	21
Electricity Consumption (MWh) (excludes line losses)	147,545,430	5
Utility Retail Electricity Sales (megawatthours)	129,834,391	6
Unregulated Retail Electricity Sales (megawatthours)	9,543,250	3
Nonutility Retail Sales and Direct Use (megawatthours)	8,167,789	5
Utility Average Retail Price (cents/kWh)	10.4	3

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Ravenswood	Gas	Keyspan Ravenswood Inc	2,296
2. Moses Niagara	Hydro	Power Authority of State of NY	2,160
3. Oswego Harbor Power	Gas	Oswego Harbor Power LLC	1,804
4. Nine Mile Point	Petroleum, Nuclear	Niagara Mohawk Power Corp	1,752
5. Northport	Petroleum, Gas	KeySpan Generation LLC	1,561
6. Roseton	Gas, Petroleum	Central Hudson Gas & Elec Corp	1,215
7. Sithe Independence S	Gas	Sithe Independence Pwr Part LP	1,161
8. Bowline Point	Gas	Southern Energy New York	1,069
9. Blenheim-Gilboa	Hydro	Power Authority of State of NY	1,040
10. Indian Point 3	Nuclear	Power Authority of State of NY	970

Table 3. Five Largest Utilities by Retail Sales Within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Niagara Mohawk Power Corp	33,756,106	10,193,922	11,871,169	11,493,402	197,613
B. Consolidated Edison Co-NY, Inc	32,630,506	11,854,996	19,337,946	900,831	536,733
C. Long Island Power Authority	17,635,338	8,103,710	9,111,722	0	419,906
D. Power Authority of State of NY	13,791,769	0	125,656	4,548,385	9,117,728
E. New York State Elec & Gas Corp	13,192,379	5,321,979	3,366,306	3,141,485	1,362,609
Total	111,006,098	35,474,607	43,812,799	20,084,103	11,634,589
Percentage of Utility Sales	86.0	83.0	89.0	80.0	91.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	31,224	32,824	17,679	-6.1	92.7	87.0	52.4
Coal	3,887	3,879	668	-17.8	11.5	10.3	2.0
Petroleum	12,349	7,684	4,991	-9.6	36.7	20.4	14.8
Gas	5,065	9,194	2,600	-7.1	15.0	24.4	7.7
Nuclear	4,839	4,831	4,981	0.3	14.4	12.8	14.8
Hydroelectric	5,085	7,236	4,439	-1.5	15.1	19.2	13.2
Total Nonutility	2,451	4,921	16,063	23.2	7.3	13.0	47.6
Coal	401	372	2,594	23.0	1.2	1.0	7.7
Petroleum	92	133	42	-8.3	0.3	0.4	0.1
Gas	535	2,477	2,359	17.9	1.6	6.6	7.0
Petroleum/Gas Combined	767	1,268	9,566	32.4	2.3	3.4	28.4
Hydroelectric	W	W	1,032	W	W	W	3.1
Other	349	348	469	3.4	1.0	0.9	1.4
Total Industry	33,675	37,745	33,742	0.0	100.0	100.0	100.0
Coal	4,288	4,251	3,262	-3.0	12.7	11.3	9.7
Petroleum	12,441	7,817	5,034	-9.6	36.9	20.7	14.9
Gas	5,600	11,670	4,959	-1.3	16.6	30.9	14.7
Petroleum/Gas Combined	767	1,268	9,566	32.4	2.3	3.4	28.4
Nuclear	4,839	4,831	4,981	0.3	14.4	12.8	14.8
Hydroelectric	W	W	5,470	W	W	W	16.2
Other	349	348	469	3.4	1.0	0.9	1.4

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

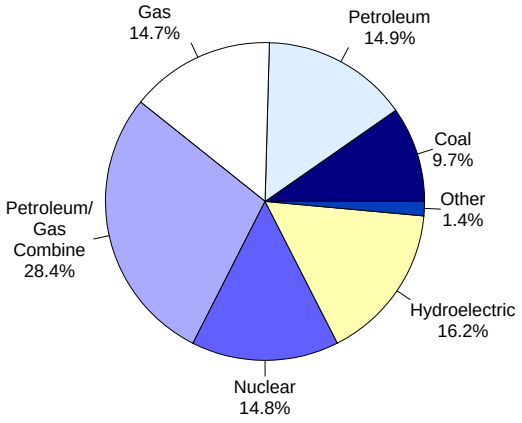


Figure 2. Industry Generation by Energy Source, 1999

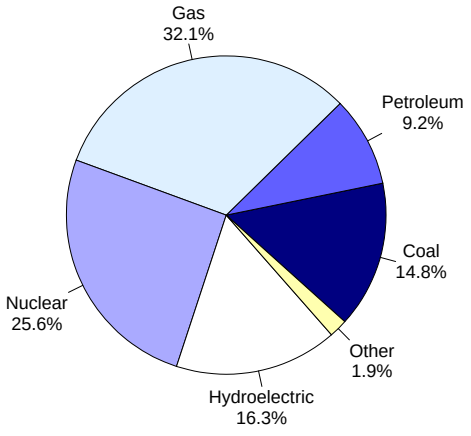


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	128,655,291	103,762,902	97,009,440	-3.1	90.5	82.1	67.1
Coal	24,616,655	20,859,090	10,949,307	-8.6	17.3	16.5	7.6
Petroleum	33,404,291	10,998,162	11,734,647	-11.0	23.5	8.7	8.1
Gas	21,262,936	17,463,636	17,183,250	-2.3	15.0	13.8	11.9
Nuclear	23,623,356	29,231,434	37,018,540	5.1	16.6	23.1	25.6
Hydroelectric	25,748,053	25,199,786	20,123,567	-2.7	18.1	19.9	13.9
Other	0	10,794	129	0.0	0.0	0.0	0.0
Total Nonutility	13,521,666	22,570,471	47,633,547	15.0	9.5	17.9	32.9
Coal	2,143,172	2,512,110	10,417,773	19.2	1.5	2.0	7.2
Petroleum	W	W	1,627,123	W	W	W	1.1
Gas	6,899,689	15,314,238	29,286,168	17.4	4.9	12.1	20.2
Hydroelectric	1,460,148	1,448,782	3,518,685	10.3	1.0	1.1	2.4
Other	W	W	2,783,798	W	W	W	1.9
Total Industry	142,176,957	126,333,373	144,642,987	0.2	100.0	100.0	100.0
Coal	26,759,827	23,371,200	21,367,080	-2.5	18.8	18.5	14.8
Petroleum	W	W	13,361,770	W	W	W	9.2
Gas	28,162,625	32,777,874	46,469,418	5.7	19.8	25.9	32.1
Nuclear	23,623,356	29,231,434	37,018,540	5.1	16.6	23.1	25.6
Hydroelectric	27,208,201	26,648,568	23,642,252	-1.5	19.1	21.1	16.3
Other	W	W	2,783,927	W	W	W	1.9

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	195.6	158.5	144.9	-3.3
Average heat value (Btu per pound)	12846	12959	13034	0.2
Average sulfur Content (percent)	1.8	1.7	1.7	-1.0
Petroleum (cents per million Btu) (1999 dollars)	436.7	274.8	236.5	-6.6
Average heat value (Btu per gallon)	150037	149788	150571	*
Average sulfur Content (percent)	0.8	0.7	0.9	1.3
Gas (cents per million Btu) (1999 dollars)	288.8	244.1	278.5	-0.4
Average heat value (Btu per cubic foot)	1033	1031	1024	-0.1

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	262	199	106	-9.6
Petroleum	142	43	55	-10.0
Other	0	0	0	0.0
Total	403	242	161	-9.7
Nitrogen Oxide				
Coal	88	70	66	-3.1
Petroleum	42	13	13	-12.1
Gas	24	24	42	6.4
Other	0	5	5	0.0
Total	153	113	126	-2.1
Carbon Dioxide				
Coal	25,392	24,305	24,583	-0.4
Petroleum	29,405	10,955	12,283	-9.2
Gas	13,082	16,204	26,338	8.1
Other	0	2,859	1,393	0.0
Total	67,878	54,323	64,596	-0.5

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

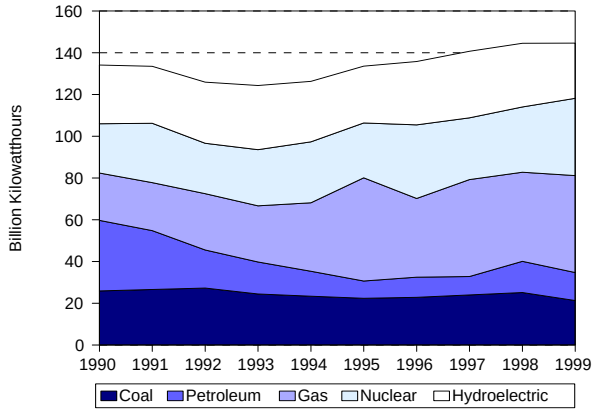


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

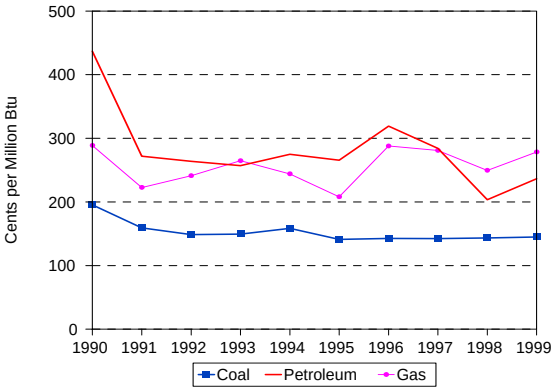


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

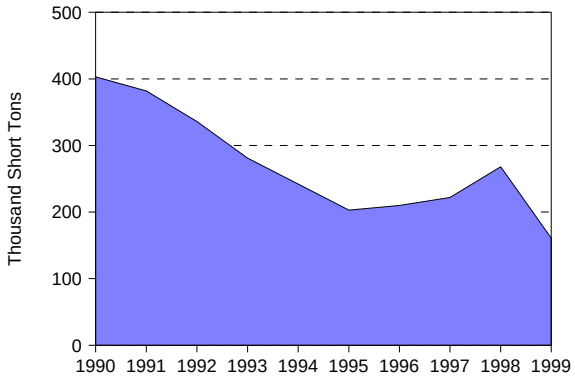


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

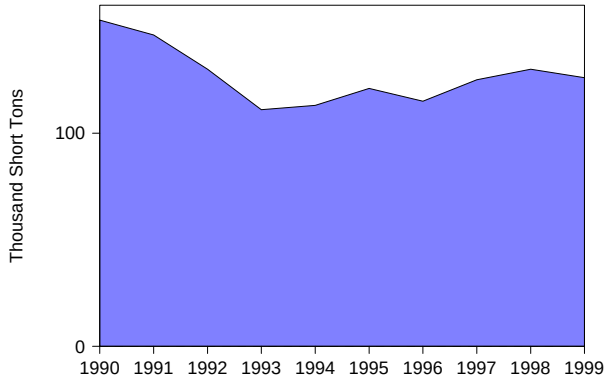


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

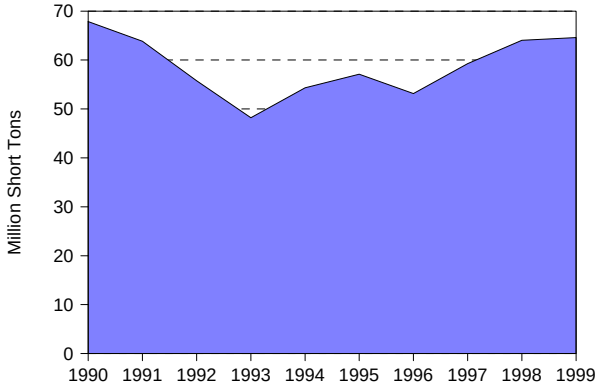


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

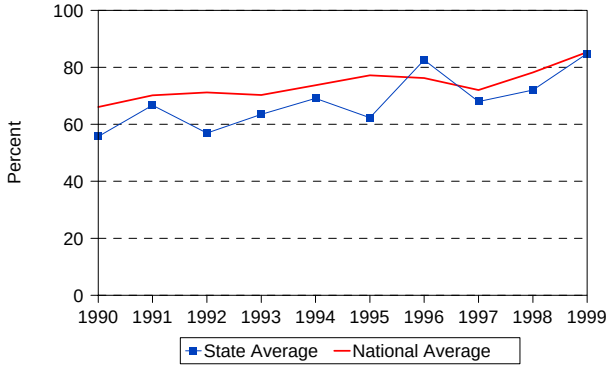


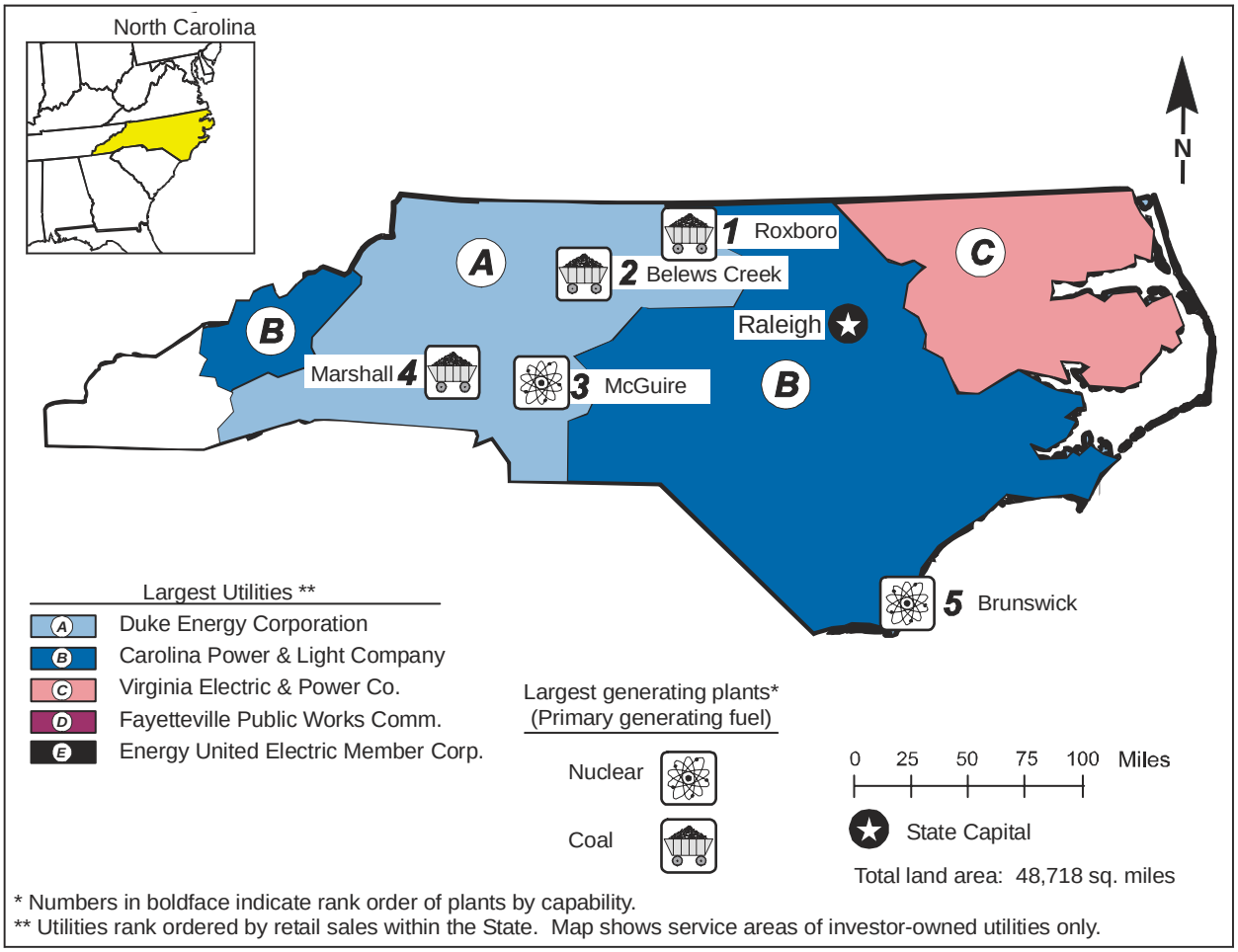
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	38,574	40,105	42,538	1.1	29.8	30.6	32.8
Commercial	46,921	48,828	49,366	0.6	36.3	37.2	38.0
Industrial	31,929	29,467	25,202	-2.6	24.7	22.5	19.4
Other	11,900	12,777	12,729	0.8	9.2	9.7	9.8
Total	129,324	131,177	129,834	0.0	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	5,346	5,930	5,665	0.6	36.4	37.9	41.9
Commercial	5,948	6,219	5,523	-0.8	40.5	39.8	40.9
Industrial	2,236	2,178	1,203	-6.7	15.2	13.9	8.9
Other	1,147	1,298	1,113	-0.3	7.8	8.3	8.2
Total	14,677	15,626	13,503	-0.9	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	13.86	14.79	13.32	NA	NA	NA	NA
Commercial	12.68	12.74	11.19	NA	NA	NA	NA
Industrial	7.00	7.39	4.77	NA	NA	NA	NA
Other	9.64	10.16	8.74	NA	NA	NA	NA
Total	11.35	11.91	10.40	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	8	49	0	4	61
Number of Retail Customers	6269541	1213785	0	15845	7499171
Retail Sales (thousand megawatthours)	94052	35623	0	160	129834
Percentage of Retail Sales	72.4	27.4	0.0	0.1	100.0
Revenue from Retail Sales (million dollars)	10373	3117	0	13	13503
Percentage of Revenue	76.8	23.1	0.0	0.1	100.0
Average Revenue per Kilowatthour (cents/kWh)	11.03	8.75	0.00	8.36	10.40

North Carolina



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SERC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	22,962	11
Utility	21,182	10
Nonutility	1,781	16
Net Generation (megawatthours)	117,587,666	11
Utility	109,882,388	10
Nonutility	7,705,278	15
Emissions (thousand short tons)		
Sulfur Dioxide	429	11
Nitrogen Oxide	193	14
Carbon Dioxide	72,936	12
Sulfur Dioxide/sq. mile	9	14
Nitrogen Oxide/sq. mile	4	19
Carbon Dioxide/sq. mile	1,497	16
Electricity Consumption (MWh) (excludes line losses)	118,691,057	8
Utility Retail Electricity Sales (megawatthours)	115,015,125	7
Nonutility Retail Sales and Direct Use (megawatthours)	3,675,932	12
Utility Average Retail Price (cents/kWh)	6.44	21

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Roxboro	Petroleum, Coal	Carolina Power & Light Co	2,477
2. Belews Creek	Petroleum, Coal	Duke Power Co	2,240
3. McGuire	Nuclear	Duke Power Co	2,200
4. Marshall	Petroleum, Coal	Duke Power Co	2,090
5. Brunswick	Nuclear	Carolina Power & Light Co	1,631
6. Lincoln Combustion	Petroleum, Gas	Duke Power Co	1,200
7. G G Allen	Petroleum, Coal	Duke Power Co	1,140
8. Harris	Nuclear	Carolina Power & Light Co	860
9. Cliffside	Petroleum, Coal	Duke Power Co	760
10. Mayo	Petroleum, Coal	Carolina Power & Light Co	745

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Duke Energy Corporation	52,008,959	16,725,041	17,250,810	17,802,736	230,372
B. Carolina Power & Light Company	33,310,362	11,419,147	9,511,406	11,117,208	1,262,601
C. Virginia Electric & Power Co	3,175,734	1,207,444	652,798	1,188,761	126,731
D. Fayetteville Public Works Comm	1,972,971	787,412	686,717	427,157	71,685
E. EnergyUnited Elec Member Corp	1,617,473	1,154,481	324,460	107,154	31,378
Total	92,085,499	31,293,525	28,426,191	30,643,016	1,722,767
Percentage of Utility Sales	80	72	81	90	81

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	20,190	19,767	21,182	0.5	94.5	92.0	92.2
Coal	12,500	12,438	12,440	-0.1	58.5	57.9	54.2
Petroleum	760	804	791	0.4	3.6	3.7	3.4
Gas	270	286	1,676	22.5	1.3	1.3	7.3
Nuclear	4,698	4,639	4,691	0.0	22.0	21.6	20.4
Hydroelectric	1,962	1,600	1,584	-2.3	9.2	7.4	6.9
Total Nonutility	1,179	1,720	1,781	4.7	5.5	8.0	7.8
Coal	618	830	917	4.5	2.9	3.9	4.0
Petroleum	7	18	46	23.5	0.0	0.1	0.2
Gas	W	W	180	W	W	W	0.8
Petroleum/Gas Combined	187	142	33	-17.4	0.9	0.7	0.1
Hydroelectric	W	W	366	W	W	W	1.6
Other	W	W	239	W	W	W	1.0
Total Industry	21,370	21,487	22,962	0.8	100.0	100.0	100.0
Coal	13,118	13,268	13,357	0.2	61.4	61.7	58.2
Petroleum	767	821	836	1.0	3.6	3.8	3.6
Gas	W	W	1,856	W	W	W	8.1
Petroleum/Gas Combined	187	142	33	-17.4	0.9	0.7	0.1
Nuclear	4,698	4,639	4,691	0.0	22.0	21.6	20.4
Hydroelectric	W	W	1,950	W	W	W	8.5
Other	358	322	239	-4.4	1.7	1.5	1.0

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

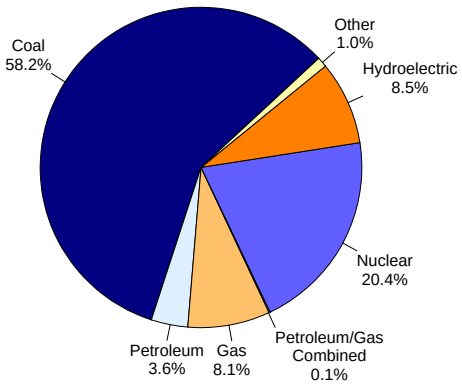


Figure 2. Industry Generation by Energy Source, 1999

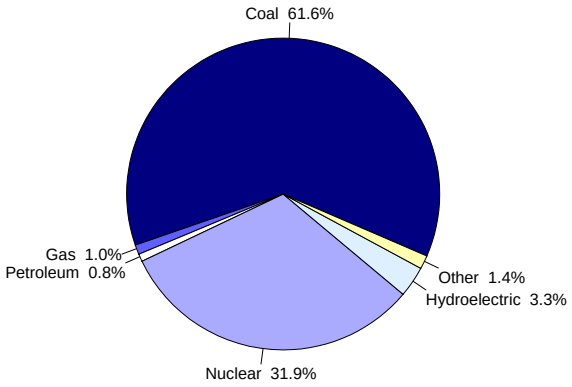


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	79,845,217	91,454,784	109,882,388	3.6	93.9	90.7	93.4
Coal	46,631,040	53,234,497	68,569,499	4.4	54.8	52.8	58.3
Petroleum	186,899	199,418	284,400	4.8	0.2	0.2	0.2
Gas	165,362	69,076	851,103	20.0	0.2	0.1	0.7
Nuclear	25,905,319	32,346,007	37,523,504	4.2	30.5	32.1	31.9
Hydroelectric	6,956,597	5,605,786	2,653,882	-10.2	8.2	5.6	2.3
Total Nonutility	5,182,210	9,386,707	7,705,278	4.5	6.1	9.3	6.6
Coal	3,224,049	4,901,279	3,847,582	2.0	3.8	4.9	3.3
Petroleum	148,076	248,233	654,464	18.0	0.2	0.2	0.6
Gas	86,579	245,549	315,840	15.5	0.1	0.2	0.3
Hydroelectric	W	W	1,205,701	W	W	W	1.0
Other	W	W	1,681,692	W	W	W	1.4
Total Industry	85,027,427	100,841,491	117,587,666	3.7	100.0	100.0	100.0
Coal	49,855,089	58,135,776	72,417,081	4.2	58.6	57.7	61.6
Petroleum	334,975	447,651	938,864	12.1	0.4	0.4	0.8
Gas	251,941	314,625	1,166,943	18.6	0.3	0.3	1.0
Nuclear	25,905,319	32,346,007	37,523,504	4.2	30.5	32.1	31.9
Hydroelectric	W	W	3,859,583	W	W	W	3.3
Other	W	W	1,681,692	W	W	W	1.4

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu)	215.7	183.6	143.8	-4.4
Average heat value (Btu per pound)	12,544	12,416	12,450	-0.1
Average sulfur Content(percent)	1.0	0.9	0.8	-1.3
Petroleum (cents per million Btu)	620.7	419.0	398.4	-4.8
Average heat value (Btu per gallon)	138,230	138,239	138,171	0.0
Gas (cents per million Btu)	0.0	355.5	283.3	0.0
Average heat value (Btu per cubic foot)	0	1,038	1,031	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	328	362	429	3.0
Petroleum	*	*	*	-1.1
Other	0	*	0	0.0
Total	328	362	429	3.0
Nitrogen Oxide				
Coal	166	200	189	1.5
Petroleum	*	1	1	23.1
Gas	*	*	1	17.6
Other	0	2	1	0.0
Total	166	204	193	1.7
Carbon Dioxide				
Coal	46,050	57,283	71,141	4.9
Petroleum	186	644	867	18.6
Gas	146	99	794	20.7
Other	0	137	134	0.0
Total	46,382	58,163	72,936	5.2

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

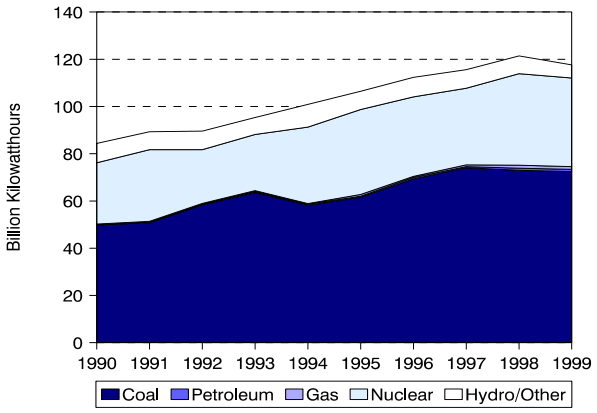


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

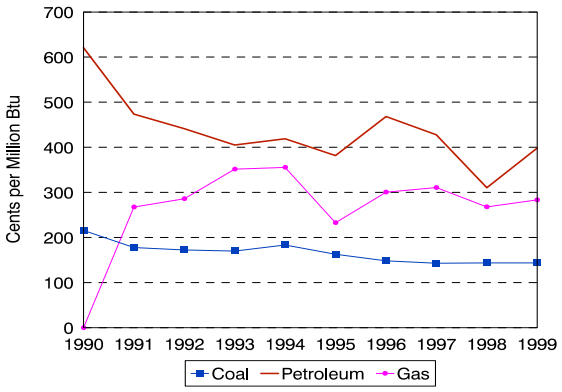


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

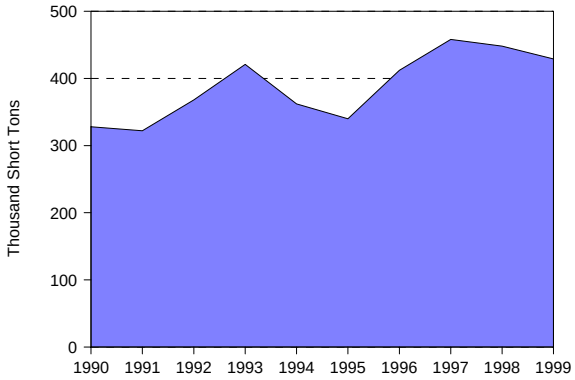


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

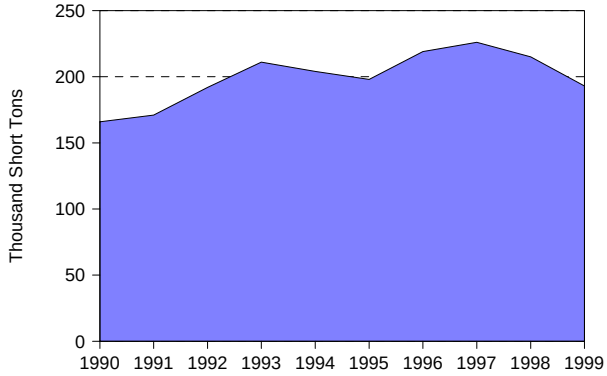


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

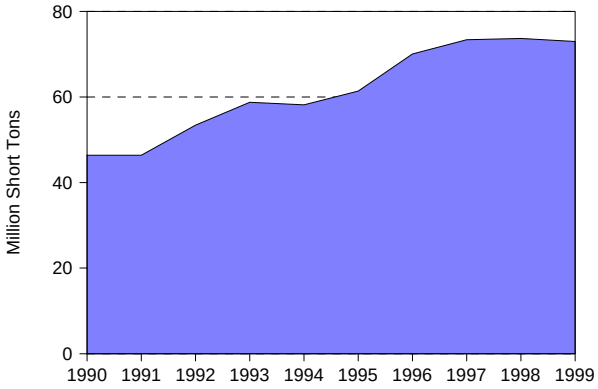


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

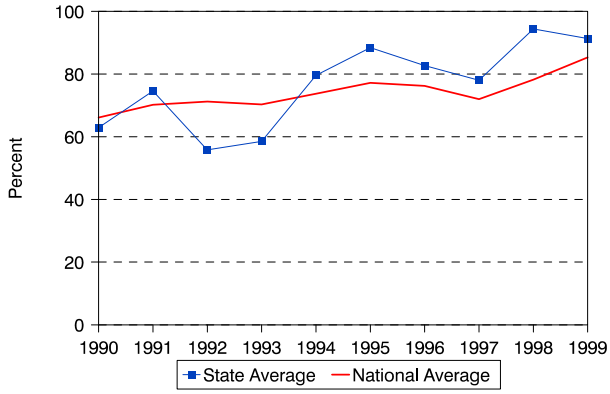


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	33,144	37,207	43,648	3.1	36.9	37.3	37.9
Commercial	23,835	27,458	35,069	4.4	26.5	27.5	30.5
Industrial	31,265	33,307	34,165	1	34.8	33.4	29.7
Other	1,681	1,817	2,133	2.7	1.9	1.8	1.8
Total	89,924	99,789	115,015	2.8	100	100	100
Retail Sales Revenue							
(million 1999 dollars)							
Residential	3,148	3,318	3,486	1.1	45.3	46	47
Commercial	1,854	1,966	2,221	2	26.7	27.3	30
Industrial	1,807	1,792	1,560	-1.6	26	24.8	21
Other	143	137	144	0.1	2	1.9	1.9
Total	6,951	7,214	7,412	0.7	100	100	100
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	9.5	8.92	7.99	NA	NA	NA	NA
Commercial	7.78	7.16	6.33	NA	NA	NA	NA
Industrial	5.78	5.38	4.57	NA	NA	NA	NA
Other	8.48	7.54	6.74	NA	NA	NA	NA
Total	7.73	7.23	6.44	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	3	72	1	31	107
Number of Retail Customers	2,691,092	508,239	4	806,768	4,006,103
Retail Sales (thousand megawatthours)	88,495	13,941	6	12,572	115,015
Percentage of Retail Sales	76.9	12.1	0.0	10.9	100.0
Revenue from Retail Sales (million dollars)	5,325	1,077	0	1,009	7,412
Percentage of Revenue	71.9	14.5	0.0	13.6	100.0
Average Revenue per Kilowatthour (cents/kWh)	6.02	7.72	4.06	8.03	6.44

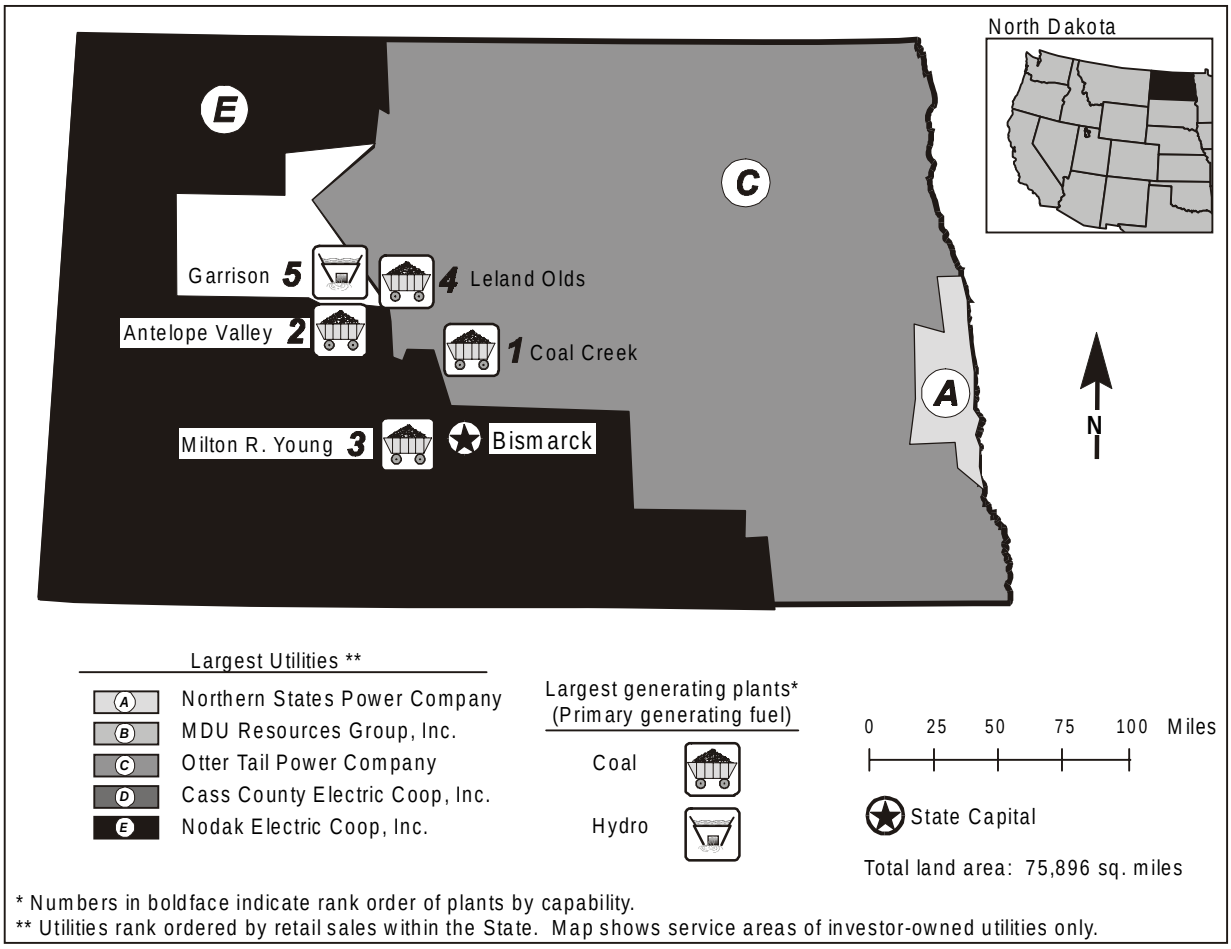


Table 1. 1998 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		MAPP
Net Exporter or Importer		Exporter
Primary Generating Fuel		Coal
Population (as of 7/98)	637,808	47
Average Electricity Price (cents/kWh)[a]	5.70	16
Industrial	4.30	24
Commercial	6.20	17
Residential	6.49	9
Industry		
Capability (MW)	4,691	41
Generation (MWh)	30,671,950	37
Capability/person (KWe/person)	7.35	3
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

Item	Value	U.S. Rank
Utility		
Capability (MW)	4,656	40
Generation (MWh)	30,518,976	36
Average Age of Plants (years)		
Coal-fired	20	
Petroleum-fired	30	
Gas-fired	45	
Hydroelectric	41	
Nonutility		
Capability (MW)	35	48
Share of Capability (Percent)	0.7	46
Generation (MWh)	152,974	47
Share of Generation (Percent)	0.5	46

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	-4.1	2.1	1.5	1.3
Gas-fired	--	--	9	0.0	--	--	0.2
Dual-fired	10	10	--	-100.0	0.2	0.2	--
Hydroelectric	545	545	518	-0.5	12.0	12.2	11.1
Total Nonutility	W	W	35	1.9	--	--	--
Industry	W	W	4,691	0.3	--	--	--

Figure 1. Utility Generating Capability by Plant Type, 1998

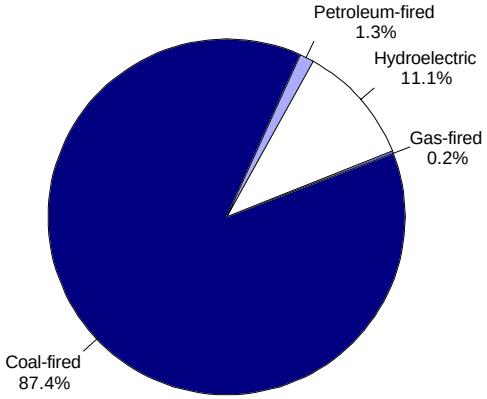


Figure 2. Utility Generation by Primary Energy Source, 1998

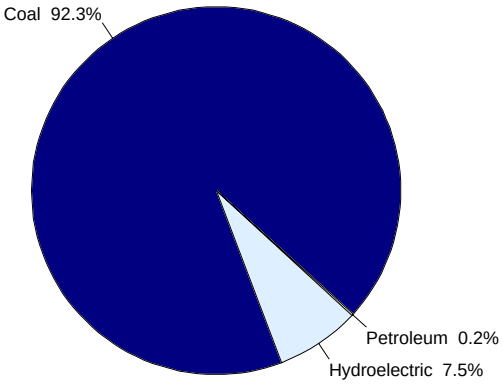


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

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	1.1	*100.0*	*100.0*	*100.0*
Coal	25,449,761	27,048,924	28,176,015	1.0	*93.0*	*94.9*	*92.3*
Petroleum	17,925	35,795	47,091	10.1	*0.1*	*0.1*	*0.2*
Gas	-14	-5	-78	18.4	*	*	*
Hydroelectric	1,883,670	1,415,110	2,295,948	2.0	*6.9*	*5.0*	*7.5*
Total Nonutility	W	W	152,974	-1.3	--	--	--
Industry	W	W	30,671,950	1.1	--	--	--

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	0.8
Petroleum	362.1	441.6	311.9	-1.5
Gas	428.6	424.9	369.3	-1.5

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	98	140	144	3.9
Nitrogen Oxides[c]	105	109	112	0.7
Carbon Dioxide[c]	30,826	32,990	34,286	1.2

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

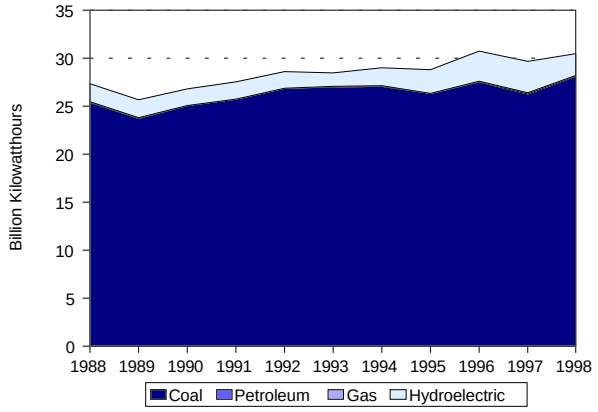


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998
(1998 Dollars)

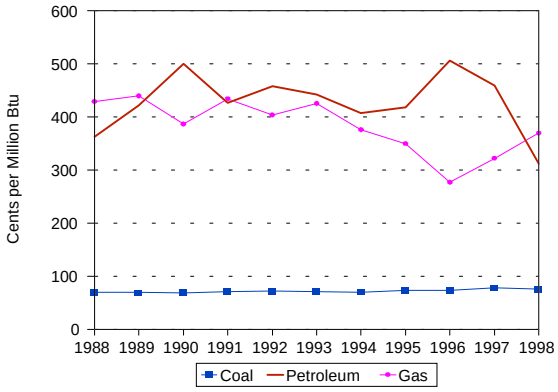


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

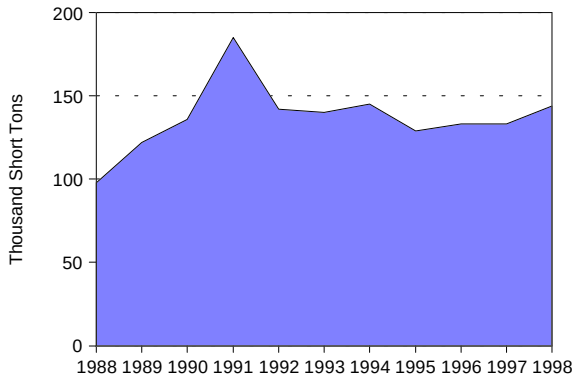


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

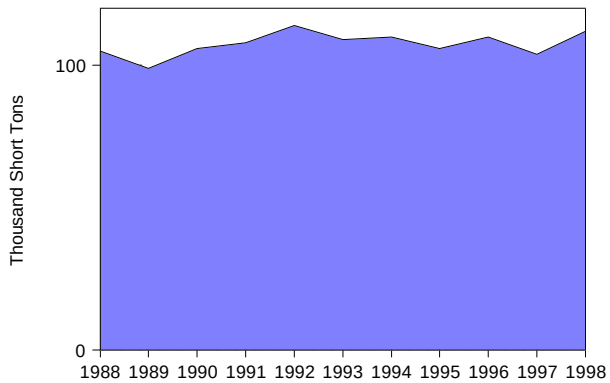


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

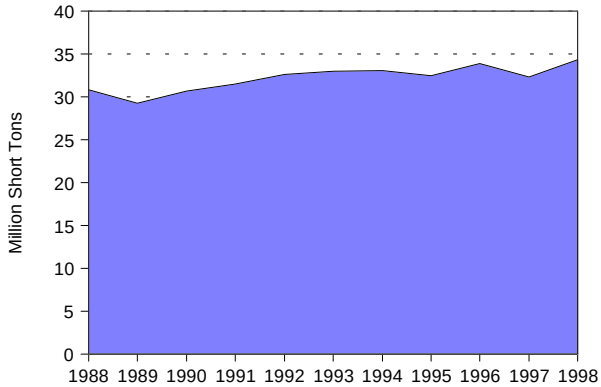


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

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	0.7	42.9	43.2	39.8
Commercial . .	1,520,710	1,830,759	2,305,227	4.3	21.4	24.6	28.0
Industrial	2,069,970	1,904,643	2,187,096	0.5	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	1.5	100.0	100.0	100.0

