



Electric Power Outlook for Pennsylvania 2014-2019

August 2015



Pennsylvania Public Utility Commission

ELECTRIC POWER OUTLOOK FOR PENNSYLVANIA 2014–2019

August 2015

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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 2024, 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, which is PJM Interconnection, LLC (PJM) and concludes PJM will meet its reserve margin requirements in 2015 of 15.7 percent. NERC projects that PJM will meet its reserve margin requirements through 2024.

Pennsylvania's aggregate electrical energy usage (residential, commercial, industrial, sales for resale, and other) in 2014 was 146,516 gigawatt hours (GWh) versus 146,235 GWh for 2013, which is a 0.2 percent increase in electrical usage. Over the next five years, total Pennsylvania electric energy usage is projected to increase at an average annual rate of 0.44 percent. This includes a decrease in average annual residential usage of 0.01 percent, a decrease in average annual commercial usage of 0.03 percent, and an increase in average annual industrial usage of 1.32 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.

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Section 1 – Regional Electric Outlook

Purpose

The *Electric Power Outlook for Pennsylvania 2014-2019* 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 2015-19. The state's seven largest EDCs⁶ represent over 95 percent of jurisdictional electricity usage in Pennsylvania. Accordingly, information regarding the four smaller EDCs contained in this report is limited. 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 of deregulation, information regarding generation facilities, including capital investments, energy costs, new facilities and expansions of existing facilities, are no longer required. The Commission relies on reports and analyses of regional entities, including the ReliabilityFirst Corporation 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.⁷ Sources also include data submitted by regional reliability councils to the NERC, which is subsequently forwarded to the U.S. Energy Information Administration (EIA).

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 make

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.

compliance with those standards mandatory. 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 about 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.

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 *2014 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 2014 assessment, NERC identifies the following key issues for the North American bulk power system:

- 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. The PJM baseline reserve margin is set at 15.7 percent and the PJM region is projecting actual reserve margins in 2015 of about 26 percent, about 20 percent in 2019, and about 16 percent in 2024.
- Environmental regulations create uncertainty and require assessment. Increasing costs for compliance with environmental regulations are expected to cause accelerated retirement of fossil-fired generation. Coal-fired power plants are especially vulnerable to the impacts of the competitive fuel market since low natural gas prices tend to set the price for electricity on the wholesale market making coal generating units less dispatchable.

⁸ See NERC, *2014 Long-Term Reliability Assessment*, Dec. 2014 available at http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/2014_LTRA_FINAL.pdf.

- A changing resource mix requires new approaches for assessing reliability. North America’s resource mix is undergoing a significant transformation at an accelerated pace with ongoing retirements of fossil-fired and nuclear capacity and growth in natural gas, wind, and solar resources. This shift is caused by several drivers, but primarily by existing and proposed federal, state, and provincial environmental regulations. Other drivers include lower natural gas prices due to abundant supply, along with policies incentivizing the movement from conventional energy resources toward ongoing integration of both distributed and utility-scale renewable resources. The convergence of these resource mix changes is directly impacting the behavior of the North American bulk power system. These developments will have important implications on industry planning and operations, as well as how NERC assesses reliability.

In addition, NERC performed an analysis of the January 2014 polar vortex event⁹. The 2014 polar vortex involved extended periods of extreme cold weather from Jan. 6–8, 2014, in several parts of North America, presenting challenges for system operators in both the Eastern and Texas Interconnections. During the event, the BPS was stressed with high periods of demand, establishing new records for several areas. Concurrently, an increased number of units experienced forced outages amounting to over 10,000 MW, resulting in the use of emergency operating procedures and calling DR programs in several areas. Despite these extreme conditions, the BPS remained stable and generally performed reliably throughout the duration of the event, primarily because of preparation efforts prior to the cold snap. Specifically, generator owners took preemptive steps to prepare equipment for the freezing temperatures. These steps included:

- cancelling scheduled generator outages
- installing additional insulation
- testing dual-fuel capabilities

Similarly, system operators coordinated with neighboring areas to ensure resource availability and share other pertinent information. Subsequent to a thorough review of the event, NERC released the Polar Vortex Review report in September 2014, based on data and information provided from the NERC Generator Availability Data System (GADS), as well as supplemental support from the impacted Assessment Areas. An analysis of this data by NERC concluded that forced outages during the event were primarily caused by the following:

- Inoperable equipment in extreme low temperatures
- Unavailability of fuel at generating units (due to supply or transportation or a combination of both)
- Challenges for some dual-fuel capable units in switching from a primary to a secondary fuel.

⁹ See NERC, *Polar Vortex Review*, Sep. 2014, available at http://www.nerc.com/pa/rrm/January%202014%20Polar%20Vortex%20Review/Polar_Vortex_Review_29_Sept_2014_Final.pdf.

NERC also noted that colder temperatures contributed to higher electricity demand while also increasing the demand for natural gas used for residential heating in some parts of North America. These conditions stressed the ability of pipeline operators and suppliers to deliver natural gas to the power sector, which resulted in a significant amount of gas-fired generation being unavailable due to gas curtailments. This was particularly relevant considering that gas-fired units accounted for approximately 40 percent of the generation mix during the 2014 polar vortex. Accordingly, natural-gas-fired units were also the most impacted compared to other generators, representing over 55 percent of all forced outages during the event.

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, 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. Load-serving entities that are members of RFC have a capacity obligation determined by evaluating individual system load characteristics, unit size and operating characteristics.

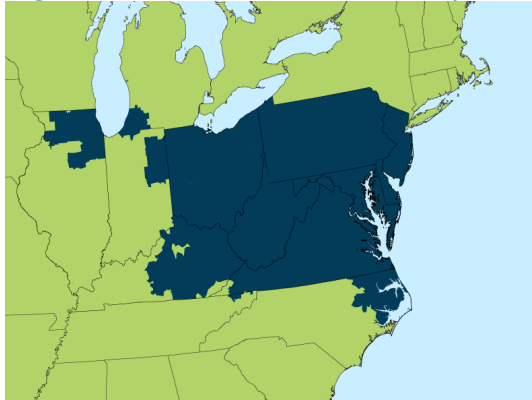
Regional Transmission Organizations

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

Figure 1 PJM RTO service territory



more than 62,556 miles of transmission lines. The PJM RTO coordinates the movement of electricity 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.¹⁰

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 also supports market innovation through its active support for demand response markets for energy, capacity and ancillary services, and helps ensure that appropriate infrastructure and operational capabilities are in place to support newly installed renewable energy facilities.

PJM coordinates the continuous buying, selling and delivery of wholesale electricity through robust, open and competitive spot markets. PJM balances the needs of suppliers, wholesale customers and other market participants, and continuously monitors market behavior. In 2014, the PJM market grew by 32 percent from \$34 billion in 2013 to \$50 billion in 2014. Membership increased 7.5 percent from 879 members in 2013 to 945 members in 2014.¹¹ PJM's 2014 transmission volumes were 838 terawatt hours (TWhs), compared with 834 TWhs for 2013.

¹⁰ See PJM 2014 Annual Report, available at <http://www.pjm.com/~media/about-pjm/newsroom/annual-reports/2014-annual-report.ashx>.

