Power Generation, Transmission, and Usage in Maryland

As a basis for discussing the impacts of power plants in Maryland, it is helpful to understand how electricity is generated and used within the state. This chapter examines Maryland's electricity "footprint," from generation to end users, and provides information on the electric power industry in Maryland.

Consumption and Generation

Consumption

In 2003, Maryland end-use customers consumed 64.8 million megawatt-hours (MWh) of electricity.* As shown in Table 2-1 and Figure 2-1, this represents an average annual increase of 2.0 percent from 1990 and an average annual increase of 1.8 percent from 1995 for the state. Between 1990 and 2003, the growth rate in electricity consumption in Maryland matched the growth rate in the United States as a whole.

Figure 2-2 compares some of the key factors contributing to growth in electricity demand in Maryland and the U.S. for the years 1990 through 2003. In general, as more people live and work in Maryland, and as their incomes grow, they collectively use more electricity. Both population and nonfarm employment grew more slowly in Maryland than in the rest of the U.S., but Maryland's per capita

ENERGY POLICY ACT OF 2005:

Extended Daylight Saving Period in 2007

The Act extends the Daylight Saving period in 2007. By starting on the second Sunday in March (rather than the first Sunday in April) and ending on the first Sunday in November (rather than the last Sunday in October), one month will be added to the Daylight Saving period. The Daylight Saving period was first introduced to reduce electricity consumption by reducing the need for artificial light in the evenings. Based on a study conducted by the U.S. Department of Transportation in the mid-1970s, the Daylight Saving period reduces nationwide energy consumption by 1 percent.

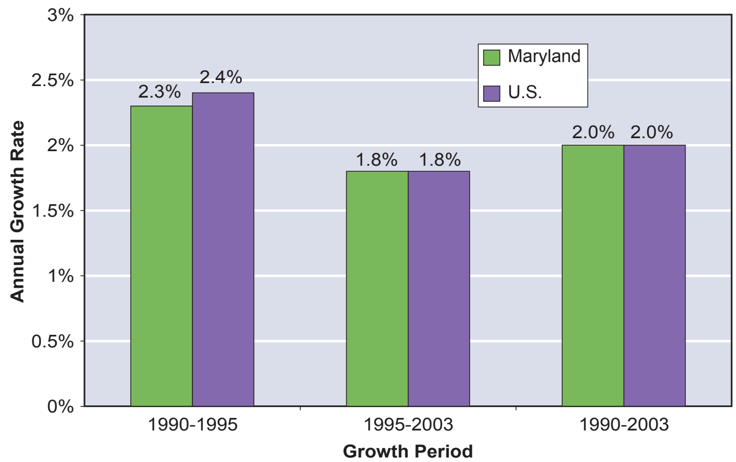
Table 2-1 Maryland and U.S. Electricity Consumption

	Maryland (Million MWh)	U.S. (Million MWh)[3]
1990	50.1[1]	2,817
1995	56.2[1]	3,164
2000	61.6[2]	3,592
2003	64.8[2]	3,656
Average Annual Growth Rates (Percent)		
1990-1995	2.3	2.4
1995-2003	1.8	1.8
1990-2003	2.0	2.0

Sources:
[1] Maryland Utility Data Management Systems (MUDMS), various years
[2] Maryland PSC, Ten-Year Plans (2001 and 2004)
[3] U.S. Department of Energy, Energy Information Information Administration, Monthly Energy Review, May 2005

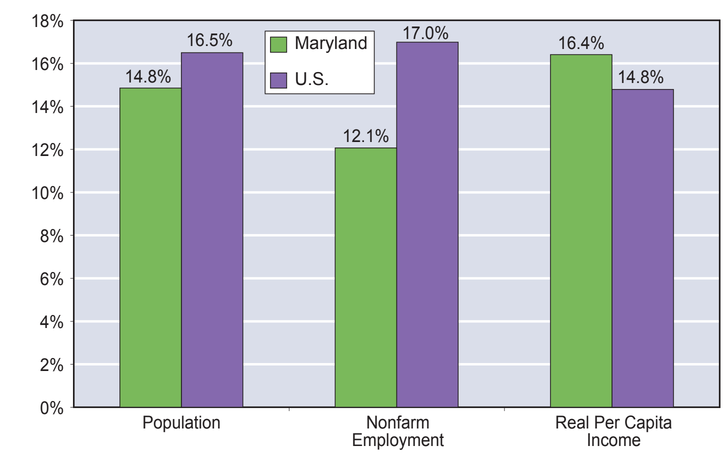
* One megawatt-hour of electrical energy is the use of one megawatt of power for one hour and is approximately the amount of energy that a typical household uses in a month. A megawatt of electrical capacity is sufficient to meet the peak demands of about 300 homes.

Figure 2-1
Maryland and U.S. Average Annual Rates of Growth in Electricity Consumption



Sources: Maryland PSC, U.S. Energy Information Administration

Figure 2-2
Comparison of U.S. and Maryland Growth Factors Affecting Electricity Consumption (1990 to 2003)



Sources: Maryland PSC, U.S. Energy Information Administration

income grew more rapidly than per capita income in the nation.

An additional factor contributing to increased demand for electric power in Maryland is that between 2000 and 2003, many Maryland customers received electric service at rates frozen slightly below 1999 rate levels. If rates are frozen in nominal dollar terms, this translates into rate reductions in real-dollar terms (i.e., after adjustment for inflation impacts). The real-dollar rate reductions in electricity prices in the state exerted an upward influence on electricity consumption toward the end of the 1990 to 2003 time period.

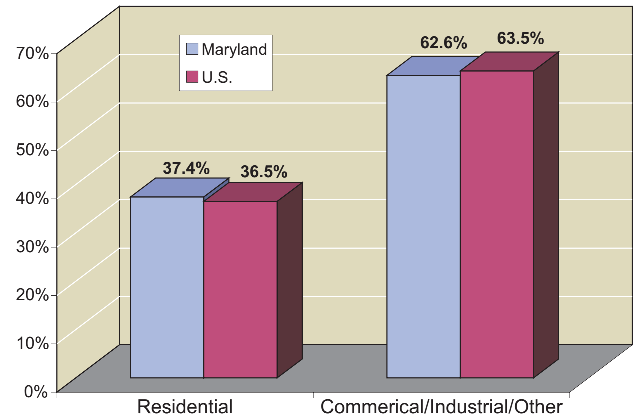
The shares of electricity consumption in Maryland used by residential and nonresidential sectors (i.e., the sum of commercial, industrial, and street lighting) are similar to the United States as a whole (see Figure 2-3). Residential consumption in Maryland represented about 37.4 percent of total electricity consumption in 2003 and 36.5 percent nationally. Nonresidential customers consumed approximately 62.6 percent of electricity in Maryland in 2003 and 63.5 percent nationally. The share of electricity consumption going to the industrial sector in Maryland, however, tends to be significantly lower than for the U.S. as a whole due to Maryland's relatively small industrial base. Commercial sector consumption, conversely, represents a larger share of total use in Maryland than for the nation. An additional factor that serves to augment the commercial sector's share of electricity consumption in Maryland is that electric energy use for federal government facilities is generally classified as commercial sector use and there is a significant federal government presence in Maryland owing to the proximity of Washington, D.C.

Figure 2-4 illustrates PPRP's forecast of future increases in electricity consumption across various types of end users in the state (see also data in Table 2-2). Electric energy consumption in Maryland is forecasted to increase at an average annual rate of approximately 1.2 percent between 2003 and 2013, which is lower than Maryland's historical growth rate of about 2.0 percent between 1990 and 2003. The less rapid growth in electric energy consumption projected over the 2003 to 2013 period is largely attributable to projected increases in the real price of electricity that are included in the base case forecasting assumptions. Electricity prices for most Maryland customers were subject to a price freeze through at least 2003, with some prices frozen through 2010. By the end of 2005, all of Maryland's customers, except BGE and Allegheny residential customers, will no longer have frozen prices available as the competitive transition period ends. While local electric distribution companies continue to make available standard offer service (SOS),* the SOS rates reflect market conditions. The end of the price freezes has brought large increases in the price of electric power. These increases are due to a rise in fuel prices, particularly natural gas, as well as constraints on the electric transmission system that limit aggregate imports of lower cost, coal-fired electricity into Maryland. In general, power supply prices to end users have increased by 15 to 25 percent following the end of a rate freeze. 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 (2003-2013), as shown in Table 2-2.

