# Electric Power Outlook for Pennsylvania 2015-2020

## August 2016

Pennsylvania Public Utility Commission

# ELECTRIC POWER OUTLOOK FOR PENNSYLVANIA 2015–2020

## August 2016

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# *Executive Summary*

## *Introduction*

Section 524(a) of the Public Utility Code (Code) requires jurisdictional electric distribution companies (EDCs) to submit to the Pennsylvania Public Utility Commission (PUC or Commission) information concerning plans and projections for meeting future customer demand.[1] The PUC's regulations set forth the form and content of such information, which is to be filed on or before May 1 of each year.[2] Section 524(b) of the Code requires the Commission to prepare an annual report summarizing and discussing the data provided, on or before Sept. 1. This report is to be submitted to the General Assembly, the Governor, the Office of Consumer Advocate and each affected public utility.[3]

Since the enactment of the *Electricity Generation Customer Choice and Competition Act*,[4] the Commission's regulations have been modified to reflect the competitive market. Thus, projections of generating capability and overall system reliability have been obtained from regional assessments.

***Any comments or conclusions contained in this report do not necessarily reflect the views or opinions of the Commission or individual Commissioners. Although issued by the Commission, this report is not to be considered or construed as approval or acceptance by the Commission of any of the plans, assumptions, or calculations made by the EDCs or regional reliability entities and reflected in the information submitted.***

## *Overview*

This report concludes that sufficient generation, transmission and distribution capacity exists to reasonably meet the needs of Pennsylvania's electricity consumers for the foreseeable future.

Regional generation adequacy and reserve margins of the mid-Atlantic will be satisfied through 2025, provided that planned generation and transmission projects will be forthcoming in a timely manner. The North American Electric Reliability Corporation (NERC) provided a reliability assessment of the Regional Transmission Organization (RTO), which is PJM Interconnection, LLC (PJM) and concludes PJM will meet its reserve margin requirements in 2016 of 15.7 percent. NERC also projects that PJM will meet its reserve margin requirements through 2025.

Pennsylvania's aggregate electrical energy usage (residential, commercial, industrial, sales for resale, and other) in 2015 was 146,229 gigawatt hours (GWh) versus 146,516 GWh for 2014, which is a 0.2 percent decrease in electrical usage. Over the next five years, total Pennsylvania electric energy usage is projected to decrease at an average annual rate of 0.09 percent. This includes a decrease in average annual residential usage of 0.69 percent, an increase in average annual commercial usage of 0.03 percent, and an increase in average annual industrial usage of 0.41 percent.

[1] *See* 66 Pa. C.S. § 524(a).
[2] *See* 52 Pa. Code §§ 57.141—57.154.
[3] *See* 66 Pa.C.S. § 524(b).
[4] 66 Pa.C.S. §§ 2801—2812.

## Section 1 – Regional Electric Outlook



## Section 2 – Pennsylvania Electric Outlook



## Appendix A – Data Tables



## Appendix B – Plant Additions and Upgrades



## Appendix C – Existing Generating Facilities

# *Section 1 – Regional Electric Outlook*

## *Purpose*

The *Electric Power Outlook for Pennsylvania 2015-2020* discusses the current and future electric power supply and demand situation for the 11 investor-owned jurisdictional electric distribution companies (EDCs) operating in the state and the entities responsible for maintaining the reliability of the bulk electric supply system within the region that encompasses the state.

Pursuant to Title 66, Pennsylvania Consolidated Statutes, Section 524(b), the PUC annually submits this report to the General Assembly, the Governor, the Office of Consumer Advocate and affected public utilities. It also is posted on the Commission's website.[5]

The information contained in this report includes highlights of the past year, as well as EDCs' projections of energy demand and peak load for 2016-20. The state's seven largest EDCs[6] represent over 95 percent of jurisdictional electricity usage in Pennsylvania. Accordingly, information regarding the four smallest EDCs contained in this report is limited.[7] The report also provides a regional perspective with statistical information on the projected resources and aggregate peak loads for the region that impacts Pennsylvania.

As permitted under the Section 2809(e) of the Public Utility Code, the Commission has adopted revised regulations, reducing from 20 years to five years the reporting requirements and the reporting horizon for energy demand, connected peak load, and number of customers. Because Pennsylvania has a competitive retail electric market, certain information is no longer required to be reported. This includes information regarding generation facilities such as capital investments, energy costs, new facilities, and expansion of existing facilities.

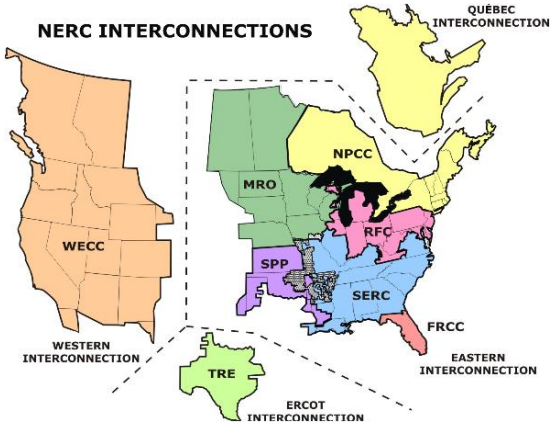
The Commission relies on reports and analyses of regional entities, including the ReliabilityFirst Corporation (RFC) and PJM, to obtain a more complete assessment of the current and future status of the electric power supply within the region. Also, data for the report is submitted annually by EDCs, pursuant to the Commission's regulations. Sources also include data submitted by regional reliability councils to the North American Electric Reliability Corporation (NERC) and the U.S. Energy Information Administration (EIA).

[5] This report is available at http://www.puc.pa.gov/utility_industry/electricity/electric_reports.aspx.
[6] Those EDCs with at least 100,000 customers.
[7] *See* 52 Pa. Code §§ 57.141—57.154.

## *Regional Reliability Organizations*

In Pennsylvania, all major EDCs are interconnected with neighboring systems extending beyond state boundaries. These systems are organized into regional reliability councils responsible for ensuring the reliability of the bulk electric system.

### *North American Electric Reliability Corporation*




The North American Electric Reliability Corporation (NERC) has been granted legal authority by the Federal Energy Regulatory Commission (FERC) to enforce reliability standards and to mandate compliance with those standards. NERC oversees the reliability of the bulk power system that provides electricity to 334 million people, has a total demand of over 830 gigawatts (GW), has approximately 211,000 miles of high-voltage transmission lines (230,000 volts and greater), and represents more than $1 trillion worth of assets.

NERC's members operate in eight regional reliability entities. Members include investor-owned utilities, federal and provincial entities, rural electric cooperatives, state/municipal and provincial utilities, independent power producers, independent system operators, merchant electricity generators, power marketers and end-use electricity customers. The membership accounts for virtually all the electricity supplied in the United States, Canada, and a portion of Baja California Norte, Mexico. The regional entity operating in Pennsylvania is ReliabilityFirst Corporation (RFC).

NERC establishes criteria, standards and requirements for its members and all control areas. All control areas must operate in a seamless and stable condition to prevent uncontrolled system separations and cascading outages caused by any single transient event.

### *NERC Reliability Assessment*

The *2015 Long-Term Reliability Assessment*[8] is NERC's independent review of the 10-year reliability outlook for the North American bulk power system (BPS) while identifying trends, emerging issues, and potential risk. Also reported is insight on resource adequacy and operating reliability, as well as an overview of projected electricity demand growth for individual assessments areas. NERC also provides specific review of the PJM Regional Transmission Organization (RTO).

In the 2015 assessment, NERC identifies the following key issues for the North American BPS:

- Resources are sufficient to meet reliability targets in most areas in the 10-year review period.

- Reserve Margins in several Assessment Areas are trending downward, despite low load growth, but remain well above required reserve margin requirements of 15.7 percent. The projected PJM region reserve margins are 25.2 percent in 2016, 28.9 percent in 2020, and 24.5 percent in 2025.

- Natural-gas-fired generation surpassed coal this year as the predominant fuel source for electric generation and is the leading fuel type for capacity additions. A growing reliance on natural gas continues to raise reliability concerns regarding the ability of both gas and electric infrastructures to maintain the BPS reliability, despite substantial progress made in addressing the interdependencies between these two industries. There is a need to enhance planning approaches to consider fuel deliverability, availability, and responses to pipeline contingencies that are unique to each area.

- A changing resource mix requires additional measures and approaches for assessing future reliability. The North American electric power system is undergoing a significant transformation with ongoing retirements of fossil-fired and nuclear capacity as well as growth in natural gas, wind, and solar resources. This shift is caused by several drivers, such as existing and proposed federal, state, and provincial environmental regulations as well as low natural gas prices, in addition to the ongoing integration of both distributed and utility-scale renewable resources. The resource mix changes are directly impacting the behavior of the North American BPS. These developments will have important implications on system planning and operations, as well as how NERC and the industry assess reliability. In order to maintain an adequate level of reliability through this transition, generation resources need to provide sufficient voltage control, frequency support, and ramping capability as essential components to the reliable operations and planning of the BPS.

[8] *See* NERC, *2015 Long-Term Reliability Assessment*, Dec. 2015 available at nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/2015LTRA%20-%20Final%20Report.pdf.

### *ReliabilityFirst Corporation*

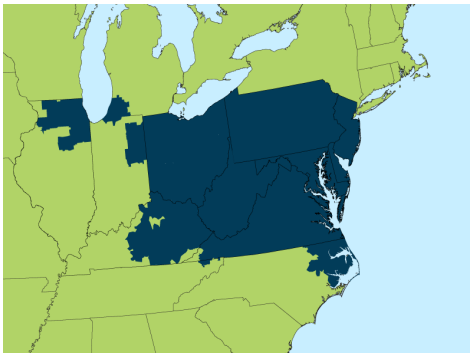
ReliabilityFirst Corporation (RFC), headquartered in Fairlawn, Ohio; is one of eight NERC regional entities serving North America, and is the regional reliability entity for Pennsylvania. Its service territory consists of more than 72 million people in a 238,000 square-mile area covering all of New Jersey, Delaware, Pennsylvania, Maryland, District of Columbia, West Virginia, Ohio, Indiana and parts of Michigan, Wisconsin, Illinois, Kentucky, Tennessee and Virginia. Its membership includes load-serving entities (LSEs), RTOs, suppliers and transmission companies.

The RFC controls reliability standards and enforcement by entering into delegation agreements with regional entities to ensure adequate generating capacity and transmission. Some performance factors considered in establishing acceptable reliability levels include load characteristics, load forecast error, scheduled maintenance requirements, and the forced outage rates of generating units. The RFC reliability standards require sufficient generating capacity to be installed to ensure the probability of the system load exceeding available capacity is no greater than one day in 10 years. LSEs that are members of RFC have a capacity obligation determined by evaluating individual system load characteristics, unit size and operating characteristics.

## *Regional Transmission Organizations*

The two RTOs within the RFC footprint are PJM Interconnection, LLC (PJM) and Midcontinent Independent System Operator, Inc. (MISO).

### *PJM Interconnection*



PJM is a regional transmission organization that ensures the reliability of the largest centrally dispatched control area in North America, covering 234,417 square miles. PJM coordinates the operation of 183,600 megawatts (MW) of generating capacity with 165,492 MW peak demand and more than 62,556 miles of transmission lines. The PJM RTO coordinates the movement of electricity for over 61 million people through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia.[9] PJM manages a sophisticated regional planning process for generation and transmission expansion to ensure the continued reliability of the electric system. PJM is responsible for maintaining the integrity of the regional power grid and for managing changes and additions to the grid to accommodate new generating plants, substations and transmission lines. In addition, PJM analyzes and forecasts future electricity needs of the region. Its planning process ensures that the electric system growth is efficient and takes place in an orderly fashion. PJM supports market innovation through its active support for demand response markets for energy, capacity and ancillary services, and helps ensure

[9] *See PJM 2015 Annual Report*, available at http://www.pjm.com/~/media/about-pjm/newsroom/annual-reports/2015-annual-report.ashx.

that appropriate infrastructure and operational capabilities are in place to support newly installed renewable energy facilities. PJM's mission can be described as below:

- Acting as a neutral, independent party, PJM operates a competitive wholesale electricity market and manages the high-voltage electricity grid to ensure reliability for more than 61 million people.

- PJM's long-term regional planning process provides a broad, interstate perspective that identifies the most effective and cost-efficient improvements to the grid to ensure reliability and economic benefits on a system wide basis.

- An independent Board oversees PJM's activities. Effective governance and a collaborative stakeholder process help PJM achieve its vision: "To be the electric industry leader – today and tomorrow – in reliable operations, efficient wholesale markets, and infrastructure development."

PJM coordinates the continuous buying, selling and delivery of wholesale electricity through open and competitive spot markets. PJM balances the needs of suppliers, wholesale customers and other market participants, and continuously monitors market behavior. In 2015, the PJM market decreased by 14.8 percent, from $50 billion in 2014 to $42.6 billion in 2015. Membership increased 1.6 percent from 945 members in 2014 to 960 members in 2015.[10] PJM's 2015 transmission volumes were 793 terawatt hours (TWhs), compared with 838 TWhs for 2014.

The PJM annual 15 year growth rate (2016-2031) forecast was 1.3 percent and remained the same as last year's.[11] In 2015, there were 104 generators that were deactivated, totaling 10,060 MW of generation.[12] To replace retiring generators, there are over 25,000 MW of new generating resources under construction as of Dec. 31, 2015; and an additional 42,000 MW actively under study.

Also of note, in 2015, Terry Boston retired as PJM's CEO and was replaced by Andy Ott. Andy Ott was the former PJM executive vice president responsible for executive oversight of the PJM Market Operations and Market Strategy.

### *PJM Peak Demand Performance and Generator Testing*

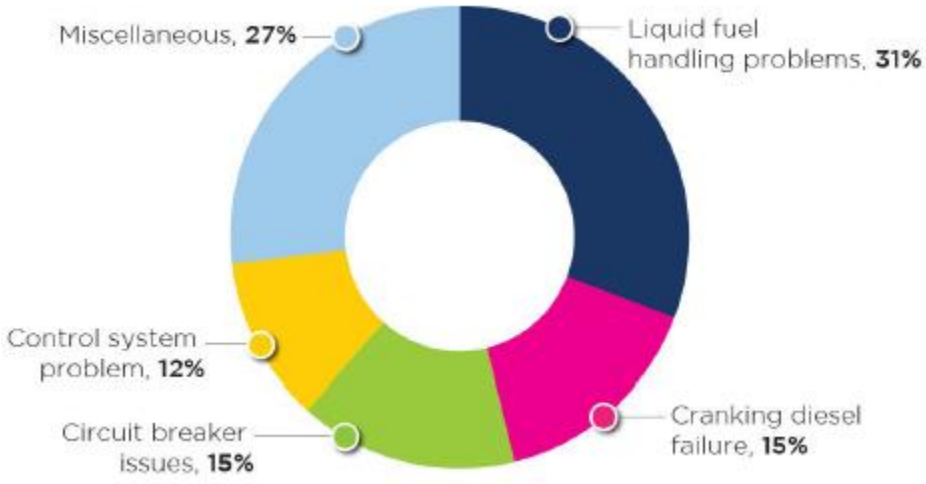
On the morning of Feb. 20, 2015, PJM set a new wintertime peak demand record of 143,086 MW, which surpassed the previous all-time winter peak of 142,863 MW, set on Jan. 7, 2014.[13] There was significant improvement in the generator forced outage rate during the Feb 20, 2015 peak demand event. The forced outage rate was only 13.4% versus 22% on Jan 7, 2014. The

[10] http://www.pjm.com/~/media/about-pjm/newsroom/annual-reports/2015-annual-report.ashx.
[11] http://www.pjm.com/~/media/committees-groups/subcommittees/las/20151130/20151130-item-07-preliminary-load-report.ashx
[12] http://www.pjm.com/~/media/about-pjm/newsroom/annual-reports/2015-annual-report.ashx
[13] http://www.pjm.com/~/media/documents/reports/20150513-2015-winter-report.ashx

improvement was primarily the result of PJM putting in place pre-winter operational testing for dual-fuel and infrequently run units, and an upgraded winter-preparation checklist program. PJM also required better communications of fuel status and increased generator coordination with natural gas pipelines.

A total of 168 units (9,919 MW) participated in the pre-winter operational testing. Units that participated in the pre-winter operational testing had a lower rate of forced outages compared to those that did not test. During the testing, 26 units out of 168 units experienced initial failures, or failed to complete the exercise. Of those 26 units, 16 were able to correct the issue and subsequently successfully completed the exercise. The total unit success rate of 94 percent includes these corrected failures. Chart 1, below, details the causes of failures during the exercise.

### *Chart 1 Cold Weather Operational Exercise – Causes of Failures*




### *PJM Bulk Electric System Status- Transmission*

PJM prepared for 2015 winter peak operations by analyzing winter transmission outage requests to understand impacts to reliability and congestion. The PJM Peak Period Outage Scheduling Guidelines indicate transmission owners should avoid scheduling transmission outages that may result in increased risk to system reliability during the winter peak periods.[14]

PJM performed a detailed analysis on each outage request, under winter peak system conditions, for outages that transmission owners needed to schedule over the 2015 winter peak. This was to ensure system reliability could be maintained before approving the outage. The detailed analysis also included an assessment of congestion impacts. If there was a significant congestion impact for

[14] http://www.pjm.com/~/media/documents/reports/20150513-2015-winter-report.ashx

the outage, PJM suggested that the outage be rescheduled. PJM also communicated long-duration scheduled transmission line outages of 500 kV or above (e.g. those scheduled for the entire season) and projected impacts to PJM members through the PJM committee process.

Prior to the 2015 winter season, PJM performed a winter operations study with the transmission owners as part of the Operations Assessment Task Force. The study results indicated the PJM RTO bulk power transmission system could be operated reliably during the 2015 winter peak load period in accordance with the operating principles and guidelines contained in the PJM manuals. The task force also performed sensitivity studies to simulate extreme system conditions that PJM might encounter during the winter season. The 2015 winter sensitivity studies included the following scenarios: gas pipeline restrictions, high winter loads close to the peak experienced in 2014, and high generation outages. The study results showed all contingencies identified in the sensitivity studies were controllable.

## *PJM Pennsylvania Regional Transmission Expansion Plan Overview*

The Pennsylvania electric power outlook generally reflects the projections of RFC, which are based on forecasts of PJM and MISO. PJM evaluates regional data concerning the current and future condition of the bulk electric system because it is planned on a regional rather than state basis. While the aggregate load for the state's consumers can be determined, the availability and mix of electrical generation units cannot be predicted, since the complexities of a changing free market will be the primary driving force.

An RTO such as PJM has the primary responsibility to coordinate and plan future upgrades and expansion of the regional transmission system. A key part of the planning process is to evaluate both generation interconnection and merchant transmission interconnection requests. Although transmission planning is performed on a regional basis, most upgrades and expansion in Pennsylvania are planned to support the local delivery system and new generating facilities.

Load-serving entities (LSE) acquire capacity resources by: entering bilateral agreements, participating in the PJM-operated capacity market, owning generation, and/or pursuing load management options.[15] The PJM generator interconnection process ensures new capacity resources satisfy LSE requirements to reliably meet their obligations.

All new generation that anticipates interconnecting and operating in parallel with the PJM transmission grid and participating in the PJM capacity and/or energy markets must submit an interconnection request to PJM for technical evaluation and approval.

Proposed new generating plants and increased capacity of existing plants in Pennsylvania total 23,772 MW versus 14,015 MW last year. These facilities are under active study by PJM. Natural gas projects make up more than 21,906 MW versus 10,307 MW last year of this queued

[15]A Load Serving Entity (LSE) is any entity (or the duly designated agent of such an entity), including a load aggregator or power marketer that (a) serves end-users within the PJM Control Area, and (b) is granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users located within the PJM Control Area (definition from *PJM.com* glossary).

capacity. This additional capacity may be used to serve Pennsylvania or out-of-state customers.[16] Appendix B lists the current PJM interconnection requests for new generating resources in Pennsylvania. The existing generating capacity in Pennsylvania totals 42,628 MW.[17] Appendix C lists existing generation facilities in Pennsylvania.

Peak summer load growth rates for the Transmission Owner zones within Pennsylvania are expected to range from 0.1 percent to 0.8 percent through 2025. Peak winter load-growth rates are expected to range between 0.1 and 1.1 percent on average over the same time period. Forecasted summer peak loads are modeled in power flow studies used in PJM's 2014 Regional Transmission Expansion Plan (RTEP) studies. PJM's RTEP includes baseline transmission upgrades in Pennsylvania to meet expected near-term 2020 peak load conditions. RTEP studies also assess anticipated needs for additional transmission expansion plans to meet long-term load growth requirements through 2030.[18]

PJM conducts reliability studies to identify RTEP baseline upgrades needed to resolve all identified reliability criteria violations. PJM cannot compel a generator to operate, but can make financial arrangements with a generator to continue operating for reliability.

In 2015, the PJM Board approved 214 new baseline and 207 new network transmission projects totaling $1.9 billion and $1.3 billion, respectively. These approvals in 2015, however, were offset by existing project cost changes and by the removal of 202 network projects totaling $677 million and 42 existing RTEP baseline projects totaling $300 million.[19]

In 2015, the PJM market was reconfigured as a result of the failure of a large number of reserve generating resources to operate when called upon during the Jan. 2014 Polar Vortex. PJM added a new capacity performance (CP) product. Under the CP provisions, for the 2018/2019 Delivery Year, PJM procured two capacity product types through RPM auctions, Capacity Performance and Base Capacity. CP Resources must be capable of sustained, predictable operation, and are expected to be available and capable of providing energy and reserves when needed throughout the entire Delivery Year; whereas, Base Capacity Resources may not be capable of sustained, predictable operation and/or may not be expected to provide energy and reserves outside of the summer period. Base Capacity Resources include Base Capacity Demand Resources (DR), which are expected to be available only during the summer months, and Base Capacity Energy Efficiency (EE) Resources, which are expected to provide permanent continuous load reduction only during the summer months. Base Capacity Resources also include Base Capacity Generation Resources, which are expected to be available throughout the Delivery Year like all Capacity Performance Resources. But, unlike Capacity Performance Resources, Base Capacity Generation Resources will be subject to non-performance charges only when they fail to perform when needed during the summer months (June through September).

[16] *See* PJM 2015 RTEP, available at http://www.pjm.com/documents/reports/rtep-documents/2015-rtep.aspx.
[17] Data reported to SNL and received by PUC staff.
[18] *See* PJM 2015 RTEP, available at http://www.pjm.com/documents/reports/rtep-documents/2015-rtep.aspx.
[19] *See* PJM RTEP executive summary at http://pjm.com/~/media/documents/reports/2015-rtep/2015-rtep-book-1.ashx.

The results of the 2018/2019 Reliability Pricing Model (RPM) BRA (Base Residual Auction) held in 2015 produced an adequate amount of resources to serve the PJM region for the June 1, 2018 to May 31, 2019 delivery year. The total capacity procured in the auction was 166,837 MW, which represents a 19.8 percent reserve margin, or 4.1% higher than the target reserve margin of 15.7%. Demand Response (DR) Resources cleared 11,084 MW versus 10,975 MW last year, which is an increase of about 109 MW from last year's auction. Energy Efficiency Resources cleared 1,247 MW versus a record 1,339 MW last year; which is a decrease of 92 MW from last year's auction. Of the 11,084 MW of DR, 9,600 was base capacity product and 1,484 was capacity performance product; and of the 1,247 MW of EE resources, 359 MW was base capacity product and 887 MW was capacity performance product. [20]

## *Status of PJM Backbone Transmission Lines*[21]

The specific status of approved backbone transmission lines is summarized below.

### Susquehanna-Roseland 500 kV Line

Approved by the PJM Board in June 2007, the Susquehanna-Roseland 500 kV line (Susquehanna-Lackawanna-Hopatcong-Roseland) had a required in-service date of June 1, 2012. Regulatory process delays pushed the expected in-service out to June 1, 2015. The line was approved by the Pennsylvania Public Utility Commission in February 2010 and by the New Jersey Board of Public Utilities in April 2010. The line received final approval from the National Park Service (NPS) who issued a Record of Decision on October 2, 2012, affirming the route chosen by PP&L and PSE&G; the NPS issued a special use (Construction) permit on Dec.12, 2012. The Hopatcong-Roseland portion of the line was energized on March 31, 2014. The Susquehanna-Lackawanna portion of the line was energized on Sept. 23, 2014. The remainder of the line was placed in service in May 2015.

### Cloverdale-Lexington 500 kV Line

In October 2013, the PJM Board approved PJM's recommendation to re-conductor the AEP portion of the Cloverdale-Lexington 500 kV line, including replacement of eleven tower structures. This follows December 2011 PJM Board approval to re-conductor the Dominion portion of the Cloverdale-Lexington 500 kV circuit to resolve NERC criteria Category C N-1-1 violations. AEP and Dominion have coordinated plans underway to rebuild their respective portions of the 44 mile line in order to increase its operational limit. The Virginia State Corporate Commission released its final order approving Dominion's 7.4 mile portion of the line on September 7, 2012. Dominion began construction in late spring of 2013 with completion in December 2013. AEP filed its application to re-conductor their 37.1 mile portion of the line in late 2013. AEP is expected to complete line re-conductoring by June 1, 2016.

### Dooms-Lexington 500 kV Line

Dominion filed an application with the Virginia State Corporate Commission on Nov. 19, 2012. On May 16, 2013, the SCC granted a Certificate of Public Convenience and Necessity (CPCN) authorizing the rebuild project. The project is expected to be completed by Oct. 1, 2016.

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[20] *See* PJM news release http://insidelines.pjm.com/pjm-announces-capacity-auction-results/.

[21] *See* PJM 2015 RTEP, Book 3, Section 1.2 http://www.pjm.com/~/media/documents/reports/2015-rtep/2015-rtep-book-3.ashx.

### Mount Storm-Doubs 500 kV Line

The PJM Board approved the rebuild of the Mount Storm-Doubs line in October 2010 with a required in-service date of June 2020. The Virginia State Corporation Commission issued a CPCN for the line on Sept. 1, 2011. The West Virginia PSC issued a ruling on Dec. 16, 2010, that the project is an ordinary extension of an existing system in the usual course of business and does require a CPCN. The Maryland PSC issued a CPCN on July 7, 2013. The rebuild was completed June 1, 2015.

### Surry-Skiffes Creek 500 kV Line

The PJM Board approved plans to build a new 7.7 mile Surry to Skiffes Creek 500 kV line and a 20.25 mile Skiffes Creek to Whealton 230 kV line in April 2012. June 1, 2015 was identified as the required in-service date for the 500 kV portion of the project and June 1, 2016, as the required in-service date for the 230 kV portion of the project. The Virginia State Corporation Commission approved Dominion's request to build the project on Nov.26, 2013. Construction activities have been delayed due to transmission permitting issues. The expected in-service date has been revised to June 30, 2017, based on these permitting issues. PJM will work with Dominion to ensure that necessary operational guidelines are in place until the line is in service.

### Loudoun-Brambleton Area

PJM's RTEP includes two 500 kV projects in this area. First, a project that encompasses a rebuild of the Mosby-Brambleton-Pleasant View-Goose Creek portion of the Loudoun-Doubs 500 kV line was approved by the PJM Board in October 2011. The project is expected to be completed by Dominion by June 1, 2016. PJM's RTEP also includes a new, second 500 kV line from Loudoun to Brambleton, as approved by the PJM Board in December 2013. This new line is expected to be in service by June 1, 2018.

### Northern New Jersey 345 kV Upgrades (Bergen to Linden Corridor Upgrade Project)

The Bergen to Linden Corridor project was approved by the PJM Board in December 2013 with a required in-service date of June 2015. The project is comprised of a series of transmission facility line upgrades from 138 kV to 345 kV in northern New Jersey. Phase 1 of the project will focus on work to be performed within the Hudson-Bergen/Marion-Bergen 230 kV and 138 kV overhead transmission corridor and at the Bergen, North Bergen, Homestead, Penhorn and Marion stations. Construction of Phase 1 began during the third quarter of 2015, with an anticipated in-service date in June 2016. Phase 2 will focus upon work to be performed within the PSE&G Linden-Bayway 138 kV overhead transmission corridor, and the Linden and Bayway stations, with an anticipated in-service date of June 2017. Phase 3 will focus on work to be performed on facilities interconnected by underground cable, looping together the Marion stations, with an anticipated in-service date of June 2018. The underground system will serve to loop together the facilities upgraded in Phase 1 and Phase 2 of the project.

### Byron-Wayne 345 kV Line (Grand Prairie Gateway)

The Byron-Wayne 345 kV line was approved by the PJM Board in October 2012, with a requested June 1, 2017 in-service date. Construction began in the second quarter of 2015 and is expected to be completed during 2017.

### Mansfield-Northfield (Glen Willow) 345 kV Line

The Mansfield-Northfield 345 kV line was approved by the PJM Board in April 2012 with a requested June 1, 2015 in-service date. FirstEnergy received approval for the Glenwillow-Mansfield project from the Ohio Power Siting Board in February 2013. Construction began in Fall 2013.

