California

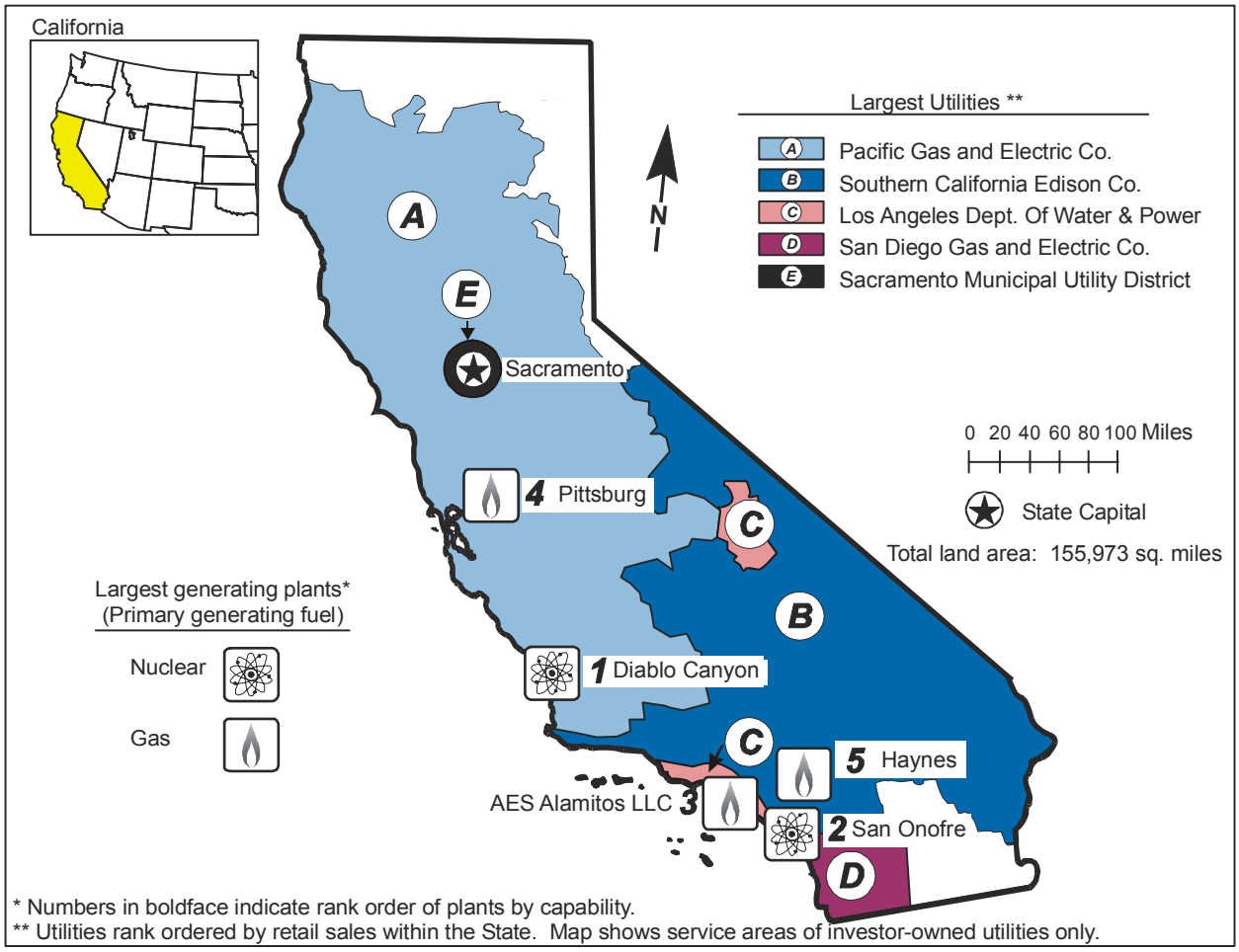
California
Largest Utilities **
A Pacific Gas and Electric Co.
B Southern California Edison Co.
C Los Angeles Dept. Of Water & Power
D San Diego Gas and Electric Co.
E Sacramento Municipal Utility District
N
Sacramento
4 Pittsburg
1 Diablo Canyon
5 Haynes
AES Alamitos LLC 3
2 San Onofre
0 20 40 60 80 100 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

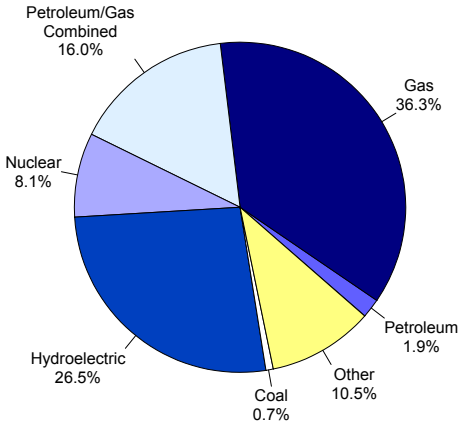

Figure 2. Industry Generation by Energy Source, 1999

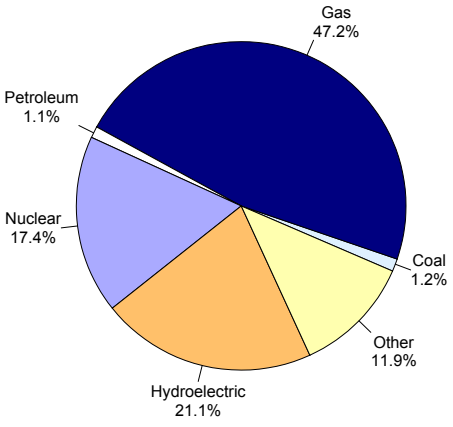

Table 5. Electric Power Industry Generation of Electricity by Energy Source, 1990, 1994, and 1999
(Megawatthours)