Nationally, the electric generation industry remains largely in financial distress, and, as a consequence, power plant construction projects in Maryland have been re-evaluated (see Table 2-3). While the generating capacity in the mid-Atlantic

Figure 2-3
2003 Electricity Consumption by Customer Class, Maryland and U.S.



Sources: Maryland PSC, U.S. Energy Information Administration

Figure 2-4
Forecasted Electricity Consumption in Maryland

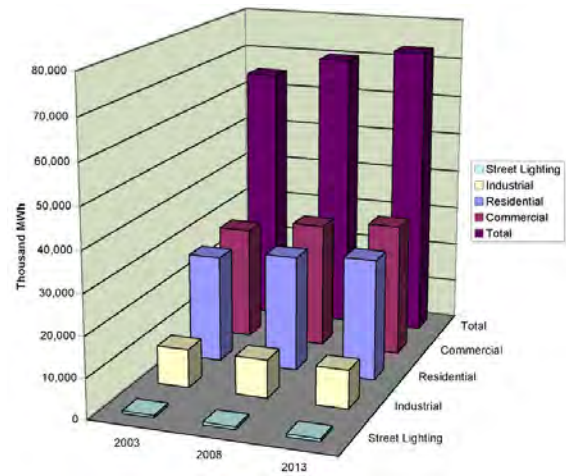


Table 2-2 Forecasted Electricity Consumption in Maryland 2003-2013 (thousands of MWh)

	Residential	Commercial	Industrial	Street Lighting	Total
2003	26,559	28,160	9,550	578	64,847
2008	28,635	31,165	9,510	607	69,917
2013	30,014	32,963	9,502	633	73,112
Average Annual Growth Rates (percent)					
2003-2008	1.5	2.0	-0.1	1.0	1.5
2008-2013	0.9	1.1	0.0	0.8	0.9
2003-2013	1.2	1.6	-0.1	0.9	1.2

Note: 2003 values (actual) were obtained from Maryland PSC.

* Standard offer service refers to the energy supply service options required to be made available by the local electric distribution companies for customers who choose not to shop for alternative power supplies; see further discussion on page 2-9.

Table 2-3 Power Plant Cancellations in Maryland

Project	Status	Planned Capacity (MW)
NRG – Vienna expansion	Cancelled	1,500
Duke – Frederick County	Filed CPCN application – cancelled	640
Free State – Kelson Ridge	Received CPCN; construction halted	1,650
Dynegy – Blue Ridge	Cancelled	600
Total capacity lost or delayed		**4,390**

is sufficient to serve load, cancellations and construction delays of new power plants increase the pressure on electric power prices relative to the competitive pressure that would exist if power plant construction activity were more robust.

ENERGY POLICY ACT OF 2005:

Energy Efficiency and Energy Assistance

The Act includes a number of provisions relating to increased energy efficiency and low-income energy assistance.

- *The Act's energy efficiency provisions require that at least once every 3 years, the governor of each state review and, if necessary, revise the state energy conservation plan.*
- *The Act establishes minimum energy efficiency standards for a wide array of products, including lighting technologies, dishwashers, dehumidifiers, transformers, exit signs, traffic lights, and ceiling fans, among others.*
- *States with public benefits funds will receive federal funds to supplement Energy Star residential appliance rebate programs. States may use up to 50 percent of their federal funds to cover the cost of establishing and implementing a program. The availability of federal funds to assist in the development of such a program may provide the incentive for the implementation of a Maryland program, augmenting the responsibilities of the Maryland Energy Administration. (Energy Star is a U.S. government-backed program that certifies appliances meeting energy efficiency guidelines, among other activities.)*
- *Additional funds are provided to the Low-Income Home Energy Assistance Program (LIHEAP) for low-income weatherization programs. Moreover, states are authorized to purchase renewable fuels to carry out the purposes of the LIHEAP. In Maryland, these programs are currently administered by the Department of Human Resources, Office of Home Energy Programs.*

Future electricity prices (and hence consumption of electricity) are affected by the recent large increases in natural gas prices. June 2005 natural gas prices were approximately 122 percent higher than June 2002 prices. Electricity generated from natural gas combustion accounts for only a small percentage of electric energy produced in Maryland (less than 10 percent), but natural gas-fired facilities are often the marginal resources within the Pennsylvania-New Jersey-Maryland Interconnection region (PJM) 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.

Generation: Comparison With Consumption and Future Outlook

Currently, and historically, Maryland does not cover its own consumption of electricity with in-state generation supplies. Maryland, instead, relies significantly on power sources located elsewhere in the PJM region to support its own internal electric power needs. In 2003, electric energy consumption in Maryland exceeded electric energy generation in the state by about 21 percent, making Maryland a net importer of electric energy. Table 2-4 compares actual (2003) and projected (2008) electricity consumption and generation in Maryland, assuming that proposed generating capacity additions are constructed and come on line by 2008.* By 2008, electricity consumption in Maryland is expected to be about 69.9 million MWh, or approximately 17 percent higher than the 59.9 million MWh that could be generated in the state annually. Maryland relies significantly on power sources located elsewhere in the PJM region to support its own electric power needs.

* See Table 2-8 of this report for a list of expected capacity expansions in Maryland. The projected generation in MWh from these plants, shown in Table 2-4, was calculated by multiplying each facility's projected generating capacity in the year 2008, in MW, by the number of hours that they are projected to operate over the course of the year. Projected hours of operation vary from facility to facility; furthermore, once a facility is on line, hours of operation and actual generated output can vary significantly from year to year.

Table 2-4 Total Maryland Electric Energy Consumption and Generation (thousands of MWh)

	Consumption*			Generation
	Base Case	**Low Case**	**High Case**	**All Existing and Planned**
2003	64,847	64,847	64,847	53,421
2008	69,917	68,335	71,887	59,892
Growth	5,070	3,488	7,040	6,471
Percent	7.8	5.4	10.9	12.1
Average annual growth rates (percent)				
2003-2008	1.56	1.08	2.18	2.31

* Note: The base case relies on the set of forecasting assumptions (growth in population, employment, income, and electricity prices) assessed to be most reasonable. The low and high cases rely on alternative, more extreme sets of plausible forecasting assumptions and represent projections based on these alternative assumptions. However, they do not represent lower and upper bounds (i.e., minimum and maximum projections).

The fact that Maryland is a net importer of electricity has little importance for the reliability of the state's power supplies. The provision of adequate levels of electric power generation for Maryland consumers does not require that the level of power generation within Maryland's borders match or exceed the state's consumption. Maryland, as part of PJM, relies not just on in-state resources, but on the generating resources within PJM as a whole, as well as electric power that can be imported into the PJM area. Currently, PJM encompasses all or parts of Pennsylvania, New Jersey, Maryland, Delaware, the District of Columbia, Ohio, West Virginia, Virginia, Indiana, Illinois, Michigan, North Carolina, and Tennessee, and dispatches electricity for the region (see further discussion on page 2-16). Consequently, imbalances between Maryland consumption and generation should not be viewed as adversely affecting reliability or availability of electricity in Maryland.

Restructuring and Competition

Effective July 2000, the Maryland Electric Customer Choice and Competition Act of 1999 restructured the electric utility industry in Maryland to allow electric retail customers to shop for power from various suppliers. These suppliers can generally be grouped into two categories:

- ***Local Utility:*** *This supplier can be considered the "incumbent" and is the entity that previously supplied electricity as a regulated monopoly.*
- ***Competitive Suppliers:*** *These are the competing entities that began supplying electricity in a competitive marketplace when the market was deregulated.*

Prior to restructuring, the local electric utility, operating as a regulated, franchised monopoly, supplied all end-use customers within its franchised service area with the three principal components of electric power service: generation, transmission, and distribution. With Maryland's restructuring of the electric power industry, generation of electricity is offered in a competitive marketplace (transmission and distribution remain regulated monopolies). Prices for power supply are now determined by a competitive electric power supply market rather than being determined by the Maryland PSC in a regulated environment.

