

# Maryland

The majority (63 percent) of utility electricity generation in the State of Maryland comes from coal-fired power plants. Roughly 90 percent of the coal used for electricity generation in Maryland comes from the Appalachian coal basin in West Virginia and Pennsylvania, with a small percentage coming from Maryland's own coal deposits.<sup>1</sup> Given the State's proximity to these large coal beds, it is not surprising that three of the five largest plants in the State are in fact coal-fired. Brandon Shores and Herbert Wagner—the fourth and fifth largest plants—are operated by the State's largest and one of the Nation's oldest utilities, Baltimore Gas and Electric (BG&E).

BG&E, along with Potomac Electric Power, Philadelphia Electric, Delmarva Power and Light, and Potomac Edison, operate more than 90 percent of Maryland's net summer capability. These investor-owned utilities (IOUs), along with one smaller IOU, 5 public utilities, and 3 cooperative utilities, generated over 44.4 billion kilowatt-hours of electricity in 1996.

Overall, electricity sales increased between 1986 and 1996. In 1996, utility retail sales were 57.0 billion kilowatt-hours.<sup>2</sup> In 1996, sales were distributed almost equally between the commercial and residential sectors. Maryland is an importer of electricity with a net difference of 10.7 billion kilowatt-hours between generation and sales.

In addition to its largely coal-based generation, Maryland also produces a significant amount of electricity from nuclear power. This power is produced by the State's only nuclear plant, Calvert Cliffs, which is operated by BG&E. Since Calvert Cliffs contributes such

a significant portion of the State's total generation and produces this electricity at a relatively low cost, BG&E became the first utility to formally request a license extension for the 22-year-old plant in 1998.<sup>3</sup> Currently, Unit 1's license is set to expire in 2014 and Unit 2's will expire in 2016. If approved, the request will add an additional 20 years of operating life to the plant.

Unlike some States with nuclear power, Maryland's average revenue per kilowatt-hour of electricity is almost equal to the current national average of 6.86 cents per kilowatt-hour. This may explain why Maryland has not been as aggressive as other States in the move toward deregulation. In fact, legislation to allow retail competition by July 2000 did not progress after being introduced in April 1998. In the meantime, however, the four major IOUs in the State filed requests with the State's Public Service Commission for the recovery of stranded costs. The biggest part of these costs, however, are associated with the license extension request of BG&E for the Calvert Cliffs nuclear plant.<sup>4</sup>

