
Introduction

Reliable, reasonably priced electricity is an amenity we have come to expect here in Maryland and throughout our country. But power generation and transmission come with some amount of environmental impact. Like other industrial facilities, power plants can potentially affect water resources, air quality, landscape, and wildlife.

The Maryland Department of Natural Resources (DNR) Power Plant Research Program (PPRP) evaluates how the construction and daily operation of power plants impact Maryland's environmental, economic, and cultural resources. PPRP's legislative mandate calls for the program to explore and clarify these issues, seeking to ensure that the citizens of Maryland can continue to enjoy reliable electricity supplies at reasonable cost and without incurring unacceptable impacts to natural resources.

PPRP is authorized by the Maryland Power Plant Research Act (§3-304 of the Natural Resources Article of the Annotated Code of Maryland) to prepare a Cumulative Environmental Impact Report (CEIR) each biennium. The intent of the CEIR is to assemble and summarize information regarding the impacts of electric power generation and transmission on Maryland's natural resources, cultural foundation, and economic situation.

This report is the thirteenth CEIR (CEIR-13) published by PPRP, and like previous reports, subdivides the report into chapters that provide analysis of resource impacts and topical discussions of current trends. Chapter 2 reviews power generation, transmission, and usage. Chapter 3 discusses the issues and effects of power generation and transmission on air, water, and land. Chapter 4 completes the CEIR with discussions of energy issues.

Legislative Mandate

The Maryland legislature passed the Power Plant Siting Act in 1971 as a result of extensive public debate regarding the potential effects on the Chesapeake Bay from the Calvert Cliffs Nuclear Power Plant and concerns that the State be able to play a significant role in the decision-making process. Calvert Cliffs was a source of concern because the plant uses a once-through cooling system that withdraws 3.5 billion gallons of water per day from the Bay and discharges water back into the Bay with an increase in temperature of roughly 12°F. This and other issues prompted the creation of PPRP to ensure a comprehensive, objective evaluation, based on sound science, to resolve environmental and economic issues before decisions were made regarding whether and where to build additional power generating facilities.

Today, PPRP continues this role by coordinating the comprehensive review of proposed power generation and transmission facilities and by developing technically based licensing recommendations. Consistent with the original statute, PPRP also conducts research on power plant impacts to Maryland's natural resources, including the Chesapeake Bay. In addition to surface water concerns, PPRP evaluates impacts to Maryland's ground water, air, land, and socioeconomics for all proposed power facilities, including new plants, expansions of existing plants, and transmission lines.

Power Plant Licensing

The Maryland Public Service Commission (PSC) regulates construction and operation of power plants and transmission lines. The PSC is an independent commission created by the legislature with commissioners appointed by the Governor for set terms.

An entity planning to construct a generating facility or a transmission line — or modify an existing facility or transmission line — must receive a Certificate of Public Convenience and Necessity (CPCN) from the PSC before beginning construction.* Applications for a CPCN are reviewed before a Hearing Examiner in a formal adjudicatory process that includes written and oral testimony, cross examination, and the opportunity for full public participation. The CPCN constitutes permission to construct the facility and incorporates several required permits, including air quality and water appropriation (see table in Appendix A). The broad authority of the PSC allows the comprehensive review of any pertinent issues and was designed in 1971 to be a “one-stop shop” for power plant licensing.

The CPCN licensing process provides an opportunity for the State to examine all the significant aspects and impacts of a proposed power facility, including the interrelations between various impacts and cumulative effects. This is a unique process within the State’s regulatory framework. The CPCN mechanism recognizes the fact that electricity is a vital public need, while its generation and transport can potentially impact natural and cultural resources. If a CPCN is approved and granted, it normally contains a set of conditions under which the proposed facility can be built and operated with a minimum of adverse impact. In many instances, these conditions go beyond regulatory requirements to incorporate creative measures for mitigating potential facility impacts, often as stipulations agreed to by the applicant and other parties.

