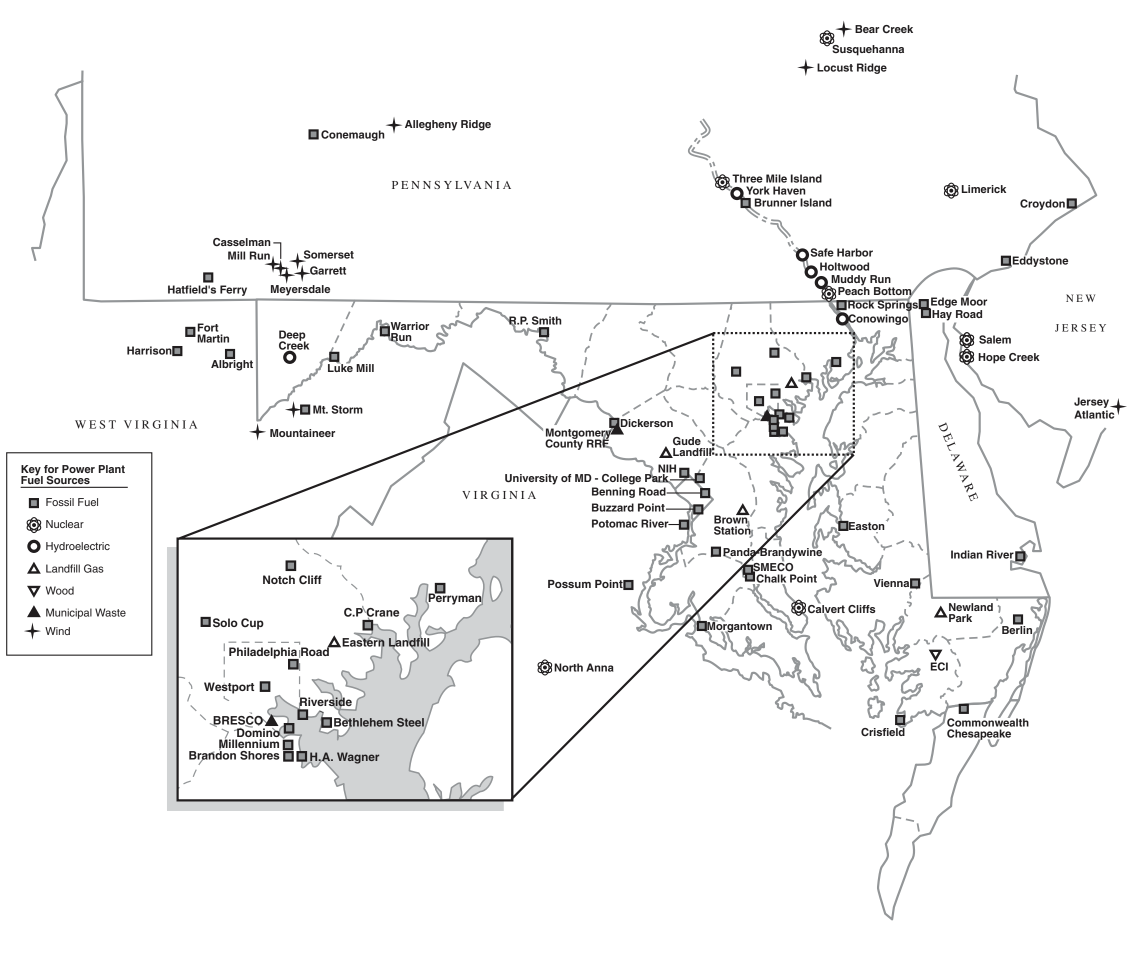
Power Generation, Transmission, and Use

As a basis for discussing the impacts of power plants in Maryland, it is helpful to understand how electricity is generated, transmitted, and used within the state. This chapter provides information on the electric industry in Maryland, from generation to end usage, as well as how supply and demand dynamics affect price.

Electricity Generation in Maryland

Currently in Maryland, 37 power plants with generation capacities greater than 2 megawatts (MW)* are interconnected to the transmission grid. The individual power plant sites are listed in Table 2-1 and locations are shown in Figure 2-1. In aggregate, Maryland power plants represent approximately 13,500 MW of

Figure 2-1
Power Plant Locations In and Around Maryland



* 2 MW is equal to 2 million watts, enough power to support approximately 2,000 homes or light both Camden Yards and Ravens Stadium simultaneously.

operational capacity. The largest portion of Maryland's generating capacity comes from fossil fuel (see Figure 2-2), with the remainder coming from nuclear and renewables.

Table 2-1. Operational Generating Capacity in Maryland (>2 MW)

Owner	Plant Name	Fuel Type	Nameplate Capacity (MW)
INDEPENDENT POWER PRODUCERS			
AES Enterprise	Warrior Run	Coal	229
Allegheny Energy Supply	R. P. Smith	Coal	110
Baltimore Refuse Energy Systems Co.	BRESCO	Waste	65
Brookfield Power	Deep Creek	Hydroelectric	20
Conectiv Energy Supply	Crisfield	Oil	10
Constellation Generation Group	Brandon Shores	Coal	1,370
	Calvert Cliffs	Nuclear	1,829
	C. P. Crane	Coal	416
	Notch Cliff	Natural Gas	144
	Perryman	Oil/Natural Gas	404
	Philadelphia Road	Oil	83
	Riverside	Oil/Natural Gas	244
	H. A. Wagner	Coal/Oil/Natural Gas	1,059
	Westport	Natural Gas	121
INGENCO	Newland Park Landfill	Landfill Gas/Diesel	6
Mirant	Chalk Point	Coal/Natural Gas	2,563
	Dickerson	Coal/Natural Gas	930
	Morgantown	Coal	1,548
Montgomery County	Resource Recovery Facility	Waste	68
	Gude Landfill	Landfill Gas	3
NRG	Vienna	Oil	183
Panda Energy	Brandywine	Natural Gas	289
Pepco Energy Services	Eastern Landfill	Landfill Gas	4
	National Institutes of Health	Natural Gas	23
Prince George's County	Brown Station Road	Landfill Gas	7
Suez Energy North America	Millennium Hawkins Point	Oil/Natural Gas	11
	University of Maryland – College Park	Oil/Natural Gas	27*
Susquehanna Power Co. and Exelon Generation Co.	Conowingo	Hydroelectric	550
PUBLICLY OWNED ELECTRIC COMPANIES			
Berlin	Berlin	Oil	9
Easton Utilities	Easton	Oil	69*
Old Dominion Electric Cooperative	Rock Springs	Natural Gas	770
Southern Maryland Electric Cooperative	Chalk Point Turbine	Natural Gas	84
SELF-GENERATORS			
American Sugar Refining Co.	Domino Sugar	Oil/Natural Gas	18
MD Department of Public Safety and Corrections	Eastern Correctional Institution (ECI) Cogeneration Facility	Wood Waste	4
Mittal Steel	Sparrows Point	Natural Gas/BlastFurnace Gas	120
New Page	Luke Mill	Coal/Black Liquor	65
Solo Cup	Solo Cup – Owings Mills	Natural Gas	11
Total			**13,466**

* Facilities comprised of multiple units, with each individual unit less than 25 MW.

Fossil Fuels

Fossil fuel-fired power plants comprise approximately 80 percent of Maryland's total installed capacity. The primary fuel used for electricity production in Maryland is coal.

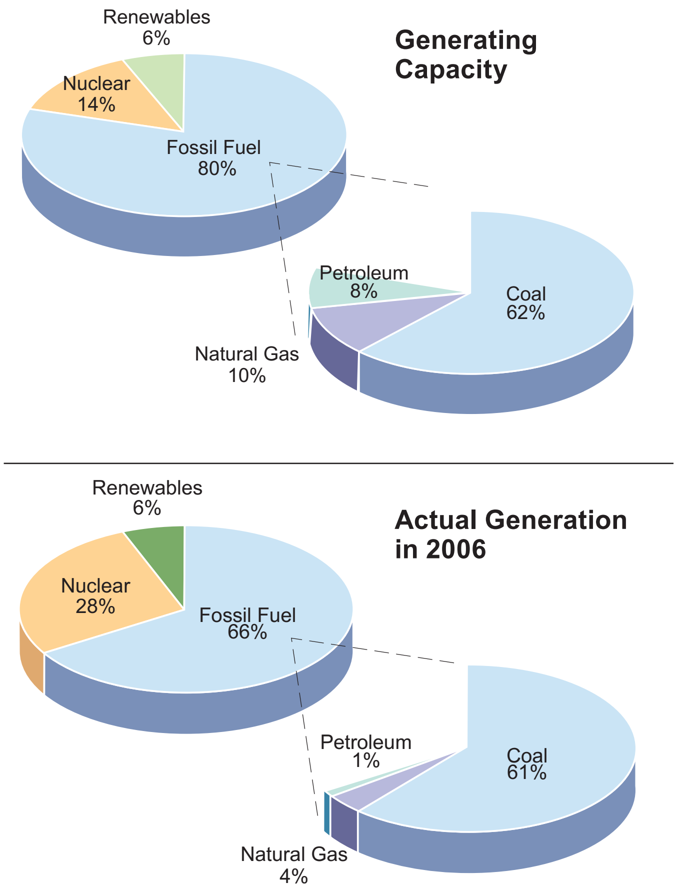
Coal

Of the eight power plants in Maryland that burn coal, only one of them — Warrior Run — exclusively uses coal mined in Maryland. A portion of the coal burned at the R.P. Smith plant also comes from Maryland mines, supplemented by Pennsylvania coal. Most Maryland power plants cannot efficiently burn coal mined in the state because they were designed for coal with higher volatility characteristics. Based on 2006 data (the most recent figures available), more than 50 percent of the coal burned in Maryland plants was mined in West Virginia. Table 2-2 lists the amount of coal burned at each power plant and the state or country of origin.

Natural Gas

In 2006, about 13 billion cubic feet of natural gas was used for electricity generation in the state of Maryland, representing about 7 percent of total statewide consumption for all uses. Because natural gas reserves in Maryland are minimal and uneconomical to extract, virtually all natural gas used in Maryland is imported. Maryland receives bulk natural gas from several pipelines that

Figure 2-2
Power Plant Capacity and Generation in Maryland by Fuel Category



Source: Energy Information Administration

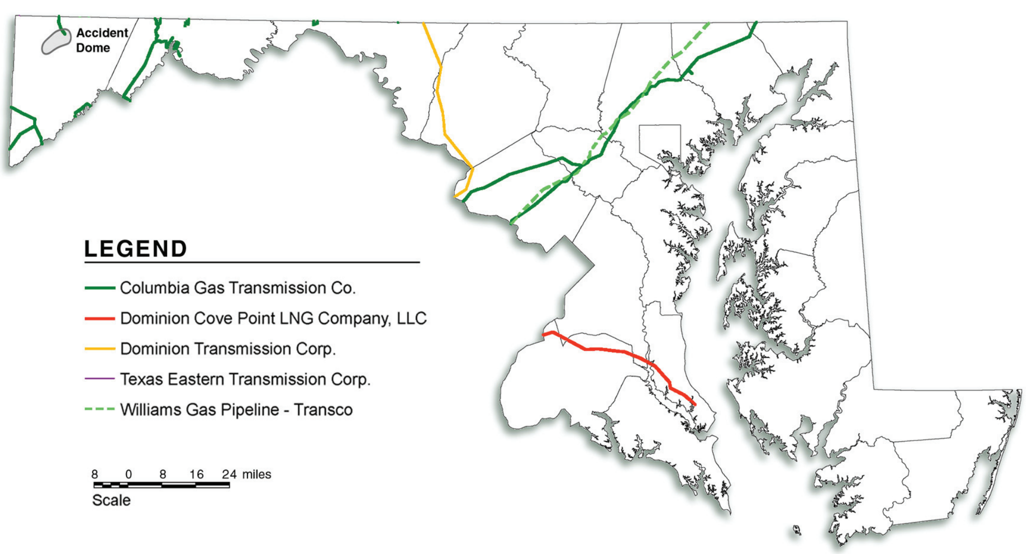
Table 2-2. Tons of Coal Purchased by Maryland Power Plants in 2006