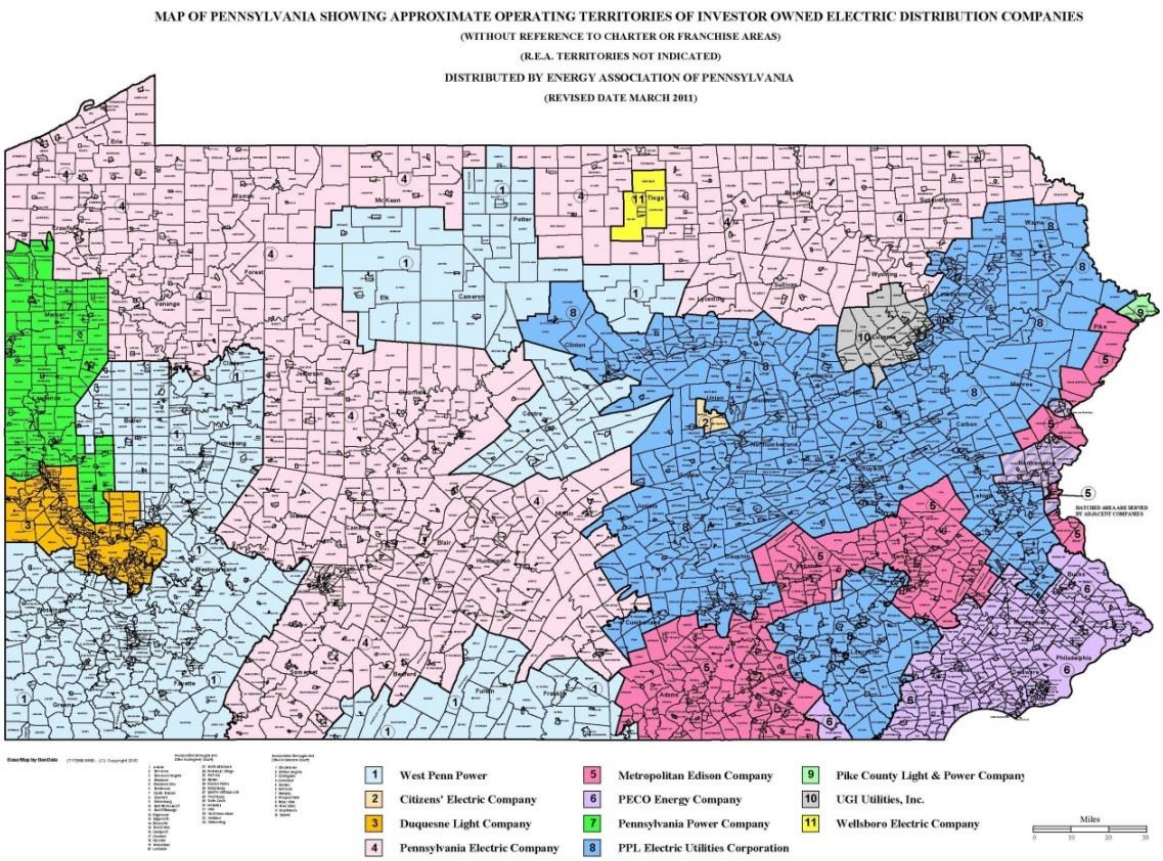
# Section 2 – Pennsylvania Electric Outlook

## *Electric Distribution Companies*

Eleven EDCs currently serve the electricity needs of the majority of Pennsylvania's homes, businesses and industries. Cooperatives and municipal systems provide service to several rural and urban areas. The 11 jurisdictional EDCs are:

- Citizens' Electric Company
- Duquesne Light Company
- Metropolitan Edison Company (FirstEnergy)
- Pennsylvania Electric Company (FirstEnergy)
- Pennsylvania Power Company (FirstEnergy)
- PPL Electric Utilities Corporation
- PECO Energy Company (Exelon)
- Pike County Light & Power Company (Orange & Rockland Utilities Inc.)
- UGI Utilities Inc. – Electric Division
- Wellsboro Electric Company
- West Penn Power Company (FirstEnergy)

## *Figure 2 Map of EDC Service Territories*




Each LSE is responsible to make provisions for adequate generating resources to serve its customers. The local EDC or Commission-approved alternative default-service provider (DSP) must acquire electricity, pursuant to a Commission-approved competitive procurement process, for customers who (1) contract with an alternative electric generation supplier (EGS) and the chosen EGS does not supply the service (2) do not choose an alternative supplier.[22] Under current law, the default electric generation prices are required to be based upon a "prudent mix" procurement strategy that will produce the least cost to customers over time.[23]

[22] 66 Pa. C.S. § 2803.
[23] *See id.* § 2807(e)(3).

## *Alternative Energy Portfolio Standards*

The PUC continues to implement procedures and guidelines necessary to carry out the requirements of the Alternative Energy Portfolio Standards Act (AEPS) of 2004 (Act 213).[24] Act 213 requires that an annually increasing percentage of electricity sold to Pennsylvania retail customers be derived from alternative energy resources. The amount of electricity to be supplied by alternative resources increases to a total of 18 percent by 2021. On July 19, 2007, Act 35 of 2007 was signed into law, amending Act 213 by changing the compliance schedule related to solar photovoltaic (PV) energy. Act 35 also amended other provisions of the law, including definitions for customer-generator and net metering. On December 20, 2008, a PUC rulemaking based on the Act 35 changes became effective. AEPS resources must be located in PJM.

Alternative energy resources are categorized as Tier I and Tier II resources. Tier I resources include solar, wind, low-impact hydropower, geothermal, biologically derived methane gas, fuel cells, biomass (including electricity generated in Pennsylvania utilizing by-products of the pulping process and wood manufacturing process, including bark, wood chips, sawdust and lignins in spent pulping liquors)[25] and coal mine methane. Tier II resources include waste coal, demand side management, distributed generation, large-scale hydropower, by-products of wood pulping and wood manufacturing, municipal solid waste, and integrated combined coal gasification technology.

Act 213 requires that by 2021, 8 percent of the electricity sold in each EDC service territory will be derived from Tier I resources, including solar. Energy derived from Tier II resources is to increase to 10 percent. Act 213, as amended by Act 35 of 2007, sets forth a 15-year schedule for complying with its mandates, as shown in Table 1. Since Jan. 1, 2011, all EDCs and EGSs have been required to comply.

[24] Alternative Energy Portfolio Standards Act, effective Feb. 28, 2005; 73 P.S. §§ 1648.1—1648.8.
[25] *See* 66 Pa.C.S. § 2814(b).

### *Table 1 Alternative Energy Portfolio Standards*

| Year | Period | Tier I (%) | | | Tier II (%) |
|---|---|---|---|---|---|
| | | Total | Solar PV | Non-Solar | |
| 1 | June 1, 2006 – May 31, 2007 | 1.5 | 0.0013 | 1.4987 | 4.2 |
| 2 | June 1, 2006 – May 31, 2008 | 2.5 | 1.0013 | 2.4987 | 5.2 |
| 3 | June 1, 2006 – May 31, 2009 | 3.5 | 2.0013 | 3.4987 | 6.2 |
| 4 | June 1, 2006 – May 31, 2010 | 4.5 | 3.0013 | 4.4987 | 7.2 |
| 5 | June 1, 2006 – May 31, 2011 | 5.5 | 4.0013 | 5.4987 | 8.2 |
| 6 | June 1, 2006 – May 31, 2012 | 6.5 | 5.0013 | 6.4987 | 9.2 |
| 7 | June 1, 2006 – May 31, 2013 | 7.5 | 6.0013 | 7.4987 | 10.2 |
| 8 | June 1, 2006 – May 31, 2014 | 8.5 | 7.0013 | 8.4987 | 11.2 |
| 9 | June 1, 2006 – May 31, 2015 | 9.5 | 8.0013 | 9.4987 | 12.2 |
| 10 | June 1, 2006 – May 31, 2016 | 10.5 | 9.0013 | 10.4987 | 13.2 |
| 11 | June 1, 2006 – May 31, 2017 | 11.5 | 10.0013 | 11.4987 | 14.2 |
| 12 | June 1, 2006 – May 31, 2018 | 12.5 | 11.0013 | 12.4987 | 15.2 |
| 13 | June 1, 2006 – May 31, 2019 | 13.5 | 12.0013 | 13.4987 | 16.2 |
| 14 | June 1, 2006 – May 31, 2020 | 14.5 | 13.0013 | 14.4987 | 17.2 |
| 15 | June 1, 2006 – May 31, 2021 | 15.5 | 14.0013 | 15.4987 | 18.2 |

To meet the requirements of Act 213, EDCs and EGSs acquire alternative energy credits (AECs) in quantities commensurate with the required tier percentage and the electricity sold to retail customers. AECs are separate from the electricity that is sold to customers. An AEC represents one megawatt hour (MWh) of qualified alternative electric generation or conservation, whether self-generated, purchased along with the electric commodity, or purchased separately through a tradable instrument.[26]

AECs are earned when a qualified facility generates 1,000 kilowatt-hours (kWh) of electricity through either estimated or actual metered production. An AEC is a tradable certificate that represents all the renewable energy benefits of electricity generated from a facility. An AEC can be sold or traded separately from the power. AECs are generally purchased by EDCs and EGSs in order to meet the percentages required under AEPS for any given year. AECs can be traded multiple times until they are retired for compliance purposes. An AEC can only be retired once and may not be used to satisfy any other obligations, whether voluntarily or mandated by a renewable energy portfolio standard in another state.

In May 2015, the Commission issued a request for proposals for the Pennsylvania AEC program administrator contract. InClime won the contract, assumed administrative duties as the Pennsylvania AEC program administrator on January 1, 2016, and is under contract through Dec. 31, 2018, with two options for one year extensions. The AEC program administrator verifies that EGSs and EDCs are complying with the minimum requirements of Act 213. PJM EIS' Generation Attribute Tracking System (GATS) is the alternative energy credit registry used to track alternative

[26] *See* 52 Pa. Code §§ 75.61—75.70.

energy credit creation and transfer among qualified alternative energy systems. GATS is used by EDCs and EGSs to verify compliance with the requirements of Act 213.

Under Act 213, the Commission adopted regulations promoting onsite generation by customer-generators using renewable resources and eliminated previously existing barriers to net metering.[27] The regulations also provide for required metering capabilities and a compensation mechanism that reimburses customer-generators for surplus energy supplied to the electric grid.[28] Act 35 of 2007 amended Act 213. One aspect of Act 35 altered the reconciliation mechanism used to compensate customer-generators for surplus energy supplied through net metering.[29]

The Commission also adopted regulations that govern interconnection for customer-generators. The regulations strive to eliminate barriers which may have previously existed with regard to interconnection, while ensuring that interconnection by customer-generators will not pose unnecessary risks to the Commonwealth's electric distribution systems.[30]

As of May 31, 2016, Pennsylvania had certified 12,638 alternate energy facilities, of which 8,897 are located within the state.[31] The statewide cost for AEPS compliance for all LSEs in Pennsylvania is estimated to be $164.6 million for the reporting year 2021.[32] Compliance costs for 2015 are not published or available at this time.

For additional information on Alternative Energy in Pennsylvania, please visit the Commission's website (http://www.puc.pa.gov/consumer_info/electricity/alternative_energy.aspx).

## *Energy Efficiency and Conservation Program (Act 129)*

Act 129 of 2008[33] required the seven Pennsylvania EDCs[34] with at least 100,000 customers[35] to establish an energy efficiency and conservation (EE&C) plan. The Commission-approved plans were to reduce energy demand and consumption by 1 percent by May 31, 2011, and 3 percent by May 31, 2013. Peak demand was to be reduced by 4.5 percent by May 31, 2013. These collectively were the Phase 1 targets. Based on forecast growth data, consumption reduction goals totaled 1,467 GWh in 2011 and 4,400 GWh in 2013. Peak demand reduction goals were projected to total 1,193 MW for 2013.[36] The Commission determined that, with the exception of West Penn

[27] Net metering measures the difference between the electricity supplied by an electric utility or EGS and the electricity generated by a customer-generator when any portion of the electricity generated by the alternative energy generating system is used to offset part or all of the customer-generator's requirements for electricity. *See* 52 Pa. Code § 75.12.
[28] *See* Docket No. L-00050174; 52 Pa. Code §§ 75.11-75.15.
[29] *Id.*
[30] *See* Docket No. L-00050175; 52 Pa. Code §§ 75.21-75.40.
[31] See http://pennaeps.com/app/publiccontroller
[32] See http://www.puc.state.pa.us/Electric/pdf/AEPS/AEPS_Ann_Rpt_2014.pdf
[33] Act 129 of 2008, effective November 14, 2008; 66 Pa. C.S. §§2806.1-2806.2.
[34] The seven EDCs with Act 129 Energy Efficiency and Conservation obligations are Duquesne Light Company; Metropolitan Edison Company; PECO Energy Company; Pennsylvania Electric Company; Pennsylvania Power Company; PPL Electric Utilities Corporation and West Penn Power Company.
[35] *See* 66 Pa.C.S. § 2806.1.
[36] *See* Energy Consumption and Peak Demand Reduction Targets Order, Docket No. M-2008-2069887, entered Mar. 30, 2009.

Power, the EDCs achieved the 1 percent energy consumption reduction Phase 1 target by May 31, 2011. The Commission also determined that all seven EDCs achieved both the 3 percent by May 31, 2013 consumption reduction and the 4.5 percent by May 31, 2013 peak demand reduction Phase 1 targets.[37]

Under Act 129, the Commission was also required to evaluate the costs and benefits of the EE&C programs by Nov. 31, 2013, and every five years thereafter.[38] The Commission determined the benefits of consumption reduction requirements outweighed the costs. Based on the Act 129 Statewide Evaluator's (SWE)[39] *Electric Energy Efficiency Potential for Pennsylvania Final Report,*[40] the Commission set new consumption reduction targets to be attained in the three-year period from Jun. 1, 2013, to May 31, 2016, (Phase II) for the EDCs subject to the Act 129 EE&C requirements.[41] These targets are outlined in Table 2, below.

***Table 2 Phase II Consumption Reduction Targets***

| Act 129 Phase II Three-Year Consumption Reduction Targets | | |
|---|---|---|
| **EDC** | **Three-Year % of 2009/10 Forecast Reductions (%)** | **Three-Year MWh Value of 2009/10 Forecast Reductions** |
| Duquesne | 2.0 | 276,722 |
| Met-Ed | 2.3 | 337,753 |
| PECO | 2.9 | 1,125,851 |
| Penelec | 2.2 | 318,813 |
| Penn Power | 2.0 | 95,502 |
| PPL | 2.1 | 821,072 |
| West Penn | 1.6 | 337,533 |

Phase II of the EE&C Program ended on May 31, 2016. The Commission is currently awaiting the EDCs' filing of final reports and the SWE's final review and audit of the Phase II Program in order to determine each EDC's compliance with the Phase II Implementation Order and attainment of its Phase II consumption reduction target.

While the Commission determined that energy efficiency (EE) programs were cost-effective, it did not have enough information regarding the cost-effectiveness of Act 129 demand response

[37] *See* Energy Efficiency and Conservation Program Order, *Docket No. M-2008-2069887*, entered Mar. 20, 2014.
[38] *See* 66 Pa.C.S. §§ 2806.1(c) and (d)
[39] Public Meeting of Jun. 25, 2009, the Commission selected GDS Associates, Inc. Engineers and Consultants as the statewide evaluator for Phase I.
[40] *See* the Electric Energy Efficiency Potential for Pennsylvania Final Report, available at http://www.puc.pa.gov/filing_resources/issues_laws_regulations/act_129_information/act_129_statewide_evaluator_swe_.aspx.
[41] *See* Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2012-2289411, entered Aug. 3, 2012.

programs in order to set additional peak demand reduction targets for Phase II of Act 129.[42] However, assuming an EDC would be able to meet its Phase II consumption reduction target under its Act 129 budget, the Commission provided the opportunity for EDCs to propose, either in the EE&C plans or otherwise, voluntary residential demand response programs.[43] Additionally, the Commission directed the SWE to perform a Demand Response Potential Study using residential direct load control and commercial and industrial load curtailment models provided by the Commission.[44] This study was to provide the Commission with the information necessary to determine whether Act 129 Phase III peak demand reduction programs would be cost-effective. The SWE submitted its final version of the Demand Response Potential Study to the Commission on February 25, 2015.[45] The SWE also performed an EE Potential Study to determine the cost effective consumption reduction potential in Pennsylvania.[46] The SWE submitted its final Energy Efficiency Potential Study to the Commission on Feb. 25, 2015.[47]

Following a review of the SWE's EE and Demand Response Potential Studies, the Commission found that additional consumption and peak demand reduction targets were cost-effective.[48] On June 11, 2015, the Commission adopted a Final Implementation Order prescribing targets for a Phase III of the Act 129 EE&C Program, to operate June 1, 2016 through May 31, 2021.[49] The EDCs' consumption[50] and peak demand reduction[51] requirements are provided, below, in Tables 3 and 4, respectively. While the EDCs must implement energy efficiency programs all five years of the Phase III, the Commission required demand response programs only during the last four years of the Phase, recognizing the time necessary to develop and implement such programs.[52] Additionally, using the design and budgetary allocation information provided by the Commission, the SWE found no cost-effective demand response potential in the Penelec service territory and, therefore, the Commission did not prescribe a peak demand reduction requirement for Penelec.

[42] *Id.* at 38-42.
[43] Id. at 42 and 43. To date, PECO has an approved voluntary residential DR program in Phase II of Act 129.
[44] *See Energy Efficiency and Conservation Program* Final Order, Docket No. M-2012-2289411, entered Feb. 20, 2014.
[45] *See Demand Response Potential for Pennsylvania – Final Report*, submitted by GDS Associates, Inc., *et al.*, February 25, 2015 (hereinafter DR Potential Study).
[46] *See Proposal to Pennsylvania Public Utility Commission – Statewide Evaluator RFP*, submitted by GDS *Associates, Inc., et. al.*, January 11, 2013.
[47] *See Energy Efficiency Potential for Pennsylvania – Final Report*, submitted by GDS Associates, Inc., *et. al.*, February 2015 (hereinafter EE Potential Study).
[48] *See Energy Efficiency and Conservation Program* Final Implementation Order, Docket No. M-2014-2424864, entered June 19, 2015, at 10-12.
[49] *Id.* at 14-15.
[50] *Id.* at 57.
[51] *Id.* at 35.
[52] *Id.* at 35.

*Table 3 Phase III Consumption Reduction Targets*

| Act 129 Phase III Five-Year Consumption Reduction Targets | | |
|---|---|---|
| **EDC** | **Five-Year % of 2009/10 Forecast Reductions (%)** | **Five-Year MWh Value of 2009/10 Forecast Reductions** |
| Duquesne | 3.1 | 440,916 |
| Met-Ed | 4.0 | 599,352 |
| PECO | 5.0 | 1,962,659 |
| Penelec | 3.9 | 566,168 |
| Penn Power | 3.3 | 157,371 |
| PPL | 3.8 | 1,443,035 |
| West Penn | 2.6 | 540,986 |

*Table 4 Phase III Peak Demand Reduction Targets*

| Act 129 Phase III Four-Year Peak Demand Reduction Targets | | |
|---|---|---|
| **EDC** | **Four-Year % Reduction (Relative to 2007-2008 Peak Demand)** | **Average Annual Potential Savings (MW)** |
| Duquesne | 1.7 | 42 |
| Met-Ed | 1.8 | 49 |
| PECO | 2.0 | 161 |
| Penelec | 0.0 | 0 |
| Penn Power | 1.7 | 17 |
| PPL | 1.4 | 92 |
| West Penn | 1.8 | 64 |

## *Statewide Review of Electrical Energy Usage*

Pennsylvania's aggregate electrical energy usage (residential, commercial, industrial, sales for resale, and other) in 2015 was 146,229 GWh versus 146,516 GWh for 2014, which is a 0.2 percent decrease. The number of electrical energy customers increased by 12,855 or 0.23 percent. Residential usage represented 35.3 percent of the total usage, followed by industrial (32 percent), and commercial (29 percent). Aggregate non-coincident peak load[53] decreased to 29,351 MW in 2015 from 29,952 MW in 2014, which is a 0.2 percent decrease from the previous year.

As shown on Table 5, the total average annual aggregate five-year energy usage growth projection for the residential, commercial, and industrial classes is projected to decrease 0.09 percent per year. This includes an average residential growth rate decrease of 0.69 percent, a commercial growth rate increase of 0.03 percent, and an industrial growth rate increase of 0.41 percent for the entire five-year period.

***Table 5 Average Aggregate five-year Electrical Energy Projection***

| Energy Usage Projection (GWh) | | | | |
|---|---|---|---|---|
| Year | Residential | Commercial | Industrial | Total |
| 2016 | 49,422 | 41,625 | 47,826 | 138,873 |
| 2017 | 48,957 | 41,630 | 48,285 | 138,872 |
| 2018 | 48,734 | 41,709 | 48,608 | 139,051 |
| 2019 | 48,484 | 41,712 | 48,667 | 138,863 |
| 2020 | 48,079 | 41,667 | 48,624 | 138,370 |
| average annual growth (%) | -0.69 | 0.03 | 0.41 | -0.09 |

[53] Non-coincident peak load is the sum of EDCs' annual peak loads regardless of their date or time of occurrence.

Individual EDC forecasts are more specific to customers and geographical areas. Each EDC bases its forecasts on financial forecasts of its choosing. The EDC's forecasts are more specific for each territory than the PJM forecast, which is a broader forecast that includes Pennsylvania EDC territories. Tables 6 and 7 below provide metrics for 2015 and 2014, respectively.

### *Table 6 PA EDC customers served, energy usage, and peak load (2015)*

| Company | Total Customers Served | Residential (MWh) | Commercial (MWh) | Industrial (MWh) | Other (MWh) | Sales For Resale (MWh) | Total Consumption (MWh) | System Losses (MWh) | Company Use (MWh) | Net Energy For Load (MWh) | Peak Load (MW) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Duquesne | 586,149 | 4,108,765 | 6,398,676 | 2,897,651 | 78,017 | 20,755 | 13,503,864 | 828,571 | 36,528 | 12,638,765 | 2,804 |
| Met-Ed | 561,426 | 5,514,991 | 2,994,882 | 5,308,797 | 28,518 | 540,883 | 14,388,070 | 1,216,111 | 0 | 13,171,959 | 2,791 |
| Penelec | 587,832 | 4,350,462 | 3,557,621 | 5,646,723 | 37,557 | 2,524,195 | 16,116,558 | 1,534,460 | 0 | 14,582,098 | 2,819 |
| Penn Power | 163,807 | 1,703,245 | 1,320,785 | 1,495,920 | 6,210 | 229,663 | 4,755,822 | 223,077 | 0 | 4,532,745 | 910 |
| PPL | 1,422,730 | 14,461,533 | 14,335,845 | 8,268,558 | 156,524 | 0 | 37,222,460 | 2,684,616 | 63,875 | 34,473,969 | 7,842 |
| PECO | 1,601,219 | 13,629,811 | 8,118,412 | 15,365,066 | 888,775 | 122,781 | 38,124,845 | 2,268,368 | 36,996 | 35,819,481 | 8,094 |
| West Penn | 722,615 | 7,254,613 | 5,112,059 | 7,634,863 | 47,610 | 749,243 | 20,755,967 | 1,349,408 | 0 | 19,406,559 | 3,814 |
| UGI | 61,931 | 554,166 | 324,382 | 106,076 | 5,629 | 132 | 990,384 | 76,153 | 2,039 | 912,192 | 193 |
| Citizens' | 6,945 | 8,688 | 30,019 | 57,224 | 593 | 0 | 174,724 | 8,642 | 180 | 165,902 | 43 |
| Pike County | 4,694 | 29,614 | 45,998 | 0 | 391 | 0 | 76,003 | 0 | 94 | 75,909 | 19 |
| Wellsboro | 6,300 | 43,905 | 32,636 | 43,734 | 218 | 115 | 120,608 | 9,649 | 220 | 110,739 | 22 |
| **Total** | **5,725,648** | **51,659,793** | **42,271,315** | **46,824,612** | **1,250,042** | **4,187,767** | **146,229,305** | **10,199,055** | **139,932** | **135,890,318** | **29,351** |
| % of Total | | 35.33% | 28.91% | 32.02% | 0.85% | 2.86% | 100.00% | | | | |
| 2015 VS 2014 | 0.23% | 0.30% | 0.97% | -1.62% | -2.49% | -1.89% | -0.20% | 0.80% | 21.88% | -0.29% | -2.01% |

### *Table 7 PA EDC customers served, energy usage, and peak load (2014)*

| Company | Total Customers Served | Residential (MWh) | Commercial (MWh) | Industrial (MWh) | Other (MWh) | Sales For Resale (MWh) | Total Consumption (MWh) | System Losses (MWh) | Company Use (MWh) | Net Energy For Load (MWh) | Peak Load (MW) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Duquesne | 591,750 | 4,068,016 | 6,431,805 | 3,164,231 | 58,452 | 24,835 | 13,747,339 | 667,123 | 36,528 | 13,043,688 | 2,693 |
| Met-Ed | 557,803 | 5,477,233 | 2,944,043 | 5,382,193 | 28,858 | 539,278 | 14,371,606 | 1,097,404 | 0 | 13,274,202 | 2,817 |
| Penelec | 588,274 | 4,461,845 | 3,591,256 | 5,646,861 | 38,641 | 2,548,112 | 16,286,715 | 1,584,888 | 0 | 14,701,827 | 3,024 |
| Penn Power | 162,577 | 1,728,349 | 1,381,442 | 1,598,555 | 6,142 | 221,039 | 4,935,527 | 241,333 | 0 | 4,694,194 | 1,018 |
| PPL | 1,416,655 | 14,562,909 | 14,111,306 | 8,312,629 | 157,433 | 0 | 37,144,277 | 2,679,357 | 69,018 | 34,395,902 | 7,816 |
| PECO | 1,594,763 | 13,222,177 | 8,025,119 | 15,309,577 | 937,404 | 180,462 | 37,674,739 | 2,265,504 | 6,746 | 35,402,489 | 8,258 |
| West Penn | 721,158 | 7,281,289 | 4,955,687 | 7,972,140 | 48,081 | 754,700 | 21,011,897 | 1,473,035 | 0 | 19,538,862 | 4,019 |
| UGI | 62,003 | 543,149 | 316,181 | 110,622 | 5,688 | 131 | 975,771 | 92,165 | 1,988 | 881,618 | 211 |
| Citizens' | 6,889 | 88,335 | 29,440 | 53,974 | 600 | 0 | 172,349 | 4,287 | 195 | 167,867 | 52 |
| Pike County | 4,673 | 30,433 | 44,583 | 0 | 395 | 0 | 75,411 | 0 | 116 | 75,295 | 19 |
| Wellsboro | 6,248 | 44,002 | 32,482 | 43,595 | 220 | 97 | 120,396 | 13,216 | 220 | 106,960 | 26 |
| **Total** | **5,712,793** | **51,507,737** | **41,863,344** | **47,594,377** | **1,281,914** | **4,268,654** | **146,516,027** | **10,118,312** | **114,811** | **136,282,904** | **29,952** |
| % of Total | | 35.16% | 28.57% | 32.48% | 0.87% | 2.91% | 100.00% | | | | |

Figure 3 shows Pennsylvania historic and forecast energy usage for residential, commercial and industrial retail from 1972 to 2015 and forecasted usage from 2016 to 2020.