ENERGY POLICY ACT OF 2005:

Repeal of Public Utility Holding Company Act of 1935

The Act contains provisions that repeal the Public Utility Holding Company Act of 1935 (PUHCA), and gives the Federal Energy Regulatory Commission (FERC) approval authority over mergers and acquisitions of public utility companies including those used for interstate wholesale power sales. Prior to repeal, PUHCA served to limit the extent to which holding companies could acquire and control electric utilities. This will create opportunities not available since 1935, such as the ability of gas and electric utilities to combine, and enable acquisition of multiple operating electric or gas utility companies that are not part of a single integrated public utility system. This could lead to the creation of combined multi-state gas and electric companies, as well as open doors for individual investment funds to acquire major interests in, or control of, multiple public utility companies. One or more Maryland utilities may be at risk to be acquired due to relatively weak financial conditions, and a possible concern to Maryland is the potential that a Maryland utility becomes acquired by an out-of-state or foreign company. However, state regulatory approval requirements still exist and state commissions can be expected to carefully scrutinize efforts by out-of-state and non-power sector entities that seek to acquire utilities. The Act provides FERC and state regulatory commissions with additional access to the books of holding companies and their subsidiaries operating in their jurisdictions though stringent confidentiality requirements remain intact.

To facilitate a competitive market for electric power supply in Maryland, the local utilities have either transferred their electric generation assets (power plants) to unregulated subsidiaries, or they have sold the assets to unaffiliated companies. Today, merchant generators or unregulated utility affiliates own most of the power plants in Maryland. Nevertheless, these companies remain subject to the applicable environmental, socioeconomic, and land use requirements and regulations.

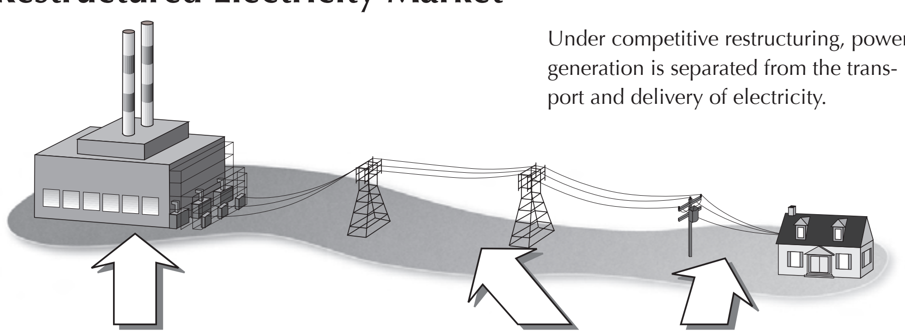
Residential, commercial, and industrial customers can purchase power from competitive suppliers other than their local utility. Competitive suppliers either own generation assets or purchase power in the wholesale market. The power is then delivered to retail customers via the local distribution network. During the period of transition to a fully competitive electricity market, the local distribution utilities make available standard offer service for those consumers who choose to continue purchasing electricity from the local utility.

The Restructured Market

The pace of movement to a competitive retail electric power supply market has been slower than originally envisioned when restructuring legislation was enacted in 1999. During the period of transition from a regulated to a competitive environment, market prices for electric power from competitive suppliers have tended to be roughly equivalent to, or slightly higher than, the frozen (or fixed) prices for generation provided by the local utilities to customers choosing not to shop competitively. Because of the similarity between fixed generation prices and the prices available in the competitive market, there is little economic incentive for end-use customers to arrange for an alternative supply. There is also little competitive activity on the part of potential suppliers.

Since the passage of Maryland's restructuring law in 1999, several events have affected, to varying degrees, the transition from regulation to retail competition. Some of these events have adversely affected the construction of new generating capacity. In the late 1990s, the interest in installing additional power plants had been accelerating at a rapid pace across the mid-Atlantic region. Changes in regulations that allowed power plant developers to bear the business risk, and benefit from the economic rewards, of generation projects caused this acceleration. Over the past few years, external shocks have significantly affected

Restructured Electricity Market



Under competitive restructuring, power generation is separated from the transport and delivery of electricity.

Generation of electricity has now become a competitive industry — customers can choose which generating company they will buy power from.

Transmission and distribution of electricity continues to be provided by local utilities within their various service territories.

electricity markets and the economy in general. This instability has significantly diminished interest in building power plants in virtually all regions of the country. External shocks affecting the construction of power plants to support energy markets include the following:

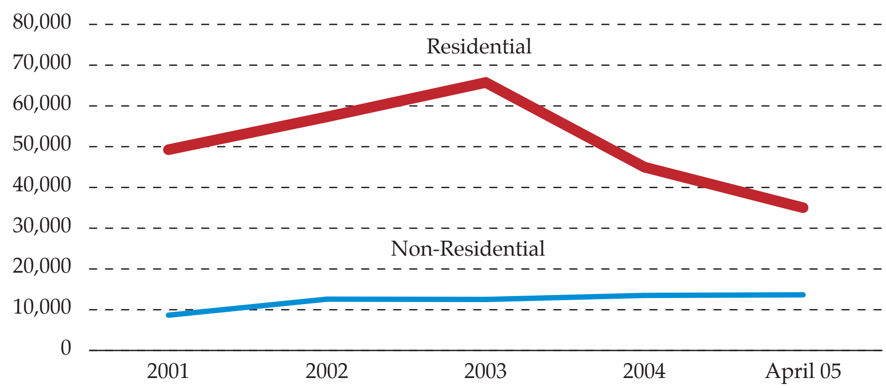
- *The Northeast blackout of 2003;*
- *The California electricity crisis of 2000-2001;*
- *The terrorist attacks of September 11, 2001;*
- *The economic recession that emerged at the close of 2000;*
- *Erosion of stock market wealth;*
- *Collapse of confidence in key electricity market players; and*
- *Declining liquidity and the drying up of credit for investments in the power industry.*

By the end of 2004, few Maryland end-use customers were receiving power from competitive suppliers. Approximately 35,000 residential and almost 13,700 non-residential customers are served by competitive suppliers in Maryland. Suppliers, however, serve a larger portion of the non-residential sector (6 percent) than the residential sector (1.8 percent). Most other states that had recently implemented electric industry restructuring experienced similar circumstances.

Many of the state's residential customers continue to receive electricity at capped rates from their local utility. Beginning in 2004, however, local utilities began to supply standard offer service at market-based rates for most non-residential retail sectors, thereby expanding opportunities for competitive suppliers to compete on the basis of cost and potentially secure additional customers. Figure 2-5 shows that since 2001 the number of non-residential customers served by competitive suppliers has continued to expand slowly while the number of residential customers served by competitive suppliers has, in fact, declined. This decline in the numbers of residential customers served in 2004 and 2005 from the 2003 level primarily resulted from certain suppliers exiting the residential competitive supply market.

Table 2-5 presents additional detail on the number of customers served by competitive suppliers

Figure 2-5
Customers Served By Competitive Suppliers



Source: Maryland PSC

Table 2-5 Percent of Customers Served By Competitive Suppliers

	Customers Served by Competitive Suppliers	Total Customer Accounts	Percent of Customers Served by Competitive Suppliers	Percent of Customers Supplied by Local Utilities	Total
Residential	35,022	1,920,089	1.8%	98.2%	100%
Non-Residential	13,655	226,903	6.0%	94.0%	100%
Total	48,677	2,146,992	2.3 %	97.7 %	100%

Source: Maryland PSC

in both the residential and non-residential markets relative to all of the customer accounts in the four large Maryland distribution service territories (Allegheny Power, BGE, Delmarva Power, and PEPCO). The table reveals that competitive suppliers serve a larger percentage of commercial and industrial customers than residential customers. Competitive suppliers serve a total of 2.3 percent of all retail customers in the state — 1.8 percent of residential customers and 6.0 percent of non-residential customers. The bulk of the customers in the state are still receiving power from their local utility.

Competitive suppliers, however, are making inroads into Maryland retail markets, especially with large commercial and industrial customers. Table 2-6 breaks out the results in Table 2-5 further into submarkets and geographic regions. Table 2-6 indicates that competitive suppliers have focused on serving the large commercial and industrial market in each of the four distribution territories. Although competitive suppliers only serve 6.0 percent of total commercial and industrial customers, Table 2-6 indicates these same electric suppliers have captured between 37.6 percent and 91.7 percent of large commercial and industrial firms operating in the four distribution service territories.

Competitive suppliers certified with the Maryland PSC can indicate through the website whether they are actively soliciting new customers. Current registered suppliers include 2 competitive suppliers interested in serving residential customers, 15 serving commercial customers, 14 serving industrial customers, and 4 offering service to the government and institutional sectors.