If multiple facilities are located in close proximity, or are proposed in close proximity to each other or to existing plants, PPRP includes cumulative impacts within the consolidated review process. In such a case, impacts to air, water, terrestrial, land use, and other resources would be evaluated and compared to any identified thresholds of acceptability. Additionally, the cumulative analysis would identify any additional licensing conditions needed to address cumulative impacts due to multiple plant applications.

A distinguishing feature of CPCN licensing is the high degree of interagency coordination involved. The State’s consolidated review of a proposed power facility culminates in a set of licensing conditions, developed by PPRP in concert with the Departments of Natural Resources, Environment, Agriculture, Business and Economic Development, Planning, and Transportation, and the Maryland Energy Administration. PPRP coordinates the development of a consolidated set of recommended conditions and presents the conditions, along with supporting analysis, to the PSC on behalf of the State agencies.

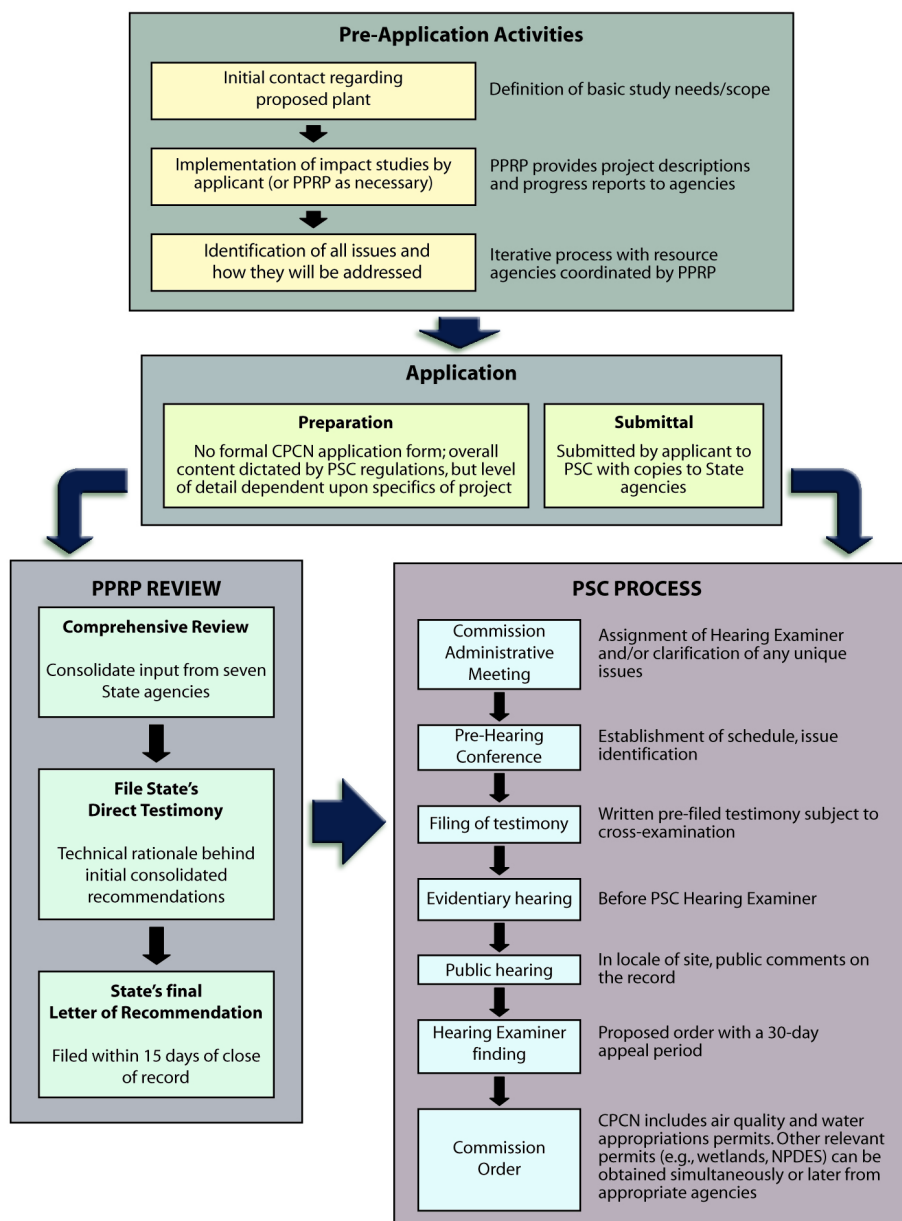
Figure 1-1 illustrates the elements of the CPCN licensing process.

