

Colorado

Most of the electricity in Colorado is generated at coal-fired plants. In fact, the five largest plants in the State, including the largest, Craig, are coal-fired plants. Colorado's proximity to the coal of Wyoming and its own coal resources make coal an attractive fuel choice. The coal comes from beds scattered around the State. In 1997, almost two-thirds of the coal burned by Colorado utilities came from Colorado; Wyoming provided the other third. The largest utility in the State is the Public Service Company of Colorado (PSCC). Colorado had the twenty-fifth largest population and the thirty-third largest utility generating capability in 1996. The average price of electricity in Colorado, 6.05 cents per kilowatt-hour, ranked as twenty-first least expensive in the Nation. Colorado is a net importer of electricity.

PSCC operates over half of the utility capability in the State. A large portion of this capability is at the second, third, fourth, and fifth largest plants in the State, Cherokee, Comanche, Pawnee, and Hayden. Cherokee and Pawnee are located northeast of Denver. Comanche is in the east-central part of the State near Pueblo. Hayden and Craig are located in northwestern Colorado. The Tri-State G&T Association operates Craig, the largest Colorado plant.

In 1986, utility coal capability represented 68.9 percent of the State total and utility coal generation accounted for 89.5 percent of net generation. In 1996, the coal share of capability had fallen to 66.5 percent while the net generation share had fallen to 86.0 percent. Utility

hydro/other capability and net generation, on the other hand, were 14.5 percent and 7.9 percent, respectively, in 1986. By 1996, the hydro/other capability share had risen to 14.9 percent while the generation share fell to 4.3 percent. The drops in utility coal and hydroelectric generation shares were offset by the rising share of nonutility generation in the State. Colorado ranks twenty-second in nonutility capability and twenty-fifth in nonutility net generation as a percentage of total net generation. There are no nuclear generating stations in Colorado.

With regard to emissions of sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon dioxide from electricity generating units, Colorado is consistently in the middle of national rankings. Like all States west of Kansas, it had no plants that were subject to Phase I requirements of the Environmental Protection Agency's Acid Rain Program for SO₂ and NO_x emissions reductions, although fossil fuel units within the State are mandated to comply with Phase II requirements which will take effect on January 1, 2000.

Colorado has not moved as quickly as some other States toward deregulation. In July 1998, the Colorado electricity advisory panel met for the first time. The panel will study deregulation and report to the legislature by November 1999. Deregulation cannot proceed until the legislature acts. The Public Utility Commission has conducted stakeholder surveys and released a report on restructuring.¹