Standard Offer Service

Electricity customers in Maryland may purchase generation supply from competitive retail suppliers that are licensed by the PSC. If the customer is unable to or does not choose to transact with a competitive supplier, then the customer's local utility will provide that service at rates set by the PSC. This utility-supplied service is known as Standard Offer Service (SOS). At the onset of electric deregulation in 2000, utility rates for generation service were frozen for a period of several

Table 2-6 Percent of Customers Served by Competitive Electric Suppliers, by Service Area (as of April 2005)

Distribution Utility	Residential	Small Commercial & Industrial	Mid Commercial & Industrial	Large Commercial & Industrial	All Commercial & Industrial	Total
Allegheny Power						
Competitive Suppliers	0.0%	0.0%	12.2%	37.6%	0.7%	0.1%
BGE						
Competitive Suppliers	0.0%	0.4%	17.7%	77.6%	2.2%	0.2%
Delmarva Power						
Competitive Suppliers	0.1%	5.2%	27.5%	91.7%	6.0%	1.1%
PEPCO						
Competitive Suppliers	7.4%	13.6%	27.4%	69.0%	18.0%	8.5%
TOTAL						
Competitive Suppliers	**1.8%**	**3.4%**	**22.9%**	**71.6%**	**6.0%**	**2.3%**

Source: Maryland PSC

years. The rate freezes extended through June 2004, but residential customers of BGE and Allegheny experience freezes through June 2006 and December 2008, respectively.

As the rate freezes expired (or in anticipation of the expiration), it became necessary to establish a new method of utility generation supply for "non-shopping" customers. In PSC Case No. 8908, a diverse group of parties (utilities, PSC Staff, competitive suppliers, customer groups, and State agencies) developed a new SOS framework, which was approved as a settlement by the PSC in April 2003. Under this framework, each utility will procure one- to three-year power supply contracts from the wholesale competitive market to meet the demand of retail customers receiving SOS. The utility charges its customers for the cost of the power supply contracts, the cost of transmission service, a profit margin, and an administrative charge. The utility charges all of its customers — SOS and those receiving competitive generation — for distribution service.

SOS for large non-residential customers (those with peak demands over 600 kilowatts, kW) ended in 2004, and SOS for intermediate commercial customers (60 kW to 600 kW) is scheduled to end in May 2006 (December 2008 for Allegheny customers). The PSC recently opened a docket (Case No. 9037) to investigate how these intermediate commercial customers should receive SOS after termination of the current program in 2008. Large non-residential customers are no longer eligible for SOS, but they may receive Hourly Service from their local utility. Under this service, the customer pays rates based on the hourly spot price in the PJM market. Small commercial customers (under 60 kW) will have SOS available until May 2008 (December 2008 for Allegheny). Residential SOS will remain in place until May 2008 for PEPCO and Delmarva Power, 2010 for BGE, and 2012 for Allegheny Power.

Composition of Electric Industry

The electric industry has three major components: electricity generation (supply), transmission (high-voltage transport of electricity over power lines), and distribution (delivery of transmitted electricity to the end-use customer). Details of the three major components of the electric industry are provided below.

Maryland's Electricity Generating Resources

There are 33 power plant sites (2 MW or greater) located in Maryland and interconnected to the transmission grid, representing more than 13,000 MW of operational generating capacity, as shown in Table 2-7 (see locations in Figure 2-6). Generating facility owners in Maryland fall into one of the three categories described below:

1. ***Independent power producers*** *– These are generators that are affiliates of Maryland's electric distribution companies (Allegheny Energy Supply, Conectiv Energy Supply, and Constellation Generation Group), affiliates of electric utility companies in other states (e.g., Exelon), or independent companies, e.g., Mirant.*

2. ***Publicly owned electric companies*** *– This category includes municipal power systems such as Berlin and Easton; electric power cooperatives such as the Southern*

Maryland Electric Cooperative (SMECO); and the generation facilities owned and operated by Montgomery and Prince George's Counties.

3. ***Self-generators*** – *These are industry- (or government-) owned or operated power plants, which are constructed at or adjacent to existing industrial (or government) facilities to meet their needs for electricity or steam. They may also sell excess power into the market. Examples include Domino Sugar, Westvaco, and the Eastern Correctional Institution.*

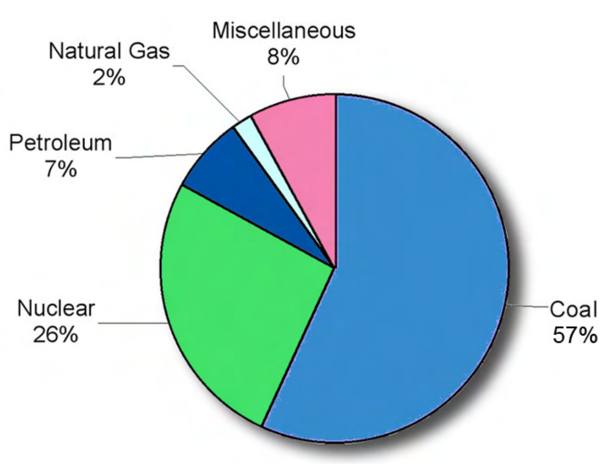
Distributed generation sources also exist throughout the state and are relied upon by customers to support site-specific benefits such as emergency backup, improved power quality, peak shaving, and increased reliability. From 2001 through 2004, the Maryland PSC has approved over 110 distributed generation units totaling over 140 MW. The bulk of these units provide emergency backup and are not connected to the grid (see discussion on page 2-19).

Approximately 1,500 MW of new power projects are being proposed in the state; Table 2-8 lists these potential future facilities and estimates of their capacity. The capacity amounts for the individual projects are listed as maximum potential additions. Developers may scale back the number of units installed at some of these proposed generation facilities due to regulatory requirements or economic conditions.

Maryland's Electric Distribution Companies

There are 13 utilities distributing electricity to customers in Maryland (Figure 2-7). Four are investor-owned through three holding companies; five are municipally owned; and four are cooperatives. The investor-owned utilities serve approximately 90 percent of customers in the state. The municipal utilities, which own the local distribution facilities in a specific town or city, generate or purchase electricity and distribute it to local citizens. Cooperatives are customer-owned utilities, established to provide electricity to rural areas. Cooperatives serve larger geographical areas than do municipal utilities, and tend to be located in less populated areas of the state.

Energy Sources in Maryland



Electricity generated in Maryland is derived from several types of energy sources. Coal and nuclear represent the majority of the state's energy sources for electricity (57 percent and 26 percent, respectively), based on 2003 generation. Approximately 8 percent of the state's generation comes from miscellaneous sources including hydroelectric, municipal waste combustion, landfill gas, and solar.

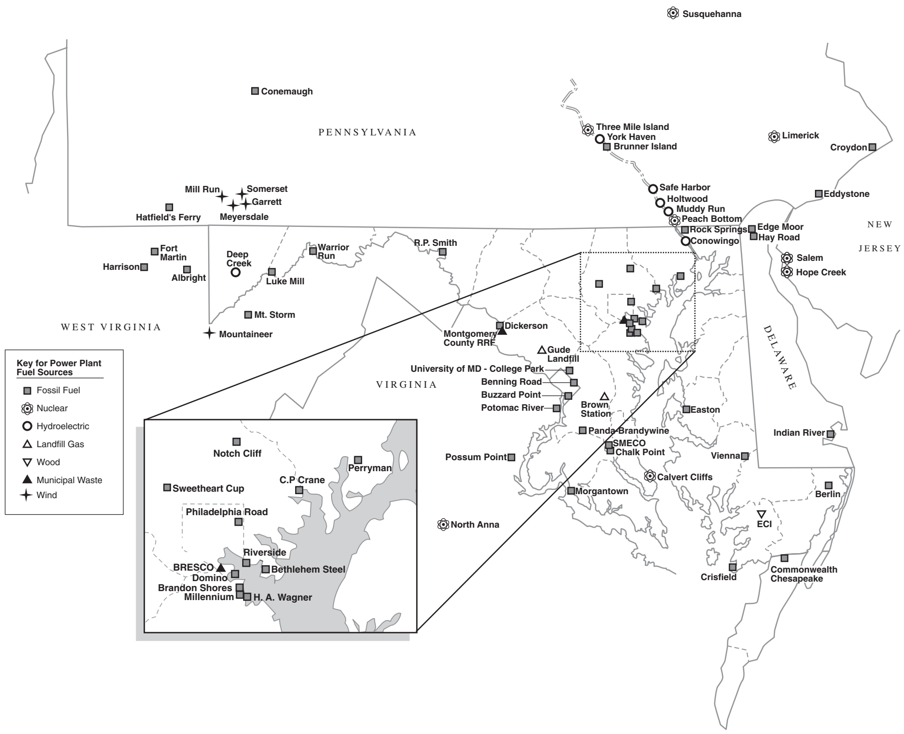
Investor-owned – Allegheny Power (AP), a subsidiary of Allegheny Energy, provides electricity distribution services to 3.5 million people in Maryland, Pennsylvania, Ohio, Virginia, and West Virginia. In Maryland, AP serves approximately 229,700 electricity customers in a 2,500-square-mile area consisting of all or parts of Allegany, Carroll, Frederick, Garrett, Howard, Montgomery, and Washington Counties. Industrial customers account for more than 50 percent of AP deliveries in Maryland, due in large part to the Eastalco Aluminum Company's facility in Frederick, with historical peak demands of over 300 MW. In 2003, the peak demand of AP's customers in Maryland was approximately 1,925 MW.