Origin of Coal	Brandon Shores	H.A. Wagner	C.P. Crane	Dickerson	Chalk Point	Morgantown	Warrior Run	R. Paul Smith	TOTAL BY STATE/ COUNTRY	% BY STATE/ COUNTRY
West Virginia	3,032,632	1,200,833	169,105	1,146,979	556,146	553,598			6,659,293	54.6%
Pennsylvania			547,815	49,803	893,044	2,478,201		210,621	4,179,484	34.3%
Maryland							648,022	85,154	733,176	6.0%
Russia	308,588	49,641							358,229	2.9%
Colombia	160,351	22,000							182,351	1.5%
Venezuela	43,727								43,727	0.4%
Virginia					25,143				25,143	0.2%
Kentucky	9,745								9,745	0.1%
Total Coal by Plant	**3,555,043**	**1,272,474**	**716,920**	**1,196,782**	**1,474,333**	**3,031,799**	**648,022**	**295,775**	**12,191,148**	

traverse the state (see Figure 2-3). Interstate gas suppliers operate storage areas, usually in depleted production fields, where natural gas can be accumulated during low demand periods and released during high demand periods. Maryland has one such storage area, Accident Dome in Garrett County, with a storage capacity representing 2 percent of the underground gas storage capacity in our region (the states of Maryland, New Jersey, Pennsylvania, Virginia, and West Virginia). Other potentially suitable sites may exist in Western Maryland.

Rising natural gas prices over the past two years have stimulated the construction of new terminal capacity to import liquefied natural gas (LNG). Recognizing these natural gas market conditions, a number of energy companies are working to develop new facilities for LNG importation. The total capacity of U.S. LNG receiving terminals is expected to increase from 1.4 trillion cubic feet in 2005 to 6.5 trillion cubic feet in 2030. In Maryland, the Cove Point facility, one of five existing U.S. LNG import facilities, began accepting new deliveries of LNG in the late summer of 2003 and recently completed an expansion that nearly doubled the capacity of the facility to an output of 1.8 billion cubic feet per day. In addition, AES Corp. is seeking approval for a new LNG terminal at Sparrows Point in Baltimore County.

Figure 2-3
Interstate Natural Gas Pipelines in Maryland



Development of new receiving ports will allow domestic markets to access additional supplies of natural gas from other parts of the world. The capability to import LNG expands the potential sources of supply, which would otherwise be limited to reserves in the United States and Canada.

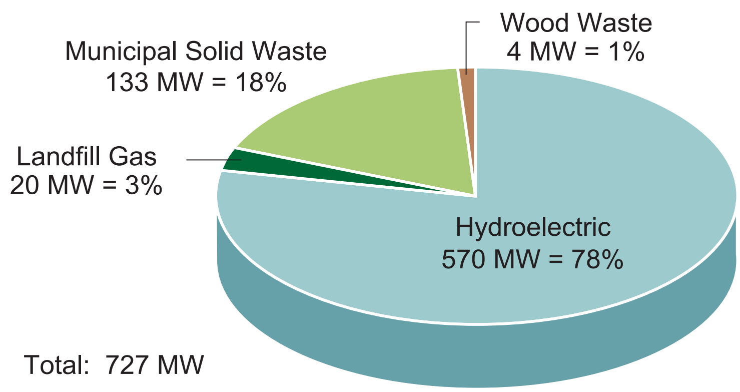
Petroleum

A small amount of electricity — about 1 percent of the state's total — is generated by combusting distillate or residual fuel oil. According to the U.S. Energy Information Administration, fuel oil consumption for electric power in Maryland totalled 260 million gallons for 2005, or about 20 percent of statewide consumption for all uses. Since there are no crude oil reserves or refineries in the state of Maryland, all supplies of petroleum necessary to meet the state's consumption needs are imported. Petroleum is transported via barge to the port of Baltimore and via the Colonial Pipeline. The Colonial Pipeline, a major petroleum products pipeline, traverses the state on its way to New York. Mirant also obtains fuel oil for its Chalk Point and Morgantown plants through its Piney Point terminal in St. Mary's County.

Renewables

There is growing interest in Maryland to encourage the use of renewable resources for generating electricity. Currently, a little over 700 MW of generation capacity come from renewable resources, with hydroelectric accounting for the largest share of this (see Figure 2-4). Three wind power projects totaling 180 MW have received approvals for construction in Garrett and Allegany Counties, although none has begun construction. Additional information on Maryland's renewable resources is provided in Chapter 3 (see page 35).

Figure 2-4
Renewable Capacity in Maryland



Note: Figure does not include black liquor, a biomass-based fuel that is co-fired with coal at the New Page facility in Luke, MD.

Nuclear

Maryland is home to one nuclear power facility, Constellation Energy's Calvert Cliffs plant. In March of 2000, Calvert Cliffs became the first nuclear power plant in the U.S. to be granted a license extension when the Nuclear Regulatory Commission approved a 20-year extension to the original operating licenses for Units 1 and 2. The units' licenses will expire in 2034 and 2036, respectively. This 1,829 MW facility alone accounts for approximately 14 percent of the state's total electricity generation capacity and 28 percent of the state's generation in 2006.

Possible Calvert Cliffs Expansion

The U.S. nuclear power industry has been at a standstill since the Three Mile Island accident in 1979 — but that appears to be changing. Higher wholesale market prices combined with improvements in nuclear plant design and increasing concern over greenhouse gases are leading investors and power companies to consider building new nuclear facilities. Furthermore, as part of the Energy Policy Act of 2005, Congress provided $3.1 billion in tax credits for new nuclear facilities, along with liability protection and compensation for legislative delays. There are pros and cons to nuclear power and, while the issue has yet to be fully engaged, some look favorably on the role of nuclear power in slowing the rate of climate change. Others, however, believe that these same climate issues may be better addressed by building large natural gas-fired facilities to continue to meet demand in the short term while a major national effort is made to strengthen conservation and alternative energy solutions over the long term, avoiding ongoing concerns about public safety, security, and radioactive waste disposal.

Constellation Energy, which owns and operates a nuclear facility in Calvert County, has been evaluating an expansion of its Calvert Cliffs facility for several years. UniStar Nuclear, a collaboration of AREVA, Bechtel, and Constellation, has submitted a partial application to the Nuclear Regulatory Commission for constructing Calvert Cliffs Unit 3, a new 1,600 MW nuclear reactor unit on the same power plant site, just south of the two existing units. The AREVA reactor would be one of the largest single unit reactors in the world, and its addition to the existing Calvert Cliffs site would nearly double the site generating capacity.

The proposal of a new nuclear facility in Maryland will bring with it siting, environmental, health, and community issues that will need to be addressed as part of the licensing processes overseen both at the federal level by the Nuclear Regulatory Commission (NRC) and at the State level as part of a licensing proceeding before Maryland's Public Service Commission (PSC). Federal licensing of a new nuclear facility will address the site suitability, technology selection and safety, environmental impacts, and waste disposal. The State has an opportunity to comment on the federal licensing process as an intervenor and participant in the case. The State PSC review is separate from NRC licensing and serves an important role in addressing issues specific to Maryland. As with any proposed power plant, PPRP is responsible for providing a consolidated set of recommendations to the PSC based on a comprehensive review of issues to protect the interests of the State.

Distributed Generation

Distributed generation is defined as generating resources located close to or on the same site as the facility using the power. This includes both facilities that are not connected to the grid, and those that are tied into the grid to allow the sale of electricity in excess of on-site requirements. On-site generators with capacity less than 373 kW are not required to apply to the PSC for a CPCN. In addition, certain generators are eligible to apply for a CPCN exemption:

- *facilities with a capacity of less than 70 MW, consuming at least 80 percent of the electrical output on-site; and*
- *facilities less than 25 MW in capacity, consuming at least 10 percent of the electrical output on-site.*

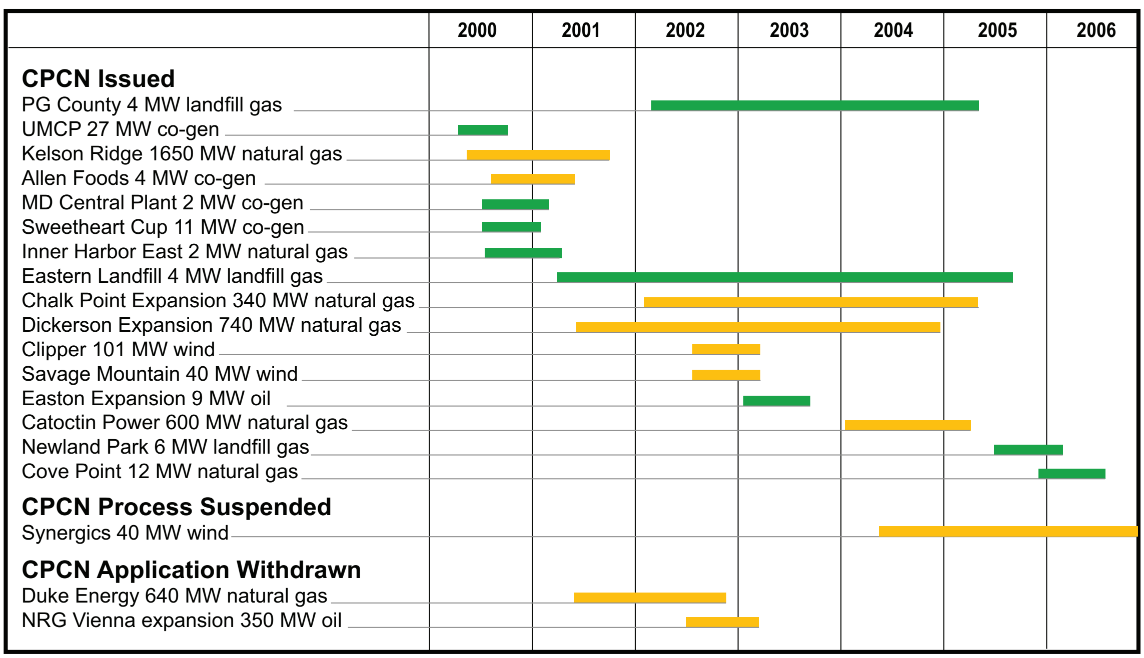
Most on-site systems are used to supply emergency power but there are instances where these units are being operated as part of load management and load response programs. According to the PSC's 10-Year Plan released in 2006, Maryland has exempted a total of 259 units from the CPCN requirement, representing 346 MW of capacity.

New and Proposed Power Plant Construction

Over the past seven years, 19 proposed power plants have initiated the Certificate of Public Convenience and Necessity (CPCN) process, of which 16 completed the Public Service Commission's (PSC) regulatory review process and were issued a CPCN. This represents a combined capacity of 2,468 MW (Figure 2-5). Of the 16 CPCNs issued, nine facilities went forward with construction and are now operational. The other plants were not constructed due to various commercial and financial reasons. In its letter to the PSC, developers for the Kelson Ridge and Duke Energy projects noted they were no longer pursuing development of their projects due to wholesale market conditions. Several of these projects are still considered viable. For example, the Kelson Ridge site has recently been purchased and the new owners intend to develop the site as a new generation facility.