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

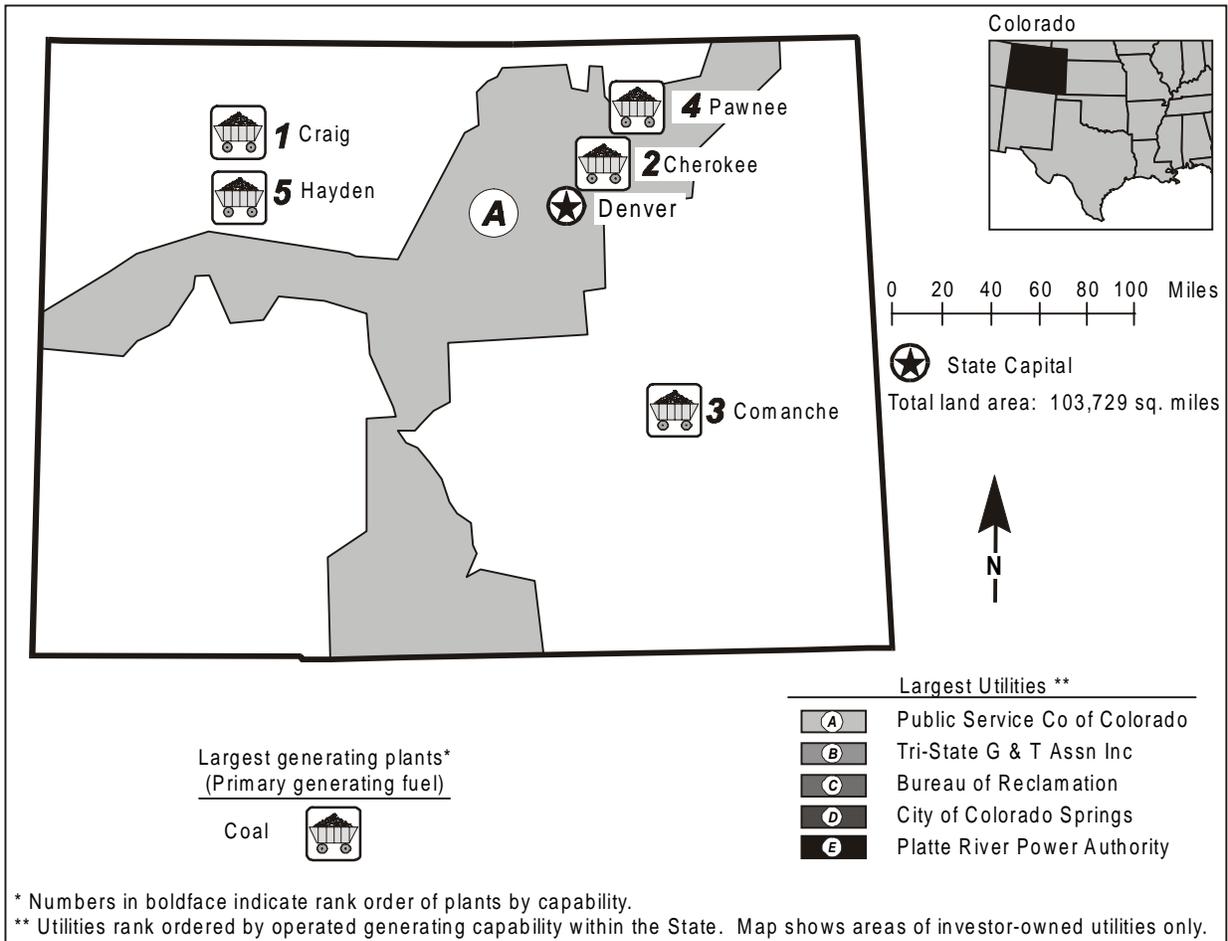


Table 1. 1996 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC	Utility		
Net Exporter or Importer		Importer	Capability (MWe)	6,794	33
State Primary Generating Fuel		Coal	Generation (MWh)	33,971,688	30
Population (as of 7/96)	3,816,179	25	Average Age of Coal Plants	22 years	
Average Revenue (cents/kWh)	6.05	^a 21	Average Age of Oil-fired Plants	24 years	
Industry			Average Age of Gas-fired Plants	26 years	
Capability (MWe)	7,462	^b 30	Average Age of Nuclear Plants	--	
Generation (MWh)	37,161,443	^b 29	Average Age of		
Capability/person	1.96	^b 41	Hydroelectric Plants	31 years	
(KWe/person)			Average Age of Other Plants . . .	--	
Generation/person	9.74	^b 34	Nonutility^c		
(MWh/person)			Capability (MWe)	668	22
Sulfur Dioxide Emissions			Percentage Share of Capability	9.0	18
(Thousand Short Tons)	94	28	Generation (MWh)	3,189,755	25
Nitrogen Oxide Emissions			Percentage Share of Generation	8.6	20
(Thousand Short Tons)	145	23	-- = Not applicable.		
Carbon Dioxide Emissions					
(Thousand Short Tons)	37,052	24			
Sulfur Dioxide/sq. mile (Tons)	0.91	38			
Nitrogen Oxides/sq. mile (Tons)	1.40	37			
Carbon Dioxide/sq. mile (Tons)	357.20	39			

Table 2. Five Largest Utility Plants, 1996

Plant Name	Type	Operating Utility	Net Capability (MWe)
1. Craig	Coal	Tri-State G & T Assn Inc	1,264
2. Cherokee	Coal	Public Service Co of Colorado	729
3. Comanche	Coal	Public Service Co of Colorado	660
4. Pawnee	Coal	Public Service Co of Colorado	495
5. Hayden	Coal	Public Service Co of Colorado	446

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. Public Service Co of Colorado . . .	3,599	2,821	36	375	--	367
B. Tri-State G & T Assn Inc	1,464	1,364	100	--	--	--
C. Bureau of Reclamation	733	--	--	--	--	733
D. City of Colorado Springs	540	467	--	67	--	6
E. Platte River Power Authority	262	262	--	--	--	--
Total	6,598	4,914	136	442	--	1,106
Percentage of Industry Capability	88.4	--	--	--	--	--

-- = Not applicable.

