

Alaska

In terms of its electric power industry, Alaska is a patchwork of unconnected grids. Due to its extremely low population density and the distance between population centers around the State, there are many small generators operating independently of one another. Three of the five largest plants in the State are primarily gas-fired plants. Alaska is the Nation's second largest oil producer and oil-fired plants account for a much larger portion of the generation in Alaska than in most other States. Alaska is also a significant producer of natural gas. The State's average electricity price in 1996 was the sixth most expensive in the Nation, since there are few economies of scale and there are no connections to the grid of the forty-eight contiguous States. Consumers have some of their bills subsidized by the State government.

Only one of the five largest utilities in the State is an investor-owned utility. Alaska Electric Light and Power operates in the panhandle of the State, around the capital, Juneau. Though it operates the fourth largest capability total of any utility, none of its plants is among the five largest in the State.

The five largest plants are operated by the Chugach Electric Association, the City of Anchorage, and the Golden Valley Electric Association. Chugach and Golden Valley are cooperatives. Cooperatives are groups organized under the law into utility companies that generate, transmit, and/or distribute electricity to specified areas not being served by other utilities. Such ventures are generally exempt from Federal income tax

laws. Chugach operates two of the three largest plants in the State including the largest, Beluga, a gas-fired plant north of Anchorage. It also operates Bradley Lake, a hydroelectric plant in the Fairbanks area and the third largest plant in the State.

The City of Anchorage operates the gas-fired George M Sullivan plant. Sullivan is the second-largest plant in the State. The fourth-largest plant is Golden Valley's North Pole plant.

Almost half of the State's generation is from utility gas-fired facilities, while another fifth comes from utility renewable sources. Alaska was among the leaders in nonutility shares of capability and generation in 1996. Alaska's emissions of sulfur dioxide, nitrogen oxides, and carbon dioxide were among the lowest in the Nation in both absolute terms and in concentrations per square mile. These low totals are due to the low generation level (ninth lowest in the Nation) and the relatively "clean" means of generation that are utilized in the State.

Legislative action in Alaska has taken a different direction than other States with regard to deregulation. One bill introduced in 1997 would prevent retail competition unless clear evidence exists that it would be in the public interest. However, in January 1998, the largest utility in Alaska, the Chugach Electric Association, urged the Public Utility Commission and the State legislature to allow retail competition in the Greater Anchorage area.¹

¹ Energy Information Administration, Status of State Electric Utility Deregulation Activity, www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html.