Table 2-7 Operational Generating Capacity in Maryland (>2 MW)

Owner	Plant Name	Major 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 Company (BRESCO)	BRESCO	Waste	65
Brascan Power	Deep Creek Lake	Hydroelectric	20
Conectiv Energy Supply	Crisfield	Oil	12
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
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
Prince George's County	Brown Station Road	Landfill Gas	7
Susquehanna Power Co. and PECO Energy Power Co.	Conowingo	Hydroelectric	550[1]
Trigen-Cinergy Solutions	Millennium Hawkins Point	Oil/Natural Gas	11
	Sweetheart Cup Facility	Natural Gas	11
	University of Maryland-College Park	Oil/Natural Gas	27
Publicly Owned Electric Companies			
Berlin	Berlin	Oil	9
Easton Utilities	Easton	Oil	62
Old Dominion Electric Cooperative (ODEC)	Rock Springs	Natural Gas	680
Southern Maryland Electric Cooperative (SMECO)	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	5
Mittal Steel	Bethlehem Steel	Natural Gas/ Blast Furnace Gas	120
New Page	Luke Mill	Coal	65
Total			**13,218**

Source: Energy Information Administration, EIA860 Database, 2003
[1] Reflects recently upgraded generator capacity.

Figure 2-6
Power Plant Locations In and Around Maryland



Baltimore Gas and Electric (BGE), a subsidiary of Constellation Energy Group, serves approximately 1.2 million electricity customers in a 2,300-square-mile area that includes Baltimore City and the surrounding counties. In 2003, BGE served a peak demand of 6,572 MW.

The distribution utilities Potomac Electric Power Company (PEPCO) and Delmarva Power are both subsidiaries of Pepco Holdings. PEPCO serves approximately 498,000 customers in 575 square miles of Montgomery and Prince George's Counties, as well as additional customers in the District of Columbia. In 2003, PEPCO delivered at peak approximately 3,600 MW to its Maryland customers. PEPCO has no major industrial customers. Its customer base does, however, include large commercial and government facilities, such as the National Institutes of Health and Andrews Air Force Base. Delmarva Power serves approximately 188,600 customers in Maryland's portion of the Delmarva Peninsula and Harford County. Delmarva Power also serves customers in the Delaware and Virginia portions of the Peninsula. Maryland customers account for approximately 30 percent of the company's retail energy deliveries. In 2003, Delmarva Power's Maryland customers had a peak demand of about 1,075 MW.

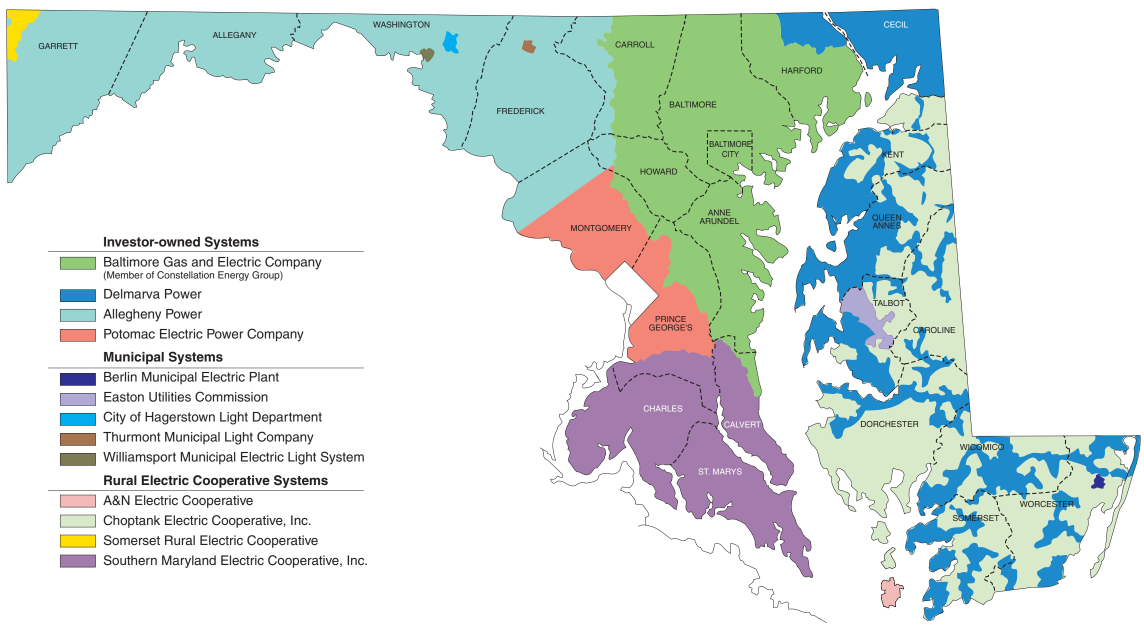
Municipally Owned – The largest of Maryland's municipal electric utility systems is the City of Hagerstown Light Department. It serves approximately 17,000 customers in a 9-square-mile area of Washington County. The other four municipal utilities are Berlin Municipal Electric Plant (serving about 1,000 customers), Easton Utilities Commission (9,100 customers), Thurmont Municipal Light Company (2,800 customers), and Williamsport Municipal Electric Light System (950 customers). The municipal utilities of Berlin and Easton each

ENERGY POLICY ACT OF 2005:

Amendments to the Public Utilities Regulatory Policy Act of 1978

The Act modifies the Public Utilities Regulatory Policy Act of 1978 (PURPA) by no longer requiring utilities to enter into new contracts for the purchase of energy from qualifying facilities — provided access to competitive wholesale markets is available. Under PURPA, qualifying facilities include cogenerators and certain small power production facilities. The Act's amendments to PURPA also require states to "consider" standards for net metering, smart metering, and interconnection services. Maryland, in large part, has already addressed these issues.

Figure 2-7
Electricity Distribution Service Areas



operate some of their own generating capacity whereas the rest purchase their customers' requirements from the market.

Cooperatively Owned – Southern Maryland Electric Cooperative (SMECO) serves approximately 131,300 customers across 1,150 square miles of Charles, St. Mary's, Calvert, and Prince George's Counties. It owns one generating unit (operated by Mirant) located at Mirant's Chalk Point site, and purchases additional power from the market. The three other cooperatives, A&N Electric Cooperative (serving approximately 350 customers), Choptank Electric Cooperative (43,900

Table 2-8 Potential Generating Capacity Additions in Maryland

Project	Developer	Location (County)	Primary Fuel	Capacity (MW)
Berlin	Town of Berlin	Worcester	No. 2 Oil	15
Criterion	Clipper	Garrett	Wind	100
Chalk Point	Mirant	Prince George's	Natural Gas	340
Dickerson	Mirant	Montgomery	Natural Gas	726
Eastern Landfill	PEPCO Energy Services	Baltimore	Landfill Gas	4
Easton	Easton Utilities	Talbot	No. 2 Oil/Natural Gas	9
Newland Park Landfill	INGENCO	Wicomico	Landfill Gas	6
Rock Springs	ODEC	Cecil	Natural Gas	340
Roth Rock	Synergics	Garrett	Wind	40
Savage Mountain	US WindForce	Allegany	Wind	40
Total				**1,510**

customers), and Somerset Rural Electric Cooperative (800 customers), do not possess any of their own generating capacity. Old Dominion Electric Cooperative (ODEC) owns generation in Maryland and is the wholesale power supplier to A&N and Choptank, as well as to 10 other regional electric distribution cooperatives.