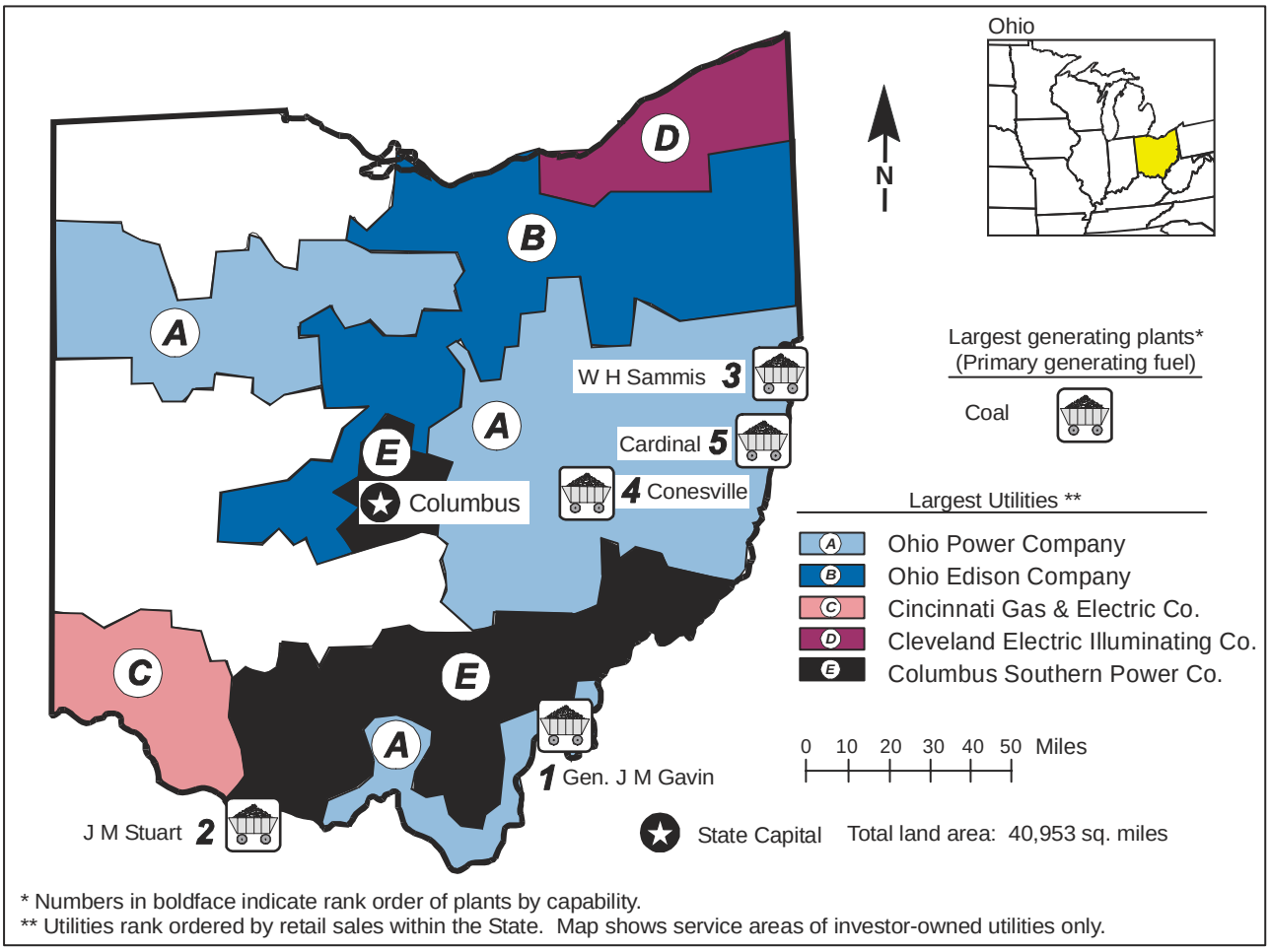
Figure 8. Nuclear Power Capacity Factor Comparison, 1988-1998

Not Applicable

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

Ohio



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		ECAR
Primary Energy Source		Coal
Net Summer Capability (megawatts)	27,391	7
Utility	27,083	3
Nonutility	308	38
Net Generation (megawatthours)	142,401,284	7
Utility	140,912,140	5
Nonutility	1,489,144	38
Emissions (thousand short tons)		
Sulfur Dioxide	1,225	2
Nitrogen Oxide	472	3
Carbon Dioxide	127,361	3
Sulfur Dioxide/sq. mile	30	3
Nitrogen Oxide/sq. mile	12	4
Carbon Dioxide/sq. mile	3,110	7
Electricity Consumption (MWh) (excludes line losses)	165,717,257	4
Utility Retail Electricity Sales (megawatthours)	164,270,662	4
Unregulated Retail Electricity Sales (megawatthours)	168	17
Nonutility Retail Sales and Direct Use (megawatthours)	1,446,427	25
Utility Average Retail Price (cents/kWh)	6.4	22

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Gen J M Gavin	Petroleum, Coal	Ohio Power Co	2,600
2. J M Stuart	Petroleum, Coal	Dayton Power & Light Co	2,350
3. W H Sammis	Petroleum, Coal	Ohio Edison Co	2,233
4. Conesville	Petroleum, Coal	Columbus Southern Power Co	1,925
5. Cardinal	Petroleum, Coal	Cardinal Operating Co	1,800
6. Muskingum River	Petroleum, Coal	Ohio Power Co	1,365
7. Walter C Beckjord	Petroleum, Coal	Cincinnati Gas & Electric Co	1,323
8. W H Zimmer	Petroleum, Coal	Cincinnati Gas & Electric Co	1,300
9. Miami Fort	Petroleum, Coal	Cincinnati Gas & Electric Co	1,300
10. Eastlake	Petroleum, Coal	Cleveland Electric Illum Co	1,246

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Ohio Power Company	31,982,889	6,546,137	5,050,789	20,303,285	82,678
B. Ohio Edison Company	24,946,704	8,122,413	6,946,794	9,732,421	145,076
C. Cincinnati Gas & Electric Co	20,070,826	6,833,949	5,392,044	6,349,370	1,495,463
D. Cleveland Electric Illum Co	20,021,621	5,278,117	6,508,752	8,068,911	165,841
E. Columbus Southern Power Co	16,435,078	6,112,875	6,683,121	3,198,470	440,612
Total	113,457,118	32,893,491	30,581,500	47,652,457	2,329,670
Percentage of Utility Sales	69	71	78	64	60

Table 4. Electric Power Industry Generating Capability by Primary Energy Source
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	26,996	27,192	27,083	0.0	98.8	98.1	98.9
Coal	23,189	23,158	22,626	-0.3	84.9	83.6	82.6
Petroleum	1,087	907	891	-2.2	4.0	3.3	3.3
Gas	462	876	1,271	11.9	1.7	3.2	4.6
Nuclear	2,043	2,037	2,042	0.0	7.5	7.4	7.5
Hydroelectric	125	124	164	3.0	0.5	0.4	0.6
Other	90	90	90	0.0	0.3	0.3	0.3
Total Nonutility	333	517	308	-0.9	1.2	1.9	1.1
Coal	183	378	188	0.3	0.7	1.4	0.7
Petroleum	2	6	6	15.4	0.0	0.0	0.0
Gas	W	W	98	W	W	W	0.4
Petroleum/Gas Combined	88	77	0	-100.0	0.3	0.3	0.0
Hydroelectric	W	W	0	W	W	W	0.0
Other	29	29	16	-6.6	0.1	0.1	0.1
Total Industry	27,329	27,709	27,391	0.0	100.0	100.0	100.0
Coal	23,372	23,536	22,814	-0.3	85.5	84.9	83.3
Petroleum	1,088	913	897	-2.1	4.0	3.3	3.3
Gas	W	W	1,369	W	W	W	5.0
Petroleum/Gas Combined	88	77	0	-100.0	0.3	0.3	0.0
Nuclear	2,043	2,037	2,042	0.0	7.5	7.4	7.5
Hydroelectric	W	W	164	W	W	W	0.6
Other	119	119	106	-1.3	0.4	0.4	0.4

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

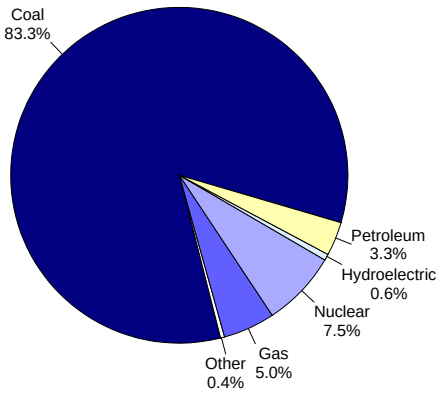


Figure 2. Industry Generation by Energy Source, 1999

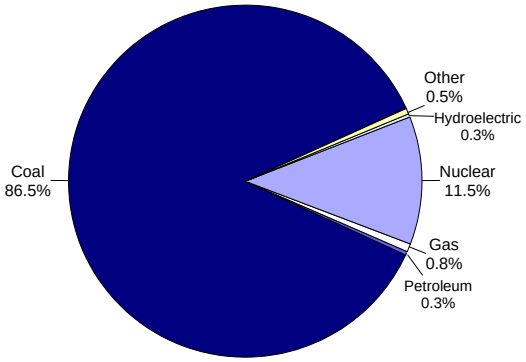


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	126,509,829	129,020,582	140,912,140	1.2	98.8	97.9	99
Coal	115,014,081	117,354,244	122,845,628	0.7	89.8	89	86.3
Petroleum	301,244	372,313	474,086	5.2	0.2	0.3	0.3
Gas	91,191	152,957	747,385	26.3	0.1	0.1	0.5
Nuclear	10,663,897	10,952,247	16,422,010	4.9	8.3	8.3	11.5
Hydroelectric	172,582	188,821	423,031	10.5	0.1	0.1	0.3
Other	266,834	0	0	-100.0	0.2	0	0
Total Nonutility	1,540,099	2,808,319	1,489,144	-0.4	1.2	2.1	1
Coal	801,373	2,051,968	400,444	-7.4	0.6	1.6	0.3
Petroleum	60,728	37,656	12,368	-16.2	0	0	0
Gas	296,400	395,074	333,782	1.3	0.2	0.3	0.2
Hydroelectric	W	W	0	W	W	W	0
Other	W	W	742,551	W	W	W	0.5
Total Industry	128,049,928	131,828,901	142,401,284	1.2	100	100	100
Coal	115,815,454	119,406,212	123,246,072	0.7	90.4	90.6	86.5
Petroleum	361,972	409,969	486,454	3.3	0.3	0.3	0.3
Gas	387,591	548,031	1,081,167	12.1	0.3	0.4	0.8
Nuclear	10,663,897	10,952,247	16,422,010	4.9	8.3	8.3	11.5
Hydroelectric	W	W	423,031	W	W	W	0.3
Other	W	W	742,551	W	W	W	0.5

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	183.7	157.1	136.2	-3.3
Average heat value (Btu per pound)	11,882	12,052	11,918	*
Average sulfur Content(percent)	2.4	2.3	2.0	-2.3
Petroleum (cents per million Btu) (1999 dollars)	556.1	440.8	391.7	-3.8
Average heat value (Btu per gallon)	142,918	137,940	138,054	-0.4
Average sulfur Content(percent)	1.1	0.0	0.0	-100.0
Gas (cents per million Btu) (1999 dollars)	308.6	408.9	306.4	-0.1
Average heat value (Btu per cubic foot)	1,008	1,029	1,028	0.2

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	2,160	1,954	1,225	-6.1
Petroleum	1	*	*	-9.1
Other	1	0	0	-45.5
Total	2,162	1,954	1,225	-6.1
Nitrogen Oxide				
Coal	512	502	468	-1.0
Petroleum	*	*	*	4.0
Gas	*	7	2	25.0
Other	1	0	1	1.1
Total	513	509	472	-0.9
Carbon Dioxide				
Coal	117,062	121,434	126,039	0.8
Petroleum	255	440	454	6.6
Gas	71	416	867	32.0
Other	336	49	0	-100.0
Total	117,724	122,339	127,361	0.9

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

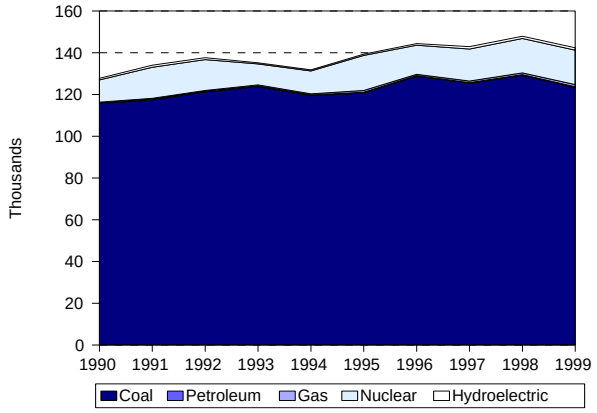


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

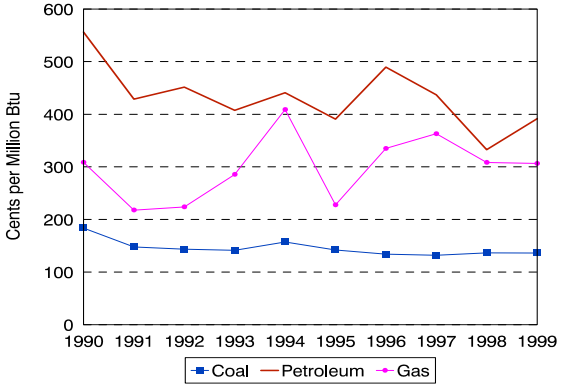


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

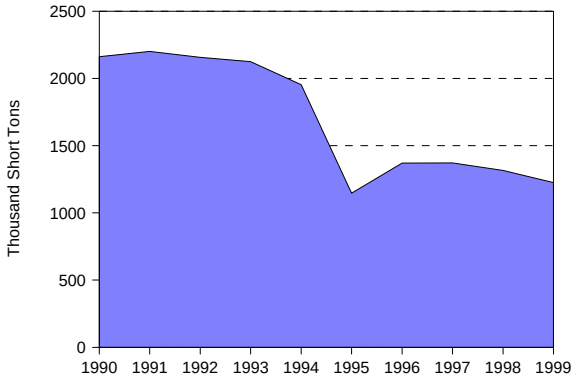


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

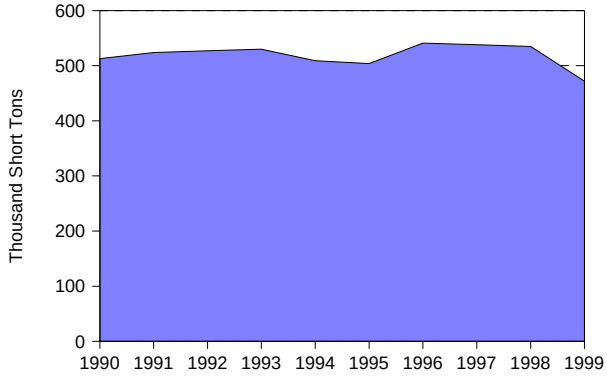


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

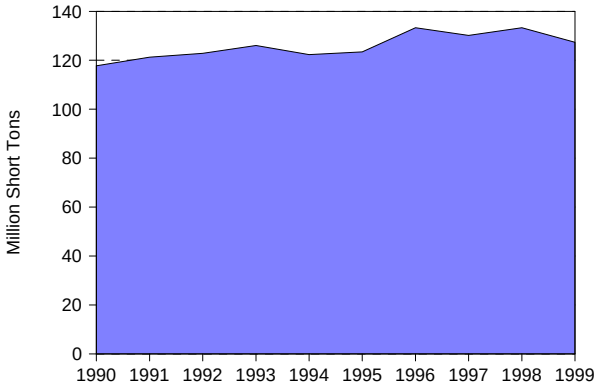


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

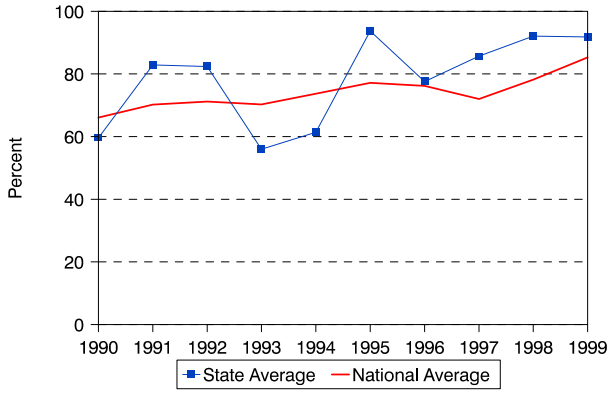


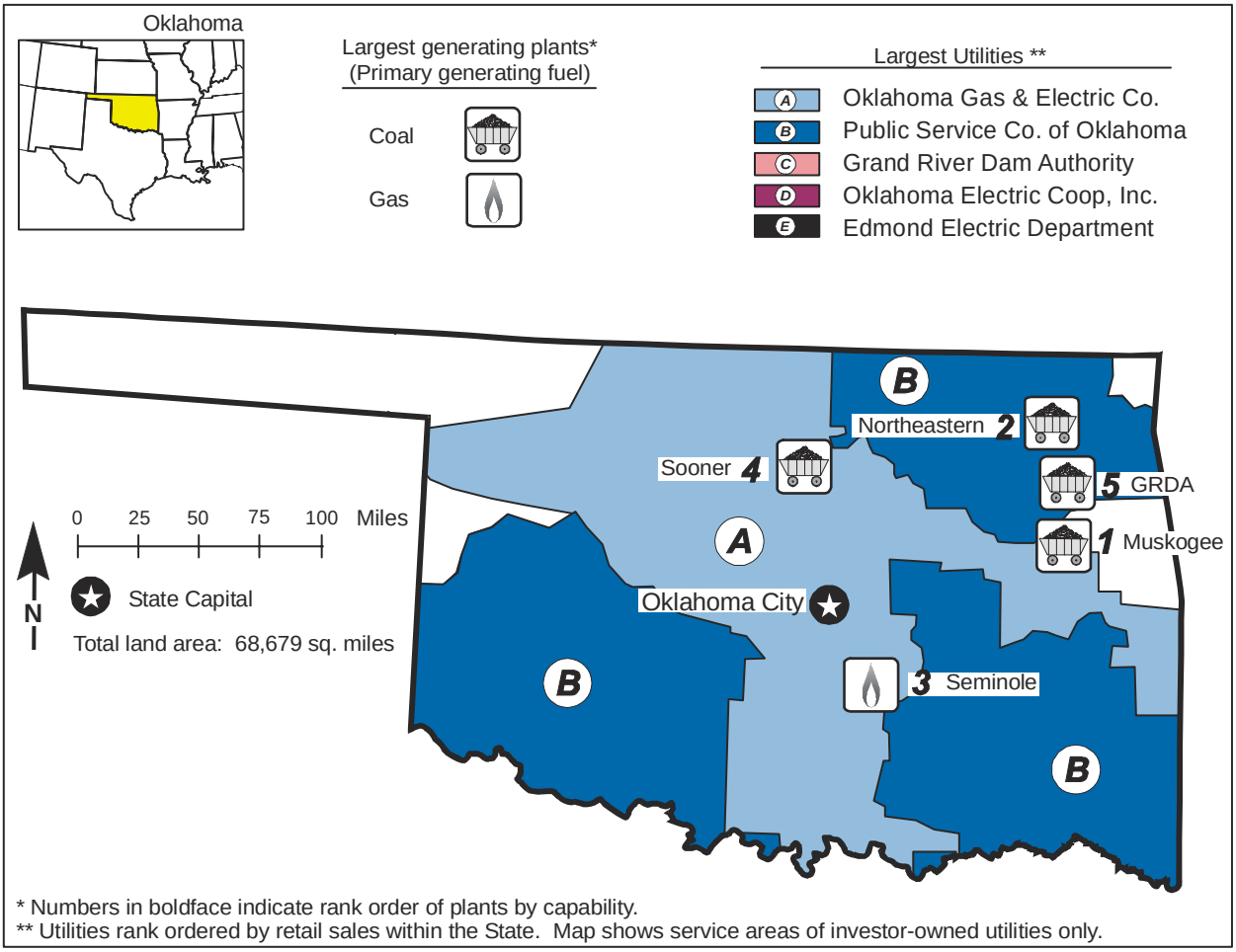
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	37,889	41,791	46,629	2.3	26.6	27.1	28.4
Commercial	30,541	34,053	39,461	2.9	21.4	22.1	24.0
Industrial	69,682	74,010	74,293	0.7	48.9	47.9	45.2
Other	4,354	4,522	3,888	-1.3	3.1	2.9	2.4
Total	142,465	154,377	164,271	1.6	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	3,693	3,903	4,046	1.0	36.3	37.4	38.5
Commercial	2,748	2,868	3,025	1.1	27.0	27.5	28.8
Industrial	3,401	3,340	3,214	-0.6	33.4	32.0	30.6
Other	324	314	232	-3.6	3.2	3.0	2.2
Total	10,165	10,425	10,517	0.4	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	9.75	9.34	8.68	NA	NA	NA	NA
Commercial	9.00	8.42	7.67	NA	NA	NA	NA
Industrial	4.88	4.51	4.33	NA	NA	NA	NA
Other	7.44	6.94	5.96	NA	NA	NA	NA
Total	7.14	6.75	6.40	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	9	85	0	25	119
Number of Retail Customers	4,509,578	359,844	0	327,820	5,197,242
Retail Sales (thousand megawatthours)	149,099	9,122	0	6,050	164,271
Percentage of Retail Sales	90.8	5.6	0.0	3.7	100.0
Revenue from Retail Sales (million dollars)	9,540	587	0	389	10,516
Percentage of Revenue	90.7	5.6	0.0	3.7	100.0
Average Revenue per Kilowatthour (cents/kWh)	6.40	6.44	0.00	6.43	6.40

Oklahoma



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SPP
Primary Energy Source		Coal
Net Summer Capability (megawatts)	13,690	23
Utility	12,861	22
Nonutility	830	29
Net Generation (megawatthours)	55,015,641	25
Utility	50,278,792	24
Nonutility	4,736,849	23
Emissions (thousand short tons)		
Sulfur Dioxide	91	25
Nitrogen Oxide	162	17
Carbon Dioxide	49,095	18
Sulfur Dioxide/sq. mile	1	32
Nitrogen Oxide/sq. mile	2	29
Carbon Dioxide/sq. mile	715	28
Electricity Consumption (MWh) (excludes line losses)	47,859,333	27
Utility Retail Electricity Sales (megawatthours)	46,736,630	27
Nonutility Retail Sales and Direct Use (megawatthours)	1,122,703	28
Utility Average Retail Price (cents/kWh)	5.37	41

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Muskogee	Gas, Coal	Oklahoma Gas & Electric Co	1,652
2. Northeastern	Petroleum, Gas, Coal	Public Service Co of Oklahoma	1,531
3. Seminole	Gas	Oklahoma Gas & Electric Co	1,518
4. Sooner	Petroleum, Coal	Oklahoma Gas & Electric Co	1,012
5. GRDA	Petroleum, Gas, Coal	Grand River Dam Authority	1,010
6. Riverside	Petroleum, Gas	Public Service Co of Oklahoma	920
7. Horseshoe Lake	Petroleum, Gas	Oklahoma Gas & Electric Co	795
8. Mustang	Gas	Oklahoma Gas & Electric Co	535
9. Southwestern	Petroleum, Gas	Public Service Co of Oklahoma	474
10. Tulsa	Petroleum, Gas	Public Service Co of Oklahoma	423

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Oklahoma Gas & Electric Co	19,495,197	6,875,588	4,714,865	5,585,412	2,319,332
B. Public Service Co of Oklahoma	15,615,999	5,336,144	5,056,916	4,971,651	251,288
C. Grand River Dam Authority	819,483	0	40,790	778,693	0
D. Oklahoma Electric Coop, Inc	663,411	462,610	155,904	44,484	413
E. Edmond Electric Department	623,244	338,538	61,975	125,816	96,915
Total	37,217,334	13,012,880	10,030,450	11,506,056	2,667,948
Percentage of Utility Sales	80.0	71.0	81.0	87.0	96.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	12,769	12,898	12,861	0.1	94.1	94.3	93.9
Coal	4,850	4,868	4,808	-0.1	35.8	35.6	35.1
Petroleum	58	58	61	0.6	0.4	0.4	0.4
Gas	6,858	6,937	6,950	0.1	50.6	50.7	50.8
Hydroelectric	1,003	1,035	1,042	0.4	7.4	7.6	7.6
Total Nonutility	795	785	830	0.5	5.9	5.7	6.1
Coal	W	W	428	W	W	W	3.1
Gas	281	271	279	-0.1	2.1	2.0	2.0
Petroleum/Gas Combined	4	4	44	31.5	0.0	0.0	0.3
Other	76	76	79	0.4	0.6	0.6	0.6
Total Industry	13,564	13,682	13,690	0.1	100.0	100.0	100.0
Coal	W	W	5,236	W	W	W	38.2
Petroleum	58	58	61	0.6	0.4	0.4	0.4
Gas	7,139	7,208	7,229	0.1	52.6	52.7	52.8
Petroleum/Gas Combined	4	4	44	31.5	0.0	0.0	0.3
Hydroelectric	1,003	1,035	1,042	0.4	7.4	7.6	7.6
Other	76	76	79	0.4	0.6	0.6	0.6

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

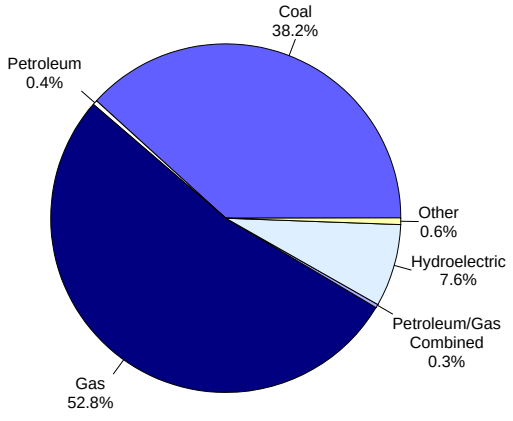


Figure 2. Industry Generation by Energy Source, 1999

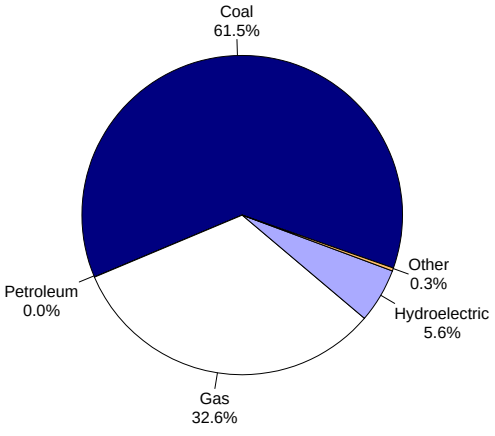


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	45,063,182	45,380,625	50,278,792	1.2	95.7	90.3	91.4
Coal	25,188,557	27,453,911	30,588,375	2.2	53.5	54.6	55.6
Petroleum	49,422	11,456	7,622	-18.8	0.1	0.0	0.0
Gas	17,074,845	15,450,623	16,613,770	-0.3	36.3	30.8	30.2
Hydroelectric	2,750,358	2,464,635	3,069,025	1.2	5.8	4.9	5.6
Total Nonutility	2,016,455	4,856,722	4,736,849	10.0	4.3	9.7	8.6
Coal	W	W	3,250,689	W	W	W	5.9
Petroleum	W	W	9,375	W	W	W	0.0
Gas	1,253,177	1,507,230	1,308,533	0.5	2.7	3.0	2.4
Other	268,963	271,391	168,252	-5.1	0.6	0.5	0.3
Total Industry	47,079,637	50,237,347	55,015,641	1.7	100.0	100.0	100.0
Coal	W	W	33,839,064	W	W	W	61.5
Petroleum	W	W	16,997	W	W	W	0.0
Gas	18,328,022	16,957,853	17,922,303	-0.2	38.9	33.8	32.6
Hydroelectric	2,750,358	2,464,635	3,069,025	1.2	5.8	4.9	5.6
Other	268,963	271,391	168,252	-5.1	0.6	0.5	0.3

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	170.2	111.4	91.2	-6.7
Average heat value (Btu per pound)	8894	8573	8619	-0.3
Average sulfur Content (percent)	0.5	0.4	0.3	-4.5
Petroleum (cents per million Btu) (1999 dollars)	388.2	404.3	495.5	2.7
Average heat value (Btu per gallon)	155949	139562	142350	-1.0
Average sulfur Content (percent)	1.1	0.0	0.0	-100.0
Gas (cents per million Btu) (1999 dollars)	364.6	291.2	271.7	-3.2
Average heat value (Btu per cubic foot)	1045	1034	1028	-0.2

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	102	92	91	-1.2
Petroleum	*	*	*	-26.9
Total	102	92	91	-1.2
Nitrogen Oxide				
Coal	110	126	136	2.4
Petroleum	*	*	*	-20.9
Gas	22	22	26	1.5
Total	132	148	162	2.3
Carbon Dioxide				
Coal	27,518	33,627	36,766	3.3
Petroleum	44	74	20	-8.5
Gas	10,130	10,615	12,308	2.2
Other	0	0	1	0.0
Total	37,691	44,316	49,095	3.0

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

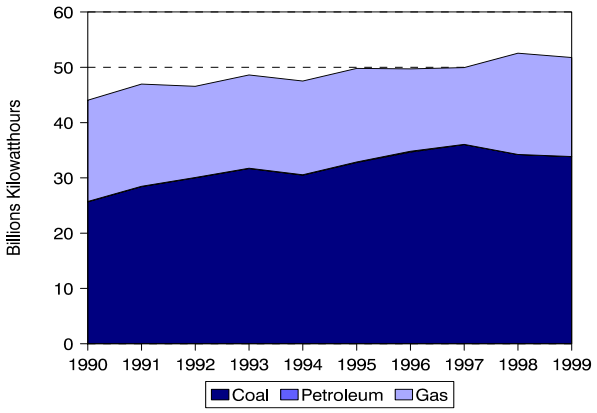


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

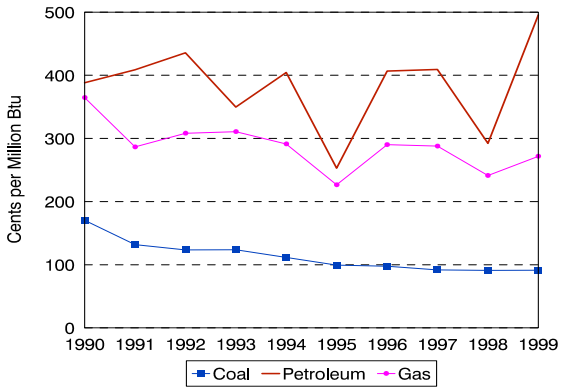


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

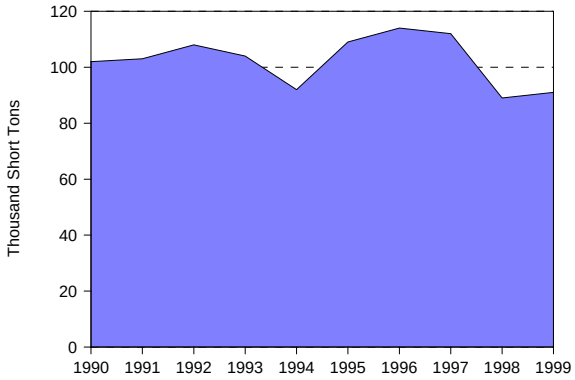


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

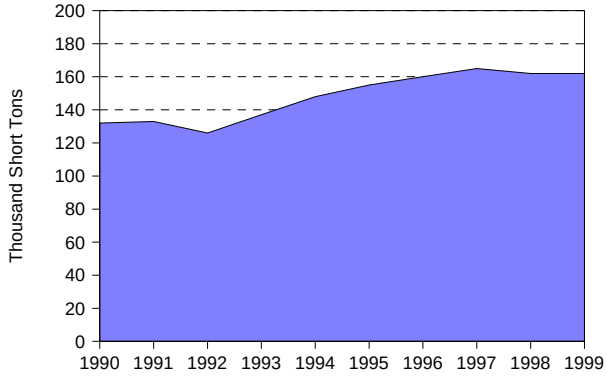


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

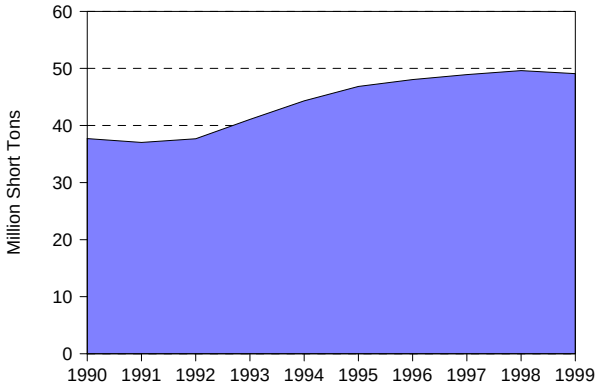


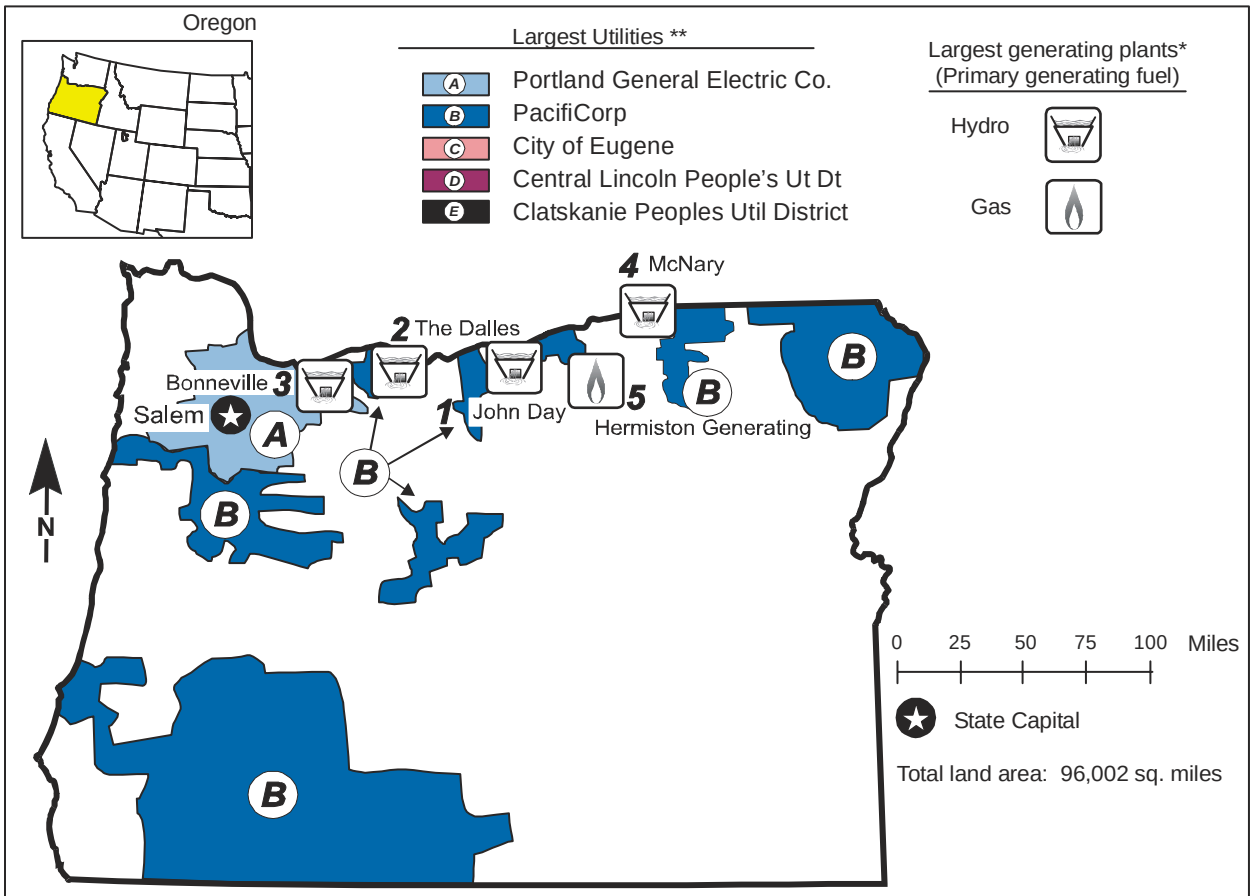
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	17,077	16,128	18,301	0.8	40.2	39.2	39.2
Commercial	11,634	11,121	12,398	0.7	27.4	27.0	26.5
Industrial	11,764	11,721	13,271	1.3	27.7	28.5	28.4
Other	2,029	2,173	2,766	3.5	4.8	5.3	5.9
Total	42,504	41,143	46,737	1.1	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,362	1,237	1,208	-1.3	48.3	47.2	48.1
Commercial	809	739	692	-1.7	28.7	28.2	27.5
Industrial	518	520	478	-0.9	18.4	19.8	19.0
Other	131	126	133	0.2	4.6	4.8	5.3
Total	2,819	2,621	2,511	-1.3	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	7.97	7.67	6.60	NA	NA	NA	NA
Commercial	6.95	6.64	5.58	NA	NA	NA	NA
Industrial	4.40	4.44	3.60	NA	NA	NA	NA
Other	6.45	5.78	4.80	NA	NA	NA	NA
Total	6.63	6.37	5.37	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	62	0	30	96
Number of Retail Customers	1,143,901	179,625	0	405,863	1,729,389
Retail Sales (thousand megawatthours)	35,486	4,507	0	6,744	46,737
Percentage of Retail Sales	75.9	9.6	0.0	14.4	100.0
Revenue from Retail Sales (million dollars)	1,803	257	0	451	2,511
Percentage of Revenue	71.8	10.2	0.0	18.0	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.08	5.71	0.00	6.69	5.37

Oregon



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC
Primary Energy Source		Hydro
Net Summer Capability (megawatts)	11,192	27
Utility	10,293	26
Nonutility	899	27
Net Generation (megawatthours)	56,708,443	24
Utility	51,698,318	23
Nonutility	5,010,125	22
Emissions (thousand short tons)		
Sulfur Dioxide	14	44
Nitrogen Oxide	24	40
Carbon Dioxide	7,179	42
Sulfur Dioxide/sq. mile	0	45
Nitrogen Oxide/sq. mile	0	48
Carbon Dioxide/sq. mile	75	47
Electricity Consumption (MWh) (excludes line losses)	48,066,498	26
Utility Retail Electricity Sales (megawatthours)	46,996,366	26
Unregulated Retail Electricity Sales (megawatthours)	547,341	8
Nonutility Retail Sales and Direct Use (megawatthours)	522,791	37
Utility Average Retail Price (cents/kWh)	4.87	46

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. John Day	Hydro	USCE-North Pacific Division	2,484
2. The Dalles	Hydro	USCE-North Pacific Division	1,961
3. Bonneville	Hydro	USCE-North Pacific Division	1,212
4. McNary	Hydro	USCE-North Pacific Division	1,127
5. Hermiston Generating	Gas	Hermiston Generating Co LP	552
6. Boardman	Petroleum, Coal	Portland General Electric Co	530
7. Beaver	Petroleum, Gas	Portland General Electric Co	493
8. Hells Canyon	Hydro	Idaho Power Co	361
9. Round Butte	Hydro	Portland General Electric Co	300
10. Oxbow	Hydro	Idaho Power Co	220

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Portland General Electric Co	19,258,992	7,404,372	7,287,401	4,462,913	104,306
B. PacifiCorp	13,693,677	5,087,320	4,237,207	4,328,006	41,144
C. City of Eugene	2,790,533	1,041,791	1,085,193	637,239	26,310
D. Central Lincoln People's Ut Dt	1,272,554	426,101	207,616	635,077	3,760
E. Clatskanie Peoples Util Dist	913,784	61,049	24,032	828,103	600
Total	37,929,540	14,020,633	12,841,449	10,891,338	176,120
Percentage of Utility Sales	81.0	78.0	86.0	80.0	38.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	11,236	10,166	10,293	-1.0	97.3	97.3	92.0
Coal	530	508	530	0.0	4.6	4.9	4.7
Petroleum	109	106	0	-100.0	0.9	1.0	0.0
Gas	493	496	709	4.1	4.3	4.7	6.3
Nuclear	1,104	0	0	-100.0	9.6	0.0	0.0
Hydroelectric	8,988	9,021	9,017	0.0	77.8	86.3	80.6
Other	11	35	37	14.0	0.1	0.3	0.3
Total Nonutility	314	284	899	12.4	2.7	2.7	8.0
Coal	W	W	13	W	W	W	0.1
Gas	W	W	570	W	W	W	5.1
Petroleum/Gas Combined	W	W	49	W	W	W	0.4
Hydroelectric	102	109	105	0.2	0.9	1.0	0.9
Other	197	160	162	-2.1	1.7	1.5	1.4
Total Industry	11,549	10,450	11,192	-0.3	100.0	100.0	100.0
Coal	W	W	543	W	W	W	4.9
Petroleum	W	W	0	W	W	W	0.0
Gas	W	W	1,280	W	W	W	11.4
Petroleum/Gas Combined	0	0	49	0.0	0.0	0.0	0.4
Nuclear	1,104	0	0	-100.0	9.6	0.0	0.0
Hydroelectric	9,091	9,131	9,122	0.0	78.7	87.4	81.5
Other	208	195	199	-0.5	1.8	1.9	1.8