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

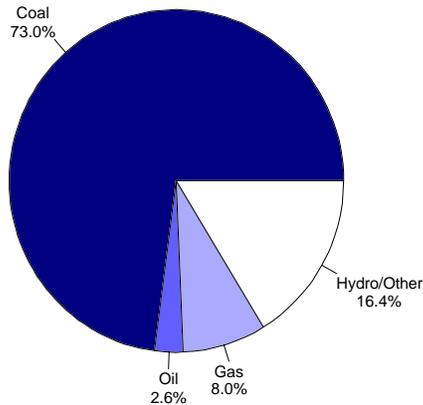


Figure 2. Utility Generation by Primary Energy Source, 1996

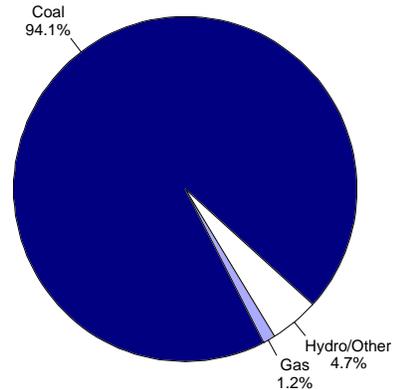


Figure 3. Energy Consumed at Electric Utilities by Primary Energy Source, 1996

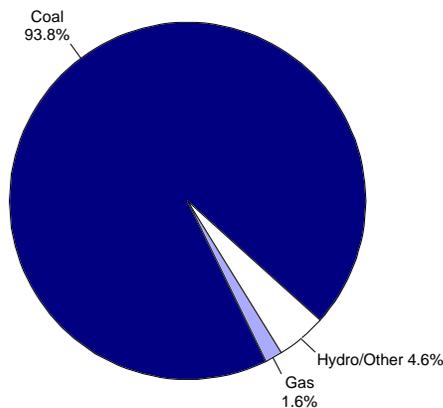


Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1986, 1991, and 1996
(Megawatts Electric)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	4,867	4,944	4,961	68.9	71.9	66.5
Oil	428	221	177	6.1	3.2	2.4
Gas	497	387	542	7.0	5.6	7.3
Nuclear	200	--	--	2.8	--	--
Hydro/Other	1,021	1,057	1,115	14.5	15.4	14.9
Total Utility	7,013	6,610	6,794	99.3	96.2	91.0
Total Nonutility	51	263	668	0.7	3.8	9.0
Industry	7,064	6,873	7,462	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	25,629,652	28,922,906	31,952,337	89.5	89.9	86.0
Oil	23,274	37,883	15,539	0.1	0.1	0.0
Gas	309,496	414,689	418,925	1.1	1.3	1.1
Nuclear	52,007	--	--	0.2	--	--
Hydro/Other	2,267,092	1,662,753	1,584,887	7.9	5.2	4.3
Total Utility	28,281,521	31,038,231	33,971,688	98.8	96.5	91.4
Total Nonutility	345,441	1,142,242	3,189,755	1.2	3.5	8.6
Industry	28,626,962	32,180,473	37,161,443	100.0	100.0	100.0

-- = Not applicable.

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

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	0.276	0.305	0.334	88.4	87.4	84.6
Oil	0.001	(s)	(s)	0.2	0.1	0.1
Gas	0.005	0.006	0.006	1.5	1.7	1.4
Nuclear	0.001	--	--	0.2	--	--
Hydro/Other	0.024	0.017	0.016	7.6	4.9	4.1
Total Utility	0.306	0.329	0.356	97.9	94.2	90.2
Total Nonutility	0.007	0.020	0.039	2.1	5.8	9.8
Industry	0.313	0.349	0.395	100.0	100.0	100.0

-- = Not applicable. (s) = Nonzero value less than 0.0005.