Electricity Reliability in Maryland

Transmission

The network of high-voltage lines, transformers, and other equipment that connect power plants to distribution systems is referred to as transmission facilities. In Maryland there are more than 2,000 miles of transmission lines operating at voltages between 115 kV and 500 kV. (Distribution systems typically operate at 69 kV or below.) Figure 2-8 shows a map of this high-voltage transmission grid in Maryland.

Historically, the transmission system enabled utilities to locate power plants in locations near inexpensive sources of fuel, and transmit electricity over long distances to consumers. Additionally, the high-voltage transmission system allowed utilities to import power from facilities like the Keystone and Conemaugh coal units in western Pennsylvania. By interconnecting transmission systems, utilities were able to improve reliability by backing up each other's generation capacity. Utilities also use transmission lines to buy electricity from each other when less expensive than generating it themselves.

Transmission facilities are now owned by regulated investor-owned distribution companies, separate from the generating companies. The transmission grid serves as the basis for the competitive wholesale electricity market. Throughout the mid-Atlantic region, electricity dispatching is handled by the independent operator of the transmission grid, PJM.

Reliability Issues

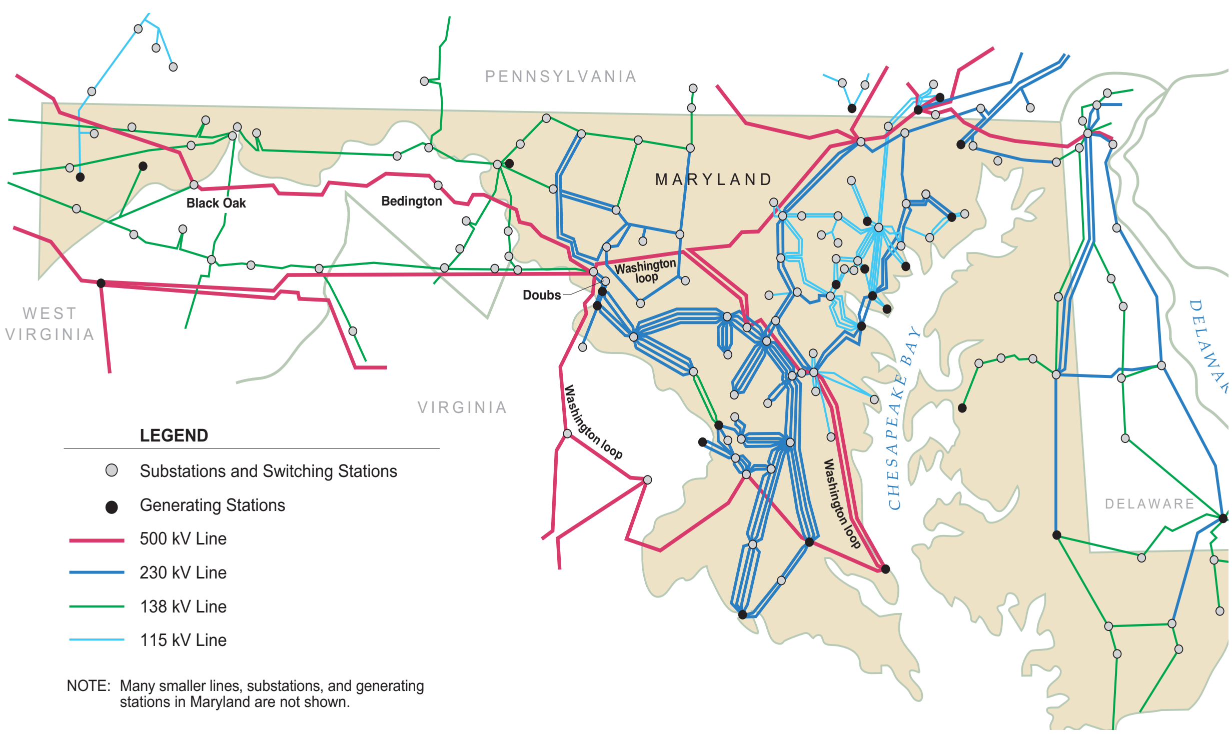
Electric power is delivered to end-use customers from power plants through a networked system of transmission and distribution lines. Electricity customers expect their service to be uninterrupted and to meet quality standards (e.g., constant voltage). Industrial facilities with electricity-driven processing equipment rely on high-quality electricity and generally cannot tolerate power outages. Likewise, homes, businesses, and government facilities depend on electricity to operate effectively and provide amenities, goods, and services.

To provide reliable power supplies at reasonable prices, adequate electric infrastructure is required. The essential nature of power service also calls for sound market rules and oversight. Recognizing that grid-delivered power must meet specific reliability and quality standards, the North American Electric Reliability Council (NERC) established principles and guidelines to promote reliability. NERC regional reliability councils are responsible for ensuring adequate, reliable, and secure bulk electricity supply. PJM, as the wholesale bulk power market operator, is responsible for the reliability of the regional transmission systems it oversees, including those in Maryland. PJM undertakes and develops periodic reliability assessments to address specific system reliability issues.

Energy Market Operations

PJM's energy markets operate on the basis of locational marginal prices (LMPs) — electricity prices that may vary by time and geographic location. In addition to long-term self-supply or bilateral contracts, each day, PJM-available generating resources can submit bids for power to be delivered the following day.* For each hour, the highest bid needed to serve loads during that hour becomes the market price; load-serving entities purchasing energy through the PJM day-ahead market for that hour pay that market-clearing price. Similarly, all generating units selected to supply power in a given hour receive that market-clearing price. When a transmission facility capacity limit interferes with the potential flow of electricity from lower cost energy sources, congestion occurs. With congestion, PJM dispatches generation units with higher costs (i.e., out of economic order) to serve load and maintain reliable power supplies. Dispatching generating units with higher costs results in higher prices for those areas affected by the transmission congestion. The differential in the LMPs between congested and non-congested areas defines the level of transmission congestion. LMPs provide signals to participants to take specific actions. When LMPs are high, such actions could take the form of customers voluntarily reducing load (i.e., demand response), which can occur quickly. Persistently high LMPs resulting from congestion can

Figure 2-8
Transmission Lines in Maryland (115kV and higher)



NOTE: Many smaller lines, substations, and generating stations in Maryland are not shown.

* PJM also operates a real-time market to accommodate deviations between scheduled energy and real-time requirements.

also produce longer-term responses, such as locating new generation in constrained areas or making transmission system enhancements.

Load Serving Entities (LSEs)

Companies that sell electricity (also known as generation service) to retail consumers are referred to by PJM as Load Serving Entities (LSEs). LSEs must schedule their load in the PJM-run wholesale market, purchase sufficient transmission capacity from PJM, and pay the cost of transmission congestion between the site of generation and the location of their loads. LSEs must also arrange for the dedication of generation capacity in a quantity exceeding the maximum demand of their customers by a margin set by PJM (currently 15 percent). State law requires that LSEs must be approved by the Maryland PSC in order to serve retail customers in the state.

Regional Transmission Expansion Process

Recently, PJM increased its geographic footprint to serve wholesale power needs in all or parts of 13 states and the District of Columbia. As load grows and new power plants request interconnection, PJM must expand and enhance the transmission systems it oversees. The PJM Regional Transmission Expansion Planning Protocol (RTEP Protocol) provides the necessary parameters for PJM to meet electric transmission needs economically and to ensure reliability.

PJM studies the requests of generation and transmission facilities to interconnect with the system. PJM has also added a process to assess the economic performance of the transmission system. This economic element was introduced to ensure that transmission upgrades supporting competition are first identified and then are potentially required of transmission owners if alternative solutions (i.e., merchant transmission, generation, and demand response measures) are not forthcoming from the marketplace.

PJM, therefore, is re-evaluating mechanisms that address transmission limitations, generation limitations, load growth, demand response, and economic planning. These initiatives take into account improvements that PJM stakeholders would like to see developed in the wholesale electric markets.