The process by which new power plants are proposed and developed changed as a result of the move to retail competition and electricity restructuring. Maryland's utilities are no longer responsible for building new generation. Resource planning is now a function of the regional electricity market, driven by economics and price signals. High prices that result from tight supply markets attract investors and developers; low prices that result from over-supplied markets

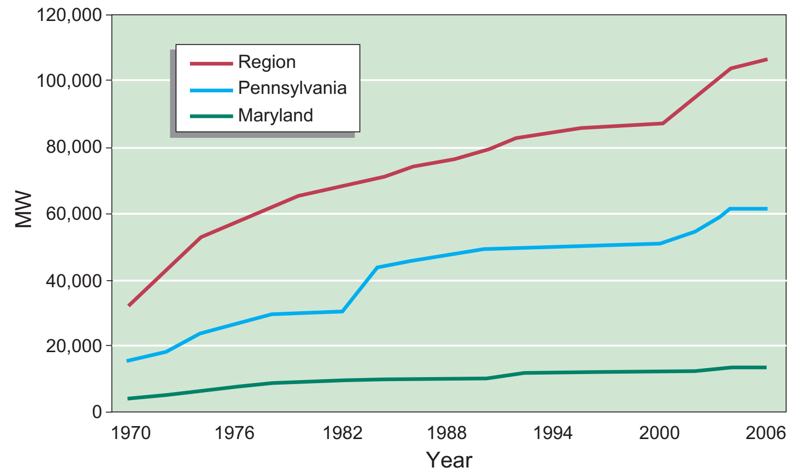
Figure 2-5
CPCN Requests, 2000-2006



Bar length indicates the duration of the CPCN process from the time the application was filed to the time it was withdrawn or a PSC order was filed. Bar coloring indicates whether the project is now in operation:
= Project is operational
= Project is not operational

discourage investors from entering the market. This trend produces a situation where many power plants are proposed and built in a short time frame followed by a period where few plants are built. The PJM region experienced a boom in power plant development between 1999 and 2003.

Figure 2-6
Regional Installed Capacity



Note: Regional states include Maryland, Delaware, New Jersey, Pennsylvania, Virginia, West Virginia, and the District of Columbia.

Figure 2-6 shows the combined amount of capacity on-line for the states of Maryland, Delaware, New Jersey, Pennsylvania, West Virginia, and the District of Columbia. The smooth upward slope between 1970 and 1990 demonstrates the effect of utility resource planning and capacity additions reflecting projected load growth. In the late 1990s, with the transition to a restructured market (see discussion starting on page 17) and increased reliance on independent power producers, the amount of new capacity leveled off and then rose steeply before leveling off again in 2004. In 2002 the wholesale power prices were unusually low, making some projects uneconomic. Projects that had started construction prior to the decrease in wholesale markets went on-line by 2004, after which there was a slowdown in new facilities coming on-line in the region.

With the majority of new facilities being developed to the west of the major load centers of Washington, Baltimore, Philadelphia, and New York, it has become increasingly difficult and expensive to transport electricity over congested transmission lines. After several years of relatively little activity in the siting of major power plant facilities in Maryland, there is now new interest by investors and project developers to build generating facilities in the state, closer to major load centers. Table 2-3 lists potential generating capacity additions around the state.

Table 2-3. Potential Generating Capacity Additions in Maryland

Project	Developer	Location (County)	Primary Fuel	Capacity (MW)
Berlin	Town of Berlin	Worcester	No. 2 Oil	15
Calvert Cliffs	UniStar	Calvert	Nuclear	1,600
Catoctin	Sempra	Frederick	Natural Gas	600
Chalk Point	Mirant	Prince George's	Natural Gas	340
Criterion	Clipper	Garrett	Wind	100
CPV St. Charles	CPV Maryland, LLC	Charles	Natural Gas	600
Dan's Mountain	U.S. WindForce	Allegany	Wind	70
Easton	Easton Utilities	Talbot	No. 2 Oil/ Natural Gas	9
Gould Street	Constellation	Baltimore	Natural Gas	100
Perryman	Constellation	Harford	Natural Gas	640
Riverside	Constellation	Baltimore	Natural Gas	300
Roth Rock	Synergics	Garrett	Wind	40
Savage Mountain	U.S. WindForce	Garrett	Wind	40

Electricity Distribution

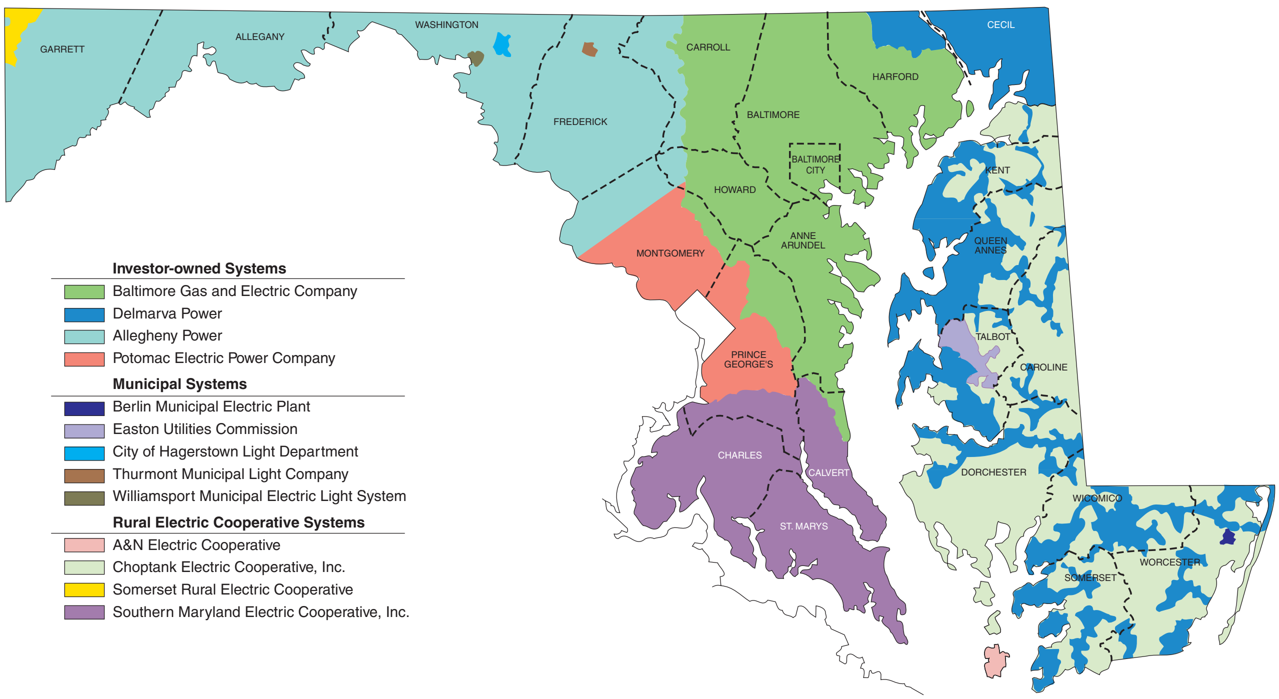
There are 13 utilities distributing electricity to customers in Maryland (see Table 2-4). Four of these are large investor-owned electric companies organized as for-profit, tax-paying businesses. They are owned by three holding companies — Allegheny Power; Baltimore Gas and Electric; and Pepco Holdings, which owns Delmarva Power and Potomac Electric Power Company. Maryland's investor-owned utilities serve approximately 90 percent of the customers in the state. Five utilities are owned and operated by municipalities providing local distribution to a specific area. Four utilities are electric cooperatives, serving generally less populated rural areas. The service territories for the state's distribution companies are illustrated in Figure 2-7.

Table 2-4. Maryland Electric Distribution Companies

Company	Maryland Service Area	Number of Maryland Customers
	INVESTOR-OWNED	
Allegheny Power	Allegany, Garrett and Washington Counties, and portions of Carroll, Frederick, Howard, and Montgomery Counties	244,000
BGE	Baltimore City, Anne Arundel and Baltimore Counties, and portions of seven counties surrounding Baltimore City	1,218,000
Delmarva Power	Portions of the 8 Eastern Shore counties and portions of Cecil and Harford Counties	203,000
Pepco	Portions of Montgomery and Prince George's Counties	521,000
Subtotal		**2,186,000**
	MUNICIPAL SYSTEMS	
Berlin Municipal Electric Plant	Town of Berlin in Worcester County	2,000
Easton Utilities Commission	Town of Easton and surrounding areas	11,000
City of Hagerstown Light Department	City of Hagerstown in Washington County	17,000
Thurmont Municipal Light Company	Town of Thurmont in Frederick County	2,800
Williamsport Municipal Electric Light System	Town of Williamsport in Washington County	900
Subtotal		**33,700**
	COOPERATIVES	
A&N Electric Cooperative	Smith Island in Somerset County	340
Choptank Electric Cooperative, Inc.	Portions of 9 Eastern Shore counties	45,000
Somerset Rural Electric Cooperative	Portions of Garrett County	790
SMECO	Charles and St. Mary's Counties and portions of Calvert and Prince George's Counties	137,500
Subtotal		**183,630**
TOTAL CUSTOMERS		**2,403,330**

Sources: Maryland Public Service Commission Electric Choice Enrollment Report and Energy Information Administration, EIA861 Database, 2005

Figure 2-7
Electricity Distribution Service Areas



Electricity Markets and Retail Competition

Effective July 2000, the Maryland Electric Customer Choice and Competition Act of 1999 restructured the electric utility industry to allow Maryland businesses and residents to shop for power from various suppliers. Prior to restructuring, the local electric utility, operating as a regulated, franchised monopoly, supplied all end-use customers within its franchised service area. This included all three principal components of electric power service: generation, transmission, and distribution. With restructuring, generation can now be purchased by retail suppliers in a regional, competitive, wholesale marketplace. Transmission and distribution services continue to be regulated by federal and state government entities. This section describes the major elements of the electricity markets and the factors influencing retail prices paid by end-use consumers.

