

Maryland Power Plants and the Environment

*A review of the impacts of power plants and
transmission lines on Maryland's natural resources*

December 2003



Table of Contents

Chapter 1 - Introduction	1
Legislative Mandate	1
Power Plant Licensing	3
Chapter 2 - Power Generation, Transmission, and Usage in Maryland	5
Consumption and Generation	5
<i>Consumption</i>	5
<i>Generation: Comparison With Consumption and Future Outlook</i>	9
Restructuring and Competition	10
<i>The Restructured Market - Extending the Transition</i>	12
Composition of Electric Industry	14
<i>Maryland's Electricity Generating Resources</i>	14
<i>Electricity Transmission In Maryland</i>	16
<i>Maryland's Electric Distribution Companies</i>	19
Chapter 3 - Impacts	21
Power Plants and Air Quality	21
<i>Emissions from Power Plants</i>	21
<i>Impacts from Power Plant Emissions</i>	29
<i>Control of Power Plant Emissions</i>	39
Water Impacts	45
<i>Cooling Water Withdrawal and Consumption</i>	45
<i>Ground Water Withdrawals</i>	49
<i>Impacts to Water Quality and Aquatic Biota</i>	52
Terrestrial Impacts	62
<i>Facility Construction and Operation</i>	65
<i>Transmission Line and Pipeline Rights of Way</i>	66
Sociological and Land Use Issues	69
<i>Cultural and Archaeological Resources</i>	69
<i>Nuisance Items</i>	70
<i>Economic Development</i>	75
Radiological Issues	77
<i>Calvert Cliffs Nuclear Power Plant</i>	78
<i>Peach Bottom Atomic Power Station</i>	80
<i>Radioactive Waste</i>	81
Coal Combustion Products	82
<i>Generation/Disposal</i>	82
<i>Beneficial Use</i>	83

Chapter 4 - Fuel Supply Issues	89
Common Fuel Types and Their Availability in Maryland	89
Coal	89
Natural Gas	89
Petroleum	91
Alternative Energy Sources	92
Wind Energy	93
Offshore Wind Energy	95
Solar Energy	96
Biogas	96
Landfill Methane	97
Waste-to-Energy	98
Wood Residues	98
Green Power Initiatives in Maryland	99
State Procurement	99
Renewables Portfolio Standards	99
Nuclear Power	101
Security Issues	102

Appendix A: State Agency Guidelines for Evaluating Multiple Power Plants

Appendix B: Determinants of Electricity Demand Growth in Maryland

Appendix C: Statewide Forecast of Electricity Consumption and Peak Demands in Maryland

Appendix D: Internet Resources



The Power Plant Research Program (PPRP) was established in 1971 to ensure that Maryland could meet its demands for electric power in a timely manner and at a reasonable cost, while protecting the State's valuable natural resources.

PPRP coordinates the State's comprehensive review of new power plants and associated facilities as part of the state and federal licensing process. The Program also conducts a range of research and monitoring projects on existing and proposed power plants. PPRP publishes the Electricity in Maryland Fact Book, which provides information on power generation and use in Maryland. A bibliography listing the general and site-specific reports that PPRP has produced since the early 1970s is also available.

If you want more information, or to request a copy of the Fact Book, bibliography, or other reports, contact PPRP at (410) 260-8660 (toll-free number in Maryland, 1-877-620-8DNR, x8660). You can also email us at pdunbar@dnr.state.md.us, or visit our Web site at: www.dnr.state.md.us/bay/pprp. References are available upon request for all technical topics discussed in this report.