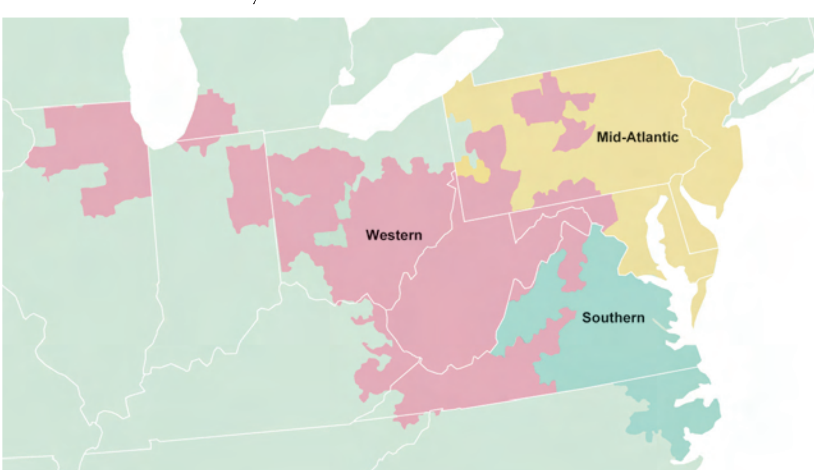
Transmission Congestion in Maryland

Transmission congestion occurs when low cost generation cannot be delivered to a particular area because of transmission capacity limitations. As a result, areas without low cost generation close to loads and with limited transmission import capability may see higher prices because more expensive generation must be relied upon to serve the loads. PJM provides financial mechanisms that allow market participants to hedge against much of the costs of transmission congestion. Reliable energy is delivered; however, the price of power is still higher in some hours in the constrained area because not all congestion is hedgeable. PJM both manages congestion and creates the price signals for market participants to take steps to alleviate congestion through its market design.

Certain congested facilities continue to be problematic for Maryland and the mid-Atlantic region. Of particular importance is the Bedington-Black Oak 500 kV line (see Figure 2-8). The Bedington-Black Oak line acts as a primary conduit for low cost coal-fired

PJM Interconnection

PJM is an independent system operator, regulated by FERC. PJM originally managed all or part of the transmission systems in Pennsylvania, New Jersey, Delaware, the District of Columbia, and Maryland, but now has expanded to cover all or parts of 13 states and the District of Columbia. PJM spans from Illinois to New Jersey and from Pennsylvania to North Carolina; it provides nondiscriminatory access to the transmission grid, and operates day-ahead and real-time energy markets, as well as markets for a variety of ancillary services. PJM improves regional reliability and reduces the cost of electricity for all consumers within its territory.



generation that can potentially serve loads in central Maryland and in the densely populated eastern portions of PJM. The line continues to be a significant regional constraint. Congestion on the facility caused substantial increases in prices in 2004 in the BGE and PEPCO control areas. (BGE and PEPCO have otherwise experienced very few internal transmission constraints.) Constraints on the Bedington-Black Oak line also resulted in price increases in the Delmarva Power control area.

The Bedington-Black Oak line is one of the most congested transmission facilities in PJM. In 2004, the number of hourly congestion events on the Bedington-Black Oak line increased to 1,131 hours, a 40 percent increase over the previous year.

Congestion has also been a serious problem on the Delmarva Peninsula — specifically in the southern Peninsula region in 2000 and 2001. PJM indicates that the completion of transmission reinforcements and new power plant dispatch protocols have resulted in reductions in the length and severity of congestion on the Delmarva Peninsula. Still, unhedged congestion may continue to be financially burdensome for certain retail customers.

ENERGY POLICY ACT OF 2005:

Reliability*First*

The Act requires that utilities comply with mandatory federal reliability standards intended to protect the electric power grid against large-scale blackouts such as those of Summer 2003. In the past, these standards have been voluntary. The Act includes language to create a new Electric Reliability Organization (ERO), certified by FERC, to establish and enforce reliability standards for the bulk power system. Although the Act allows FERC to certify any organization capable of enforcing reliability standards as an ERO, in all likelihood the National Electric Reliability Council (NERC) will be the Commission's ERO of choice.

To develop reliability standards, the newly established ERO may enter into agreements with regional, interconnection-wide reliability organizations to effectively delegate authority to propose and enforce the reliability standards within a specific region. Three of NERC's regional reliability councils are proceeding with the formation of a new, larger regional reliability organization — Reliability*First* Corporation — designed to ensure reliable wholesale power supply across multiple states, including Maryland. East Central Area Reliability Coordination Agreement (ECAR), Mid-Atlantic Area Council (MAAC), and Mid-America Interconnected Network (MAIN) are establishing Reliability*First*. Additionally, the Midwest Reliability Organization (MRO) will consider merging with Reliability*First* at a later time.*

Currently, the State of Maryland is bisected by two of the NERC regional reliability councils establishing Reliability*First*: ECAR and MAAC. Merging the MAAC, ECAR, and MAIN reliability regions under Reliability*First* will lead to better coordination of transmission reliability.

The objective is for Reliability*First* to begin full operations on January 1, 2006 and subsequently function under NERC. Reliability*First* will develop its own regional standards for the planning and operating of the bulk power system (including Maryland systems), monitor member activities, provide an appeals and dispute resolution process, and have authority to impose penalties and sanctions on a user, owner, or operator for violations of the reliability standards.

* *MRO replaced the Mid-Continent Area Power Pool (MAPP) regional reliability council of NERC and operates across a slightly broader geographic region.*

Recently Proposed Construction and Upgrades

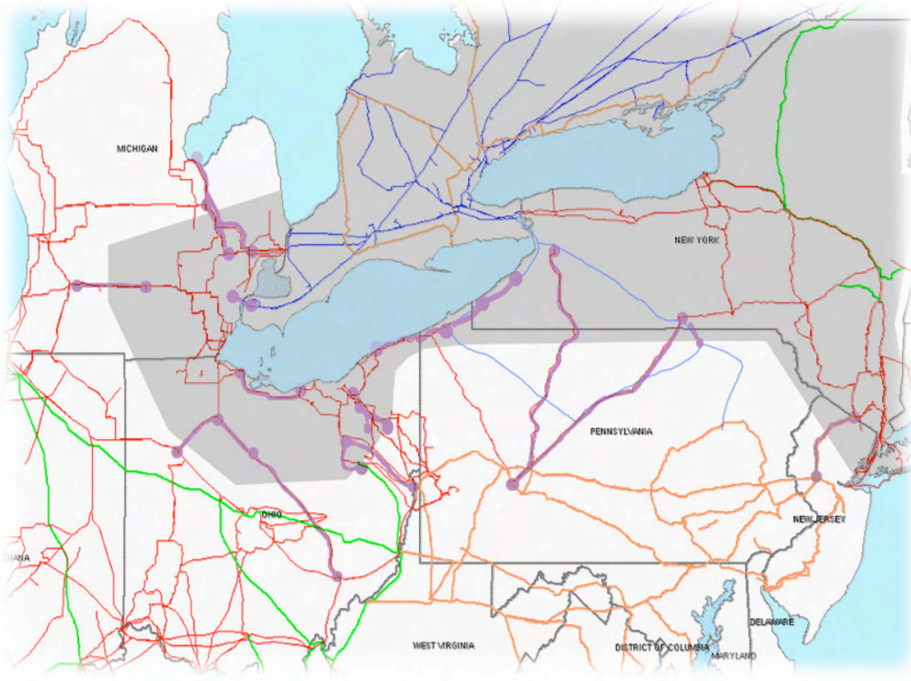
Planning for enhancement and expansion of transmission facilities on a regional basis is a principal PJM task. Independent analysis conducted by PJM ensures the network's ongoing ability to meet control area obligations to serve load through development of coordinated expansion plans across multiple transmission systems to assure effective and efficient implementation of facility upgrades. Identified upgrades are presented to the broad base of stakeholders for input and review. Additionally, PJM's independent board reviews upgrades for final approval and implementation.

PJM identifies baseline transmission network upgrades to maintain reliability standards, to interconnect merchant transmission and generation projects, and to improve transmission system elements affected by the merchant transmission and generation projects. PJM, through its Regional Transmission Expansion Planning Protocol, also designates the entities that will construct, own, and/or finance upgrades, as well as how upgrade costs will be recovered.

The Aftermath of the August 2003 Northeast Blackout

The massive power outage in the northeastern United States and the Canadian province of Ontario on August 14 and 15, 2003, spawned numerous reports and analyses addressing the genesis of the outage and recommending steps to be taken to avoid its recurrence. The system failures that led to the outage originated in the operating utilities of the First Energy (FE) system in Ohio.