¹¹ *Id.*

PJM exercises a broader reliability role than that of a local electric utility. PJM system operators conduct dispatch operations and monitor the status of the grid over a wide area. NERC provided a PJM reliability assessment that concludes PJM will meet its reserve margin requirements in 2015 of 15.7 percent. NERC projects that PJM will meet its reserve margin requirements through 2024. Continued use of the PJM Reliability Pricing Model (RPM) will ensure that the planning reserve margin is met. The NERC projections for the reserve margins for PJM range from 26 percent in 2015 to 16 percent in 2024. The demand growth forecast for PJM has decreased to 0.9 percent from last year's projection of 1.3 percent. PJM 2015 forecast modeling was changed to factor in the magnitude of change of energy efficiency gains that were previously not effectively considered.

There were 27 generators deactivated in 2014 totaling 2,966 MW of generation with and 2,745 MW of pending deactivation requests scheduled between 2015 and 2020. To replace retiring generators, there are over 21,000 MW of new generating resources under construction as of December 31, 2014 and an additional 41,800 MW actively under study.

Effect of the January 2014 Polar Vortex

In January, sustained arctic temperatures – known as the “polar vortex”– tested the limits of reliability in the PJM system. It was a vivid reminder that weather threats to the region's electric grid are not limited to the heat and humidity of summer. The impacts of the polar vortex on the system were extensive and included:

- Eight of the 10 highest winter peaks PJM had experienced up until that time occurred in January 2014.
- Peak Demand was 20,000 to 30,000 MW higher than during a typical January.
- On January 7, when the PJM region reached new all-time winter peaks, more than 40,000 MW of generating capacity failed to be available amounting to 22 percent of system capacity and 30,000 megawatts more than expected.

Despite these challenges, PJM and their members maintained reliability throughout the month with limited emergency procedures and voluntary demand response. PJM analyzed the system's performance during the polar vortex and shared their findings with member companies, Congress, regulators and state legislators. Although power continued to flow without interruption on the high-voltage transmission system, there was an unusually high rate of outages among generators, problems with natural gas deliveries for certain power plants, significant pricing impacts, and inflexible unit-scheduling conditions. PJM's experience with the polar vortex reinforced their efforts to ensure reliability, especially with the added challenge of the unprecedented fuel transition underway in PJM and across the United States. Since 2009 and by 2019, more than 23,000 MW of coal-fired generation in the PJM region is expected to have retired because of age, stricter environmental regulations and the influx of new, more efficient gas-fired generators fueled by low-priced shale gas. This rapid shift from coal to gas generation has led to the retirement of base-load generating capacity and heavier reliance on winter natural gas markets.

PJM implemented lessons learned from the polar vortex event that included more testing of generating equipment in advance and refining operating procedures, both of which will contribute to improved coordination with the gas pipeline industry. Additional improvements included a formalized gas commitment process for long-lead-time generation and provisions for generators to change cost schedules within a single day to reflect their costs more accurately. Voluntary testing was implemented for generation that had not run for an extended period; generating units also were required to perform a pre-winter checklist of items aimed at improving overall winter readiness. To improve gas/electric coordination over the long term, the FERC considered rules that would bring the timing of the markets and operating days of the gas and electricity industries closer together. Scheduling and operating day differences between the natural gas and electricity industries cause inefficiencies in both markets, creating a reliability concern because of the growing use of natural gas in power generation. Additionally, the Eastern Interconnection Planning Collaborative is conducting a broad-based Department of Energy-funded study of natural gas infrastructure and its ability to serve the electricity industry. PJM, ISO New England, the New York Independent System Operator, the Midcontinent Independent System Operator, the Tennessee Valley Authority and Ontario's Independent Electric System Operator are partners in the study. The results will be used to inform the planning process of each of the grid operators.¹²

¹² *Id.*

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. We look to 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)¹³ acquire capacity resources by: entering bilateral agreements, participating in the PJM-operated capacity market, owning generation, and/or pursuing load management options. 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 14,015 MW. These facilities are under active study by PJM. Natural gas projects make up more than 10,307 MW of this queued capacity. This additional capacity may be used to serve Pennsylvania or out-of-state customers.¹⁴ Appendix B lists the current PJM interconnection requests for new generating resources in Pennsylvania. The existing generating capacity in Pennsylvania totals 42,628 MW.¹⁵ 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 0.4 percent to 1.8 percent over the 10 years through 2024. Peak winter load-growth rates are expected to range between 0.4 and 1.8 percent on average over the same time period. Forecasted summer peak loads are modeled in power flow studies used in PJM's 2013 Regional Transmission Expansion Plan (RTEP) studies. PJM's RTEP includes baseline transmission upgrades in Pennsylvania to meet expected near-term 2019 peak load conditions.

¹³A 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)

¹⁴ See PJM 2014 RTEP, available at <http://www.pjm.com/documents/reports/rtep-documents/2014-rtep.aspx>.

¹⁵ Data reported to SNL and received by PUC staff on Aug 2015.

RTEP studies also assess anticipated needs for additional transmission expansion plans to meet long-term load growth requirements through 2029.¹⁶

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.

PJM's recommendation to the PJM Board in December 2014 encompassed a set of 22 projects to address 56 flowgate violations. They included several line reconductor projects, replacement of existing transformers with larger transformers, upgrades to terminal equipment on existing facilities and circuit breaker replacements. As part of its evaluation, PJM considered 15-year analysis results when developing this set of recommendations to determine if a more robust solution could be justified. That analysis did not yield such a need. All 22 recommended projects were upgrades to existing facilities. Two other sets of proposals depend on the ultimate status of pending deactivations and, separately, planned interconnections.¹⁷

In 2014, the Reliability Pricing Model (RPM) auction produced an adequate amount of resources to serve the PJM region in the June 1, 2017 to May 31, 2018 delivery year. The total capacity procured in the auction was 167,004 MW, which represents a 19.7 percent reserve margin. A total of 10,975 MW of demand response was procured, which is a decrease of about 1,433 MW from last year's auction. However, there was a significant shift to the types of demand resources that have more flexibility and a greater contribution to reliability. There were 1,401 MW of more "annual" and 4,693 MW of "extended summer" demand resources (DR) clearing in this auction than last year, while the amount of "summer-only" demand resources declined by 7,527 MW since last year. Energy efficiency continues its growth trend in PJM's capacity auctions. This year, a record 1,339 MW of energy efficiency was procured in the auction, which is an increase of 222 MW from last year's auction.¹⁸

Status of PJM Backbone Transmission Lines¹⁹

PJM's 2019 study year power flow base case modeled all transmission upgrades expected to be in service by June 1, 2019 as approved by the PJM Board through Dec. 31, 2014 or submitted as supplemental upgrades. The current status of backbone transmission upgrades 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) has a required in-service date of June 1, 2012. Regulatory process delays have pushed the expected in-service out to June 1, 2015. The line was approved by

¹⁶ See PJM 2014 RTEP, available at <http://www.pjm.com/documents/reports/rtep-documents/2014-rtep.aspx>.

¹⁷ See PJM 2014 RTEP, Book 5, Section 2.0.2 available at <http://www.pjm.com/documents/reports/rtep-documents/2014-rtep.aspx>.