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

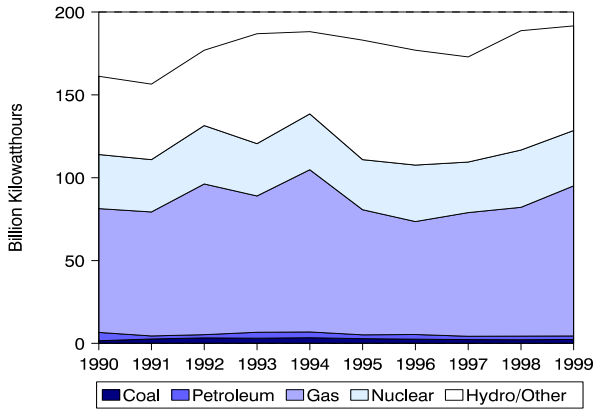

Figure 4. Utility Delivered Fuel Costs for Coal, Petroleum, and Gas, 1990-1999 (1999 Dollars)

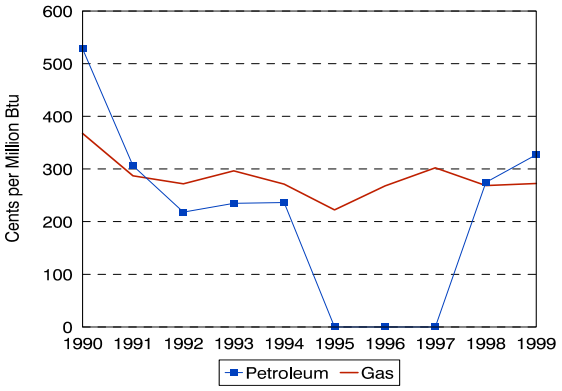

Figure 5. Estimated Sulfur Dioxide Emissions, 1990-1999

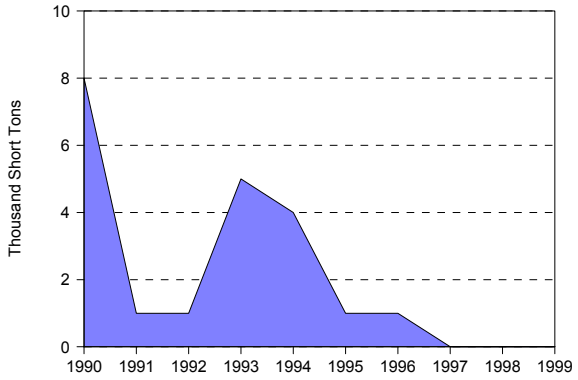

Figure 6. Estimated Nitrogen Oxide Emissions, 1990-1999

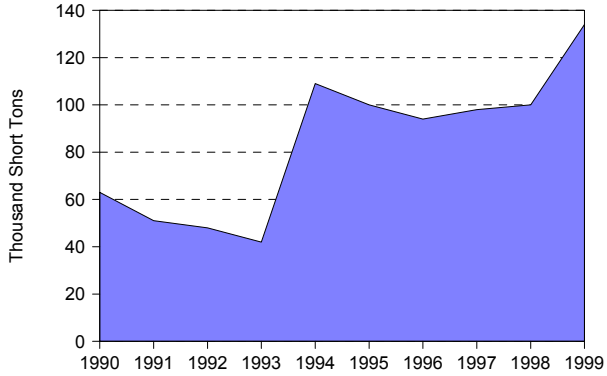

Figure 7. Estimated Carbon Dioxide Emissions, 1990-1999

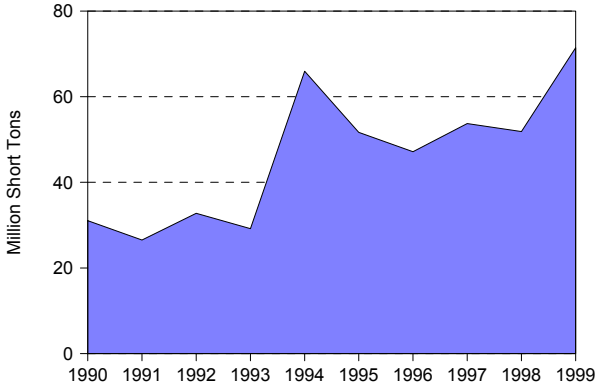

Figure 8. Nuclear Power Capacity Factor Comparison, 1990-1999

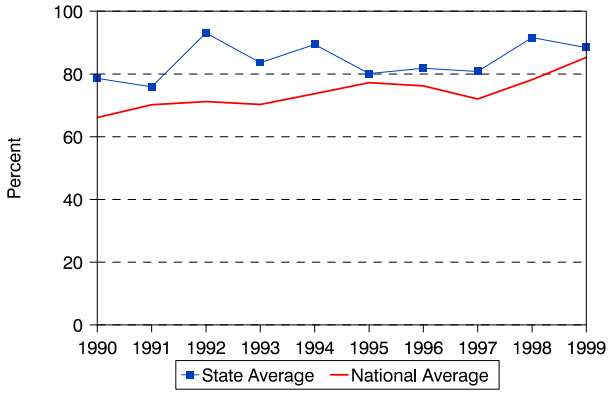

Table 8. Utility Retail Sales, Revenue, and Average Revenue per Kilowatthour by Sector, 1990, 1994, and 1999

	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