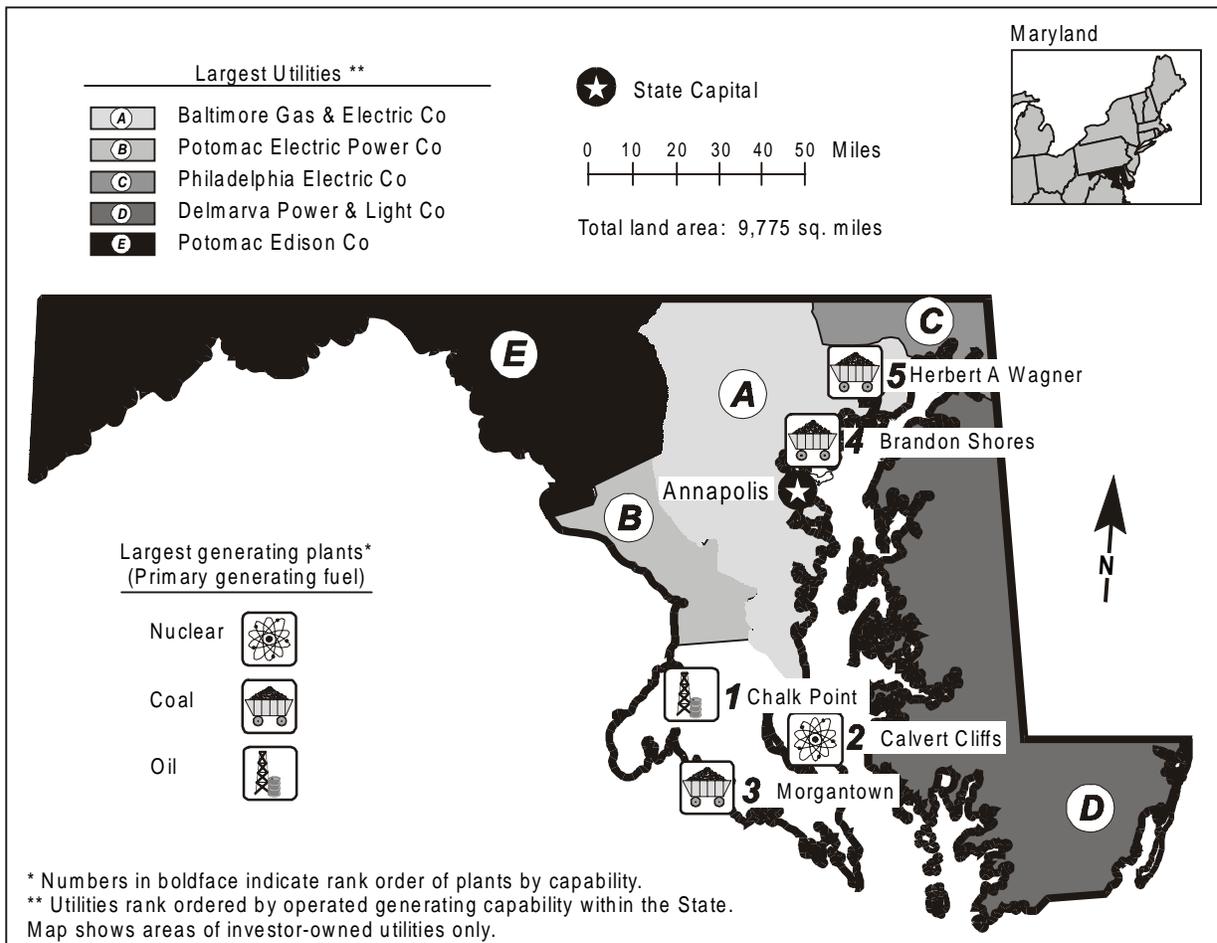
The Clean Air Act Amendments of 1990 cited 2,379 megawatts of nameplate capacity at three Maryland plants to begin compliance with stricter emissions standards for sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>). SO<sub>2</sub> emissions from Maryland generators declined between 1991 and 1996. NO<sub>x</sub> emissions, however, have increased slightly. Carbon dioxide emissions have increased at an average annual growth rate of 5.9 percent since 1986. Maryland's national rankings for the three pollutants ranked sixteen, twenty-four, and twenty-first, respectively, in 1996. However, the concentrations were much higher, ranking fourth, fourth, and second, respectively.

<sup>1</sup> Energy Information Administration, *State Coal Profiles*, DOE/EIA-0576 (Washington, DC, January 1994), p. 51.

<sup>2</sup> Over the past five years, Maryland's customer class has changed dramatically. While commercial sales of electricity have increased at an average annual rate of 9 percent, its industrial sales have decreased by more than 4 percent annually. Much of the shift, however, was the result of a reclassification of customer class between 1994 and 1995 based on information from the Energy Information Administration, *Electric Sales and Revenue 1994*, DOE/EIA-0540(94) (Washington, DC, November 1995), Tables 15 and 16; and, *Electric Sales and Revenue 1995*, DOE/EIA-0540(95) (Washington, DC, December 1996), Tables 15 and 16.

<sup>3</sup> Energy Information Administration, *Challenges of Electric Power Industry Restructuring for Fuel Suppliers*, DOE/EIA-0623 (Washington, DC, September 1998), Chapter 2.

<sup>4</sup> Energy Information Administration, Status of State Electric Utility Deregulation Activity, [http://www.eia.doe.gov/cneaf/electricity/chg\\_str/tab5rev.html](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)		ECAR/MACC	<b>Utility</b>		
Net Exporter or Importer		Importer	Capability (MWe)	10,957	25
State Primary Generating Fuel		Coal	Generation (MWh)	44,380,543	25
Population (as of 7/96)	5,060,296	19	Average Age of Coal Plants	25 years	
Average Revenue (cents/kWh)	6.96	<sup>a</sup> 34	Average Age of Oil-fired Plants	22 years	
<b>Industry</b>			Average Age of Gas-fired Plants	14 years	
Capability (MWe)	11,570	<sup>b</sup> 23	Average Age of Nuclear Plants	20 years	
Generation (MWh)	46,273,487	<sup>b</sup> 23	Average Age of Hydroelectric Plants	52 years	
Capability/person (KWe/person)	2.29	<sup>b</sup> 34	Average Age of Other Plants	--	
Generation/person (MWh/person)	9.14	<sup>b</sup> 37	<b>Nonutility<sup>c</sup></b>		
Sulfur Dioxide Emissions (Thousand Short Tons)	254	16	Capability (MWe)	613	26
Nitrogen Oxide Emissions (Thousand Short Tons)	133	24	Percentage Share of Capability	5.3	27
Carbon Dioxide Emissions (Thousand Short Tons)	41,507	21	Generation (MWh)	1,892,944	31
Sulfur Dioxide/sq. mile (Tons)	26.01	4	Percentage Share of Generation	4.1	31
Nitrogen Oxides/sq. mile (Tons)	13.61	4			
Carbon Dioxide/sq. mile (Tons)	4,246.22	2			

-- = Not applicable.