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

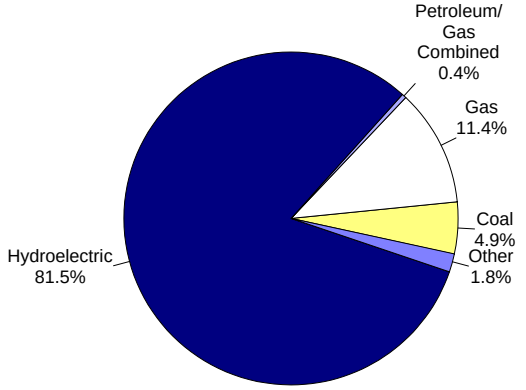


Figure 2. Industry Generation by Energy Source, 1999

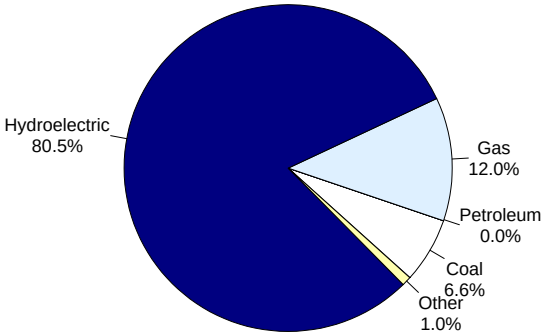


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	49,171,999	37,490,089	51,698,318	0.6	97.5	97.4	91.2
Coal	1,297,978	3,814,009	3,697,900	12.3	2.6	9.9	6.5
Petroleum	26,809	5,398	7,699	-12.9	0.1	0.0	0.0
Gas	811,262	2,754,774	2,758,836	14.6	1.6	7.2	4.9
Nuclear	6,073,796	0	0	-100.0	12.0	0.0	0.0
Hydroelectric	40,961,577	30,915,908	45,233,883	1.1	81.2	80.3	79.8
Other	577	0	0	-100.0	0.0	0.0	0.0
Total Nonutility	1,259,495	1,004,616	5,010,125	16.6	2.5	2.6	8.8
Coal	W	W	24,744	W	W	W	0.0
Petroleum	W	W	110	W	W	W	0.0
Gas	34,781	85,389	4,040,527	69.6	0.1	0.2	7.1
Hydroelectric	289,118	304,390	405,167	3.8	0.6	0.8	0.7
Other	915,482	593,325	539,576	-5.7	1.8	1.5	1.0
Total Industry	50,431,494	38,494,705	56,708,443	1.3	100.0	100.0	100.0
Coal	W	W	3,722,644	W	W	W	6.6
Petroleum	W	W	7,809	W	W	W	0.0
Gas	846,043	2,840,163	6,799,363	26.1	1.7	7.4	12.0
Nuclear	6,073,796	0	0	-100.0	12.0	0.0	0.0
Hydroelectric	41,250,695	31,220,298	45,639,050	1.1	81.8	81.1	80.5
Other	916,059	593,325	539,576	-5.7	1.8	1.5	1.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	130.8	117.1	107.9	-2.1
Average heat value (Btu per pound)	8348	8937	8961	0.8
Average sulfur Content (percent)	0.3	0.4	0.4	2.4
Petroleum (cents per million Btu) (1999 dollars)	421.0	508.1	414.1	-0.2
Average heat value (Btu per gallon)	139000	139000	140000	0.1
Gas (cents per million Btu) (1999 dollars)	0.0	199.8	193.6	0.0
Average heat value (Btu per cubic foot)	0	1011	1012	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	5	14	14	12.5
Petroleum	*	*	*	0.7
Total	5	14	14	12.5
Nitrogen Oxide				
Coal	7	17	16	10.6
Petroleum	*	0	*	-17.1
Gas	1	4	6	22.1
Other	0	1	1	0.0
Total	8	22	24	13.4
Carbon Dioxide				
Coal	1,476	4,099	4,042	11.8
Petroleum	26	8	6	-14.5
Gas	437	1,600	3,062	24.1
Other	0	166	69	0.0
Total	1,939	5,873	7,179	15.7

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

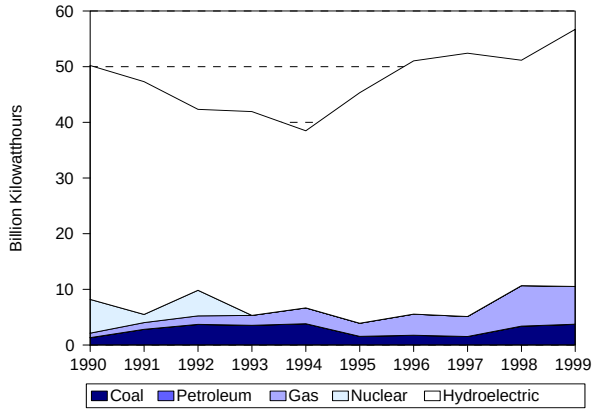


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

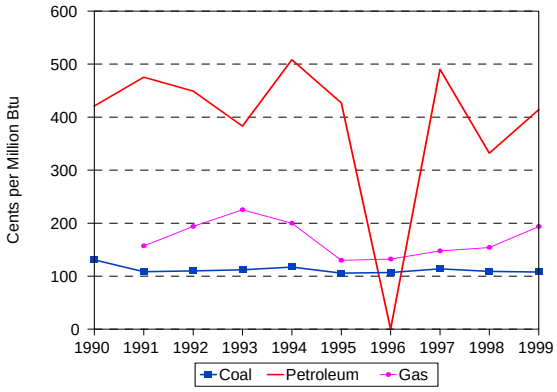


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

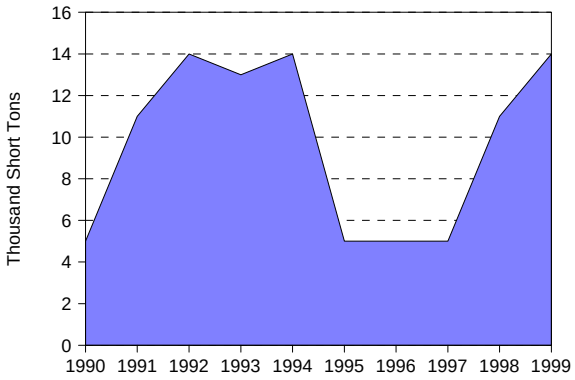


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

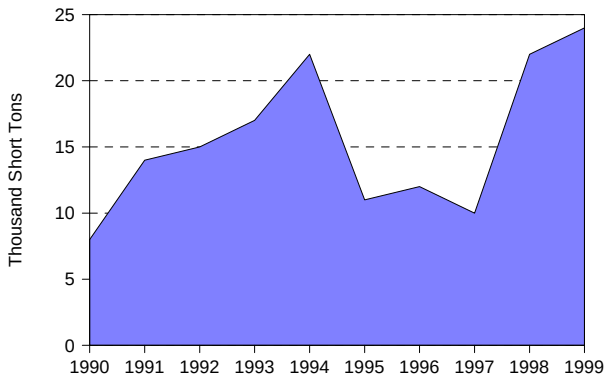


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

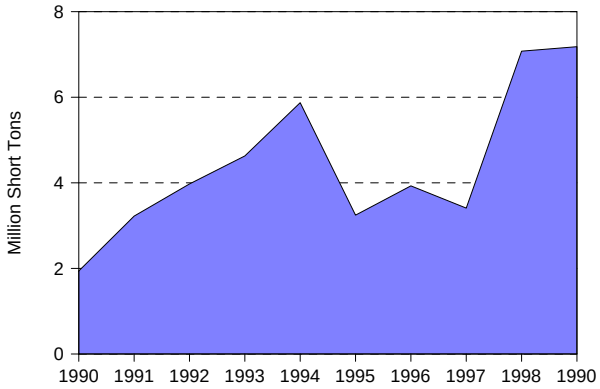


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1993

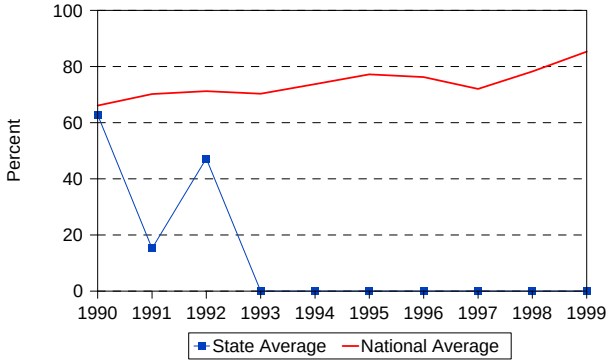


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	15,380	16,462	18,058	1.8	35.8	36.6	38.4
Commercial	11,319	12,660	14,912	3.1	26.3	28.1	31.7
Industrial	15,498	15,072	13,558	-1.5	36.1	33.5	28.8
Other	780	777	468	-5.5	1.8	1.7	1.0
Total	42,977	44,971	46,996	1.0	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	881	957	1,038	1.8	40.5	42.4	45.4
Commercial	657	687	737	1.3	30.2	30.4	32.2
Industrial	593	571	481	-2.3	27.3	25.3	21.0
Other	45	45	31	-4.0	2.1	2.0	1.4
Total	2,176	2,259	2,287	0.5	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	5.73	5.81	5.75	NA	NA	NA	NA
Commercial	5.81	5.42	4.94	NA	NA	NA	NA
Industrial	3.83	3.79	3.55	NA	NA	NA	NA
Other	5.78	5.75	6.68	NA	NA	NA	NA
Total	5.06	5.02	4.87	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	3	17	1	19	40
Number of Retail Customers	1217448	245421	3	172242	1635114
Retail Sales (thousand megawatthours)	33591	8884	175	4347	46996
Percentage of Retail Sales	71.5	18.9	0.4	9.3	100.0
Revenue from Retail Sales (million dollars)	1718	339	4	226	2287
Percentage of Revenue	75.1	14.8	0.2	9.9	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.11	3.82	2.21	5.20	4.87

Pennsylvania

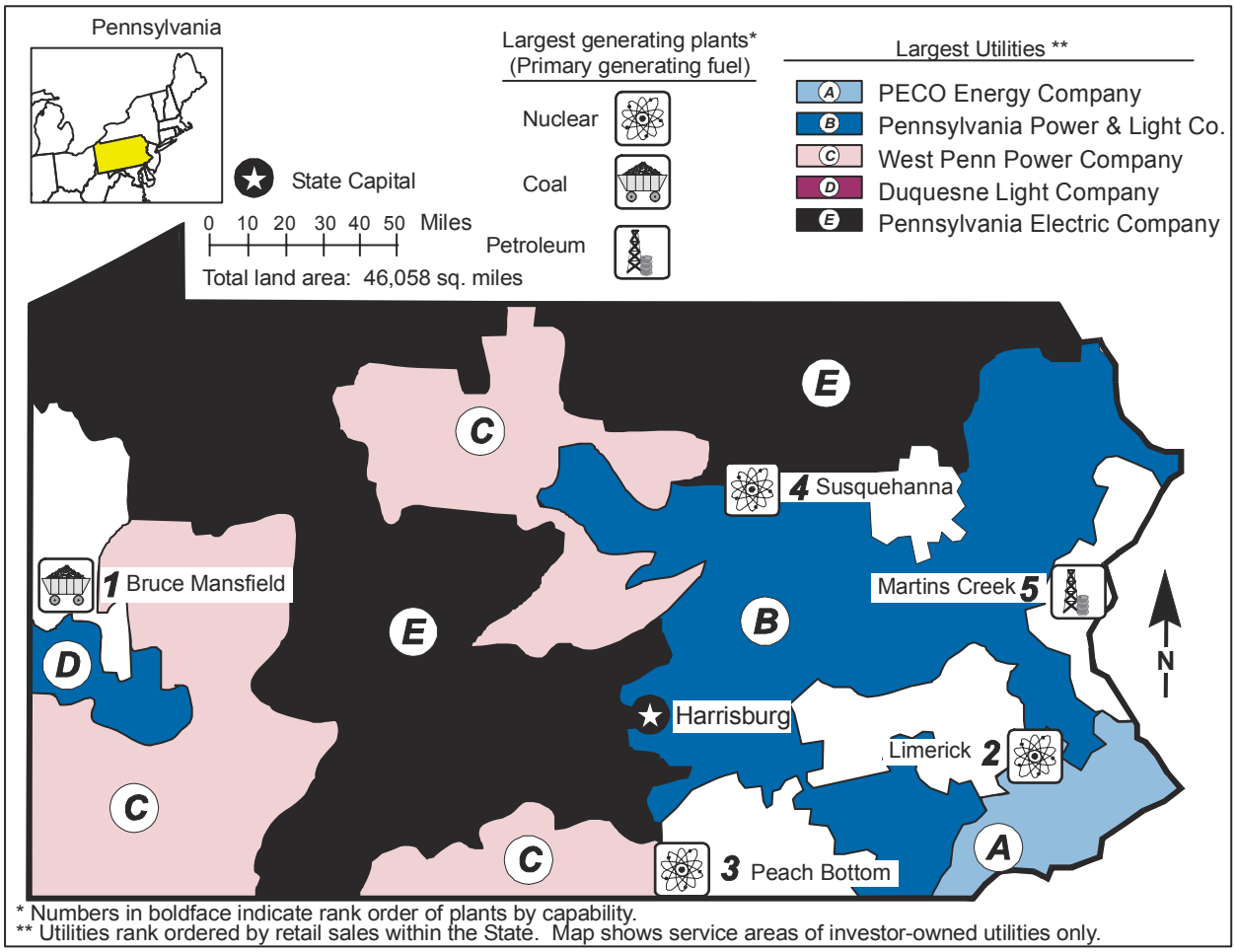


Table 1. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)	ECAR/MACC	
Primary Energy Source	Coal	4
Net Summer Capability (megawatts)	36,627	4
Utility	25,251	4
Nonutility	11,376	4
Net Generation (megawatthours)	195,645,131	2
Utility	161,595,988	3
Nonutility	34,049,143	5
Emissions (thousand short tons)		
Sulfur Dioxide	866	3
Nitrogen Oxide	324	7
Carbon Dioxide	124,016	5
Sulfur Dioxide/sq. mile	19	7
Nitrogen Oxide/sq. mile	7	8
Carbon Dioxide/sq. mile	2,693	9
Electricity Consumption (MWh) (excludes line losses)	137,383,165	6
Utility Retail Electricity Sales (megawatthours)	96,023,410	11
Unregulated Retail Electricity Sales (megawatthours)	32,859,909	1
Nonutility Retail Sales and Direct Use (megawatthours)	8,499,852	10
Utility Average Retail Price (cents/kWh)	7.67	12

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	33,440	33,675	25,251	-3.1	93.7	93.1	68.9
Coal	17,543	17,492	10,108	-5.9	49.2	48.4	27.6
Petroleum	4,962	4,881	3,022	-5.4	13.9	13.5	8.3
Gas	311	582	1,911	22.3	0.9	1.6	5.2
Nuclear	8,747	8,788	8,274	-0.6	24.5	24.3	22.6
Hydroelectric	1,877	1,932	1,936	0.3	5.3	5.3	5.3
Total Nonutility	2,247	2,492	11,376	19.7	6.3	6.9	31.1
Coal	1,056	1,298	8,472	26.0	3.0	3.6	23.1
Petroleum	118	74	268	9.5	0.3	0.2	0.7
Gas	342	535	592	6.3	1.0	1.5	1.6
Petroleum/Gas Combined	377	165	750	7.9	1.1	0.5	2.0
Nuclear	--	--	872	--	--	--	2.4
Hydroelectric	85	85	119	3.8	0.2	0.2	0.3
Other	269	335	303	1.3	0.8	0.9	0.8
Total Industry	35,687	36,167	36,627	0.3	100.0	100.0	100.0
Coal	18,599	18,790	18,580	0.0	52.1	52.0	50.7
Petroleum	5,080	4,954	3,290	-4.7	14.2	13.7	9.0
Gas	653	1,117	2,502	16.1	1.8	3.1	6.8
Petroleum/Gas Combined	377	165	750	7.9	1.1	0.5	2.0
Nuclear	8,747	8,788	9,146	0.5	24.5	24.3	25.0
Hydroelectric	1,962	2,017	2,055	0.5	5.5	5.6	5.6
Other	269	335	303	1.3	0.8	0.9	0.8

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Bruce Mansfield	Petroleum, Coal	Pennsylvania Power Co	2,360
2. Limerick	Nuclear	PECO Energy Co	2,284
3. Peach Bottom	Nuclear	PECO Energy Co	2,186
4. Susquehanna	Nuclear	PP&L Inc	2,184
5. Martins Creek	Gas, Coal, Petroleum	PP&L Inc	1,997
6. Homer City Station	Coal	EME Homer City Generation LP	1,810
7. Conemaugh	Coal	Sithe Northeast Management Co	1,695
8. Keystone	Coal	Sithe Northeast Management Co	1,695
9. Beaver Valley	Nuclear	Pennsylvania Power Co	1,620
10. Montour	Petroleum, Coal	PP&L Inc	1,505

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. PECO Energy Company	23,593,639	9,649,013	4,601,493	8,645,492	697,641
B. Pennsylvania Power & Light Co	23,397,070	11,381,000	6,313,000	5,564,000	139,070
C. West Penn Power Company	17,281,530	5,942,062	3,567,720	7,727,269	44,479
D. Duquesne Light Company	8,925,000	2,533,000	3,776,447	2,581,000	34,553
E. Pennsylvania Electric Company	8,090,459	3,678,451	2,646,113	1,723,662	42,233
Total	81,287,698	33,183,526	20,904,773	26,241,423	957,976
Percentage of Utility Sales	85.00	80.00	84.00	91.00	87.00

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

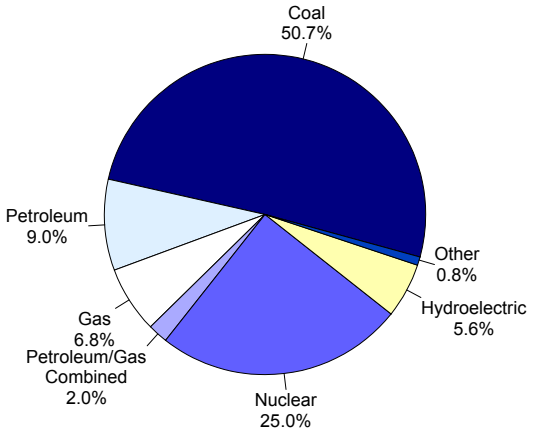


Figure 2. Industry Generation by Energy Source, 1999

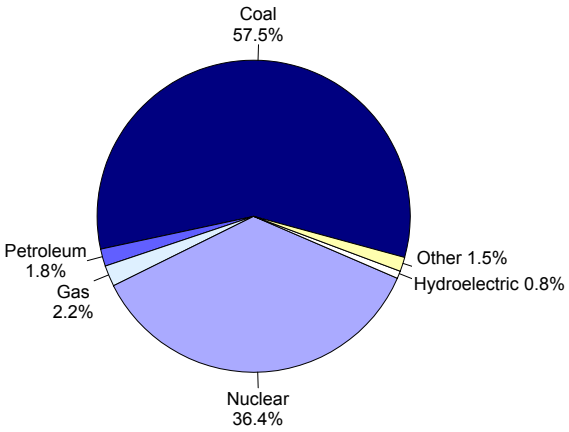


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	165,682,846	169,029,050	161,595,988	-0.3	93.2	91.7	82.6
Coal	101,996,271	93,951,561	85,580,341	-1.9	57.4	51.0	43.7
Petroleum	4,013,814	5,182,491	3,063,268	-3.0	2.3	2.8	1.6
Gas	182,957	1,176,042	912,763	19.6	0.1	0.6	0.5
Nuclear	57,787,051	67,206,815	70,884,877	2.3	32.5	36.5	36.2
Hydroelectric	1,702,753	1,512,141	1,154,739	-4.2	1.0	0.8	0.6
Total Nonutility	12,037,951	15,270,174	34,049,143	12.2	6.8	8.3	17.4
Coal	5,399,659	8,019,156	26,821,696	19.5	3.0	4.4	13.7
Petroleum	657,607	655,068	392,336	-5.6	0.4	0.4	0.2
Gas	3,856,961	3,952,044	3,364,514	-1.5	2.2	2.1	1.7
Nuclear	--	--	270,851	--	--	--	0.1
Hydroelectric	W	W	342,247	W	W	W	0.2
Other	W	W	2,857,500	W	W	W	1.5
Total Industry	177,720,797	184,299,224	195,645,131	1.1	100.0	100.0	100.0
Coal	107,395,930	101,970,717	112,402,037	0.5	60.4	55.3	57.5
Petroleum	4,671,421	5,837,559	3,455,604	-3.3	2.6	3.2	1.8
Gas	4,039,918	5,128,086	4,277,277	0.6	2.3	2.8	2.2
Nuclear	57,787,051	67,206,815	71,155,728	2.3	32.5	36.5	36.4
Hydroelectric	W	W	1,496,986	W	W	W	0.8
Other	W	W	2,857,500	W	W	W	1.5

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	184.4	156.2	129.9	-3.8
Average heat value (Btu per pound)	12241	12368	12552	0.3
Average sulfur Content (percent)	2.2	2.1	2.1	*
Petroleum (cents per million Btu) (1999 dollars)	423.7	292.9	269.1	-4.9
Average heat value (Btu per gallon)	149783	149244	150039	*
Average sulfur Content (percent)	0.7	0.7	0.6	-2.4
Gas (cents per million Btu) (1999 dollars)	357.4	250.1	293.1	-2.2
Average heat value (Btu per cubic foot)	1032	1031	1033	*

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	1,166	1,086	840	-3.6
Petroleum	36	43	27	-3.3
Other	0	0	0	0.0
Total	1,202	1,129	866	-3.6
Nitrogen Oxide				
Coal	380	301	309	-2.3
Petroleum	7	9	5	-3.4
Gas	*	25	6	41.3
Other	0	5	5	0.0
Total	387	340	324	-1.9
Carbon Dioxide				
Coal	103,366	105,680	116,593	1.3
Petroleum	4,130	6,046	3,775	-1.0
Gas	140	2,920	2,242	36.1
Other	0	2,376	1,407	0.0
Total	107,637	117,021	124,016	1.6

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

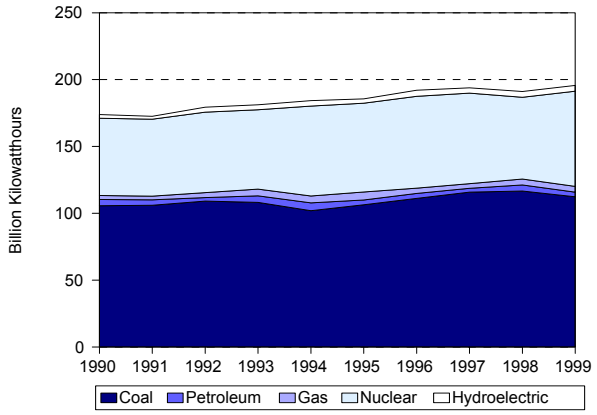


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

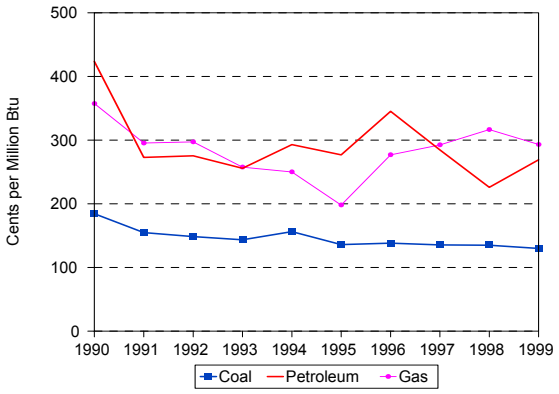


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

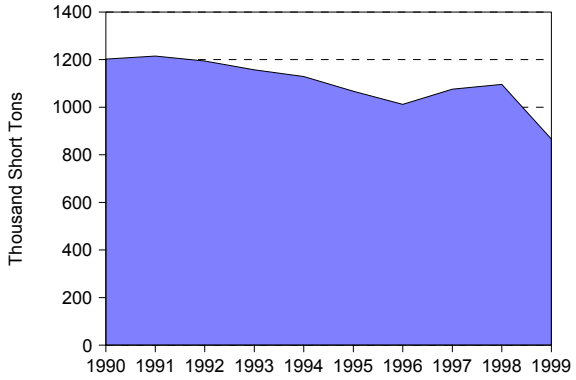


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

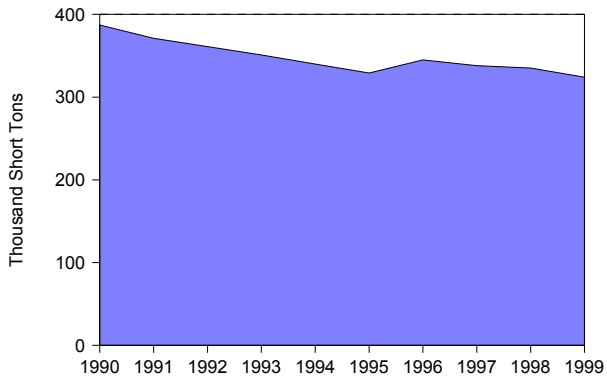


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

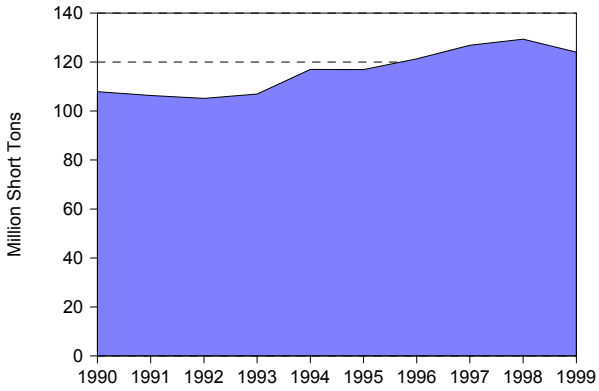


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

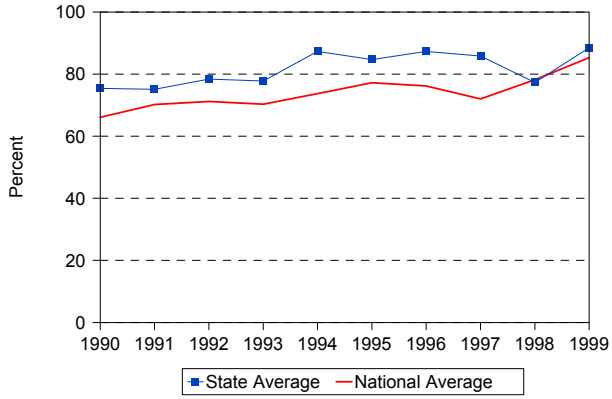


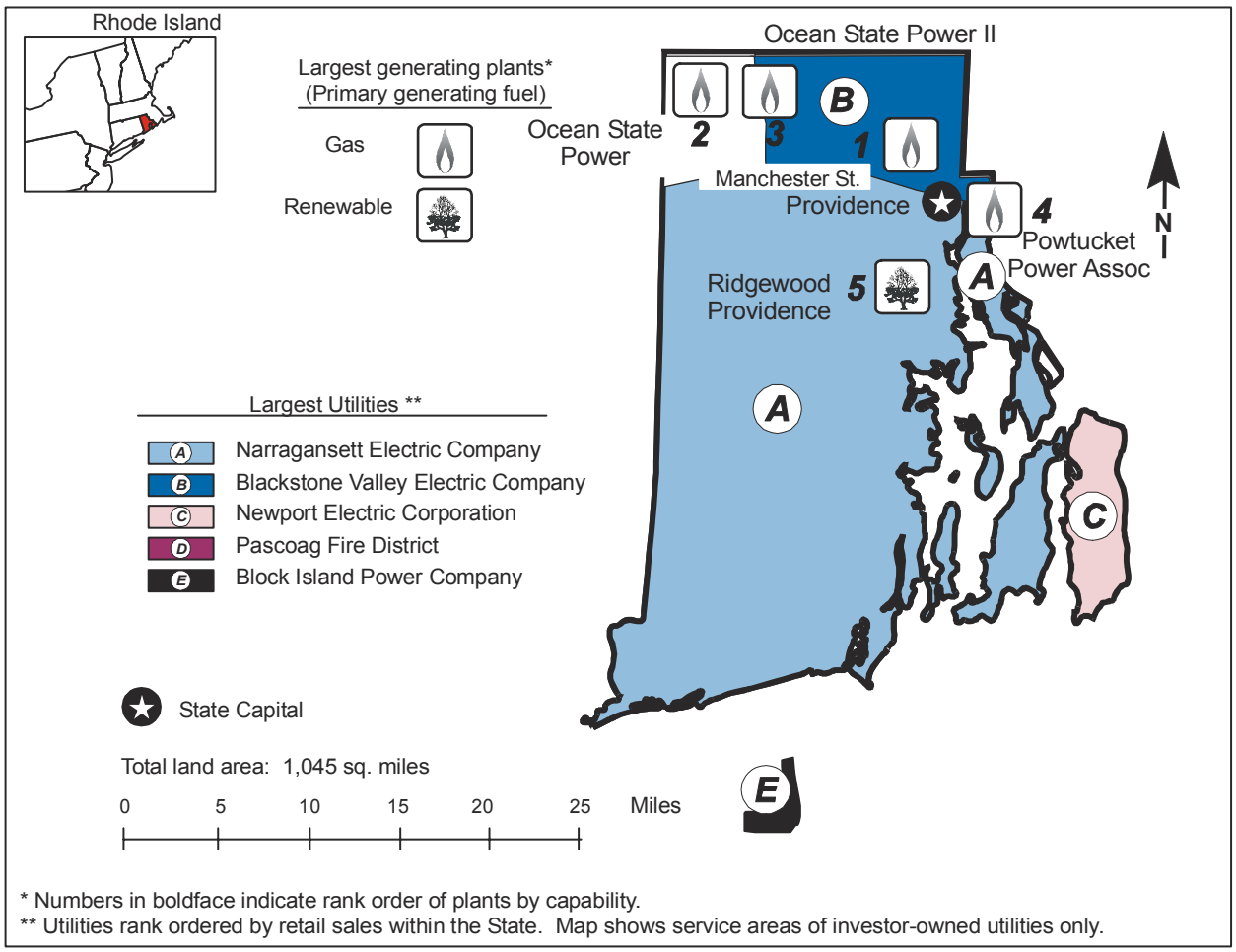
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	38,164	42,239	41,244	0.9	33.3	34.3	42.9
Commercial	29,159	33,395	24,799	-1.8	25.4	27.1	25.8
Industrial	45,992	46,076	28,879	-5.0	40.1	37.4	30.1
Other	1,435	1,336	1,102	-2.9	1.3	1.1	1.1
Total	114,751	123,045	96,023	-2.0	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	4,262	4,404	3,790	-1.3	40.1	41.7	51.5
Commercial	2,858	3,017	1,959	-4.1	26.9	28.5	26.6
Industrial	3,328	2,983	1,508	-8.4	31.3	28.2	20.5
Other	188	167	106	-6.1	1.8	1.6	1.4
Total	10,636	10,570	7,363	-4.0	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	11.17	10.43	9.19	NA	NA	NA	NA
Commercial	9.80	9.03	7.90	NA	NA	NA	NA
Industrial	7.24	6.47	5.22	NA	NA	NA	NA
Other	13.08	12.48	9.63	NA	NA	NA	NA
Total	9.27	8.59	7.67	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	11	35	0	13	59
Number of Retail Customers	4824355	81895	0	198233	5104483
Retail Sales (thousand megawatthours)	92602	1347	0	2075	96023
Percentage of Retail Sales	96.4	1.4	0.0	2.2	100.0
Revenue from Retail Sales (million dollars)	7054	101	0	208	7363
Percentage of Revenue	95.8	1.4	0.0	2.8	100.0
Average Revenue per Kilowatthour (cents/kWh)	7.62	7.47	0.00	10.04	7.67

Rhode Island



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		NPCC
Primary Energy Source		Gas
Net Summer Capability (megawatts)	981	50
Utility	7	51
Nonutility	974	25
Net Generation (megawatthours)	6,411,395	48
Utility	9,436	51
Nonutility	6,401,959	19
Emissions (thousand short tons)		
Sulfur Dioxide	0	50
Nitrogen Oxide	6	48
Carbon Dioxide	3,905	48
Sulfur Dioxide/sq. mile	0	48
Nitrogen Oxide/sq. mile	6	12
Carbon Dioxide/sq. mile	3,736	4
Electricity Consumption (MWh) (excludes line losses)	7,205,851	49
Utility Retail Electricity Sales (megawatthours)	6,654,512	49
Unregulated Retail Electricity Sales (megawatthours)	495,561	10
Nonutility Retail Sales and Direct Use (megawatthours)	55,778	49
Utility Average Retail Price (cents/kWh)	9.02	11

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Manchester St	Gas	US Gen New England Inc	419
2. Ocean State Power	Gas	Ocean State Power Co	226
3. Ocean State Power II	Gas	Ocean State Power II	226
4. Pawtucket Power Asso	Gas	Pawtucket Power Associates LP	62
5. Ridgewood Providence	Other	Ridgewood Providence Power PLP	14
6. Rhode Island Hospital	Gas	Rhode Island Hospital	10
7. Block Island	Petroleum	Block Island Power Co	5
8. Central Power Plant	Gas	State of Rhode Island	5
9. The Worcester Co	Petroleum	Ridgewood/Rhode Island Pwr PLP	4
10. Brown University Cen	Gas	Brown University	3

Table 3. Five Largest Utilities by Retail Sales Within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Narragansett Electric Company	4,692,777	1,962,907	2,081,007	623,434	25,429
B. Blackstone Valley Electric Co	1,340,817	460,332	399,653	471,245	9,587
C. Newport Electric Corporation	570,679	211,831	210,253	30,923	117,672
D. Pascoag Fire District	41,264	24,339	4,606	11,733	586
E. Block Island Power Company	8,975	3,266	5,145	0	564
Total	6,654,512	2,662,675	2,700,664	1,137,335	153,838
Percentage of Utility Sales	100.0	100.0	100.0	100.0	100.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	263	148	7	-33.6	32.7	21.5	0.7
Petroleum	262	146	5	-35.4	32.5	21.3	0.5
Hydroelectric	1	1	1	0.1	0.2	0.2	0.1
Total Nonutility	541	538	974	6.7	67.3	78.5	99.3
Petroleum	0	3	4	0.0	0.0	0.5	0.4
Gas	182	322	0	-100.0	22.6	47.0	0.0
Petroleum/Gas Combined	332	196	953	12.4	41.3	28.6	97.2
Hydroelectric	W	W	3	W	W	W	0.4
Other	W	W	14	W	W	W	1.5
Total Industry	804	686	981	2.2	100.0	100.0	100.0
Petroleum	262	150	9	-31.2	32.5	21.8	0.9
Gas	182	322	0	-100.0	22.6	47.0	0.0
Petroleum/Gas Combined	332	196	953	12.4	41.3	28.6	97.2
Hydroelectric	W	W	4	W	W	W	0.5
Other	25	13	14	-6.0	3.1	1.9	1.5

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

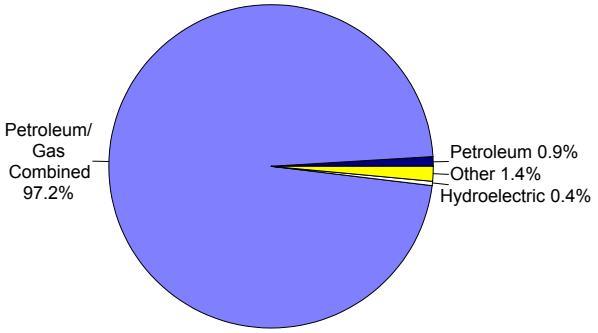


Figure 2. Industry Generation by Energy Source, 1999

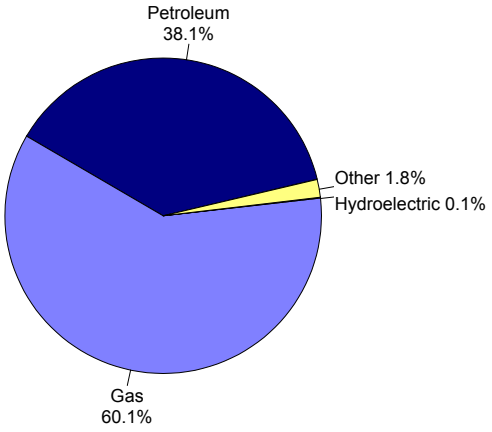


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	591,756	68,641	9,436	-36.9	21.2	1.5	0.1
Petroleum	158,154	33,836	9,436	-26.9	5.7	0.7	0.1
Gas	433,602	34,805	0	-100.0	15.5	0.7	0.0
Total Nonutility	2,202,125	4,637,578	6,401,959	12.6	78.8	98.5	99.9
Petroleum	31,990	45,178	2,430,436	61.8	1.1	1.0	37.9
Gas	2,125,433	4,506,023	3,851,282	6.8	76.1	95.7	60.1
Hydroelectric	W	W	6,050	W	W	W	0.1
Other	W	W	114,192	W	W	W	1.8
Total Industry	2,793,881	4,706,219	6,411,395	9.7	100.0	100.0	100.0
Petroleum	190,144	79,014	2,439,872	32.8	6.8	1.7	38.1
Gas	2,559,035	4,540,828	3,851,282	4.6	91.6	96.5	60.1
Hydroelectric	W	W	6,050	W	W	W	0.1
Other	W	W	114,192	W	W	W	1.8

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Petroleum (cents per million Btu) (1999 dollars)	435.1	276.8	0.0	-100.0
Average heat value (Btu per gallon)	152,447	151,317	0	-100.0
Average sulfur Content (percent)	0.9	1.0	0.0	-100.0
Gas (cents per million Btu) (1999 dollars)	262.9	242.9	0.0	-100.0
Average heat value (Btu per cubic foot)	1,033	1,029	0	-100.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Petroleum	1	*	0	-53.9
Total	1	*	0	-53.9
Nitrogen Oxide				
Petroleum	*	*	1	13.2
Gas	1	2	4	20.1
Other	0	0	1	0.0
Total	1	2	6	20.8
Carbon Dioxide				
Petroleum	185	77	1,887	29.4
Gas	326	2,160	1,935	21.9
Other	0	59	83	0.0
Total	512	2,296	3,905	25.3

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

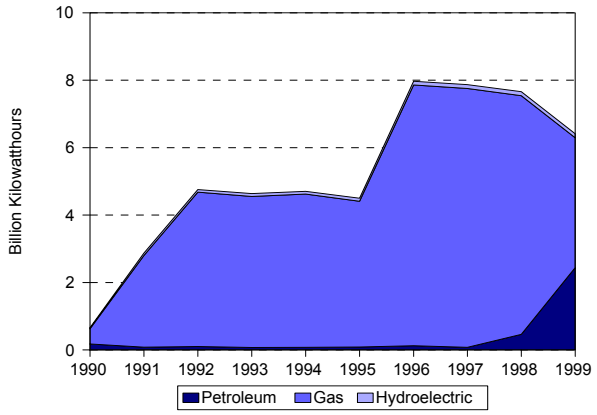


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

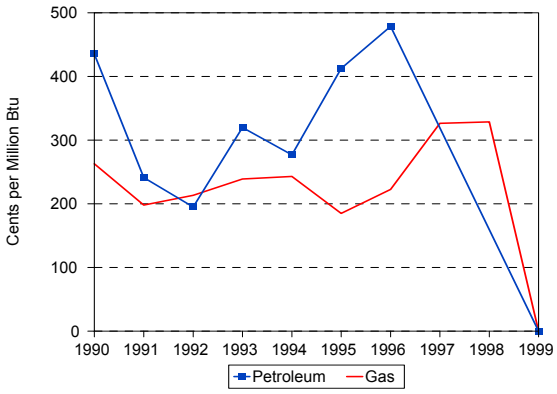


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

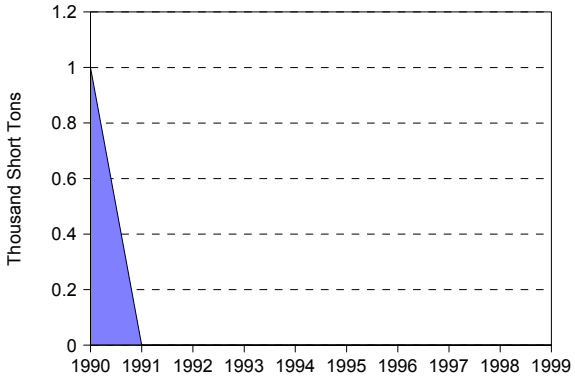


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

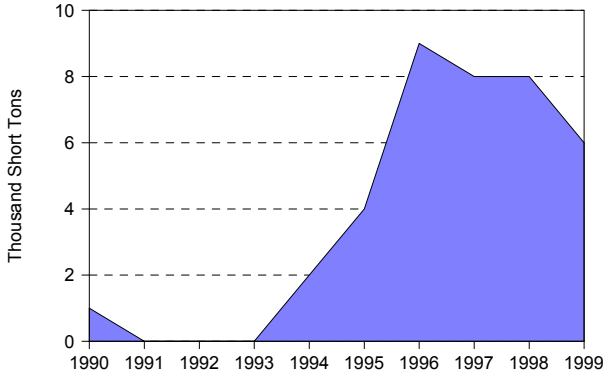


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

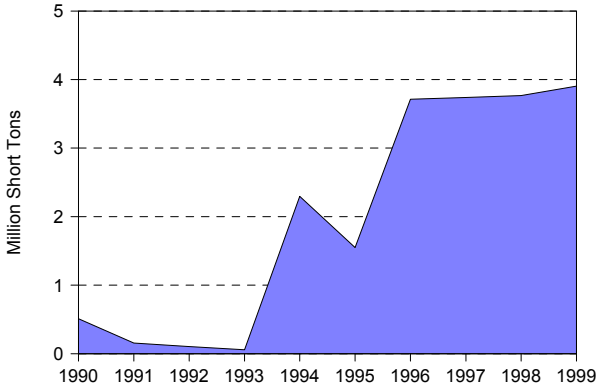


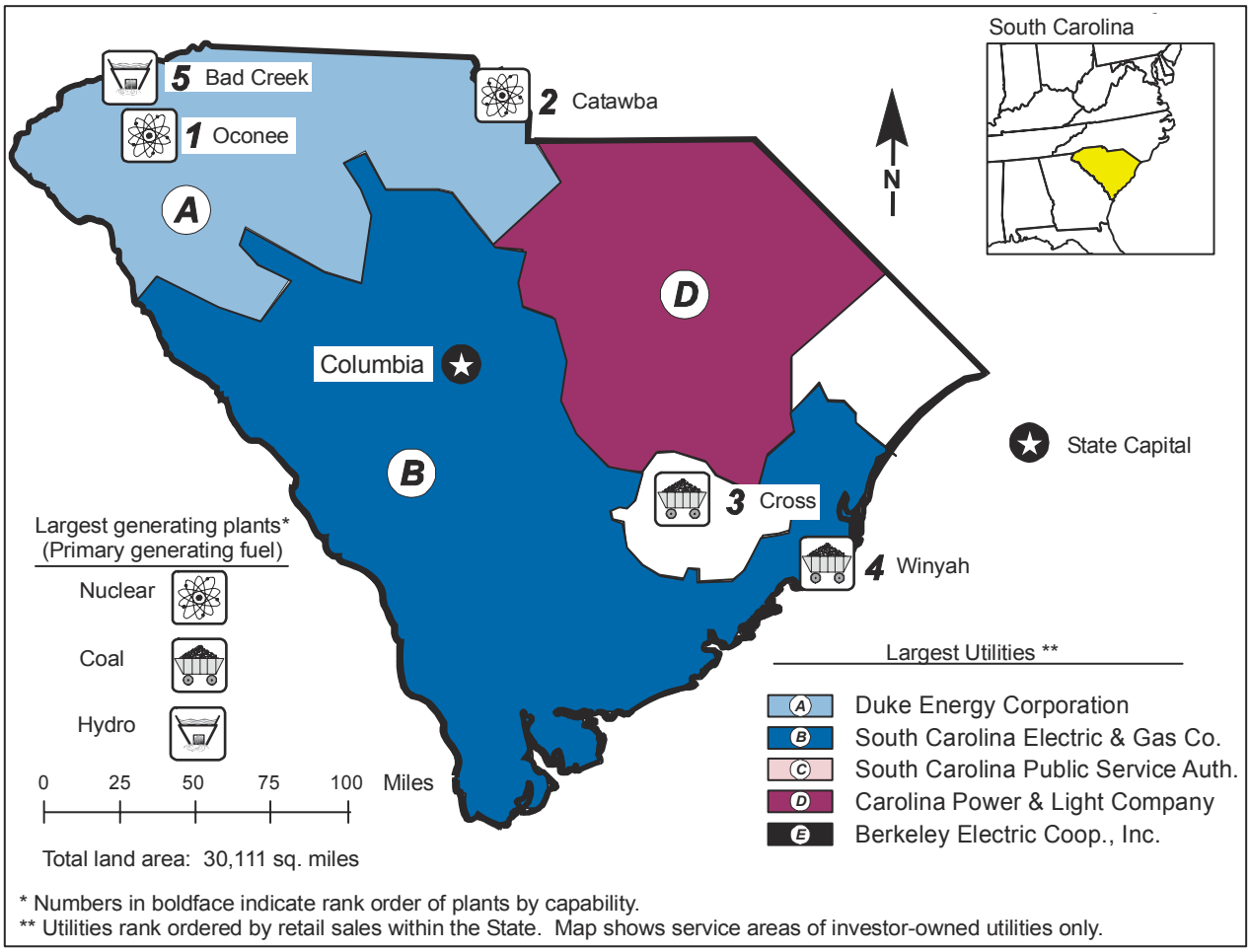
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	2,376	2,457	2,663	1.3	37.0	37.4	40.0
Commercial	2,492	2,563	2,701	0.9	38.8	39.0	40.6
Industrial	1,354	1,378	1,137	-1.9	21.1	21.0	17.1
Other	196	174	154	-2.7	3.1	2.6	2.3
Total	6,419	6,572	6,655	0.4	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	283	302	270	-0.5	39.8	41.1	44.9
Commercial	270	278	229	-1.8	37.9	37.9	38.2
Industrial	137	133	84	-5.3	19.3	18.1	14.0
Other	22	21	17	-2.5	3.0	2.9	2.9
Total	711	735	600	-1.9	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	11.92	12.28	10.13	NA	NA	NA	NA
Commercial	10.82	10.86	8.49	NA	NA	NA	NA
Industrial	10.11	9.67	7.39	NA	NA	NA	NA
Other	10.98	12.25	11.20	NA	NA	NA	NA
Total	11.08	11.18	9.02	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	1	0	0	5
Number of Retail Customers	463,751	4043	0	0	467,794
Retail Sales (thousand megawatthours)	6,613	41	0	0	6,655
Percentage of Retail Sales	99.4	0.6	0.0	0.0	100.0
Revenue from Retail Sales (million dollars)	596	4	0	0	600
Percentage of Revenue	99.4	0.6	0.0	0.0	100.0
Average Revenue per Kilowatthour (cents/kWh)	9.02	9.02	0.00	0.00	9.02