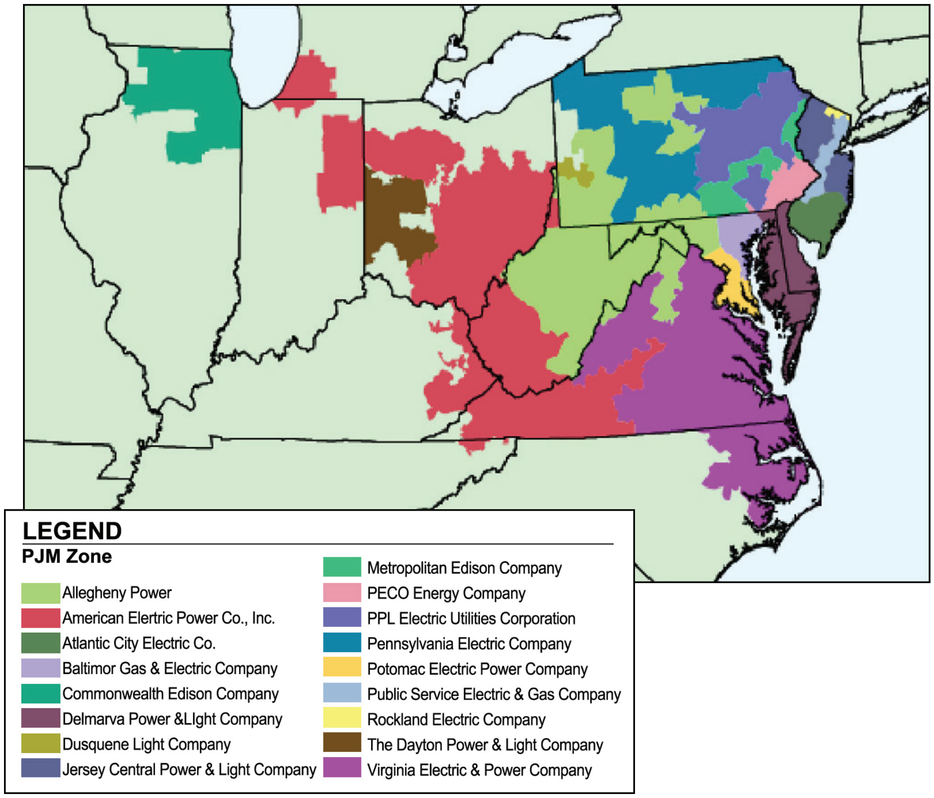
Wholesale Markets and PJM

In states with restructured markets, such as Maryland, electricity is generated by a power company that is separate from the entity responsible for transporting and delivering power to end-use customers. Once the necessary permits and approvals are obtained, anyone can generate power, connect to the grid, and find a willing buyer for their output. Entities selling energy on the wholesale market include competitive suppliers and power marketers that are affiliated with utili-

PJM Interconnection

PJM is an independent system operator, regulated by FERC. Founded in 1927, it was the world's first power pool and today it operates the largest wholesale electricity market in the world. PJM originally managed all or part of the transmission systems in Pennsylvania, New Jersey, Delaware, the District of Columbia, and Maryland; it has since expanded to cover all or parts of 13 states and the District of Columbia. The company is headquartered in Valley Forge, Pennsylvania.

PJM has 17 subregions or zones that are organized according to utility distribution service territory (see map at left). Some zones may include more than one utility area; for example, the Pepco zone includes both the Pepco and the Southern Maryland Electric Cooperative distribution service territories.



ties, independent power producers not affiliated with a utility, as well as traditional vertically integrated utilities located within the region that might sell any excess generation. Like many other commodities, electricity is frequently bought and re-sold a number of times before finally being consumed. These sales and re-sale transactions make up the wholesale market.

PJM operates and monitors markets for the purchase and sale of both energy and capacity.

- ***Energy*** *refers to the electric current transported through transmission and distribution systems that is used by customers for light, heat, electronics, motors, or any number of applications. Energy costs typically include fuel and operational expenses such as labor.*

Table 2-5. PJM Off-Peak and On-Peak Hourly Locational Marginal Prices for 2006

	Day Ahead		Real Time	
	Off Peak $/MW	On Peak $/MW	Off Peak $/MW	On Peak $/MW
Average	$38.45	$59.25	$39.12	$61.01
Median	$34.40	$54.41	$31.84	$52.28

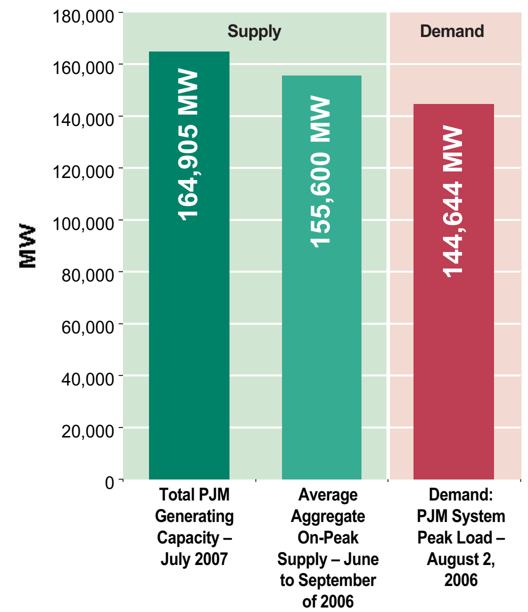
Source: PJM, 2006 State of the Market Report.

- ***Capacity** refers to the infrastructure and physical plant available to produce energy. Costs for capacity typically include costs of construction and maintenance.*

In order to have a reliable supply of energy, there must be sufficient electric generating capacity at times of high demand. States that have restructured their retail electricity markets rely on a combination of energy markets and capacity markets to create economic incentives for the development of new generation capacity.

PJM uses a uniform price auction to establish regional energy and capacity prices. Electricity generators bid in the amount of energy or capacity they would like to sell at a particular time and price.

PJM Supply and Demand



Energy

For energy products, the PJM operator orders the dispatch of electricity by generator according to the bid price, lowest to highest, until all power demand for a particular zone or region is met. PJM electricity prices are called locational marginal prices (LMP) and vary across PJM according to zone. The price bid in by the last generator asked to put electricity into the grid becomes the price paid to all of the units for that particular time and zone. Table 2-5 provides average and median prices experienced over the calendar year 2006. (More detailed information on the operation of PJM's wholesale energy markets is included in Appendix B.)

Capacity

Prior to electricity restructuring, Maryland, like most other states, would identify a need for generating capacity as part of the Integrated Resource Planning process. Capacity was constructed once a need was identified and a permit to construct was issued. The cost of building and operating the new generation capacity was included in customer rates, which were regulated by the state PSC.

PJM initiated its first capacity market, the Capacity Credit Market, in late 1998. During the first few years the PJM region experienced a boom in new plant construction, followed by a drop in capacity prices (see Table 2-6). With the drop in capacity prices came a decline in the development of new generation resources. PJM has since modified the capacity market creating a new forward capacity market based on the PJM Reliability Pricing Model (RPM), which requires entities to purchase or own capacity resources three years ahead of the implementation year.

Table 2-6. PJM's Average Annual Capacity Credit Market Prices 1999-2006

Year	Dollars/MW-Year
1999	$18,124
2000	$20,804
2001	$32,981
2002	$11,600
2003	$5,946
2004	$6,493
2005	$2,089

Prior to the development of RPM, capacity resource purchases and settlements were typically short-term transactions completed as needed during periods of high demand. This system provided volatile price signals that typically settled near zero until the occurrence of a high price event such as a generator tripping off-line or extreme weather conditions. Developers investing in new generators located in PJM were unable to reasonably predict capacity revenues and the level of capacity revenue tended to be too low to stimulate investment in new capacity resources. The risk of uncertain revenue streams increased financing costs, making it increasingly difficult to attract investors to the PJM region. PJM anticipates that by creating a longer-term (three-year) price signal for capacity resources, projects will have stable revenues in the early years, thereby lowering project finance risks and attracting new investors. Additionally, RPM may provide regulators with a more transparent mechanism to evaluate resource adequacy in the region. If RPM achieves its objective of stimulating investment in regions characterized as congested or resource-constrained, Maryland may see an increase in proposed power plants and transmission lines.

The RPM forward capacity market is designed so that the responsibility for guaranteeing sufficient capacity resources rests with load serving entities (LSEs). LSEs are required to satisfy a capacity obligation based on an average of their loads occurring coincident with the five highest PJM peaks, plus an additional reserve margin of 15 percent. Capacity resources must be sited within a specific region or zone. LSEs may supply their own capacity resources by entering into bilateral contracts for capacity and providing PJM with a plan that demonstrates their ability to satisfy reliability obligations. Those LSEs that do not have sufficient capacity resources to cover their average peak demand and a 15 percent margin participate in the RPM capacity auction to contract for the necessary resources.

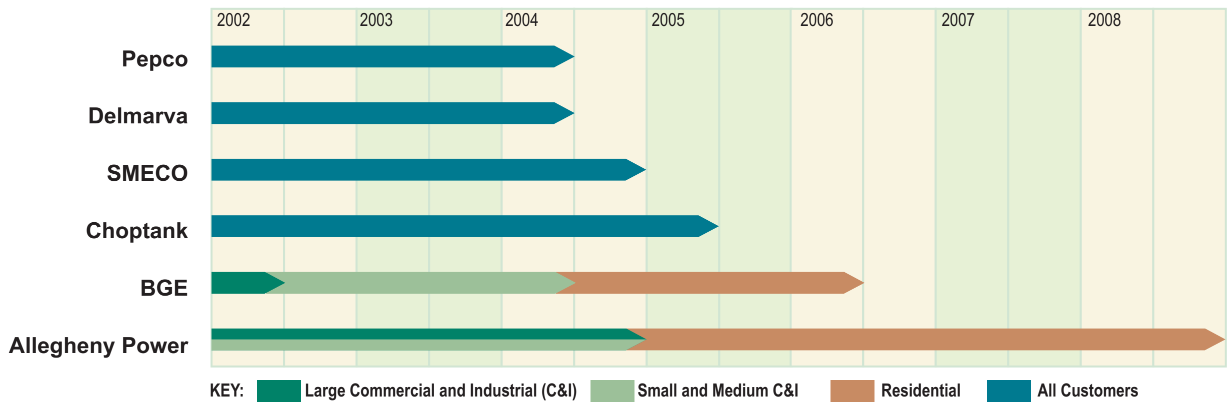
The RPM capacity market auction is a three-year forward annual auction, meaning that the auction for a given delivery year is held three years in advance of the delivery period. Capacity resources that participate in the auction are required to commit their resources for a full year. Incremental auctions are held in the following two years to make adjustments or fill gaps in capacity requirements. In the case of the 2012 delivery year, for example, the base auction will be held in May 2009, with incremental auctions held in May 2010 and 2011.

During the initial transition period prior to 2011, auctions must be held more frequently to cover the first three years of implementation. Results of the first three auctions are provided in Table 2-7. It can be seen that capacity prices set by the auction process are significantly higher for the Southwestern area of PJM, where Maryland's distribution utilities operate, compared to the remainder of PJM, primarily due to transmission constraints (discussed later in this chapter).

Table 2-7. Results for the PJM-RPM Capacity Auctions

		Clearing Price ($/MW-day)		
Auction Date	**Implementation Year**	**BGE and Pepco Zones**	**DP&L Zone**	**Remainder of PJM**
April 2007	June 1, 2007 – May 31, 2008	$188.54	$197.67	$40.80
July 2007	June 1, 2008 – May 31, 2009	$210.11	$148.80	$111.92
October 2007	June 1, 2009 – May 31, 2010	$237.33	$191.32	$102.04

Figure 2-8
Maryland Rate Freeze End Dates by Customer Class and Utility Area



Retail Markets and Competition

The fundamental objective of the 1999 Maryland Electric Customer Choice and Competition Act was to foster retail electric competition as a means of achieving favorable retail prices, providing an array of alternative supply products (for example, green power supply), and giving customers a choice in their electric power supplier. However, the competitive market has developed much less rapidly than had been hoped when the legislation was adopted. Implementation of the Act included the capping of rates for the state's investor-owned utilities. The caps kept rates at or even below the rates that competitive suppliers were able to offer, creating little incentive for customers to choose alternative suppliers or for suppliers to enter the market.

Immediately after implementation, most competition occurred in the Pepco region. By the summer of 2003, competitive suppliers had enrolled more than 70,000 residential and 10,000 commercial and industrial customers in this region, corresponding to 16 percent of total customers accounts and 28 percent of the total load obligation in the region. Shortly after the summer ended, most competitive suppliers left the residential supply market because of the low level of customer interest, and the number of Maryland residential customers served by competitive suppliers fell to less than 30,000 (primarily Pepco customers) by the summer of 2005.

Despite the expiration of rate caps (see schedule in Figure 2-8) and a sharp jump in retail electricity prices facing all residential customers in the Pepco, Delmarva, and BGE service areas, just 2.6 percent of residential customers have selected an alternative supplier. Even at its height in 2003, customer choice never surpassed 3.9 percent. However, enrollment by commercial and industrial customers increased sharply in 2006, when large commercial and industrial customers were first exposed to hourly market rates under the utilities' default service offerings.