**Table 2. Five Largest Utility Plants, 1996**

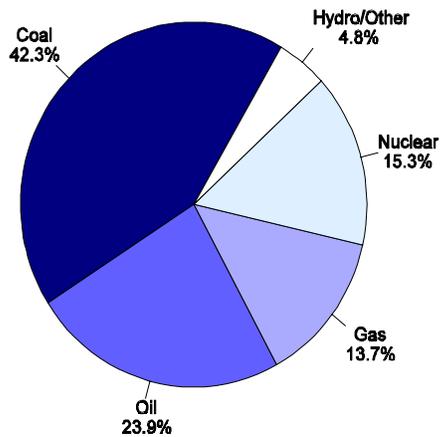
Plant Name	Type	Operating Utility	Net Capability (MWe)
1. Chalk Point .....	Oil/Coal/Gas	Potomac Electric Power Co	2,423
2. Calvert Cliffs .....	Nuclear	Baltimore Gas & Electric Co	1,675
3. Morgantown .....	Coal	Potomac Electric Power Co	1,412
4. Brandon Shores .....	Coal	Baltimore Gas & Electric Co	1,291
5. Herbert A Wagner .....	Coal/Oil/Gas	Baltimore Gas & Electric Co	1,020

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

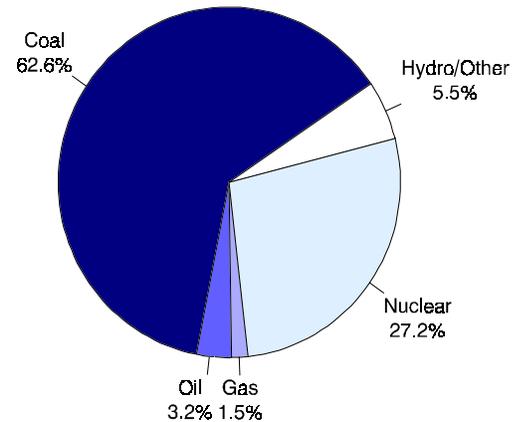
Utility	Net Summer Capability	Net Coal Capability	Net Oil Capability	Net Gas Capability	Net Nuclear Capability	Net Hydro/Other Capability
A. Baltimore Gas & Electric Co . . . .	5,398	2,130	858	735	1,675	--
B. Potomac Electric Power Co . . . . .	4,672	2,393	1,533	746	--	--
C. Philadelphia Electric Co . . . . .	512	--	--	--	--	512
D. Delmarva Power & Light Co . . . . .	178	--	178	--	--	--
E. Potomac Edison Co . . . . .	113	113	--	--	--	--
Total . . . . .	10,873	4,636	2,569	1,481	1,675	512
Percentage of Industry Capability	94.0	--	--	--	--	--

-- = Not applicable.

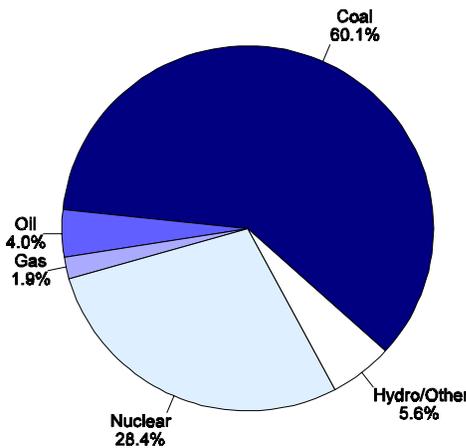
**Figure 1. Utility Generating Capability by Primary Energy Source, 1996**



**Figure 2. Utility Generation by Primary Energy Source, 1996**



**Figure 3. Energy Consumed at Electric Utilities by 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	3,798	4,617	4,636	39.7	43.1	42.3
Oil	3,300	2,427	2,618	34.5	22.6	23.9
Gas	392	1,601	1,498	4.1	14.9	13.7
Nuclear	1,650	1,650	1,675	17.2	15.4	15.3
Hydro/Other	428	428	530	4.5	4.0	4.8
Total Utility	9,568	10,723	10,957	100.0	100.0	100.0
Total Nonutility	W	W	613	--	--	--

-- = Not applicable. W = Withheld.