South Carolina



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SERC
Primary Energy Source		Nuclear
Net Summer Capability (megawatts)	18,158	17
Utility	17,681	12
Nonutility	477	35
Net Generation (megawatthours)	90,329,552	17
Utility	87,347,364	16
Nonutility	2,982,188	31
Emissions (thousand short tons)		
Sulfur Dioxide	248	15
Nitrogen Oxide	98	30
Carbon Dioxide	37,022	26
Sulfur Dioxide/sq. mile	8	16
Nitrogen Oxide/sq. mile	3	23
Carbon Dioxide/sq. mile	1,230	23
Electricity Consumption (MWh) (excludes line losses)	74,991,184	18
Utility Retail Electricity Sales (megawatthours)	73,303,562	18
Nonutility Retail Sales and Direct Use (megawatthours)	1,687,622	24
Utility Average Retail Price (cents/kWh)	5.57	37

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Oconee	Nuclear	Duke Power Co	2,538
2. Catawba	Nuclear	Duke Power Co	2,258
3. Cross	Petroleum, Coal	South Carolina Pub Serv Auth	1,160
4. Winyah	Petroleum, Coal	South Carolina Pub Serv Auth	1,155
5. Bad Creek	Hydro	Duke Power Co	1,065
6. Summer	Nuclear	South Carolina Electric&Gas Co	952
7. H B Robinson	Petroleum, Gas, Coal	Carolina Power & Light Co	872
8. Darlington County	Petroleum, Gas	Carolina Power & Light Co	812
9. Wateree	Petroleum, Coal	South Carolina Electric&Gas Co	700
10. Williams	Petroleum, Gas, Coal	South Carolina Genertg Co Inc	649

Table 3. Five Largest Utilities by Retail Sales Within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Duke Energy Corporation	22,100,804	5,307,712	4,660,102	12,075,650	57,340
B. South Carolina Electric&Gas Co	18,878,812	6,268,556	5,952,030	6,140,248	517,978
C. South Carolina Pub Serv Auth	10,059,501	1,248,245	1,564,342	7,180,523	66,391
D. Carolina Power & Light Company	6,906,928	1,898,980	1,562,439	3,355,619	89,890
E. Berkeley Electric Coop, Inc	1,195,060	917,056	111,032	118,478	48,494
Total	59,141,105	15,640,549	13,849,945	28,870,518	780,093
Percentage of Utility Sales	81.0	66.0	84.0	90.0	86.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	14,908	16,691	17,681	1.9	97.2	97.4	97.4
Coal	4,818	5,352	6,055	2.6	31.4	31.2	33.3
Petroleum	897	828	1,163	2.9	5.8	4.8	6.4
Gas	665	700	576	-1.6	4.3	4.1	3.2
Nuclear	6,346	6,364	6,431	0.1	41.4	37.1	35.4
Hydroelectric	2,183	3,448	3,457	5.2	14.2	20.1	19.0
Total Nonutility	434	452	477	1.0	2.8	2.6	2.6
Coal	W	W	129	W	W	W	0.7
Petroleum	W	W	3	W	W	W	0.0
Gas	W	W	103	W	W	W	0.6
Petroleum/Gas Combined	W	W	3	W	W	W	0.0
Hydroelectric	18	18	28	4.8	0.1	0.1	0.2
Other	342	342	211	-5.2	2.2	2.0	1.2
Total Industry	15,342	17,143	18,158	1.9	100.0	100.0	100.0
Coal	W	W	6,184	W	W	W	34.1
Petroleum	W	W	1,165	W	W	W	6.4
Gas	W	W	679	W	W	W	3.7
Petroleum/Gas Combined	W	W	3	W	W	W	0.0
Nuclear	6,346	6,364	6,431	0.1	41.4	37.1	35.4
Hydroelectric	2,201	3,466	3,485	5.2	14.3	20.2	19.2
Other	342	342	211	-5.2	2.2	2.0	1.2

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

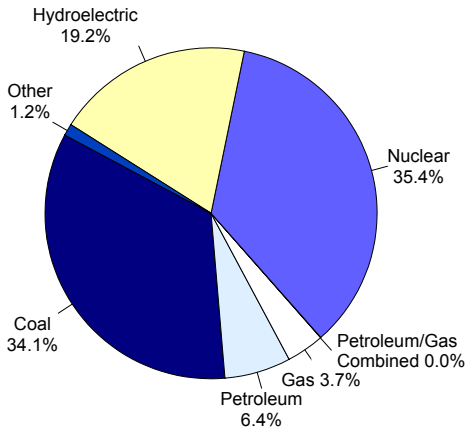


Figure 2. Industry Generation by Energy Source, 1999

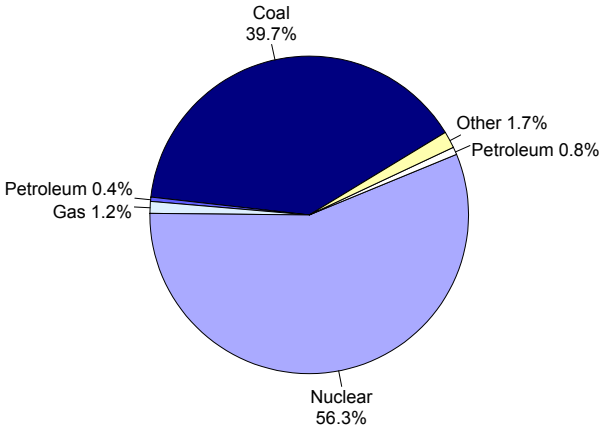


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	69,259,815	74,193,685	87,347,364	2.6	97.0	96.4	96.7
Coal	22,874,805	26,993,543	35,246,389	4.9	32.0	35.1	39.0
Petroleum	71,997	108,250	300,739	17.2	0.1	0.1	0.3
Gas	703,435	278,698	336,811	-7.9	1.0	0.4	0.4
Nuclear	42,880,669	44,466,176	50,813,559	1.9	60.1	57.8	56.3
Hydroelectric	2,728,909	2,347,018	649,866	-14.7	3.8	3.0	0.7
Total Nonutility	2,120,884	2,767,084	2,982,188	3.9	3.0	3.6	3.3
Coal	537,062	726,084	590,223	1.1	0.8	0.9	0.7
Petroleum	100,914	124,035	81,187	-2.4	0.1	0.2	0.1
Gas	101,290	246,261	722,305	24.4	0.1	0.3	0.8
Hydroelectric	62,768	69,660	40,708	-4.7	0.1	0.1	0.0
Other	1,318,851	1,601,044	1,547,765	1.8	1.8	2.1	1.7
Total Industry	71,380,699	76,960,769	90,329,552	2.7	100.0	100.0	100.0
Coal	23,411,867	27,719,627	35,836,612	4.8	32.8	36.0	39.7
Petroleum	172,911	232,285	381,926	9.2	0.2	0.3	0.4
Gas	804,725	524,959	1,059,116	3.1	1.1	0.7	1.2
Nuclear	42,880,669	44,466,176	50,813,559	1.9	60.1	57.8	56.3
Hydroelectric	2,791,677	2,416,678	690,574	-14.4	3.9	3.1	0.8
Other	1,318,851	1,601,044	1,547,765	1.8	1.8	2.1	1.7

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	208.5	170.3	141.6	-4.2
Average heat value (Btu per pound)	12655	12771	12809	0.1
Average sulfur Content(percent)	1.2	1.2	1.2	-0.4
Petroleum (cents per million Btu) (1999 dollars)	754.1	447.3	406.7	-6.6
Average heat value (Btu per gallon)	138032	138152	138151	*
Gas (cents per million Btu) (1999 dollars)	208.2	182.4	347.3	5.8
Average heat value (Btu per cubic foot)	1023	1023	1028	*

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	163	190	248	4.8
Petroleum	*	*	1	11.9
Other	0	*	0	0.0
Total	163	190	248	4.8
Nitrogen Oxide				
Coal	75	94	95	2.6
Petroleum	*	*	1	24.9
Gas	1	2	2	10.6
Other	0	2	1	0.0
Total	76	98	98	2.9
Carbon Dioxide				
Coal	23,308	28,195	35,874	4.9
Petroleum	62	332	417	23.7
Gas	413	259	688	5.8
Other	0	250	43	0.0
Total	23,783	29,036	37,022	5.0

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

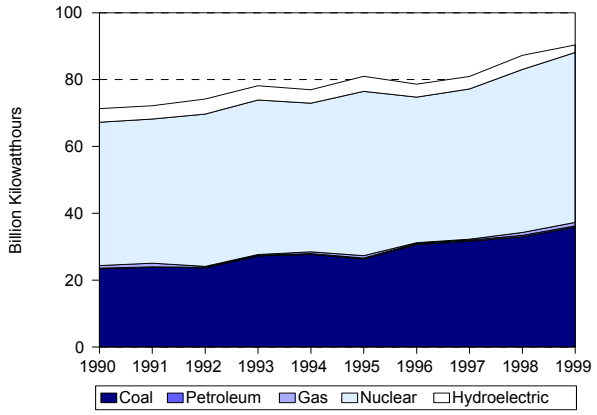


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

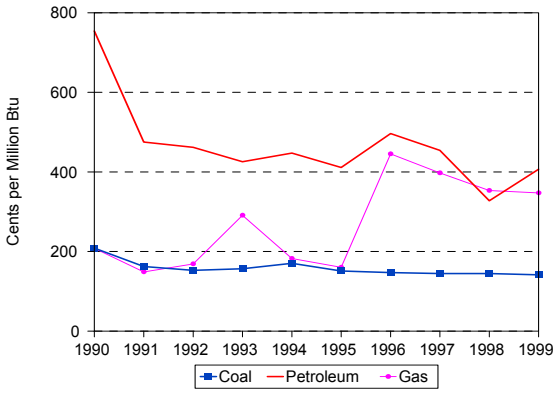


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

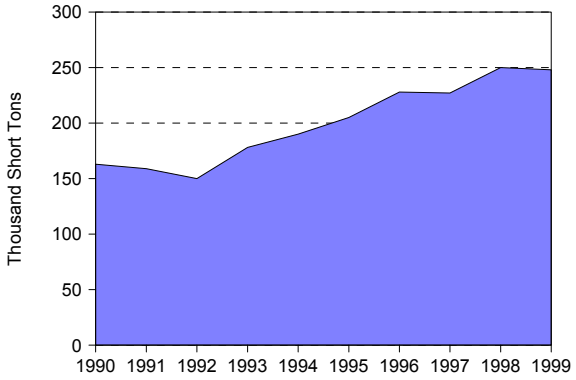


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

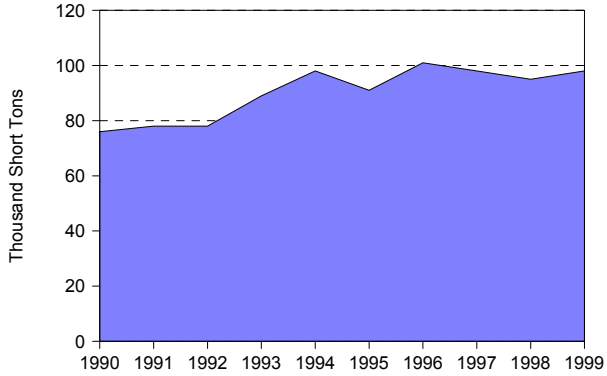


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

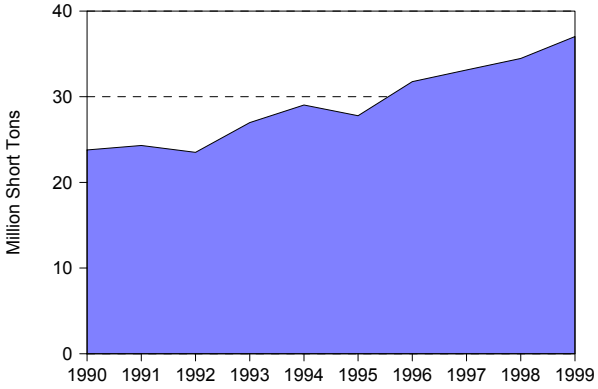


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

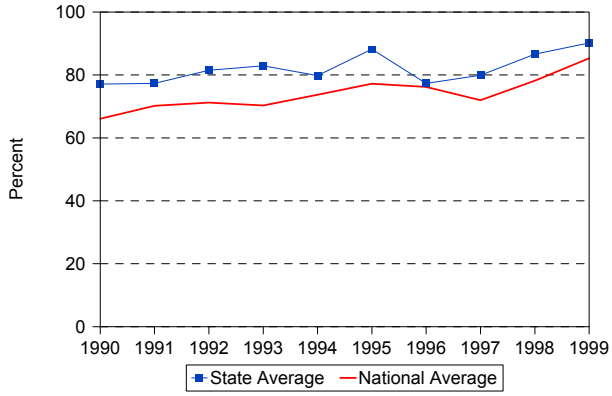


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	18,258	19,903	23,699	2.9	32.8	32.2	32.3
Commercial	11,927	13,393	16,585	3.7	21.4	21.6	22.6
Industrial	24,701	27,760	32,117	3.0	44.4	44.9	43.8
Other	766	802	903	1.8	1.4	1.3	1.2
Total	55,652	61,858	73,304	3.1	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,581	1,628	1,790	1.4	41.9	42.5	43.8
Commercial	889	931	1,045	1.8	23.6	24.3	25.6
Industrial	1,250	1,220	1,196	-0.5	33.1	31.9	29.3
Other	51	51	54	0.6	1.4	1.3	1.3
Total	3,770	3,829	4,085	0.9	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.66	8.18	7.55	NA	NA	NA	NA
Commercial	7.45	6.95	6.30	NA	NA	NA	NA
Industrial	5.06	4.39	3.72	NA	NA	NA	NA
Other	6.70	6.37	5.98	NA	NA	NA	NA
Total	6.78	6.19	5.57	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	4	22	0	21	47
Number of Retail Customers	1,166,013	278,702	0	567,370	2,012,085
Retail Sales (thousand megawatthours)	48,111	13,724	0	11,469	73,304
Percentage of Retail Sales	65.6	18.7	0.0	15.7	100.0
Revenue from Retail Sales (million dollars)	2630	653	0	803	4085
Percentage of Revenue	64.4	16.0	0.0	19.7	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.47	4.76	0.00	7.00	5.57

South Dakota

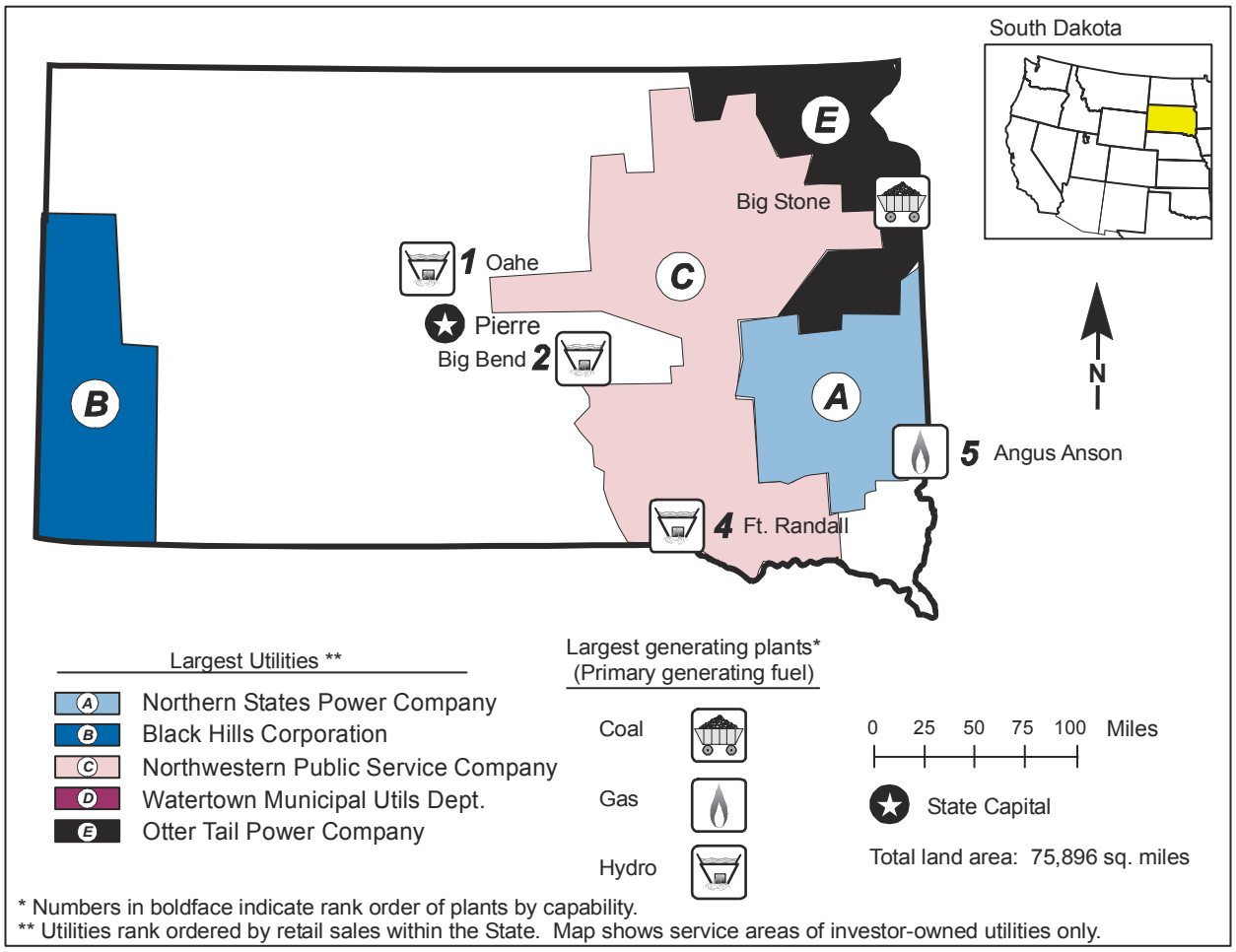


Table 1. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC/MAPP
Primary Energy Source		Hydro
Net Summer Capability (megawatts)	2,895	44
Utility	2,895	41
Net Generation (megawatthours)	10,557,027	45
Utility	10,557,027	43
Emissions (thousand short tons)		
Sulfur Dioxide	23	41
Nitrogen Oxide	19	42
Carbon Dioxide	4,206	47
Sulfur Dioxide/sq. mile	0	43
Nitrogen Oxide/sq. mile	0	47
Carbon Dioxide/sq. mile	55	48
Electricity Consumption (MWh) (excludes line losses)	7,922,354	48
Utility Retail Electricity Sales (megawatthours)	7,922,354	48
Utility Average Retail Price (cents/kWh)	6.35	23

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Oahe	Hydro	USCE-Missouri River District	786
2. Big Bend	Hydro	USCE-Missouri River District	536
3. Big Stone	Petroleum, Coal	Otter Tail Power Co	457
4. Fort Randall	Hydro	USCE-Missouri River District	352
5. Angus Anson	Petroleum, Gas	Northern States Power Co	205
6. Gavins Point	Hydro	USCE-Missouri River District	132
7. Ben French	Petroleum, Gas, Coal	Black Hills Corp	100
8. Spirit Mound	Petroleum	Basin Electric Power Coop	96
9. Pathfinder	Gas	Northern States Power Co	61
10. Huron	Gas	Northwestern Public Service Co	55

Table 3. Five Largest Utilities by Retail Sales Within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Northern States Power Company	1,452,705	470,501	288,743	685,724	7,737
B. Black Hills Power Inc	1,362,869	377,060	546,506	416,643	22,660
C. NorthWestern Public Service Co	1,111,728	421,359	489,962	183,675	16,732
D. Watertown Municipal Utils Dept	260,823	91,974	27,785	137,954	3,110
E. Otter Tail Power Company	257,788	96,402	108,602	45,430	7,354
Total	4,445,913	1,457,296	1,461,598	1,469,426	57,593
Percentage of Utility Sales	56.0	44.0	64.0	75.0	15.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	2,708	2,965	2,895	0.7	100.0	100.0	100.0
Coal	495	488	477	-0.4	18.3	16.5	16.5
Petroleum	298	293	278	-0.8	11.0	9.9	9.6
Gas	93	364	333	15.2	3.5	12.3	11.5
Hydroelectric	1,821	1,820	1,806	-0.1	67.2	61.4	62.4
Total Industry	2,708	2,965	2,895	0.7	100.0	100.0	100.0
Coal	495	488	477	-0.4	18.3	16.5	16.5
Petroleum	298	293	278	-0.8	11.0	9.9	9.6
Gas	93	364	333	15.2	3.5	12.3	11.5
Hydroelectric	1,821	1,820	1,806	-0.1	67.2	61.4	62.4

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

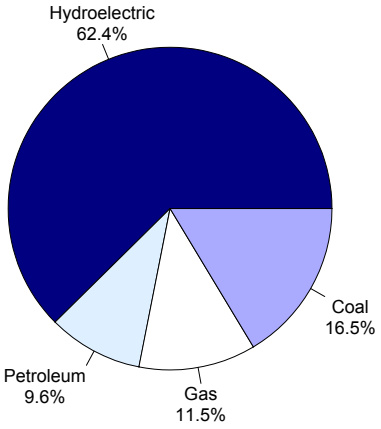


Figure 2. Industry Generation by Energy Source, 1999

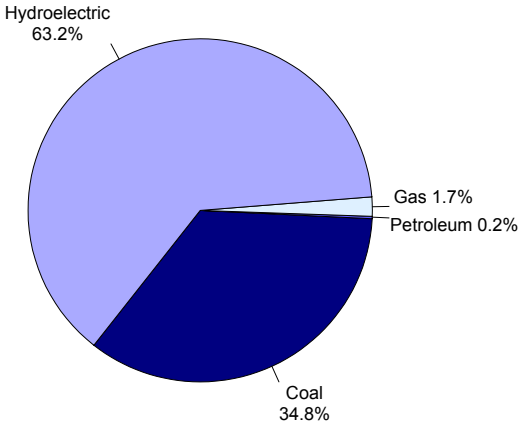


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	6,427,473	7,991,260	10,557,027	5.7	100.0	100.0	100.0
Coal	2,472,514	2,833,332	3,674,400	4.5	38.5	35.5	34.8
Petroleum	8,149	20,731	24,119	12.8	0.1	0.3	0.2
Gas	12,408	8,437	181,205	34.7	0.2	0.1	1.7
Hydroelectric	3,934,402	5,128,760	6,677,303	6.1	61.2	64.2	63.2
Total Industry	6,427,473	7,991,260	10,557,027	5.7	100.0	100.0	100.0
Coal	2,472,514	2,833,332	3,674,400	4.5	38.5	35.5	34.8
Petroleum	8,149	20,731	24,119	12.8	0.1	0.3	0.2
Gas	12,408	8,437	181,205	34.7	0.2	0.1	1.7
Hydroelectric	3,934,402	5,128,760	6,677,303	6.1	61.2	64.2	63.2

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	138.9	118.2	93.6	-4.3
Average heat value (Btu per pound)	6096	6049	8630	3.9
Average sulfur Content (percent)	0.9	0.9	0.6	-4.4
Petroleum (cents per million Btu) (1999 dollars)	685.2	0.0	0.0	-100.0
Average heat value (Btu per gallon)	140000	0	0	-100.0
Gas (cents per million Btu) (1999 dollars)	0.0	297.3	0.0	0.0
Average heat value (Btu per cubic foot)	0	972	0	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	31	33	23	-3.5
Petroleum	*	*	*	7.5
Total	31	33	23	-3.5
Nitrogen Oxide				
Coal	18	20	19	0.1
Petroleum	*	*	*	8.8
Gas	*	*	1	43.3
Total	18	20	19	0.5
Carbon Dioxide				
Coal	3,135	3,448	3,921	2.5
Petroleum	14	23	29	8.6
Gas	10	9	256	43.6
Total	3,159	3,480	4,206	3.2

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

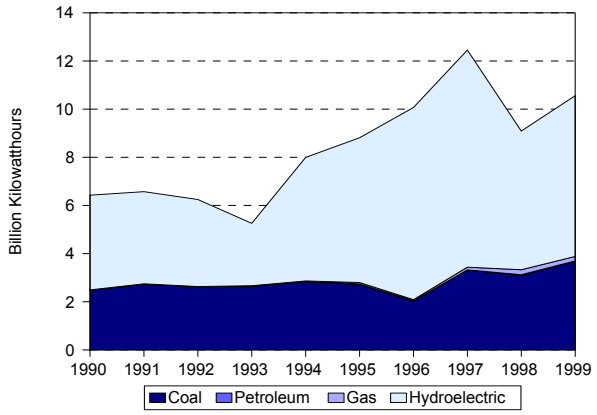


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

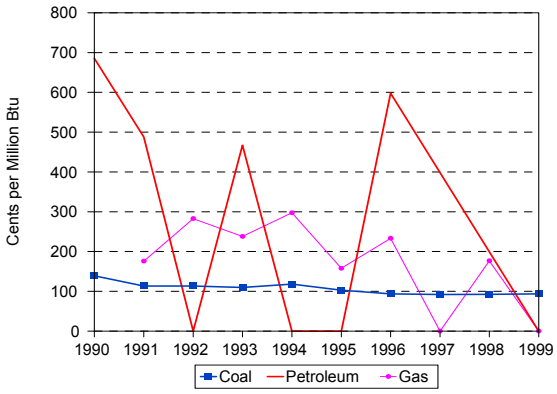


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

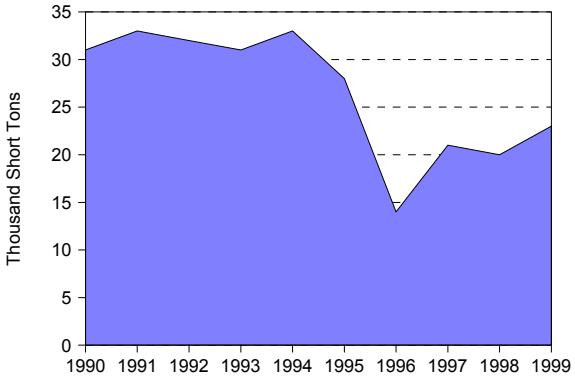


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

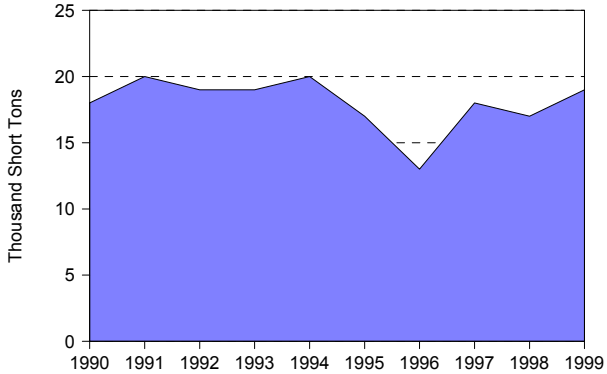


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

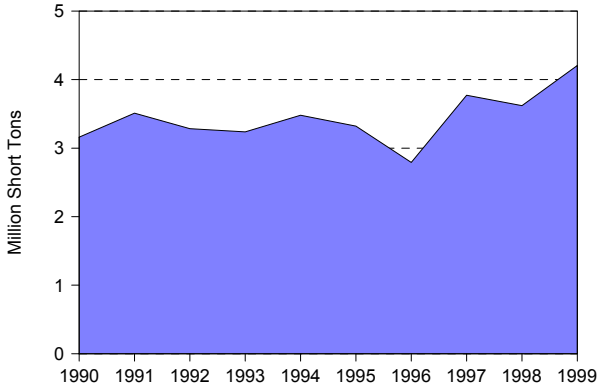


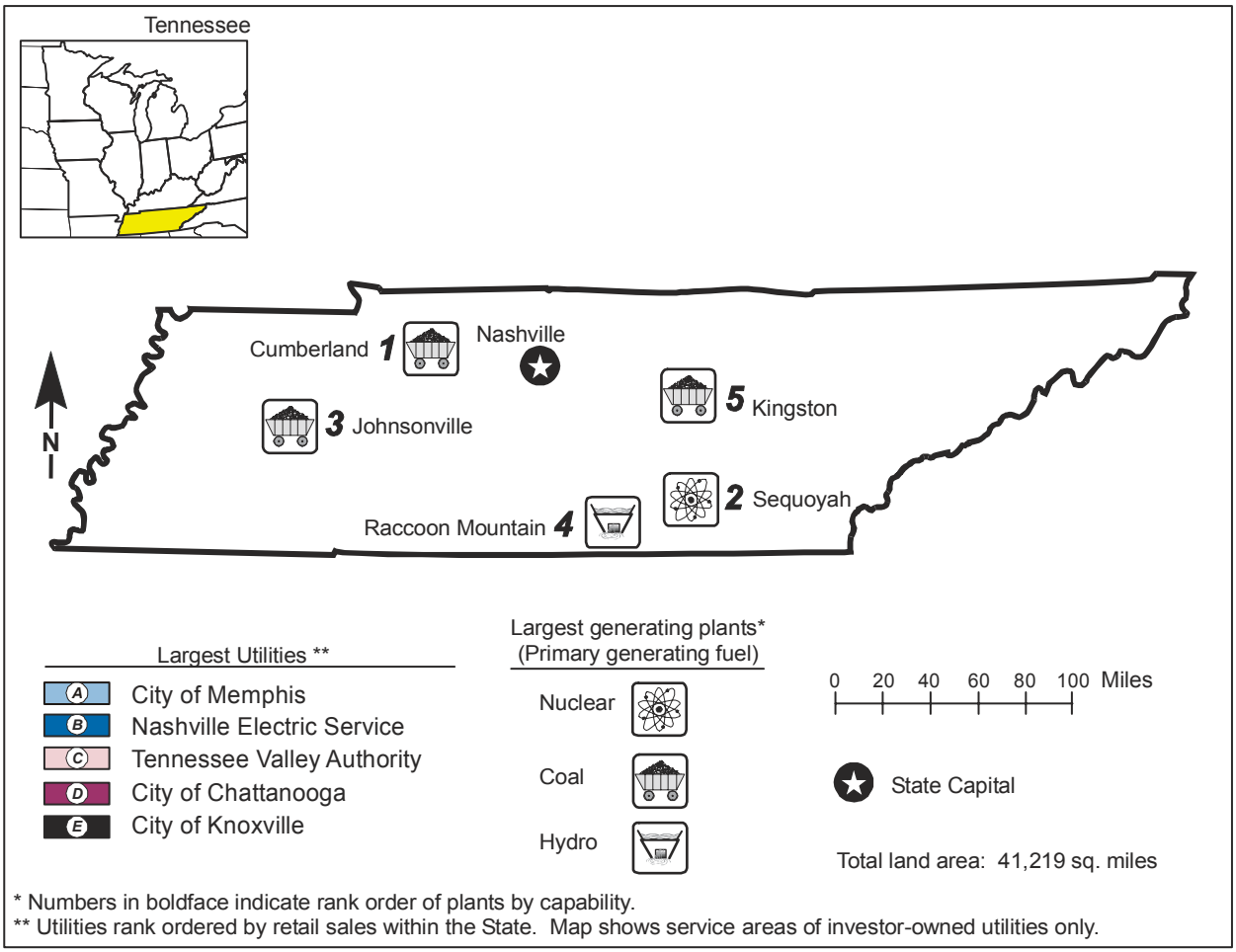
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	2,866	3,147	3,302	1.6	45.3	43.9	41.7
Commercial	1,450	1,919	2,291	5.2	22.9	26.8	28.9
Industrial	1,657	1,762	1,949	1.8	26.2	24.6	24.6
Other	361	346	381	0.6	5.7	4.8	4.8
Total	6,334	7,174	7,922	2.5	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	241	242	245	0.2	51.3	50.0	48.7
Commercial	117	138	153	3.0	25.0	28.5	30.5
Industrial	93	87	89	-0.6	19.9	17.9	17.6
Other	18	17	16	-1.4	3.8	3.6	3.2
Total	470	485	503	0.8	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.42	7.70	7.42	NA	NA	NA	NA
Commercial	8.09	7.20	6.70	NA	NA	NA	NA
Industrial	5.64	4.92	4.55	NA	NA	NA	NA
Other	4.98	5.04	4.17	NA	NA	NA	NA
Total	7.42	6.76	6.35	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	6	34	1	33	74
Number of Retail Customers	203,436	53,749	16	122,488	379,689
Retail Sales (thousand megawatthours)	4,426	1,168	187	2,140	7,922
Percentage of Retail Sales	55.9	14.7	2.4	27.0	100.0
Revenue from Retail Sales (million dollars)	291	55	3	155	503
Percentage of Revenue	57.8	10.9	0.5	30.7	100.0
Average Revenue per Kilowatthour (cents/kWh)	6.57	4.70	1.46	7.22	6.35

Tennessee



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		ECAR/SERC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	18,374	16
Utility	17,253	14
Nonutility	1,121	23
Net Generation (megawatthours)	93,418,718	15
Utility	89,682,569	13
Nonutility	3,736,149	28
Emissions (thousand short tons)		
Sulfur Dioxide	390	13
Nitrogen Oxide	174	16
Carbon Dioxide	58,229	16
Sulfur Dioxide/sq. mile	9	12
Nitrogen Oxide/sq. mile	4	16
Carbon Dioxide/sq. mile	1,413	19
Electricity Consumption (MWh) (excludes line losses)	96,649,420	14
Utility Retail Electricity Sales (megawatthours)	93,180,379	13
Nonutility Retail Sales and Direct Use (megawatthours)	3,469,041	14
Utility Average Retail Price (cents/kWh)	5.63	36

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Net Operating Company	Net Summer Capability (MW)
1. Cumberland	Petroleum, Coal	Tennessee Valley Authority	2,462
2. Sequoyah	Nuclear	Tennessee Valley Authority	2,239
3. Johnsonville	Petroleum, Coal	Tennessee Valley Authority	1,990
4. Raccoon Mountain	Hydro	Tennessee Valley Authority	1,532
5. Kingston	Petroleum, Coal	Tennessee Valley Authority	1,434
6. Gallatin	Petroleum, Coal	Tennessee Valley Authority	1,248
7. Allen	Petroleum, Gas, Coal	Tennessee Valley Authority	1,204
8. Watts Bar Nuclear	Nuclear	Tennessee Valley Authority	1,118
9. Bull Run	Petroleum, Coal	Tennessee Valley Authority	868
10. John Sevier	Petroleum, Coal	Tennessee Valley Authority	704

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. City of Memphis	13,821,132	5,225,900	4,495,011	3,979,688	120,533
B. Nashville Electric Service	11,629,436	4,225,141	4,247,196	3,035,554	121,545
C. Tennessee Valley Authority	8,830,601	0	0	8,821,277	9,324
D. City of Chattanooga	5,639,777	1,905,415	1,791,777	1,885,486	57,099
E. City of Knoxville	5,130,436	2,215,465	1,615,920	1,241,407	57,644
Total	45,051,382	13,571,921	12,149,904	18,963,412	366,145
Percentage of Utility Sales	48.0	38.0	48.0	60.0	35.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	16,996	16,482	17,253	0.2	97.5	96.3	93.9
Coal	9,289	8,615	8,618	-0.8	53.3	50.3	46.9
Petroleum	1,152	1,982	784	-4.2	6.6	11.6	4.3
Gas	516	0	732	4.0	3.0	0.0	4.0
Nuclear	2,296	2,217	3,357	4.3	13.2	13.0	18.3
Hydroelectric	3,743	3,668	3,762	0.1	21.5	21.4	20.5
Total Nonutility	430	632	1,121	11.2	2.5	3.7	6.1
Coal	259	277	356	3.6	1.5	1.6	1.9
Gas	W	W	537	W	W	W	2.9
Hydroelectric	W	W	167	W	W	W	0.9
Other	144	158	61	-9.1	0.8	0.9	0.3
Total Industry	17,426	17,115	18,374	0.6	100.0	100.0	100.0
Coal	9,548	8,892	8,974	-0.7	54.8	52.0	48.8
Petroleum	W	W	784	W	W	W	4.3
Gas	544	28	1,269	9.9	3.1	0.2	6.9
Nuclear	2,296	2,217	3,357	4.3	13.2	13.0	18.3
Hydroelectric	W	W	3,929	W	W	W	21.4
Other	144	158	61	-9.1	0.8	0.9	0.3

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

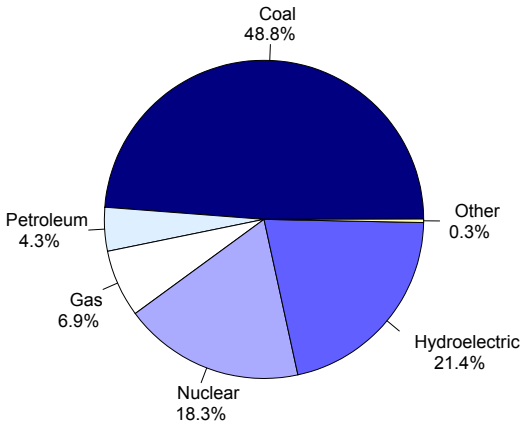


Figure 2. Industry Generation by Energy Source, 1999

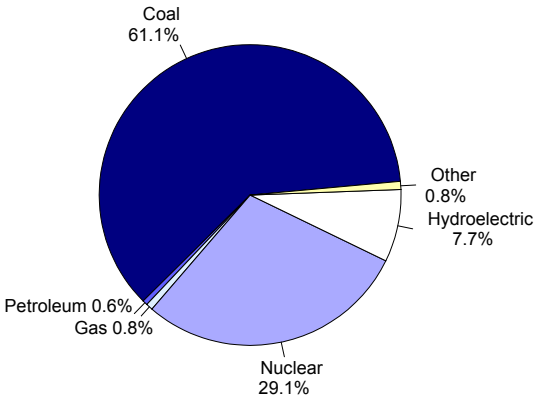


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	W	W	89,682,569	W	W	W	96.0
Coal	W	W	55,220,519	W	W	W	59.1
Petroleum	W	W	502,286	W	W	W	0.5
Gas	W	W	233,802	W	W	W	0.3
Nuclear	W	W	27,227,225	W	W	W	29.1
Hydroelectric	W	W	6,498,737	W	W	W	7.0
Total Nonutility	W	W	3,736,149	W	W	W	4.0
Coal	W	W	1,815,170	W	W	W	1.9
Petroleum	W	W	19,080	W	W	W	0.0
Gas	W	W	476,818	W	W	W	0.5
Hydroelectric	W	W	651,544	W	W	W	0.7
Other	472,661	719,150	773,536	5.6	0.6	0.9	0.8
Total Industry	76,219,792	78,356,638	93,418,718	2.3	100.0	100.0	100.0
Coal	51,829,435	53,679,896	57,035,689	1.1	68.0	68.5	61.1
Petroleum	W	W	521,366	W	W	W	0.6
Gas	240,770	278,230	710,620	12.8	0.3	0.4	0.8
Nuclear	14,002,591	11,932,352	27,227,225	7.7	18.4	15.2	29.1
Hydroelectric	W	W	7,150,281	W	W	W	7.7
Other	W	W	773,536	W	W	W	0.8