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

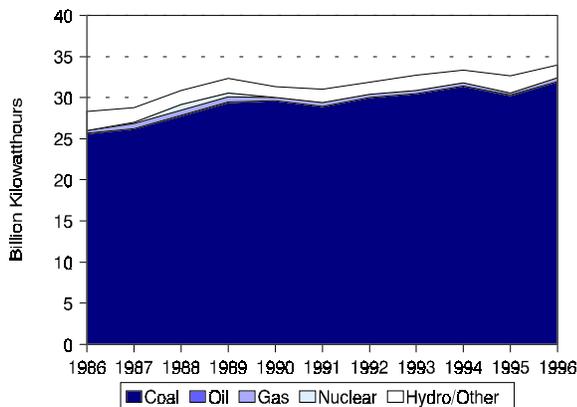


Figure 5. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986-1996

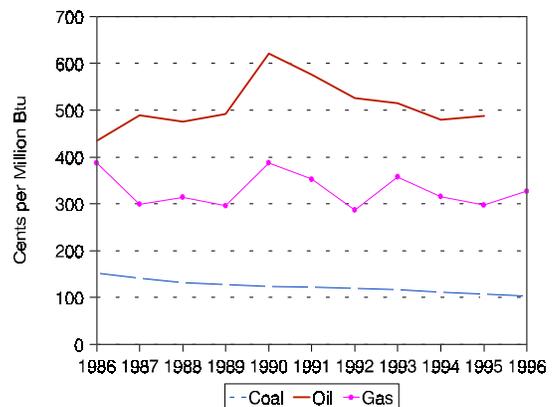


Table 7. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986, 1991, and 1996
(Cents per Million Btu, 1996 Dollars)

Fuel	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Coal	151.7	122.1	102.6	-3.8
Oil	434.8	576.1	--	--
Gas	387.6	241.6	209.8	-6.0

-- = 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	76	85	94	2.1
Nitrogen Oxides ^d . .	132	137	145	0.9
Carbon Dioxide ^d . .	29,016	32,732	37,052	2.5