***Figure 3 Pennsylvania retail energy usage and 5 year forecast (GWh)***

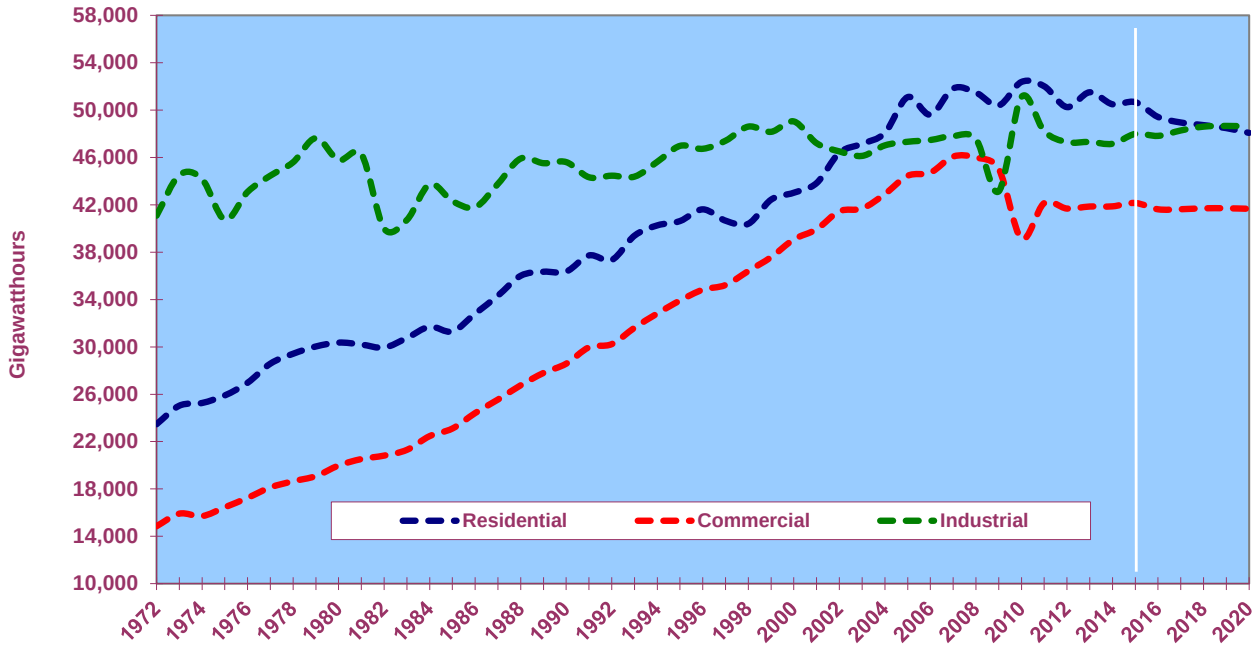


Figure 4 shows average residential cost and average usage from 1940 to 2015. Between 1970 and 2010, average residential usage in Pennsylvania increased 1.4 percent each year, while average cost increased 4.1 percent each year. During the last 10 years, average residential usage decreased 0.20 percent each year, while average cost increased 2.5 percent a year.

***Figure 4 Average residential cost (cents/kWh) and usage (MWh/year)***

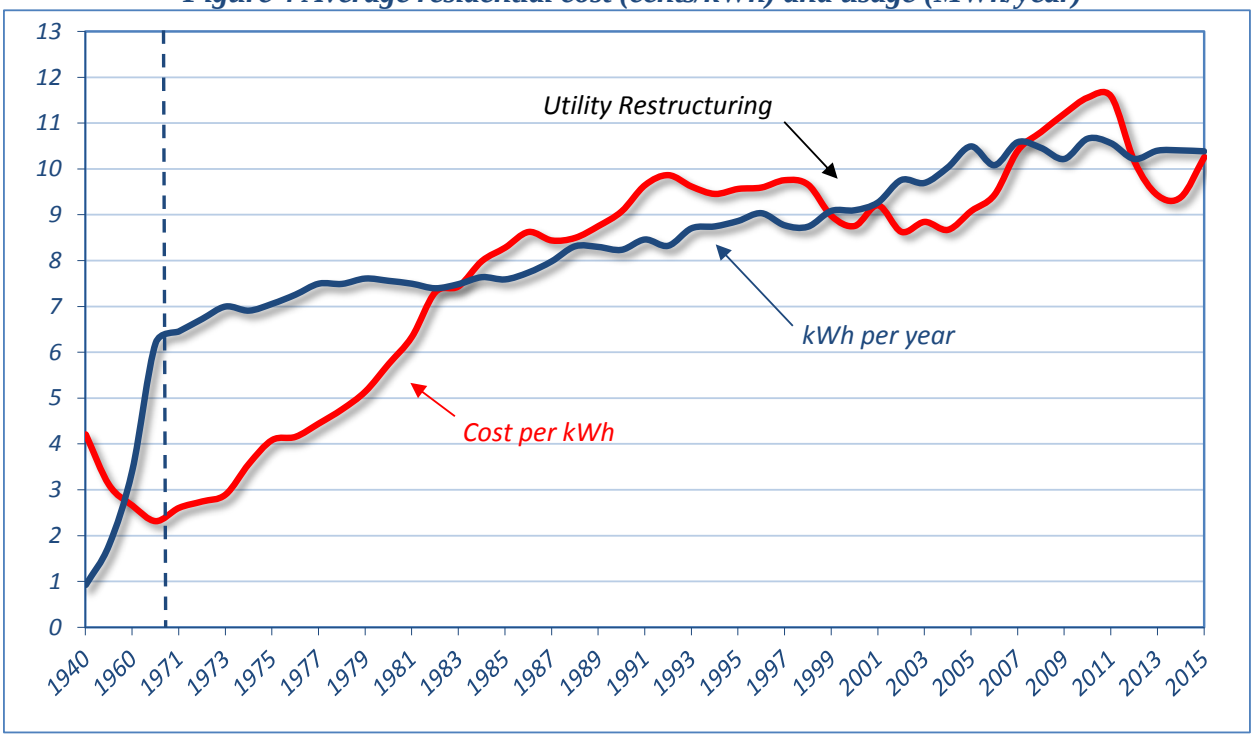
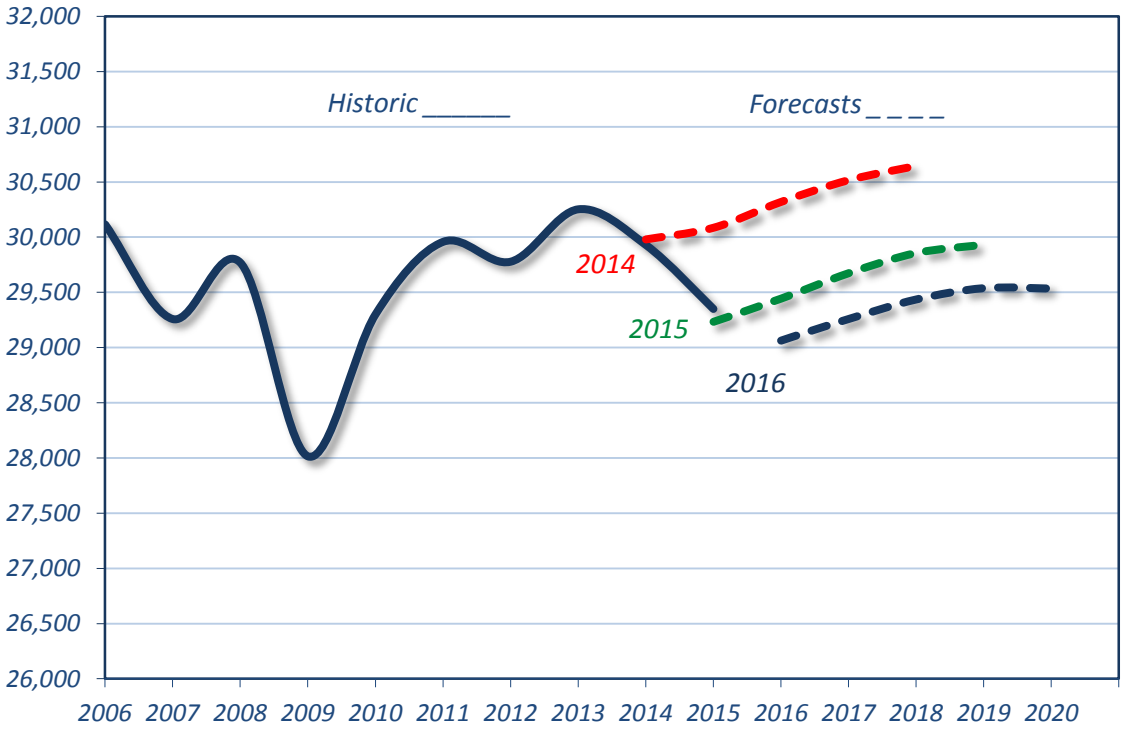


Figure 5 shows Pennsylvania's aggregate non-coincidental peak load demand from 2005 to 2015 and the associated 5 year projections estimated during the last 3 years.

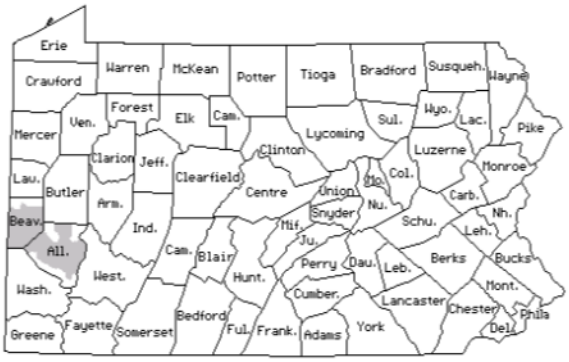
***Figure 5 Pennsylvania aggregate non-coincidental peak load (MW)***



## *Summary of Data for the Seven Large EDCs*

The following section provides historic and projected energy usage and peak load demand statistics for Pennsylvania's seven large EDCs.

### *Duquesne Light Company (Duquesne)*




Duquesne provides electric service to 586,149 customers in the City of Pittsburgh and portions of Allegheny and Beaver counties in Southwestern Pennsylvania. Duquesne's 2015 energy usage total was 13,504 GWh, while in 2014 it was 13,722 GWh (a decrease of 1.6 percent from the previous year). Duquesne's total usage mix consisted of commercial (47 percent), residential (30 percent), industrial (21 percent), and sales for resale (less than 1 percent).

Over the next five years, total energy usage is projected to decrease at an average annual rate of 0.6 percent. This includes an average annual decrease in residential usage of 0.5 percent, annual commercial usage decrease of 0.6 percent, and a decrease in average annual of industrial usage by 0.7 percent. See Figure 6.

Duquesne's highest peak load of 2,804 MW occurred on July 29, 2015. This represents an increase of 4 percent from the previous year's peak of 2,693 MW. Summer peak load is projected to increase from 2,804 MW in summer 2015 to 2,942 MW by summer 2020, or by an average annual growth rate increase of 0.3 percent. See Figure 7.

Refer to Appendix A, Tables A01-A04 for Duquesne's forecasts of peak load and residential, commercial and industrial energy demand, filed with the Commission in years 2006 through 2016.
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*Figure 6 Duquesne energy usage (GWh)*

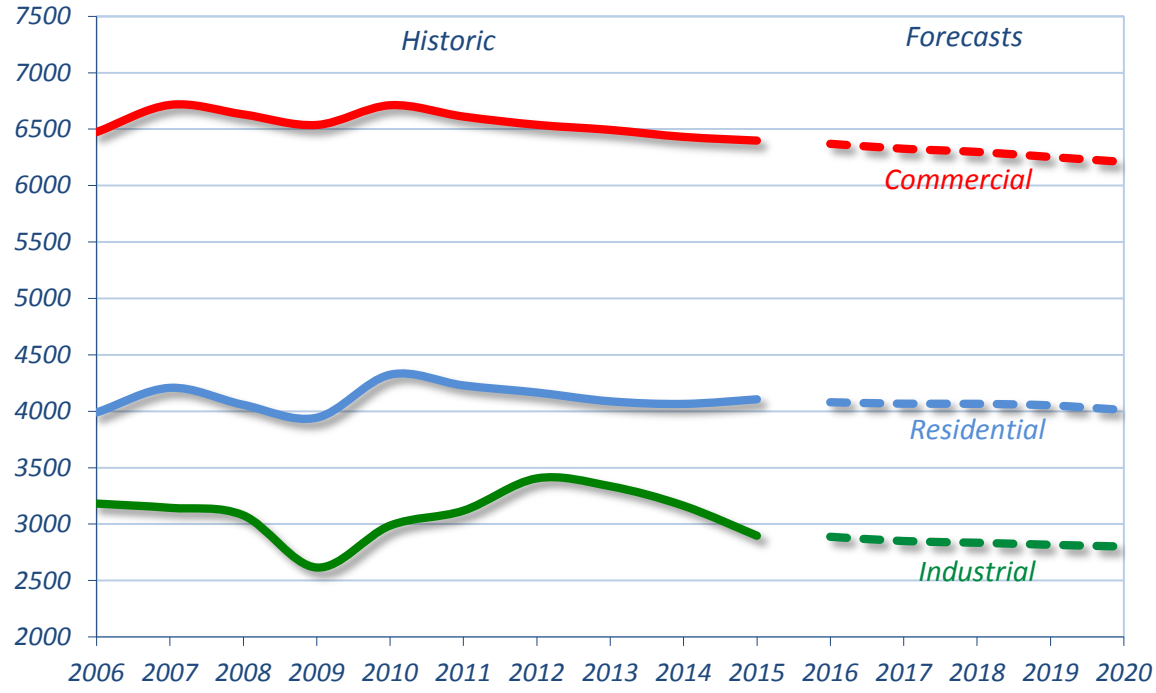
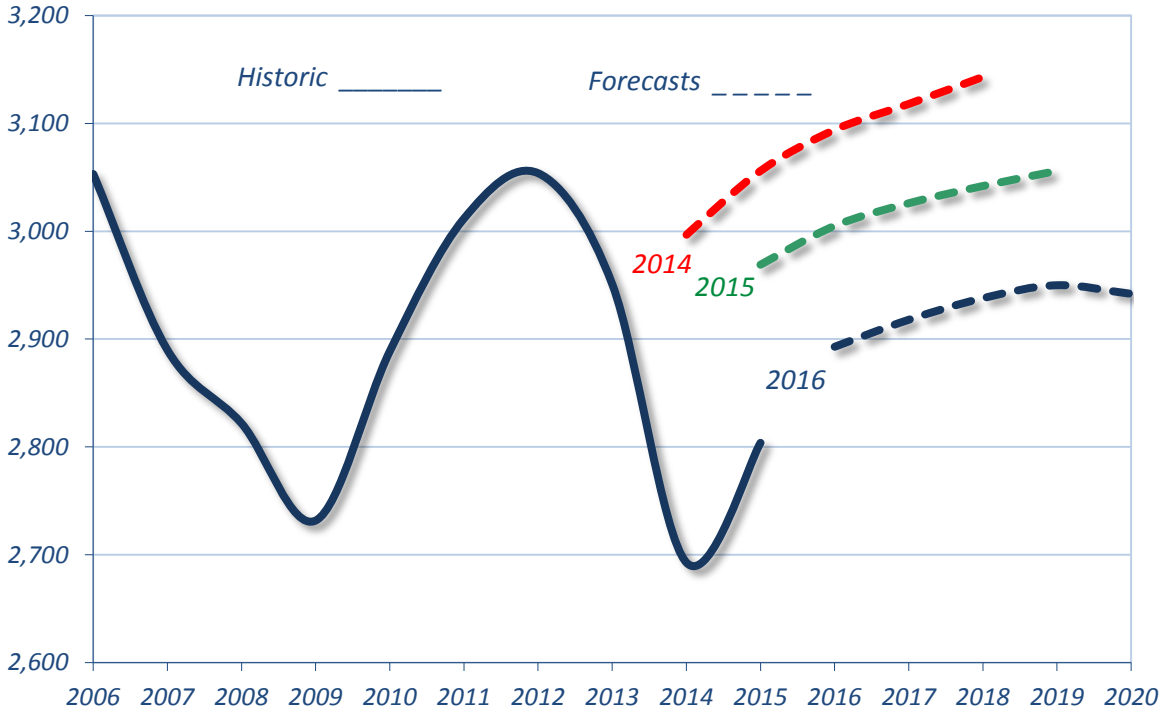
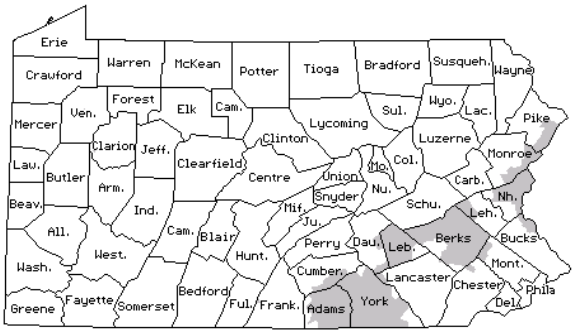



*Figure 7 Duquesne peak load (MW)*



### *Metropolitan Edison Company (Met-Ed)*




Met-Ed provides service to 561,426 customers in all or portions of 14 counties in Eastern and Southcentral Pennsylvania. Met-Ed's 2015 energy usage total was 14,388 GWh, while in 2014 it was 14,372 GWh (an increase of 0.1 percent from the previous year). Met-Ed's total sales mix consisted of residential (38 percent), industrial (37 percent), commercial (21 percent), and sales for resale (3.8 percent).

Over the next five years, total energy usage is projected to decrease at an average annual rate of 1.0 percent. This includes a decrease in average annual residential usage of 2.9 percent, a decrease in average annual commercial usage by 0.5 percent, and an increase in average annual industrial usage by 0.6 percent. See Figure 8.

Met-Ed's highest peak load of 2,791 MW occurred on Aug. 17, 2015. This represents a decrease of 0.9 percent from previous year's peak of 2,817 MW. Summer peak load is projected to increase from 2,791 MW in summer 2015 to 2,995 MW by summer 2020, or by an average annual growth rate increase of 1.4 percent. See Figure 9.

Refer to Appendix A, Tables A05-A08 for Met-Ed's forecasts of peak load and residential, commercial and industrial energy demand, filed with the Commission in years 2006 through 2016.

*Figure 8 Met-Ed energy usage (GWh)*

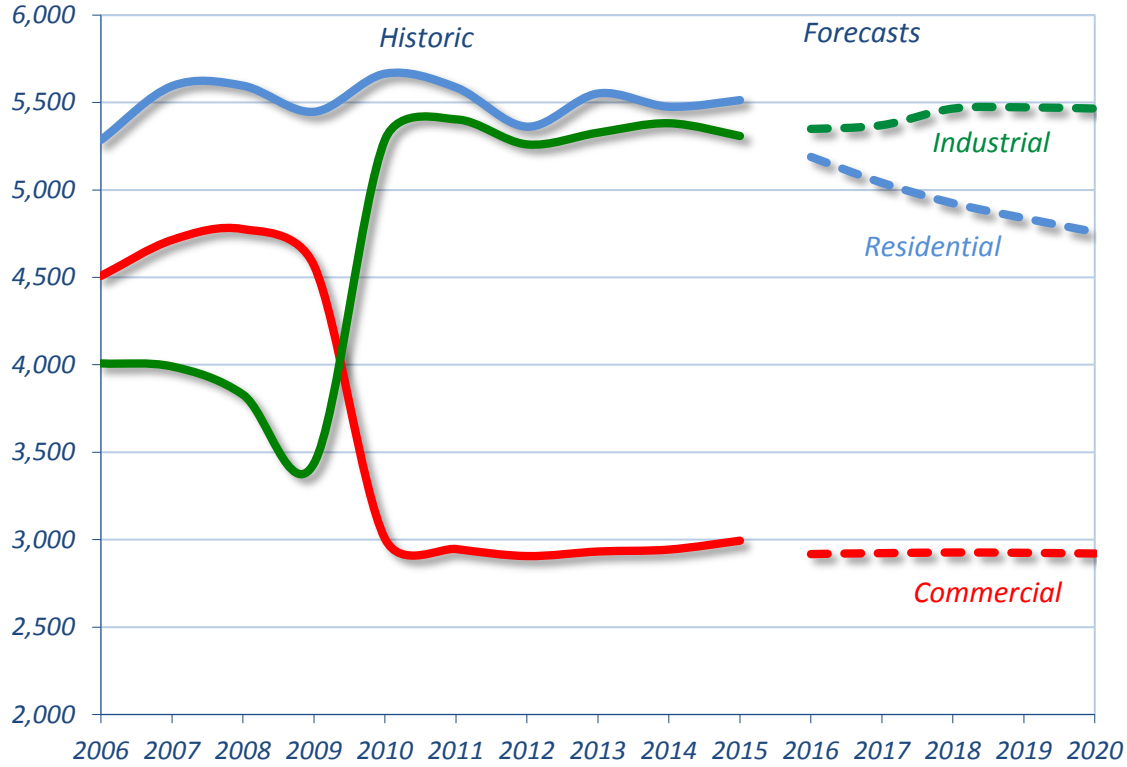
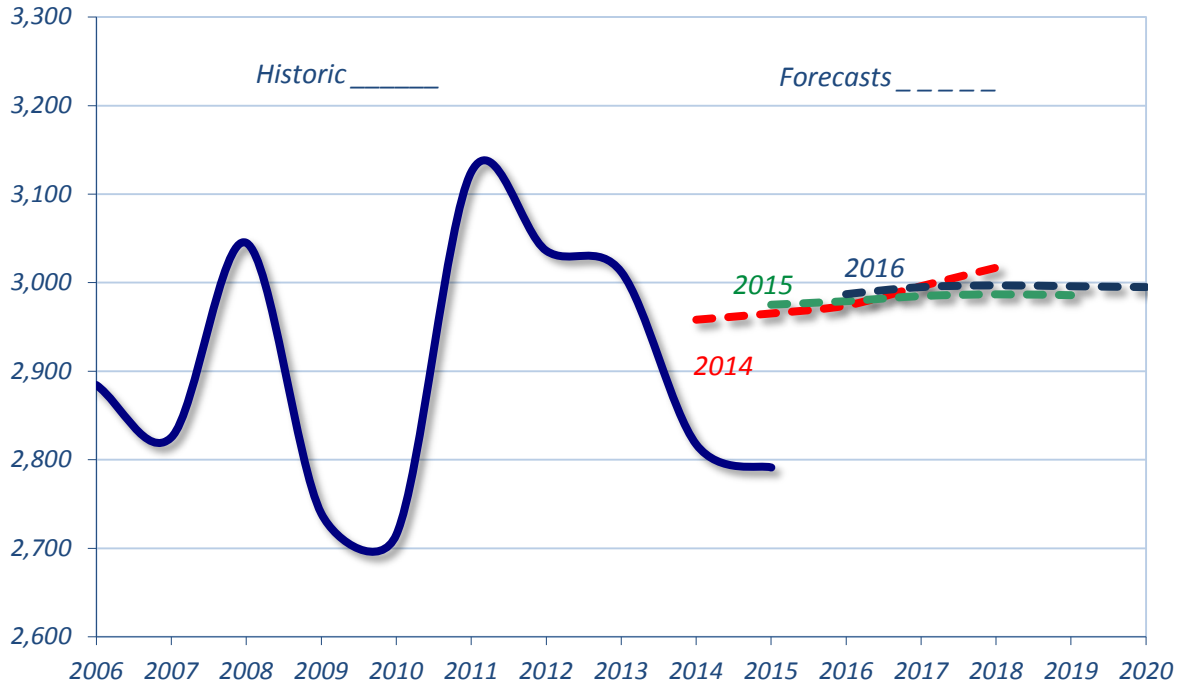
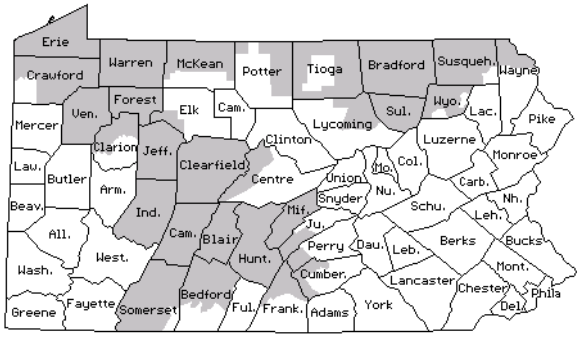



*Figure 9 Met-Ed peak load (MW)*



### *Pennsylvania Electric Company (Penelec)*

Penelec provides service to 587,832 customers in all or portions of 29 counties in Western and Northern Pennsylvania. Penelec's 2015 energy usage total was 16,117 GWh, while in 2014 it was 16,287 GWh (a decrease of 1.0 percent from the previous year). Penelec's total sales mix consisted of residential (27 percent), commercial (22 percent), industrial (35 percent), and sales for resale (15.7 percent).




Over the next five years, total energy usage is projected to decrease at an average annual rate of 0.9 percent. This includes a decrease in average annual in residential usage of 2.7 percent, flat commercial usage, and a decrease in average annual industrial usage by 0.1 percent. See Figure 10.

Penelec's highest peak load of 2,819 MW occurred on Aug. 17, 2015. This represents a decrease of 6.8 percent from previous year's peak of 3,024 MW. Summer peak load is projected to increase from 2,819 MW in summer 2015 to 2,907 MW by summer 2020, or by an average annual growth rate decrease of 0.6 percent. See Figure 11.

Refer to Appendix A, Tables A09-A12 for Penelec's forecasts of peak load and residential, commercial and industrial energy demand, filed with the Commission in years 2006 through 2016.

*Figure 10 Penelec energy usage (GWh)*

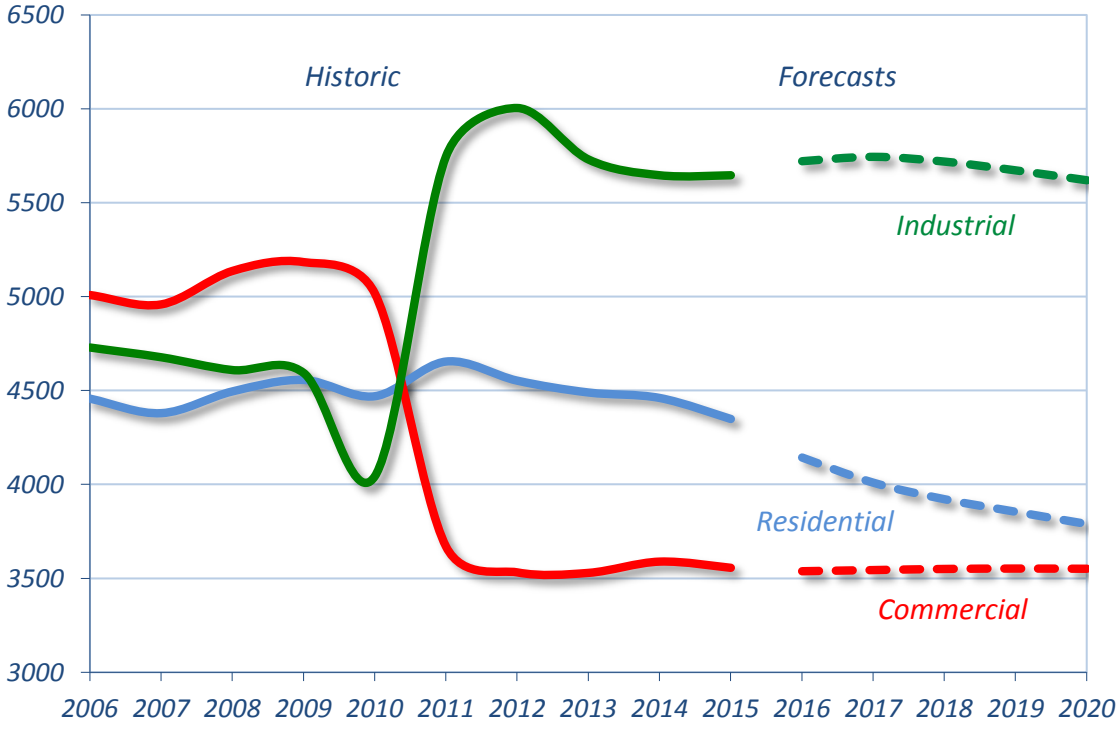
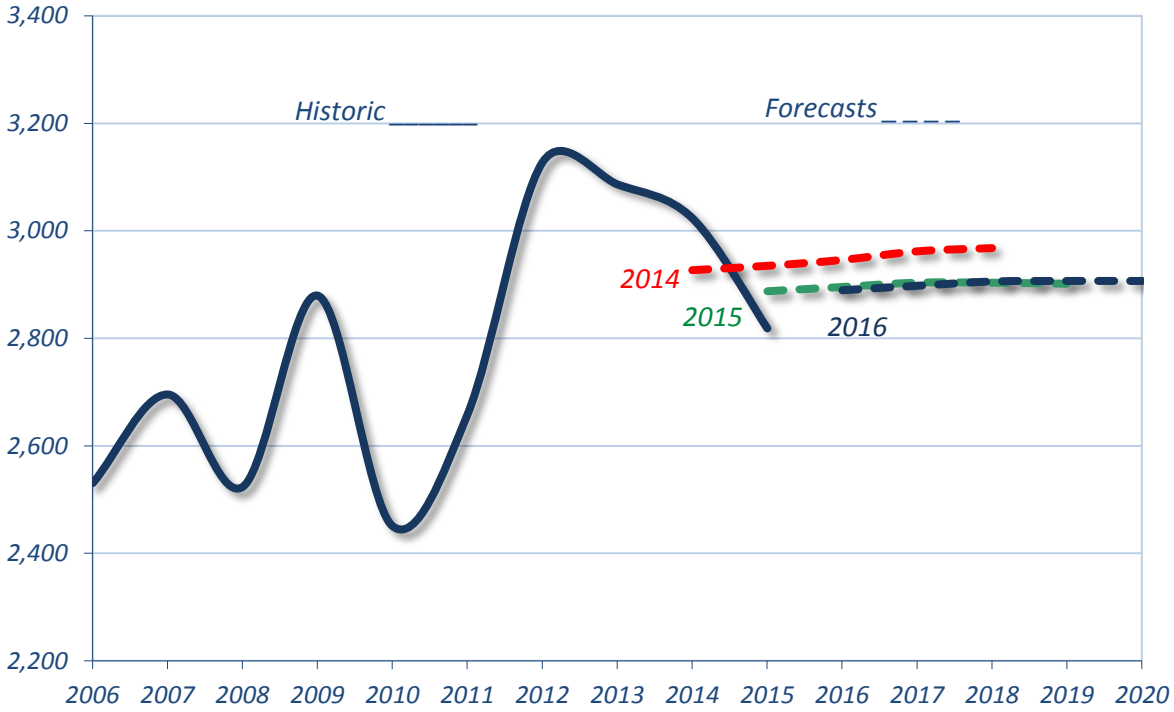
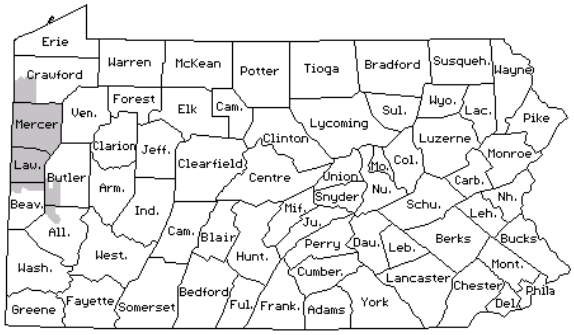



*Figure 11 Penelec peak load (MW)*



### *Pennsylvania Power Company (Penn Power)*




Penn Power provides service to 163,807 customers in all or portions of six counties in Western Pennsylvania. Penn Power's 2015 energy usage total was 4,756 GWh, while in 2014 it was 4,936 GWh (a decrease of 3.7 percent from the previous year). Penn Power's total usage mix consisted of residential (36 percent), commercial (28 percent), industrial (32 percent), and sales for resale (5 percent).