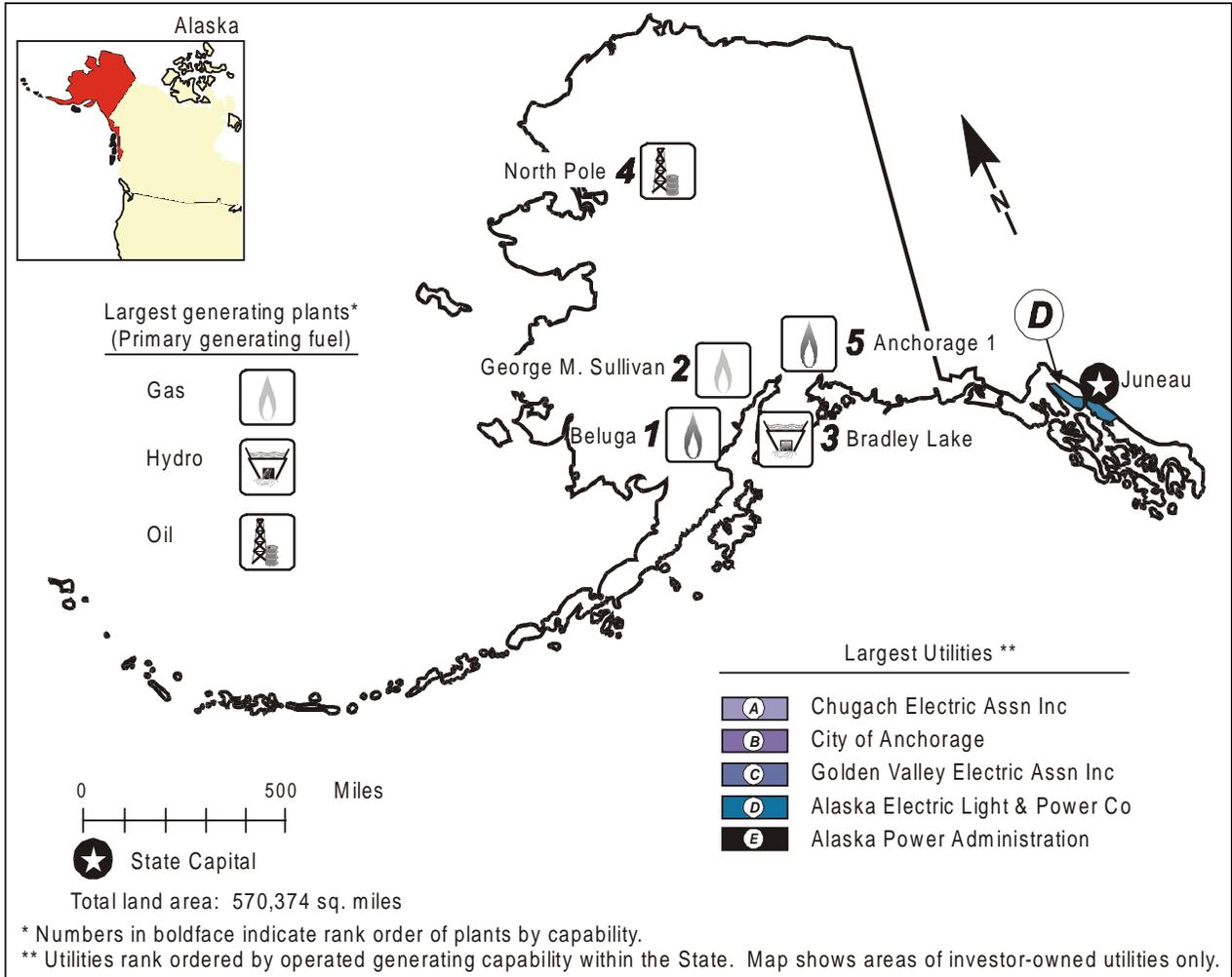


Table 1. 1996 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		ASCC	Utility		
Net Exporter or Importer		--	Capability (MWe)	1,734	47
State Primary Generating Fuel		Gas	Generation (MWh)	4,982,268	49
Population (as of 7/96)	604,966	48	Average Age of Coal Plants	30 years	
Average Revenue (cents/kWh)	10.24	^a 45	Average Age of Oil-fired Plants	17 years	
Industry			Average Age of Gas-fired Plants	20 years	
Capability (MWe)	2,015	^b 42	Average Age of Nuclear Plants	--	
Generation (MWh)	6,147,827	^b 43	Average Age of Hydroelectric Plants	18 years	
Capability/person (KWe/person)	3.32	^b 17	Average Age of Other Plants . . .	14 years	
Generation/person (MWe/person)	10.16	^b 32	Nonutility^c		
Sulfur Dioxide Emissions (Thousand Short Tons)	10	46	Capability (MWe)	281	35
Nitrogen Oxide Emissions (Thousand Short Tons)	18	43	Percentage Share of Capability	13.9	11
Carbon Dioxide Emissions (Thousand Short Tons)	4,566	46	Generation (MWh)	1,165,559	35
Sulfur Dioxide/sq. mile (Tons)	0.02	50	Percentage Share of Generation	19.0	10
Nitrogen Oxides/sq. mile (Tons)	0.03	50	-- = Not applicable.		
Carbon Dioxide/sq. mile (Tons)	8.01	51			