* Generating facilities with electric output capacity greater than 373 kilowatts and transmission lines greater than 69 kilovolts typically require CPCNs. Exemptions are available for certain limited generators of power to be used on site (see discussion of distributed generation starting on page 2-20 of this report).

Pre-application and Application. When a company is considering developing a new generating station or transmission line, PPRP meets with representatives of the potential applicant to determine whether and how all relevant concerns will be addressed and to ensure that the applicant understands the PSC regulations and procedures. Once the applicant has decided to submit an application, PPRP prepares a project description and summary of key issues to inform the other State agencies and the public at large. By the time the applicant files for a CPCN, there has been a significant amount of dialogue and, often, the applicant has established that it is likely the proposed facility can obtain a CPCN, pending the development of recommended conditions. Through a diligent and thorough pre-application process, a potential developer can limit the risk of submitting an unsuccessful CPCN application, or make changes during the preliminary design to minimize certain impacts.

PSC Process and PPRP Review. After preliminary administrative matters to identify a Hearing Examiner and establish an overall procedural schedule, including a discovery phase, the adjudicatory process commences with filing of direct testimony from the applicant, summarizing the impact analyses that have been done and providing the basis for the applicant’s request for a CPCN. PPRP and any other parties that have intervened in the process may cross examine this testimony and present their own analyses in direct testimony. PPRP’s testimony, presented on behalf of the various State agencies, typically presents initial recommended licensing conditions. Other intervening parties, including the PSC Staff, Office of People’s Counsel (a State agency charged with protecting the interests of electricity ratepayers), and citizens’ groups, can prepare direct testimony and present their opinions and arguments as

Figure 1-1
The CPCN Licensing Process



well. The Hearing Examiner takes into consideration the recommended license conditions, testimony, and briefs filed by the State, the applicant, and any other parties, and issues a decision in the form of a proposed order on whether the CPCN should be granted and under what conditions. After a period during which an appeal can be made to the full Commission, a final order is released granting or denying the application.

CEIR-13 Report Highlights

This report provides a comprehensive overview of issues related to power plants in Maryland. Some of these topics have been under review for decades, though the scientific understanding continues to progress. Other areas have gained prominence more recently in response to new advances in technology, economic or policy changes, and power industry restructuring. Highlighted below are a few issues that are discussed in more detail within this report.

Renewable Energy Resources. The use of renewable resources such as biomass, solar, wind, and hydroelectric energy continues to expand in Maryland. These types of generating technologies are generally cleaner than conventional power plants burning fossil fuels, and can diversify Maryland's fuel mix. Each has its own set of potential drawbacks, whether related to environmental impact, cost, or other factors, and proposals must be carefully evaluated as with any new generating facility. The contribution of renewable energy sources to Maryland's

overall generation mix is quite small; however, the State has passed legislation that would require electricity suppliers in Maryland to obtain an increasing percentage of their power from renewables. *[More information on page 4-8]*

Interagency Coordination in Addressing Power Plant and Energy Issues

The State's consolidated review of power plants and transmission lines provides an important opportunity for coordination within State government. As the entity that represents seven State agencies before the PSC during the licensing process, PPRP serves as a central point of contact. PPRP staff communicate with other agencies to help ensure that all issues are identified, and the program undertakes impact evaluations with input and involvement of those agencies. Through the development of a consolidated set of recommended licensing conditions, the CPCN process is a valuable tool for bringing together the perspectives of various government bodies and evaluating them within a common framework. The result is more effective decision making.