Over the next five years, total energy usage is projected to increase at an average annual rate of 0.5 percent. This includes a decrease in average annual residential usage of 2.2 percent, flat commercial usage, and an increase in average annual industrial usage of 3.7 percent. See Figure 12.

Penn Power's highest peak load of 910 MW occurred on Aug. 10, 2015. This represents a decrease of 11 percent from the previous year's peak of 1,018 MW. Summer peak load is projected to increase from 910 MW in summer 2015 to 1,006 MW by summer 2020, or by an average annual growth rate increase of 2.0 percent. See Figure 13.

Refer to Appendix A, Tables A13-A16 for Penn Power's forecasts of peak load and residential, commercial and industrial energy demand, filed with the Commission in years 2006 through 2016.

***Figure 12 Penn Power energy usage (GWh)***

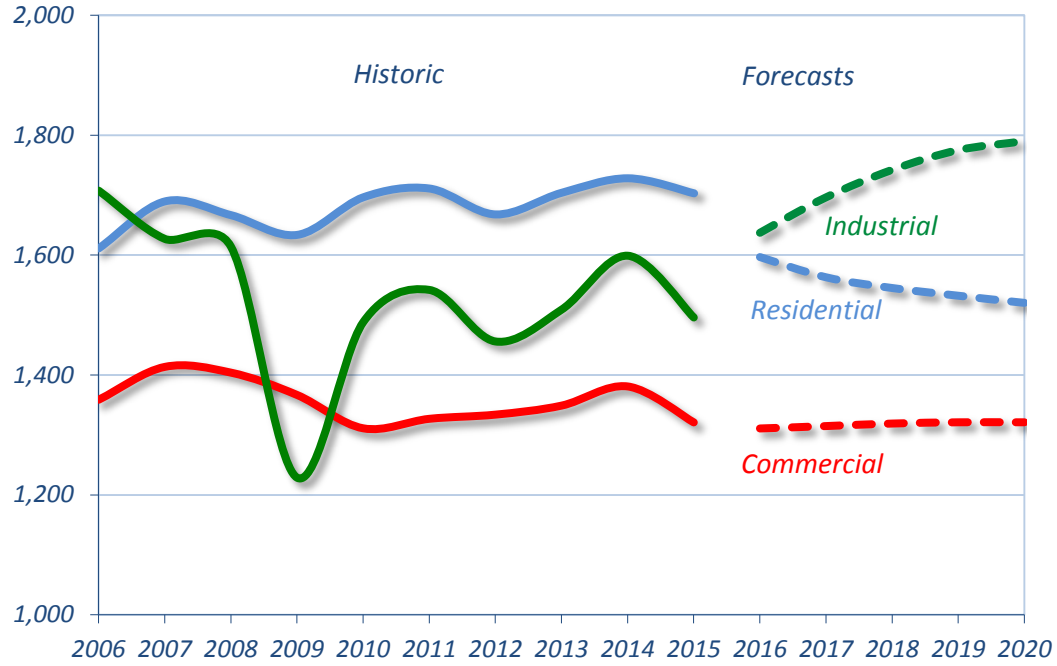
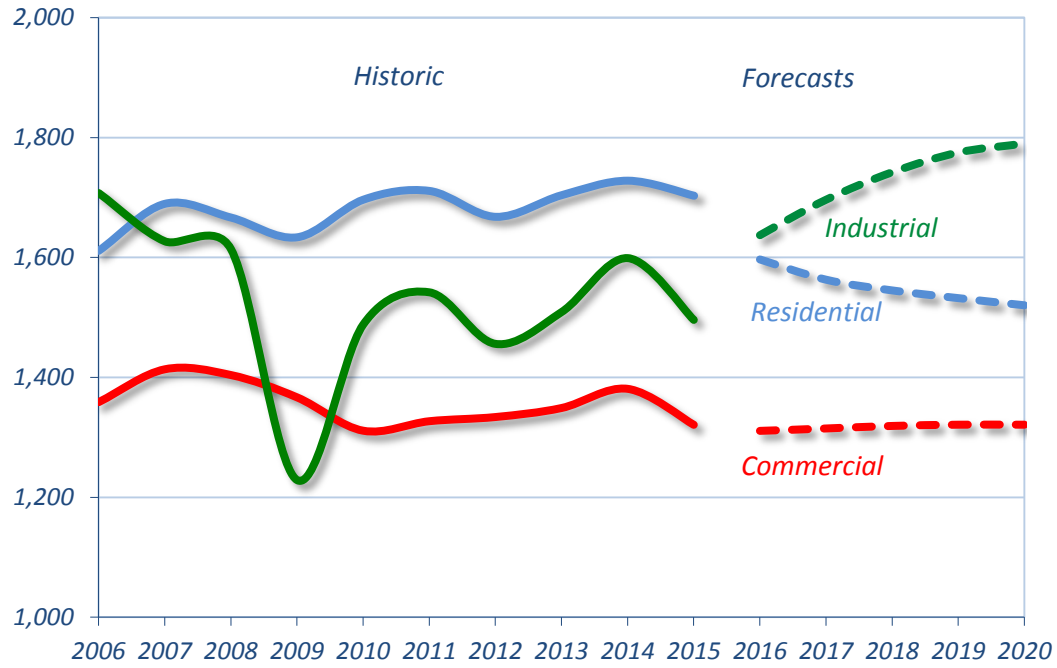
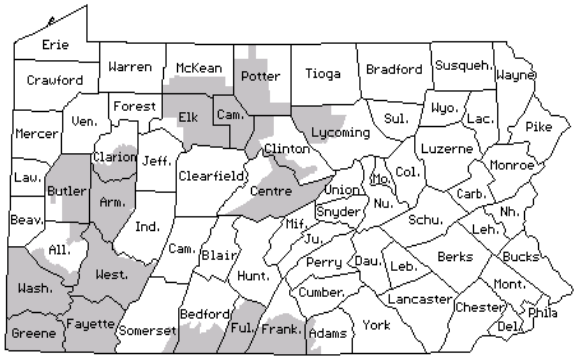



***Figure 13 Penn Power peak load (MW)***



### *West Penn Power Company (West Penn)*




West Penn provides service to 722,615 customers in all or portions of 24 counties in Western, North and South Central Pennsylvania. West Penn's 2015 energy usage total was 20,798 GWh, while in 2014 it was 21,012 GWh (a decrease of 1.0 percent from the previous year). West Penn's total usage mix consisted of residential (35 percent), commercial (25 percent), industrial (37 percent), and sales for resale (less than 4 percent).

Over the next five years, total energy usage is projected to increase at an average annual rate of 0.2 percent. This includes a decrease in average annual residential usage of 2.5 percent, a decrease in average annual commercial usage of 0.6 percent, and an increase in average annual industrial usage of 3.0 percent. See Figure 14.

West Penn's highest peak load of 3,814 MW occurred on July 29, 2015. This represents a decrease of 5.1 percent from the previous year's peak of 4,019 MW. Summer peak load is projected to increase from 3,814 MW in 2015 to 3,917 MW by the year 2020, or by an average annual growth rate increase of .5 percent. See Figure 15.

Refer to Appendix A, Tables A25-A28 for West Penn's forecasts of peak load and residential, commercial and industrial energy demand, filed with the Commission in years 2006 through 2016.

*Figure 14 West Penn energy usage (GWh)*

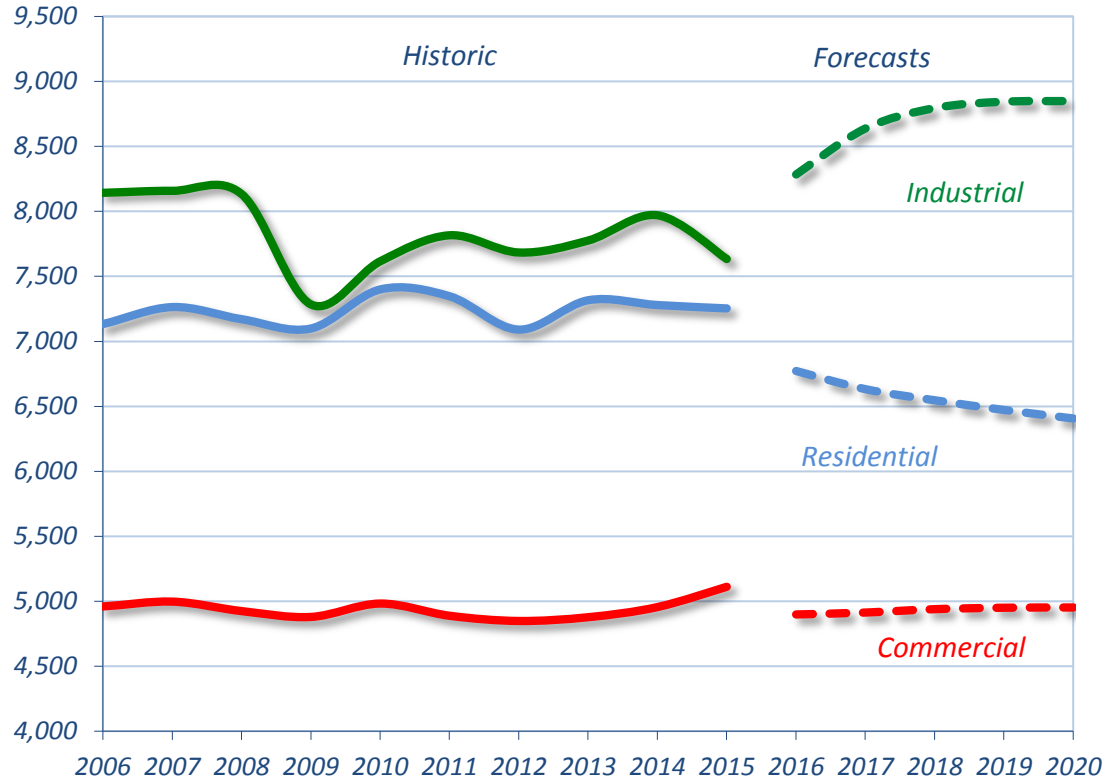
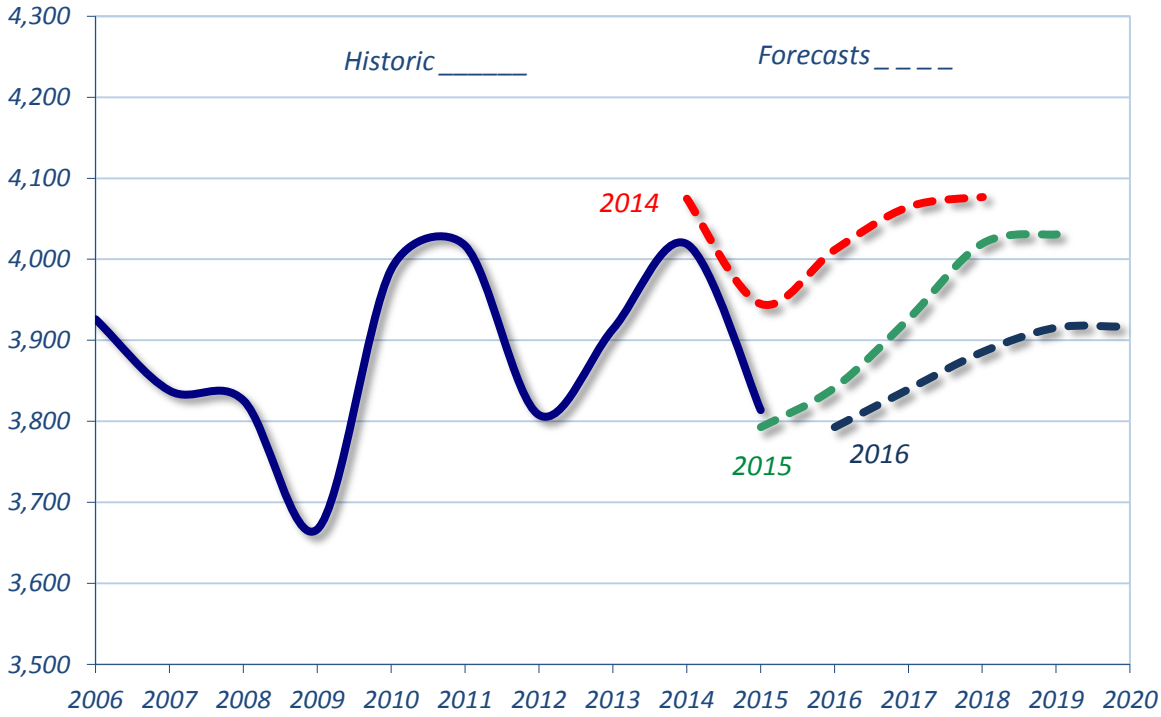
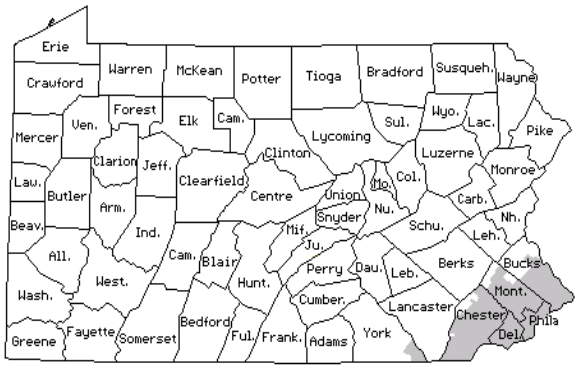



*Figure 15 West Penn peak load (MW)*



### *PECO Energy Company (PECO)*




PECO is the largest electric utility in Pennsylvania, providing service to 1,601,219 customers in the City of Philadelphia and all or portions of six counties in Southeastern Pennsylvania. PECO's 2015 energy usage total was 38,125 GWh, while in 2014 it was 37,675 GWh (an increase of 1.1 percent from the previous year). PECO's total usage mix consisted of residential (36 percent), commercial (21 percent), industrial (40 percent), other[54] (2.3 percent), and sales for resale (0.3 percent).

Over the next five years, total energy usage is projected to decrease at an average annual rate of 0.1 percent. This includes a decrease in average annual residential usage of 0.4 percent, a decrease in average annual commercial growth usage by 0.2, and an increase in average annual industrial usage by 0.2 percent. See Figure 16.

PECO's highest peak load of 8,094 MW occurred on July 20, 2015. This represents a decrease of 2 percent from the previous year's peak of 8,258 MW. Summer peak load is projected to increase from 8,094 MW in summer 2015 to 8,135 MW by summer 2020, or by an average annual growth rate increase of 0.1 percent. See Figure 17.

Refer to Appendix A, Tables A21-A24 for PECO's forecasts of peak load and residential, commercial and industrial energy demand, filed with the Commission in years 2006 through 2016.

[54] Sales in the "other" category include public streetlights, highway lighting, other public authorities, railroads, railways, and interdepartmental.

***Figure 16 PECO energy usage (GWh)***

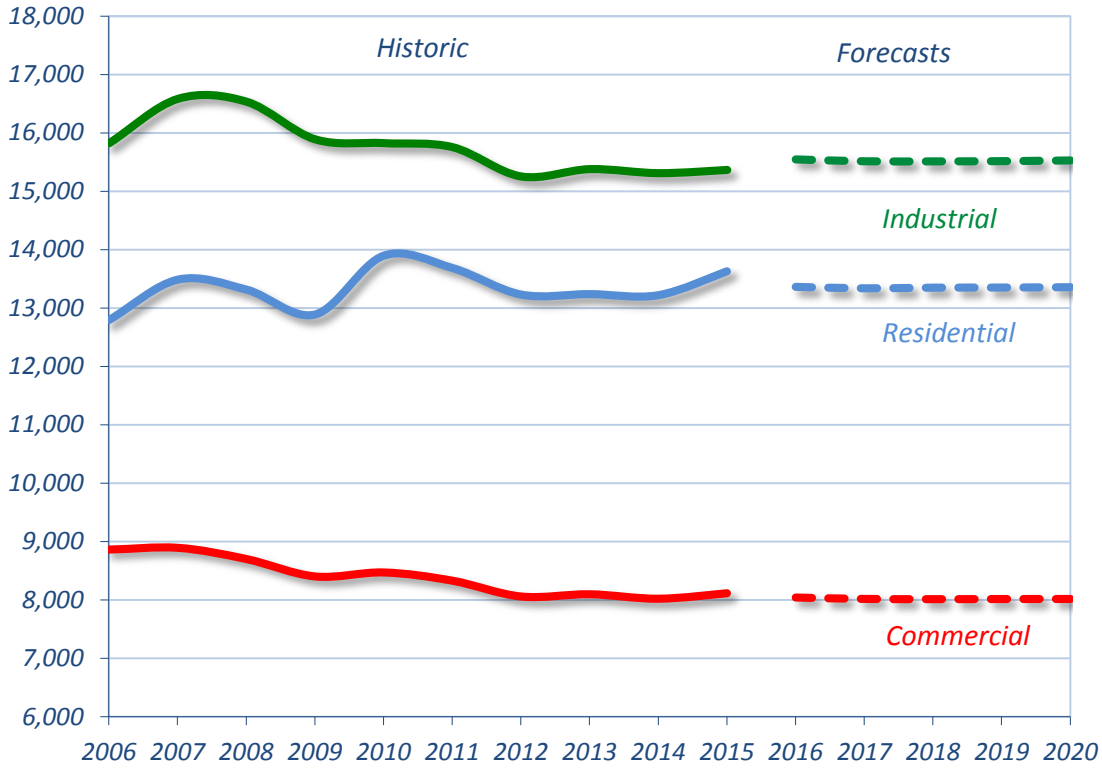
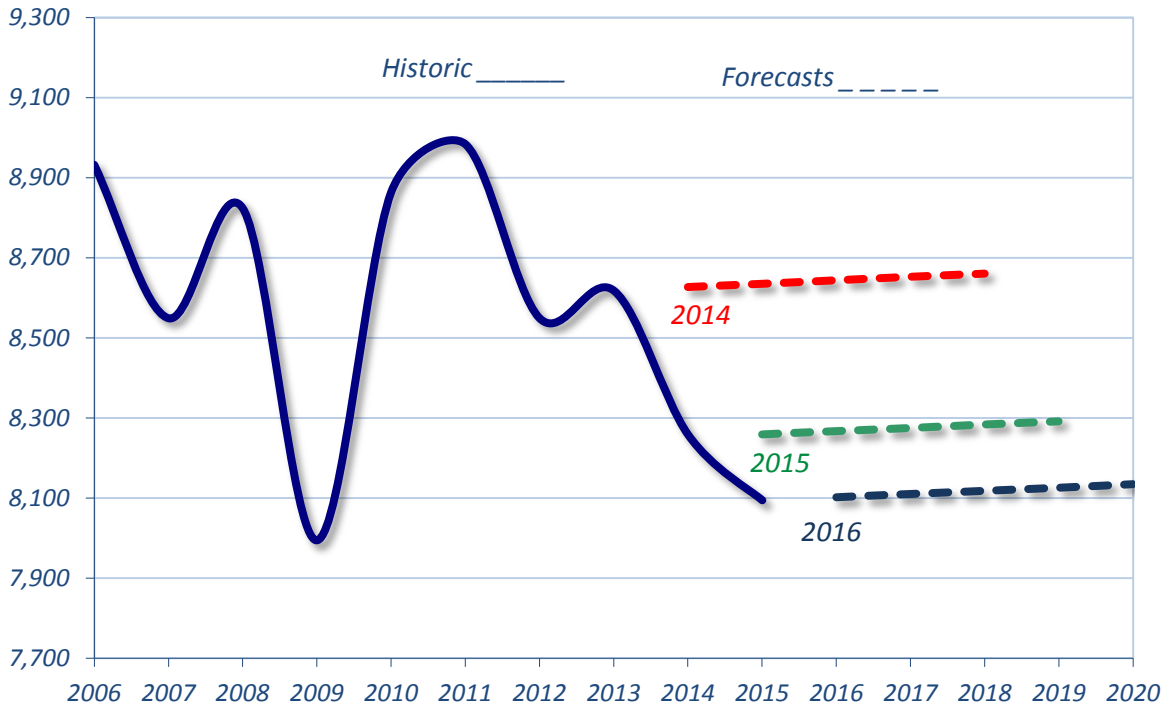
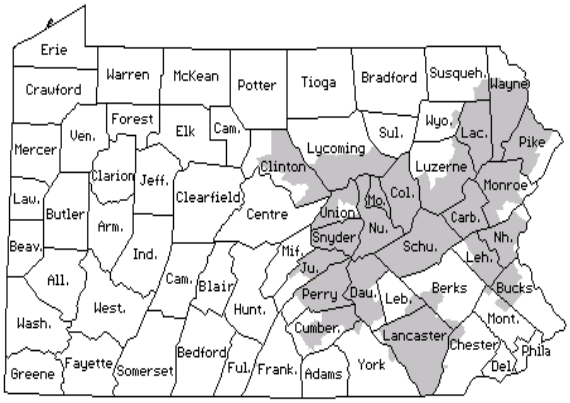



***Figure 17 PECO Energy Company peak load (MW)***



### *PPL Electric Utilities Corporation (PPL)*




PPL provides service to 1,422,730 customers over a 10,000-square-mile area in all or portions of 29 counties in Central Eastern Pennsylvania. PPL's 2015 energy usage total was 37,222 GWh, while in 2014 it was 37,144 GWh (an increase of 0.2 percent from the previous year). PPL's total usage mix consisted of residential (39 percent), commercial (39 percent), industrial (22 percent), and other (0.4 percent).

Over the next five years, total energy usage is projected to decrease at an average annual rate of 0.3 percent. This includes a decrease in average annual residential usage of 1.1 percent, flat average annual commercial usage, and an increase in average annual industrial usage of 0.4 percent. See Figure 18.

PPL's highest peak load of 7,842 MW occurred on February 20, 2015. This represents an increase of 0.3 percent from the previous year's peak of 7,816 MW. Winter peak load is projected to decrease from 7,842 MW in 2015 to 7,427 MW by the year 2020, or by an average annual growth rate decrease of 1.1 percent. PPL expects the lower peak load due to Act 129 reductions. See Figure 19.

Refer to Appendix A, Tables A17-A20 for PPL's forecasts of peak load and residential, commercial and industrial energy demand, filed with the Commission in years 2006 through 2016.

*Figure 18 PPL Electric Utilities Corporation energy usage (GWh)*

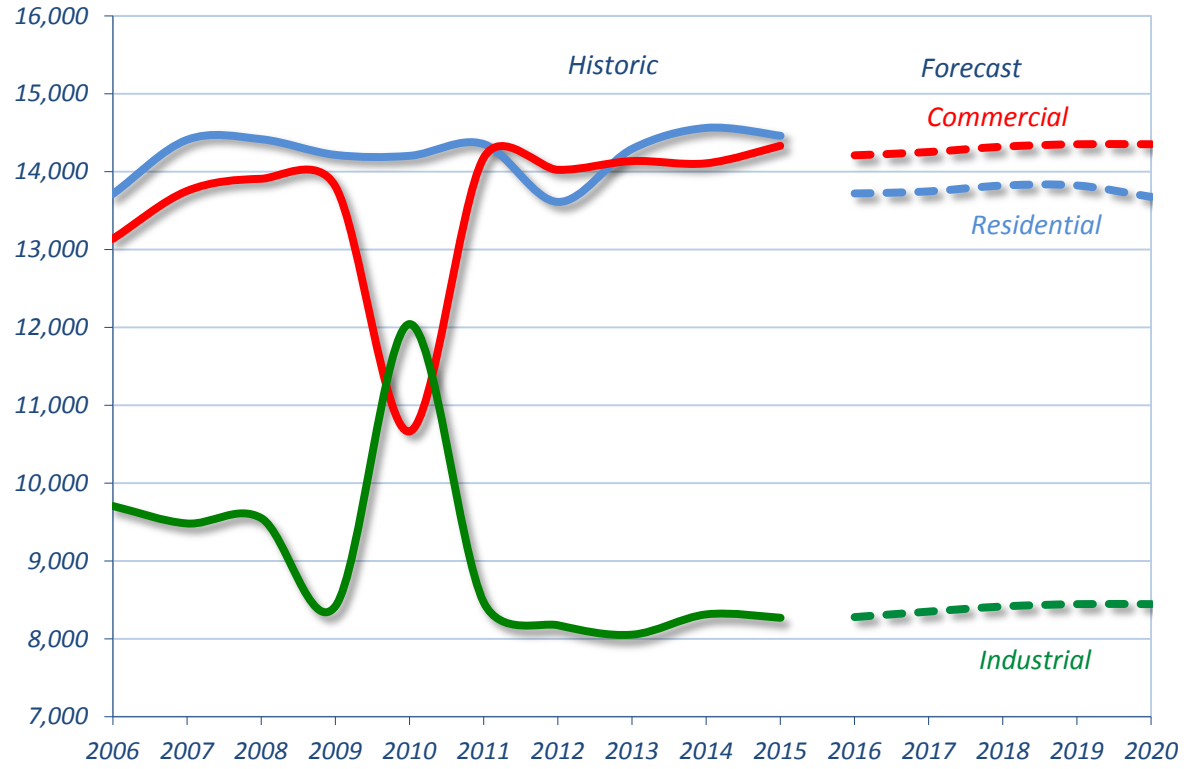
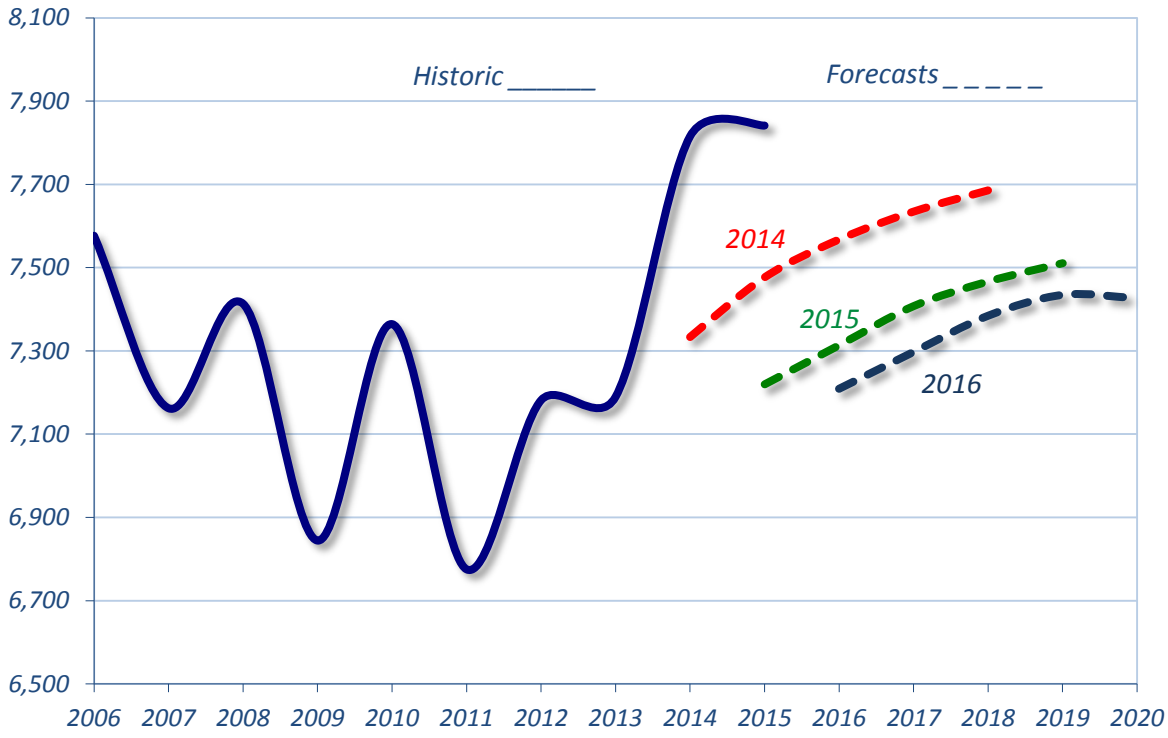


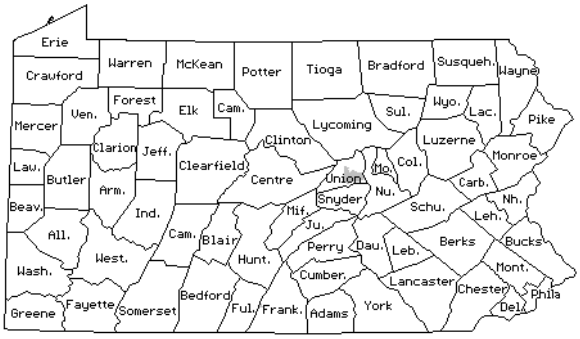

*Figure 19 PPL Electric Utilities Corporation peak load (MW)*



## *Summary of Data for the Four Small EDCs*

The following section provides historic and projected energy usage and peak load demand statistics for Pennsylvania's four small EDCs.