**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	20,195,452	22,622,989	27,780,141	53.5	59.2	62.6
Oil	2,653,405	3,935,221	1,401,195	7.0	10.3	3.2
Gas	142,199	1,213,523	648,976	0.4	3.2	1.5
Nuclear	12,827,653	9,036,100	12,092,768	34.0	23.6	27.2
Hydro/Other	1,913,704	1,407,287	2,457,463	5.1	3.7	5.5
Total Utility	37,732,414	38,215,120	44,380,543	100.0	100.0	100.0
Total Nonutility	W	W	1,892,944	--	--	--

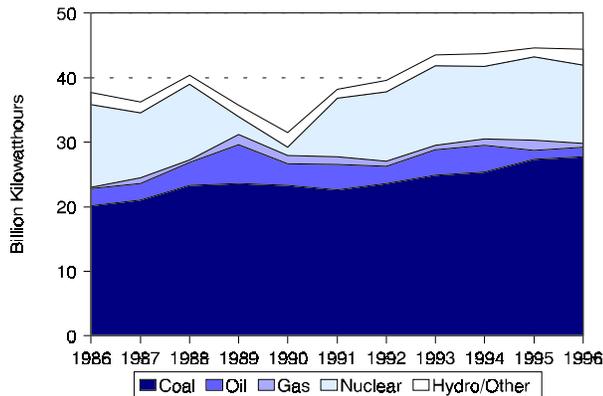
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**Table 6. Electric Power Industry Consumption by Primary Energy Source, 1986, 1991, and 1996 (Quadrillion Btu)**

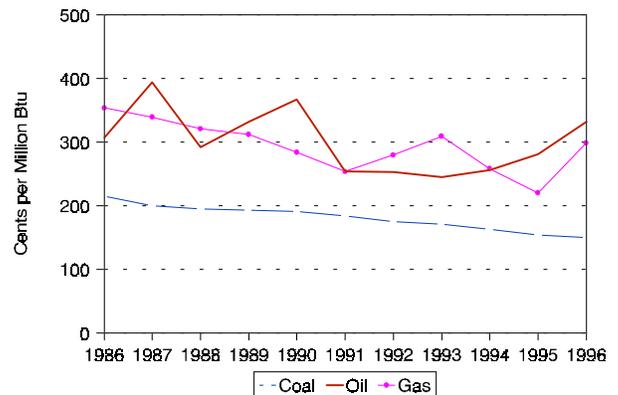
Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	0.202	0.221	0.272	51.3	55.6	60.1
Oil	0.031	0.048	0.018	7.9	12.1	4.0
Gas	0.002	0.017	0.009	0.6	4.2	1.9
Nuclear	0.139	0.097	0.128	35.2	24.4	28.4
Hydro/Other	0.020	0.015	0.025	5.1	3.7	5.6
Total Utility	0.394	0.397	0.452	100.0	100.0	100.0
Total Nonutility	W	W	0.052	--	--	--

-- = Not applicable. W = Withheld.

**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 (1996 Dollars)**



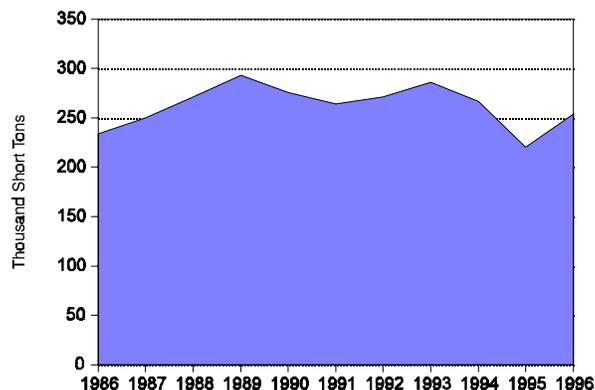
**Table 7. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986, 1991, and 1996**  
(Cents per Million Btu, 1996 Dollars)

Fuel	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Coal . . . . .	215.1	183.7	149.4	-3.6
Oil . . . . .	307.0	254.1	331.6	0.8
Gas . . . . .	353.7	253.8	298.6	-1.7