¹⁸ See PJM News Release, May 23, 2014, available at <http://www.pjm.com/~media/about-pjm/newsroom/2014-releases/20140523-pjm-capacity-market-secures-new-and-diverse-resources-to-meet-future-electricity-demand.ashx>

¹⁹ See PJM 2014 RTEP, Book 2, section 2.0.2 available at <http://www.pjm.com/~media/documents/reports/2014-rtep/2014-rtep-book-2.ashx>

the Pennsylvania Public Utility Commission in February 2010 and by the NJ BPU 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 is expected to be placed in service by June 1, 2015.

Cloverdale-Lexington 500 kV Line

In October 2013, the PJM Board approved PJM's upgrade recommendation to reconductor the AEP portion of the Cloverdale-Lexington 500 kV line, including replacement of eleven tower structures. This follows December 2011 PJM Board approval to reconductor 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 Sept. 7, 2012. Dominion began construction in late spring of 2013 with completion in December 2013. AEP filed its application to reconductor their 37.1-mile portion of the line in late 2013 with an expected completion date of 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 2016.

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 December 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 project is under construction with an expected in-service date by June 1, 2015.

Surry-Skiffes Creek 500 kV Line

The PJM Board approved the rebuild of the Mount Storm-Doubs line in April 2012 with a June 1, 2015 required in-service date for the 500 kV portion of the project and a June 1, 2016 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 are underway.

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 as 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)

This series of transmission facility line upgrades from 138 kV to 345 kV in northern New Jersey was approved by the PJM Board in December 2013 with a required in-service date of June 2015. According to PSE&G, Phase 1 of the project will focus upon work to be performed within the PSE&G Hudson-Bergen/Marion-Bergen 230 kV and 138 kV overhead transmission corridor and the Bergen, North Bergen, Homestead, Penhorn and Marion stations. Construction of Phase 1 is expected to commence in the third quarter of 2015, with an anticipated in-service date of 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 upon the facilities interconnected by underground cable, looping together the Bayway, North Avenue, Newark Airport, Bayonne and 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. Source: <https://www.pseg.com/>.

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 in-service date of June 1, 2017. The Illinois Commerce Commission (ICC) issued ComEd a CPCN on Oct. 22, 2014, authorizing ComEd to construct, operate and maintain the Grand Prairie Gateway Project. Other permits or approvals from other federal, state and local entities may be required for the construction of the project, such as a wetland permit from the U.S. Army Corps of Engineers. ComEd will obtain all required permits in advance of construction and continue coordinating with agencies, as required, during and after construction. ComEd is preparing for right-of-way acquisition along the approved route. Construction is anticipated to start as early as the summer of 2015 and is scheduled to be in service in June 2017.

Section 2 – Pennsylvania Electric Outlook

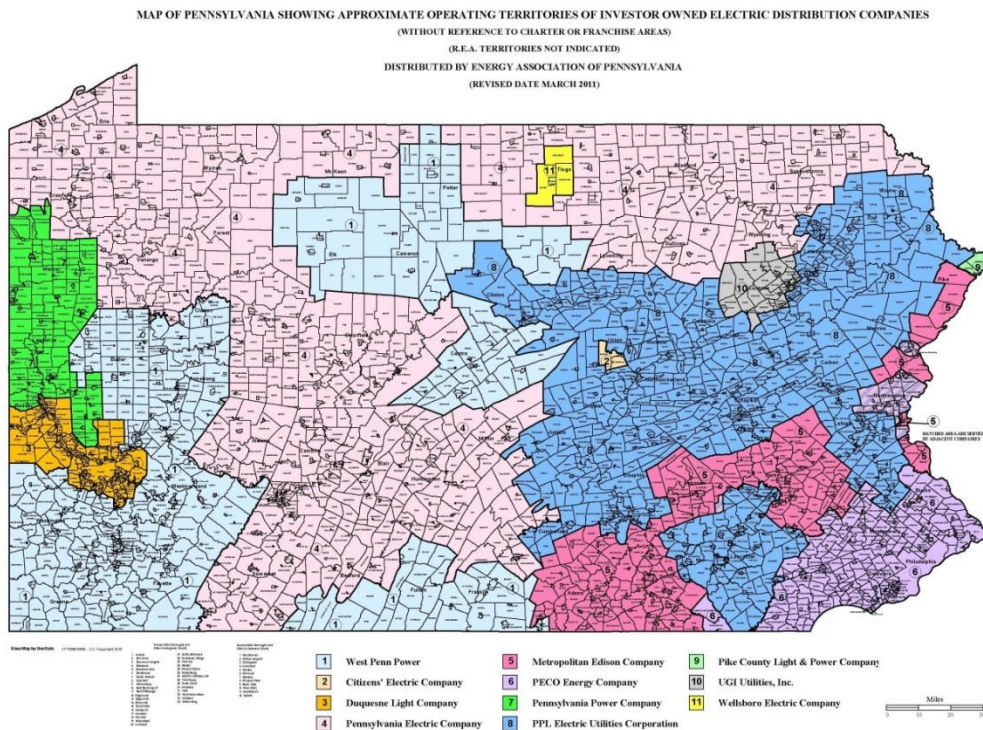
Electric Distribution Companies

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 for electric power, including energy and capacity, and the chosen electric generation supplier (EGS) does not supply the service or (2) do not choose an alternate supplier.²⁰ Under current law, the default service prices for electric generation service are required to be based upon a “prudent mix” procurement strategy that will produce the least cost to customers over time.²¹

²⁰ 66 Pa. C.S. § 2803.

²¹ 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).²² 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. In 2008, the Commission adopted regulations pertaining to the AEPS obligations of EDCs and EGSs.²³ 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)²⁴ 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 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.

Table 1 Alternative Energy Portfolio Standards

<i>Year</i>	<i>Period</i>	<i>Tier I (incl. Solar)</i>	<i>Tier II</i>	<i>Solar PV</i>
1	June 1, 2006, through May 31, 2007	1.50%	4.20%	0.0013%
2	June 1, 2007, through May 31, 2008	1.50%	4.20%	0.0030%
3	June 1, 2008, through May 31, 2009	2.00%	4.20%	0.0063%
4	June 1, 2009, through May 31, 2010	2.50%	4.20%	0.0120%
5	June 1, 2010, through May 31, 2011	3.00%	6.20%	0.0203%
6	June 1, 2011, through May 31, 2012	3.50%	6.20%	0.0325%
7	June 1, 2012, through May 31, 2013	4.00%	6.20%	0.0510%
8	June 1, 2013, through May 31, 2014	4.50%	6.20%	0.0840%
9	June 1, 2014, through May 31, 2015	5.00%	6.20%	0.1440%
10	June 1, 2015, through May 31, 2016	5.50%	8.20%	0.2500%
11	June 1, 2016, through May 31, 2017	6.00%	8.20%	0.2933%
12	June 1, 2017, through May 31, 2018	6.50%	8.20%	0.3400%
13	June 1, 2018, through May 31, 2019	7.00%	8.20%	0.3900%
14	June 1, 2019, through May 31, 2020	7.50%	8.20%	0.4433%
15	June 1, 2020, through May 31, 2021	8.00%	10.00%	0.5000%

²² Alternative Energy Portfolio Standards Act, effective Feb. 28, 2005; 73 P.S. §§ 1648.1—1648.8.