Table 2. Five Largest Utility Plants, 1996

Plant Name	Type	Operating Utility	Net Capability (MWe)
1. Beluga	Gas/Hydro	Chugach Electric Assn Inc	334
2. George M Sullivan	Gas/Hydro	City of Anchorage	220
3. Bradley Lake	Hydro	Chugach Electric Assn Inc	108
4. North Pole	Oil	Golden Valley Elec Assn Inc	106
5. Anchorage 1	Gas	City of Anchorage	79

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

Utility	Net Summer Capability	Net Coal Capability	Net Oil Capability	Net Gas Capability	Net Nuclear Capability	Net Hydro/Other Capability
A. Chugach Electric Assn Inc . . .	607	--	38	445	--	125
B. City of Anchorage	299	--	3	297	--	--
C. Golden Valley Elec Assn Inc	171	25	146	--	--	--
D. Alaska Electric Light & Pwr. . .	109	--	94	--	--	15
E. Alaska Power Administration	108	--	--	--	--	108
Total	1,294	25	281	742	--	248
Percentage of Industry	64.4	--	--	--	--	--

-- = Not applicable.

Figure 4. Utility Generating Capability by Primary Energy Source, 1996

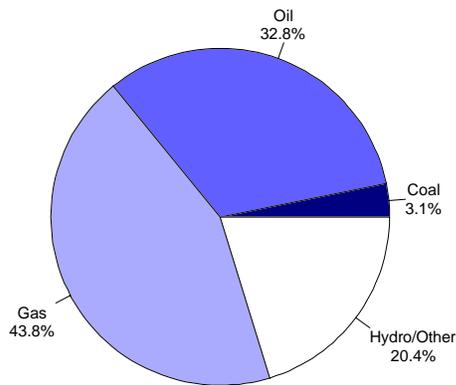


Figure 2. Utility Generation by Primary Energy Source, 1996

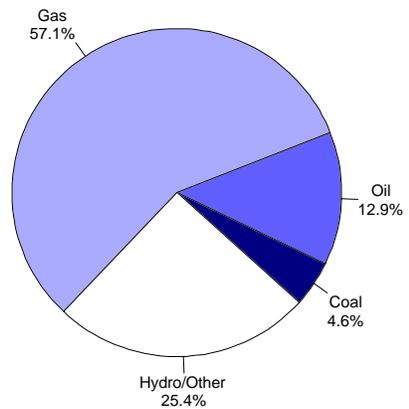


Figure 3. Energy Consumed at Electric Utilities by Primary Energy Source, 1996

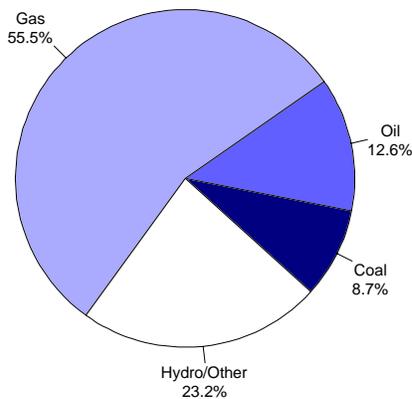


Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1986, 1991, and 1996
(Megawatts Electric)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	56	56	54	3.3	3.1	2.7
Oil	489	498	569	29.0	27.9	28.2
Gas	722	756	759	42.9	42.3	37.7
Nuclear	--	--	--	--	--	--
Hydro/Other	203	237	353	12.1	13.3	17.5
Total Utility	1,470	1,547	1,734	87.3	86.6	86.1
Total Nonutility	214	240	281	12.7	13.4	13.9
Industry	1,684	1,787	2,015	100.0	100.0	100.0

-- = Not applicable.