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	162.7	137.1	113.1	-3.9
Average heat value (Btu per pound)	11966	12186	11635	-0.3
Average sulfur content (percent)	2.0	2.0	1.6	-2.6
Petroleum (cents per million Btu) (1999 dollars)	679.7	453.0	393.3	-5.9
Average heat value (Btu per gallon)	138826	138244	139900	0.1

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	776	788	390	-7.3
Petroleum	*	*	*	-4.0
Other	0	0	0	0.0
Total	776	788	390	-7.3
Nitrogen Oxide				
Coal	193	197	171	-1.3
Petroleum	*	*	*	17.7
Gas	*	*	1	38.5
Other	0	1	1	0.0
Total	193	198	174	-1.2
Carbon Dioxide				
Coal	50,241	54,097	57,156	1.4
Petroleum	102	250	469	18.4
Gas	33	128	575	37.2
Other	0	57	29	0.0
Total	50,377	54,533	58,229	1.6

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

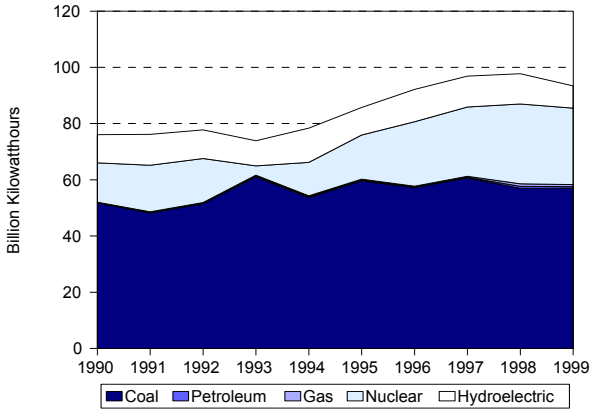


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

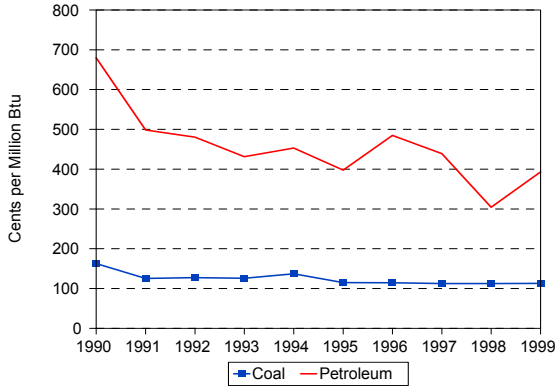


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

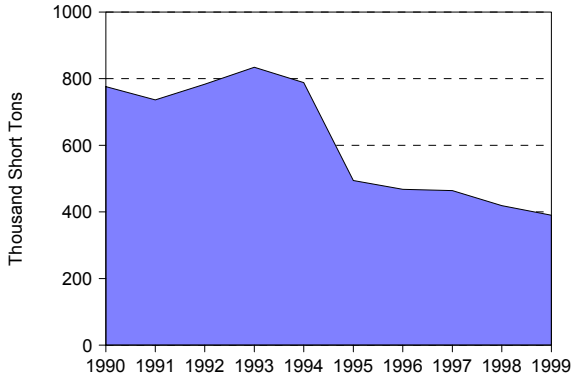


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

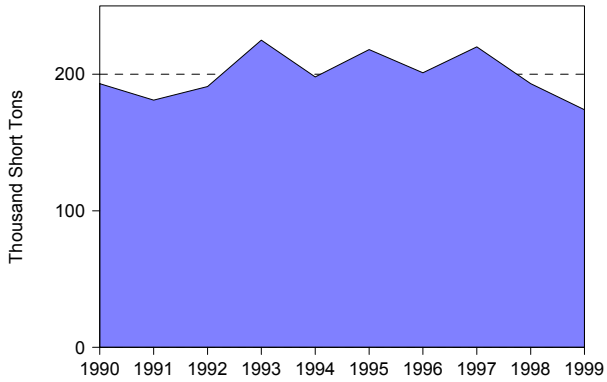


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

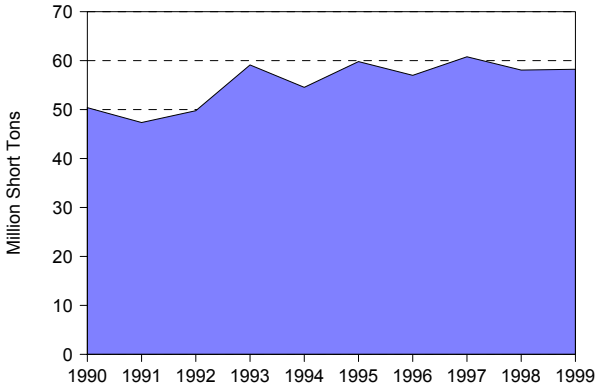


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

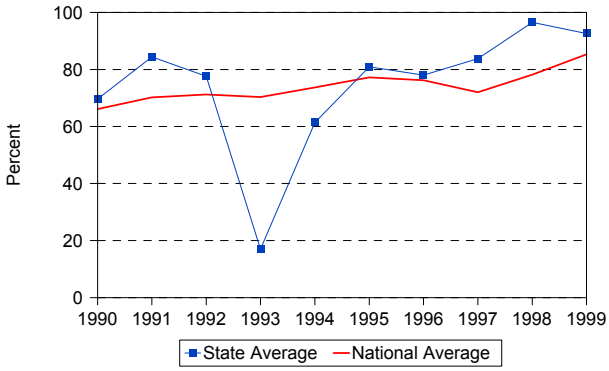


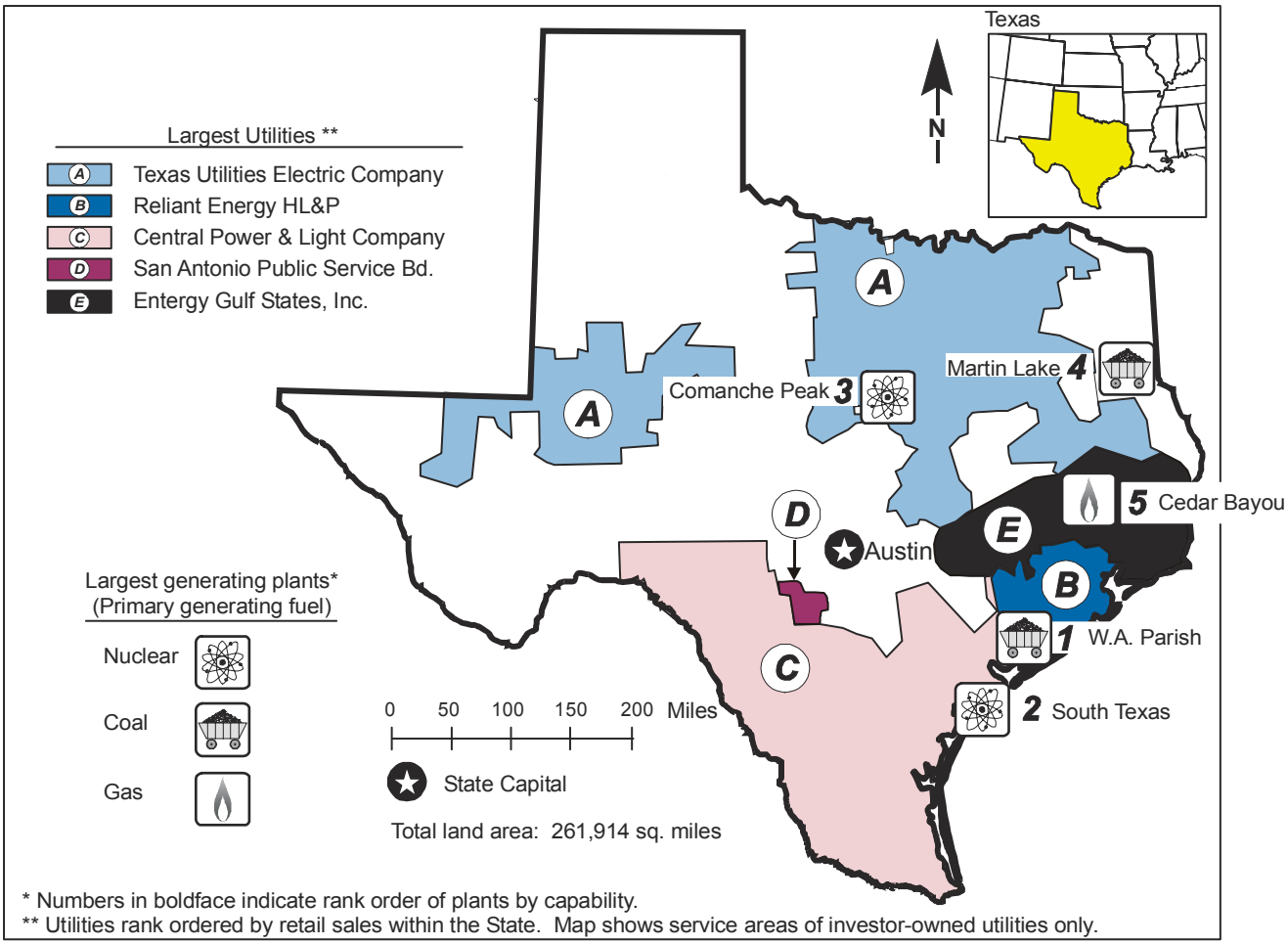
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	28,757	32,797	35,425	2.3	37.3	39.7	38.0
Commercial	12,128	5,154	25,228	8.5	15.7	6.2	27.1
Industrial	35,313	43,614	31,493	-1.3	45.8	52.8	33.8
Other	947	968	1,035	1.0	1.2	1.2	1.1
Total	77,145	82,533	93,180	2.1	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,982	2,104	2,247	1.4	39.9	44.7	42.9
Commercial	895	373	1,586	6.6	18.0	7.9	30.3
Industrial	2,006	2,150	1,319	-4.5	40.4	45.7	25.2
Other	79	82	90	1.5	1.6	1.7	1.7
Total	4,961	4,708	5,242	0.6	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	6.89	6.41	6.34	NA	NA	NA	NA
Commercial	7.38	7.23	6.29	NA	NA	NA	NA
Industrial	5.68	4.93	4.19	NA	NA	NA	NA
Other	8.31	8.44	8.71	NA	NA	NA	NA
Total	6.43	5.70	5.63	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	3	63	1	25	92
Number of Retail Customers	44,255	1,927,729	40	775,877	2,747,901
Retail Sales (thousand megawatthours)	1,804	65,268	8,831	17,278	93,180
Percentage of Retail Sales	1.9	70.0	9.5	18.5	100.0
Revenue from Retail Sales (million dollars)	79	3,809	267	1,087	5242
Percentage of Revenue	1.5	72.7	5.1	20.7	100.0
Average Revenue per Kilowatthour (cents/kWh)	4.40	5.84	3.02	6.29	5.63

Texas



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		ERCOT/SPP/WCSS/SERC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	76,272	1
Utility	65,293	1
Nonutility	10,979	5
Net Generation (megawatthours)	359,448,054	1
Utility	292,458,336	1
Nonutility	66,989,718	2
Emissions (thousand short tons)		
Sulfur Dioxide	516	8
Nitrogen Oxide	697	1
Carbon Dioxide	258,128	1
Sulfur Dioxide/sq. mile	2	30
Nitrogen Oxide/sq. mile	3	28
Carbon Dioxide/sq. mile	986	26
Electricity Consumption (MWh) (excludes line losses)	345,547,928	1
Utility Retail Electricity Sales (megawatthours)	301,844,180	1
Nonutility Retail Sales and Direct Use (megawatthours)	43,703,748	1
Utility Average Retail Price (cents/kWh)	6.04	27

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. W A Parish	Gas, Coal	Reliant Energy HL&P	3,783
2. South Texas	Nuclear	Reliant Energy HL&P	2,500
3. Comanche Peak	Nuclear	TXU Electric Company	2,300
4. Martin Lake	Petroleum, Coal	TXU Electric Company	2,267
5. Cedar Bayou	Petroleum, Gas	Reliant Energy HL&P	2,260
6. P H Robinson	Gas	Reliant Energy HL&P	2,213
7. Monticello	Petroleum, Coal	TXU Electric Company	1,880
8. Sabine	Petroleum, Gas	Entergy Gulf States Inc	1,811
9. Fayette Power Prj	Petroleum, Coal	Lower Colorado River Authority	1,605
10. Welsh	Petroleum, Coal	Southwestern Electric Power Co	1,584

Table 3. Five Largest Utilities by Retail Sales Within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. TXU Electric Company	95,927,336	35,081,048	29,673,933	24,671,536	6,500,819
B. Reliant Energy HL&P	69,374,552	21,144,483	16,615,979	31,480,606	133,484
C. Central Power & Light Company	21,303,608	7,247,622	5,255,798	8,219,415	580,773
D. San Antonio Public Service Bd	15,630,348	6,498,441	2,521,569	4,418,867	2,191,471
E. Entergy Gulf States, Inc	14,832,656	4,602,916	3,230,321	6,773,148	226,271
Total	217,068,500	74,574,510	57,297,600	75,563,572	9,632,818
Percentage of Utility Sales	72.0	69.0	72.0	76.0	68.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	62,034	64,087	65,293	0.6	89.3	88.7	85.6
Coal	18,590	19,345	19,875	0.7	26.8	26.8	26.1
Petroleum	56	41	38	-4.2	0.1	0.1	0.0
Gas	39,068	39,265	39,874	0.2	56.3	54.4	52.3
Nuclear	3,651	4,782	4,800	3.1	5.3	6.6	6.3
Hydroelectric	640	653	691	0.9	0.9	0.9	0.9
Other	29	*	14	-7.7	0.0	0.0	0.0
Total Nonutility	7,397	8,155	10,979	4.5	10.7	11.3	14.4
Coal	W	W	327	W	W	W	0.4
Petroleum	10	189	274	44.7	0.0	0.3	0.4
Gas	5,659	7,029	9,076	5.4	8.2	9.7	11.9
Petroleum/Gas Combined	1,132	407	941	-2.0	1.6	0.6	1.2
Hydroelectric	0	0	2	0.0	0.0	0.0	0.0
Other	196	191	361	7.0	0.3	0.3	0.5
Total Industry	69,431	72,242	76,272	1.0	100.0	100.0	100.0
Coal	W	W	20,202	W	W	W	26.5
Petroleum	66	230	311	18.9	0.1	0.3	0.4
Gas	44,728	46,294	48,950	1.0	64.4	64.1	64.2
Petroleum/Gas Combined	1,132	407	941	-2.0	1.6	0.6	1.2
Nuclear	3,651	4,782	4,800	3.1	5.3	6.6	6.3
Hydroelectric	640	653	693	0.9	0.9	0.9	0.9
Other	226	192	375	5.8	0.3	0.3	0.5

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

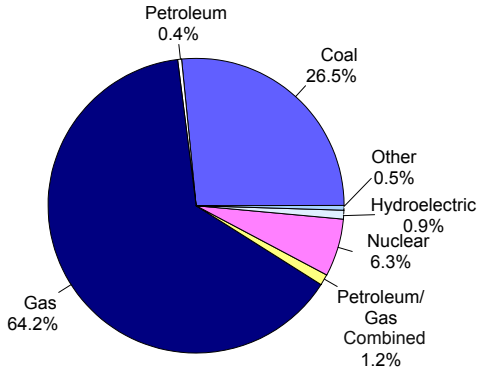


Figure 2. Industry Generation by Energy Source, 1999

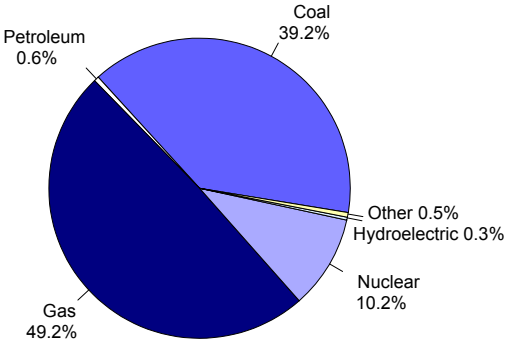


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	234,047,343	255,140,538	292,458,336	2.5	81.2	82.9	81.4
Coal	118,354,490	122,667,859	138,077,181	1.7	41.1	39.8	38.4
Petroleum	480,617	309,537	146,226	-12.4	0.2	0.1	0.0
Gas	97,279,980	101,583,910	116,358,063	2.0	33.8	33.0	32.4
Nuclear	15,859,258	28,745,474	36,759,899	9.8	5.5	9.3	10.2
Hydroelectric	1,793,625	1,530,436	1,116,881	-5.1	0.6	0.5	0.3
Other	279,373	303,322	86	-59.3	0.1	0.1	0.0
Total Nonutility	54,123,811	52,730,100	66,989,718	2.4	18.8	17.1	18.6
Coal	W	W	2,873,624	W	W	W	0.8
Petroleum	1,344,089	1,530,655	1,864,647	3.7	0.5	0.5	0.5
Gas	48,563,249	47,049,918	60,457,805	2.5	16.9	15.3	16.8
Hydroelectric	0	0	3,326	0.0	0.0	0.0	0.0
Other	W	W	1,790,318	W	W	W	0.5
Total Industry	288,171,154	307,870,638	359,448,054	2.5	100.0	100.0	100.0
Coal	W	W	140,950,805	W	W	W	39.2
Petroleum	1,824,706	1,840,192	2,010,873	1.1	0.6	0.6	0.6
Gas	145,843,229	148,633,828	176,815,868	2.2	50.6	48.3	49.2
Nuclear	15,859,258	28,745,474	36,759,899	9.8	5.5	9.3	10.2
Hydroelectric	1,793,625	1,530,436	1,120,207	-5.1	0.6	0.5	0.3
Other	W	W	1,790,404	W	W	W	0.5

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	176.2	147.4	120.0	-4.2
Average heat value (Btu per pound)	7291	7346	7506	0.3
Average sulfur Content (percent)	0.7	0.7	0.6	-1.4
Petroleum (cents per million Btu) (1999 dollars)	627.1	311.7	396.0	-5.0
Average heat value (Btu per gallon)	141838	145760	138003	-0.3
Average sulfur Content (percent)	0.5	0.0	0.0	-100.0
Gas (cents per million Btu) (1999 dollars)	254.7	235.0	245.8	-0.4
Average heat value (Btu per cubic foot)	1035	1023	1021	-0.1

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	461	472	515	1.3
Petroleum	1	1	*	-22.9
Other	0	0	0	0.0
Total	462	473	516	1.2
Nitrogen Oxide				
Coal	429	448	494	1.6
Petroleum	1	3	3	20.9
Gas	123	167	196	5.3
Other	0	2	4	0.0
Total	553	620	697	2.6
Carbon Dioxide				
Coal	132,401	139,063	155,592	1.8
Petroleum	459	1,999	2,091	18.4
Gas	59,482	87,572	100,324	6.0
Other	0	36	121	0.0
Total	192,341	228,670	258,128	3.3

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

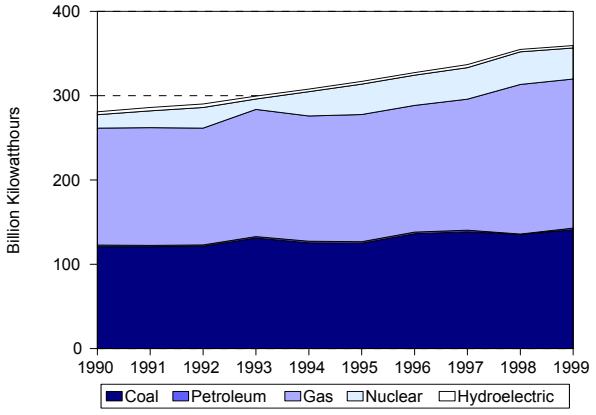


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

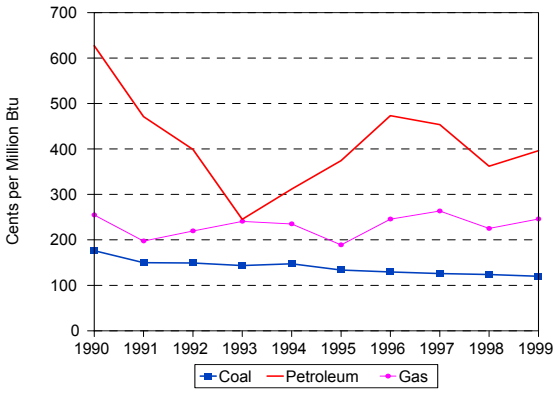


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

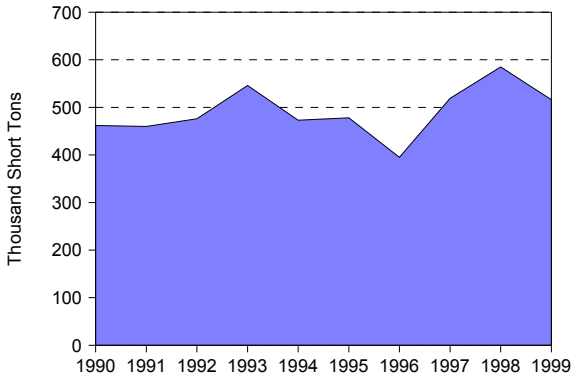


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

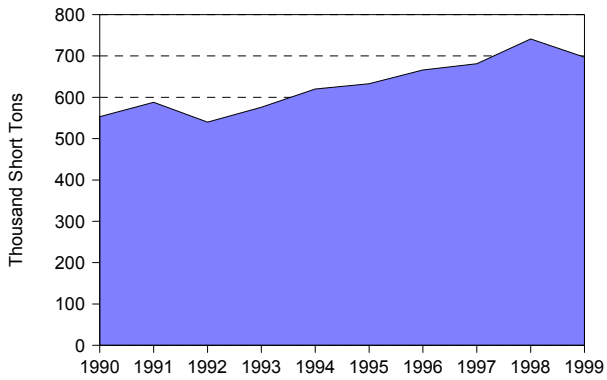


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

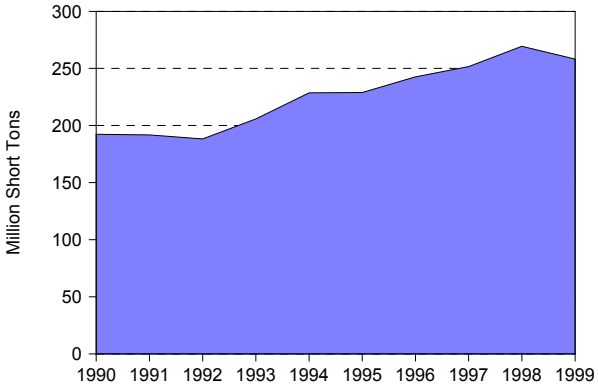


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

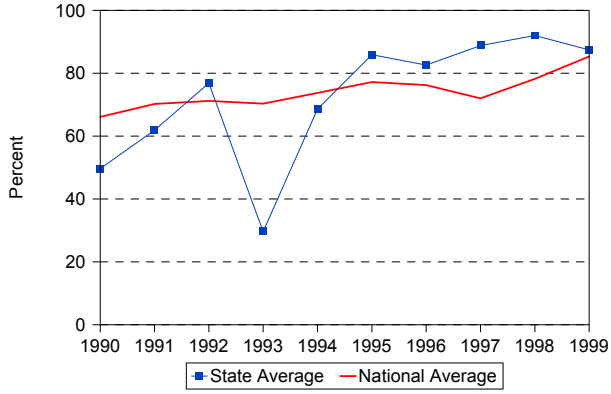


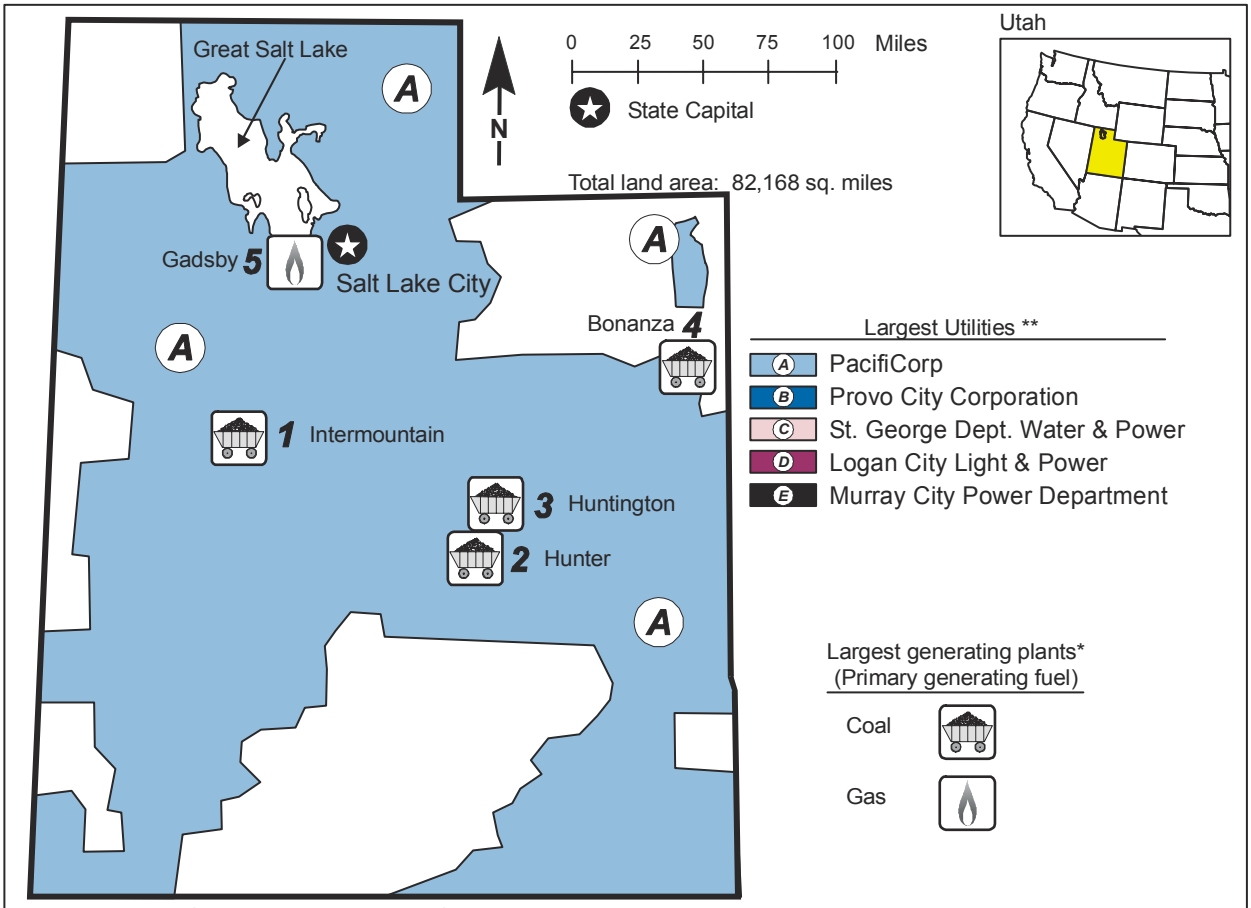
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	82,548	89,793	108,591	3.1	34.8	34.8	36.0
Commercial	62,238	66,467	79,388	2.7	26.2	25.7	26.3
Industrial	84,087	90,329	99,741	1.9	35.4	35.0	33.0
Other	8,542	11,591	14,124	5.8	3.6	4.5	4.7
Total	237,415	258,180	301,844	2.7	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	7,203	7,917	8,201	1.4	43.4	43.8	45.0
Commercial	4,654	5,105	5,179	1.2	28.0	28.2	28.4
Industrial	4,106	4,210	3,964	-0.4	24.7	23.3	21.7
Other	646	858	899	3.7	3.9	4.7	4.9
Total	16,610	18,089	18,243	1.0	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.73	8.82	7.55	NA	NA	NA	NA
Commercial	7.48	7.68	6.52	NA	NA	NA	NA
Industrial	4.88	4.66	3.97	NA	NA	NA	NA
Other	7.57	7.40	6.36	NA	NA	NA	NA
Total	7.00	7.01	6.04	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	10	74	0	75	159
Number of Retail Customers	6,253,652	1,383,365	0	1,395,908	9,032,925
Retail Sales (thousand megawatthours)	238,233	37,919	0	25,692	301,844
Percentage of Retail Sales	78.9	12.6	0.0	8.5	100.0
Revenue from Retail Sales (million dollars)	14,167	2,331	0	1,745	18,243
Percentage of Revenue	77.7	12.8	0.0	9.6	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.95	6.15	0.00	6.79	6.04

Utah



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	5,234	40
Utility	5,102	37
Nonutility	131	44
Net Generation (megawatthours)	36,812,340	34
Utility	36,071,421	33
Nonutility	740,919	43
Emissions (thousand short tons)		
Sulfur Dioxide	28	38
Nitrogen Oxide	106	29
Carbon Dioxide	35,173	30
Sulfur Dioxide/sq. mile	0	42
Nitrogen Oxide/sq. mile	1	37
Carbon Dioxide/sq. mile	428	38
Electricity Consumption (MWh) (excludes line losses)	22,230,990	38
Utility Retail Electricity Sales (megawatthours)	21,879,032	37
Nonutility Retail Sales and Direct Use (megawatthours)	351,958	41
Utility Average Retail Price (cents/kWh)	4.86	47

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Intermountain	Petroleum, Coal	Los Angeles City of	1,640
2. Hunter	Petroleum, Coal	PacifiCorp	1,320
3. Huntington	Petroleum, Coal	PacifiCorp	895
4. Bonanza	Petroleum, Coal	Deseret Generation & Tran Coop	425
5. Gadsby	Gas	PacifiCorp	235
6. Carbon	Petroleum, Coal	PacifiCorp	175
7. Flaming Gorge	Hydro	Bureau of Reclamation	152
8. Sunnyside Cogenerati	Coal	Sunnyside Cogeneration Assoc	54
9. Geneva Steel	Gas	Geneva Steel	50
10. Cutler	Hydro	PacifiCorp	29

Table 3. Five Largest Utilities by Retail Sales Within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. PacifiCorp	17,846,211	4,747,183	5,548,796	7,023,642	526,590
B. Provo City Corporation	673,506	197,695	355,157	120,654	0
C. St George Dept Water & Power	416,346	186,832	215,340	0	14,174
D. Logan City Light & Power	347,264	79,693	173,117	41,833	52,621
E. Murray City Power Department	341,891	104,704	228,615	0	8,572
Total	19,625,218	5,316,107	6,521,025	7,186,129	601,957
Percentage of Utility Sales	90.00	85.00	90.00	95.00	76.00

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	4,805	4,816	5,102	0.7	98.3	97.3	97.5
Coal	4,316	4,273	4,463	0.4	88.3	86.3	85.3
Petroleum	26	25	44	5.9	0.5	0.5	0.8
Gas	228	227	296	2.9	4.7	4.6	5.7
Hydroelectric	213	257	265	2.5	4.4	5.2	5.1
Other	21	35	35	5.6	0.4	0.7	0.7
Total Nonutility	82	136	131	5.4	1.7	2.7	2.5
Coal	W	W	54	W	W	W	1.0
Petroleum	W	W	18	W	W	W	0.4
Gas	W	W	53	W	W	W	1.0
Petroleum/Gas Combined	W	W	0	W	W	W	0.0
Hydroelectric	W	W	4	W	W	W	0.1
Other	0	0	2	0.0	0.0	0.0	0.0
Total Industry	4,886	4,953	5,234	0.8	100.0	100.0	100.0
Coal	W	W	4,516	W	W	W	86.3
Petroleum	W	W	62	W	W	W	1.2
Gas	W	W	349	W	W	W	6.7
Petroleum/Gas Combined	W	W	0	W	W	W	0.0
Hydroelectric	W	W	269	W	W	W	5.1
Other	W	W	37	W	W	W	0.7

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

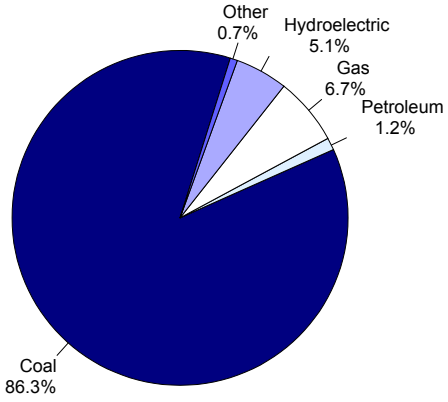


Figure 2. Industry Generation by Energy Source, 1999

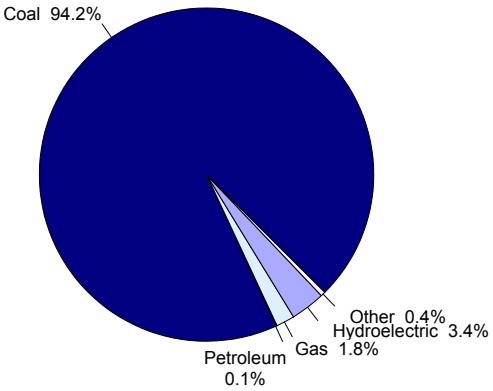


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	32,260,340	34,455,058	36,071,421	1.2	99.1	97.9	98.0
Coal	31,519,477	32,764,465	34,125,014	0.9	96.8	93.1	92.7
Petroleum	49,262	30,154	29,023	-5.7	0.2	0.1	0.1
Gas	54,034	749,605	515,127	28.5	0.2	2.1	1.4
Hydroelectric	485,742	716,030	1,246,727	11.0	1.5	2.0	3.4
Other	151,825	194,804	155,530	0.3	0.5	0.6	0.4
Total Nonutility	303,199	741,776	740,919	10.4	0.9	2.1	2.0
Coal	W	W	570,114	W	W	W	1.5
Petroleum	W	W	1,704	W	W	W	0.0
Gas	W	W	152,517	W	W	W	0.4
Hydroelectric	W	W	8,416	W	W	W	0.0
Other	W	W	8,169	W	W	W	0.0
Total Industry	32,563,539	35,196,834	36,812,340	1.4	100.0	100.0	100.0
Coal	W	W	34,695,128	W	W	W	94.2
Petroleum	W	W	30,727	W	W	W	0.1
Gas	W	W	667,644	W	W	W	1.8
Hydroelectric	W	W	1,255,143	W	W	W	3.4
Other	W	W	163,699	W	W	W	0.4

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	141.4	124.0	103.1	-3.4
Average heat value (Btu per pound)	11483	11491	11620	0.1
Average sulfur content (percent)	0.5	0.5	0.5	-0.7
Petroleum (cents per million Btu) (1999 dollars)	656.3	510.2	513.6	-2.7
Average heat value (Btu per gallon)	140000	139839	139722	*
Gas (cents per million Btu) (1999 dollars)	610.3	252.8	253.8	-9.3
Average heat value (Btu per cubic foot)	1000	1044	1043	0.5

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	32	29	28	-1.4
Petroleum	*	*	0	-15.7
Total	32	29	28	-1.4
Nitrogen Oxide				
Coal	100	99	105	0.5
Petroleum	*	*	*	-5.4
Gas	*	9	1	22.2
Total	101	108	106	0.5
Carbon Dioxide				
Coal	32,277	33,418	34,683	0.8
Petroleum	38	29	26	-4.2
Gas	54	765	458	26.9
Other	0	0	6	0.0
Total	32,369	34,213	35,173	0.9

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

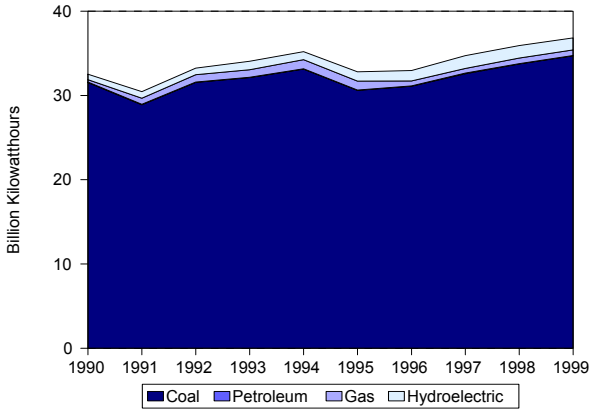


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

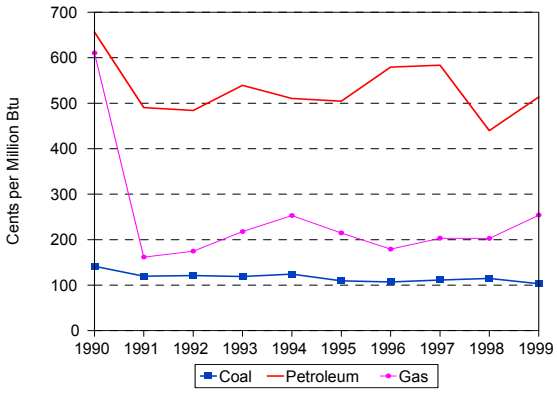


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

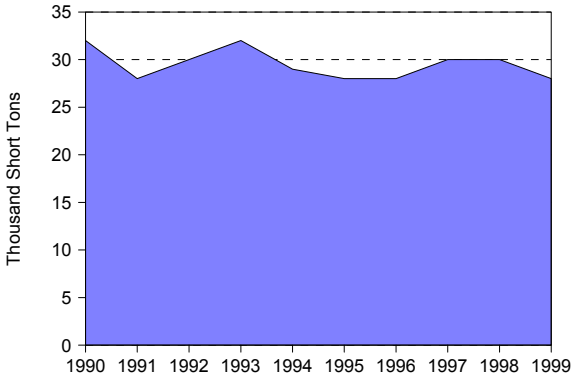


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

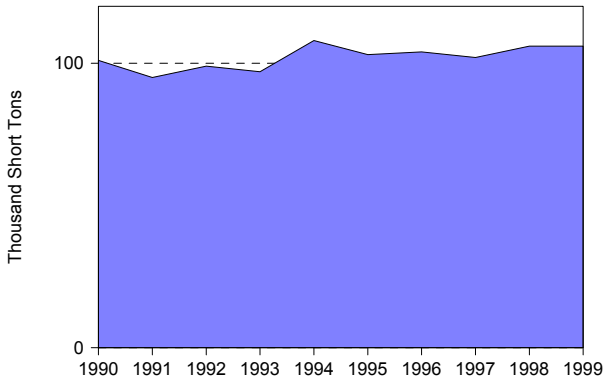


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

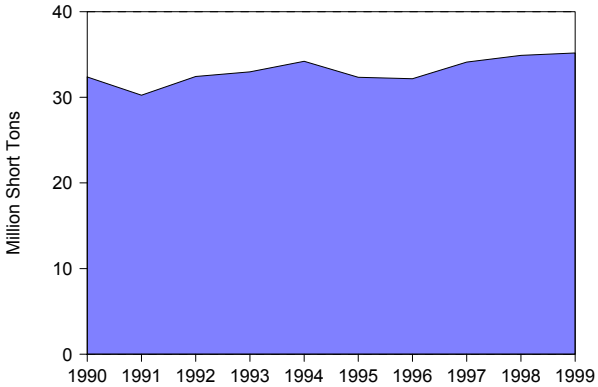


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	4,246	5,009	6,236	4.4	27.6	28.1	28.5
Commercial	4,515	5,500	7,282	5.5	29.3	30.8	33.3
Industrial	5,766	6,498	7,568	3.1	37.4	36.4	34.6
Other	875	841	792	-1.1	5.7	4.7	3.6
Total	15,402	17,847	21,879	4.0	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	367	378	391	0.7	36.0	36.2	36.8
Commercial	342	352	385	1.3	33.6	33.8	36.2
Industrial	266	272	254	-0.5	26.1	26.0	23.9
Other	44	41	33	-3.0	4.3	4.0	3.1
Total	1,019	1,043	1,064	0.5	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.64	7.54	6.27	NA	NA	NA	NA
Commercial	7.58	6.41	5.29	NA	NA	NA	NA
Industrial	4.61	4.18	3.36	NA	NA	NA	NA
Other	5.03	4.91	4.21	NA	NA	NA	NA
Total	6.61	5.85	4.86	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	1	41	1	9	52
Number of Retail Customers	630,968	173,473	4	29,361	833,806
Retail Sales (thousand megawatthours)	17,846	3,344	53	635	21,879
Percentage of Retail Sales	81.6	15.3	0.2	2.9	100.0
Revenue from Retail Sales (million dollars)	827	198	1	38	1,064
Percentage of Revenue	77.7	18.6	0.1	3.6	100.0
Average Revenue per Kilowatthour (cents/kWh)	4.63	5.92	1.57	6.01	4.86