Table 2-8. Residential Supplier Offers as of October 2007

Electric Suppliers	Contract	October 2007 Rates (cents/kWh)
BGE SERVICE AREA		
BGE / Price to Compare	*N/A*	***.1086***
PEPCO Energy Services	100% Green	.1241
	100% Wind	.1308
Commerce Energy, Inc.	100% Wind	.1340
	50% Wind	.1290
	Sure Choice	.1230
	Sure Choice Plus	.1250
	Sure Choice Variable	.1110
Horizon Power & Light, LLC	Fixed	.1108
Washington Gas Energy Services	5% Wind	.1150
	50% Wind (12-mo.)	.1260
	50% Wind (24-mo.)	.1290
	100% Wind (12-mo.)	.1400
	100% Wind (24-mo.)	.1440
DELMARVA SERVICE AREA		
Delmarva/Price to Compare	*N/A*	***.1003***
Horizon Power & Light, LLC	Fixed	.1118
Washington Gas Energy Services	5% Wind (24-mo.)	.1170
	5% Wind (36-mo.)	.1180
	50% Wind (12-mo.)	.1280
	100% Wind (12-mo.)	.1430
	100% Wind (24-mo.)	.1460
PEPCO SERVICE AREA		
PEPCO / Price to Compare	*N/A*	***.1089***
PEPCO Energy Services	100% Green	.1321
	100% Wind	.1381
Clean Currents, LLC with Washington Gas Energy Services	100% Wind 50% Wind	.1190 .1160
Horizon Power & Light, LLC	Fixed	.1108
Washington Gas Energy Services	5% Wind	.1160
	50% Wind (12-mo.)	.1230
	50% Wind (24-mo.)	.1270
	100% Wind (12-mo.)	.1360
	100% Wind (24-mo.)	.1400
OHMS	Fixed	.1110

The electricity supply rates represent an average rate for electricity supply service and do not include the local electric company's delivery and customer charges, which are charged to every customer, and are listed separately on the bill. Additionally, the timing and price impacts of rate mitigation and stabilization programs are not reflected in the utility price to compare.

Standard Offer Service

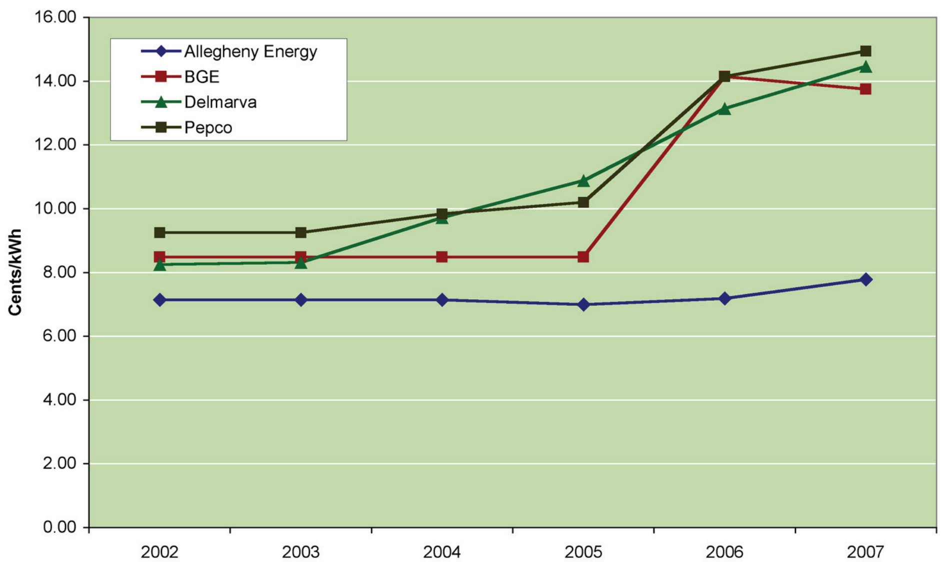
Residential and small commercial customers that do not choose to transact with a competitive supplier are provided with electricity service from their local utility at rates approved by the PSC. This utility-supplied service is referred to as Standard Offer Service (SOS). Table 2-8 lists retail suppliers' residential rate offers compared to the default SOS rates offered by the regulated utilities for the summer of 2007. As of October 2007, there were no suppliers offering residential electricity service in the Allegheny Power, Southern Maryland Electric Cooperative, or Choptank Electric Cooperative service areas. Allegheny Power's residential rate cap does not expire until December 31, 2008.

As the rate freezes expired, it became necessary to establish a new method of electricity supply for "non-shopping" customers. The PSC presided over an extensive stakeholder process resulting in a competitive procurement framework through which each utility was required to procure one- to three-year power supply contracts to meet the needs of residential SOS customers. Other PSC proceedings determined the framework through which utilities would procure SOS electricity supply resources for non-shopping intermediate commercial customers (those with peak demands of 60 kW to 600 kW), and extended the availability of SOS through at least May 2009.

Rate freezes have now expired for all residential customers except those in Allegheny Power's service territory, which will continue to receive capped electricity prices through 2008. Once the price caps are removed, customers receive electricity at a price that is set by the wholesale market. Wholesale market prices have risen significantly since 2000 and residential customers have seen substantial increases in their electric bills since the removal of the price caps. Figure 2-9 compares the residential SOS rates in effect in 2002 and for each subsequent year.

In reaction to the large increases in electricity prices, the Office of People's Counsel requested that the Maryland PSC conduct a comprehensive examination of Maryland's electric industry structure. Of particular concern were large price increases for the BGE SOS rates that occurred in 2006 when the price caps expired for BGE residential customers. The PSC approved a rate mitigation plan beginning July 2006 deferring part of the increase in SOS rates for two years. A second, optional mitigation plan was also

Figure 2-9
Comparison of Summer Retail Electricity Rates for Residential SOS Customers, 2002 - 2007 (cents/kWh)



NOTE: All rates include distribution service charges, energy supply charges, transmission service, franchise taxes, and the environmental trust fund. Not included are local taxes that vary from county to county, and universal service and customer charges that are flat monthly charges.

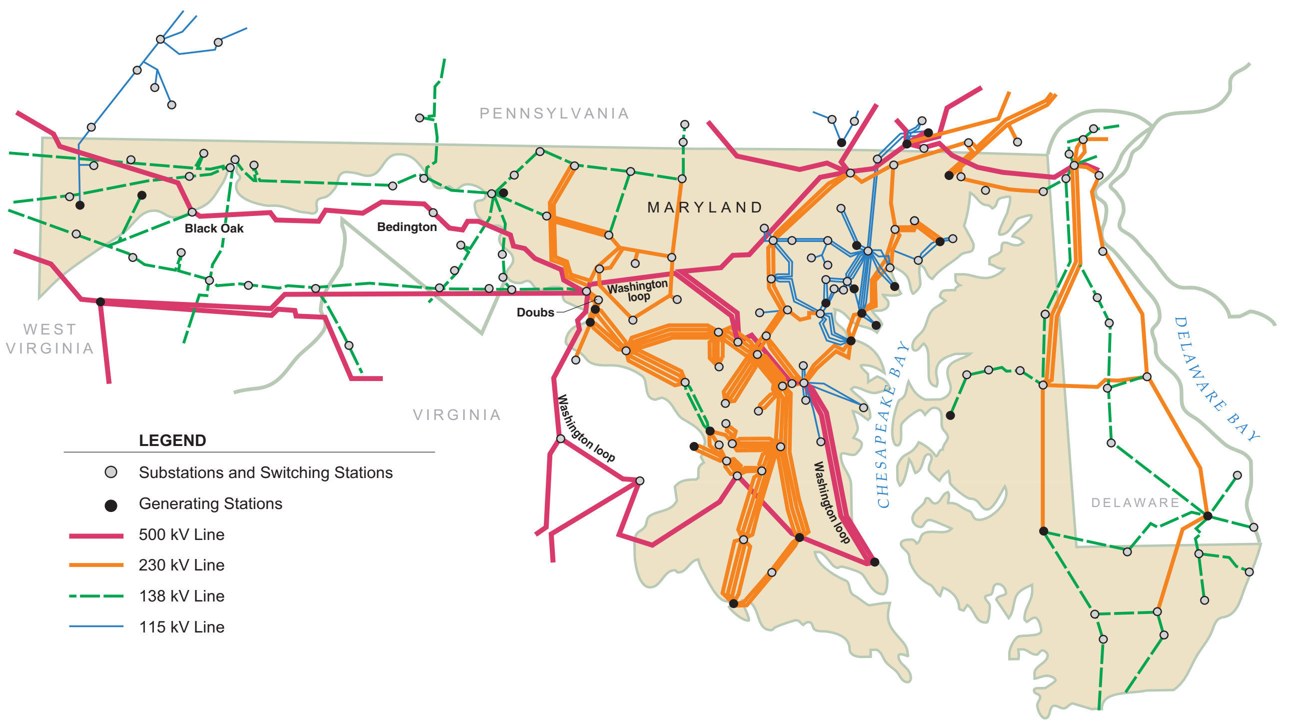
made available to customers for the 2007 and 2008 price increases. The PSC will conduct further proceedings in 2007 and 2008 in which they plan to address the appropriate structure of the electricity market in Maryland.

Transmission and Reliability

The network of high-voltage lines, transformers, and other equipment that connect power plants to distribution systems are part of an expansive transmission system connecting Maryland with the PJM region. In Maryland there are more than 2,000 miles of transmission lines operating at voltages between 115 kV and 500 kV. Figure 2-10 shows a map of this high-voltage transmission grid in Maryland.

Historically, the transmission system enabled utilities to locate power plants near inexpensive sources of fuel, and transmit electricity over long distances to consumers. By interconnecting transmission systems, utilities were able to improve reliability by backing up each other's generation capacity. The power grid that began as a local structure grew into an interstate system subject to both federal and state regulation. The federal Energy Policy Act of 1992 required that any generator, independent or utility-owned, be given access to the transmission grid at rates and terms comparable to those that the owner-utility would charge itself. This access to the transmission grid led to the growth of wholesale power markets and allowed power generators use of the transmission system to send power to one another as needed to serve the loads of their customers, creating larger, more regional transmission networks. With the creation of regional transmission

Figure 2-10
Transmission Lines (>115,000 Volts)



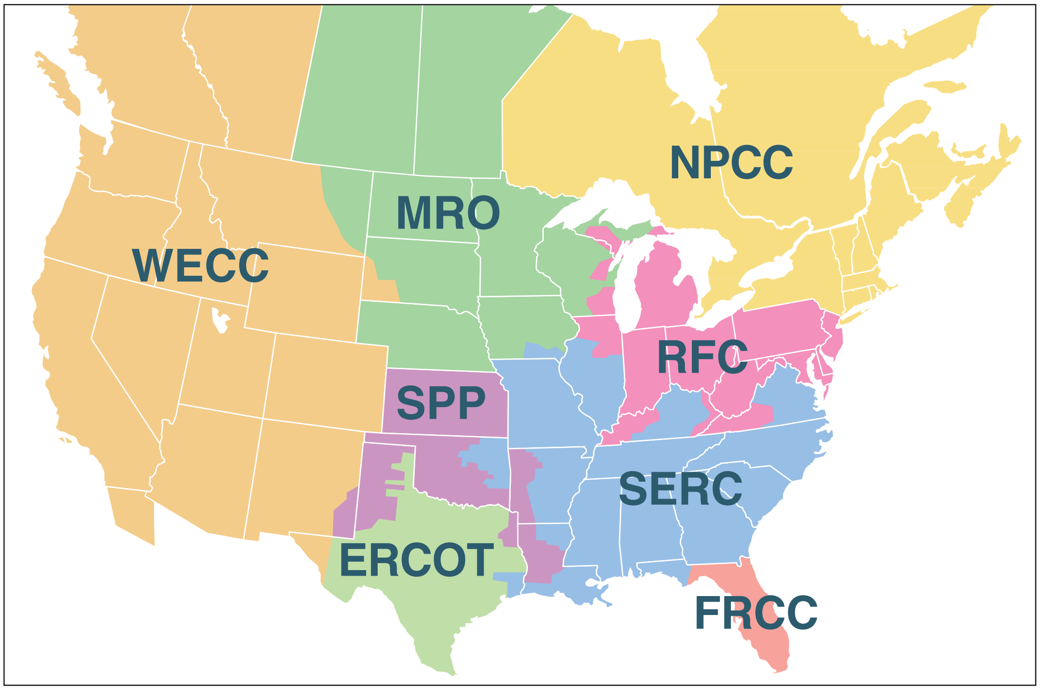
systems and competitive wholesale markets, utilities were required to transfer the operational responsibility for their transmission lines to independent system operators (ISOs), such as PJM, while maintaining ownership and maintenance responsibilities over their lines.