²³ See Docket No. L-00060180; 52 Pa. Code §§ 75.61-75.70.

²⁴ See 66 Pa.C.S. § 2814(b).

To meet the requirements of Act 213, EDCs and EGSs acquire alternative energy credits (AECs) in quantities commensurate to 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.²⁵

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.

Clean Power Markets Inc. (CPM) serves as the AEC program administrator for Pennsylvania. CPM has been administering the program since 2007 and will continue in that role under its current contract through 2015. In May 2015, the Commission issued a request for proposals for the next program administrator contract. This contract will be effective until December 31, 2018, and includes 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 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 eliminating barriers that may have previously existed regarding net metering.²⁶ The regulations also provide for metering capabilities that will be required and a compensation mechanism that reimburses customer-generators for surplus energy supplied to the electric grid.²⁷ Act 35 of 2007 amended Act 213. One aspect of Act 35 altered the reconciliation mechanism used to compensate resellers for surplus energy supplied through net metering.²⁸

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 electric distribution systems in the Commonwealth.²⁹

²⁵ See 52 Pa. Code §§ 75.61—75.70.

²⁶ 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.

²⁷ See Docket No. L-00050174; 52 Pa. Code §§ 75.11-75.15.

²⁸ *Id.*

²⁹ See Docket No. L-00050175; 52 Pa. Code §§ 75.21-75.40.

As of May 31, 2015, Pennsylvania had certified 10,787³⁰ alternate energy facilities, of which 7,923 are located within the state. The statewide cost for AEPS compliance for all load-serving entities in Pennsylvania is estimated to be \$149.2 million for the year 2021.³¹

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 (Act 129)

Act 129 of 2008³² required the seven Pennsylvania EDCs³³ with at least 100,000 customers³⁴ 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. 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 2013.³⁵ The Commission determined that, with the exception of West Penn Power, the EDCs achieved the 1 percent energy consumption reduction 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 targets.³⁶

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.³⁷ The Commission determined the benefits of consumption reduction requirements outweighed the costs. Based on the Act 129 Statewide Evaluator's (SWE)³⁸ *Electric Energy Efficiency Potential for Pennsylvania Final Report*,³⁹ 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.⁴⁰ These targets are outlined in Table 2, below.

³⁰ See <http://paaeps.com/credit/showStatistics.do>

³¹ See http://www.puc.state.pa.us/electric/pdf/AEPS/AEPS_Ann_Rpt_2013.pdf

³² Act 129 of 2008, effective November 14, 2008; 66 Pa. C.S. §§2806.1-2806.2.

³³ 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.

³⁴ See 66 Pa.C.S. § 2806.1.

³⁵ See Energy Consumption and Peak Demand Reduction Targets Order, Docket No. M-2008-2069887, entered Mar. 30, 2009.

³⁶ See Energy Efficiency and Conservation Program Order, *Docket No. M-2008-2069887*, entered Mar. 20, 2014.

³⁷ See 66 Pa.C.S. §§ 2806.1(c) and (d)

³⁸ Public Meeting of Jun. 25, 2009, the Commission selected GDS Associates, Inc. Engineers and Consultants as the statewide evaluator for Phase I.

³⁹ 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.

⁴⁰ See Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2012-2289411, entered Aug. 3, 2012.

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

While the Commission determined that energy efficiency programs were cost-effective, it did not have enough information regarding the cost-effectiveness of Act 129 demand response programs in order to set additional peak demand reduction targets for Phase II of Act 129.⁴¹ 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.⁴² 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.⁴³ 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 DR Potential Study to the Commission on February 25, 2015.⁴⁴ The SWE also performed an Energy Efficiency (EE) Potential Study to determine the cost-effective consumption reduction potential in Pennsylvania.⁴⁵ The SWE submitted its final Energy Efficiency Potential Study to the Commission on Feb. 25, 2015.⁴⁶

Following a review of the SWE’s EE and DR Potential Studies, the Commission found that additional consumption and peak demand reduction targets were cost-effective.⁴⁷ On June 11, 2015, the Commission adopted a Final Implementation Order prescribing targets for a Phase III of

⁴¹ *Id.* at 38-42.

⁴² *Id.* at 42 and 43.

⁴³ See *Energy Efficiency and Conservation Program* Final Order, Docket No. M-2012-2289411, entered Feb. 20, 2014.

⁴⁴ See *Demand Response Potential for Pennsylvania – Final Report*, submitted by GDS Associates, Inc., *et al.*, February 25, 2015 (hereinafter DR Potential Study).

⁴⁵ See *Proposal to Pennsylvania Public Utility Commission – Statewide Evaluator RFP*, submitted by GDS Associates, Inc., *et al.*, January 11, 2013.

⁴⁶ See *Energy Efficiency Potential for Pennsylvania – Final Report*, submitted by GDS Associates, Inc., *et al.*, February 2015 (hereinafter EE Potential Study).

⁴⁷ See *Energy Efficiency and Conservation Program* Final Implementation Order, Docket No. M-2014-2424864, entered June 19, 2015, at 10-12.

the Act 129 EE&C Program, to operate June 1, 2016 through May 31, 2021.⁴⁸ The EDCs' consumption⁴⁹ and peak demand reduction⁵⁰ 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.⁵¹ 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.

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

⁴⁸ *Id.* at 14-15.

⁴⁹ *Id.* at 57.

⁵⁰ *Id.* at 35.

⁵¹ *Id.* at 35.

Statewide Review of Electrical Energy Usage

Pennsylvania’s aggregate electrical energy usage (residential, commercial, industrial, sales for resale, and other) in 2014 was 146,516 GWh versus 146,235 GWh for 2013, which is a 0.2 percent increase in electrical usage. The number of electrical energy customers increased by 16,836 or 0.39 percent. Residential usage represented 35.2 percent of the total usage, followed by industrial (32.5 percent), and commercial (28.6 percent). Aggregate non-coincident peak load⁵² decreased to 29,952 MW in 2014 from 30,021 MW in 2013, which is a 0.2 percent decrease from the previous year.

The total average aggregate five-year energy usage growth projection for the residential, commercial and industrial classes is 0.44 percent per year as shown in Table 5. This includes an average residential growth rate decrease of 0.01 percent, a commercial growth rate decrease of 0.03 percent, and an industrial growth rate increase of 1.32 percent for the entire five-year period. Only the industrial class growth rate was higher than the comparable PJM 10-year forecast of 1.0 percent annual growth rate for the mid-Atlantic region.⁵³

Table 5 Average Aggregate five-year Electrical Energy Projection

Energy Usage Projection (GWh)				
Year	Residential	Commercial	Industrial	Total
2015	50,812	41,888	47,346	140,046
2016	50,417	41,602	48,230	140,249
2017	50,613	41,810	48,941	141,364
2018	50,773	41,872	49,524	142,169
2019	50,799	41,831	49,903	142,533
average annual growth (%)	-0.01	-0.03	1.32	0.44

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 its territory than the PJM forecasts, which is a broader forecast that includes Pennsylvania EDC territories. Tables 6 and 7 below provide metrics for 2014 and 2013, respectively.