Vermont

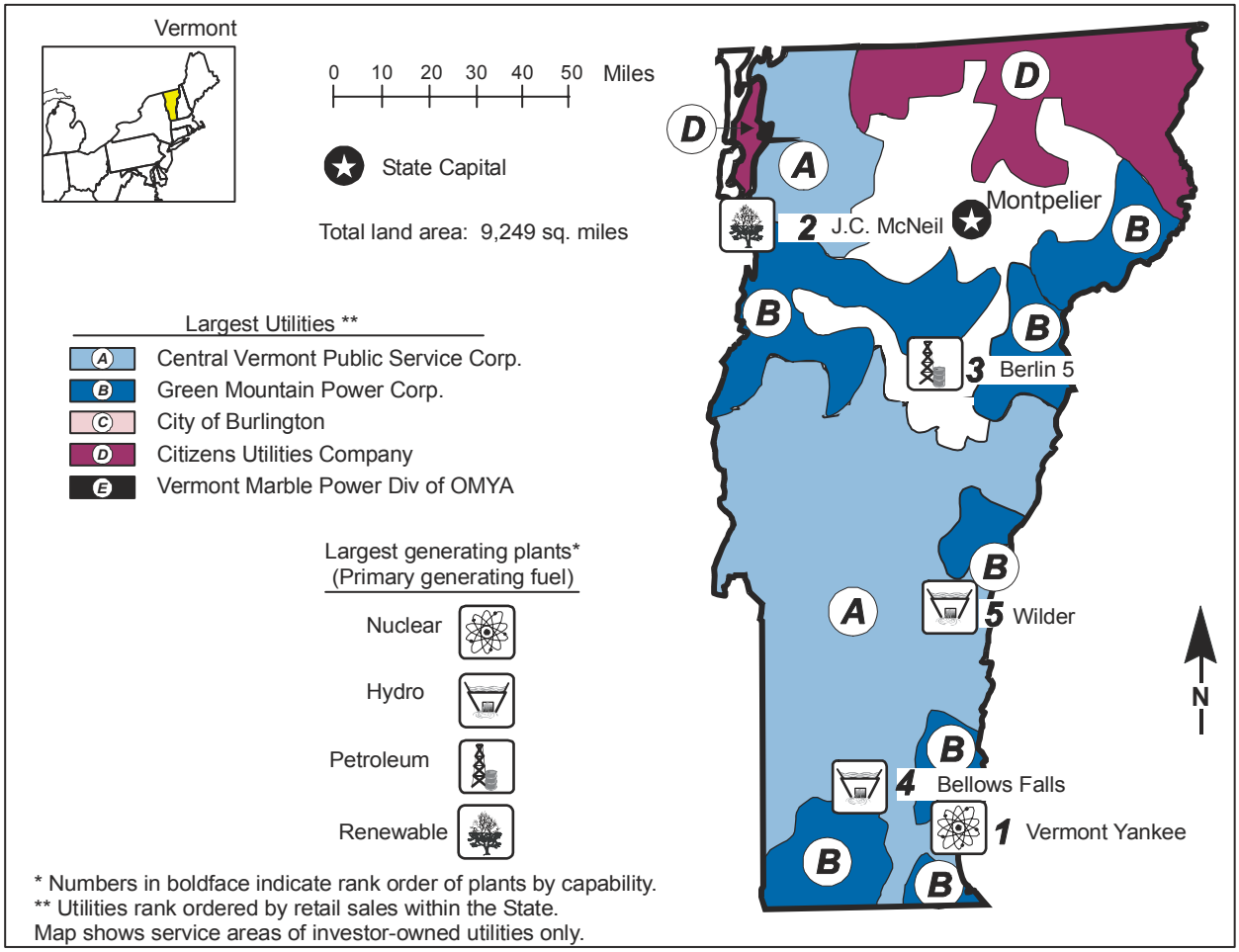

Vermont
0 10 20 30 40 50 Miles
State Capital
Total land area: 9,249 sq. miles
Largest Utilities **
A Central Vermont Public Service Corp.
B Green Mountain Power Corp.
C City of Burlington
D Citizens Utilities Company
E Vermont Marble Power Div of OMYA
Largest generating plants*
(Primary generating fuel)
Nuclear
Hydro
Petroleum
Renewable
* 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.
Montpelier
2 J.C. McNeil
3 Berlin 5
5 Wilder
4 Bellows Falls
1 Vermont Yankee
N

Table 1. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		NPCC
Primary Energy Source		Nuclear
Net Summer Capability (megawatts)	992	49
Utility	782	49
Nonutility	210	41
Net Generation (megawatthours)	5,709,117	50
Utility	4,734,555	46
Nonutility	974,562	40
Emissions (thousand short tons)		
Sulfur Dioxide	0	51
Nitrogen Oxide	0	50
Carbon Dioxide	45	51
Sulfur Dioxide/sq. mile	0	51
Nitrogen Oxide/sq. mile	0	50
Carbon Dioxide/sq. mile	5	50
Electricity Consumption (MWh) (excludes line losses)	5,637,619	51
Utility Retail Electricity Sales (megawatthours)	5,527,328	50
Nonutility Retail Sales and Direct Use (megawatthours)	110,291	47
Utility Average Retail Price (cents/kWh)	10.28	4

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Vermont Yankee	Nuclear	Vermont Yankee Nucl Pwr Corp	506
2. J C McNeil	Petroleum, Gas, Other	Burlington City of	52
3. Berlin 5	Petroleum	Green Mountain Power Corp	41
4. Bellows FLS	Hydro	US Gen New England Inc	40
5. Wilder	Hydro	US Gen New England Inc	37
6. Harriman	Hydro	US Gen New England Inc	33
7. Sheldon Springs Hydr	Hydro	Missisquoi Associates	26
8. Ryegate Power Statio	Other	Ryegate Associates	21
9. Vernon	Hydro	US Gen New England Inc	20
10. Burlington GT	Petroleum	Burlington City of	20

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Central Vermont Pub Serv Corp	2,172,798	894,874	860,614	411,865	5,445
B. Green Mountain Power Corp	1,901,783	544,447	688,493	664,111	4,732
C. City of Burlington	337,009	89,437	170,703	73,973	2,896
D. Citizens Communications Co	291,172	110,083	71,029	101,902	8,158
E. Vermont Marble Pwr Div of OMYA	209,465	5,609	3,281	200,477	98
Total	4,912,227	1,644,450	1,794,120	1,452,328	21,329
Percentage of Utility Sales	89.00	82.00	95.00	91.00	48.00

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	1,065	1,093	782	-3.4	94.3	93.9	78.8
Petroleum	117	120	117	-0.1	10.4	10.3	11.8
Nuclear	496	496	506	0.2	44.0	42.6	51.0
Hydroelectric	404	430	107	-13.7	35.8	36.9	10.8
Other	47	47	53	1.2	4.2	4.1	5.3
Total Nonutility	64	71	210	14.1	5.7	6.1	21.2
Hydroelectric	W	W	185	W	W	W	18.7
Other	24	24	25	0.3	2.1	2.0	2.5
Total Industry	1,129	1,164	992	-1.4	100.0	100.0	100.0
Petroleum	117	120	117	-0.1	10.4	10.3	11.8
Nuclear	496	496	506	0.2	44.0	42.6	51.0
Hydroelectric	W	W	292	W	W	W	29.4
Other	71	71	77	0.9	6.3	6.1	7.8

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

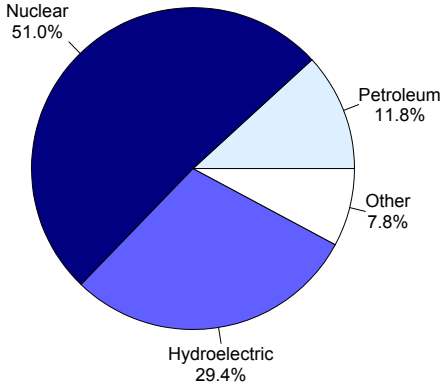


Figure 2. Industry Generation by Energy Source, 1999

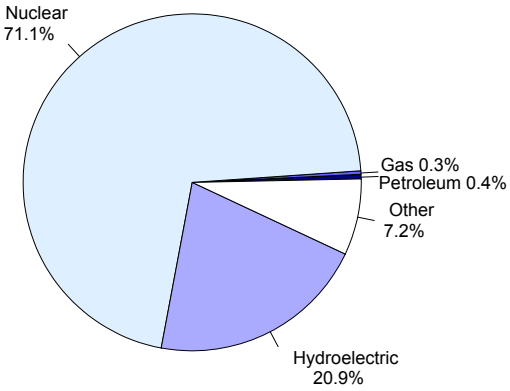


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	4,992,578	5,293,892	4,734,555	-0.6	96.0	93.8	82.9
Petroleum	2,543	5,764	22,392	27.3	0.0	0.1	0.4
Gas	65,281	5,806	18,291	-13.2	1.3	0.1	0.3
Nuclear	3,616,268	4,315,544	4,059,107	1.3	69.6	76.5	71.1
Hydroelectric	1,214,248	895,095	420,685	-11.1	23.4	15.9	7.4
Other	94,238	71,683	214,080	9.5	1.8	1.3	3.7
Total Nonutility	205,816	348,971	974,562	18.9	4.0	6.2	17.1
Petroleum	W	W	2,666	W	W	W	0.0
Hydroelectric	150,783	143,559	775,011	19.9	2.9	2.5	13.6
Other	54,924	204,736	196,886	15.2	1.1	3.6	3.4
Total Industry	5,198,394	5,642,863	5,709,117	1.0	100.0	100.0	100.0
Petroleum	W	W	25,058	W	W	W	0.4
Gas	65,281	5,806	18,291	-13.2	1.3	0.1	0.3
Nuclear	3,616,268	4,315,544	4,059,107	1.3	69.6	76.5	71.1
Hydroelectric	1,365,031	1,038,654	1,195,696	-1.5	26.3	18.4	20.9
Other	149,162	276,419	410,966	11.9	2.9	4.9	7.2

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Petroleum (cents per million Btu) (1999 dollars)	0.0	495.1	0.0	0.0
Average heat value (Btu per gallon)	0	135810	0	0.0
Gas (cents per million Btu) (1999 dollars)	0.0	252.7	319.3	0.0
Average heat value (Btu per cubic foot)	0	996	1012	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Petroleum	0	*	0	0.0
Total	0	*	0	0.0
Nitrogen Oxide				
Petroleum	0	*	*	30.1
Gas	*	*	*	-10.9
Total	*	*	*	-4.4
Carbon Dioxide				
Petroleum	3	11	29	29.1
Gas	40	9	14	-10.9
Other	0	0	2	0.0
Total	43	20	45	0.7

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

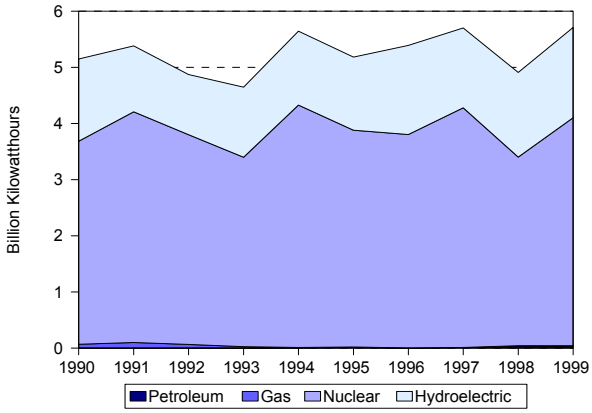


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

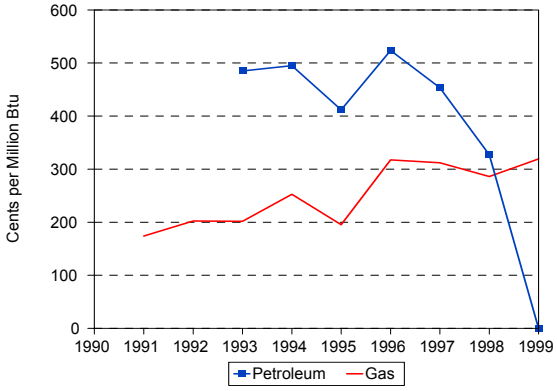


Figure 5. Estimated Carbon Dioxide Emissions, 1990-1999

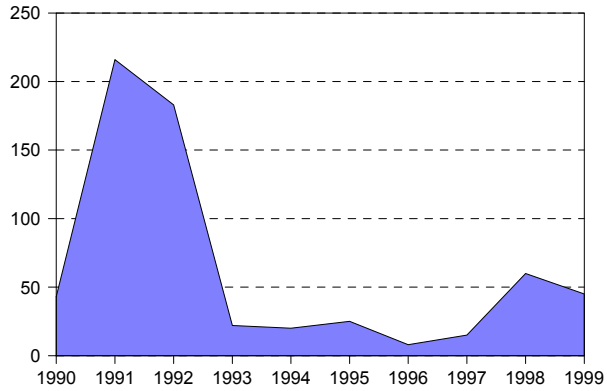


Figure 6. Nuclear Power Capacity Factor Comparison, 1990-1999

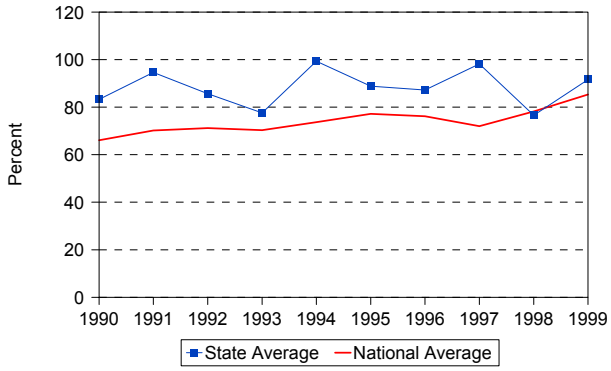


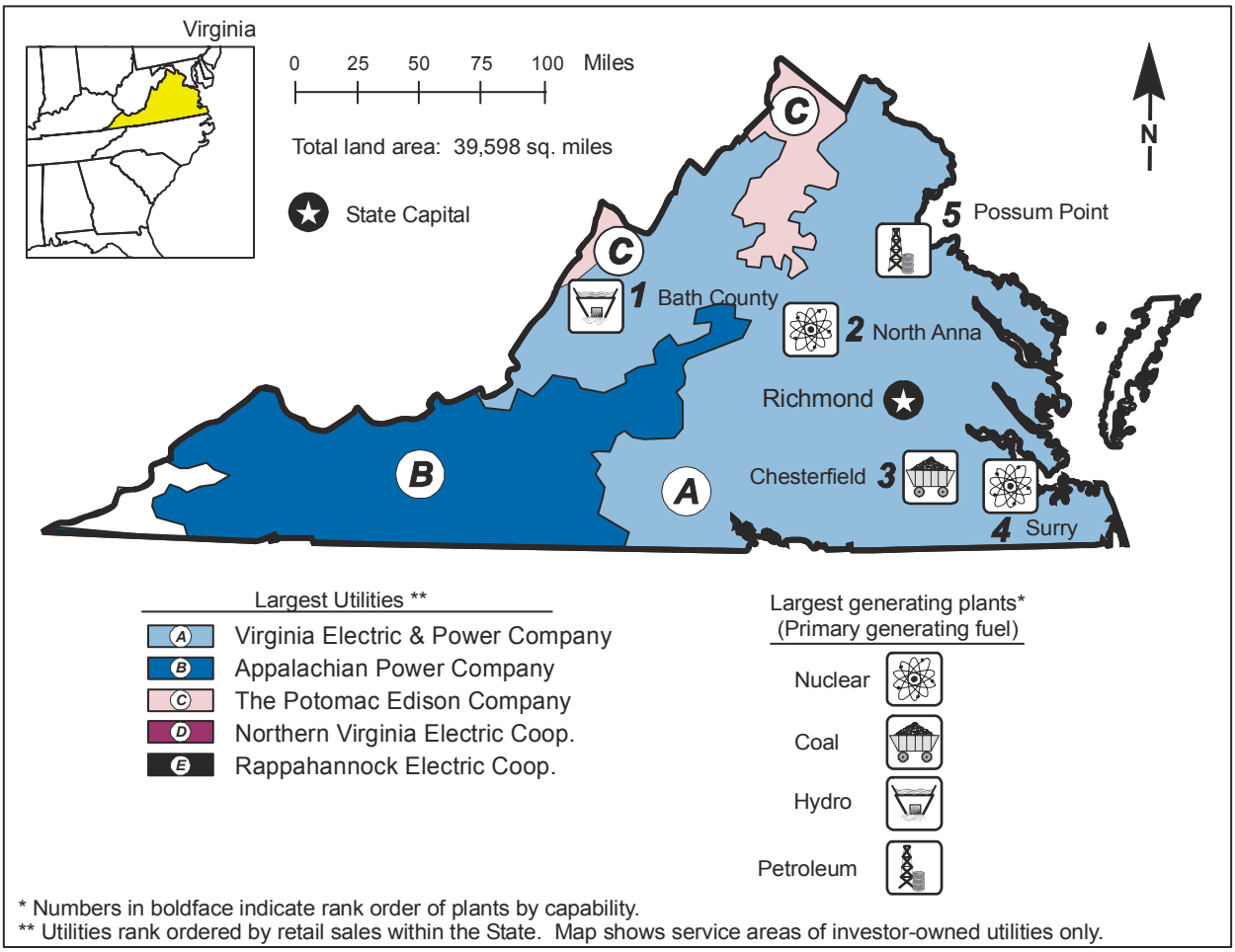
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	1,809	2,009	1,999	1.1	38.3	39.7	36.2
Commercial	1,484	1,586	1,896	2.8	31.5	31.3	34.3
Industrial	1,381	1,435	1,587	1.6	29.3	28.3	28.7
Other	42	36	45	0.6	0.9	0.7	0.8
Total	4,716	5,067	5,527	1.8	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	203	218	243	2.0	42.9	43.3	42.8
Commercial	153	163	202	3.2	32.3	32.3	35.6
Industrial	111	117	117	0.6	23.4	23.3	20.5
Other	6	6	6	-0.4	1.3	1.2	1.0
Total	473	505	568	2.1	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	11.22	10.86	12.17	NA	NA	NA	NA
Commercial	10.30	10.27	10.67	NA	NA	NA	NA
Industrial	8.01	8.18	7.35	NA	NA	NA	NA
Other	14.69	16.23	13.32	NA	NA	NA	NA
Total	10.02	9.96	10.28	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	6	15	0	2	23
Number of Retail Customers	247,095	50,707	0	24,395	322,197
Retail Sales (thousand megawatthours)	4,586	745	0	196	5,527
Percentage of Retail Sales	83.0	13.5	0.0	3.6	100.0
Revenue from Retail Sales (million dollars)	471	73	0	24	568
Percentage of Revenue	82.8	12.9	0.0	4.3	100.0
Average Revenue per Kilowatthour (cents/kWh)	10.26	9.85	0.00	12.41	10.28

Virginia



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		ECAR/SERC/MAAC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	18,767	15
Utility	15,311	18
Nonutility	3,456	11
Net Generation (megawatthours)	74,165,383	20
Utility	65,071,068	20
Nonutility	9,094,315	13
Emissions (thousand short tons)		
Sulfur Dioxide	214	17
Nitrogen Oxide	111	28
Carbon Dioxide	42,357	23
Sulfur Dioxide/sq. mile	5	20
Nitrogen Oxide/sq. mile	3	25
Carbon Dioxide/sq. mile	1,070	24
Electricity Consumption (MWh) (excludes line losses)	95,236,625	15
Utility Retail Electricity Sales (megawatthours)	93,032,468	14
Nonutility Retail Sales and Direct Use (megawatthours)	2,204,157	21
Utility Average Retail Price (cents/kWh)	5.86	31

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Bath County	Hydro	Virginia Electric & Power Co	2,100
2. North Anna	Hydro, Nuclear	Virginia Electric & Power Co	1,791
3. Chesterfield	Petroleum, Gas, Coal	Virginia Electric & Power Co	1,776
4. Surry	Nuclear	Virginia Electric & Power Co	1,602
5. Possum Point	Petroleum, Coal	Virginia Electric & Power Co	1,329
6. Yorktown	Gas, Coal, Petroleum	Virginia Electric & Power Co	1,144
7. Clover	Petroleum, Coal	Virginia Electric & Power Co	882
8. Chesapeake	Petroleum, Coal	Virginia Electric & Power Co	739
9. Clinch River	Petroleum, Coal	Appalachian Power Co	690
10. Doswell Combined Cyc	Gas	Doswell LP	660

Table 3. Five Largest Utilities by Retail Sales Within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Virginia Electric & Power Co	62,650,370	22,726,342	21,107,630	9,953,305	8,863,093
B. Appalachian Power Company	14,874,789	5,492,573	2,790,049	5,925,799	666,368
C. The Potomac Edison Company	2,404,523	942,710	509,195	948,610	4,008
D. Northern Virginia Elec Coop	2,067,082	1,276,941	601,058	186,621	2,462
E. Rappahannock Electric Coop	1,957,268	971,747	95,343	884,887	5,291
Total	83,954,032	31,410,313	25,103,275	17,899,222	9,541,222
Percentage of Utility Sales	90.0	88.0	93.0	88.0	95.0

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	13,661	13,763	15,311	1.3	82.6	80.5	81.6
Coal	4,225	4,217	5,099	2.1	25.5	24.7	27.2
Petroleum	2,753	2,689	2,213	-2.4	16.6	15.7	11.8
Gas	192	400	1,524	25.9	1.2	2.3	8.1
Nuclear	3,382	3,349	3,392	0.0	20.5	19.6	18.1
Hydroelectric	3,109	3,108	3,083	-0.1	18.8	18.2	16.4
Other	*	*	*	0.0	0.0	0.0	0.0
Total Nonutility	2,877	3,331	3,456	2.1	17.4	19.5	18.4
Coal	993	828	1,094	1.1	6.0	4.8	5.8
Petroleum	6	78	16	12.0	0.0	0.5	0.1
Gas	428	475	100	-14.9	2.6	2.8	0.5
Petroleum/Gas Combined	1,010	1,326	1,566	5.0	6.1	7.8	8.3
Hydroelectric	18	22	21	2.2	0.1	0.1	0.1
Other	422	603	659	5.1	2.5	3.5	3.5
Total Industry	16,538	17,095	18,767	1.4	100.0	100.0	100.0
Coal	5,218	5,045	6,193	1.9	31.6	29.5	33.0
Petroleum	2,759	2,767	2,229	-2.3	16.7	16.2	11.9
Gas	619	875	1,623	11.3	3.7	5.1	8.7
Petroleum/Gas Combined	1,010	1,326	1,566	5.0	6.1	7.8	8.3
Nuclear	3,382	3,349	3,392	0.0	20.5	19.6	18.1
Hydroelectric	3,127	3,130	3,105	-0.1	18.9	18.3	16.5
Other	422	603	659	5.1	2.5	3.5	3.5

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

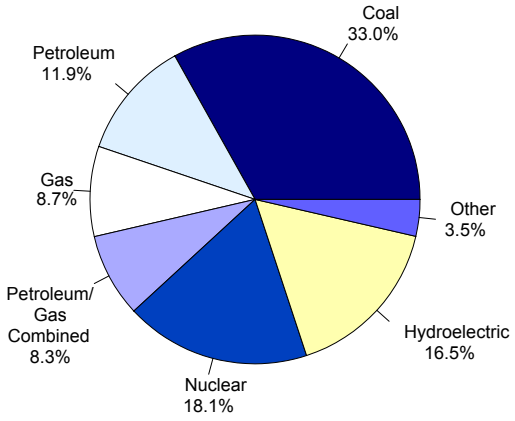


Figure 2. Industry Generation by Energy Source, 1999

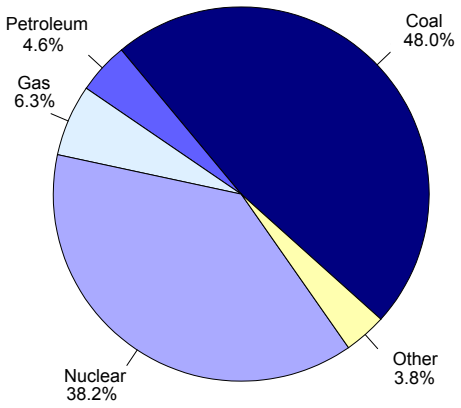


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	47,200,499	52,732,286	65,071,068	3.6	86.9	85.0	87.7
Coal	21,000,180	22,448,944	31,743,474	4.7	38.7	36.2	42.8
Petroleum	1,194,150	2,373,888	3,035,028	10.9	2.2	3.8	4.1
Gas	758,289	2,151,992	2,599,607	14.7	1.4	3.5	3.5
Nuclear	23,820,152	25,428,856	28,300,643	1.9	43.9	41.0	38.2
Hydroelectric	427,694	328,595	-607,684	0.0	0.8	0.5	-0.8
Other	34	11	0	-100.0	0.0	0.0	0.0
Total Nonutility	7,091,533	9,294,313	9,094,315	2.8	13.1	15.0	12.3
Coal	3,597,815	4,136,234	3,844,905	0.7	6.6	6.7	5.2
Petroleum	356,339	497,815	353,121	-0.1	0.7	0.8	0.5
Gas	1,323,273	2,527,254	2,042,770	4.9	2.4	4.1	2.8
Hydroelectric	W	W	61,613	W	W	W	0.1
Other	W	W	2,791,906	W	W	W	3.8
Total Industry	54,292,032	62,026,599	74,165,383	3.5	100.0	100.0	100.0
Coal	24,597,995	26,585,178	35,588,379	4.2	45.3	42.9	48.0
Petroleum	1,550,489	2,871,703	3,388,149	9.1	2.9	4.6	4.6
Gas	2,081,562	4,679,246	4,642,377	9.3	3.8	7.5	6.3
Nuclear	23,820,152	25,428,856	28,300,643	1.9	43.9	41.0	38.2
Hydroelectric	W	W	-546,071	W	W	W	-0.7
Other	W	W	2,791,906	W	W	W	3.8

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	187.3	158.3	134.3	-3.6
Average heat value (Btu per pound)	12714	12778	12702	*
Average sulfur Content (percent)	1.0	1.0	1.3	3.4
Petroleum (cents per million Btu) (1999 dollars)	464.9	236.1	229.9	-7.5
Average heat value (Btu per gallon)	146360	149744	150662	0.3
Average sulfur Content (percent)	1.0	1.2	1.1	1.8
Gas (cents per million Btu) (1999 dollars)	313.0	280.1	299.7	-0.5
Average heat value (Btu per cubic foot)	1041	1037	1056	0.2

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	150	161	197	3.0
Petroleum	4	13	17	16.5
Other	0	*	0	0.0
Total	155	173	214	3.7
Nitrogen Oxide				
Coal	70	87	99	3.9
Petroleum	1	3	4	14.2
Gas	1	4	5	22.3
Other	0	3	3	0.0
Total	72	97	111	4.9
Carbon Dioxide				
Coal	21,223	27,004	36,051	6.1
Petroleum	990	2,520	2,971	13.0
Gas	388	2,128	2,558	23.3
Other	0	1,290	777	0.0
Total	22,600	32,942	42,357	7.2

Figure 3. Industry Generation of Electricity by Energy Source, 1990-1999

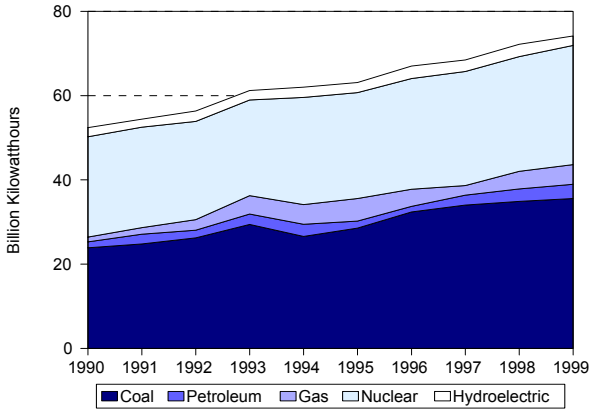


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

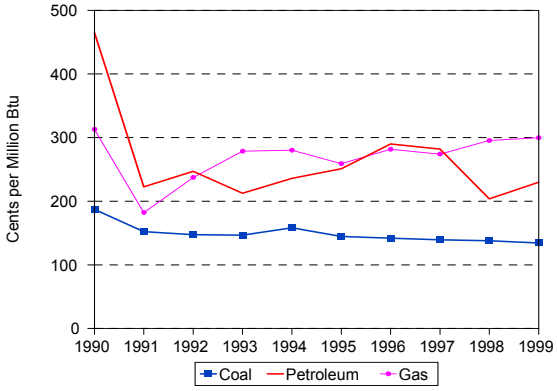


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

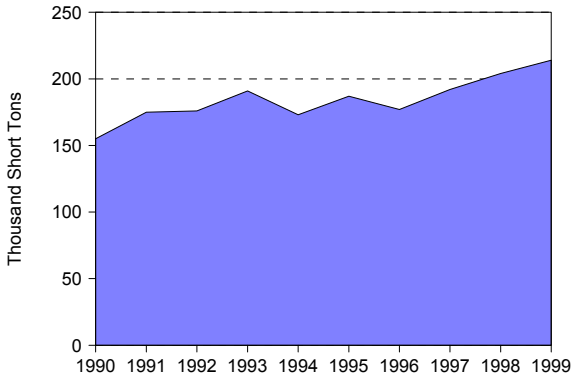


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

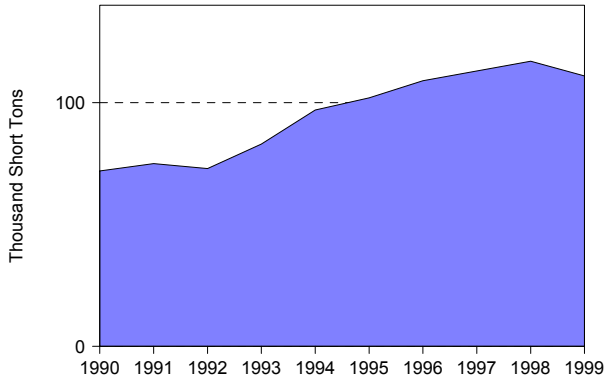


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

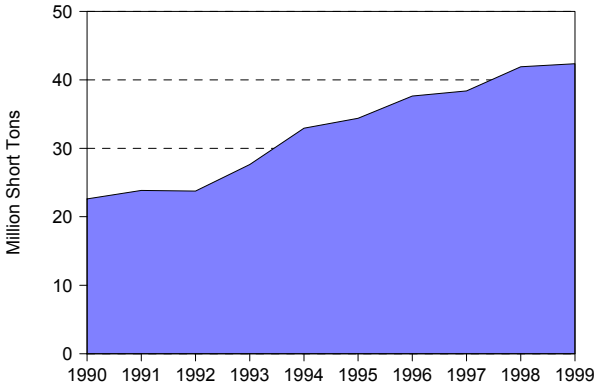


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

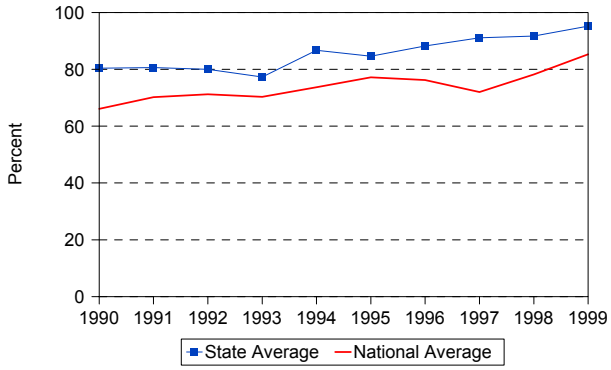


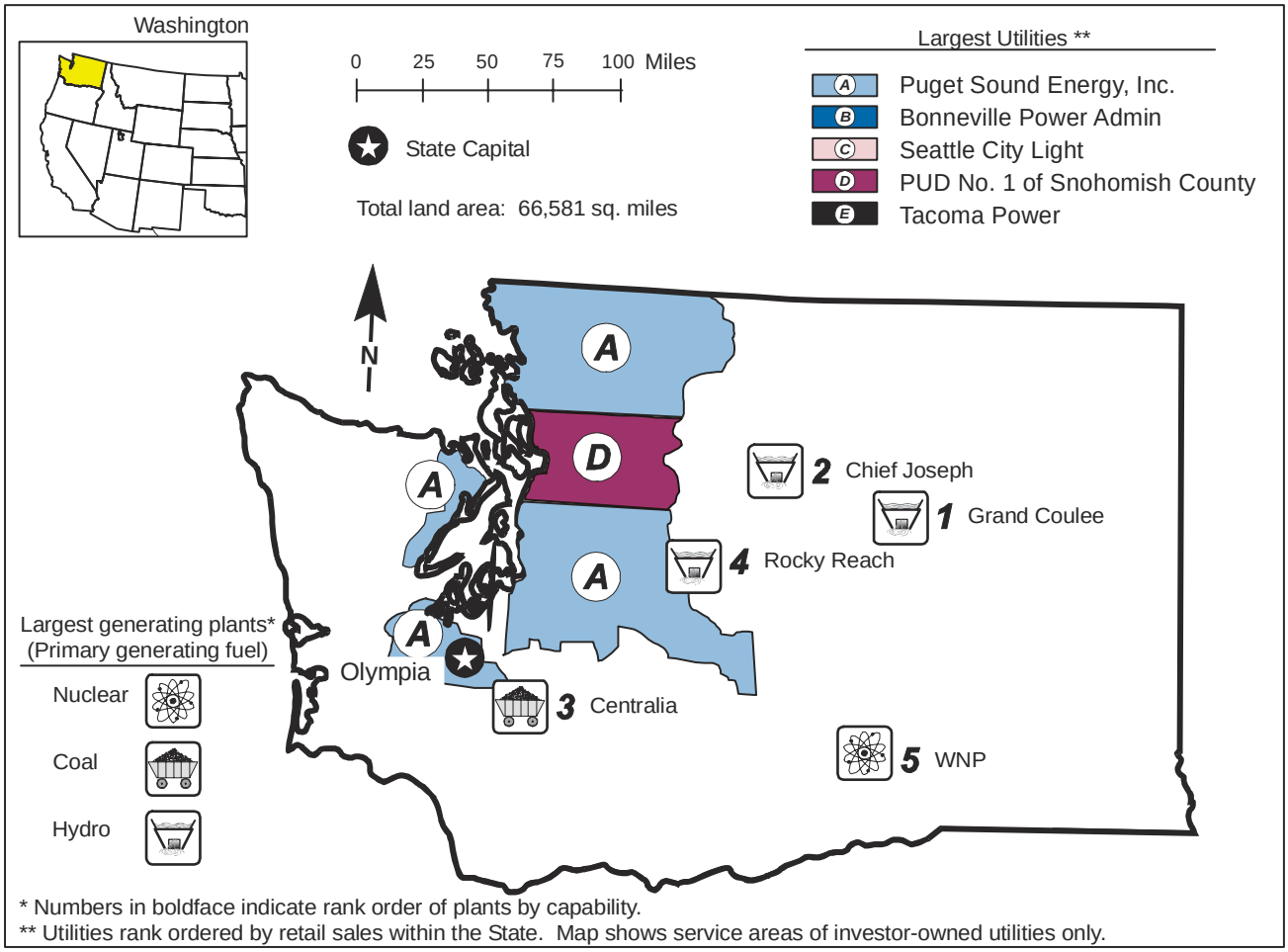
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	28,130	32,343	35,779	2.7	38.7	39.3	38.5
Commercial	20,213	22,948	26,968	3.3	27.8	27.9	29.0
Industrial	16,399	18,154	20,269	2.4	22.6	22.1	21.8
Other	7,955	8,766	10,017	2.6	10.9	10.7	10.8
Total	72,696	82,210	93,032	2.8	100.0	100.0	100.0
Retail Sales Revenue							
(million 1999 dollars)							
Residential	2,469	2,736	2,677	0.9	46.5	49.2	49.1
Commercial	1,484	1,461	1,498	0.1	27.9	26.3	27.4
Industrial	847	824	778	-0.9	15.9	14.8	14.3
Other	511	538	501	-0.2	9.6	9.7	9.2
Total	5,312	5,560	5,454	0.3	100.0	100.0	100.0
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.78	8.46	7.48	NA	NA	NA	NA
Commercial	7.34	6.37	5.55	NA	NA	NA	NA
Industrial	5.17	4.54	3.84	NA	NA	NA	NA
Other	6.43	6.14	5.00	NA	NA	NA	NA
Total	7.31	6.76	5.86	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	5	16	1	13	35
Number of Retail Customers	2,543,417	154,492	1	364,649	3,062,559
Retail Sales (thousand megawatthours)	81,104	4,619	9	7,301	93,032
Percentage of Retail Sales	87.2	5.0	0.0	7.9	100.0
Revenue from Retail Sales (million dollars)	4,666	243	0	545	5,454
Percentage of Revenue	85.5	4.5	0.0	10.0	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.75	5.26	2.75	7.47	5.86

Washington



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC
Primary Energy Source		Hydro
Net Summer Capability (megawatts)	26,106	8
Utility	25,189	5
Nonutility	917	26
Net Generation (megawatthours)	117,135,248	12
Utility	112,071,721	8
Nonutility	5,063,527	21
Emissions (thousand short tons)		
Sulfur Dioxide	73	30
Nitrogen Oxide	48	39
Carbon Dioxide	11,907	40
Sulfur Dioxide/sq. mile	1	33
Nitrogen Oxide/sq. mile	1	44
Carbon Dioxide/sq. mile	179	45
Electricity Consumption (MWh) (excludes line losses)	100,436,978	12
Utility Retail Electricity Sales (megawatthours)	94,155,336	12
Unregulated Retail Electricity Sales (megawatthours)	4,874,988	4
Nonutility Retail Sales and Direct Use (megawatthours)	1,406,654	27

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Grand Coulee	Hydro	Bureau of Reclamation	7,079
2. Chief Joseph	Hydro	USCE-North Pacific Division	2,337
3. Centralia	Petroleum, Coal	PacifiCorp	1,340
4. Rocky Reach	Hydro	PUD No 1 of Chelan County	1,280
5. WNP	Nuclear	Energy Northwest	1,117
6. Boundary	Hydro	Seattle City of	1,050
7. Wanapum	Hydro	PUD No 2 of Grant County	969
8. Little Goose	Hydro	USCE-North Pacific Division	932
9. Lower Monumental	Hydro	USCE-North Pacific Division	932
10. Lower Granite	Hydro	USCE-North Pacific Division	932

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Puget Sound Energy, Inc	21,292,035	9,787,382	7,461,482	3,968,240	74,931
B. Bonneville Power Admin	15,954,451	0	0	15,169,801	784,650
C. Seattle City Light	9,397,893	3,314,126	3,742,142	1,341,721	999,904
D. PUD No 1 of Snohomish County	6,532,893	3,436,872	2,082,247	991,553	22,221
E. Tacoma Power	5,564,551	1,881,640	322,465	2,816,612	543,834
Total	58,741,823	18,420,020	13,608,336	24,287,927	2,425,540
Percentage of Utility Sales	62	56	59	70	65

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	24,173	24,255	25,189	0.5	98.1	96.3	96.5
Coal	1,310	1,390	1,340	0.3	5.3	5.5	5.1
Petroleum	173	88	4	-34.8	0.7	0.3	0.0
Gas	590	590	955	5.5	2.4	2.3	3.7
Nuclear	1,100	1,086	1,117	0.2	4.5	4.3	4.3
Hydroelectric	20,954	21,054	21,680	0.4	85.0	83.6	83.0
Other	46	47	93	8.2	0.2	0.2	0.4
Total Nonutility	479	935	917	7.5	1.9	3.7	3.5
Coal	W	W	11	W	W	W	0.0
Petroleum	10	0	0	-100.0	0.0	0.0	0.0
Gas	41	216	314	25.4	0.2	0.9	1.2
Petroleum/Gas Combined	80	400	222	12.0	0.3	1.6	0.8
Hydroelectric	90	93	107	2.0	0.4	0.4	0.4
Other	257	225	264	0.3	1.0	0.9	1.0
Total Industry	24,652	25,189	26,106	0.6	100.0	100.0	100.0
Coal	W	W	1,351	W	W	W	5.2
Petroleum	183	88	4	-35.2	0.7	0.3	0.0
Gas	631	806	1,269	8.1	2.6	3.2	4.9
Petroleum/Gas Combined	80	400	222	12.0	0.3	1.6	0.8
Nuclear	1,100	1,086	1,117	0.2	4.5	4.3	4.3
Hydroelectric	21,044	21,147	21,787	0.4	85.4	84.0	83.5
Other	303	272	357	1.9	1.2	1.1	1.4

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

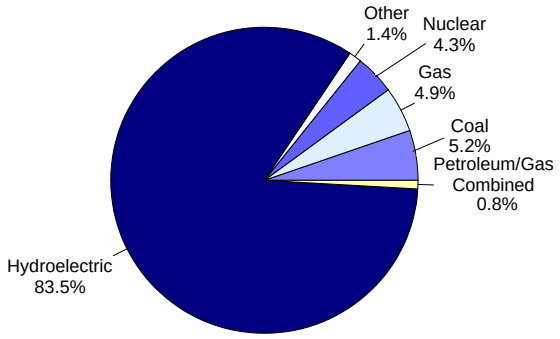


Figure 2. Industry Generation by Energy Source, 1999

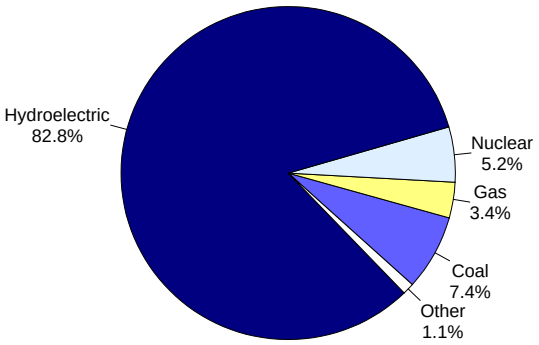


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	100,478,861	82,347,668	112,071,721	1.2	97.6	92.7	95.7
Coal	7,351,520	9,800,260	8,655,652	1.8	7.1	11	7.4
Petroleum	14,290	5,728	9,688	-4.2	0	0	0
Gas	15,501	206,234	578,069	49.5	0	0.2	0.5
Nuclear	5,742,027	6,739,749	6,085,893	0.6	5.6	7.6	5.2
Hydroelectric	87,022,217	65,200,038	96,472,455	1.2	84.5	73.4	82.4
Other	333,306	395,659	269,964	-2.3	0.3	0.4	0.2
Total Nonutility	2,521,071	6,481,493	5,063,527	8.1	2.4	7.3	4.3
Coal	W	W	47,431	W	W	W	0
Petroleum	W	W	42,807	W	W	W	0
Gas	982,565	5,130,545	3,390,151	14.8	1	5.8	2.9
Hydroelectric	444,492	376,032	516,927	1.7	0.4	0.4	0.4
Other	W	W	1,066,211	W	W	W	0.9
Total Industry	102,999,932	88,829,161	117,135,248	1.4	100	100	100
Coal	W	W	8,703,083	W	W	W	7.4
Petroleum	W	W	52,495	W	W	W	0
Gas	998,066	5,336,779	3,968,220	16.6	1	6	3.4
Nuclear	5,742,027	6,739,749	6,085,893	0.6	5.6	7.6	5.2
Hydroelectric	87,466,709	65,576,070	96,989,382	1.2	84.9	73.8	82.8
Other	W	W	1,336,175	W	W	W	1.1