Reliability

To provide reliable power supplies at reasonable prices, adequate electric infrastructure is required. Recognizing that grid-delivered power must meet specific reliability and quality standards, the Federal Energy Regulatory Commission (FERC) approved 83 mandatory reliability standards organized under 13 categories in March 2007. Development of mandatory standards was part of the Energy Policy Act of 2005 prompted by the Northeast blackout of August 14, 2003. The North American Electric Reliability Corporation (NERC) is charged with developing guidelines and protocols for implementing the standards and assessing the reliability of the bulk power system. NERC also delegates enforcement authority to eight regional reliability councils, including the Reliability First Corporation (RFC) that serves the PJM ISO (see map in Figure 2-11).

One of the reliability standards developed and enforced by the Reliability First Corporation is the Resource Planning Reserve Requirement. The standard requires that each LSE participating in the PJM Regional Transmission Organization have sufficient resources so that there is a loss of load from insufficient resources no more than once in ten years. In order to maintain compliance under this reliability standard, PJM conducts annual resource planning exercises and

Figure 2-11
NERC Reliability Councils



LEGEND

WECC – Western Electric Coordinating Council
MRO – Midwest Reliability Organization
SPP – Southwest Power Pool
ERCOT – Electric Reliability Council of Texas
NPCC – Northwest Power Coordinating Council
RFC – Reliability First Corporation
SERC – SERC Reliability Corporation
FRCC – Florida Reliability Coordinating Council

Source: NERC, 2006 Long-Term Reliability Assessment, October 2006.

maintains a requirement that load serving entities have sufficient generation and demand resources to supply their peak electricity load, determined by taking an average of the five highest summer peaks from the prior year, plus a 15 percent margin. PJM operates the Reliability Pricing Model capacity market to help LSE obtain sufficient resources to meet for peak electricity load and reserve margin. More information on the PJM capacity market and Reliability Pricing Model is found in Appendix B.

PJM Transmission Planning

PJM conducts reliability studies in order to forecast potential problems and to plan accordingly for the expansion and upgrade of the transmission system. The PJM Interconnection's ongoing 2007 Regional Transmission Expansion Planning (RTEP) Process Reliability Assessment models future load and energy use and highlights likely problems and the effectiveness of proposed grid improvements.

PJM at a Glance, 2006

	PJM Area	State of Maryland
Population	51 million	5.6 million
Generating Sources	1,271 units	84 units
Peak Demand	144,644 MW (Aug. 2006)	14,935 MW
Energy Delivered	729 million MWh	69 million MWh
Transmission Lines	56,250 miles	2,200 miles (approximate)

MD population from U.S. Census Bureau. Estimated for 2006.

MD transmission line mileage from PPRP's transmission line database, DNR GIS Division.

PJM 15-Year Transmission Plan

The PJM Interconnection Board approved its first 15-year regional electric transmission plan on June 23, 2006. The plan authorized construction of $1.3 billion in electric transmission upgrades, including the 240-mile, 500-kilovolt Trans-Allegheny Interstate Line (TRAIL) that will run from southwestern Pennsylvania to Virginia and will be constructed by Allegheny Power and Dominion. PJM directed additional studies and evaluation of 10 significant transmission line proposals totaling $10 billion of potential new investment, including the high-voltage transmission line projects proposed by American Electric Power, Allegheny Power and Pepco Holdings, Inc.

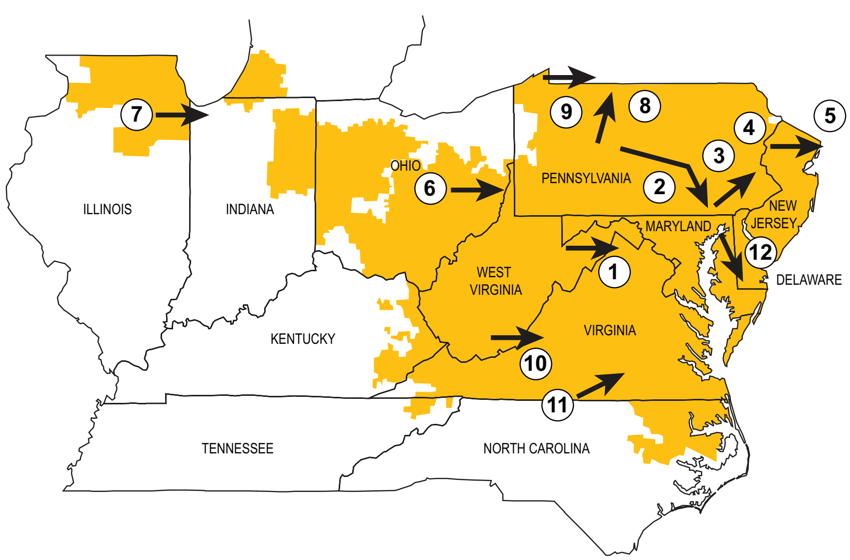
As a result, PJM has developed a 15-year Transmission Plan that includes upgrades to help alleviate constraints identified in the modeling. Once a transmission constraint is identified, PJM authorizes construction and cost recovery of upgrades to address the area of concern. PJM mandated upgrades may also require a CPCN depending on state siting and permitting regulations. There are two types of upgrade projects, baseline upgrades and network upgrades. Baseline upgrades include modifications to existing structures primarily required to eliminate reliability criteria violations. Network upgrades are new systems required to eliminate reliability criteria violations caused by the interconnection of new generation facilities or long-term firm transmission service requests.

Congestion

Economic congestion describes a situation in which lower cost power cannot reach its intended market because the transmission system does not have enough capacity to carry the electricity. Frequently occurring during periods of peak demand, economic congestion results from a constraint along the transmission line — either a physical, electrical, or operational limit. When a constraint hampers the delivery of electricity, system operators can "redispatch" generation by increasing output from a generator on the customer's side of the constraint, and reducing generation on the other side to resolve the congestion. However, dispatching higher cost resources in place of lower-cost power increases the price of electricity in the constrained zone.

Some of PJM's constrained transmission routes are illustrated in Figure 2-12; however, this is not a comprehensive list of all the transmission constraints affecting PJM. Eliminating key constraints can alleviate congestion. This may be

Figure 2-12
Constrained Transmission Routes in PJM



Source: U.S. Department of Energy, National Electric Transmission Congestion Study, 2006

KEY

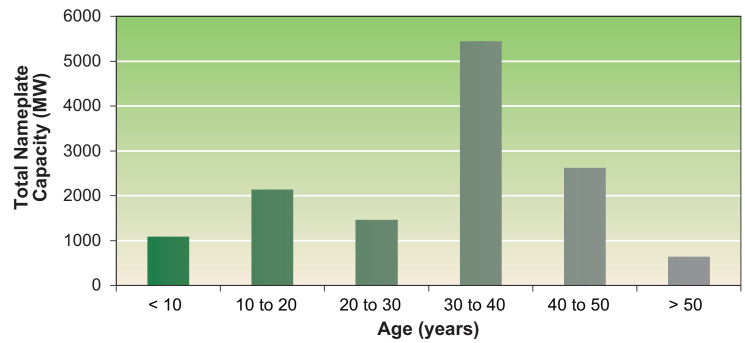
1. Bedington to Black Oak
2. Keystone to Juniata; Conemaugh to Hunterstown; Doubs to Brighton
3. Wescosville and Juniata to Alburtis; Peachbottom to Limerick and Keeney
4. Branchburg Transformer
5. Hudson to Farragut; Linden to Goethals
6. Wylie Ridge to Kammer
7. Crete to St. Johns Tap; Dune Acres to Michigan City
8. Homer City Transformer
9. Erie West to Erie South
10. Kanawha to Matt Funk
11. North Carolina to So. Virginia
12. Keeney to Vienna; New Castle to Steele

achieved through the construction of new transmission lines, by building new generation within a load pocket, or with demand side management. It is not always cost-effective, however, to make the additional investments that would be required to alleviate economic congestion, which is an economic problem rather than a reliability problem.

Congestion may also affect reliability when a transmission line nears or exceeds its transfer limit, the physical limit of the transmission system. When this occurs, system operators might ask large customers to voluntarily curtail their loads or, in extreme situations, may even be forced to reduce electricity deliveries to consumers. Economic congestion is far more common than a loss-of-load, or blackout caused by insufficient transmission or generation resources.

Aging of Maryland Generating Capacity

The graph below illustrates how much of Maryland's present generating capacity came on line 10 years ago, 20 years ago, etc. Because generating capacity is such a massive capital investment, power plant operators have generally made improvements necessary to keep plants running, even when that means making relatively expensive capital improvements. Constellation and Mirant recently initiated major projects at the seven largest coal-fired power plants in Maryland to comply with the new air emission control requirements of the Healthy Air Act, representing an estimated capital investment of $4 billion for all the plants combined (see further discussion on page 64). Over the last 20 years, there has only been about 540 MW of generating capacity retired in Maryland — and 300 MW of that capacity is being considered for re-commissioning.



Economic congestion during periods of peak demand in Maryland produces some of the highest hourly electricity prices in the PJM region. The electricity needs of the Baltimore and Washington metropolitan areas are supplied not only by local generation, but also by high-volume energy transfers into the area. Maryland is currently importing approximately 25 percent of its electricity needs over bulk transmission systems stretching across West Virginia, Virginia, Ohio, Pennsylvania, and other PJM states. Congestion costs in Maryland's Pepco and BGE zones are driven by a shortage of local low-cost supply. Despite access to local low-cost coal and nuclear facilities, the Maryland transmission system is operating at peak capacity transporting power into the BGE and Pepco zones during peak load periods.

The cost of congestion is estimated by examining the transaction prices that cannot be completed due to a constraint and comparing those to the more expensive value of the generation forced by the constraint. According to PJM, total congestion costs for 2006 in the PJM system were $1.603 billion*. The Bedington-Black Oak Interface, which is the main transmission line into central Maryland, alone accounted for 31 percent of total congestion costs in 2006. A rough estimate derived from zonal cost data puts Maryland congestion costs at approximately $420 million per year.