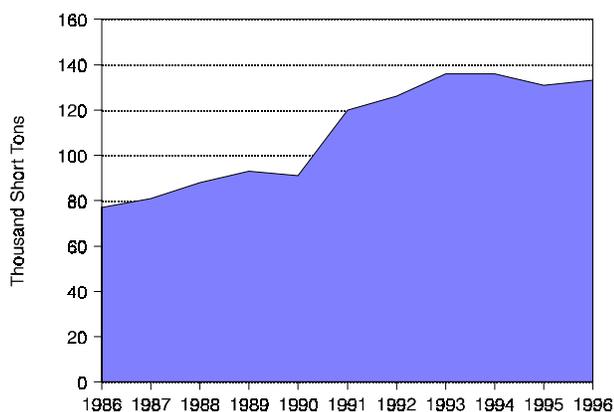
**Table 8. Electric Power Industry Emissions Estimates, 1986, 1991, and 1996**  
(Thousand Short Tons)

Emission Type	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Sulfur Dioxide . . . . .	234	264	254	0.8
Nitrogen Oxides <sup>d</sup> . . . . .	77	120	133	5.6
Carbon Dioxide <sup>d</sup> . . . . .	23,289	35,669	41,507	5.9

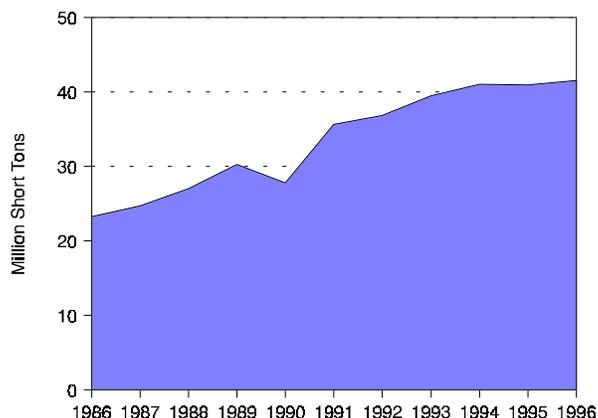
**Figure 6. Estimated Sulfur Dioxide Emissions, 1986-1996**



**Figure 7. Estimated Nitrogen Oxide Emissions, 1986-1996**



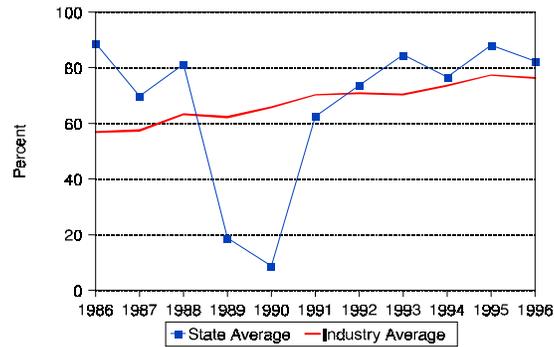
**Figure 8. Estimated Carbon Dioxide Emissions, 1986-1996**



**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 . . . . .	15,819,028	20,295,448	22,985,771	3.8	37.7	39.7	40.3
Commercial . . . . .	9,743,025	10,667,414	23,126,093	9.0	23.2	20.9	40.6
Industrial . . . . .	15,807,583	19,448,116	10,098,448	-4.4	37.7	38.1	17.7
Other . . . . .	590,980	696,831	787,208	2.9	1.4	1.4	1.4
Total . . . . .	41,960,617	51,107,809	56,997,520	3.1	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	5	5	--	3	13
Number of Retail Customers	1,594,942	26,886	--	105,971	1,727,799
Retail Sales (MWh)	39,679,396	480,991	--	1,800,230	41,960,617
Percentage of Retail Sales	94.6	1.2	--	4.3	100.0
Revenue from Retail Sales (thousand 1996 \$) <sup>e</sup>	3,238,510	33,060	--	169,974	3,441,544
Percentage of Revenue	94.1	1.0	--	4.9	100.0
<b>1991</b>					
Number of Utilities	5	5	--	3	13
Number of Retail Customers	1,800,338	29,046	--	127,348	1,956,732
Retail Sales (MWh)	48,029,650	585,960	--	2,492,199	51,107,809
Percentage of Retail Sales	94.0	1.2	--	4.9	100.0
Revenue from Retail Sales (thousand 1996 \$) <sup>e</sup>	3,670,673	36,439	--	206,979	3,914,091
Percentage of Revenue	93.8	0.9	--	5.3	100.0
<b>1996</b>					
Number of Utilities	4	5	--	3	12
Number of Retail Customers	1,925,950	30,571	--	144,888	2,101,409
Retail Sales (MWh)	53,213,765	716,447	--	3,067,308	56,997,520
Percentage of Retail Sales	93.4	1.3	--	5.4	100.0
Revenue from Retail Sales (thousand 1996 \$) <sup>e</sup>	3,680,477	43,226	--	242,432	3,966,135
Percentage of Revenue	92.8	1.1	--	6.1	100.0

-- = Not applicable.