One interesting example of this consolidated approach is the State's development of multiple plant evaluation guidelines. In the spring of 2002, several power plant developers proposed new plants in southern Frederick County and northwestern Montgomery County. The sites under consideration were all located within about 25 miles (or 40 kilometers) of each other. Three of these projects — the Mirant Dickerson expansion, the Sempra Energy facility at the Eastalco site near Frederick, and the Duke Energy facility in Adamstown — proceeded to the licensing stage (Mirant and Sempra have now obtained CPCNs, while Duke withdrew its application).

The Secretaries of the State agencies involved in the power plant review process expressed concern regarding the potential for cumulative impacts to resources such as water supply, air quality, and cultural resources, and asked the PSC for the opportunity to develop guidelines for assessing impacts from "clusters" of proposed facilities. The Agency Secretaries convened a Task Force in June 2002 and developed a set of guidelines for evaluating such power plant clusters. The guidelines, submitted to the PSC in December 2002, address site suitability in situations where multiple power plants are proposed in close proximity to one another. This consolidated approach was made possible under the statutory guidance of the Power Plant Siting Act and PPRP's coordination role.

Renewed Interest in Nuclear Power. Nuclear power generation provides abundant and reliable energy. Because nuclear power plants do not burn fossil fuels (oil, natural gas, coal) to generate electricity, they do not emit harmful particulates and greenhouse gases. Several electric power companies nationwide, including Constellation Energy, have been collaborating to investigate the feasibility of constructing additional new nuclear reactors. The U.S. Congress recently passed energy legislation that provides incentives to promote the licensing and construction of new nuclear power plants, including provisions to enhance security and extend accident liability protection. *[More information on page 4-6]*

Regulations Limiting Air Emissions. As a result of evolving federal policies, many large power plants will need to install state-of-the-art emission controls either because of regulatory requirements or because it is economically attractive to do so. The U.S. Environmental Protection Agency (EPA) promulgated two new major regulations in March 2005 targeting power plant emissions of sulfur dioxide, nitrogen oxides, and mercury. These regulations will affect all of the coal-fired plants in Maryland, and are expected to result in reduced emissions within the state. *[More information on page 3-17]*

Transmission Line Construction and Upgrades. Due to significant electrical load growth within Maryland, particularly in central and western counties, electric utilities have indicated that the transmission and distribution system is in need of reinforcement to maintain reliable service to area customers. Coupled with reliability issues, major outages that occurred in 2003 as a result of severe weather-related events also highlighted the need for transmission stability and integrity throughout the state. As a result, after having been relatively dormant for several years, transmission line licensing has been quite active during 2004-2005. Transmission line projects can involve potential ecological impacts associated with linear facilities crossing streams and wetlands, as well as potential impacts to cultural resources. *[More information on pages 2-14 and 3-55]*

Implications of Energy Policy Act of 2005. On 8 August 2005, President Bush signed into law the first national energy plan in more than a decade. The Act addresses numerous aspects of energy production, consumption, efficiency, reliability, research and development, and technology and affects consumers, producers, government, and regulatory bodies. Various provisions of the Act affect States' roles, particularly regarding licensing issues. The following key provisions of the Act relevant to the State of Maryland are discussed as sidebars throughout the CEIR.

- *Extended Daylight Saving Period in 2007 (page 2-1)*
- *Energy Efficiency and Energy Assistance (page 2-4)*
- *Repeal of Public Utility Holding Company Act of 1935 (page 2-6)*
- *Amendments to the Public Utilities Regulatory Policy Act of 1978 (page 2-12)*
- *ReliabilityFirst (page 2-17)*
- *Greenhouse Gas Emissions (page 3-23)*
- *Facilitating Transmission Rights-of-Way (page 3-55)*
- *Clean Coal and Gasification Projects (page 4-2)*
- *LNG Facility Siting (page 4-4)*
- *Implications for Nuclear Energy (page 4-8)*
- *Hydroelectric Licensing Process (page 4-10)*
- *Incentives for Renewable Energy (page 4-16)*
- *Renewable Energy Purchasing (page 4-18)*