### *Citizens' Electric Company (Citizens')*

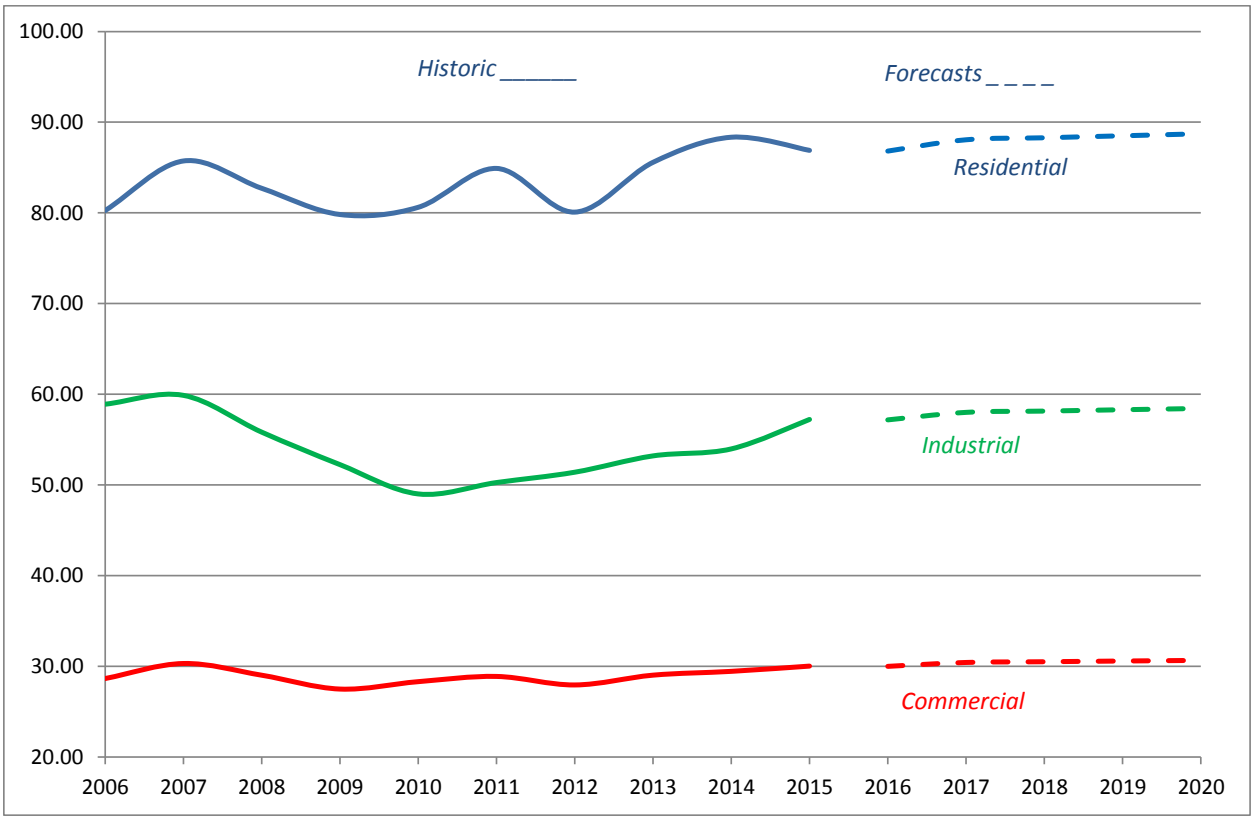



Citizens' provides service to 6,945 customers in Union County, Pennsylvania. Citizens' 2015 energy usage total was 175 GWh, while in 2014 it was 172 GWh (an increase of 1.7 percent from previous year). Citizens' total usage mix consisted of residential (50 percent), commercial (17 percent), industrial (33 percent), and other (less than 1 percent).

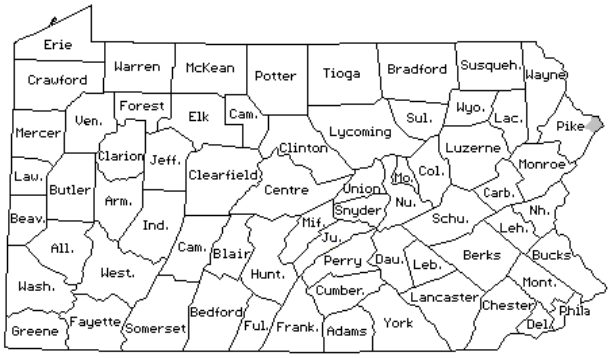
Over the next five years, total energy usage is projected to increase at an average annual rate of 0.4 percent. This includes an increase in average annual residential usage of 0.4 percent, an increase in average annual commercial usage of 0.4 percent, and an increase in average annual industrial usage of 0.4 percent. See Figure 20 below.

Citizens' highest peak load of 43.2 MW occurred on Jan. 19, 2016. This represents a decrease of 20 percent from the previous year's peak of 51.9 MW. Winter peak load is projected to grow from 43.2 MW in 2015 to 50.3 MW by the year 2020, or by an average annual growth rate increase of 3 percent.

*Figure 20 Citizens' energy usage (GWh)*



### *Pike County Light & Power Company (Pike)*

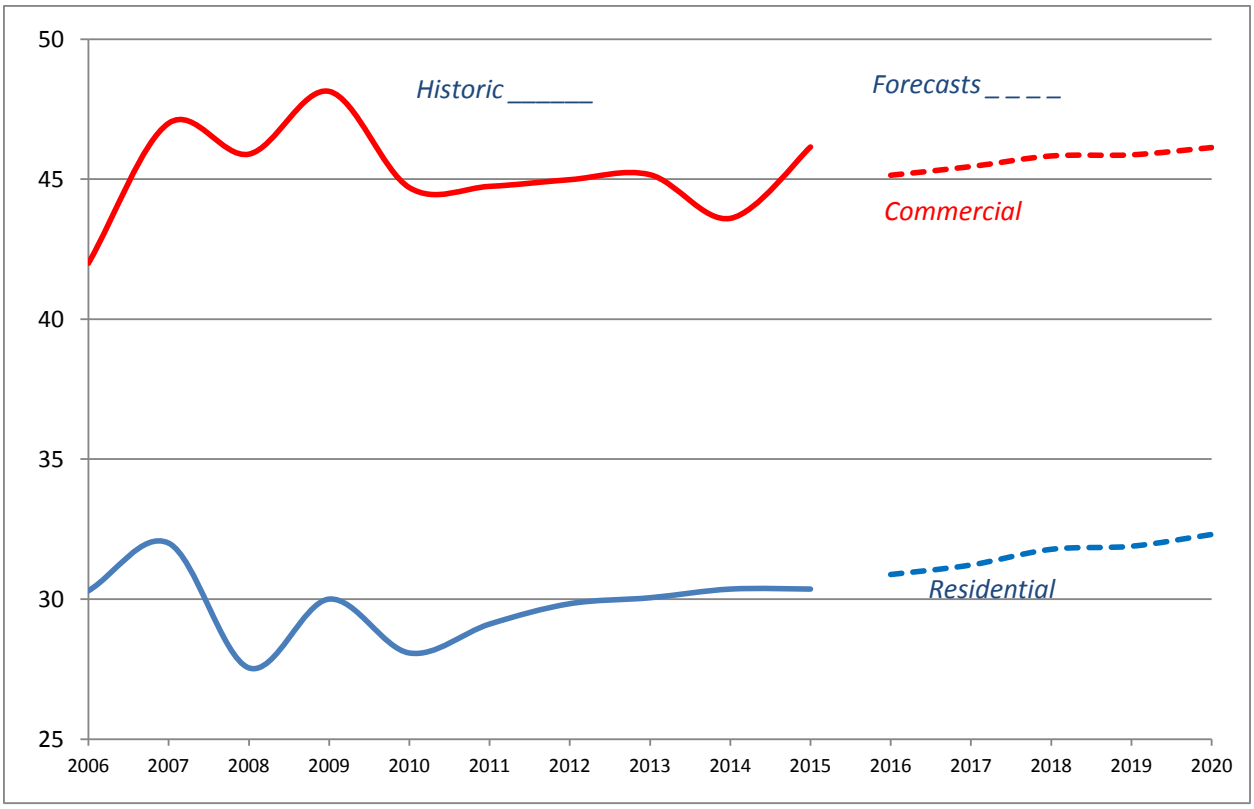



Pike provides service to 4,694 customers in Eastern Pike County, Northeastern Pennsylvania. Pike's 2015 energy usage total was 76 GWh, while in 2014 it was 75 GWh (an increase of 1.3 percent from the previous year). Pike's total usage mix consisted of residential (39 percent), commercial (60 percent) and other (0.5 percent). Pike has no industrial customers or sales for resale.

Over the next five years, total energy usage is projected to increase at an average annual rate of 0.7 percent, which includes an increase in average annual residential growth rate of 1.8 percent and near zero commercial growth. See Figure 21.

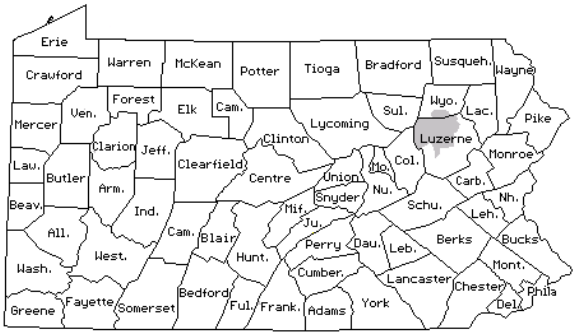
Pike's highest peak load of 18.5 MW occurred on July 20, 2015. This represents a decrease of 2.7 percent from the previous year's peak of 19 MW. Summer peak load is projected to remain the same from 18.5 MW in summer 2015 to 18.8 MW by summer 2019, with a near zero average annual growth.

***Figure 21 Pike County Light & Power energy usage (GWh)***



### *UGI Utilities Inc.—Electric Division (UGI)*

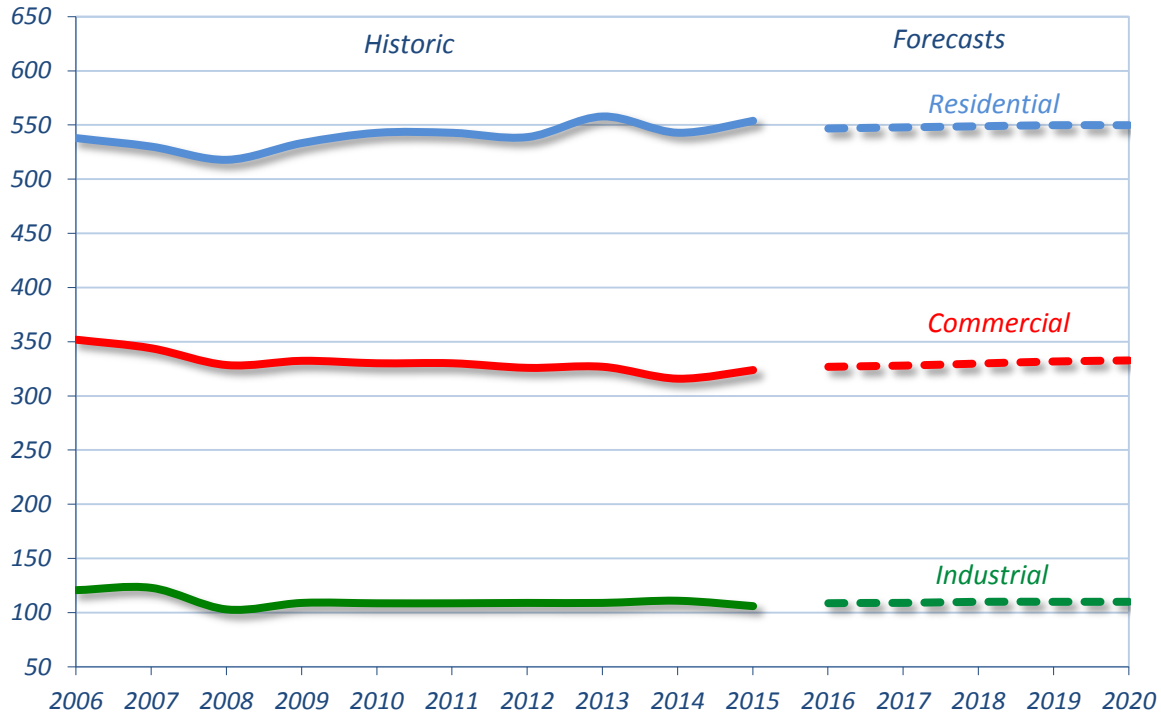
UGI provides electric service to 61,931 customers in Northwestern Luzerne and Southern Wyoming counties in Pennsylvania. UGI's 2015 energy usage total was 990 GWh, while in 2014 it was 976 GWh (an increase of 1.4 percent from the previous year). UGI's total usage mix consisted of residential (56 percent), commercial (33 percent), industrial (11 percent), and sales for resale (0.01 percent).



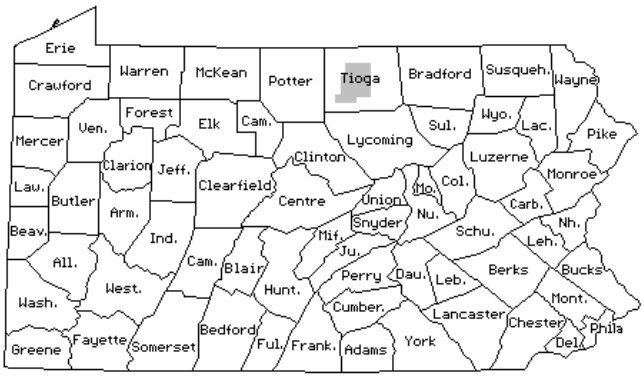

Over the next five years, total energy usage is projected to increase at an average annual rate of 0.2 percent, which includes a decrease in average annual residential usage of 0.1 percent, an increase in average annual commercial usage of 0.6, and an increase in industrial annual usage of 0.7 percent. See Figure 22.

UGI's highest peak load of 193 MW occurred on Jan. 18, 2016. This represents a decrease of 9.3 percent from the previous year's peak of 211 MW. Winter peak load is projected to increase from 193 MW in winter 2015 to 194 MW by the year 2020, or by an average annual growth rate increase of 0.1 percent.

***Figure 22 UGI Utilities Inc. energy usage (GWh)***



### *Wellsboro Electric Company (Wellsboro)*

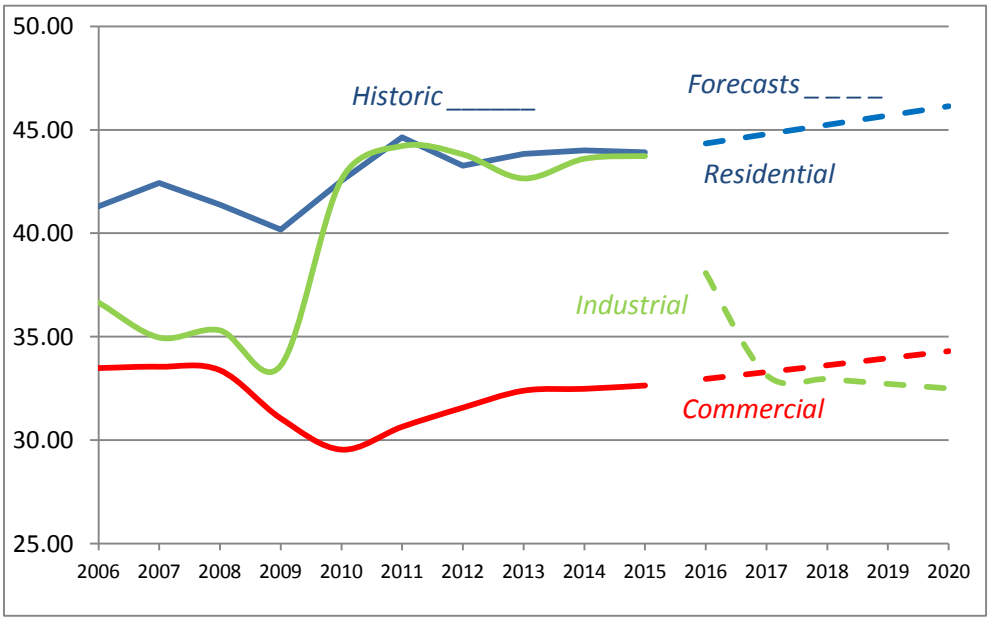



Wellsboro provides electric service to 6,300 customers in Tioga County, North Central Pennsylvania. Wellsboro's 2015 energy usage total was 120.6 GWh, while in 2014 it was 120.4 GWh (an increase of 0.2 percent from the previous year). Wellsboro's total usage mix consisted of residential (36 percent), commercial (27 percent), and industrial (36 percent.

Over the next five years, total energy usage is projected to decrease at an average annual rate of 1.2 percent. This includes an increase in average annual residential usage of 1.0 percent, an increase in average annual commercial usage of 1.0 percent, and a decrease in average annual industrial usage of 5.8 percent. See Figure 23. The dramatic drop in Industrial usage is due to two large industrial customers that are expected to leave the area in 2016 and 2017.

Wellsboro's highest peak load of 22 MW occurred on Jan. 7, 2015. This represents a decrease of 18 percent from the previous year's peak of 26 MW. Winter peak load growth is projected to decrease from 22 MW in 2015 to 20 MW by the year 2020, or by an average annual growth rate decrease of 1.9 percent.

### *Figure 23 Wellsboro Electric Company energy usage (GWh)*



# *Appendix A – Data Tables*

The following tables provide actual and projected peak load as well as residential, commercial and industrial energy demand by EDC. Actual data covers years 2006 through 2015. Five-year projections are those filed with the Commission in years 2006 through 2016.

**Table A01 Duquesne Light Company**
**Actual and Projected Peak Load (MW)**

| | | Projected Peak Load Requirments (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 3053 | 2765 | | | | | | | | | | |
| 2007 | 2890 | 2805 | 3039 | | | | | | | | | |
| 2008 | 2822 | 2835 | 3086 | 2948 | | | | | | | | |
| 2009 | 2732 | 2873 | 3141 | 3007 | 2862 | | | | | | | |
| 2010 | 2889 | 2910 | 3194 | 3067 | 2836 | 2854 | | | | | | |
| 2011 | 3012 | | 3242 | 3128 | 2857 | 2863 | 2944 | | | | | |
| 2012 | 3054 | | | 3191 | 2850 | 2860 | 3000 | 2935 | | | | |
| 2013 | 2951 | | | | 2890 | 2917 | 3053 | 2980 | 2966 | | | |
| 2014 | 2693 | | | | | 2960 | 3088 | 3045 | 3021 | 2997 | | |
| 2015 | 2804 | | | | | | 3125 | 3102 | 3083 | 3056 | 2969 | |
| 2016 | | | | | | | | 3132 | 3135 | 3094 | 3005 | 2893 |
| 2017 | | | | | | | | | 3167 | 3118 | 3026 | 2918 |
| 2018 | | | | | | | | | | 3143 | 3042 | 2938 |
| 2019 | | | | | | | | | | | 3056 | 2950 |
| 2020 | | | | | | | | | | | | 2942 |

**Table A02 Duquesne Light Company**
**Actual and Projected Residential Energy Demand (GWh)**

| | | Projected Residential Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 3991 | 3984 | | | | | | | | | | |
| 2007 | 4211 | 4054 | 4141 | | | | | | | | | |
| 2008 | 4060 | 4118 | 4214 | 4216 | | | | | | | | |
| 2009 | 3946 | 4181 | 4293 | 4293 | 4177 | | | | | | | |
| 2010 | 4327 | 4243 | 4372 | 4371 | 4188 | 4117 | | | | | | |
| 2011 | 4232 | | 4453 | 4444 | 4181 | 4184 | 4213 | | | | | |
| 2012 | 4169 | | | 4527 | 4171 | 4267 | 4275 | 4350 | | | | |
| 2013 | 4091 | | | | 4197 | 4352 | 4332 | 4436 | 4246 | | | |
| 2014 | 4068 | | | | | 4448 | 4402 | 4509 | 4260 | 4217 | | |
| 2015 | 4109 | | | | | | 4474 | 4579 | 4265 | 4230 | 4176 | |
| 2016 | | | | | | | | 4676 | 4284 | 4266 | 4202 | 4081 |
| 2017 | | | | | | | | | 4306 | 4266 | 4184 | 4068 |
| 2018 | | | | | | | | | | 4272 | 4172 | 4067 |
| 2019 | | | | | | | | | | | 4164 | 4053 |
| 2020 | | | | | | | | | | | | 4012 |

**Table A03 Duquesne Light Company**
**Actual and Projected Commercial Energy Demand (GWh)**

| | | Projected Commercial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 6474 | 6693 | | | | | | | | | | |
| 2007 | 6715 | 6847 | 6784 | | | | | | | | | |
| 2008 | 6631 | 6991 | 6942 | 6731 | | | | | | | | |
| 2009 | 6537 | 7129 | 7127 | 6768 | 6648 | | | | | | | |
| 2010 | 6712 | 7259 | 7302 | 6815 | 6627 | 6428 | | | | | | |
| 2011 | 6612 | | 7457 | 6878 | 6583 | 6501 | 6681 | | | | | |
| 2012 | 6539 | | | 6952 | 6533 | 6585 | 6782 | 6682 | | | | |
| 2013 | 6494 | | | | 6527 | 6666 | 6854 | 6749 | 6642 | | | |
| 2014 | 6432 | | | | | 6742 | 6957 | 6842 | 6640 | 6600 | | |
| 2015 | 6399 | | | | | | 7056 | 6929 | 6640 | 6621 | 6494 | |
| 2016 | | | | | | | | 7017 | 6645 | 6648 | 6503 | 6371 |
| 2017 | | | | | | | | | 6641 | 6643 | 6472 | 6327 |
| 2018 | | | | | | | | | | 6654 | 6455 | 6299 |
| 2019 | | | | | | | | | | | 6430 | 6254 |
| 2020 | | | | | | | | | | | | 6210 |

**Table A04 Duquesne Light Company**
**Actual and Projected Industrial Energy Demand (GWh)**

| | | Projected Industrial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 3182 | 3229 | | | | | | | | | | |
| 2007 | 3145 | 3299 | 3271 | | | | | | | | | |
| 2008 | 3079 | 3359 | 3315 | 3098 | | | | | | | | |
| 2009 | 2616 | 3411 | 3369 | 3102 | 3002 | | | | | | | |
| 2010 | 2987 | 3464 | 3420 | 3084 | 2933 | 2440 | | | | | | |
| 2011 | 3120 | | 3467 | 3140 | 2851 | 2407 | 2865 | | | | | |
| 2012 | 3406 | | | 3141 | 2777 | 2395 | 2846 | 3185 | | | | |
| 2013 | 3337 | | | | 2726 | 2385 | 2815 | 3226 | 3501 | | | |
| 2014 | 3164 | | | | | 2359 | 2770 | 3252 | 3035 | 2787 | | |
| 2015 | 2898 | | | | | | 2724 | 3272 | 3032 | 2778 | 2909 | |
| 2016 | | | | | | | | 3289 | 3031 | 2762 | 2896 | 2890 |
| 2017 | | | | | | | | | 3031 | 2734 | 2873 | 2852 |
| 2018 | | | | | | | | | | 2711 | 2851 | 2837 |
| 2019 | | | | | | | | | | | 2826 | 2819 |
| 2020 | | | | | | | | | | | | 2803 |

**Table A05 Metropolitan Edison Company**
**Actual and Projected Peak Load (MW)**

| | | Projected Peak Load Requirements (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 2884 | 2689 | | | | | | | | | | |
| 2007 | 2825 | 2740 | 2740 | | | | | | | | | |
| 2008 | 3045 | 2801 | 2801 | 2801 | | | | | | | | |
| 2009 | 2739 | 2856 | 2857 | 2857 | 2829 | | | | | | | |
| 2010 | 2715 | 2915 | 2915 | 2915 | 2932 | 2687 | | | | | | |
| 2011 | 3125 | | 2972 | 2972 | 3017 | 2640 | 2869 | | | | | |
| 2012 | 3036 | | | 3032 | 3085 | 2630 | 2775 | 2911 | | | | |
| 2013 | 3012 | | | | 3158 | 2668 | 2815 | 2928 | 2881 | | | |
| 2014 | 2817 | | | | | 2731 | 2872 | 2962 | 2887 | 2958 | | |
| 2015 | 2791 | | | | | | 2952 | 2995 | 2898 | 2965 | 2975 | |
| 2016 | | | | | | | | 3028 | 2910 | 2974 | 2979 | 2987 |
| 2017 | | | | | | | | | 2932 | 2996 | 2985 | 2995 |
| 2018 | | | | | | | | | | 3017 | 2987 | 2997 |
| 2019 | | | | | | | | | | | 2986 | 2996 |
| 2020 | | | | | | | | | | | | 2995 |

**Table A06 Metropolitan Edison Company**
**Actual and Projected Residential Energy Demand (GWh)**

| | | Projected Residential Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 5287 | 5325 | | | | | | | | | | |
| 2007 | 5595 | 5390 | 5516 | | | | | | | | | |
| 2008 | 5598 | 5515 | 5699 | 5699 | | | | | | | | |
| 2009 | 5448 | 5640 | 5872 | 5872 | 5771 | | | | | | | |
| 2010 | 5666 | 5764 | 6037 | 6037 | 5836 | 5587 | | | | | | |
| 2011 | 5588 | | 6187 | 6187 | 5969 | 5552 | 5424 | | | | | |
| 2012 | 5363 | | | 6341 | 6109 | 5577 | 5226 | 5201 | | | | |
| 2013 | 5553 | | | | 6232 | 5682 | 5386 | 5184 | 5297 | | | |
| 2014 | 5477 | | | | | 5799 | 5547 | 5183 | 5159 | 5354 | | |
| 2015 | 5515 | | | | | | 5650 | 5212 | 5042 | 5421 | 5533 | |
| 2016 | | | | | | | | 5210 | 4979 | 5438 | 5378 | 5190 |
| 2017 | | | | | | | | | 4993 | 5457 | 5392 | 5042 |
| 2018 | | | | | | | | | | 5476 | 5382 | 4925 |
| 2019 | | | | | | | | | | | 5351 | 4840 |
| 2020 | | | | | | | | | | | | 4760 |

**Table A07 Metropolitan Edison Company**
**Actual and Projected Commercial Energy Demand (GWh)***

| | | Projected Commercial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 4509 | 4462 | | | | | | | | | | |
| 2007 | 4715 | 4547 | 4664 | | | | | | | | | |
| 2008 | 4777 | 4668 | 4818 | 4818 | | | | | | | | |
| 2009 | 4568 | 4788 | 4969 | 4969 | 4853 | | | | | | | |
| 2010 | 3006 | 4908 | 5108 | 5108 | 5020 | 4671 | | | | | | |
| 2011 | 2947 | | 5244 | 5244 | 5152 | 4706 | 2955 | | | | | |
| 2012 | 2907 | | | 5375 | 5291 | 4783 | 2959 | 2871 | | | | |
| 2013 | 2933 | | | | 5421 | 4887 | 3019 | 2909 | 2900 | | | |
| 2014 | 2944 | | | | | 4963 | 3090 | 2948 | 2930 | 2914 | | |
| 2015 | 2995 | | | | | | 3158 | 2997 | 2937 | 2931 | 2983 | |
| 2016 | | | | | | | | 2995 | 2940 | 2964 | 2929 | 2919 |
| 2017 | | | | | | | | | 2956 | 2984 | 2938 | 2923 |
| 2018 | | | | | | | | | | 2989 | 2938 | 2927 |
| 2019 | | | | | | | | | | | 2923 | 2925 |
| 2020 | | | | | | | | | | | | 2921 |

* The 2010 actual and 2011 forecast are based on a reclassification of the commercial and industrial classes.