The Midwest Independent System Operator (MISO) is the Reliability Coordinator for FE's Ohio-based utilities and other utilities in the Midwest. After the blackout, MISO improved communications and system software, and increased training for key personnel. It also increased monitoring of critical points on the systems and installed new visualization control panels. PJM entered into an agreement with MISO to improve lines of communication, and filed a new operating agreement with FERC. PJM also installed new monitoring devices in its Valley Forge and Greensburg control rooms. Finally, PJM developed a program to track and report on vegetation management violations.



The final report issued by the joint United States-Canada Power System Outage Task Force in April 2004 identified four inadequacies of the area's power systems that led to the blackout. Inadequacies were associated with system understanding, situational awareness, tree trimming, and reliability coordinator diagnostic support.

The July 2004 report by the North American Electric Reliability Council (NERC) was more specific and identified four principal causes of the outage:

1. *FE and the East Central Area Reliability Coordination Agreement (ECAR) failed to understand the inadequacies of FE's system;*
2. *FE did not understand the deteriorating condition of its system;*
3. *FE failed to adequately manage tree growth in its transmission rights-of-way; and*
4. *The interconnected grid's reliability organizations failed to provide effective real-time diagnostic support.*

To address these causes, NERC, acting as the overseer of reliability standards for the transmission grid in the United States and parts of Canada, developed a Control Area Readiness Audit program to identify areas of deficiency and recommend corrective actions.

(Figure represents approximate extent of blackout area.)

PJM indicates that a number of major transmission upgrades located within Maryland are now in service (see Table 2-9). These transmission upgrades span the state and each required at least $1.5 million to construct ($34.3 million in aggregate).

Additional upgrades for reliability totaling $200 million are scheduled through 2009 in all of Maryland's distribution service territories. For many of these transmission upgrades, the utilities are presently undertaking the technical review and examination of engineering, procurement and construction requirements, which represent the first steps towards project implementation. Although not all of these upgrades are located entirely within Maryland, they will affect the reliability of service in the state. Dozens of additional transmission facilities are also being reviewed or are under construction.

Table 2-9 Major In-Service Transmission Upgrades >$1.5 Million

- ✔ Hazelton-Jennings – reconductor 138 kV line, add interstate metering at Hazelton
- ✔ Boonsboro Substation – install 230-138 kV transformer
- ✔ Colora Substation – 230-34.5 kV transformer replacements
- ✔ Install new 500 kV circuit breaker at Conastone Substation
- ✔ Install reactive sources in Southwest PJM - 102 MVAR
- ✔ Increase emergency rating of Windy Edge-Lakespring-Texas 115 kV line
- ✔ Replace Northwest Substation 230-115 kV transformers with 500 MVA transformers
- ✔ Relocate Loretto 138-69 kV transformer AT3 to Kings Creek Substation

PJM Initiatives

PJM recently expanded to include several large transmission systems, significantly enlarging the PJM geographic operating boundaries and increasing the number of companies participating in PJM's stakeholder process. At the same time, PJM continues to develop and expand the PJM-operated markets used by members to secure energy, capacity, and ancillary services.* PJM is also in the process of developing a new structure through which Maryland and other state stakeholders will interact; provide input; and propose, develop, and submit structural changes to the region's wholesale electric markets.

In another area of ongoing PJM activity, the organization has filed an application with FERC to restructure the wholesale capacity market. Traditionally, PJM has viewed the aggregate generating capacity of power plants located in one geographic area as being available to supply electricity to aggregate load in other geographic areas, through the use of the transmission grid. Under the proposed revision, a price premium would be placed on generation located in transmission-constrained areas. Price premiums would provide an incentive for market participants to construct power plants in constrained areas; such an incentive is largely absent from PJM's current capacity market mechanism.

In the short term, PJM is moving to develop a healthy demand response market. Demand response programs enable end users to receive revenues for reducing electric consumption at times of high demand on the system. PJM is currently structuring several initiatives to expand the use of demand response programs, and expects to file these programs with FERC by the end of 2005.

* Ancillary services include activities such as voltage regulation, energy balancing, reserves, and other services needed to support the transmission and delivery of electric power to end-use customers.

Unit Retirements within PJM — Implications and Process

Generator retirements can potentially impact the transmission system's ability to reliably supply electricity where demanded. Over the past two years, a large number of generators — primarily located in New Jersey — have announced plans to retire, which could result in reliability criteria violations on the PJM-operated transmission system. Without significant transmission enhancements, PJM estimates that with steady load growth and limited generator additions, reliability criteria violations will appear in New Jersey and then spread to other areas of PJM, including the Baltimore-Washington region and the Delmarva Peninsula in 2008.

To take a power plant offline in the PJM region for a significant period of time or to permanently retire a plant, the owners of the plant are required to submit a filing to PJM that includes a 90-day notification of plans. Such advance notification provides an opportunity for PJM to determine if reliability problems will result from the retirement. If reliability problems are identified, PJM has the authority to require the generator to remain available during the 90-day period, but not beyond. FERC has rejected a proposed requirement that generators slated for deactivation continue to operate involuntarily after the required 90-day notice period if the ISO has identified potential reliability issues associated with the deactivation. Efforts are underway within PJM to request an extension of the notification period from 90 days to one year. PJM is also proposing the creation of a new capacity market known as the Reliability Pricing Model to establish predetermined levels of generation capacity, particularly for areas with limited transmission capacity to deliver electricity to load.

Distributed Generation

Distributed generation (DG) is defined as generating facilities 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.

DG provides opportunities for gains in efficiency from avoided transmission and distribution losses. DG technologies may also improve reliability and relieve grid congestion when sited in a transmission-constrained area. Sized from less than 1 MW to over 25 MW, DG technologies vary widely, and encompass combined heat and power facilities, emergency generators, microturbines, fuel cells, biomass, solar, and wind power. Policies enacted to encourage the development of DG facilities address more streamlined interconnection standards, net metering, CPCN exemptions, and an expedited air permitting process.*

Newer DG installations tend to be highly efficient, with emissions characteristics significantly superior to existing fossil fuel electric generating facilities. Technologies such as microturbines and fuel cells are considered clean, efficient, and suitable for continuous on-site power generation. Many DG installations, however, also include technologies that have been available for many years. The majority of existing DG capacity consists of reciprocating engines and diesel generators that are often more polluting on a per-kWh basis than large utility-scale generation facilities. One adverse outcome of providing economic incentives for operating DG facilities may be higher air emissions associated with the use of older DG technologies.

The attribute that makes DG attractive is that generation units are sized appropriately to meet local demand. However, this also causes concern to many regulators. Because of their small size, DG units fall outside normal permitting and siting requirements. For example, the PSC provides a CPCN exemption for electric generating facilities that submit an application and meet certain size and on-site usage requirements.** From 2001 through 2004, the PSC has approved CPCN exemptions for 110 units, providing a combined generating capacity of 140 MW — an average of 1.27 MW per unit. Most units are installed to provide emergency power requirements when power is not available from the grid. However, there are instances when such units are being operated as part of load management and load response programs.

Operation of DG units may occur for only a handful of hours during the course of the year, but often coincide with "code red" or unhealthy air quality conditions in Maryland. A University of California Energy Institute study found that DG technologies tend to be located closer to densely populated areas as compared to large central power stations. The study also found that, as a result, air emissions are more concentrated among local residents. In other words, a smaller group of local residents may be exposed to greater quantities of air emissions per unit of electricity generated by small DG units compared to large central plants, where emissions are dispersed among a larger population and geographic area.

* Additionally, air permits are not required for units smaller than 500 kW, and for units less than 1,000 horsepower operating less than 200 hours per year.

** See PSC website for more details: www.psc.state.md.us/psc/electric/CPCNExemptions_FAQ.htm.

Combined heat and power (CHP) facilities, which comprise a subset of DG facilities, combust fuel for process heat or steam, and for generating electricity. Maryland has 17 CHP plants with a combined total capacity of 812 MW. One additional project is being constructed (30 MW) and another is under consideration. There are numerous sites throughout the state that could be considered as technically suitable for CHP. Natural gas-fired combined cycle, combustion turbines, and reciprocating engine technologies have tended to dominate new CHP construction efforts. However, the high cost to operate natural gas-fired technologies do not favor significant development of new CHP systems.