Figure 2-13 charts the difference between the real-time electricity prices in the Allegheny Power zone, on the western side of congestion, and the real-time prices in the Pepco zone for a winter, spring, and summer day. The values indicate the cost of congestion for every hour of the day. The congestion costs are greatest on a hot summer day with high electricity loads. In the five o'clock hour on the afternoon of August 1, 2006, the real time price for the Allegheny Power Zone was $697 per MWh and the price in the Pepco Zone was $812 per MWh, so the

* PJM Market Monitor, 2006 State of the Market Report.

cost of congestion was $181 per MWh. Figure 2-13 also demonstrates the costs of congestion in winter, when heating requirements drive up electricity demand. Days without significant heating and cooling loads are less likely to produce significant variation in electricity prices between zones within PJM.

PJM set a new peak demand record at 3:10 p.m. on August 3, 2006. The differential in real-time prices shows where there is a high demand for electricity with some areas within PJM seeing prices higher than $900 per MWh. Figure 2-14 maps the LMP prices for the hour in which PJM set a new peak demand. Note that the eastern edge of PJM — including much of Maryland, Delaware, and New Jersey — has the highest prices. On this date, areas with lower demand and greater supplies of electricity, such as the western portion of Maryland and portions of West Virginia and Pennsylvania, had real-time prices in $0-$10 range, below the cost to generate electricity. Figure 2-14 illustrates the combined impact of having (1) insufficient supply to meet local demand and (2) transmission systems that are not able to transport sufficient amounts of electricity.

Figure 2-13
Representative Congestion Costs in the PEPCO Zone

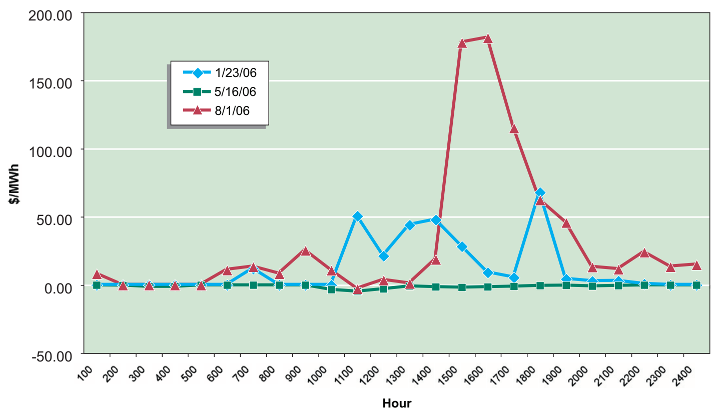
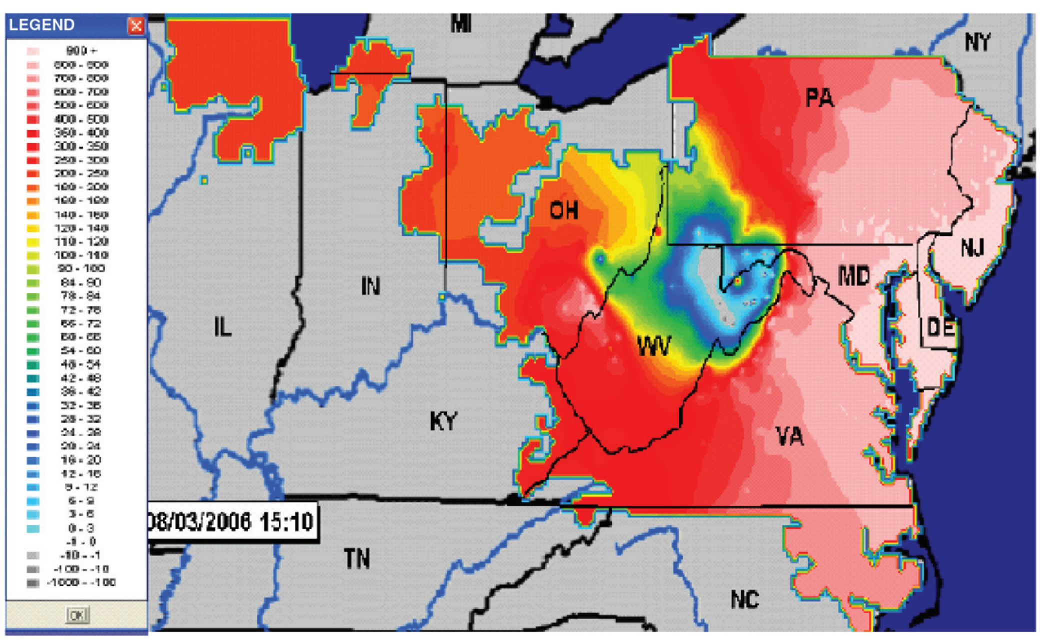


Figure 2-14
Real Time Prices for August 3, 2006



Source: Public Service Commission of Maryland Ten-Year Plan (2006 - 2015)

Investments in Transmission

New investment in transmission infrastructure has been lagging growth in electricity demand. Recognizing a lack of investment in transmission infrastructure, Congress directed FERC to established rules that provide economic incentives for new transmission lines as part of Section 1221 of the Energy Policy Act of 2005, which includes incentive rate structures and tax incentives. It also directs the U.S. Department of Energy to designate National Interest Electric Transmission Corridors.

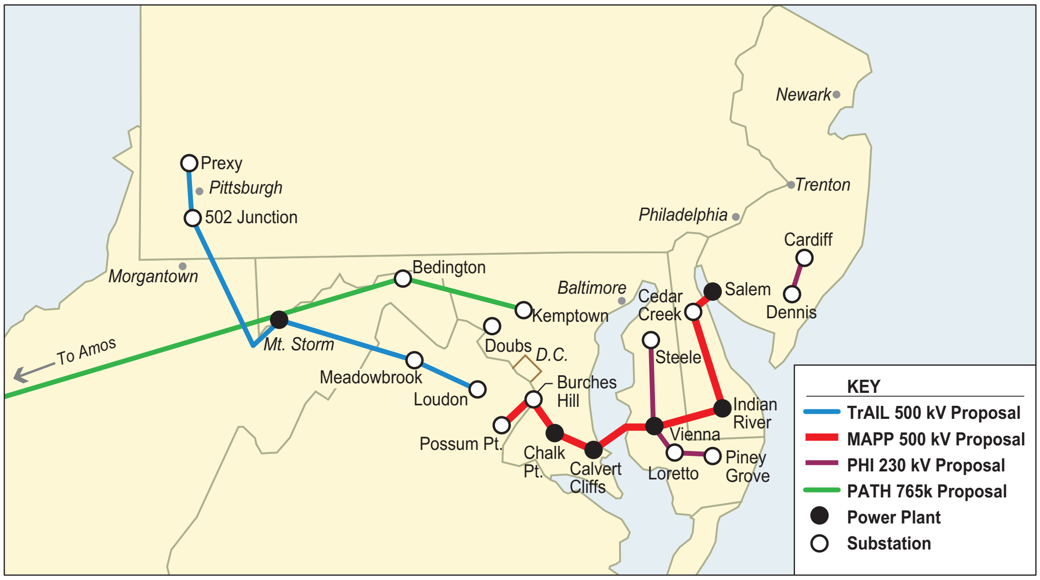
The first transmission projects to be awarded new rate incentives from FERC were the American Electric Power (AEP) Company's PATH project and Allegheny Energy's Trans-Allegheny Interstate Line (TrAIL). FERC conditionally approved incentive rates for these two large, high-voltage, multi-state transmission projects in July 2006. These are just two of several major transmission projects proposed in PJM providing west to east transfer of electricity. Table 2-9 provides information on three of the transmission projects recently proposed for the Mid-Atlantic region, all of which fall within the Mid-Atlantic National Interest Electric Transmission Corridor. Of these three proposed projects, two would directly affect Maryland — PATH and MAPP (see approximate corridors in Figure 2-15).

- ***The Trans Atlantic Interstate Line (TrAIL)*** *consists of a new 500 kV line from southwestern Pennsylvania to Virginia. The preferred route passes through West Virginia just south of the Maryland border.*
- ***Potomac-Appalachian Transmission Highline (PATH)*** *is a 765 kV transmission facility from Amos, WV to the Bedington, WV substation, where it will be converted to twin 500 kV circuits that will continue on to a new substation in Kemptown, MD.*
- *A* ***Mid-Atlantic Power Pathway (MAPP)*** *interstate line has been proposed by PEPCO Holdings, Inc. (PHI), extending from northern Virginia, through Maryland*

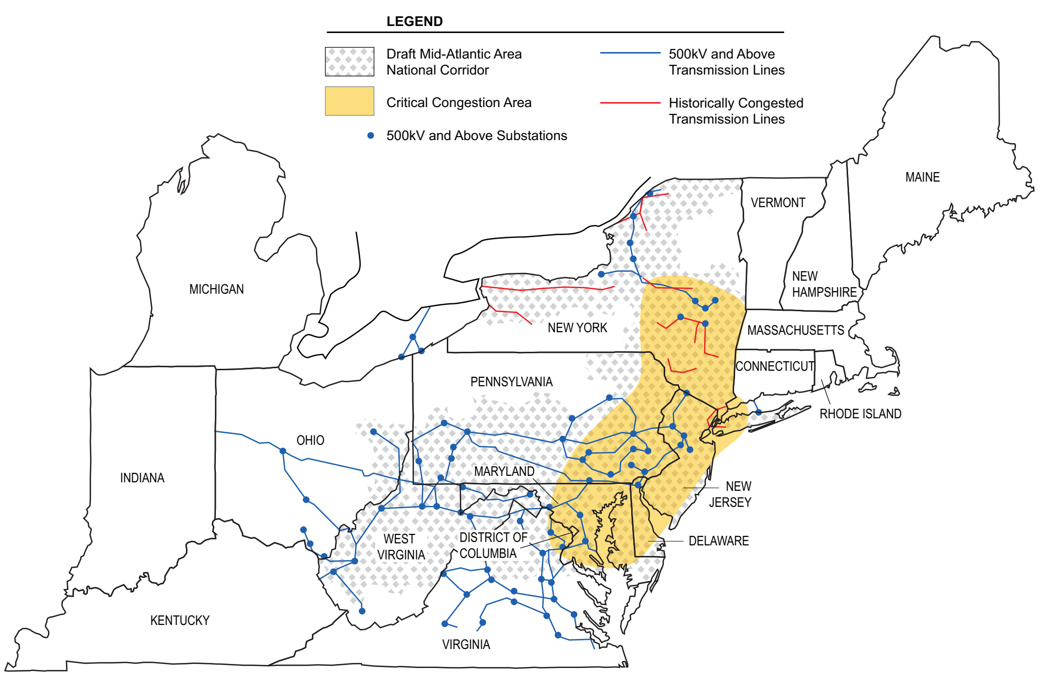
Table 2-9. Proposed High-Voltage Transmission Lines in Mid-Atlantic

Line	Developer/ Owner	Size (kv)	Length (miles)	Cost ($M)	States	Major Substations	On-Line Date
TrAIL	Allegheny	500	178	$850	PA	Prexy	2011-2013
						502 Junction	
					WV	Mount Storm	
					VA	Meadowbrook	
	Dominion	500	65	$150	VA	Riverton	2011
						Remington	
						Loudon	
PATH	AE-AEP	765	250	$1,800	WV	Amos	2012
						Bedington	
					MD	Kemptown	
MAPP	Pepco Holdings, Inc.	500	230	$1,400	VA	Possum Point	2014
					MD	Burches Hill	
						Chalk Point	
						Calvert Cliffs	
						Vienna	
					DE	Indian River	
					NJ	Salem	

Figure 2-15
Approximate Corridors for Proposed New Transmission Lines



Mid-Atlantic National Interest Electricity Transmission Corridor



The U.S. Department of Energy has identified the Mid-Atlantic region, from Northern Virginia to New York, as one of two critical transmission congestion areas in the United States. Subsequently, the Federal Energy Regulatory Commission (FERC) designated much of this area, including all of Maryland except Somerset County, as a (draft) National Interest Electric Transmission Corridor (NIETC). NIETC designation means that additional transmision capacity in this area is so critical that the Federal government (through FERC), under limited conditions, may overrule state utility commissions and issue permits for regional transmission line projects that are deemed to be in the national interest. Most intrastate and interstate electric transmission projects will continue to be approved by the states in which they are proposed. However, if a state fails to approve an eligible project within one year of its filing, FERC has the authority to consider an application and issue a permit to construct.

and the Delmarva Peninsula, into southern New Jersey. The proposed route would cross the Maryland portion of the Chesapeake Bay. In addition, PHI would add significant 230 kV support lines in Maryland and New Jersey to connect with the new 500 kV line.