**Table A08 Metropolitan Edison Company**
**Actual and Projected Industrial Energy Demand (GWh)***

| | | Projected Industrial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 4008 | 4176 | | | | | | | | | | |
| 2007 | 3992 | 4155 | 4123 | | | | | | | | | |
| 2008 | 3831 | 4177 | 4156 | 4156 | | | | | | | | |
| 2009 | 3439 | 4200 | 4181 | 4181 | 3620 | | | | | | | |
| 2010 | 5288 | 4221 | 4193 | 4193 | 3842 | 3538 | | | | | | |
| 2011 | 5404 | | 4201 | 4201 | 4035 | 3497 | 5443 | | | | | |
| 2012 | 5261 | | | 4209 | 4047 | 3528 | 5545 | 5434 | | | | |
| 2013 | 5328 | | | | 4048 | 3731 | 5589 | 5652 | 5411 | | | |
| 2014 | 5382 | | | | | 4021 | 5610 | 5765 | 5521 | 5322 | | |
| 2015 | 5309 | | | | | | 5625 | 5851 | 5561 | 5381 | 5413 | |
| 2016 | | | | | | | | 5847 | 5587 | 5456 | 5472 | 5350 |
| 2017 | | | | | | | | | 5612 | 5508 | 5507 | 5372 |
| 2018 | | | | | | | | | | 5524 | 5523 | 5467 |
| 2019 | | | | | | | | | | | 5532 | 5474 |
| 2020 | | | | | | | | | | | | 5467 |

* The 2010 actual and 2011 forecast are based on a reclassification of the commercial and industrial classes.

**Table A09 Pennsylvania Electric Company**
**Actual and Projected Peak Load (MW)**

| | | Projected Peak Load Requirements (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 2531 | 2511 | | | | | | | | | | |
| 2007 | 2696 | 2554 | 2554 | | | | | | | | | |
| 2008 | 2524 | 2598 | 2598 | 2598 | | | | | | | | |
| 2009 | 2880 | 2637 | 2637 | 2637 | 2637 | | | | | | | |
| 2010 | 2451 | 2674 | 2674 | 2674 | 2674 | 2603 | | | | | | |
| 2011 | 2659 | | 2711 | 2711 | 2711 | 2630 | 2465 | | | | | |
| 2012 | 3128 | | | 2750 | 2750 | 2661 | 2452 | 2515 | | | | |
| 2013 | 3087 | | | | 2789 | 2688 | 2458 | 2544 | 2938 | | | |
| 2014 | 3024 | | | | | 2715 | 2496 | 2579 | 2942 | 2927 | | |
| 2015 | 2819 | | | | | | 2531 | 2625 | 2987 | 2935 | 2888 | |
| 2016 | | | | | | | | 2662 | 3039 | 2946 | 2896 | 2890 |
| 2017 | | | | | | | | | 3081 | 2962 | 2904 | 2898 |
| 2018 | | | | | | | | | | 2968 | 2904 | 2906 |
| 2019 | | | | | | | | | | | 2902 | 2907 |
| 2020 | | | | | | | | | | | | 2907 |

**Table A10 Pennsylvania Electric Company**
**Actual and Projected Residential Energy Demand (GWh)**

| | | Projected Residential Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 4457 | 4295 | | | | | | | | | | |
| 2007 | 4381 | 4333 | 4420 | | | | | | | | | |
| 2008 | 4497 | 4385 | 4438 | 4469 | | | | | | | | |
| 2009 | 4558 | 4438 | 4496 | 4533 | 4533 | | | | | | | |
| 2010 | 4471 | 4524 | 4554 | 4598 | 4598 | 4611 | | | | | | |
| 2011 | 4656 | | 4614 | 4662 | 4662 | 4614 | 4569 | | | | | |
| 2012 | 4554 | | | 4727 | 4727 | 4662 | 4489 | 4460 | | | | |
| 2013 | 4491 | | | | 4793 | 4721 | 4443 | 4304 | 4257 | | | |
| 2014 | 4462 | | | | | 4776 | 4442 | 4387 | 4164 | 4469 | | |
| 2015 | 4350 | | | | | | 4486 | 4539 | 4145 | 4513 | 4491 | |
| 2016 | | | | | | | | 4653 | 4157 | 4525 | 4373 | 4145 |
| 2017 | | | | | | | | | 4156 | 4554 | 4393 | 4011 |
| 2018 | | | | | | | | | | 4583 | 4394 | 3923 |
| 2019 | | | | | | | | | | | 4377 | 3856 |
| 2020 | | | | | | | | | | | | 3791 |

**Table A11 Pennsylvania Electric Company**
**Actual and Projected Commercial Energy Demand (GWh)***

| | | Projected Commercial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 5010 | 4928 | | | | | | | | | | |
| 2007 | 4961 | 4990 | 5049 | | | | | | | | | |
| 2008 | 5139 | 5064 | 5099 | 5045 | | | | | | | | |
| 2009 | 5186 | 5140 | 5188 | 5122 | 5122 | | | | | | | |
| 2010 | 5019 | 5213 | 5277 | 5199 | 5199 | 5159 | | | | | | |
| 2011 | 3671 | | 5367 | 5277 | 5277 | 5213 | 5196 | | | | | |
| 2012 | 3534 | | | 5356 | 5356 | 5265 | 5215 | 3562 | | | | |
| 2013 | 3531 | | | | 5436 | 5320 | 5257 | 3526 | 3512 | | | |
| 2014 | 3591 | | | | | 5364 | 5343 | 3593 | 3535 | 3553 | | |
| 2015 | 3558 | | | | | | 5424 | 3650 | 3510 | 3552 | 3649 | |
| 2016 | | | | | | | | 3698 | 3503 | 3582 | 3582 | 3539 |
| 2017 | | | | | | | | | 3503 | 3604 | 3614 | 3545 |
| 2018 | | | | | | | | | | 3608 | 3619 | 3551 |
| 2019 | | | | | | | | | | | 3607 | 3553 |
| 2020 | | | | | | | | | | | | 3552 |

* The 2010 actual and 2011 forecast are based on a reclassification of the commercial and industrial classes.

**Table A12 Pennsylvania Electric Company**
**Actual and Projected Industrial Energy Demand (GWh)***

| | | Projected Industrial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 4729 | 4527 | | | | | | | | | | |
| 2007 | 4678 | 4612 | 4807 | | | | | | | | | |
| 2008 | 4610 | 4679 | 4828 | 4809 | | | | | | | | |
| 2009 | 4594 | 4708 | 4881 | 4881 | 4881 | | | | | | | |
| 2010 | 4044 | 4725 | 4905 | 4954 | 4954 | 4203 | | | | | | |
| 2011 | 5748 | | 4930 | 4983 | 4983 | 4538 | 4126 | | | | | |
| 2012 | 6005 | | | 5013 | 5013 | 4859 | 4222 | 6026 | | | | |
| 2013 | 5731 | | | | 5043 | 4889 | 4370 | 6175 | 5883 | | | |
| 2014 | 5647 | | | | | 4922 | 4607 | 6266 | 5993 | 5696 | | |
| 2015 | 5647 | | | | | | 4674 | 6304 | 6062 | 5808 | 5747 | |
| 2016 | | | | | | | | 6325 | 6133 | 5867 | 5822 | 5723 |
| 2017 | | | | | | | | | 6130 | 5894 | 5931 | 5746 |
| 2018 | | | | | | | | | | 5896 | 6017 | 5721 |
| 2019 | | | | | | | | | | | 5998 | 5675 |
| 2020 | | | | | | | | | | | | 5623 |

* The 2010 actual and 2011 forecast are based on a reclassification of the commercial and industrial classes.

**Table A13 Pennsylvania Power Company**
**Actual and Projected Peak Load (MW)**

| | | Projected Peak Load Requirements (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 984 | 904 | | | | | | | | | | |
| 2007 | 1042 | 930 | 921 | | | | | | | | | |
| 2008 | 1063 | 938 | 936 | 936 | | | | | | | | |
| 2009 | 901 | 951 | 951 | 951 | 984 | | | | | | | |
| 2010 | 903 | 965 | 965 | 965 | 941 | 896 | | | | | | |
| 2011 | 1102 | | 980 | 980 | 963 | 890 | 944 | | | | | |
| 2012 | 963 | | | 994 | 981 | 899 | 947 | 1010 | | | | |
| 2013 | 1054 | | | | 995 | 930 | 983 | 1001 | 929 | | | |
| 2014 | 1018 | | | | | 977 | 1002 | 1003 | 930 | 867 | | |
| 2015 | 910 | | | | | | 1010 | 1006 | 953 | 873 | 931 | |
| 2016 | | | | | | | | 1010 | 969 | 880 | 940 | 992 |
| 2017 | | | | | | | | | 980 | 885 | 947 | 999 |
| 2018 | | | | | | | | | | 889 | 949 | 1003 |
| 2019 | | | | | | | | | | | 949 | 1004 |
| 2020 | | | | | | | | | | | | 1006 |

**Table A14 Pennsylvania Power Company**
**Actual and Projected Residential Energy Demand (GWh)**

| | | Projected Residential Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 1611 | 1659 | | | | | | | | | | |
| 2007 | 1690 | 1699 | 1659 | | | | | | | | | |
| 2008 | 1667 | 1744 | 1693 | 1693 | | | | | | | | |
| 2009 | 1634 | 1789 | 1724 | 1724 | 1780 | | | | | | | |
| 2010 | 1696 | 1835 | 1758 | 1758 | 1761 | 1701 | | | | | | |
| 2011 | 1711 | | 1789 | 1789 | 1806 | 1708 | 1664 | | | | | |
| 2012 | 1668 | | | 1821 | 1860 | 1721 | 1624 | 1590 | | | | |
| 2013 | 1704 | | | | 1904 | 1714 | 1638 | 1588 | 1645 | | | |
| 2014 | 1728 | | | | | 1739 | 1664 | 1582 | 1627 | 1677 | | |
| 2015 | 1703 | | | | | | 1684 | 1589 | 1619 | 1685 | 1752 | |
| 2016 | | | | | | | | 1588 | 1625 | 1691 | 1689 | 1597 |
| 2017 | | | | | | | | | 1649 | 1699 | 1703 | 1563 |
| 2018 | | | | | | | | | | 1705 | 1713 | 1545 |
| 2019 | | | | | | | | | | | 1714 | 1532 |
| 2020 | | | | | | | | | | | | 1520 |

**Table A15 Pennsylvania Power Company**
**Actual and Projected Commercial Energy Demand (GWh)**

| | | Projected Commercial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 1359 | 1384 | | | | | | | | | | |
| 2007 | 1414 | 1422 | 1394 | | | | | | | | | |
| 2008 | 1404 | 1460 | 1427 | 1427 | | | | | | | | |
| 2009 | 1367 | 1498 | 1461 | 1461 | 1401 | | | | | | | |
| 2010 | 1311 | 1535 | 1496 | 1496 | 1394 | 1428 | | | | | | |
| 2011 | 1327 | | 1532 | 1532 | 1424 | 1408 | 1300 | | | | | |
| 2012 | 1334 | | | 1569 | 1491 | 1449 | 1267 | 1291 | | | | |
| 2013 | 1349 | | | | 1535 | 1500 | 1272 | 1297 | 1337 | | | |
| 2014 | 1381 | | | | | 1535 | 1277 | 1314 | 1347 | 1345 | | |
| 2015 | 1321 | | | | | | 1278 | 1335 | 1358 | 1322 | 1180 | |
| 2016 | | | | | | | | 1334 | 1365 | 1326 | 1048 | 1311 |
| 2017 | | | | | | | | | 1374 | 1332 | 1049 | 1315 |
| 2018 | | | | | | | | | | 1332 | 1047 | 1319 |
| 2019 | | | | | | | | | | | 1040 | 1321 |
| 2020 | | | | | | | | | | | | 1321 |

**Table A16 Pennsylvania Power Company**
**Actual and Projected Industrial Energy Demand (GWh)**

| | | Projected Industrial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 1708 | 1565 | | | | | | | | | | |
| 2007 | 1627 | 1578 | 1720 | | | | | | | | | |
| 2008 | 1614 | 1594 | 1727 | 1727 | | | | | | | | |
| 2009 | 1229 | 1610 | 1734 | 1734 | 1347 | | | | | | | |
| 2010 | 1488 | 1626 | 1741 | 1741 | 1517 | 1226 | | | | | | |
| 2011 | 1542 | | 1748 | 1748 | 1687 | 1214 | 1527 | | | | | |
| 2012 | 1456 | | | 1755 | 1694 | 1238 | 1652 | 1513 | | | | |
| 2013 | 1509 | | | | 1700 | 1370 | 1705 | 1483 | 1473 | | | |
| 2014 | 1599 | | | | | 1596 | 1725 | 1486 | 1518 | 1596 | | |
| 2015 | 1496 | | | | | | 1738 | 1490 | 1519 | 1743 | 1847 | |
| 2016 | | | | | | | | 1490 | 1488 | 1739 | 2079 | 1637 |
| 2017 | | | | | | | | | 1485 | 1729 | 2202 | 1696 |
| 2018 | | | | | | | | | | 1731 | 2256 | 1742 |
| 2019 | | | | | | | | | | | 2278 | 1775 |
| 2020 | | | | | | | | | | | | 1790 |

**Table A17 PPL Electric Utilities Corporation**
**Actual and Projected Peak Load (MW)**

| | | Projected Peak Load Requirements (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 7577 | 7310 | | | | | | | | | | |
| 2007 | 7163 | 7410 | 7200 | | | | | | | | | |
| 2008 | 7414 | 7510 | 7270 | 7410 | | | | | | | | |
| 2009 | 6845 | 7610 | 7340 | 7450 | 7180 | | | | | | | |
| 2010 | 7365 | 7710 | 7400 | 7500 | 7250 | 7207 | | | | | | |
| 2011 | 6776 | | 7480 | 7580 | 7320 | 7227 | 7101 | | | | | |
| 2012 | 7182 | | | 7680 | 7360 | 7283 | 7138 | 7331 | | | | |
| 2013 | 7190 | | | | 7450 | 7366 | 7142 | 7400 | 7271 | | | |
| 2014 | 7816 | | | | | 7487 | 7216 | 7484 | 7403 | 7334 | | |
| 2015 | 7842 | | | | | | 7282 | 7622 | 7556 | 7477 | 7220 | |
| 2016 | | | | | | | | 7731 | 7691 | 7568 | 7314 | 7209 |
| 2017 | | | | | | | | | 7785 | 7635 | 7408 | 7298 |
| 2018 | | | | | | | | | | 7686 | 7467 | 7385 |
| 2019 | | | | | | | | | | | 7511 | 7435 |
| 2020 | | | | | | | | | | | | 7427 |

**Table A18 PPL Electric Utilities Corporation**
**Actual and Projected Residential Energy Demand (GWh)**

| | | Projected Residential Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 13714 | 14099 | | | | | | | | | | |
| 2007 | 14411 | 14392 | 14180 | | | | | | | | | |
| 2008 | 14419 | 14555 | 14422 | 14469 | | | | | | | | |
| 2009 | 14218 | 14794 | 14565 | 14584 | 14341 | | | | | | | |
| 2010 | 14206 | 15036 | 14702 | 14562 | 14340 | 14384 | | | | | | |
| 2011 | 14356 | | 14828 | 14608 | 14246 | 14390 | 14142 | | | | | |
| 2012 | 13616 | | | 14770 | 14350 | 14226 | 14120 | 13848 | | | | |
| 2013 | 14295 | | | | 14443 | 14164 | 14005 | 13658 | 13607 | | | |
| 2014 | 14563 | | | | | 14325 | 14161 | 13667 | 13575 | 13588 | | |
| 2015 | 14462 | | | | | | 14335 | 13738 | 13602 | 13644 | 13647 | |
| 2016 | | | | | | | | 13896 | 13695 | 13769 | 13720 | 13721 |
| 2017 | | | | | | | | | 13678 | 13814 | 13732 | 13750 |
| 2018 | | | | | | | | | | 13908 | 13781 | 13825 |
| 2019 | | | | | | | | | | | 13790 | 13826 |
| 2020 | | | | | | | | | | | | 13679 |

**Table A19 PPL Electric Utilities Corporation**
**Actual and Projected Commercial Energy Demand (GWh)**

| | | Projected Commercial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 13140 | 13188 | | | | | | | | | | |
| 2007 | 13756 | 13562 | 13184 | | | | | | | | | |
| 2008 | 13913 | 13836 | 13476 | 13676 | | | | | | | | |
| 2009 | 13818 | 14166 | 13777 | 14028 | 14258 | | | | | | | |
| 2010 | 10667 | 14492 | 14045 | 14253 | 14486 | 14098 | | | | | | |
| 2011 | 14179 | | 14290 | 14596 | 14631 | 14642 | 10756 | | | | | |
| 2012 | 14027 | | | 14907 | 14926 | 14907 | 10860 | 14217 | | | | |
| 2013 | 14140 | | | | 15228 | 15295 | 11022 | 14270 | 14354 | | | |
| 2014 | 14111 | | | | | 15827 | 11251 | 14411 | 14524 | 14414 | | |
| 2015 | 14336 | | | | | | 11499 | 14580 | 14740 | 14570 | 14235 | |
| 2016 | | | | | | | | 14754 | 14998 | 14741 | 14234 | 14214 |
| 2017 | | | | | | | | | 15137 | 14859 | 14376 | 14257 |
| 2018 | | | | | | | | | | 14985 | 14440 | 14326 |
| 2019 | | | | | | | | | | | 14484 | 14357 |
| 2020 | | | | | | | | | | | | 14357 |

**Table A20 PPL Electric Utilities Corporation**
**Actual and Projected Industrial Energy Demand (GWh)**

| | | Projected Industrial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 9704 | 9968 | | | | | | | | | | |
| 2007 | 9482 | 10048 | 9965 | | | | | | | | | |
| 2008 | 9551 | 10084 | 9999 | 9625 | | | | | | | | |
| 2009 | 8418 | 10150 | 10032 | 9570 | 9401 | | | | | | | |
| 2010 | 12045 | 10214 | 10059 | 9228 | 9141 | 8506 | | | | | | |
| 2011 | 8467 | | 10084 | 9005 | 8879 | 8365 | 12151 | | | | | |
| 2012 | 8173 | | | 9009 | 8866 | 8211 | 12116 | 8475 | | | | |
| 2013 | 8052 | | | | 8864 | 8110 | 12269 | 8468 | 8133 | | | |
| 2014 | 8313 | | | | | 8054 | 12450 | 8501 | 8182 | 8092 | | |
| 2015 | 8269 | | | | | | 12686 | 8550 | 8281 | 8171 | 7966 | |
| 2016 | | | | | | | | 8603 | 8407 | 8260 | 8066 | 8283 |
| 2017 | | | | | | | | | 8459 | 8324 | 8129 | 8354 |
| 2018 | | | | | | | | | | 8365 | 8168 | 8420 |
| 2019 | | | | | | | | | | | 8189 | 8450 |
| 2020 | | | | | | | | | | | | 8450 |

**Table A21 PECO Energy Company**
**Actual and Projected Peak Load (MW)**

| | | Projected Peak Load Requirements (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 8932 | 8755 | | | | | | | | | | |
| 2007 | 8549 | 8887 | 9066 | | | | | | | | | |
| 2008 | 8824 | 9020 | 9202 | 8677 | | | | | | | | |
| 2009 | 7994 | 9155 | 9340 | 8807 | 8956 | | | | | | | |
| 2010 | 8864 | 9293 | 9480 | 8940 | 9091 | 8114 | | | | | | |
| 2011 | 8984 | | 9622 | 9074 | 9227 | 8236 | 8786 | | | | | |
| 2012 | 8549 | | | 9210 | 9365 | 8359 | 8770 | 8926 | | | | |
| 2013 | 8618 | | | | 9506 | 8485 | 8842 | 8956 | 8529 | | | |
| 2014 | 8258 | | | | | 8612 | 8916 | 8987 | 8580 | 8627 | | |
| 2015 | 8094 | | | | | | 8991 | 9018 | 8631 | 8635 | 8259 | |
| 2016 | | | | | | | | 9049 | 8683 | 8644 | 8267 | 8102 |
| 2017 | | | | | | | | | 8735 | 8653 | 8275 | 8110 |
| 2018 | | | | | | | | | | 8661 | 8284 | 8118 |
| 2019 | | | | | | | | | | | 8292 | 8126 |
| 2020 | | | | | | | | | | | | 8135 |

**Table A22 PECO Energy Company**
**Actual and Projected Residential Energy Demand (GWh)**

| | | Projected Residential Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 12797 | 13738 | | | | | | | | | | |
| 2007 | 13487 | 14013 | 13053 | | | | | | | | | |
| 2008 | 13317 | 14293 | 13314 | 13757 | | | | | | | | |
| 2009 | 12893 | 14579 | 13580 | 14032 | 13583 | | | | | | | |
| 2010 | 13896 | 14870 | 13852 | 14313 | 13855 | 13151 | | | | | | |
| 2011 | 13686 | | 14129 | 14599 | 14132 | 13414 | 13912 | | | | | |
| 2012 | 13233 | | | 14891 | 14415 | 13683 | 14037 | 13669 | | | | |
| 2013 | 13241 | | | | 14703 | 13956 | 14317 | 13806 | 13392 | | | |
| 2014 | 13222 | | | | | 14235 | 14604 | 13944 | 14463 | 13343 | | |
| 2015 | 13630 | | | | | | 14896 | 14083 | 14608 | 13346 | 13288 | |
| 2016 | | | | | | | | 14224 | 14754 | 13349 | 13355 | 13366 |
| 2017 | | | | | | | | | 14902 | 13351 | 13422 | 13341 |
| 2018 | | | | | | | | | | 13354 | 13489 | 13352 |
| 2019 | | | | | | | | | | | 13556 | 13354 |
| 2020 | | | | | | | | | | | | 13360 |

**Table A23 PECO Energy Company**
**Actual and Projected Commercial Energy Demand (GWh)**

| | | Projected Commercial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 8857 | 8691 | | | | | | | | | | |
| 2007 | 8892 | 8864 | 9034 | | | | | | | | | |
| 2008 | 8700 | 9042 | 9215 | 9069 | | | | | | | | |
| 2009 | 8404 | 9223 | 9399 | 9251 | 8874 | | | | | | | |
| 2010 | 8472 | 9407 | 9587 | 9436 | 9052 | 8572 | | | | | | |
| 2011 | 8332 | | 9779 | 9625 | 9233 | 8744 | 8589 | | | | | |
| 2012 | 8063 | | | 9817 | 9417 | 8918 | 8705 | 8360 | | | | |
| 2013 | 8101 | | | | 9606 | 9097 | 8879 | 8443 | 7821 | | | |
| 2014 | 8025 | | | | | 9279 | 9057 | 8528 | 7790 | 7858 | | |
| 2015 | 8118 | | | | | | 9238 | 8613 | 7868 | 7936 | 8021 | |
| 2016 | | | | | | | | 8699 | 7947 | 8015 | 8017 | 8044 |
| 2017 | | | | | | | | | 8026 | 8096 | 8013 | 8020 |
| 2018 | | | | | | | | | | 8177 | 8009 | 8016 |
| 2019 | | | | | | | | | | | 8005 | 8018 |
| 2020 | | | | | | | | | | | | 8019 |

**Table A24 PECO Energy Company**
**Actual and Projected Industrial Energy Demand (GWh)**

| | | Projected Industrial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 15821 | 16089 | | | | | | | | | | |
| 2007 | 16582 | 16411 | 16137 | | | | | | | | | |
| 2008 | 16534 | 16739 | 16460 | 16914 | | | | | | | | |
| 2009 | 15889 | 17074 | 16789 | 17252 | 16864 | | | | | | | |
| 2010 | 15824 | 17415 | 17125 | 17597 | 17202 | 16207 | | | | | | |
| 2011 | 15755 | | 17467 | 17949 | 17546 | 16531 | 15991 | | | | | |
| 2012 | 15253 | | | 18308 | 17897 | 16861 | 16153 | 15755 | | | | |
| 2013 | 15379 | | | | 18254 | 17199 | 16476 | 15912 | 15481 | | | |
| 2014 | 15310 | | | | | 17543 | 16806 | 16071 | 15714 | 15609 | | |
| 2015 | 15365 | | | | | | 17142 | 16232 | 15949 | 15844 | 15302 | |
| 2016 | | | | | | | | 16394 | 16188 | 16081 | 15294 | 15547 |
| 2017 | | | | | | | | | 16431 | 16322 | 15287 | 15515 |
| 2018 | | | | | | | | | | 16567 | 15279 | 15513 |
| 2019 | | | | | | | | | | | 15271 | 15517 |
| 2020 | | | | | | | | | | | | 15529 |

**Table A25 West Penn Power Company**
**Actual and Projected Peak Load (MW)**

| | | Projected Peak Load Requirements (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 3926 | 3723 | | | | | | | | | | |
| 2007 | 3838 | 3782 | 3813 | | | | | | | | | |
| 2008 | 3826 | 3824 | 3882 | 3871 | | | | | | | | |
| 2009 | 3667 | 3864 | 3965 | 3958 | 3910 | | | | | | | |
| 2010 | 3988 | 3895 | 4028 | 4036 | 3990 | 3788 | | | | | | |
| 2011 | 4017 | | 4078 | 4083 | 4032 | 3755 | 3757 | | | | | |
| 2012 | 3808 | | | 4123 | 4084 | 3771 | 3754 | 3758 | | | | |
| 2013 | 3914 | | | | 4120 | 3809 | 3786 | 3771 | 3784 | | | |
| 2014 | 4019 | | | | | 3951 | 3879 | 3840 | 3846 | 4075 | | |
| 2015 | 3814 | | | | | | 3928 | 3903 | 3908 | 3945 | 3793 | |
| 2016 | | | | | | | | 3964 | 3980 | 4012 | 3842 | 3793 |
| 2017 | | | | | | | | | 4015 | 4065 | 3927 | 3840 |
| 2018 | | | | | | | | | | 4077 | 4020 | 3886 |
| 2019 | | | | | | | | | | | 4031 | 3916 |
| 2020 | | | | | | | | | | | | 3917 |

**Table A26 West Penn Power Company**
**Actual and Projected Residential Energy Demand (GWh)**

| | | Projected Residential Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 7133 | 7164 | | | | | | | | | | |
| 2007 | 7266 | 7289 | 7319 | | | | | | | | | |
| 2008 | 7172 | 7387 | 7484 | 7481 | | | | | | | | |
| 2009 | 7101 | 7417 | 7639 | 7654 | 7206 | | | | | | | |
| 2010 | 7401 | 7447 | 7761 | 7774 | 7264 | 7147 | | | | | | |
| 2011 | 7349 | | 7869 | 7892 | 7233 | 7104 | 7139 | | | | | |
| 2012 | 7092 | | | 7965 | 7248 | 7085 | 7122 | 7121 | | | | |
| 2013 | 7318 | | | | 7102 | 6952 | 7047 | 7149 | 7146 | | | |
| 2014 | 7281 | | | | | 7008 | 7073 | 7188 | 7282 | 7311 | | |
| 2015 | 7255 | | | | | | 7148 | 7231 | 7369 | 7302 | 7383 | |
| 2016 | | | | | | | | 7281 | 7431 | 7303 | 7157 | 6775 |
| 2017 | | | | | | | | | 7493 | 7319 | 7244 | 6634 |
| 2018 | | | | | | | | | | 7335 | 7298 | 6548 |
| 2019 | | | | | | | | | | | 7303 | 6473 |
| 2020 | | | | | | | | | | | | 6407 |

**Table A27 West Penn Power Company**
**Actual and Projected Commercial Energy Demand (GWh)**

| | | Projected Commercial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 4959 | 4996 | | | | | | | | | | |
| 2007 | 4998 | 5092 | 5083 | | | | | | | | | |
| 2008 | 4925 | 5179 | 5179 | 5115 | | | | | | | | |
| 2009 | 4880 | 5249 | 5279 | 5235 | 5048 | | | | | | | |
| 2010 | 4983 | 5318 | 5365 | 5327 | 5160 | 4966 | | | | | | |
| 2011 | 4889 | | 5452 | 5387 | 5275 | 4987 | 4909 | | | | | |
| 2012 | 4849 | | | 5462 | 5353 | 5059 | 4931 | 4819 | | | | |
| 2013 | 4878 | | | | 5450 | 5169 | 4979 | 4930 | 4845 | | | |
| 2014 | 4956 | | | | | 5307 | 5091 | 5083 | 4909 | 4860 | | |
| 2015 | 5112 | | | | | | 5229 | 5229 | 4946 | 4897 | 4996 | |
| 2016 | | | | | | | | 5343 | 4979 | 4932 | 4957 | 4900 |
| 2017 | | | | | | | | | 5047 | 4962 | 5015 | 4915 |
| 2018 | | | | | | | | | | 4962 | 5029 | 4941 |
| 2019 | | | | | | | | | | | 5006 | 4952 |
| 2020 | | | | | | | | | | | | 4954 |

**Table A28 West Penn Power Company**
**Actual and Projected Industrial Energy Demand (GWh)**

| | | Projected Industrial Energy Demand (Year Forecast Was Filed) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Actual | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 2006 | 8144 | 8283 | | | | | | | | | | |
| 2007 | 8160 | 8429 | 8282 | | | | | | | | | |
| 2008 | 8135 | 8543 | 8411 | 8311 | | | | | | | | |
| 2009 | 7286 | 8615 | 8584 | 8476 | 8440 | | | | | | | |
| 2010 | 7617 | 8634 | 8728 | 8699 | 8711 | 7612 | | | | | | |
| 2011 | 7818 | | 8766 | 8799 | 8906 | 7740 | 7833 | | | | | |
| 2012 | 7685 | | | 8844 | 9093 | 7936 | 8025 | 8029 | | | | |
| 2013 | 7777 | | | | 9246 | 8105 | 8146 | 8172 | 8087 | | | |
| 2014 | 7972 | | | | | 8214 | 8264 | 8334 | 8303 | 7947 | | |
| 2015 | 7635 | | | | | | 8346 | 8487 | 8542 | 8161 | 8053 | |
| 2016 | | | | | | | | 8608 | 8786 | 8331 | 8492 | 8287 |
| 2017 | | | | | | | | | 8878 | 8466 | 8903 | 8641 |
| 2018 | | | | | | | | | | 8495 | 9321 | 8798 |
| 2019 | | | | | | | | | | | 9700 | 8847 |
| 2020 | | | | | | | | | | | | 8852 |

# *Appendix B – Plant Additions and Upgrades*

Table B-1, below, represents PJM interconnection requests from 1997 to Dec 31, 2015 for generation resources located in Pennsylvania.[55] As shown in table below Pennsylvania has 8,202 MW under construction. Under construction for the prior two years was 4,629 MW in 2014 and 2,134 MW in 2013.