⁵² Non-coincident peak load is the sum of EDCs’ annual peak loads regardless of their date or time of occurrence.

⁵³ See PJM load forecast report 2015, Table E-1, available at <http://www.pjm.com/~media/documents/reports/2015-load-forecast-report.ashx>

Table 6 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%				

Table 7 PA EDC customers served, energy usage, and peak load (2013)

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	591,815	4,090,906	6,494,254	3,337,255	60,635	24,223	14,007,272	677,542	29,249	13,300,481	2,951
Met-Ed	555,729	5,553,153	2,933,482	5,328,311	28,868	544,502	14,388,316	1,082,202	0	13,306,114	3,012
Penelec	589,755	4,490,880	3,531,240	5,731,434	38,627	2,431,531	16,223,713	1,570,453	0	14,653,260	3,087
Penn Power	161,870	1,703,976	1,348,582	1,508,839	6,212	192,213	4,759,822	345,978	0	4,413,844	962
PPL	1,410,345	14,295,182	14,140,450	8,051,581	203,532	0	36,690,745	2,646,353	64,151	33,980,241	7,190
PECO	1,586,969	13,340,802	8,100,575	15,378,728	936,139	287,886	38,044,130	2,332,503	38,491	35,673,136	8,618
West Penn	719,572	7,318,190	4,878,138	7,776,666	47,663	737,202	20,757,860	1,430,142	0	19,327,718	3,914
UGI	62,089	558,418	327,355	109,174	5,627	128	1,000,701	73,086	1,983	925,632	205
Citizens'	6,883	85,565	29,024	53,195	616	0	168,400	9,021	190	159,189	37
Pike County	4,673	30,364	43,597	0	414	0	74,375	0	122	74,253	19
Wellsboro	6,257	43,840	32,391	42,651	221	112	119,215	9,982	283	108,950	26
Total	5,695,957	51,511,276	41,859,088	47,317,834	1,328,554	4,217,797	146,234,549	10,177,262	134,469	135,922,818	30,021
% of Total		35.23%	28.62%	32.36%	0.91%	2.88%	100.00%				

Figure 3 shows Pennsylvania historic and forecast energy usage for residential, commercial and industrial retail from 1972 to 2014 and forecasted usage from 2015 to 2019.

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

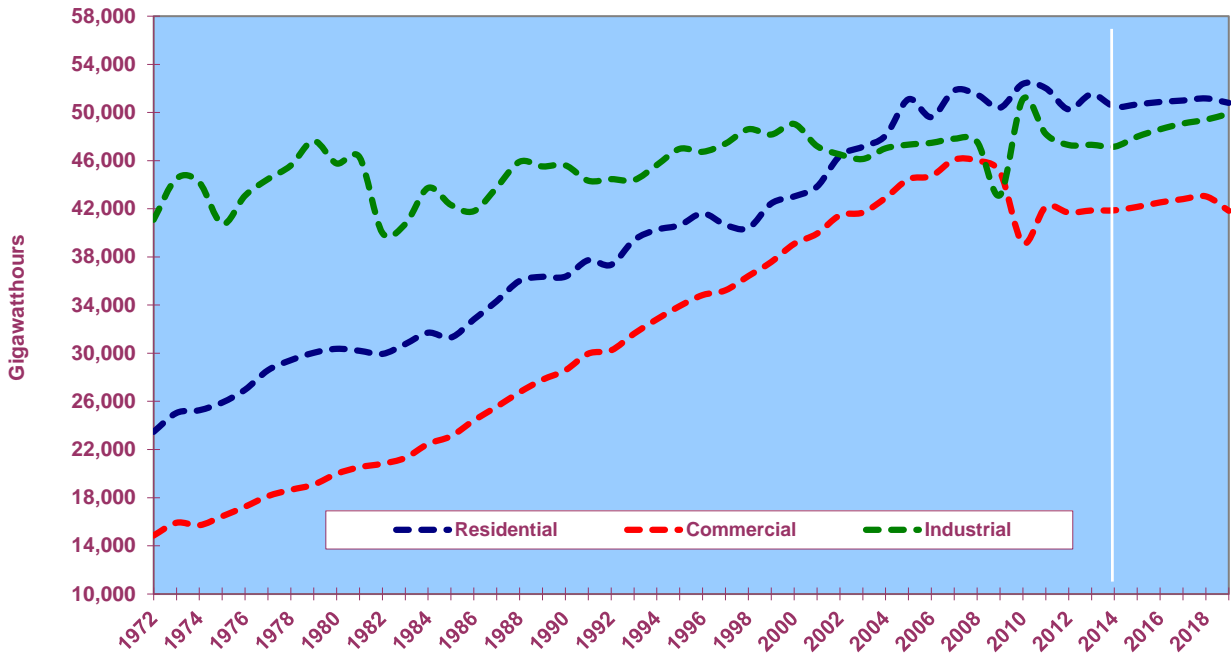


Figure 4 shows average residential cost and average usage from 1940 to 2014. Between 1970 and 2010, average residential usage in Pennsylvania increased 1.4 percent each year, while average cost increased 4.1 percent each year. During the last 10 years, average residential usage increased 0.73 percent each year, while average cost increased 1.6 percent a year.