Figure 6. Estimated Sulfur Dioxide Emissions, 1986-1996

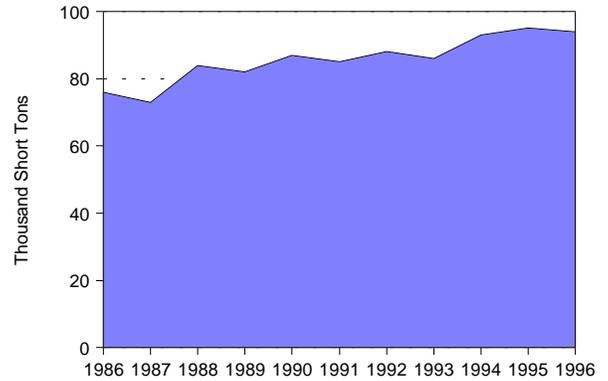


Figure 7. Estimated Nitrogen Oxide Emissions, 1986-1996

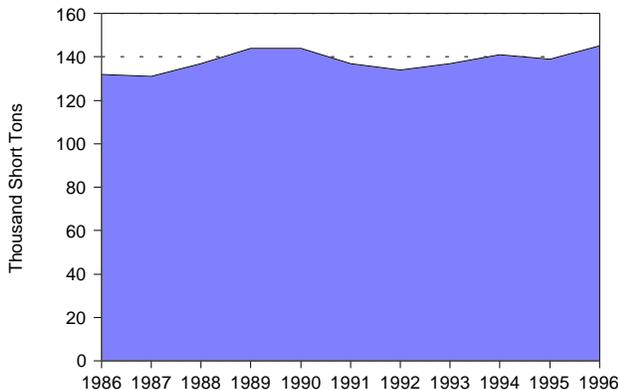


Figure 8. Estimated Carbon Dioxide Emissions, 1986-1996

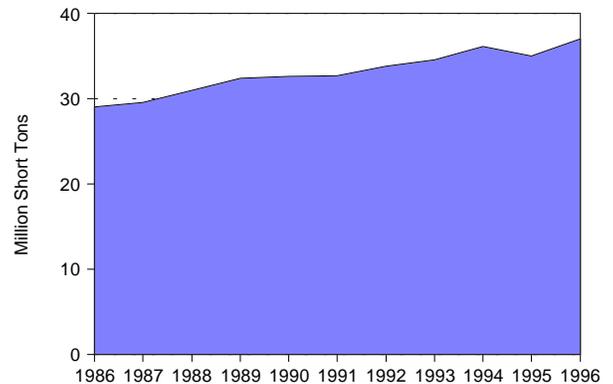


Table 9. Utility Retail Sales by Sector, 1986, 1991, and 1996
(Megawatthours)

Sector	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Residential . .	8,862,719	10,099,387	11,870,577	3.0	32.6	32.1	32.0
Commercial	11,535,371	13,741,501	14,239,275	2.1	42.5	43.7	38.4
Industrial . . .	5,848,193	6,748,179	9,947,015	5.5	21.5	21.5	26.8
Other	914,704	867,621	1,016,108	1.1	3.4	2.8	2.7
Total	27,160,985	31,456,688	37,072,975	3.2	100.0	100.0	100.0

Figure 9. Nuclear Power Capacity Factor Comparison, 1986-1996

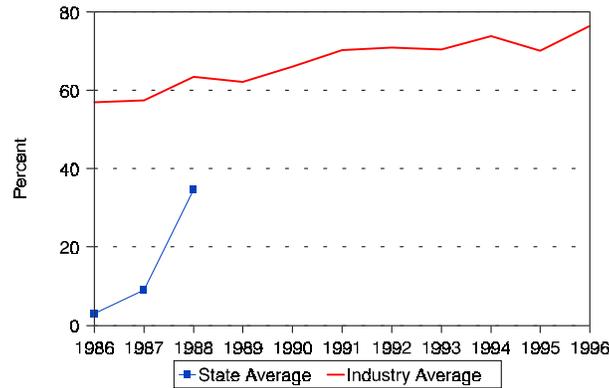


Table 10. Utility Retail Sales Statistics, 1986, 1991, and 1996

Item	Investor-Owned Utility	Public	Federal	Cooperative	Total
	1986				
Number of Utilities	3	30	1	26	60
Number of Retail Customers	994,156	269,510	17	273,840	1,537,523
Retail Sales (MWh)	17,584,724	4,401,306	24,356	5,150,599	27,160,985
Percentage of Retail Sales	64.7	16.2	0.1	19.0	100.0
Revenue from Retail Sales (thousand 1996 \$) ^e	1,362,698	275,193	611	463,668	2,102,348
Percentage of Revenue	64.8	13.1	(s)	22.1	100.0
1991					
Number of Utilities	3	29	1	26	59
Number of Retail Customers	1,107,433	284,580	15	307,636	1,699,664
Retail Sales (MWh)	20,002,998	5,318,872	62,255	6,072,563	31,456,688
Percentage of Retail Sales	63.6	16.9	0.2	19.3	100.0
Revenue from Retail Sales (thousand 1996 \$) ^e	1,325,175	302,287	827	476,503	2,104,895
Percentage of Revenue	63.0	14.4	(s)	22.6	100.0
1996					
Number of Utilities	2	29	1	26	58
Number of Retail Customers	1,195,164	316,383	7	374,347	1,885,901
Retail Sales (MWh)	23,023,230	6,438,507	87,726	7,523,512	37,072,975
Percentage of Retail Sales	62.1	17.4	0.2	20.3	100.0
Revenue from Retail Sales (thousand 1996 \$) ^e	1,396,611	344,608	1,518	501,023	2,243,760
Percentage of Revenue	62.2	15.4	0.1	22.3	100.0

(s) = Nonzero percentage less than 0.05.