***Table B-1 PJM New Generation Queue for Pennsylvania – Interconnection Requests (1997 to December 31, 2015)***

| | Active | | In Service | | Suspended | | Under Construction | | Withdrawn | | Total Sum | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MW | # of Projects | MW | # of Projects | MW | # of Projects | MW | # of Projects | MW | # of Projects | MW | # of Projects |
| Biomass | 0.0 | 0 | 31.4 | 3 | 0.0 | 0 | 0.0 | 0 | 36.5 | 4 | 67.9 | 7 |
| Coal | 0.0 | 0 | 229.0 | 16 | 0.0 | 0 | 1,590.0 | 1 | 12,764.6 | 26 | 14,583.6 | 43 |
| Diesel | 6.1 | 1 | 33.3 | 3 | 0.0 | 0 | 0.0 | 0 | 51.5 | 12 | 90.9 | 16 |
| Hydro | 40.0 | 1 | 1,118.8 | 12 | 0.0 | 0 | 0.0 | 0 | 188.6 | 15 | 1,347.4 | 28 |
| Methane | 4.0 | 1 | 126.4 | 24 | 1.5 | 1 | 12.2 | 3 | 189.7 | 33 | 333.8 | 62 |
| Natural Gas | 15,273.7 | 55 | 9,373.8 | 48 | 85.6 | 6 | 6,546.6 | 22 | 74,757.9 | 187 | 106,037.6 | 318 |
| Nuclear | 10.0 | 2 | 2,621.8 | 17 | 0.0 | 0 | 0.0 | 0 | 1,681.0 | 8 | 4,312.8 | 27 |
| Oil | 0.0 | 0 | 9.4 | 3 | 0.0 | 0 | 0.0 | 0 | 1,307.0 | 9 | 1,316.4 | 12 |
| Solar | 28.5 | 4 | 6.8 | 3 | 8.9 | 2 | 3.4 | 3 | 485.3 | 80 | 532.9 | 92 |
| Storage | 0.0 | 12 | 0.1 | 5 | 0.0 | 0 | 0.0 | 0 | 0.1 | 6 | 0.2 | 23 |
| Wind | 79.0 | 7 | 268.5 | 38 | 32.5 | 3 | 33.3 | 3 | 1,475.0 | 115 | 1,888.2 | 166 |
| Wood | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 16.0 | 1 | 0.0 | 0 | 16.0 | 1 |
| Other | 0.0 | 0 | 326.5 | 3 | 0.0 | 0 | 0.0 | 0 | 344.0 | 4 | 670.5 | 7 |
| **Total** | **15,441.3** | **83** | **14,145.7** | **175** | **128.6** | **12** | **8,201.5** | **33** | **93,281.1** | **499** | **131,198.1** | **802** |

The Active column represents the PJM study phase of a project before it can possibly be moved forward to Under Construction classification. The In-Service Nuclear MW value of 2,621.8 MW includes 1,630 MW from Beaver Valley Nuclear Generating Station that was integrated into PJM in 2004. Under Construction Coal MW represents the Hatfield's Ferry Power Plant in Monongahela that was retired in Oct 2013 and has since executed a construction service agreement with PJM even though FirstEnergy is conducting a long-term study to determine whether it is feasible to reopen. Withdrawn Nuclear MW represents PPL Plus Corporation's Bell Bend project which was suspended since Areva Corp stopped, in Feb 2008, the NRC design approval process for their Evolutionary Power Reactor.

[55] *See* PJM Pennsylvania State Report at http://www.pjm.com.

Tables B-2 and B-3, below, show generation deactivations and activations in Pennsylvania for 2015.

### *Table B-2 2015 Generation Deactivations in Pennsylvania*

| Unit | MW Capacity | TO Zone | Age | Actual/Projected Deactivation Date | Fuel Type |
|---|---|---|---|---|---|
| AES Beaver Valley | 125 | DLCO | 26 | 6/1/2015 | Coal |
| Arnold (Green Mountain) Wind Farm | 0.7 | Penelec | 15 | 8/7/2015 | Wind |
| Pottstown LF (Moser) | 2 | PECO | 26 | 10/15/2015 | Landfill Gas |
| MH50 Marcus Hook Co-Gen | 50 | PECO | 27 | 5/8/2015 | Gas |

In 2015, 177 MW of capacity retired in Pennsylvania compared to 10,800 MW in the entire PJM territory. This represents only 1.5 percent of the 10,800 MW that retired in the PJM territory.

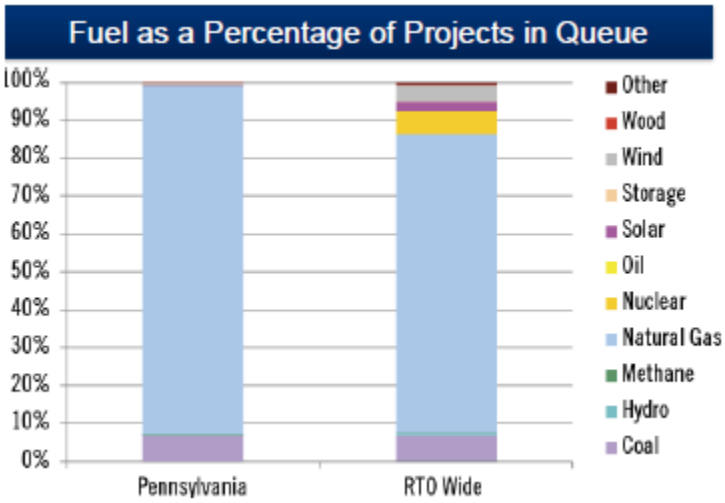
### *Table B-3 2015 Generation Activations in Pennsylvania*

| Project Names | In-service MW | Date | Fuel Type |
|---|---|---|---|
| Fayette II | 5 | 2015 Q4 | NG |
| TMI 230kV | 16.8 | 2015 Q4 | NUKE |
| North Meshoppen 34.5kV | 15.4 | 2015 Q4 | NG |
| North Meshoppen 34.5kv II | 3.5 | 2015 Q4 | NG |
| Printz | 19 | 2015 Q4 | NG |
| Arnold 34.5kV | 8 | 2015 Q4 | STORAGE |
| Meyersdale North 115kV | 18 | 2015 Q4 | NG |
| Piney Hydro 34.5kV | 5.26 | 2015 Q2 | HYDRO |
| Springdale 3, 4, 5 | 26 | 2015 Q1 | NG |
| Allegheny Dam 5 | 5 | 2015 Q1 | HYDRO |
| Allegheny Dam 6 138kV | 5 | 2015 Q1 | HYDRO |
| St. Benedict-Patton | 0 | 2015 Q1 | WIND |

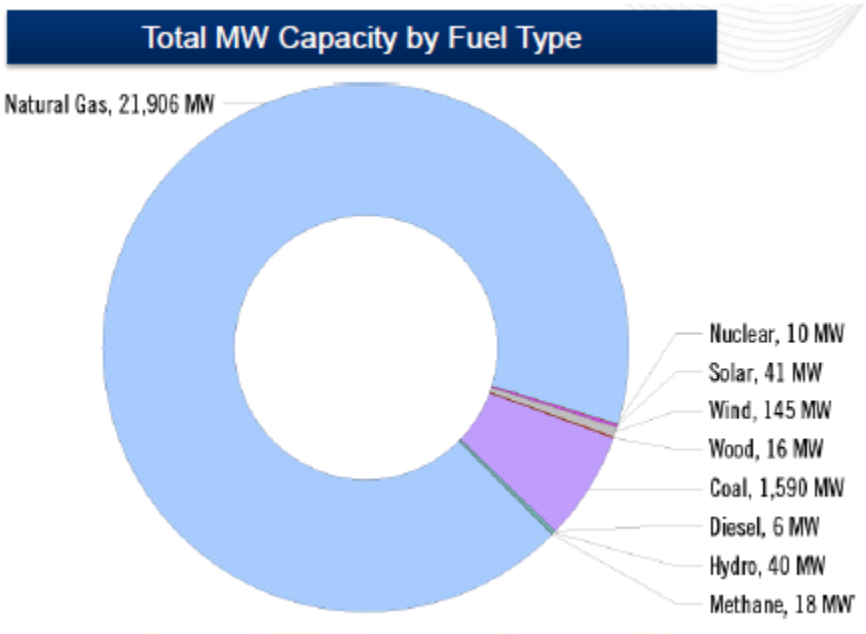
The PJM Queue process does not use commercial names; rather project names are used to track new generation supply by interconnection points at the bus of the transmission system.

Graphs B-1 and B-2, below, show fuel type percent of Projects in Queue (as of December 31, 2015) and other graph shows total MW Capacity by fuel type (as of December 31, 2015)

***Graph B-1 New Generation for Pennsylvania – Fuel Type Percent of Projects in Queue (December 31, 2015)***




***Graph B-2 New Generation Queue for Pennsylvania – Total MW Capacity by Fuel Type (December 31, 2015)***



# *Appendix C – Existing Generating Facilities*

Table C-1 shows the PJM regional electricity supply mix summary of generating capacity and actual generation by fuel type for 2015.[56] Note the significant reduction in coal generation and corresponding increase in natural gas generation. Graph C-1 shows the Pennsylvania specific generation capacity for 2015.[57]

Table C-2 shows the most recently available data on existing generating facilities located in Pennsylvania.[58]

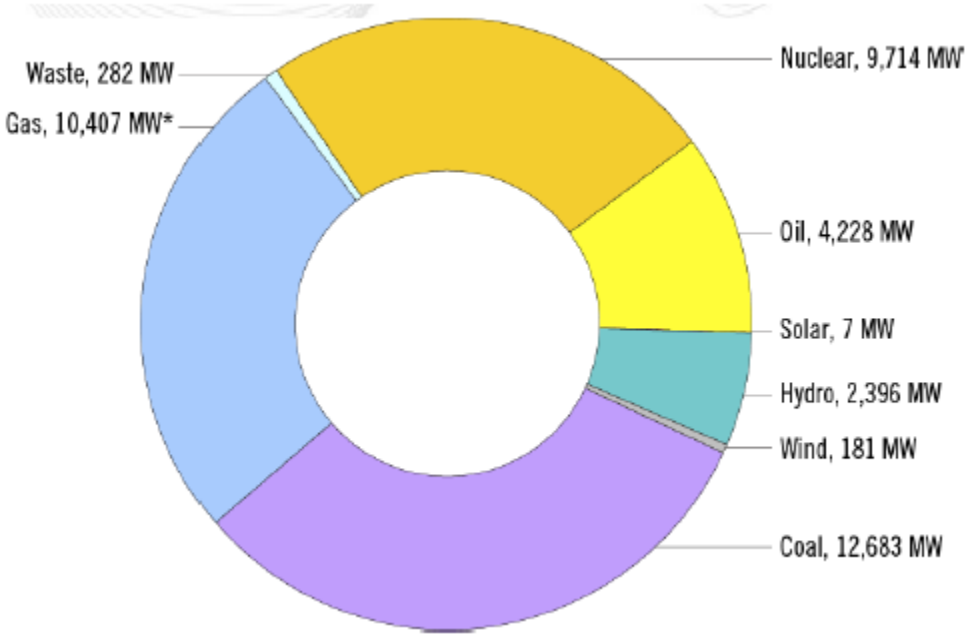
### *Table C-1 Electrical Power Supply Mix*

| Electricity Supply Mix<br>PJM Region Capacity & Generation Mix for 2015 & 2014<br>(percent) | | | | |
|---|---|---|---|---|
| **Energy Source** | 2015 Capacity | 2014 Capacity | 2015 Generation | 2014 Generation |
| **Coal** | 37.5 | 39.7 | 36.6 | 43.5 |
| **Nuclear** | 18.6 | 17.9 | 35.5 | 34.3 |
| **Natural Gas** | 34 | 30.7 | 23.4 | 17.3 |
| **Hydro, Wind, Solar & Other** | 5.9 | 5.7 | 4.4 | 4.4 |
| **Oil** | 3.9 | 6 | 0.1 | 0.4 |

[56] *See* State of the Market Report, Monitoring Analytics, available at http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2015.shtml.
[57] Data reported directly from PJM to PUC staff in July 2016.
[58] Data reported to SNL and received by PUC staff in July 2016.

### *Graph C-1 Electrical Power Capacity Mix*

2015 Pennsylvania Installed Capacity




| Fuel Type | % of Capacity |
|---|---|
| Coal | 31.79% |
| Natural Gas | 25.75% |
| Nuclear | 24.35% |
| Oil | 10.60% |
| Hydro | 6.01% |
| Waste | 0.71% |
| Other Gas | 0.33% |
| Wind | 0.45% |
| Solar | 0.02% |

## *Table C-2 Electric Generating Facilities in Pennsylvania*

| County | Plant | Owner | Ultimate Parent | Ownership (%) | Operating Capacity (MW) | Year First Unit in Service | Age | Fuel Type |
|---|---|---|---|---|---|---|---|---|
| Adams | Gettysburg Energy & Nutrient Recovery Facility (GENRF) | EnergyWorks BioPower, Inc | EnergyWorks BioPower, Inc | 100 | 2.7 | 2013 | 3 | Biomass |
| | Hamilton | NRG REMA LLC | NRG Energy, Inc. | 100 | 24 | 1971 | 45 | Oil |
| | Hunterstown | NRG REMA LLC | NRG Energy, Inc. | 100 | 75 | 1971 | 45 | Oil |
| | Hunterstown CC | NRG Energy, Inc. | NRG Energy, Inc. | 100 | 810 | 2003 | 13 | Gas |
| | Orrtanna | NRG REMA LLC | NRG Energy, Inc. | 100 | 26 | 1971 | 45 | Oil |
| Allegheny | Allegheny Energy 3, 4 and 5 | Allegheny Energy Supply Company, LLC | FirstEnergy Corp. | 100 | 550 | 2003 | 13 | Gas |
| | Allegheny Energy Units 1 and 2 | Allegheny Energy Supply Company, LLC | FirstEnergy Corp. | 100 | 88 | 1999 | 17 | Gas |
| | Brunot Island | Orion Power Holdings, Inc. | NRG Energy, Inc. | 100 | 15 | 1972 | 44 | Oil |
| | Brunot Island CC | NRG Power Midwest LP. | NRG Energy, Inc. | 100 | 269.4 | 1973 | 43 | Gas |
| | Cheswick | NRG Power Midwest LP. | NRG Energy, Inc. | 100 | 563 | 1970 | 46 | Coal |
| | Clairton Works | United States Steel Corporation | United States Steel Corporation | 100 | 27.4 | 1955 | 61 | Nonrenewable |
| | Mon Valley Works | United States Steel Corporation | United States Steel Corporation | 100 | 31.9 | 1943 | 73 | Nonrenewable |
| | PPG Monroeville Chemicals Center | PPG Monroeville Chemicals Center | PPG Industries, Incorporated | 100 | 1.1 | 1998 | 18 | Oil |
| | PPG Place | PPG Industries, Incorporated | PPG Industries, Incorporated | 100 | 2.3 | 1990 | 26 | Oil |
| Armstrong | Allegheny 5 | Enduring Hydro LLC | Enduring Hydro LLC | 1 | 10 | 1988 | 28 | Water |
| | | I Squared Capital | I Squared Capital | 99 | | 1988 | 28 | Water |
| | Allegheny 6 | Enduring Hydro LLC | Enduring Hydro LLC | 1 | 12 | 1988 | 28 | Water |
| | | I Squared Capital | I Squared Capital | 99 | | 1988 | 28 | Water |
| | Allegheny 8 (Torrent Hydro) | BluEarth Renewables Inc. | BluEarth Renewables Inc. | 49 | 13.6 | 1990 | 26 | Water |
| | | PSP Investments | PSP Investments | 51 | | 1990 | 26 | Water |
| | Allegheny 9 (Torrent Hydro) | BluEarth Renewables Inc. | BluEarth Renewables Inc. | 49 | 17.8 | 1990 | 26 | Water |
| | | PSP Investments | PSP Investments | 51 | | 1990 | 26 | Water |
| | Armstrong County | International Power America, Inc. | Engie SA | 100 | 676 | 2002 | 14 | Gas |
| | Keystone | ArcLight Capital Partners, LLC | ArcLight Capital Holdings, LLC | 44.45 | 1700 | 1967 | 49 | Coal |
| | | NRG REMA LLC | NRG Energy, Inc. | 20.37 | | 1967 | 49 | Coal |
| | | PSEG Fossil LLC | Public Service Enterprise Group Incorporated | 22.84 | | 1967 | 49 | Coal |
| | | Talen Energy Corporation | Talen Energy Corporation | 6.17 | | 1967 | 49 | Coal |
| | | Talen Generation, LLC | Talen Energy Corporation | 6.17 | | 1967 | 49 | Coal |
| | Keystone IC | Constellation Power Source Generation LLC | Exelon Corporation | 41.98 | 11.2 | 1968 | 48 | Oil |
| | | Duquesne Light Holdings, Inc. | Duquesne Light Holdings, Inc. | 2.47 | | 1968 | 48 | Oil |
| | | NRG REMA LLC | NRG Energy, Inc. | 20.37 | | 1968 | 48 | Oil |
| | | PSEG Fossil LLC | Public Service Enterprise Group Incorporated | 22.84 | | 1968 | 48 | Oil |
| | | Talen Energy Corporation | Talen Energy Corporation | 3.09 | | 1968 | 48 | Oil |
| | | Talen Generation, LLC | Talen Energy Corporation | 9.25 | | 1968 | 48 | Oil |
| | Mahoning Creek | Enduring Hydro LLC | Enduring Hydro LLC | 51 | 6.7 | 2013 | 3 | Water |
| | | I Squared Capital | I Squared Capital | 49 | | 2013 | 3 | Water |
| Beaver | Beaver Solar | Eaton Corporation | Eaton Corporation | 100 | 1.3 | 2012 | 4 | Solar |
| | Beaver Valley | FirstEnergy Nuclear Generation Corp. | FirstEnergy Corp. | 80.06 | 1872 | 1976 | 40 | Nuclear |
| | | Ohio Edison Company | FirstEnergy Corp. | 10.82 | | 1976 | 40 | Nuclear |
| | | Toledo Edison Company | FirstEnergy Corp. | 9.12 | | 1976 | 40 | Nuclear |
| | Beaver Valley Patterson Dam | Enel Green Power North America, Inc. | Enel Green Power S.p.A | 31.7 | 1.2 | 1982 | 34 | Water |
| | | | Enel S.p.A. | 68.3 | | 1982 | 34 | Water |
| | Townsend Hydro | Beaver Falls Municipal Authority | Beaver Falls Municipal Authority | 100 | 4.2 | 1987 | 29 | Water |
| Berks | Altairnano PJM Li-ion Battery Storage Project | AES Energy Storage, LLC | AES Corporation | 100 | 1 | 2009 | 7 | Nonrenewable |
| | Evergreen Community Power Plant | Evergreen Community Power LLC | Interstate Resources, Inc. | 100 | 25 | 2009 | 7 | Biomass |
| | Morgantown Solar Park | Hankin Group | Hankin Group | 100 | 1.6 | 2011 | 5 | Solar |
| | Ontelaunee Energy Center | Dynegy Power, LLC | Dynegy Inc. | 100 | 599 | 2002 | 14 | Gas |
| | Pioneer Crossing Landfill | Fortistar LLC | Fortistar LLC | 100 | 8 | 2008 | 8 | Biomass |
| | | Green Gas Americas, Inc. | Green Gas International B.V. | 0 | | 2008 | 8 | Biomass |
| | Titus CT | NRG REMA LLC | NRG Energy, Inc. | 100 | 35 | 1967 | 49 | Oil |
| Blair | Allegheny Ridge Wind Farm | ArcLight Capital Partners, LLC | ArcLight Capital Holdings, LLC | 100 | 80 | 2007 | 9 | Wind |
| | American Eagle Paper Mills | Team Ten LLC | Team Ten LLC | 100 | 17.1 | 1929 | 87 | Coal |
| | Chestnut Flats Windfarm | EDF Renewable Energy, Inc. | EDF Group | 100 | 38 | 2011 | 5 | Wind |
| | Juniata Locomotive Shop | Norfolk Southern Corporation | Norfolk Southern Corporation | 100 | 4 | 1955 | 61 | Coal |
| | North Allegheny Wind | Duke Energy Renewables, Inc. | Duke Energy Corporation | 100 | 70 | 2009 | 7 | Wind |
| | Sandy Ridge Wind Farm | Algonquin Power Fund (America) Inc. | Algonquin Power & Utilities Corp. | 100 | 48.2 | 2012 | 4 | Wind |

## *Table C-2 Electric Generating Facilities in Pennsylvania (cont'd)*

| County | Plant | Owner | Ultimate Parent | Ownership (%) | Operating Capacity (MW) | Year First Unit in Service | Age | Fuel Type |
|---|---|---|---|---|---|---|---|---|
| Bradford | Beaver Dam Gas Project | IMG Midstream LLC | Bregal Investments, Inc. | 100 | 19.9 | 2016 | 0 | Gas |
| | Northern Tier Landfill | Talen Renewable Energy | Energy Power Partners | 100 | 1.6 | 2009 | 7 | Biomass |
| Bucks | Croydon | Exelon Generation Company, LLC | Exelon Corporation | 100 | 512 | 1974 | 42 | Oil |
| | Exelon-Conergy Solar Energy Center | Conergy AG | Kawa Capital Management, Inc. | 100 | 1.5 | 2008 | 8 | Solar |
| | Fairless Hills Steam Generating Station | Exelon Generation Company, LLC | Exelon Corporation | 100 | 60 | 1996 | 20 | Biomass |
| | Fairless Works Energy Center | Dominion Energy, Inc. | Dominion Resources, Inc. | 100 | 1298.4 | 2004 | 12 | Gas |
| | Falls | Exelon Generation Company, LLC | Exelon Corporation | 100 | 60 | 1970 | 46 | Oil |
| | Pennsbury Generating Station | Exelon Generation Company, LLC | Exelon Corporation | 100 | 5.4 | 1996 | 20 | Biomass |
| | Tullytown Landfill Gas Facility | WM Renewable Energy, LLC | Waste Management, Inc. | 100 | 1.6 | 2013 | 3 | Biomass |
| | Wheelabrator Falls Inc. | Wheelabrator Technologies, Inc. | Energy Capital Partners LLC | 100 | 46 | 1994 | 22 | Biomass |
| Cambria | Cambria Cogeneration | Gulf Pacific Power LLC | Harbert Management Corporation | 37.5 | 87.5 | 1991 | 25 | Coal |
| | | Harbert Power Fund V, LLC | Harbert Management Corporation | 12.5 | | 1991 | 25 | Coal |
| | | UBS Global Asset Management | UBS Group AG | 50 | | 1991 | 25 | Coal |
| | Colver Power Project | Constellation Power, Inc. | Exelon Corporation | 25 | 110 | 1995 | 21 | Coal |
| | | Gulf Pacific Power LLC | Harbert Management Corporation | 28.12 | | 1995 | 21 | Coal |
| | | Harbert Power Fund V, LLC | Harbert Management Corporation | 9.38 | | 1995 | 21 | Coal |
| | | UBS Global Asset Management | UBS Group AG | 37.5 | | 1995 | 21 | Coal |
| | Ebensburg Power Company | Babcock & Wilcox Enterprises, Inc. | Babcock & Wilcox Enterprises, Inc. | 100 | 50 | 1991 | 25 | Coal |
| | Highland North Wind Farm | Everpower Wind Holdings, Inc. | Terra Firma Capital Partners Ltd. | 100 | 75 | 2012 | 4 | Wind |
| | Highland Wind Project | Everpower Wind Holdings, Inc. | Terra Firma Capital Partners Ltd. | 100 | 62.5 | 2009 | 7 | Wind |
| | Patton Wind Farm | Everpower Wind Holdings, Inc. | Terra Firma Capital Partners Ltd. | 100 | 30 | 2012 | 4 | Wind |
| Carbon | PA Solar Park Project | Consolidated Edison Development, Inc. | Consolidated Edison, Inc. | 100 | 10 | 2012 | 4 | Solar |
| | Panther Creek | ArcLight Energy Partners Fund IV, L. P. | ArcLight Capital Holdings, LLC | 75 | 83 | 1992 | 24 | Coal |
| | | Olympus Power, LLC | Olympus Holdings, LLC | 25 | | 1992 | 24 | Coal |
| Centre | East Campus Plant | Pennsylvania State University | Pennsylvania State University | 100 | 8.4 | 2011 | 5 | Gas |
| Chester | Andromeda One A Biomass Plant | Behrens Energy Agriculture & Robotics | Behrens Energy Agriculture & Robotics | 100 | 4 | 2016 | 0 | Biomass |
| | Aqua Ingrams Mill Solar | Aqua Pennsylvania Inc. | Aqua America Inc. | 100 | 0.4 | 2009 | 7 | Solar |
| | Longwood Gardens Solar Plant | Ecogy Pennsylvania Systems, LLC | Ecogy Pennsylvania Systems, LLC | 100 | 1.3 | 2010 | 6 | Solar |
| | Marlboro Mushrooms Solar Field | Marlborough Mushrooms | Marlborough Mushrooms | 100 | 1 | 2011 | 5 | Solar |
| | Pickering Solar | Aqua America Inc. | Aqua America Inc. | 100 | 1.4 | 2012 | 4 | Solar |
| | SECCRA Community Landfill | Southeastern Chester County Refuse Authority | Southeastern Chester County Refuse Authority | 100 | 2.5 | 2007 | 9 | Biomass |
| Clarion | Piney | Brookfield Renewable Partners L.P. | Brookfield Asset Management Inc. | 62 | 28 | 1924 | 92 | Water |
| | | | Brookfield Renewable Partners L.P. | 38 | | 1924 | 92 | Water |
| Clearfield | Shawville IC | NRG REMA LLC | NRG Energy, Inc. | 100 | 6 | 1960 | 56 | Oil |
| Clinton | Lock Haven | Talen Energy Supply, LLC | Talen Energy Corporation | 100 | 14 | 1969 | 47 | Oil |
| Cumberland | Carlisle Area School District | Carlisle Area School District | Carlisle Area School District | 100 | 1.3 | 2010 | 6 | Solar |
| | Knouse Foods Solar Plant | Knouse Foods Cooperative Inc | Knouse Foods Cooperative Inc | 100 | 3 | 2010 | 6 | Solar |
| | Mountain | NRG REMA LLC | NRG Energy, Inc. | 100 | 50 | 1972 | 44 | Oil |
| | PPG Industries Works 6 IC Facility | PPG Industries, Incorporated | PPG Industries, Incorporated | 100 | 5 | 1972 | 44 | Oil |
| | Shippensburg (Cumberland County) Landfill | Talen Renewable Energy | Energy Power Partners | 100 | 6.4 | 2009 | 7 | Biomass |
| | West Shore | Talen Energy Supply, LLC | Talen Energy Corporation | 100 | 28 | 1969 | 47 | Oil |
| Dauphin | Harrisburg | Talen Energy Supply, LLC | Talen Energy Corporation | 100 | 56 | 1967 | 49 | Oil |
| | Paxton Creek Cogeneration | NRG Yield, Inc. | NRG Energy, Inc. | 55.1 | 12 | 1986 | 30 | Gas |
| | | | NRG Yield, Inc. | 44.9 | | 1986 | 30 | Gas |
| | Susquehanna Resource Management Complex (Harrisburg Facility Cogen) | Lancaster County Solid Waste Management Authority | Lancaster County Solid Waste Management Authority | 100 | 21.8 | 1986 | 30 | Biomass |
| | Three Mile Island | Exelon Generation Company, LLC | Exelon Corporation | 100 | 829 | 1974 | 42 | Nuclear |