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

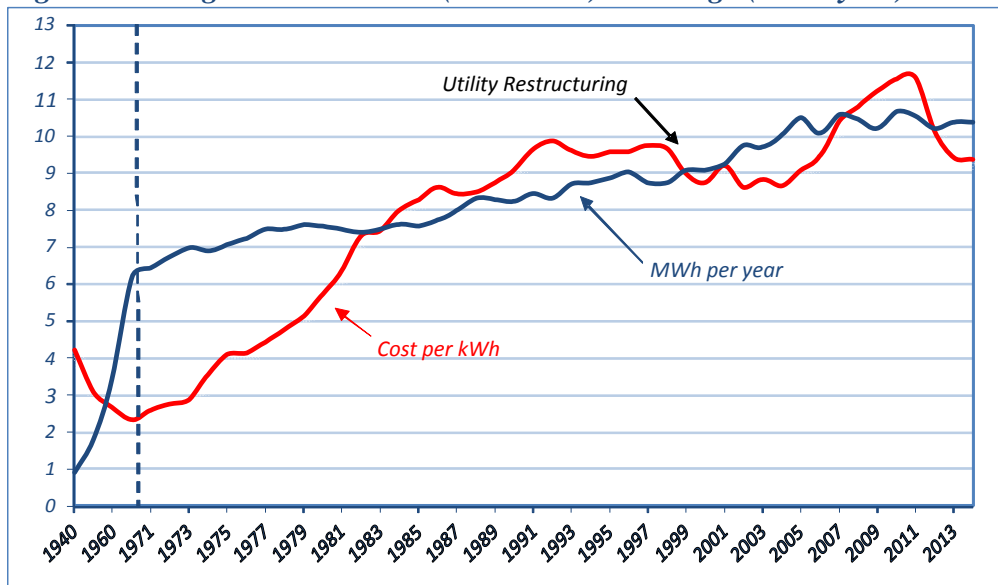
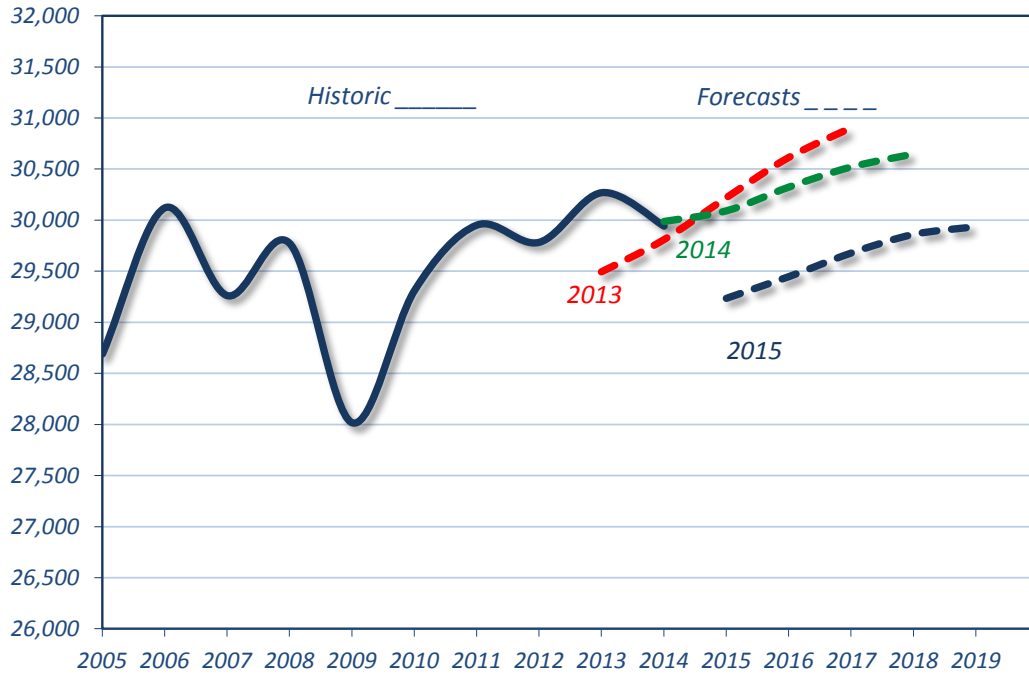


Figure 5 shows Pennsylvania's aggregate non-coincidental peak load demand from 2005 to 2014 and the associated 5 year projections estimated during the last 3 years.

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

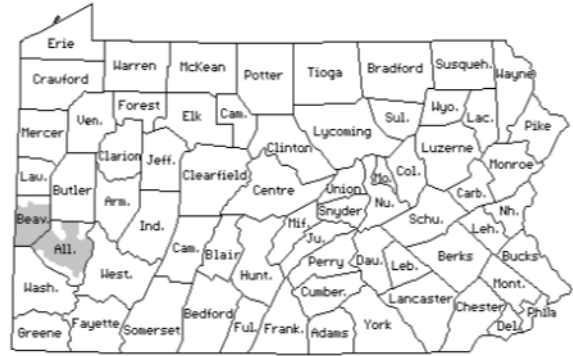


Summary of Data for the Seven Largest EDCs

The following sections provide historic and projected energy usage and peak load demand statistics, purchases from cogeneration and small power production projects, planned transmission line additions, and conservation activities for Pennsylvania's seven largest EDCs.

Duquesne Light Company (Duquesne)

Duquesne provides electric service to 591,750 customers in the City of Pittsburgh and portions of Allegheny and Beaver counties in Southwestern Pennsylvania. Duquesne's 2014 energy usage total was 13,722 GWh, while in 2013 it was 14,007 GWh (a decrease of 2.0 percent from the previous year). Duquesne's total usage mix consisted of commercial (47 percent), residential (30 percent), industrial (23 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 0.4 percent. This includes an average annual increase in residential usage of 0.5 percent, commercial usage is projected to stay the same, and a decrease in average annual of industrial usage by 2.1 percent. See Figure 6.

Duquesne's highest peak load of 2,693 MW occurred on July 1, 2014. This represents a decrease of 9 percent from the previous year's peak of 2,951 MW. Summer peak load is projected to increase from 2,693 MW in summer 2014 to 3,056 MW by summer 2019, or by an average annual growth rate increase of 2.6 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 2005 through 2015.

Figure 6 Duquesne energy usage (GWh)