The main siting issues involved in each of these projects revolve around the location of the new rights-of-way and funding for the projects. Public opposition has been based upon loss of property values for areas near the new lines, disruption of culturally and historically significant areas, and health effects associated with the electromagnetic fields surrounding electrical facilities. Funding for these million to billion dollar projects is supplemented largely by increases in electricity rates to consumers across PJM.

Maryland Electricity Consumption

Maryland Electricity Consumption Forecast

In 2006, Maryland end-use customers consumed 69.2 million MWh of electricity. Between 1996 and 2006, the growth rate in electricity consumption in Maryland was slightly higher than that in the United States — 1.9 percent in Maryland versus 1.7 percent in U.S. Figure 2-16 compares some of the key factors contributing to growth in electricity demand in Maryland and the U.S. from 1996 through 2006. Both population and non-farm employment grew at about the same rate in Maryland as in the rest of the U.S., but Maryland's per capita income grew more rapidly than the national average. In general, as more people live and work in Maryland, and as incomes grow, they collectively use more electricity. The shares of electricity consumption in Maryland used by residential and nonresidential sectors (i.e., the sum of commercial, industrial, and street lighting) are similar to the United States as a whole (see Figure 2-17).

Figure 2-16
Comparison of U.S. and Maryland Growth Factors Affecting Electricity Consumption (1996-2006)

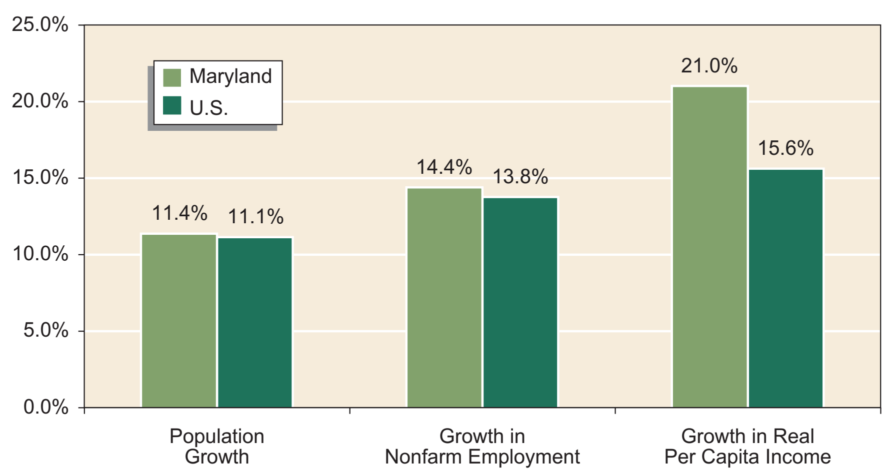
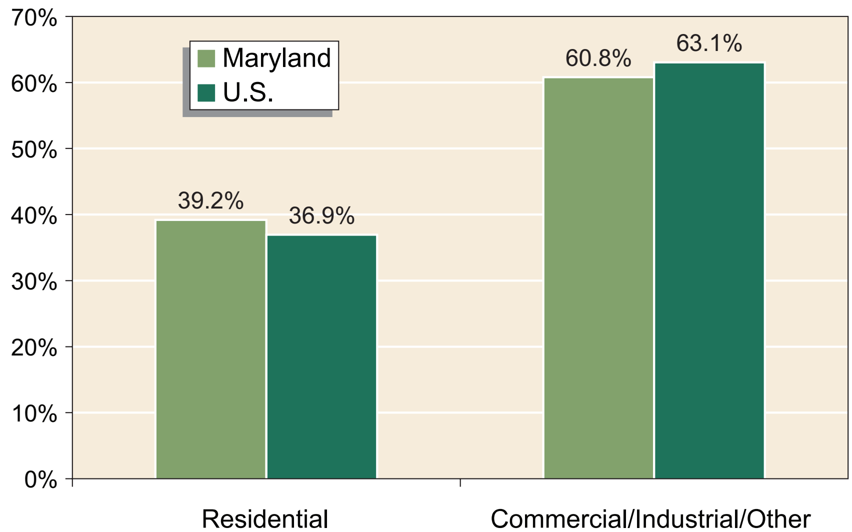


Figure 2-17
2006 Electricity Consumption by Customer Class, Maryland and U.S.



Source: U.S. Energy Information Administration, Electricity Annual 2007

BRAC Impacts in Maryland

Under the Base Realignment and Closure (BRAC) decisions made in November of 2005, Maryland is expected to gain close to 17,000 military jobs (see table below) and a total employment impact of 45,000 federal and private sector jobs by 2011. The Maryland Department of Business and Economic Development (DBED) projects an increase of about 28,000 new households in Maryland by 2011.

According to DBED's impact study, growth pressures due to BRAC will be strongest in Harford and Cecil counties. Growth in population and households will likely encourage future economic growth and increase the amount of electricity consumed in Maryland. BRAC effects are included in the population and employment assumptions that PPRP used to forecast the growth of electricity sales across the various jurisdictions in the state of Maryland.

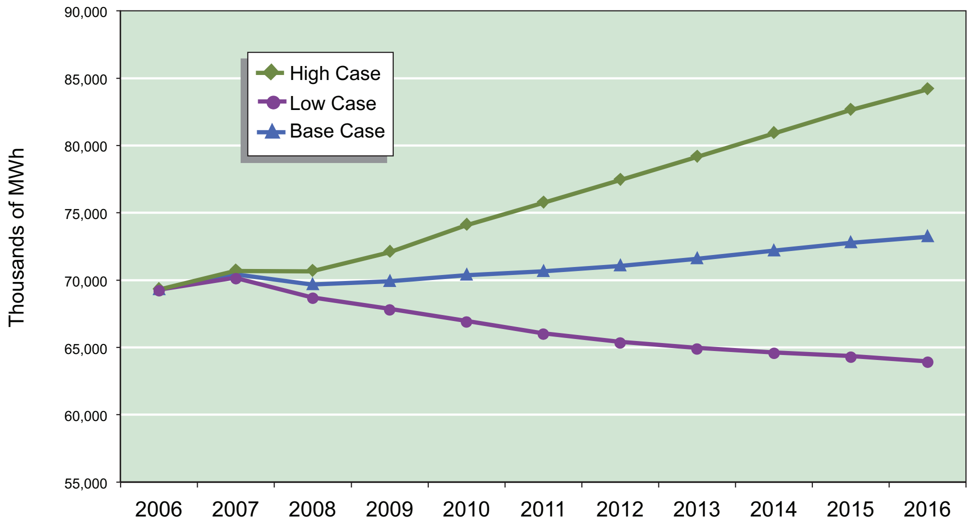
Maryland BRAC Jobs by Installation

Base	Base Location	Jobs
Aberdeen Proving Ground	Harford	9,448
Andrews Air Force Base	Prince George's	400
Ft. Meade	Anne Arundel	5,717
National Naval Medical Center	Montgomery	1,400
Total		**16,965**

PPRP prepares a biennial statewide load forecast for the Maryland PSC as part of its responsibility to aid the PSC in resource planning and determining the need for new generation and transmission resources within Maryland. Figure 2-18 illustrates PPRP's most recent forecast for future electricity consumption. The slower growth in electric energy consumption is largely attributable to projected increases in the real price of electricity that are included in the base case forecasting assumptions. Higher electricity prices dampen the demand for electric power in two ways. First, the existing stock of electricity-consuming equipment and appliances is used less intensively because operation is more costly. Second, the stock of electricity-consuming equipment and appliances is adjusted over time by replacement with equipment and appliances that are more energy-efficient. The full impact of electricity price increases, consequently, is felt over several years rather than instantaneously.

The impacts of energy price increases dampen the rate of increase in electricity consumption in Maryland, and the relatively slow growth in electricity consumption is projected to persist through the ten-year forecast period (2006-2016).

Figure 2-18
Projected Electricity Consumption, 2006 - 2015, MWh



	Residential	Commercial/Industrial	Other	Total
Forecast Electricity Consumption in Maryland 2006-2016 (thousands of MWh)				
2006	27,126	36,270	5,807	69,203
2010	27,295	37,421	5,578	70,295
2016	28,465	39,406	5,270	73,141
Annual Average Growth Rate (percent)				
2006-2010	0.16	0.78	-1.00	0.39
2010-2016	0.70	0.86	-0.94	0.66
2006-2016	0.48	0.83	-0.97	0.55

Population and economic growth impacts from BRAC are included in growth assumptions and projections.

Future electricity prices (and hence consumption of electricity) are affected by the recent large increases in natural gas prices. Between 2002 and 2006, natural gas prices almost doubled. Electricity generated from natural gas combustion accounts for only a small percentage of electric energy produced in Maryland (approximately 10 percent), but natural gas-fired facilities are often the marginal resources within the PJM Interconnection region and as such strongly influence market prices. The degree to which high gas prices will persist in the future, affecting electric power prices over the long term, is uncertain. As discussed earlier in this chapter, the prices of other fuel sources (coal, petroleum, uranium) are also increasing.

Generation: Comparison with Consumption and Future Outlook

Historically, Maryland has needed to import power from generation facilities located outside of the state. As a net importer of electricity, Maryland relies on power sources located elsewhere in the PJM region to support a portion of its own internal electric power needs. However, since there is no generation dedicated to Maryland, whether generated in the state or not, the provision of adequate levels of electric power generation for Maryland consumers does not require that the level of power generation within Maryland's border match or exceed the state's consumption. Maryland, as part of PJM, relies on the generating resources within PJM as a whole, as well as electric power that can be imported into the PJM area. Consequently, imbalances between Maryland consumption and generation should not be viewed as adversely affecting reliability or availability of electricity in Maryland. However, as discussed earlier, an imbalance in supply and demand may produce high prices in those regions where transmission limits and economic congestion require the use of higher cost electricity resources.

In 2006, electric energy consumption in Maryland exceeded electric energy generation in the state by about 25 percent. Table 2-10 compares actual and projected electricity consumption and generation in Maryland, assuming that proposed generating capacity additions are constructed and come on line by 2010. By 2010, electricity consumption in Maryland is expected to be about 70.3 million MWh, 25.5 percent more than expected in-state generation.

Table 2-10. Total Maryland Electric Energy Consumption and Generation (thousands of MWh)

	Consumption			Generation
	Base Case	**Low Case**	**High Case**	**All Existing and Planned***
2006	69,203	69,203	69,203	52,320
2010	70,295	66,895	73,992	52,351
Growth	1,092	-2,308	4,789	31
Percent	1.58	-3.34	6.92	0.06
Average annual growth rates (percent)				
2006-2010	0.39	-0.84	1.69	0.01

*Assumes no retirements and that planned expansions at the Riverside and Perryman facilities are complete.