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	191.0	149.0	156.0	-2.2
Average heat value (Btu per pound)	8,135	8,400	8,224	0.1
Average sulfur Content (percent)	0.7	0.6	0.8	0.8
Petroleum (cents per million Btu) (1999 dollars)	619.4	515.3	478.8	-2.8
Average heat value (Btu per gallon)	140,948	139,934	140,000	-0.1
Average sulfur Content (percent)	2.0	0.0	0.0	-100.0
Gas (cents per million Btu) (1999 dollars)	0.0	514.4	0.0	0.0
Average heat value (Btu per cubic foot)	0	1,050	0	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	59	67	73	2.5
Petroleum	*	*	0	-21.7
Other	0	0	0	0.0
Total	59	67	73	2.5
Nitrogen Oxide				
Coal	37	46	43	1.8
Petroleum	*	*	*	-5.1
Gas	*	1	4	68.5
Other	0	1	1	0.0
Total	37	48	48	3.0
Carbon Dioxide				
Coal	8,183	10,615	9,511	1.7
Petroleum	15	46	51	15.0
Gas	15	1,327	2,191	73.6
Other	0	320	154	0.0
Total	8,212	12,307	11,907	4.2

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

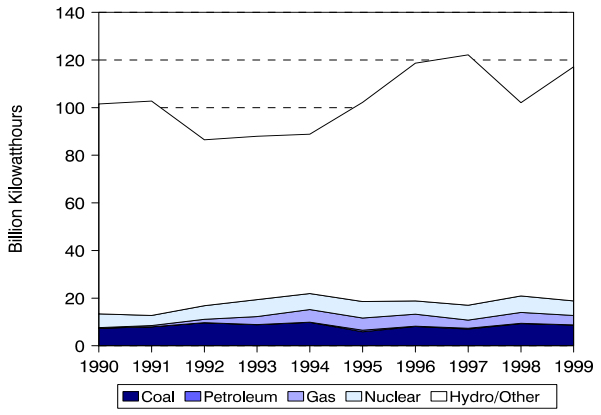


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

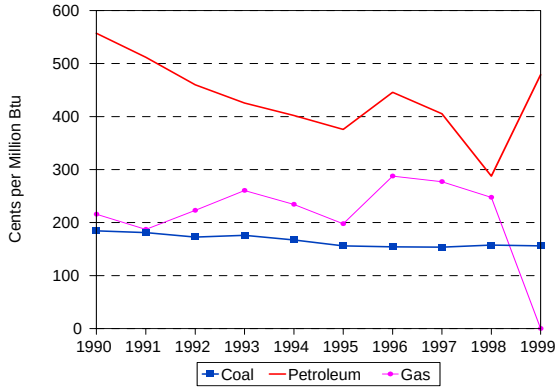


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

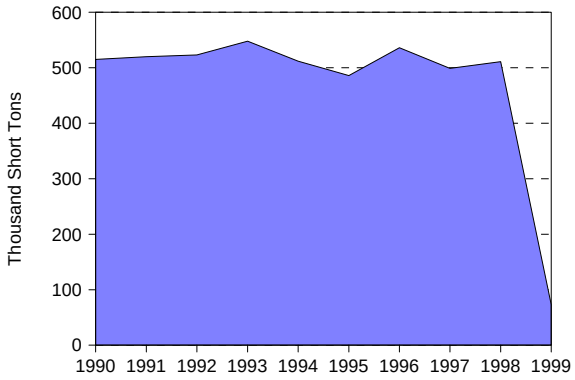


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

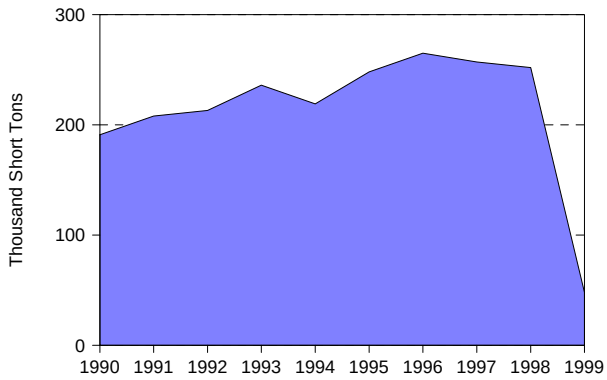


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

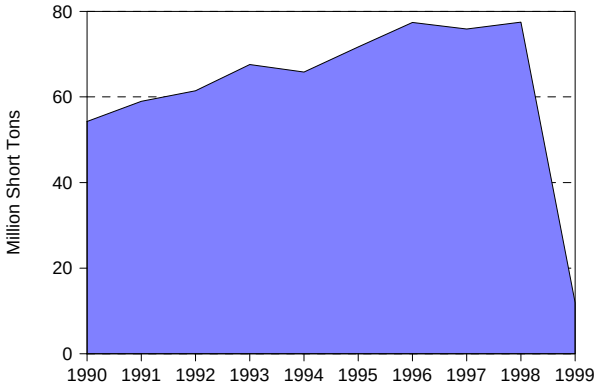


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

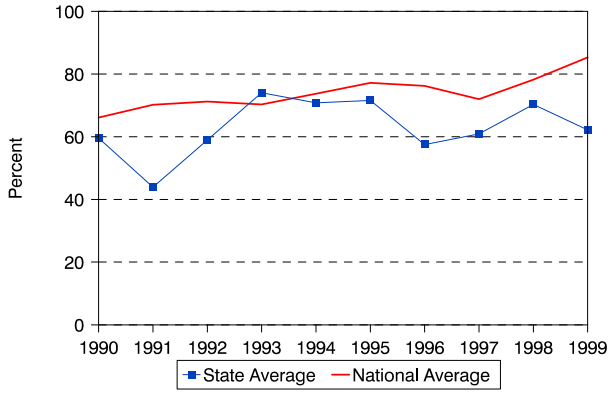


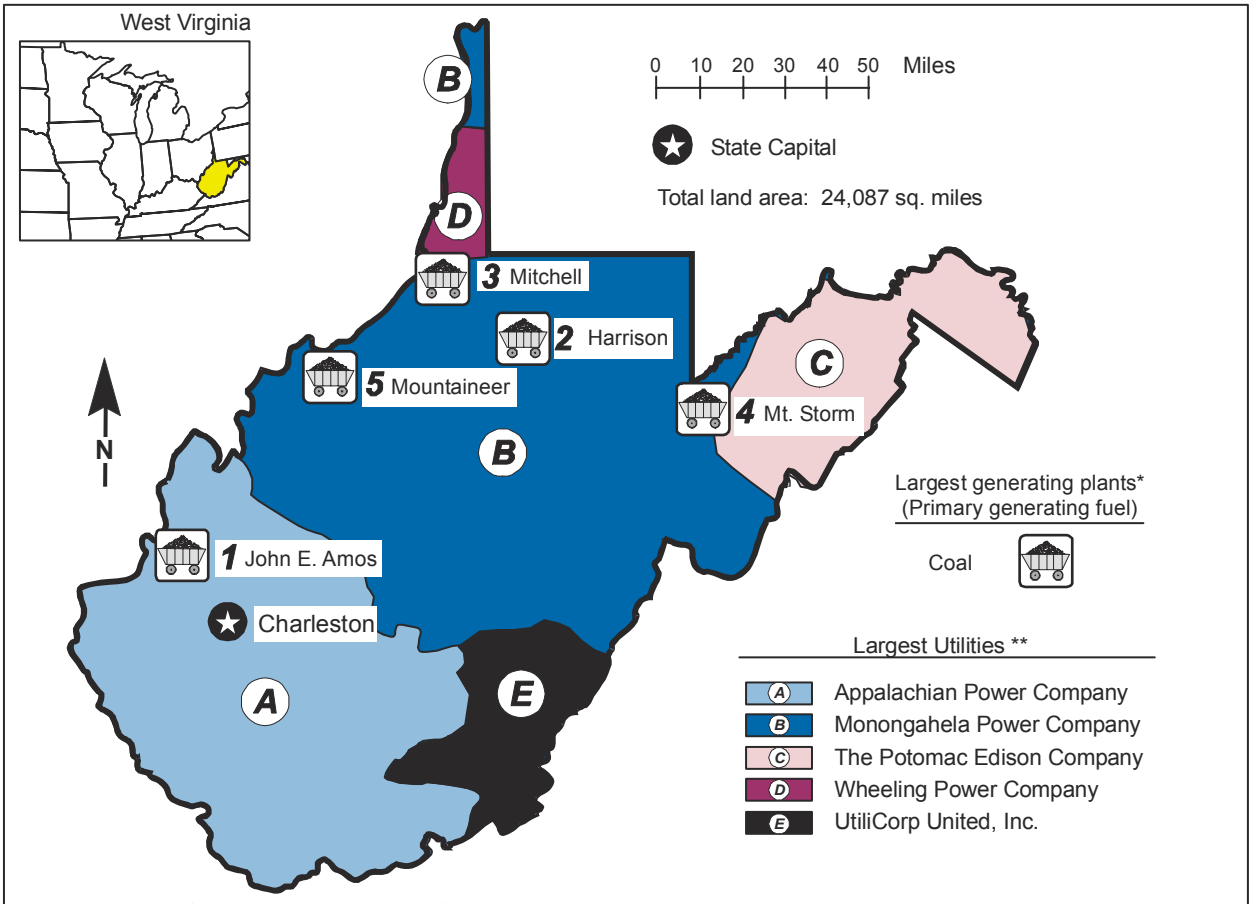
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	28,809	29,673	32,817	1.5	31.6	34	34.8
Commercial	17,683	19,752	23,009	3.0	19.4	22.7	24.4
Industrial	40,712	34,065	34,624	-1.8	44.7	39.1	36.8
Other	3,842	3,643	3,706	-0.4	4.2	4.2	3.9
Total	91,046	87,133	94,155	0.4	100	100	100
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,533	1,610	1,673	1.0	40.9	42.2	43.3
Commercial	888	1,017	1,119	2.6	23.7	26.6	29
Industrial	1,177	1,038	936	-2.5	31.4	27.2	24.2
Other	146	152	136	-0.8	3.9	4	3.5
Total	3,745	3,818	3,864	0.3	100	100	100
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	5.32	5.43	5.1	NA	NA	NA	NA
Commercial	5.02	5.15	4.86	NA	NA	NA	NA
Industrial	2.89	3.05	2.7	NA	NA	NA	NA
Other	3.79	4.18	3.66	NA	NA	NA	NA
Total	4.11	4.38	4.1	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	3	42	1	18	64
Number of Retail Customers	1,221,366	1,351,087	16	134,763	2,707,232
Retail Sales (thousand megawatthours)	30,287	44,460	15,954	3,454	94,155
Percentage of Retail Sales	32.2	47.2	16.9	3.7	100.0
Revenue from Retail Sales (million dollars)	1,696	1,679	329	160	3,864
Percentage of Revenue	43.9	43.5	8.5	4.2	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.60	3.78	2.06	4.64	4.10

West Virginia



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		ECAR
Primary Energy Source		Coal
Net Summer Capability (megawatts)	15,061	22
Utility	14,505	21
Nonutility	556	34
Net Generation (megawatthours)	94,780,925	14
Utility	91,677,692	12
Nonutility	3,103,233	30
Emissions (thousand short tons)		
Sulfur Dioxide	1,227	1
Nitrogen Oxide	300	9
Carbon Dioxide	93,424	7
Sulfur Dioxide/sq. mile	51	1
Nitrogen Oxide/sq. mile	12	2
Carbon Dioxide/sq. mile	3,879	3
Electricity Consumption (MWh) (excludes line losses)	28,987,811	34
Utility Retail Electricity Sales (megawatthours)	27,144,008	34
Nonutility Retail Sales and Direct Use (megawatthours)	1,843,803	23
Utility Average Retail Price (cents/kWh)	5.09	44

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. John E Amos	Petroleum, Coal	Appalachian Power Co	2,900
2. Harrison	Petroleum, Gas, Coal	Monongahela Power Co	1,920
3. Mitchell	Petroleum, Coal	Ohio Power Co	1,600
4. Mt Storm	Petroleum, Coal	Virginia Electric & Power Co	1,599
5. Mountaineer (1301)	Petroleum, Coal	Appalachian Power Co	1,300
6. Pleasants	Petroleum, Gas, Coal	Monongahela Power Co	1,240
7. Fort Martin	Petroleum, Coal	Monongahela Power Co	1,109
8. Phil Sporn	Petroleum, Coal	Central Operating Co	1,020
9. Kammer	Petroleum, Coal	Ohio Power Co	600
10. Kanawha River	Petroleum, Coal	Appalachian Power Co	390

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Appalachian Power Company	13,058,535	4,901,905	3,302,743	4,818,840	35,047
B. Monongahela Power Company	9,140,592	2,634,264	1,974,302	4,508,751	23,275
C. The Potomac Edison Company	2,513,673	1,171,341	617,609	720,407	4,316
D. Wheeling Power Company	1,798,846	381,890	365,059	1,045,906	5,991
E. UtiliCorp United, Inc	396,147	211,540	142,135	24,624	17,848
Total	26,907,793	9,300,940	6,401,848	11,118,528	86,477
Percentage of Utility Sales	99	98	99	100	94

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	14,435	14,510	14,505	0.1	95.2	95.7	96.3
Coal	14,315	14,393	14,395	0.1	94.4	94.9	95.6
Petroleum	12	12	12	0.0	0.1	0.1	0.1
Hydroelectric	108	105	98	-1.1	0.7	0.7	0.6
Total Nonutility	729	652	556	-3.0	4.8	4.3	3.7
Coal	496	318	377	-3.0	3.3	2.1	2.5
Petroleum	W	W	0	W	W	W	0.0
Gas	W	W	25	W	W	W	0.2
Petroleum/Gas Combined	W	W	11	W	W	W	0.1
Hydroelectric	W	W	143	W	W	W	0.9
Total Industry	15,164	15,162	15,061	-0.1	100.0	100.0	100.0
Coal	14,811	14,711	14,772	0.0	97.7	97.0	98.1
Petroleum	W	W	12	W	W	W	0.1
Gas	W	W	25	W	W	W	0.2
Petroleum/Gas Combined	W	W	11	W	W	W	0.1
Hydroelectric	W	W	241	W	W	W	1.6

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

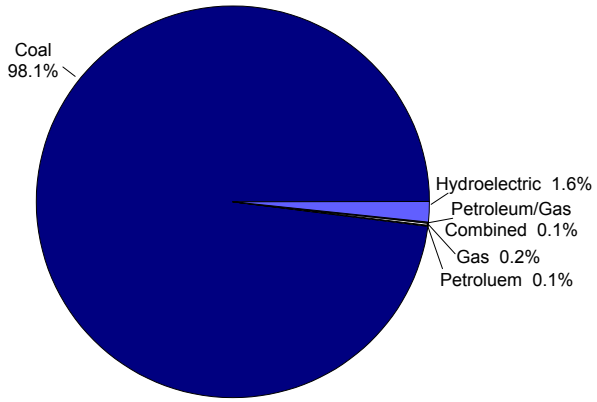


Figure 2. Industry Generation by Energy Source, 1999

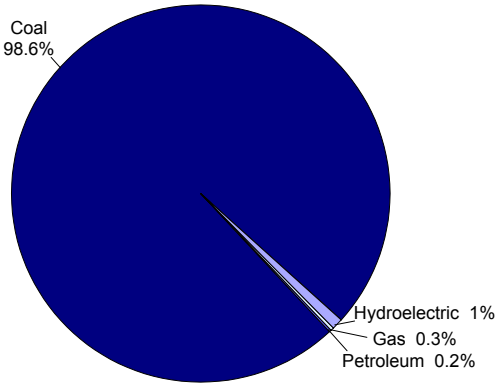


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	77,363,692	77,702,716	91,677,692	1.9	96.5	95.4	96.7
Coal	76,635,718	77,063,151	91,151,804	1.9	95.6	94.6	96.2
Petroleum	274,419	251,487	186,081	-4.2	0.3	0.3	0.2
Gas	18,506	25,075	37,074	8.0	0.0	0.0	0.0
Hydroelectric	435,049	363,003	302,733	-3.9	0.5	0.4	0.3
Total Nonutility	2,829,329	3,749,355	3,103,233	1.0	3.5	4.6	3.3
Coal	1,617,349	2,154,652	2,259,708	3.8	2.0	2.6	2.4
Petroleum	W	W	390	W	W	W	0.0
Gas	287,688	354,613	215,411	-3.2	0.4	0.4	0.2
Hydroelectric	W	W	627,523	W	W	W	0.7
Other	W	W	203	W	W	W	0.0
Total Industry	80,193,021	81,452,071	94,780,925	1.9	100.0	100.0	100.0
Coal	78,253,067	79,217,803	93,411,512	2.0	97.6	97.3	98.6
Petroleum	W	W	186,471	W	W	W	0.2
Gas	306,194	379,688	252,485	-2.1	0.4	0.5	0.3
Hydroelectric	W	W	930,256	W	W	W	1.0
Other	W	W	203	W	W	W	0.0

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	178.4	151.9	118.2	-4.5
Average heat value (Btu per pound)	12,452	12,468	12,361	-0.1
Average sulfur Content(percent)	1.9	1.9	1.8	-0.3
Petroleum (cents per million Btu) (1999 dollars)	693.9	483.0	463.6	-4.4
Average heat value (Btu per gallon)	139,295	139,324	139,114	0.0
Gas (cents per million Btu) (1999 dollars)	622.1	436.8	299.8	-7.8
Average heat value (Btu per cubic foot)	1,000	1,000	1,000	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	943	1,066	1,226	3.0
Petroleum	*	*	*	-0.5
Total	944	1,066	1,227	3.0
Nitrogen Oxide				
Coal	309	291	300	-0.3
Petroleum	*	6	*	-4.3
Gas	*	7	*	-8.9
Total	309	305	300	-0.3
Carbon Dioxide				
Coal	75,654	79,905	93,117	2.3
Petroleum	169	3,834	148	-1.4
Gas	8	262	159	39.3
Total	75,830	84,001	93,424	2.3

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

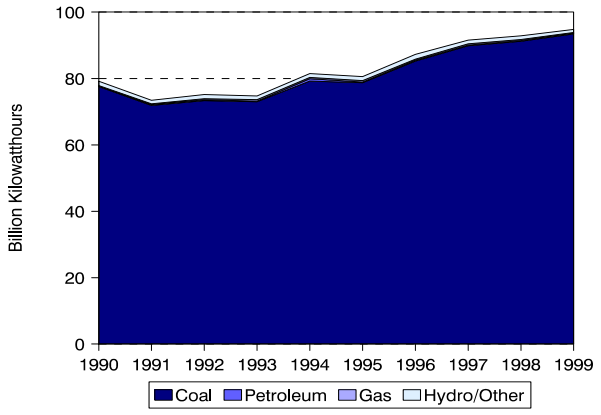


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

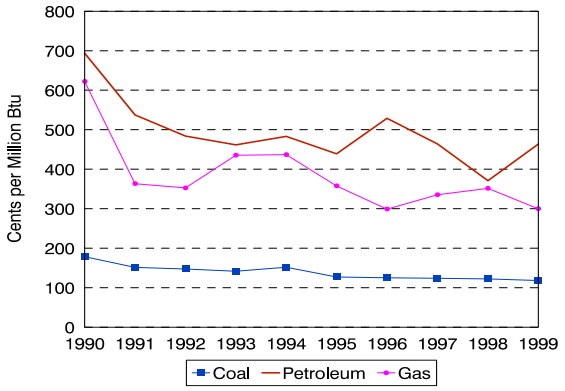


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

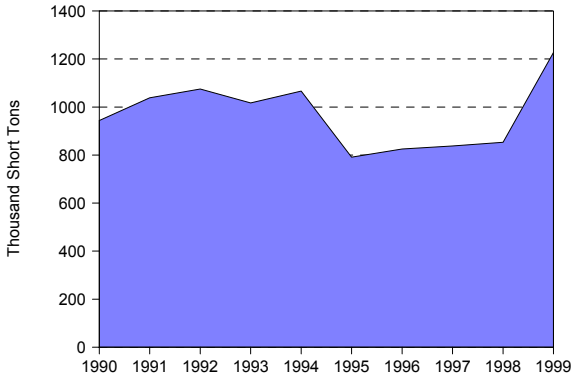


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

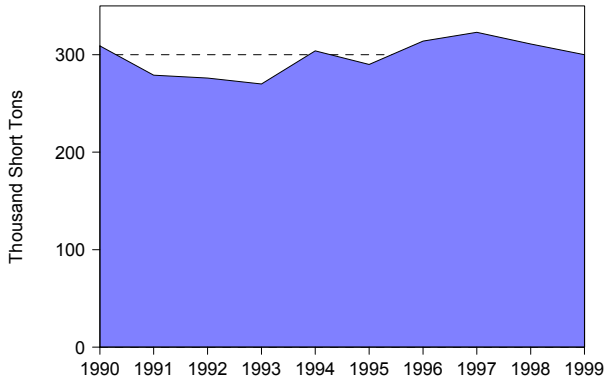


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

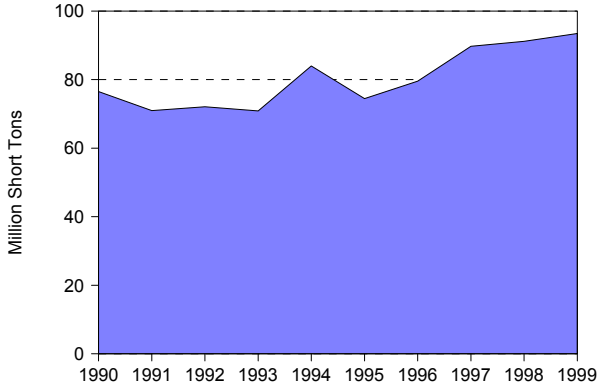


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	7,578	8,663	9,452	2.5	32.8	35	34.8
Commercial	4,991	5,539	6,474	2.9	21.6	22.4	23.8
Industrial	10,469	10,482	11,126	0.7	45.3	42.3	41
Other	94	92	92	-0.2	0.4	0.4	0.3
Total	23,132	24,776	27,144	1.8	100	100	100
Retail Sales Revenue							
(million 1999 dollars)							
Residential	541	602	593	1.0	40.8	42.4	42.9
Commercial	324	353	358	1.1	24.4	24.8	25.9
Industrial	452	455	423	-0.7	34.1	32.1	30.6
Other	9	9	8	-1.2	0.7	0.7	0.6
Total	1,326	1,419	1,383	0.5	100	100	100
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	7.14	6.94	6.27	NA	NA	NA	NA
Commercial	6.49	6.37	5.53	NA	NA	NA	NA
Industrial	4.31	4.34	3.8	NA	NA	NA	NA
Other	9.92	10.3	9.1	NA	NA	NA	NA
Total	5.73	5.73	5.09	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	12	2	0	3	17
Number of Retail Customers	931,792	3,468	0	8,653	943,913
Retail Sales (thousand megawatthours)	26,998	65	0	81	27,144
Percentage of Retail Sales	99.5	0.2	0.0	0.3	100.0
Revenue from Retail Sales (million dollars)	1,371	4	0	7	1,383
Percentage of Revenue	99.2	0.3	0.0	0.5	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.08	6.37	0.00	9.06	5.09

Wisconsin

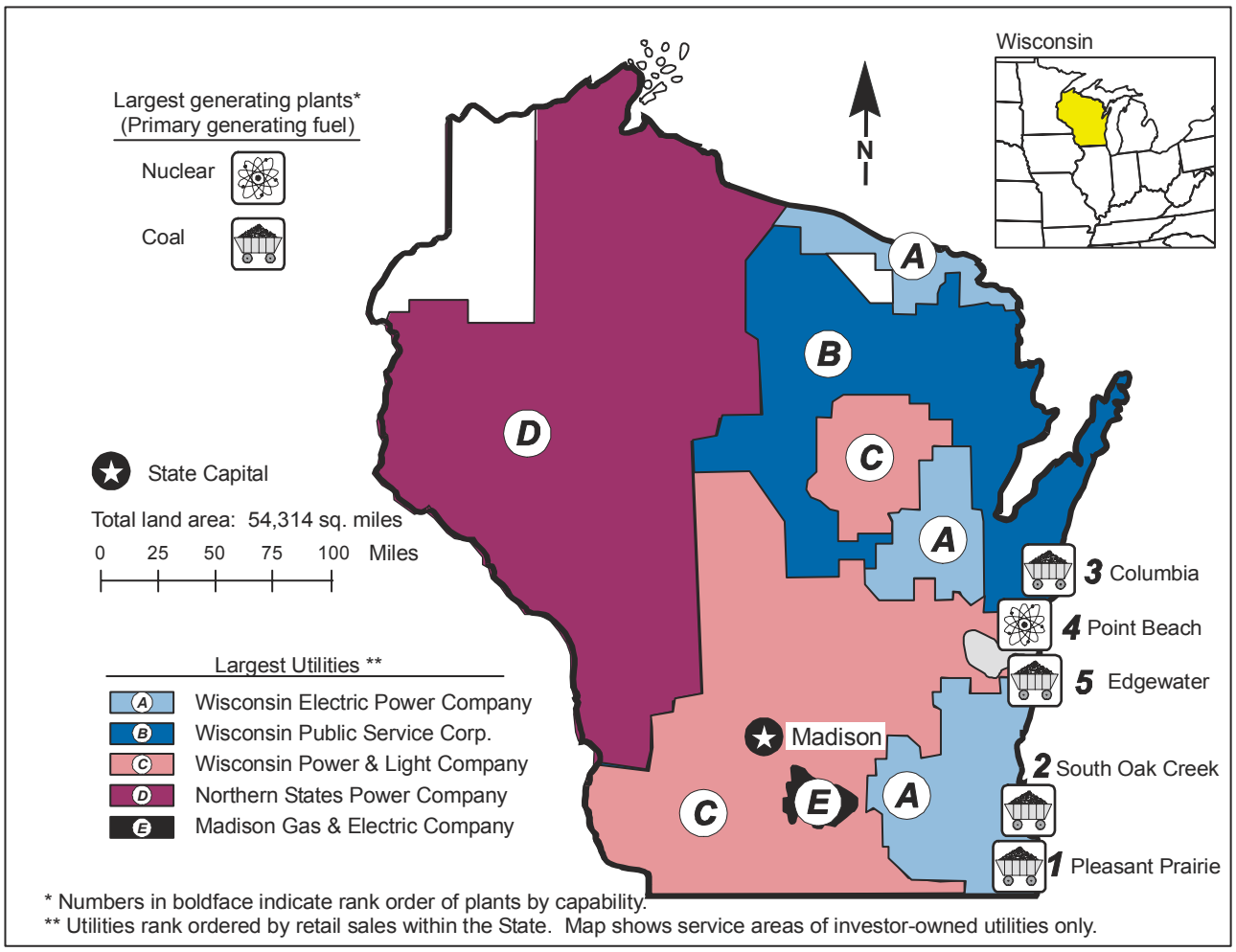

Largest generating plants*
(Primary generating fuel)
Nuclear
Coal
State Capital
Total land area: 54,314 sq. miles
0 25 50 75 100 Miles
Largest Utilities **
A Wisconsin Electric Power Company
B Wisconsin Public Service Corp.
C Wisconsin Power & Light Company
D Northern States Power Company
E Madison Gas & Electric Company
N
Wisconsin
Madison
3 Columbia
4 Point Beach
5 Edgewater
2 South Oak Creek
1 Pleasant Prairie
* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		MAIN/MAPP
Primary Energy Source		Coal
Net Summer Capability (megawatts)	13,136	24
Utility	12,086	23
Nonutility	1,050	24
Net Generation (megawatthours)	58,500,237	22
Utility	54,704,370	22
Nonutility	3,795,867	27
Emissions (thousand short tons)		
Sulfur Dioxide	197	18
Nitrogen Oxide	197	13
Carbon Dioxide	48,949	19
Sulfur Dioxide/sq. mile	4	22
Nitrogen Oxide/sq. mile	4	21
Carbon Dioxide/sq. mile	901	27
Electricity Consumption (MWh) (excludes line losses)	66,307,813	21
Utility Retail Electricity Sales (megawatthours)	63,547,448	21
Nonutility Retail Sales and Direct Use (megawatthours)	2,760,365	17
Utility Average Retail Price (cents/kWh)	5.53	39

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Pleasant Prairie	Petroleum, Gas, Coal	Wisconsin Electric Power Co	1,202
2. South Oak Creek	Petroleum, Gas, Coal	Wisconsin Electric Power Co	1,153
3. Columbia	Petroleum, Coal	Wisconsin Power & Light Co	1,060
4. Point Beach	Petroleum, Nuclear	Wisconsin Electric Power Co	1,027
5. Edgewater	Petroleum, Other, Coal	Wisconsin Power & Light Co	824
6. Weston	Petroleum, Gas, Coal	Wisconsin Public Service Corp	549
7. Kewaunee	Nuclear	Wisconsin Public Service Corp	498
8. Concord	Petroleum, Gas	Wisconsin Electric Power Co	420
9. Paris	Petroleum, Gas	Wisconsin Electric Power Co	420
10. Pulliam	Gas, Coal	Wisconsin Public Service Corp	396

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. Wisconsin Electric Power Co	23,953,896	7,192,564	7,890,496	8,704,240	166,596
B. Wisconsin Public Service Corp	9,656,015	2,685,451	3,070,397	3,866,051	34,116
C. Wisconsin Power & Light Co	9,504,473	3,050,032	1,944,452	4,456,959	53,030
D. Northern States Power Company	5,295,629	1,677,848	923,344	2,657,675	36,762
E. Madison Gas & Electric Company	2,916,533	770,153	1,524,641	315,238	306,501
Total	51,326,546	15,376,048	15,353,330	20,000,163	597,005
Percentage of Utility Sales	81	79	87	78	80

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994 and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	10,558	11,264	12,086	1.5	95.4	94.9	92.0
Coal	7,120	7,182	7,164	0.1	64.3	60.5	54.5
Petroleum	1,128	982	1,089	-0.4	10.2	8.3	8.3
Gas	252	1,058	1,799	24.4	2.3	8.9	13.7
Nuclear	1,509	1,499	1,510	0.0	13.6	12.6	11.5
Hydroelectric	443	440	452	0.2	4.0	3.7	3.4
Other	106	104	71	-4.2	1.0	0.9	0.5
Total Nonutility	512	608	1,050	8.3	4.6	5.1	8.0
Coal	273	302	436	5.3	2.5	2.5	3.3
Petroleum	15	15	5	-11.9	0.1	0.1	0.0
Gas	W	W	21	W	W	W	0.2
Petroleum/Gas Combined	17	47	468	44.4	0.2	0.4	3.6
Hydroelectric	48	63	52	0.9	0.4	0.5	0.4
Other	136	162	69	-7.2	1.2	1.4	0.5
Total Industry	11,069	11,872	13,136	1.9	100.0	100.0	100.0
Coal	7,393	7,484	7,600	0.3	66.8	63.0	57.9
Petroleum	1,143	996	1,094	-0.5	10.3	8.4	8.3
Gas	W	W	1,820	W	W	W	13.9
Petroleum/Gas Combined	17	47	468	44.4	0.2	0.4	3.6
Nuclear	1,509	1,499	1,510	0.0	13.6	12.6	11.5
Hydroelectric	491	503	504	0.3	4.4	4.2	3.8
Other	241	265	141	-5.8	2.2	2.2	1.1

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

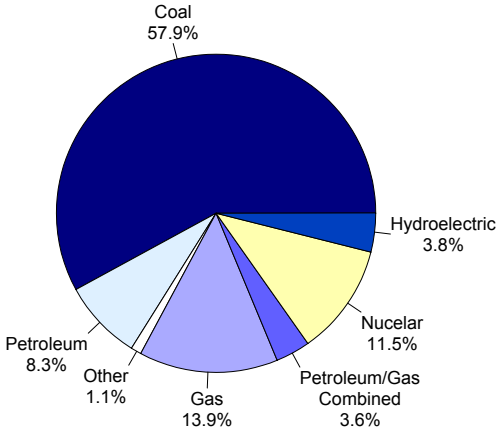


Figure 2. Industry Generation by Energy Source, 1999

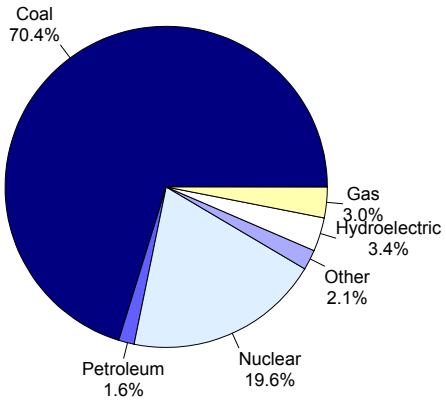


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	45,550,958	49,437,481	54,704,370	2.1	95.0	94.3	93.5
Coal	32,144,557	35,282,695	39,899,142	2.4	67.0	67.3	68.2
Petroleum	47,444	171,563	220,944	18.6	0.1	0.3	0.4
Gas	169,378	286,969	1,013,047	22.0	0.4	0.5	1.7
Nuclear	11,225,913	11,516,469	11,494,764	0.3	23.4	22.0	19.6
Hydroelectric	1,791,037	1,914,414	1,733,959	-0.4	3.7	3.7	3.0
Other	172,629	265,371	342,514	7.9	0.4	0.5	0.6
Total Nonutility	2,422,616	2,999,421	3,795,867	5.1	5.0	5.7	6.5
Coal	1,058,812	1,248,679	1,263,843	2.0	2.2	2.4	2.2
Petroleum	W	W	695,526	W	W	W	1.2
Gas	253,384	326,492	724,476	12.4	0.5	0.6	1.2
Hydroelectric	234,451	305,767	250,634	0.7	0.5	0.6	0.4
Other	W	W	861,388	W	W	W	1.5
Total Industry	47,973,574	52,436,902	58,500,237	2.2	100.0	100.0	100.0
Coal	33,203,369	36,531,374	41,162,985	2.4	69.2	69.7	70.4
Petroleum	W	W	916,470	W	W	W	1.6
Gas	422,762	613,461	1,737,523	17.0	0.9	1.2	3.0
Nuclear	11,225,913	11,516,469	11,494,764	0.3	23.4	22.0	19.6
Hydroelectric	2,025,488	2,220,181	1,984,593	-0.2	4.2	4.2	3.4
Other	W	W	1,203,902	W	W	W	2.1

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	164.6	132	102.3	-5.1
Average heat value (Btu per pound)	9,642	9,565	9,115	-0.6
Average sulfur Content (percent)	0.8	0.5	0.4	-7.8
Petroleum (cents per million Btu) (1999 dollars)	637.7	434.4	413.7	-4.7
Average heat value (Btu per gallon)	139,202	139,390	139,970	0.1
Gas (cents per million Btu) (1999 dollars)	354.7	287.5	290.5	-2.2
Average heat value (Btu per cubic foot)	1,007	1,011	1,010	0.0

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	275	180	192	-3.9
Petroleum	*	4	5	56.7
Other	*	*	*	3.6
Total	275	184	197	-3.6
Nitrogen Oxide				
Coal	166	169	188	1.4
Petroleum	*	1	2	44.4
Gas	*	2	3	27.2
Other	*	2	5	38.2
Total	167	174	197	1.9
Carbon Dioxide				
Coal	35,627	40,464	46,160	2.9
Petroleum	53	549	1,160	40.9
Gas	140	483	1,497	30.1
Other	61	215	133	9.0
Total	35,881	41,710	48,949	3.5

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

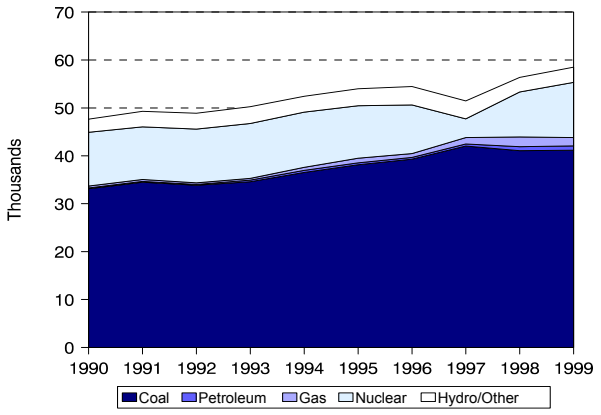


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

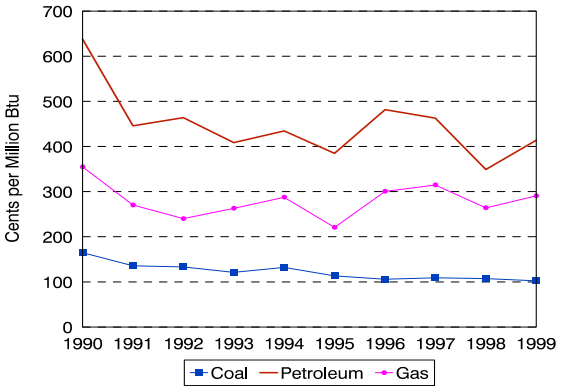


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

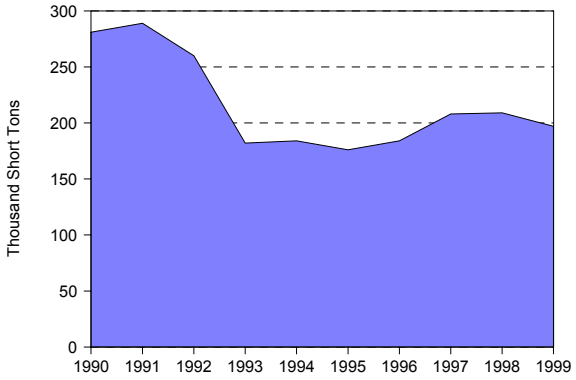


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

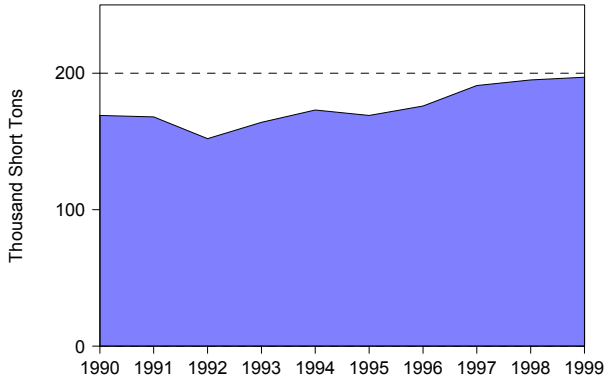


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

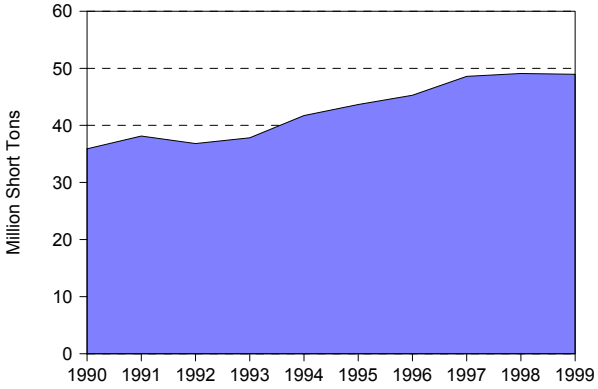


Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

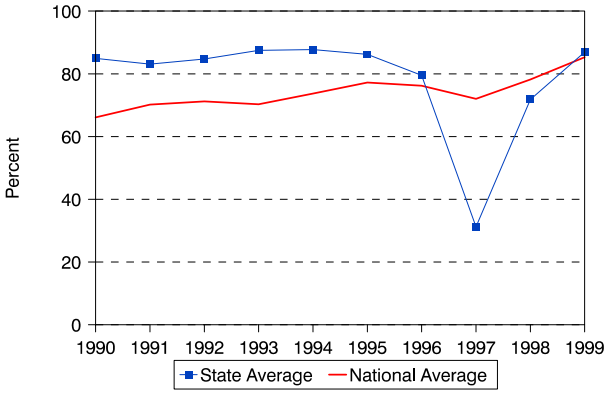


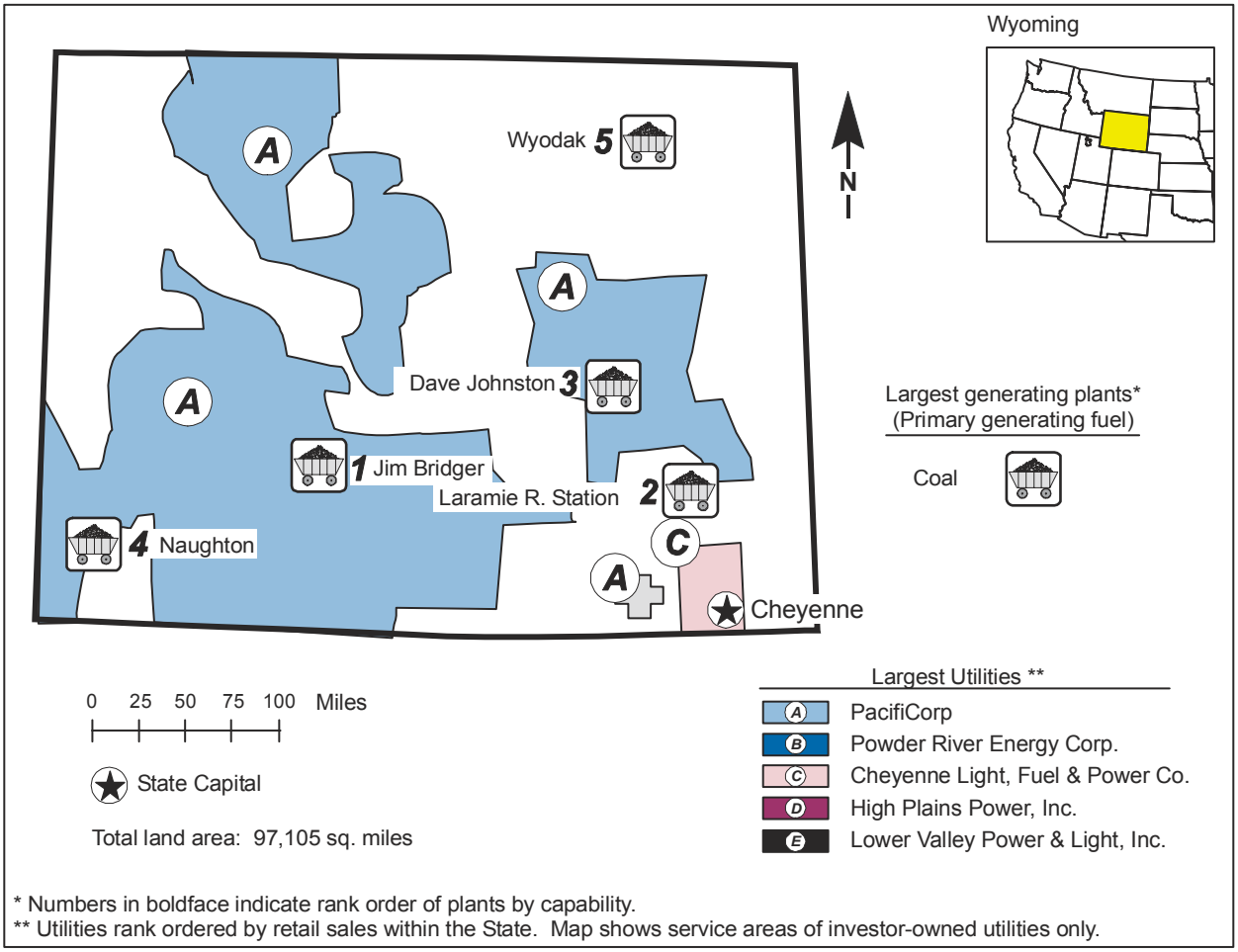
Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	16,385	17,660	19,502	1.9	33.3	31.9	30.7
Commercial	12,698	14,378	17,638	3.7	25.8	25.9	27.8
Industrial	19,405	22,714	25,665	3.2	39.4	41	40.4
Other	710	659	743	0.5	1.4	1.2	1.2
Total	49,198	55,412	63,547	2.9	100	100	100
Retail Sales Revenue							
(million 1999 dollars)							
Residential	1,317	1,364	1,426	0.9	41.2	41.3	40.6
Commercial	888	921	1,037	1.7	27.8	27.9	29.5
Industrial	938	963	999	0.7	29.3	29.2	28.4
Other	56	50	53	-0.6	1.7	1.5	1.5
Total	3,198	3,299	3,515	1	100	100	100
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	8.04	7.72	7.31	NA	NA	NA	NA
Commercial	7	6.41	5.88	NA	NA	NA	NA
Industrial	4.83	4.24	3.89	NA	NA	NA	NA
Other	7.84	7.63	7.11	NA	NA	NA	NA
Total	6.5	5.95	5.53	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	12	82	0	24	118
Number of Retail Customers	2,122,833	237,511	0	210,920	2,571,264
Retail Sales (thousand megawatthours)	53,518	7,215	0	2,815	63,547
Percentage of Retail Sales	84.2	11.4	0.0	4.4	100.0
Revenue from Retail Sales (million dollars)	2,966	341	0	207	3,515
Percentage of Revenue	84.4	9.7	0.0	5.9	100.0
Average Revenue per Kilowatthour (cents/kWh)	5.54	4.73	0.00	7.37	5.53