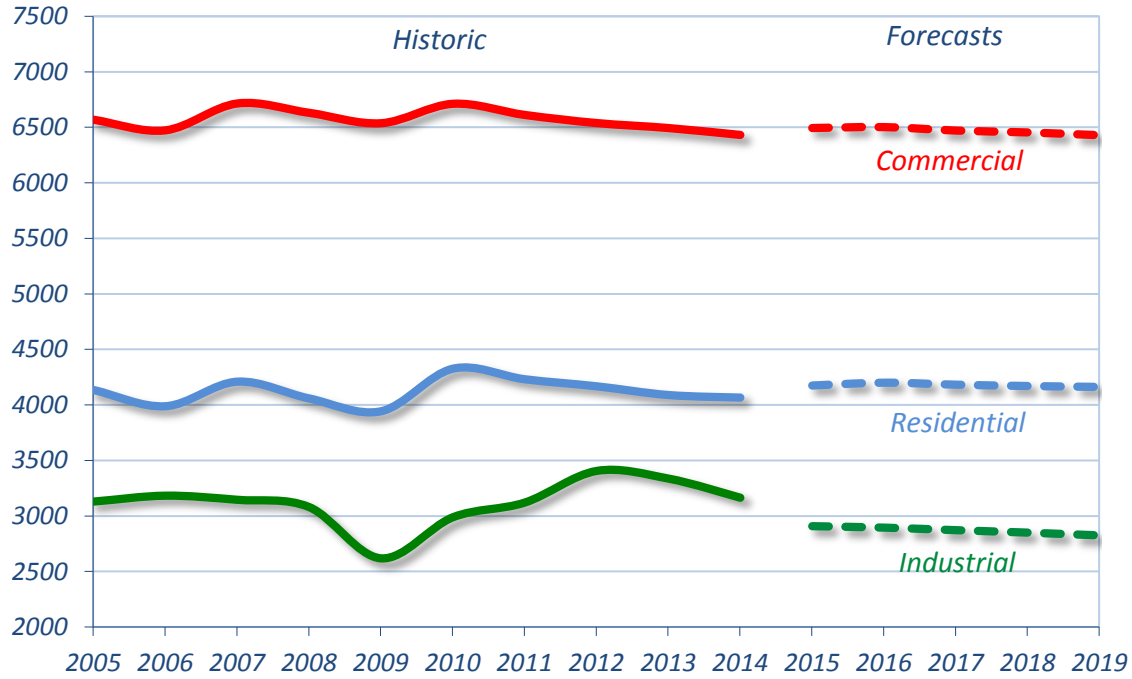
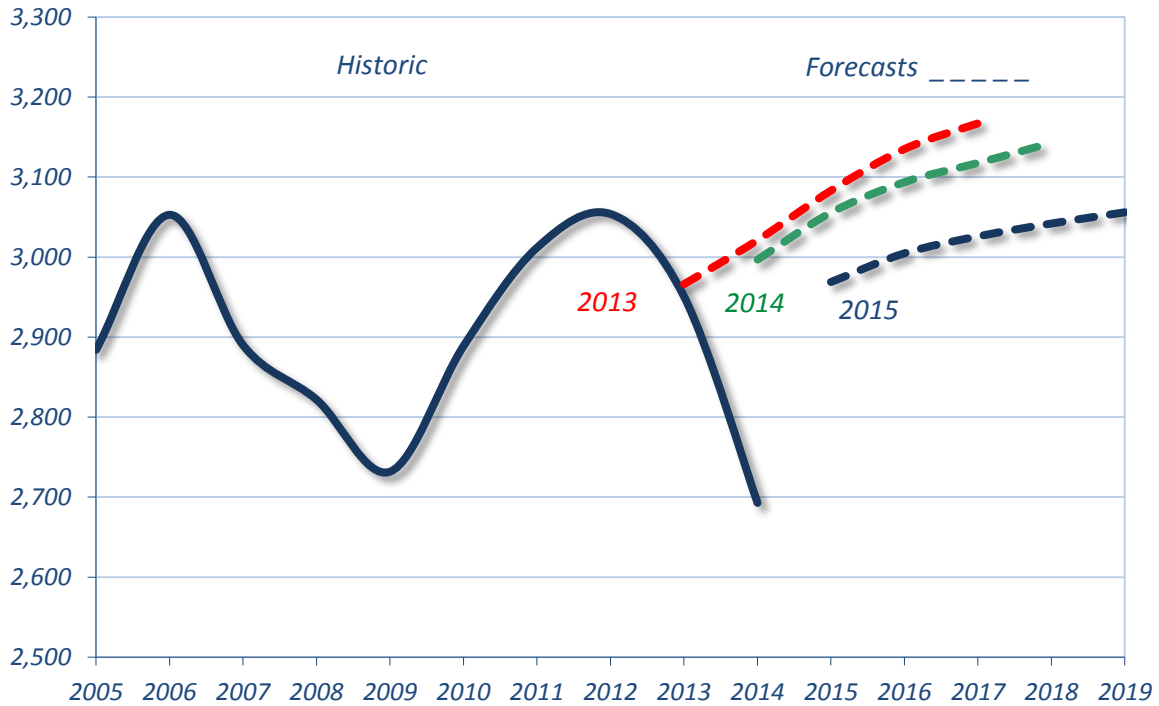
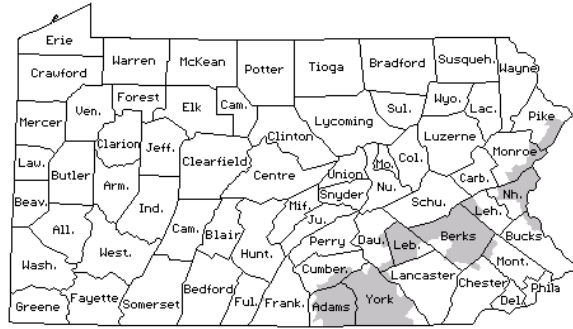


Figure 7 Duquesne peak load (MW)



Metropolitan Edison Company (Met-Ed)

Met-Ed provides service to 557,803 customers in all or portions of 14 counties in Eastern and Southcentral Pennsylvania. Met-Ed’s 2014 energy usage total was 14,372 GWh, while in 2013 it was 14,388 GWh (a decrease of 0.1 percent from the previous year). Met-Ed’s total sales mix consisted of residential (38 percent), industrial (37 percent), commercial (20 percent), and sales for resale (3.7 percent).



Over the next five years, total energy usage is projected to remain flat. This includes a decrease in average annual residential usage of 0.5 percent, a decrease in average annual commercial usage by 0.1 percent, and an increase in average annual industrial usage by 0.6 percent. See Figure 8.

Met-Ed’s highest peak load of 2,817 MW occurred on July 23, 2014. This represents a decrease of 6.5 percent from previous year’s peak of 3,012 MW. Summer peak load is projected to increase from 2,817 MW in summer 2014 to 2,986 MW by summer 2019, or by an average annual growth rate increase of 1.2 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 2005 through 2015.

Figure 8 Met-Ed energy usage (GWh)