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

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	292,944	325,914	229,129	5.7	6.3	3.7
Oil	458,956	407,088	643,278	9.0	7.8	10.5
Gas	2,691,148	2,657,316	2,843,998	52.8	51.1	46.3
Nuclear	--	--	--	--	--	--
Hydro/Other	808,724	896,113	1,265,863	15.9	17.2	20.6
Total Utility	4,251,772	4,286,431	4,982,268	83.4	82.4	81.0
Total Nonutility	849,035	917,328	1,165,559	16.6	17.6	19.0
Industry	5,100,807	5,203,759	6,147,827	100.0	100.0	100.0

-- = Not applicable.

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

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	0.006	0.006	0.005	6.5	8.7	5.7
Oil	0.006	0.005	0.007	6.4	6.2	8.3
Gas	0.036	0.031	0.031	39.0	42.3	36.5
Nuclear	--	--	--	--	--	--
Hydro/Other	0.008	0.009	0.013	9.2	12.5	15.2
Total Utility	0.056	0.052	0.056	61.2	69.7	65.8
Total Nonutility	0.035	0.022	0.029	38.8	30.3	34.2
Industry	0.091	0.074	0.086	100.0	100.0	100.0

-- = Not applicable.

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

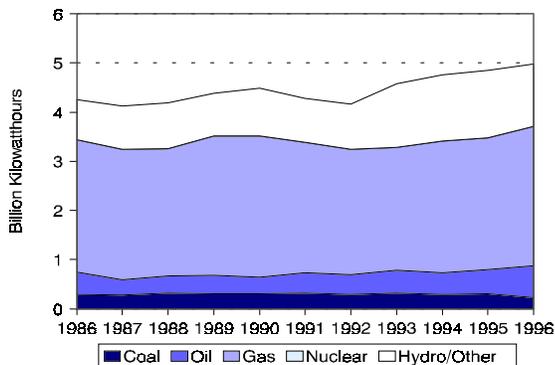


Figure 5. Utility Delivered Fuel Price for Coal, Oil, and Gas, 1986-1996
(1996 Dollars)

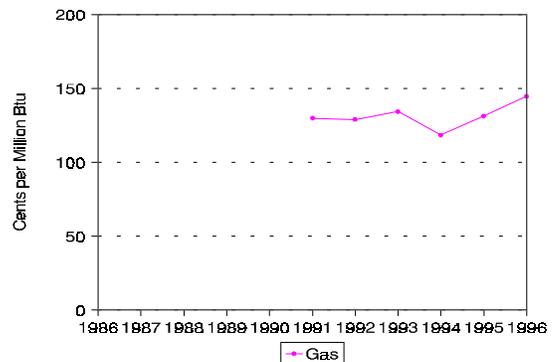


Table 7. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986, 1991, and 1996
(Cents per Million Btu, 1996 Dollars)

Fuel	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Coal	--	--	--	--
Oil	--	--	--	--
Gas	--	129.9	144.6	--

-- = Not applicable.

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

Emission Type	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Sulfur Dioxide	4	8	10	8.7
Nitrogen Oxides ^d . .	14	17	18	2.9
Carbon Dioxide ^d . . .	3,122	3,771	4,566	3.9