## *Table C-2 Electric Generating Facilities in Pennsylvania (cont'd)*

| County | Plant | Owner | Ultimate Parent | Ownership (%) | Operating Capacity (MW) | Year First Unit in Service | Age | Fuel Type |
|---|---|---|---|---|---|---|---|---|
| Delaware | Chester | Exelon Generation Company, LLC | Exelon Corporation | 100 | 54 | 1969 | 47 | Oil |
| | Chester Operations | Kimberly-Clark Corporation | Kimberly-Clark Corporation | 100 | 67 | 1986 | 30 | Coal |
| | Delaware County Resource Recovery Facility | Covanta Energy Corporation | Covanta Holding Corporation | 100 | 80 | 1991 | 25 | Biomass |
| | Eddystone 3-4 | Exelon Generation Company, LLC | Exelon Corporation | 100 | 760 | 1974 | 42 | Oil |
| | Eddystone CT | Exelon Generation Company, LLC | Exelon Corporation | 100 | 76 | 1967 | 49 | Oil |
| | Liberty Electric Power | Equipower Resources Corp. | Dynegy Inc. | 100 | 541 | 2002 | 14 | Gas |
| | Marcus Hook | NextEra Energy Resources LLC | NextEra Energy, Inc. | 100 | 847 | 2004 | 12 | Gas |
| | Marcus Hook Cogeneration | NextEra Energy Resources LLC | NextEra Energy, Inc. | 100 | 50 | 1987 | 29 | Gas |
| Elk | Johnsonburg Mill | Domtar Paper Company, LLC | Domtar Corp. | 100 | 49 | 1993 | 23 | Biomass |
| Erie | Erie Coke Corporation | Erie Coke Corporation | Erie Coke Corporation | 100 | 1.3 | 1953 | 63 | Nonrenewable |
| | Lakeview Gas Recovery | WM Renewable Energy, LLC | Waste Management, Inc. | 100 | 6 | 1997 | 19 | Biomass |
| Fayette | Allegheny Energy Units 8 and 9 | Allegheny Energy Supply Company, LLC | FirstEnergy Corp. | 100 | 88 | 2000 | 16 | Gas |
| | Fayette Energy Facility | Dynegy Inc. | Dynegy Inc. | 100 | 649 | 2003 | 13 | Gas |
| | Mill Run Wind Farm | NextEra Energy Resources LLC | NextEra Energy, Inc. | 100 | 15 | 2001 | 15 | Wind |
| | South Chestnut Wind Project | Avangrid Renewables LLC | Avangrid, Inc. | 18.5 | 50.4 | 2012 | 4 | Wind |
| | | | Iberdrola, S.A. | 81.5 | | 2012 | 4 | Wind |
| Franklin | Allegheny Energy Units 12 & 13 | Allegheny Energy Supply Company, LLC | FirstEnergy Corp. | 100 | 88 | 2001 | 15 | Gas |
| | Falling Spring | Chambersburg Borough of | Chambersburg Borough of | 100 | 5 | 1967 | 49 | Gas |
| | IESI Blue Ridge Landfill | Talen Renewable Energy | Energy Power Partners | 100 | 6.4 | 2013 | 3 | Biomass |
| | Mountain View Landfill | CCI Power Holdings LLC | Castleton Commodities International, LLC | 12.31 | 14.4 | 2003 | 13 | Biomass |
| | | | Energy Trading Innovations LLC | 87.69 | | 2003 | 13 | Biomass |
| | Orchard Park | Chambersburg Borough of | Chambersburg Borough of | 100 | 23.2 | 2003 | 13 | Gas |
| Huntingdon | Warrior Ridge Hydroelectric | American Hydro Power Co. | American Hydro Power Co. | 100 | 2.8 | 1985 | 31 | Water |
| | Wm F Matson Generating Station | Allegheny Electric Cooperative Inc. | Allegheny Electric Cooperative Inc. | 100 | 21.7 | 1988 | 28 | Water |
| Indiana | Conemaugh | ArcLight Capital Partners, LLC | ArcLight Capital Holdings, LLC | 35.11 | 1700 | 1970 | 46 | Coal |
| | | NRG Northeast Generating LLC | NRG Energy, Inc. | 3.72 | | 1970 | 46 | Coal |
| | | NRG REMA LLC | NRG Energy, Inc. | 16.45 | | 1970 | 46 | Coal |
| | | PSEG Fossil LLC | Public Service Enterprise Group Incorporated | 22.5 | | 1970 | 46 | Coal |
| | | Talen Generation, LLC | Talen Energy Corporation | 16.25 | | 1970 | 46 | Coal |
| | | UGI Development Company | UGI Corporation | 5.97 | | 1970 | 46 | Coal |
| | Conemaugh IC | Constellation Power Source Generation LLC | Exelon Corporation | 31.28 | 11.2 | 1970 | 46 | Oil |
| | | Duquesne Light Holdings, Inc. | Duquesne Light Holdings, Inc. | 3.83 | | 1970 | 46 | Oil |
| | | NRG Northeast Generating LLC | NRG Energy, Inc. | 3.72 | | 1970 | 46 | Oil |
| | | NRG REMA LLC | NRG Energy, Inc. | 16.45 | | 1970 | 46 | Oil |
| | | PSEG Fossil LLC | Public Service Enterprise Group Incorporated | 22.5 | | 1970 | 46 | Oil |
| | | Talen Generation, LLC | Talen Energy Corporation | 16.25 | | 1970 | 46 | Oil |
| | | UGI Development Company | UGI Corporation | 5.97 | | 1970 | 46 | Oil |
| | Homer City | GE Capital US Holdings, Inc. | General Electric Company | 90 | 1906.7 | 1969 | 47 | Coal |
| | | Metropolitan Life Insurance Company | MetLife, Inc. | 10 | | 1969 | 47 | Coal |
| | Indiana University of Pennsylvania | Indiana University of Pennsylvania | Indiana University of Pennsylvania | 100 | 24 | 1988 | 28 | Gas |
| | Seward Waste Coal | Seward Generation, LLC | Robindale Energy Services, Inc. | 100 | 521 | 2004 | 12 | Coal |
| Lackawanna | Archbald Cogeneration | PEI Power Corporation | Energy Transfer Partners, L.P. | 100 | 20 | 1988 | 28 | Biomass |
| | Archbald Power Station | PEI Power Corporation | Energy Transfer Partners, L.P. | 100 | 59.2 | 2001 | 15 | Gas |
| | Keystone Landfill | Keystone Recovery Inc | Keystone Recovery Inc | 100 | 4.9 | 1995 | 21 | Biomass |

## *Table C-2 Electric Generating Facilities in Pennsylvania (cont'd)*

| County | Plant | Owner | Ultimate Parent | Ownership (%) | Operating Capacity (MW) | Year First Unit in Service | Age | Fuel Type |
|---|---|---|---|---|---|---|---|---|
| Lancaster | Dart Container Corp Cogen | Dart Container Corp. | Dart Container Corp. | 100 | 10.4 | 2012 | 4 | Biomass |
| | Frey Farm Landfill | Talen Renewable Energy | Energy Power Partners | 100 | 3.2 | 2006 | 10 | Biomass |
| | Holtwood Hydroelectric Plant | Brookfield Renewable Partners L.P. | Brookfield Asset Management Inc. | 62 | 249 | 1910 | 106 | Water |
| | | | Brookfield Renewable Partners L.P. | 38 | | 1910 | 106 | Water |
| | | Talen Generation, LLC | Talen Energy Corporation | 0 | | 1910 | 106 | Water |
| | Honey Brook Generating Station (Granger) | Granger Energy of Honey Brook, L.L.C. | Granger Electric Co | 100 | 3.2 | 2006 | 10 | Biomass |
| | Keystone Solar Project | Bright Plain Renewable Energy, LLC | Bright Plain Renewable Energy, LLC | 50 | 5 | 2012 | 4 | Solar |
| | | D. E. Shaw Renewable Investments, LLC | D. E. Shaw & Co., L.P. | 50 | | 2012 | 4 | Solar |
| | Lancaster County Resource Recovery | Lancaster County Solid Waste Management Authority | Lancaster County Solid Waste Management Authority | 100 | 32.4 | 1991 | 25 | Biomass |
| | Martin Limestone Solar Array Plant | Sunstream Energy LLC | Sunstream Energy LLC | 100 | 1 | 2012 | 4 | Solar |
| | Muddy Run Pumped Storage Facility | Exelon Generation Company, LLC | Exelon Corporation | 100 | 1070 | 1967 | 49 | Water |
| | Safe Harbor | Brookfield Renewable Partners L.P. | Brookfield Asset Management Inc. | 62 | 417.5 | 1931 | 85 | Water |
| | | | Brookfield Renewable Partners L.P. | 38 | | 1931 | 85 | Water |
| | Turkey Point Wind Project (Frey Farm Wind) | Talen Renewable Energy | Energy Power Partners | 100 | 3.2 | 2011 | 5 | Wind |
| | Zook Generating Station (L&S Sweetners) | Granger Electric Co | Granger Electric Co | 100 | 3.2 | 2013 | 3 | Biomass |
| Lawrence | New Castle | NRG Power Midwest LP. | NRG Energy, Inc. | 100 | 320 | 1939 | 77 | Coal |
| | New Castle IC | Orion Power Holdings, Inc. | NRG Energy, Inc. | 100 | 2.5 | 1968 | 48 | Oil |
| Lebanon | Greater Lebanon Refuse Authority Landfill | Talen Renewable Energy | Energy Power Partners | 100 | 3.2 | 2007 | 9 | Biomass |
| | PPL Ironwood | TransCanada PipeLines Limited | TransCanada Corporation | 100 | 660.1 | 2001 | 15 | Gas |
| Lehigh | Air Products Solar (Trexlertown Solar) | Air Products Energy Enterprises, L.P. | Air Products and Chemicals, Inc. | 100 | 1.9 | 2011 | 5 | Solar |
| | Allentown | Talen Energy Supply, LLC | Talen Energy Corporation | 100 | 56 | 1967 | 49 | Oil |
| Luzerne | AE Hunlock 4 | Allegheny Energy Supply Company, LLC | FirstEnergy Corp. | 100 | 45 | 2000 | 16 | Gas |
| | Bear Creek Wind Project | ArcLight Capital Partners, LLC | ArcLight Capital Holdings, LLC | 26.3 | 24 | 2006 | 10 | Wind |
| | | Central Hudson Enterprises Corporation | Fortis Inc. | 8.85 | | 2006 | 10 | Wind |
| | | Community Energy, Inc. | Community Energy, Inc. | 8.85 | | 2006 | 10 | Wind |
| | | JPMorgan Chase & Co. | JPMorgan Chase & Co. | 56 | | 2006 | 10 | Wind |
| | Harwood | Talen Energy Supply, LLC | Talen Energy Corporation | 100 | 26.4 | 1967 | 49 | Oil |
| | Hazle Township Flywheel Energy Storage | Beacon Power LLC | Rockland Capital, LLC | 100 | 20 | 2013 | 3 | Nonrenewable |
| | Hazleton Cogeneration | Starwood Energy Group Global, LLC | Starwood Energy Group Global, LLC | 100 | 152.2 | 1989 | 27 | Gas |
| | Hunlock Repowering | UGI Development Company | UGI Corporation | 100 | 128.1 | 2011 | 5 | Gas |
| | Jenkins | Talen Energy Supply, LLC | Talen Energy Corporation | 100 | 27.6 | 1969 | 47 | Oil |
| | MATS Wind | Electric City Wind Power Corporation | Electric City Wind Power Corporation | 100 | 0.55 | 2008 | 8 | Wind |
| | Romark PA Solar | Romark Logistics of PA Inc | Romark Logistics of PA Inc | 100 | 1.8 | 2011 | 5 | Solar |
| | Susquehanna Nuclear | Allegheny Electric Cooperative Inc. | Allegheny Electric Cooperative Inc. | 10 | 2620 | 1983 | 33 | Nuclear |
| | | Talen Generation, LLC | Talen Energy Corporation | 90 | | 1983 | 33 | Nuclear |
| Lycoming | Allenwood (PPLRE Lycoming County Landfill Project) | Talen Renewable Energy | Energy Power Partners | 100 | 3.2 | 2012 | 4 | Biomass |
| | Laurel Hill | Duke Energy Renewables, Inc. | Duke Energy Corporation | 100 | 69 | 2012 | 4 | Wind |
| | Lycoming County Landfill Project (PPL Renewable) | Talen Renewable Energy | Energy Power Partners | 100 | 3 | 2012 | 4 | Biomass |
| | Williamsport | Talen Energy Supply, LLC | Talen Energy Corporation | 100 | 26.8 | 1967 | 49 | Oil |
| Mercer | General Electric Company | General Electric Company | General Electric Company | 100 | 4.3 | 1984 | 32 | Oil |
| Monroe | Pocono Raceway Solar Project | Pocono International Raceway, Inc. | Pocono International Raceway, Inc. | 100 | 3 | 2010 | 6 | Solar |
| | Shawnee CT | NRG REMA LLC | NRG Energy, Inc. | 100 | 24 | 1972 | 44 | Oil |

## *Table C-2 Electric Generating Facilities in Pennsylvania (cont'd)*

| County | Plant | Owner | Ultimate Parent | Ownership (%) | Operating Capacity (MW) | Year First Unit in Service | Age | Fuel Type |
|---|---|---|---|---|---|---|---|---|
| Montgomery | 500 Virginia Solar | 500 Virginia Solar, LP | 500 Virginia Solar, LP | 100 | 1 | 2011 | 5 | Solar |
| | Conshohocken -Solar | Sun Power Electric | Conservation Services Group | 100 | 0.06 | 1999 | 17 | Solar |
| | Covanta Plymouth (Montenay Montgomery) | Covanta Plymouth Renewable Energy L.P. | Covanta Holding Corporation | 100 | 28 | 1991 | 25 | Biomass |
| | Hill at Whitemarsh | Talen Renewable Energy | Energy Power Partners | 100 | 1.6 | 2007 | 9 | Gas |
| | Limerick | Exelon Generation Company, LLC | Exelon Corporation | 100 | 2386 | 1986 | 30 | Nuclear |
| | Moser | Exelon Generation Company, LLC | Exelon Corporation | 100 | 60 | 1970 | 46 | Oil |
| | Spring House IC Plant | Janssen Pharmaceuticals, Inc. | Johnson & Johnson | 100 | 3.8 | 2013 | 3 | Gas |
| | Stowe | Waste Management, Inc. | Waste Management, Inc. | 100 | 3 | 1989 | 27 | Biomass |
| | West Point Facility | Merck & Company, Inc. | Merck & Company, Inc. | 100 | 66 | 1989 | 27 | Gas |
| | West Point Facility IC | Merck & Company, Inc. | Merck & Company, Inc. | 100 | 6.6 | 1972 | 44 | Oil |
| Montour | Montour | Talen Generation, LLC | Talen Energy Corporation | 100 | 1515 | 1971 | 45 | Coal |
| Northampton | Bethlehem CC | Conectiv Bethlehem LLC | Calpine Corporation | 100 | 1134 | 2003 | 13 | Gas |
| | Bethlehem Landfill | Commonwealth Landfill Gas | Commonwealth Landfill Gas | 20 | 5.4 | 2008 | 8 | Biomass |
| | | Pepco Energy Services, Inc. | Exelon Corporation | 80 | | 2008 | 8 | Biomass |
| | Crayola Solar Park | Talen Renewable Energy | Energy Power Partners | 50 | 2.8 | 2010 | 6 | Solar |
| | | UGI Development Company | UGI Corporation | 50 | | 2010 | 6 | Solar |
| | Glendon Plant | Talen Renewable Energy | Energy Power Partners | 100 | 3.2 | 2011 | 5 | Biomass |
| | Green Knight Energy Center | Waste Management, Inc. | Waste Management, Inc. | 100 | 8.7 | 2001 | 15 | Biomass |
| | Lower Mount Bethel | Talen Energy Corporation | Talen Energy Corporation | 100 | 537.5 | 2004 | 12 | Gas |
| | Martins Creek 3 and 4 | Talen Generation, LLC | Talen Energy Corporation | 100 | 1700 | 1975 | 41 | Gas |
| | Martins Creek CT | Talen Generation, LLC | Talen Energy Corporation | 100 | 72 | 1971 | 45 | Gas |
| | Northampton | EIF Northampton LLC | Ares Owners Holdings, L.P. | 91.18 | 112 | 1995 | 21 | Coal |
| | | | EIF Northampton LLC | 8.82 | | 1995 | 21 | Coal |
| | Portland CT | NRG REMA LLC | NRG Energy, Inc. | 100 | 191 | 1967 | 49 | Oil |
| Northumberland | Mount Carmel Cogeneration | Mt Carmel Co-Gen, Inc. | Private investors-Kenneth M. Pollock & Connie J. Pollock Rado | 100 | 43 | 1990 | 26 | Coal |
| Philadelphia | Delaware CT | Exelon Generation Company, LLC | Exelon Corporation | 100 | 74 | 1969 | 47 | Oil |
| | Grays Ferry Cogeneration | Grays Ferry Cogeneration Partners | Veolia Environnement SA | 100 | 177 | 1997 | 19 | Gas |
| | Lincoln Financial Field Solar Plant | NRG Renew LLC | NRG Energy, Inc. | 100 | 2.9 | 2013 | 3 | Solar |
| | Newman & Company Inc. | Newman & Co Inc | Newman & Co Inc | 100 | 1.8 | 1964 | 52 | Gas |
| | Philadelphia Refinery | Carlyle Group L.P. | Carlyle Group L.P. | 67 | 20.6 | 1952 | 64 | Nonrenewable |
| | | Sunoco, Inc. | Energy Transfer Partners, L.P. | 33 | | 1952 | 64 | Nonrenewable |
| | PWD Northeast WPCP Biogas Cogen | Philadelphia Water Department | Philadelphia Water Department | 100 | 5.6 | 2013 | 3 | Biomass |
| | Richmond CT | Exelon Generation Company, LLC | Exelon Corporation | 100 | 132 | 1973 | 43 | Oil |
| | Schuylkill CT | Exelon Generation Company, LLC | Exelon Corporation | 100 | 38 | 1969 | 47 | Oil |
| | Southwark | Exelon Generation Company, LLC | Exelon Corporation | 100 | 72 | 1967 | 49 | Oil |
| | Temple SEGF Cogen Plant | Temple University | Temple University | 100 | 16 | 1993 | 23 | Gas |
| Pike | Wallenpaupack | Brookfield Renewable Partners L.P. | Brookfield Asset Management Inc. | 62 | 44 | 1926 | 90 | Water |
| | | | Brookfield Renewable Partners L.P. | 38 | | 1926 | 90 | Water |

## *Table C-2 Electric Generating Facilities in Pennsylvania (cont'd)*

| County | Plant | Owner | Ultimate Parent | Ownership (%) | Operating Capacity (MW) | Year First Unit in Service | Age | Fuel Type |
|---|---|---|---|---|---|---|---|---|
| Schuylkill | Broad Mountain Landfill Facility | UGI Development Company | UGI Corporation | 100 | 11 | 2009 | 7 | Biomass |
| | Fishbach | Talen Energy Supply, LLC | Talen Energy Corporation | 100 | 28 | 1969 | 47 | Oil |
| | John B Rich Memorial Power Station | Cogentrix Energy Power Management LLC | Carlyle Group L.P. | 19.55 | 80 | 1988 | 28 | Coal |
| | | NextEra Energy Resources LLC | NextEra Energy, Inc. | 5.45 | | 1988 | 28 | Coal |
| | | Ontario Teachers' Pension Plan Board | Ontario Teachers' Pension Plan Board | 12.5 | | 1988 | 28 | Coal |
| | | RI-CORP Development Inc. | RI-CORP Development Inc. | 50 | | 1988 | 28 | Coal |
| | | UBS Global Asset Management | UBS Group AG | 12.5 | | 1988 | 28 | Coal |
| | Locust Ridge II | Avangrid Renewables LLC | Avangrid, Inc. | 18.5 | 102 | 2009 | 7 | Wind |
| | | | Iberdrola, S.A. | 81.5 | | 2009 | 7 | Wind |
| | Locust Ridge Wind Farm | Avangrid Renewables LLC | Avangrid, Inc. | 18.5 | 26 | 2007 | 9 | Wind |
| | | | Iberdrola, S.A. | 81.5 | | 2007 | 9 | Wind |
| | Masser Farms Realty Solar | Masser Farms Realty Ltd | Masser Farms Realty Ltd | 100 | 1 | 2011 | 5 | Solar |
| | Northeastern Power Cogeneration Facility | Northeastern Power Company | Engie SA | 100 | 52 | 1989 | 27 | Coal |
| | Pine Grove Landfill | CCI Power Holdings LLC | Castleton Commodities International, LLC | 12.31 | 5.4 | 2008 | 8 | Biomass |
| | | | Energy Trading Innovations LLC | 87.69 | | 2008 | 8 | Biomass |
| | St. Nicholas Cogeneration | Schuylkill Energy Resource Inc | Schuylkill Energy Resource Inc | 100 | 86 | 1990 | 26 | Coal |
| | Westwood Generating Station | Olympus Westwood Funding, LLC | Olympus Holdings, LLC | 75 | 30 | 1987 | 29 | Coal |
| | | Treemont Funding, LLC | ArcLight Capital Holdings, LLC | 25 | | 1987 | 29 | Coal |
| | Wheelabrator Frackville Energy Company | Wheelabrator Technologies, Inc. | Energy Capital Partners LLC | 100 | 42.5 | 1988 | 28 | Coal |
| Snyder | Sunbury CT | Corona Power, LLC | Corona Power, LLC | 100 | 47.2 | 1971 | 45 | Oil |
| | Sunbury IC | Corona Power, LLC | Corona Power, LLC | 100 | 5 | 1967 | 49 | Oil |
| Somerset | Casselman Wind | Avangrid Renewables LLC | Avangrid, Inc. | 18.5 | 34.5 | 2007 | 9 | Wind |
| | | | Iberdrola, S.A. | 81.5 | | 2007 | 9 | Wind |
| | Forward WindPower LLC | NRG Energy, Inc. | NRG Energy, Inc. | 25 | 29.4 | 2008 | 8 | Wind |
| | | NRG Yield, Inc. | NRG Energy, Inc. | 41.33 | | 2008 | 8 | Wind |
| | | | NRG Yield, Inc. | 33.67 | | 2008 | 8 | Wind |
| | Glades Pike Cogeneration Plant (CT) | State Correctional Institution – Laurel Highlands | State Correctional Institution – Laurel Highlands | 100 | 2.5 | 2011 | 5 | Biomass |
| | Glades Pike Cogeneration Plant IC | State Correctional Institution – Laurel Highlands | State Correctional Institution – Laurel Highlands | 100 | 2.8 | 2011 | 5 | Biomass |
| | Lookout WindPower LLC | NRG Energy, Inc. | NRG Energy, Inc. | 25 | 37.8 | 2008 | 8 | Wind |
| | | NRG Yield, Inc. | NRG Energy, Inc. | 41.33 | | 2008 | 8 | Wind |
| | | | NRG Yield, Inc. | 33.67 | | 2008 | 8 | Wind |
| | Meyersdale Wind Project | NextEra Energy Resources LLC | NextEra Energy, Inc. | 100 | 30 | 2003 | 13 | Wind |
| | Somerset Wind Project | NextEra Energy Resources LLC | NextEra Energy, Inc. | 100 | 9 | 2001 | 15 | Wind |
| | Stony Creek Wind Farm | EC&R Investco Mgmt, LLC | E.ON SE | 50 | 52.5 | 2009 | 7 | Wind |
| | | PD Alternative Investments US Inc | PensionDanmark Holding AS | 50 | | 2009 | 7 | Wind |
| | Twin Ridges Wind Farm | Everpower Wind Holdings, Inc. | Terra Firma Capital Partners Ltd. | 100 | 139.4 | 2012 | 4 | Wind |
| | Yough Hydro Power | D/R Hydro Co | D/R Hydro Co | 100 | 12.2 | 1989 | 27 | Water |
| Susquehanna | Roundtop | IMG Midstream LLC | Bregal Investments, Inc. | 100 | 22 | 2015 | 1 | Gas |

## *Table C-2 Electric Generating Facilities in Pennsylvania (cont'd)*

| County | Plant | Owner | Ultimate Parent | Ownership (%) | Operating Capacity (MW) | Year First Unit in Service | Age | Fuel Type |
|---|---|---|---|---|---|---|---|---|
| Tioga | Armenia Mountain Wind | ALLETE Clean Energy | ALLETE, Inc. | 100 | 100.5 | 2009 | 7 | Wind |
| | Blossburg | NRG REMA LLC | NRG Energy, Inc. | 100 | 24 | 1971 | 45 | Gas |
| Union | Bucknell University | Bucknell University | Bucknell University | 100 | 6.7 | 1991 | 25 | Gas |
| Venango | Handsome Lake Energy | Constellation Power, Inc. | Exelon Corporation | 100 | 267.5 | 2001 | 15 | Gas |
| | Scrubgrass | EIF United States Power Fund IV, L.P. | Ares Owners Holdings, L.P. | 20 | 86.1 | 1993 | 23 | Coal |
| | | Olympus Power, LLC | Olympus Holdings, LLC | 30 | | 1993 | 23 | Coal |
| | | United States Power Fund III, L.P. | Ares Owners Holdings, L.P. | 50 | | 1993 | 23 | Coal |
| Warren | Kinzua Pumped Storage Project (Seneca) | Harbor Hydro Holdings, LLC | LS Power Group | 100 | 513 | 1970 | 46 | Water |
| | Warren CT | NRG REMA LLC | NRG Energy, Inc. | 100 | 57 | 1972 | 44 | Oil |
| Washington | Arden Landfill | WM Renewable Energy, LLC | Waste Management, Inc. | 100 | 4.8 | 2009 | 7 | Biomass |
| Wayne | Waymart Wind Farm | NextEra Energy Resources LLC | NextEra Energy, Inc. | 100 | 64.5 | 2003 | 13 | Wind |
| Westmoreland | Conemaugh Hydroelectric | Pennsylvania Renewable Resources | Pennsylvania Renewable Resources | 50 | 15 | 1989 | 27 | Water |
| | | PSEG Global L.L.C. | Public Service Enterprise Group Incorporated | 50 | | 1989 | 27 | Water |
| Wyoming | Mehoopany | Procter & Gamble Co. | Procter & Gamble Co. | 100 | 1.6 | 1984 | 32 | Gas |
| | Mehoopany CT | Procter & Gamble Co. | Procter & Gamble Co. | 100 | 123 | 1985 | 31 | Gas |
| | Mehoopany Wind | BP Wind Energy North America Inc. | BP plc | 50 | 142.6 | 2012 | 4 | Wind |
| | | Sempra U.S. Gas & Power, LLC | Sempra Energy | 50 | | 2012 | 4 | Wind |
| York | Brunner Island | Talen Generation, LLC | Talen Energy Corporation | 100 | 1411 | 1961 | 55 | Coal |
| | Brunner Island IC | Talen Generation, LLC | Talen Energy Corporation | 100 | 7.4 | 1967 | 49 | Oil |
| | P.H. Glatfelter Company - Pennsylvania | P H Glatfelter Co | P H Glatfelter Co | 100 | 89.3 | 1948 | 68 | Coal |
| | Peach Bottom | Exelon Generation Company, LLC | Exelon Corporation | 50 | 2576 | 1974 | 42 | Nuclear |
| | | PSEG Nuclear LLC | Public Service Enterprise Group Incorporated | 50 | | 1974 | 42 | Nuclear |
| | Tolna | NRG REMA LLC | NRG Energy, Inc. | 100 | 50 | 1972 | 44 | Oil |
| | Turnkey Project - GlaxoSmith | GlaxoSmithKline | GlaxoSmithKline | 100 | 1.5 | 2010 | 6 | Solar |
| | York Cogeneration | Sapphire Power Generation Holdings LLC | Talen Energy Corporation | 100 | 56.6 | 1989 | 27 | Gas |
| | York County Resource Recovery Center | York County Solid W & R Authority | York County Solid W & R Authority | 100 | 29.5 | 1989 | 27 | Biomass |
| | York Energy Center (Delta Power Project) | Conectiv Mid Merit, LLC | Calpine Corporation | 100 | 545 | 2011 | 5 | Gas |
| | York Haven | Enduring Hydro LLC | Enduring Hydro LLC | 1 | 19 | 1905 | 111 | Water |
| | | I Squared Capital | I Squared Capital | 99 | | 1905 | 111 | Water |

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