Wyoming



* 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. 1999 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WSCC
Primary Energy Source		Coal
Net Summer Capability (megawatts)	6,110	36
Utility	6,011	33
Nonutility	99	46
Net Generation (megawatthours)	43,632,486	29
Utility	42,951,057	28
Nonutility	681,429	44
Emissions (thousand short tons)		
Sulfur Dioxide	85	29
Nitrogen Oxide	185	15
Carbon Dioxide	48,050	20
Sulfur Dioxide/sq. mile	1	36
Nitrogen Oxide/sq. mile	2	30
Carbon Dioxide/sq. mile	495	33
Electricity Consumption (MWh) (excludes line losses)	12,456,129	42
Utility Retail Electricity Sales (megawatthours)	11,782,349	42
Nonutility Retail Sales and Direct Use (megawatthours)....	673,780	31
Utility Average Retail Price (cents/kWh)	4	48

Table 2. Ten Largest Plants by Generating Capability, 1999

Plant	Primary Energy Source(s)	Operating Company	Net Summer Capability (MW)
1. Jim Bridger	Petroleum, Coal	PacifiCorp	2,110
2. Laramie R Station	Petroleum, Coal	Basin Electric Power Coop	1,667
3. Dave Johnston	Petroleum, Coal	PacifiCorp	772
4. Naughton	Gas, Coal	PacifiCorp	700
5. Wyodak	Petroleum, Coal	PacifiCorp	335
6. Neil Simpson II	Petroleum, Coal	Black Hills Corp	80
7. Fremont Canyon	Hydro	Bureau of Reclamation	67
8. Seminoe	Hydro	Bureau of Reclamation	52
9. Anschutz Ranch East	Gas	BP Amoco Exploration	43
10. Glendo	Hydro	Bureau of Reclamation	38

Table 3. Five Largest Utilities by Retail Sales within the State, 1999
(Megawatthours)

Utility	Total	Residential	Commercial	Industrial	Other
A. PacifiCorp	7,250,318	830,533	1,027,134	5,325,575	67,076
B. Powder River Energy Corp	1,298,679	138,633	399,873	759,273	900
C. Cheyenne Light Fuel & Power Co	864,079	209,874	315,579	334,673	3,953
D. High Plains Power, Inc	484,214	105,794	62,315	316,105	0
E. Lower Valley Energy Inc	468,173	259,832	197,232	10,531	578
Total	10,365,463	1,544,666	2,002,133	6,746,157	72,507
Percentage of Utility Sales	88	76	80	95	41

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999
(Megawatts)

Plant Type	1990	1994	1999	Average Annual Rate of Growth (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	5,809	5,874	6,011	0.4	98.3	98.5	98.4
Coal	5,525	5,567	5,709	0.4	93.5	93.3	93.4
Petroleum	15	15	0	-100.0	0.2	0.2	0.0
Hydroelectric	269	292	298	1.1	4.6	4.9	4.9
Other	0	0	5	0.0	0.0	0.0	0.1
Total Nonutility	100	92	99	-0.1	1.7	1.5	1.6
Coal	W	W	27	W	W	W	0.4
Petroleum	W	W	1	W	W	W	0.0
Gas	W	W	51	W	W	W	0.8
Petroleum/Gas Combined	W	W	2	W	W	W	0.0
Hydroelectric	W	W	1	W	W	W	0.0
Other	W	W	16	W	W	W	0.3
Total Industry	5,909	5,966	6,110	0.4	100.0	100.0	100.0
Coal	W	W	5,736	W	W	W	93.9
Petroleum	W	W	1	W	W	W	0.0
Gas	W	W	51	W	W	W	0.8
Petroleum/Gas Combined	W	W	2	W	W	W	0.0
Hydroelectric	W	W	299	W	W	W	4.9
Other	W	W	21	W	W	W	0.3

Figure 1. Industry Generating Capability by Primary Energy Source, 1999

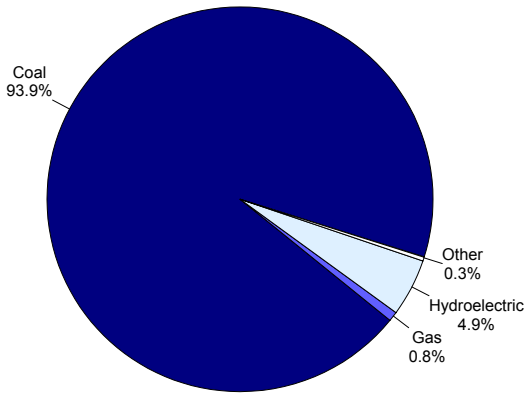


Figure 2. Industry Generation by Energy Source, 1999

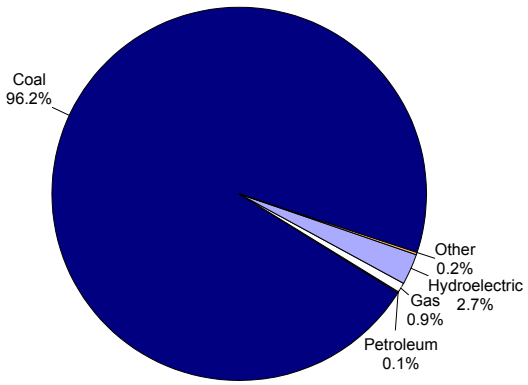


Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Total Utility	39,378,154	42,337,169	42,951,057	1.0	98.5	98.4	98.4
Coal	38,681,220	41,380,267	41,718,548	0.8	96.8	96.2	95.6
Petroleum	45,561	47,029	46,197	0.2	0.1	0.1	0.1
Gas	6,760	12,664	16,087	10.1	0.0	0.0	0.0
Hydroelectric	644,613	897,209	1,170,225	6.8	1.6	2.1	2.7
Total Nonutility	596,928	681,107	681,429	1.5	1.5	1.6	1.6
Coal	W	W	236,876	W	W	W	0.5
Petroleum	W	W	2,810	W	W	W	0.0
Gas	W	W	356,528	W	W	W	0.8
Other	W	W	85,215	W	W	W	0.2
Total Industry	39,975,082	43,018,276	43,632,486	1.0	100.0	100.0	100.0
Coal	W	W	41,955,424	W	W	W	96.2
Petroleum	W	W	49,007	W	W	W	0.1
Gas	W	W	372,615	W	W	W	0.9
Hydroelectric	644,613	897,209	1,170,225	6.8	1.6	2.1	2.7
Other	W	W	85,215	W	W	W	0.2

Table 6. Utility Delivered Fuel Costs and Quality for Coal, Petroleum, and Gas, 1990, 1994, and 1999

Fuel	1990	1994	1999	Average Annual Rate of Change (Percent)
Coal (cents per million Btu) (1999 dollars)	101.4	87.7	76.2	-3.1
Average heat value (Btu per pound)	8,811	8,766	8,784	*
Average sulfur Content (percent)	0.5	0.5	0.5	-0.6
Petroleum (cents per million Btu) (1999 dollars)	638.6	485.2	476.0	-3.2
Average heat value (Btu per gallon)	138,849	138,987	139,102	*
Gas (cents per million Btu) (1999 dollars)	381.6	612.9	372.3	-0.3
Average heat value (Btu per cubic foot)	1,035	1,033	1,044	0.1

Table 7. Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999
(Thousand Short Tons)

Emission Type	1990	1994	1999	Average Annual Rate of Change (Percent)
Sulfur Dioxide				
Coal	89	85	85	-0.6
Petroleum	*	*	*	-12.5
Total	89	85	85	-0.6
Nitrogen Oxide				
Coal	167	178	184	1.1
Petroleum	*	*	*	-1.9
Gas	*	1	1	76.8
Total	167	179	185	1.1
Carbon Dioxide				
Coal	43,318	46,606	47,764	1.1
Petroleum	45	43	41	-1.1
Gas	4	249	245	57.6
Total	43,367	46,899	48,050	1.1

Figure 3. Industry Generation of Electricity by Primary Energy Source, 1990-1999

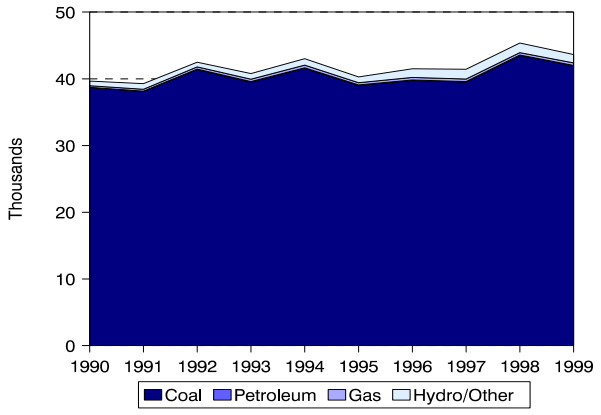


Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

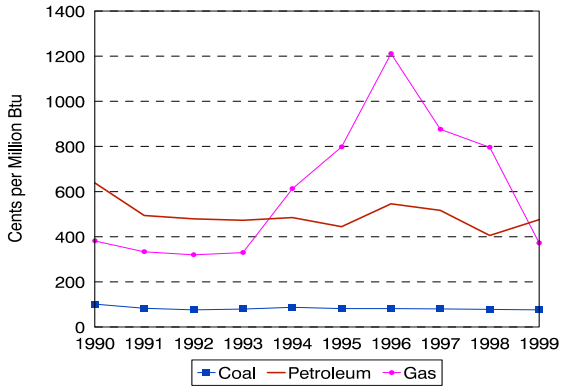


Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

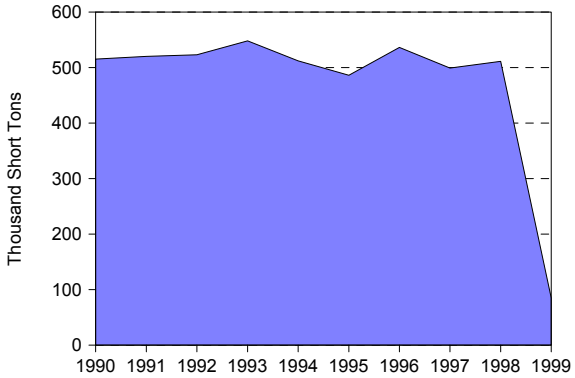


Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

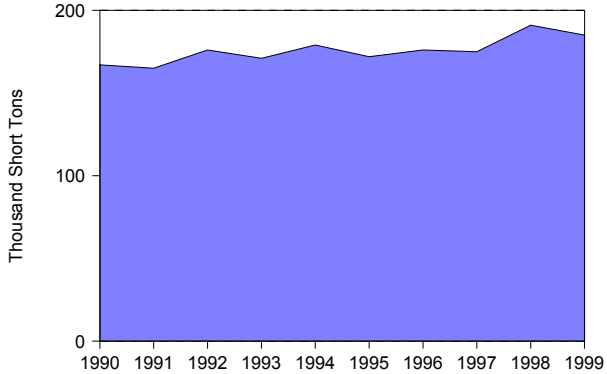


Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

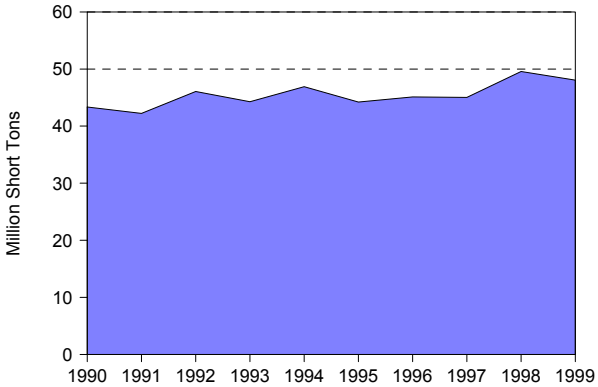


Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	1990	1994	1999	Average Annual Rate of Change (Percent)	Percentage Share 1990	Percentage Share 1994	Percentage Share 1999
Utility Retail Sales							
(thousand megawatthours)							
Residential	1,720	1,865	2,025	1.8	14.6	15.9	17.2
Commercial	2,176	2,428	2,514	1.6	18.5	20.8	21.3
Industrial	7,729	7,260	7,065	-1.0	65.7	62.1	60
Other	144	144	178	2.4	1.2	1.2	1.5
Total	11,769	11,696	11,782	*	100	100	100
Retail Sales Revenue							
(million 1999 dollars)							
Residential	124	123	128	0.3	20.8	22.6	25.4
Commercial	136	133	133	-0.3	22.7	24.5	26.2
Industrial	325	278	236	-3.5	54.2	51.1	46.6
Other	14	10	9	-4.1	2.3	1.9	1.9
Total	599	544	506	-1.9	100	100	100
Average Revenue per Kilowatthour							
(cents/kWh) (1999 dollars)							
Residential	7.23	6.59	6.34	NA	NA	NA	NA
Commercial	6.26	5.48	5.28	NA	NA	NA	NA
Industrial	4.21	3.83	3.34	NA	NA	NA	NA
Other	9.57	7.04	5.27	NA	NA	NA	NA
Total	5.09	4.65	4.3	NA	NA	NA	NA

Table 9. Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999

Item	Investor-Owned	Public	Federal	Cooperative	Total
Number of Utilities	5	13	1	16	35
Number of Retail Customers	170,612	25,261	6	75,246	271,125
Retail Sales (thousand megawatthours)	8,488	463	27	2,805	11,782
Percentage of Retail Sales	72.04	3.93	0.23	23.8	100
Revenue from Retail Sales (million dollars)	339	27	0	140	506
Percentage of Revenue	66.88	5.38	0.07	27.67	100
Average Revenue per Kilowatthour (cents/kWh)	3.99	5.89	1.23	4.99	4.3

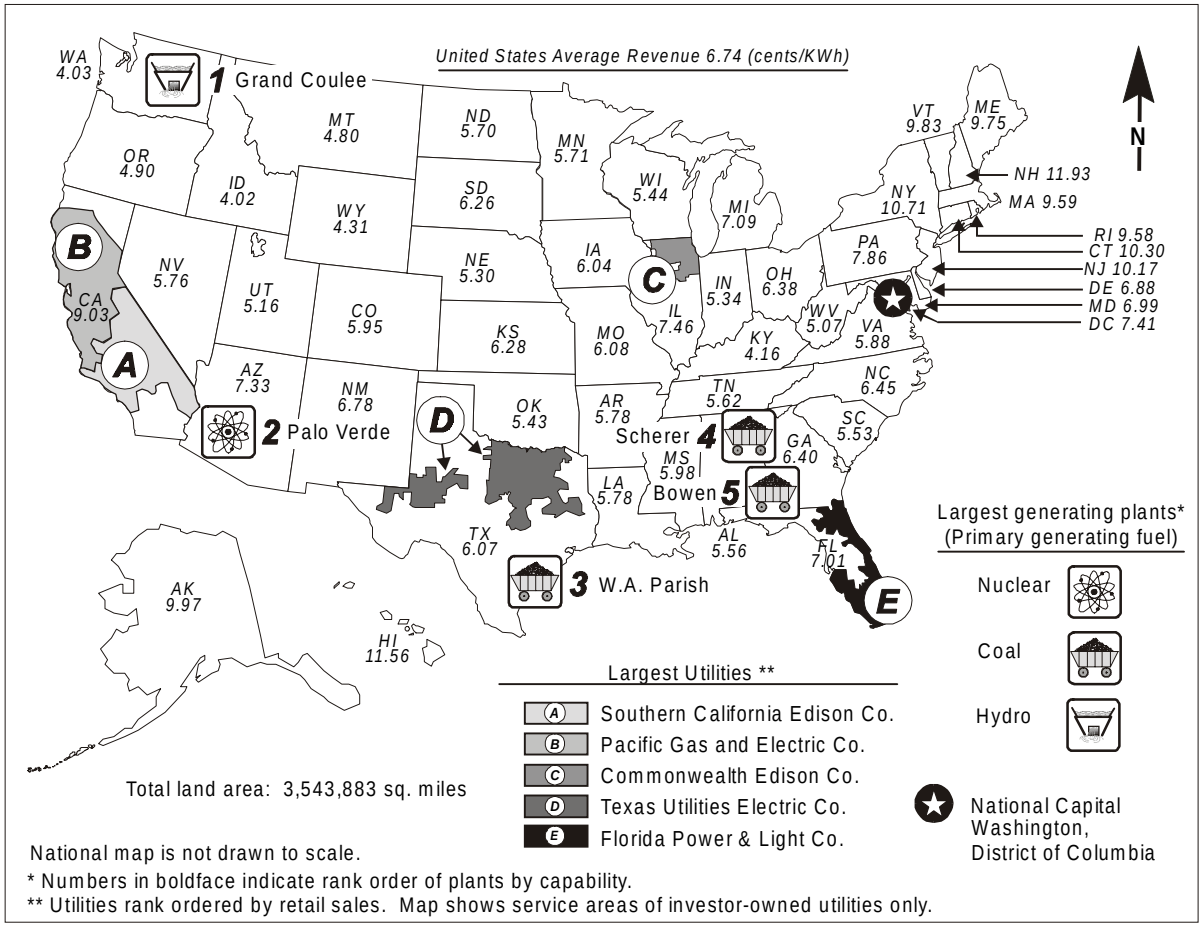


Table 1. 1998 U.S. Summary Statistics

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)	11.5	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	-3.2	7.5	6.3	5.1
Gas-fired	16,080	17,027	26,232	5.0	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	0.2	12.9	13.1	12.5
Hydroelectric	90,284	95,910	94,424	0.4	12.3	12.7	12.2
Renewable	2,124	2,211	2,293	0.8	0.3	0.3	0.3
Total Nonutility	54,067	54,984	89,193	5.1	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

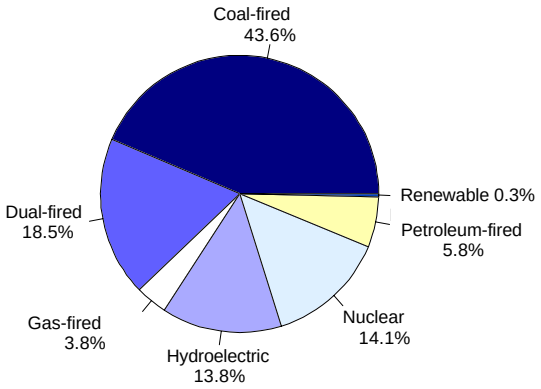


Figure 2. Utility Generation by Primary Energy Source, 1998

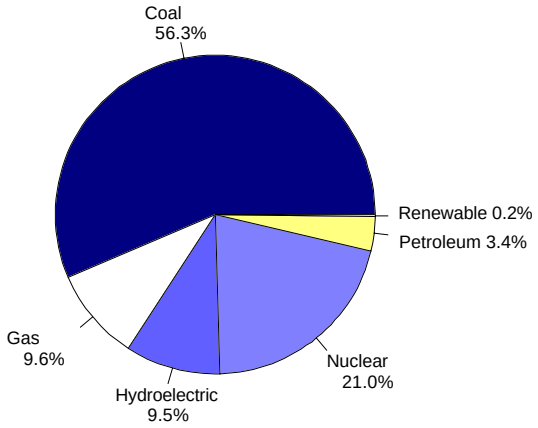


Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1988, 1993, and 1998
(Megawatthours)

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	1.7	90.5	90.2	88.8
Coal	1,540,652,774	1,639,151,186	1,807,479,829	1.6	51.6	51.3	50.0
Petroleum	148,899,561	99,538,857	110,157,895	-3.0	5.0	3.1	3.0
Gas	252,800,704	258,915,301	309,222,404	2.0	8.5	8.1	8.5
Nuclear	526,973,047	610,291,214	673,702,104	2.5	17.6	19.1	18.6
Hydroelectric	222,939,683	265,062,757	304,402,562	3.2	7.5	8.3	8.4
Renewable . . .	11,984,288	9,565,451	7,205,997	-5.0	0.4	0.3	0.2
Total Nonutility . .	283,944,270	314,399,053	405,702,268	3.6	9.5	9.8	11.2
Industry	2,988,194,328	3,196,923,819	3,617,873,059	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	146.6	138.5	125.2	-1.6
Petroleum	243.9	243.3	213.6	-1.3
Gas	226.3	256.0	238.1	0.5

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	15,713	14,986	12,433	-2.3
Nitrogen Oxides[c]	7,170	7,052	7,902	0.9
Carbon Dioxide[c]	1,908,681	1,988,724	2,455,267	2.4

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

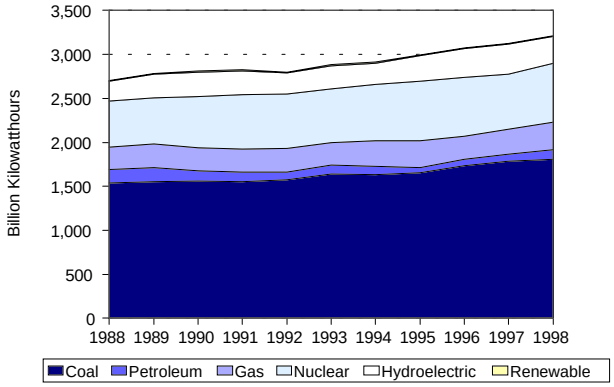


Figure 4. Utility Delivered Fuel Prices for Coal, Petroleum, and Gas, 1988-1998
(1998 Dollars)

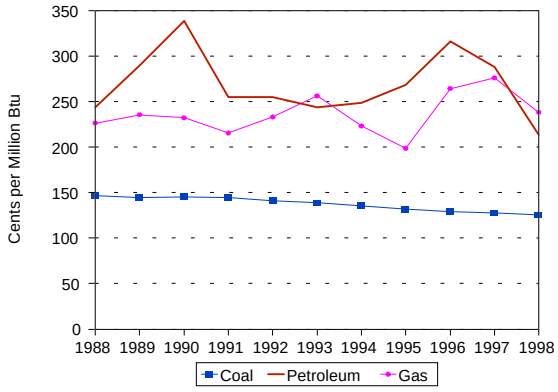


Figure 5. Estimated Sulfur Dioxide Emissions, 1988-1998

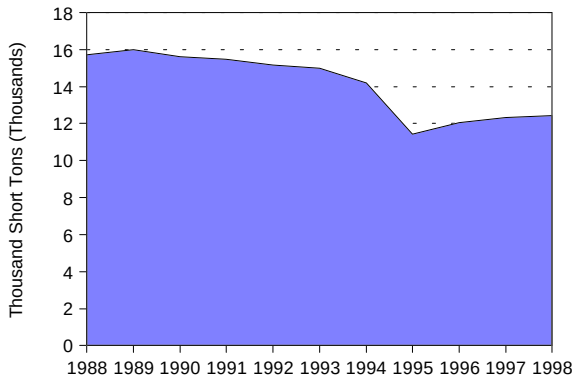


Figure 6. Estimated Nitrogen Oxide Emissions, 1988-1998

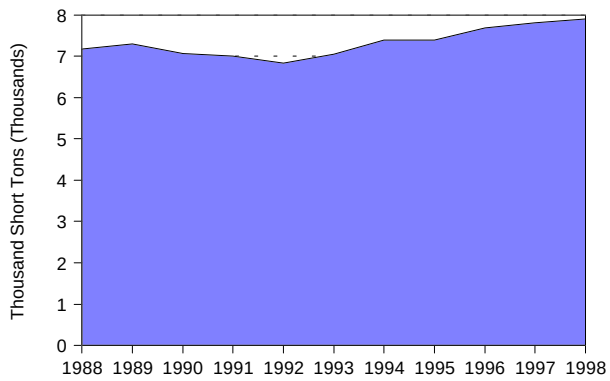


Figure 7. Estimated Carbon Dioxide Emissions, 1988-1998

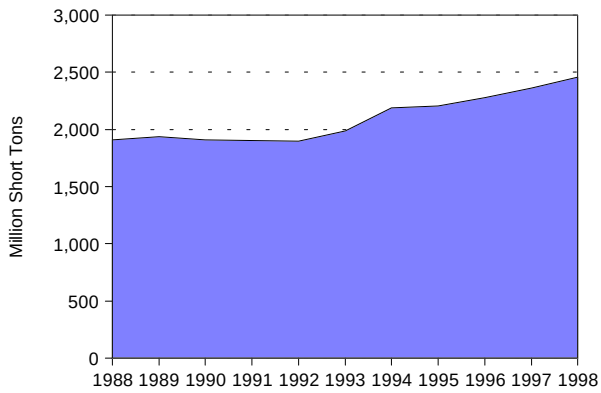


Table 8. Utility Retail Sales by Sector, 1988, 1993, and 1998
(Megawatthours)

Sector	1988	1993	1998	Annual Growth Rate 1988-1998 (Percent)	Percentage Share 1988	Percentage Share 1993	Percentage Share 1998
Residential	892,866,149	994,780,818	1,127,734,988	2.4	34.6	34.8	34.8
Commercial	699,100,173	794,573,370	968,528,009	3.3	27.1	27.8	29.9
Industrial	896,498,130	977,164,250	1,040,037,873	1.5	34.8	34.1	32.1
Other	89,598,080	94,943,902	103,517,589	1.4	3.5	3.3	3.2
Total	2,578,062,481	2,861,462,340	3,239,818,459	2.3	100.0	100.0	100.0

Figure 8. Nuclear Power Capacity Factor 1988-1998

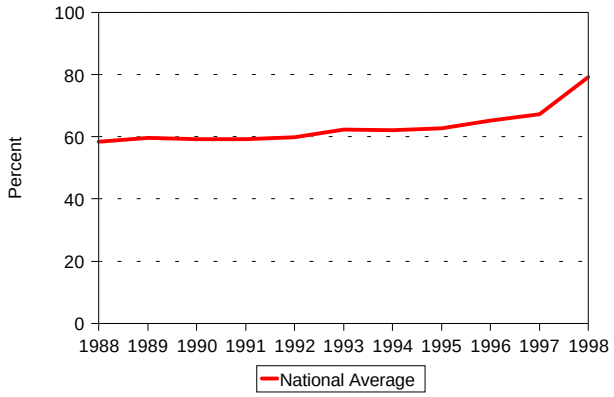


Table 9. Utility Retail Sales Statistics, 1988, 1993, and 1998

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 Energy Information Administration (EIA) sources. 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, 1999 Summary Statistics:

All State rankings are in descending order, that is from the highest or greatest value to the lowest or least value. The primary energy source is the predominant fuel consumed for the generation of electricity within the State.

Net Summer Capability is the steady hourly output that generating equipment is expected to supply to system load (exclusive of auxiliary) power as demonstrated by tests at the time of summer peak demand. Capability by fuel source is based on the primary fuel source(s) by generator as reported to EIA on Form EIA-860A,"Annual Electric Generator Report - Utility," and Form EIA-860B, "Annual Electric Generator Report - Nonutility."

Generation by Coal includes bituminous, subbituminous, lignite, anthracite, and waste coal; Petroleum includes No. 2, 4, 5, and 6 fuel oils, crude oil, waste oil, kerosene, jet fuel, and petroleum coke. Gas includes natural gas, waste heat, butane, methane, propane, other gases, and digester gas. Hydroelectric includes conventional and pumped storage. Other includes wind, solar (thermal and photovoltaic), geothermal, wood and wood waste, other biomass, municipal solid waste, and landfill gases, as well as other miscellaneous fuels such as sulfur, other chemicals, or batteries.

Emissions estimates are for utility organic-fueled steam-electric plants 10 megawatts and larger and for nonutility fossil-fueled plants 1 megawatt and larger. The estimation methodologies for deriving these estimates of emissions are published in the Electric Power Annual Volume II, Technical Notes.

Electricity consumption is the electricity used by the end users in a State. Electricity consumption is the sum of utility regulated retail sales, unregulated retail sales, nonutility sales to other end users, and nonutility direct use of electricity generated by the nonutility. Electricity consumption excludes transmission and distribution line losses and unaccounted for losses and uses. Utility retail sales are regulated sales by the franchised utilities within the State. Unregulated retail sales are those made by retailers other than the customers' traditional electric utility in those States where restructuring of the electric power industry allows competitive power suppliers to sell to end-use customers. Nonutility end use sales are direct sales by a nonutility power producer to an end user (not for resale). Nonutility direct use is self-consumption of electricity generated by a nonutility power producer. The utility average electricity price does not include prices for unregulated retail sales by retail power marketers or power marketing divisions of utilities in States where retail open access is available.

Sources: Utility Capability -Energy Information Administration (EIA), Form EIA-860A, "Annual Electric Generator Report - Utility." Utility Generation -EIA, Form EIA-759, "Monthly Power Plant Report." Nonutility Capability and Generation - EIA, Form EIA-860B, "Annual Electric Generator Report - Nonutility." Utility Emissions - EIA, Form EIA-767, "Steam-Electric Plant Operation and Design Report," and Form EIA-759, "Monthly Power Plant Report." Nonutility Emissions - EIA, Form EIA-860B, "Annual Electricity Generator Report - Nonutility." Utility Retail Sales and Unregulated Retail Sales - EIA, Form EIA-861, "Annual Electric Utility Report." Nonutility End Use Sales and Direct Use - EIA, Form EIA-860B, "Annual Electric Generator Report - Nonutility." Utility Average Electricity Price - 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, Ten Largest Plants by Generating Capability, 1999:

Each fuel used in more than 10 percent of capability is listed. Coal includes bituminous, subbituminous, lignite, anthracite, and waste coal. Petroleum includes No. 2, 4, 5, and 6 fuel oils, crude oil, jet fuel, kerosene, waste oil, and petroleum coke. Gas includes natural gas, waste heat, butane, methane, propane, other gas, and digester gas. Hydroelectric includes conventional and pumped storage. Other includes wind, solar (thermal and photovoltaic), geothermal, wood and wood waste, other biomass, municipal solid waste, and landfill gases, as well as other miscellaneous fuels such as sulfur, other chemicals, or batteries.

Note: In recent years, the sale of power plants by utilities to nonutilities has resulted in some plants having multiple owners and operators. For example, the Colstrip plant, generating unit 4, in Montana is operated by the Montana Power Company while generating units 1, 2, and 3 are operated by PPL Montana. All units at Colstrip are listed as one plant in this publication.

Sources: Energy Information Administration (EIA), Form EIA-860A, "Annual Electric Generator Report - Utility and Form EIA-860B, "Annual Electric Generator Report - Nonutility."

Table 3, Five Largest Utilities by Retail Sales within the State, 1999:

Utilities are ranked based on regulated retail sales within the State. Unregulated retail sales by power marketers are not included.

Note: Total may not equal sum of components due to independent rounding.

Source: Energy Information Administration (EIA), Form EIA-861, "Annual Electric Utility Report."

Table 4, Electric Power Industry Generating Capability by Primary Energy Source, 1990, 1994, and 1999:

Note: Totals may not equal sum of components due to independent rounding.

***** = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

W = Withheld to avoid disclosure of individual company data.

Sources: Energy Information Administration (EIA), Form EIA-860A, "Annual Electric Generator Report - Utility," Form EIA-860B, "Annual Electric Generator Report - Nonutility," and EIA-867, "Annual Nonutility Power Producer Report."

Table 5, Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999:

The Energy Source is the fuel or other energy source consumed for the generation of electricity. Generation by coal includes bituminous, subbituminous, lignite, anthracite, and waste coal. Petroleum includes fuel oil Nos. 2, 4, 5, and 6, crude oil, waste oil, kerosene, jet fuel, and petroleum coke. Gas includes natural gas, waste heat, butane, methane, propane, other gases, and digester gas. Hydroelectric includes conventional and pumped storage. Other includes wind, solar (thermal and photovoltaic), geothermal, wood and wood waste, other biomass, municipal solid waste, and landfill gases, as well as other miscellaneous fuels such as sulfur, other chemicals, or batteries.

Totals may not equal sum of components due to independent rounding.

***** = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

W = Withheld to avoid disclosure of individual company data.

Sources: Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report," Form EIA-860B, "Annual Electric Generator Report - Nonutility," and EIA-867, "Annual Nonutility Power Producer Report."

Table 6, Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990, 1994, and 1999:

Data are for electric generating plants owned by regulated utilities with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatts. Restructuring of the electric power industry, which has encouraged the sale of utility plants to nonutility companies, has eroded the frame of utility plants that report fuel costs on the Federal Energy Regulatory Commission (FERC) Form 423. Historically, fuel cost data were a weighted average cost of delivered fuel costs of many respondents in a State. Depending on the cost of fuel delivered to a specific plant, its removal from the FERC Form 423 database can substantially change the weighted average cost of fuel shown for a particular State. Petroleum does not include petroleum coke. Sulfur content of petroleum is for residual fuels only (excludes No. 2 fuel oil).

***** = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Source: Federal Energy Regulatory Commission (FERC), FERC Form-423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7, Electric Power Industry Emissions Estimates by Fuel, 1990, 1994, and 1999:

As of 1993, CO2 emissions data derived from the emission factor for light oil and NOx emissions reduction from control technologies have been revised due to a software problem-- (see Electric Power Annual Volume II, Technical Notes, Appendix A)-- historical data were revised to reflect these changes. Emissions of NO_x, and SO_2 incorporate the July 1999 Air Pollutant Emissions Factors (AP-42 5th release) of the Environmental Protection Agency. Emissions of CO_2 use carbon emission factors developed by the Energy Information Administration (see Electric Power Annual Volume II, Technical Notes, Appendix A). Utility emission

estimates are for fossil-fueled steam-electric plants 10 megawatt and larger, based on fuel consumption data. Nonutility emissions are for fossil-fueled plants 1 megawatt and larger.

* = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Sources: Energy Information Administration (EIA), Form EIA-767, "Steam-Electric Plant Operation and Design Report," Form EIA 860B, "Annual Electric Generator Report - Nonutility," and Form EIA-867, "Annual Nonutility Power Producers Report."

Table 8, Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999:

Utility retail sales, revenue, and average revenue per kilowatthour (price) are regulated sales by the franchised utilities within the State and do not include unregulated retail sales by retail power marketers or power marketing divisions of utilities in States where the electric power industry has been restructured to allow unregulated sales to end-use customers. Revenue and average revenue per kilowatthour are in real dollars, chained to 1999 dollars.

Retail sales, revenue, and average revenue per kilowatthour are provided for the Residential, Commercial, Industrial, and Other consumer sectors. The Other Sector includes sales for public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

Totals may not equal sum of components due to independent rounding.

* = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Sources: Energy Information Administration (EIA), Form EIA-861, "Annual Electric Utility Report." U.S. Department of Commerce, Bureau of Economic Anaylsis, Implicit Price Deflators, downloaded from Bureau of Economic Analysis, U.S. Department of Commerce.

Table 9, Utility Retail Sales, Revenue, and Number of Customers by Type of Utility, 1999:

Utility retail sales, revenue, average revenue per kilowatthour (price), and number of customers are for those utilities with regulated sales in franchised service territories within the State and do not include unregulated retail sales by retail power marketers or power marketing divisions of utilities in States where the electric power industry has been restructured to allow unregulated sales to end-use customers. For a discussion of the types of utilities (investor-owned, publicly owned, cooperative, and Federal) see the Electric Power Annual Volume II, "The U.S. Electric Power Industry at a Glance," page 1.

Note: Total may not equal sum of components due to independent rounding.

* = The absolute value is less than 0.5; for percentage calculation the absolute value is less than 0.05 percent.

Source: Energy Information Administration (EIA), Form EIA-861, "Annual Electric Utility Report."

Figure Notes

Figure 1: Industry Generating Capability by Primary Energy Source, 1999

"Industry" is defined as the sum of utility and nonutility generating units 1 megawatt and above connected to the grid. Net Summer Capability is based on the primary energy source used by a generator. Coal includes bituminous, subbituminous, lignite, anthracite, and waste coal. Petroleum includes No. 2, 4, 5, and 6 fuel oils, crude oil, jet fuel, kerosene, waste oil, and petroleum coke. Gas includes natural gas, waste heat, butane, methane, propane, other gas, and digester gas. Hydroelectric includes conventional and pumped storage. Other includes wind, solar (thermal and photovoltaic), geothermal, wood and wood waste, other biomass, municipal solid waste, and landfill gases, as well as other miscellaneous fuels such as sulfur, other chemicals, or batteries.

Sources: Energy Information Administration (EIA), Form EIA-860A, "Annual Electric Generator Report - Utility," and Form EIA-860B, "Annual Electric Generator Report - Nonutility."

Figure 2: Industry Generation by Energy Source, 1999

"Industry" is defined as the sum of utility and nonutility generating units 1 megawatt and above connected to the grid. Net generation is provided by the energy sources consumed by generating plants. Coal includes bituminous, subbituminous, lignite, anthracite, and waste coal. Petroleum includes No. 2, 4, 5, and 6 fuel oils, crude oil, jet fuel, kerosene, waste oil, and petroleum coke. Gas includes natural gas, waste heat, butane, methane, propane, other gas, and digester gas. Hydroelectric includes conventional and pumped storage. Other includes wind, solar (thermal and photovoltaic), geothermal, wood and wood waste, other biomass, municipal solid waste, and landfill gases, as well as other miscellaneous fuels such as sulfur, other chemicals, or batteries.

Sources: Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report," and Form EIA-860B, "Annual Electric Generator Report - Nonutility."

Figure 3: Industry Generation of Electricity by Energy Source, 1990 - 1999

"Industry" is defined as the sum of utility and nonutility generating units 1 megawatt and above connected to the grid. Net generation is provided by the energy sources consumed by generating plants. Coal includes bituminous, subbituminous, lignite, anthracite, and waste coal. Petroleum includes No. 2, 4, 5, and 6 fuel oils, crude oil, jet fuel, kerosene, waste oil, and petroleum coke. Gas includes natural gas, waste heat, butane, methane, propane, other gas, and digester gas. Hydroelectric includes conventional and pumped storage. Other includes wind, solar (thermal and photovoltaic), geothermal, wood and wood waste, other biomass, municipal solid waste, and landfill gases, as well as other miscellaneous fuels such as sulfur, other chemicals, or batteries.

Sources: Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report," Form EIA-860B, "Annual Electric Generator Report - Nonutility," and Form EIA-867, "Annual Nonutility Power Producer Report."

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Figure 4: Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990 - 1999

Data are for electric generating plants owned by regulated utilities with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatts. Restructuring of the electric power industry, which has encouraged the sale of utility plants to nonutility companies, has eroded the frame of utility plants that report fuel costs on the Federal Energy Regulatory Commission (FERC) Form 423. Historically, fuel cost data were a weighted average cost of delivered fuel costs of many respondents in a State. Depending on the cost of fuel delivered to a specific plant, its removal from the FERC Form 423 database can substantially change the weighted average cost of fuel shown for a particular State.

Source: Federal Energy Regulatory Commission, FERC Form 423,"Monthly Report of Coal and Quality of Fuels for Energy Plants."

Figure 5: Estimated Sulfur Dioxide Emissions, 1990 - 1999

Sources: Energy Information Administration (EIA), Form EIA-767, "Steam-Electric Plant Operation and Design Report," Form EIA-860B, "Annual Electric Generator Report - Nonutility," and Form EIA-867, "Annual Nonutility Power Producer Report."

Figure 6: Estimated Nitrogen Oxide Emissions, 1990 - 1999

Sources: Energy Information Administration (EIA), Form EIA-767, "Steam-Electric Plant Operation and Design Report," Form EIA-860B, "Annual Electric Generator Report - Nonutility," and Form EIA-867, "Annual Nonutility Power Producer Report."

Figure 7: Estimated Carbon Dioxide Emissions, 1990 - 1999

Sources: Energy Information Administration (EIA), Form EIA-767, "Steam-Electric Plant Operation and Design Report," Form EIA-860B, "Annual Electric Generator Report - Nonutility," and Form EIA-867, "Annual Nonutility Power Producer Report."

Figure 8: Nuclear Power Capacity Factor Comparison, 1990 - 1999

Note: The annual capacity factors are calculated as the actual yearly net generation divided by the maximum possible generation for the year. The maximum possible generation is the number of hours in a year (8760) multiplied by the net summer capability as reported to the EIA.

Sources: Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report," Form EIA-860A, "Annual Electric Generator Report," and Form EIA-860B, "Annual Electric Generator Report - Nonutility."