Figure 6. Estimated Sulfur Dioxide Emissions, 1986-1996

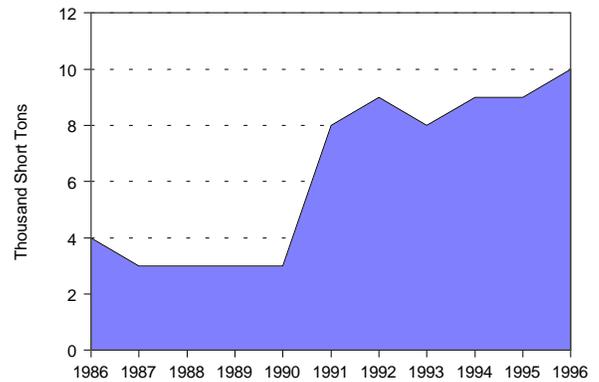


Figure 7. Estimated Nitrogen Oxide Emissions, 1986-1996

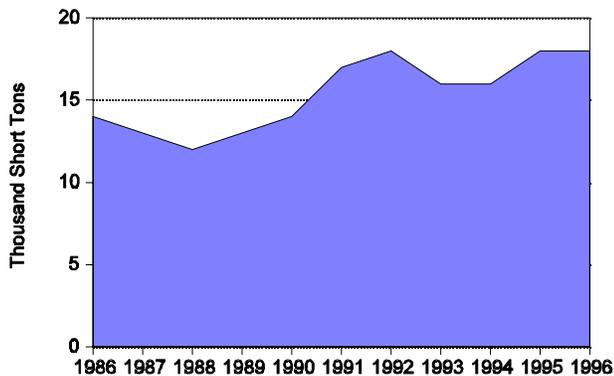


Figure 8. Estimated Carbon Dioxide Emissions, 1986-1996

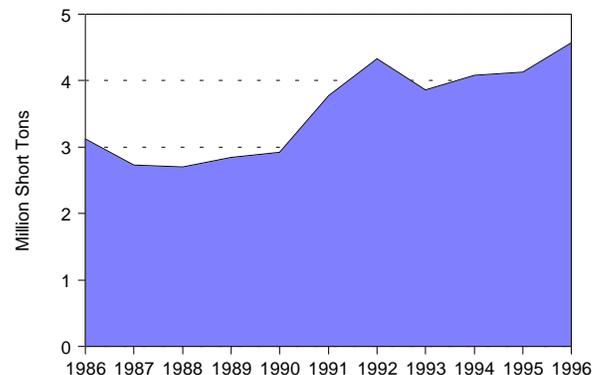


Table 9. Utility Retail Sales by Sector, 1986, 1991, and 1996
(Megawatthours)

Sector	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Residential . .	1,616,038	1,602,777	1,766,184	0.9	40.1	37.7	37.0
Commercial .	1,776,352	2,005,247	2,249,874	2.4	44.1	47.1	47.1
Industrial . . .	462,944	465,878	584,198	2.4	11.5	10.9	12.2
Other	174,140	181,811	179,306	0.3	4.3	4.3	3.8
Total	4,029,473	4,255,713	4,779,562	1.7	100.0	100.0	100.0

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

Item	Investor-Owned Utility	Public	Federal	Cooperative	Total
	1986				
Number of Utilities	20	22	1	21	64
Number of Retail Customers	16,542	57,788	3	151,816	226,149
Retail Sales (MWh)	285,602	1,305,342	1,617	2,436,912	4,029,473
Percentage of Retail Sales	7.1	32.4	(s)	60.5	100.0
Revenue from Retail Sales (thousand 1996 \$) ^e	38,363	136,891	65	281,607	456,946
Percentage of Revenue	8.4	30.0	(s)	61.6	100.0
1991					
Number of Utilities	24	36	1	22	83
Number of Retail Customers	19,702	61,044	2	156,343	237,091
Retail Sales (MWh)	356,454	1,349,999	3,840	2,545,420	4,255,713
Percentage of Retail Sales	8.4	31.7	0.1	59.8	100.0
Revenue from Retail Sales (thousand 1996 \$) ^e	44,287	142,741	57	281,906	468,998
Percentage of Revenue	9.4	30.4	(s)	60.1	100.0
1996					
Number of Utilities	23	37	1	20	81
Number of Retail Customers	22,515	60,885	2	172,701	256,103
Retail Sales (MWh)	400,655	1,473,648	5,030	2,900,229	4,779,562
Percentage of Retail Sales	8.4	30.8	0.1	60.7	100.0
Revenue from Retail Sales (thousand 1996 \$) ^e	46,535	146,590	110	296,254	489,489
Percentage of Revenue	9.5	30.0	(s)	60.5	100.0

(s) = Nonzero percentage less than 0.05.