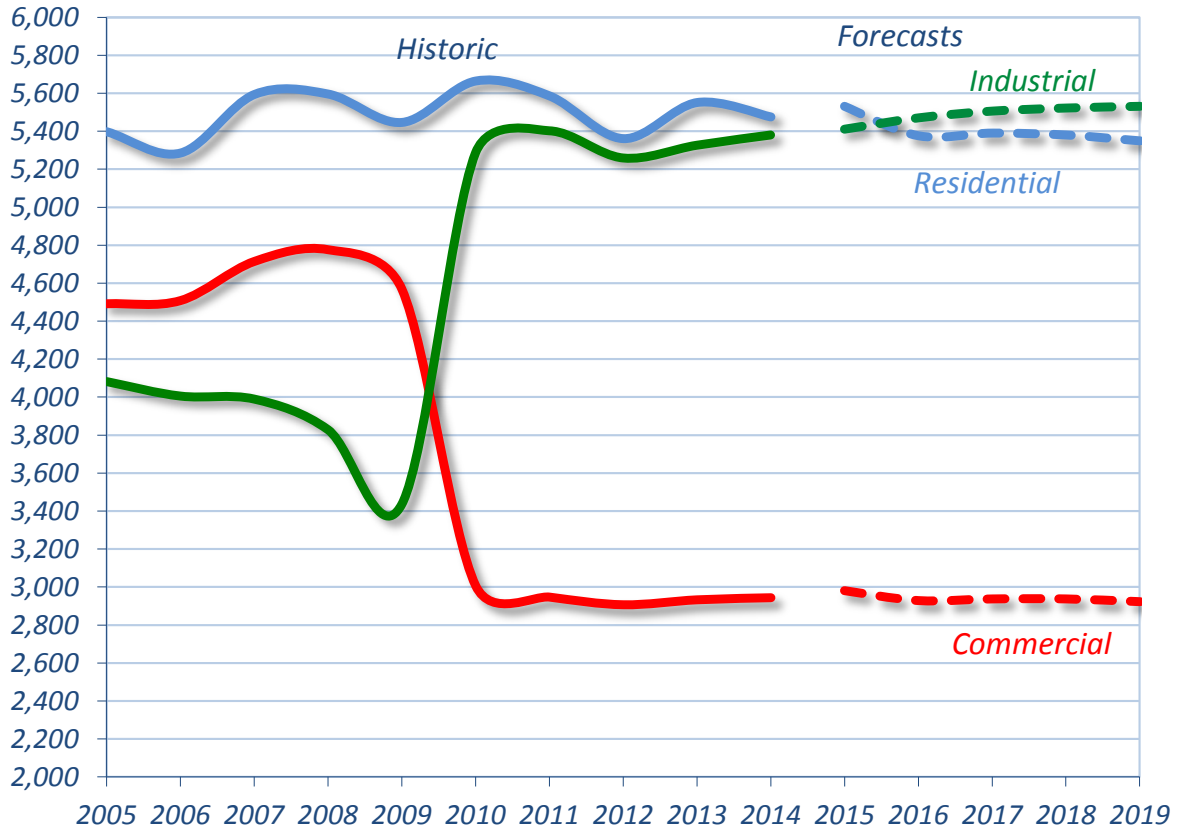
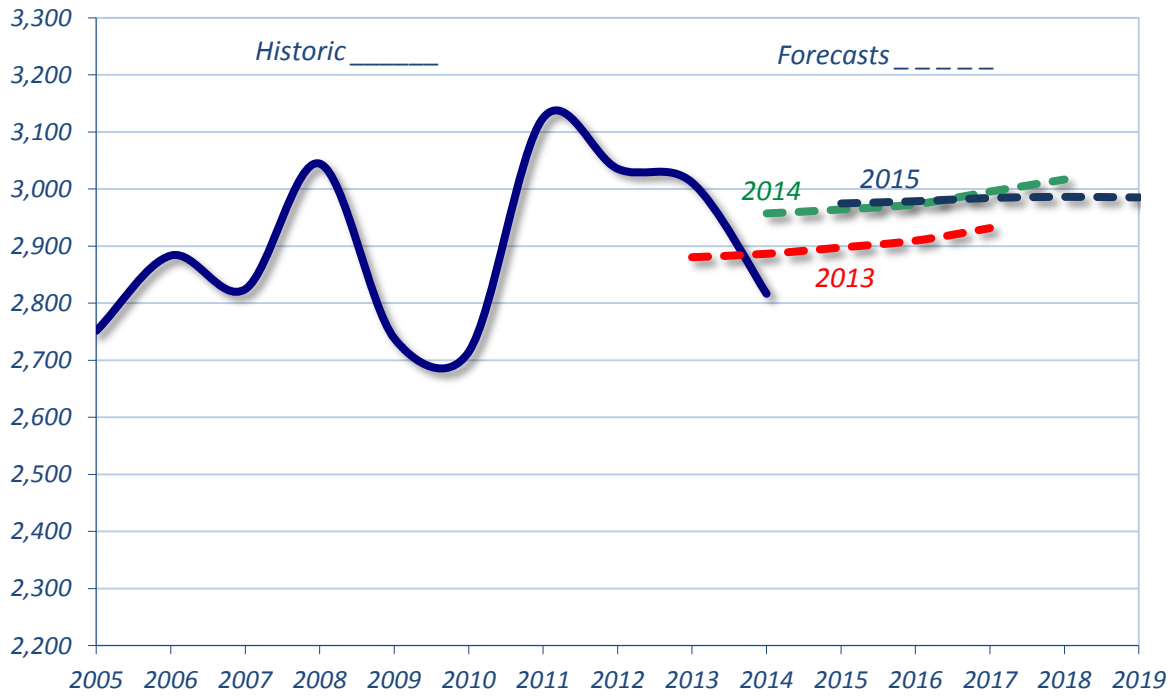
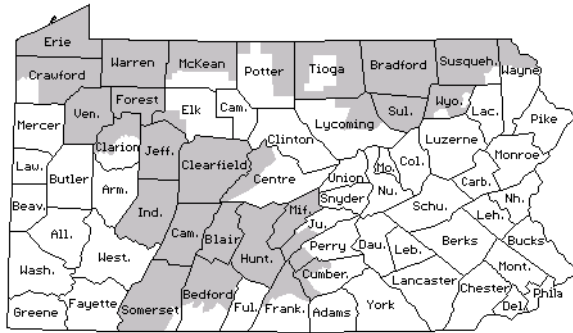


Figure 9 Met-Ed peak load (MW)



Pennsylvania Electric Company (Penelec)

Penelec provides service to 588,274 customers in all or portions of 29 counties in Western and Northern Pennsylvania. Penelec’s 2014 energy usage total was 16,287 GWh, while in 2013 it was 16,224 GWh (an increase of 0.4 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 (0.2 percent).



Over the next five years, total energy usage is projected to increase at an average annual rate of 0.4 percent. This includes a decrease in average annual in residential usage of 0.4 percent, an increase in average annual in commercial usage by 0.1 percent, and an increase in average annual industrial usage by 1.2 percent. See Figure 10.

Penelec’s highest peak load of 3,024 MW occurred on Feb. 19, 2015. This represents a decrease of 2 percent from previous year’s peak of 3,087 MW. Winter peak load is projected to decrease from 3,024 MW in winter 2015 to 2,902 MW by winter 2019, or by an average annual growth rate decrease of 0.8 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 2005 through 2015.

Figure 10 Penelec energy usage (GWh)

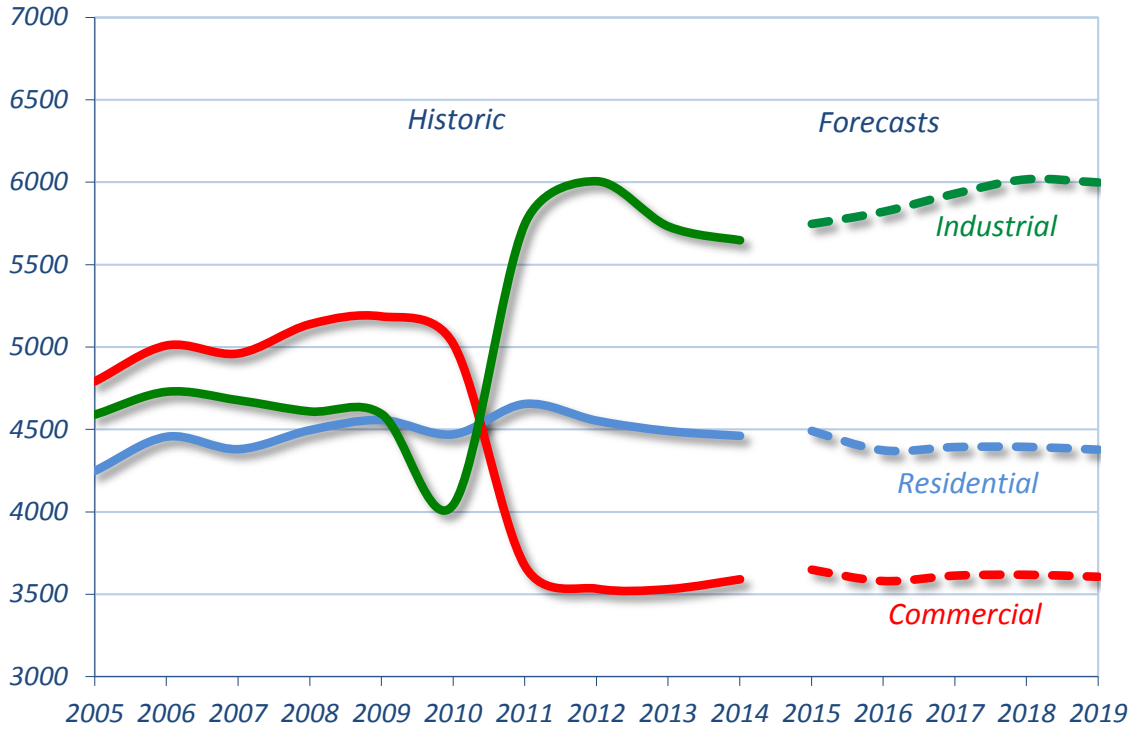
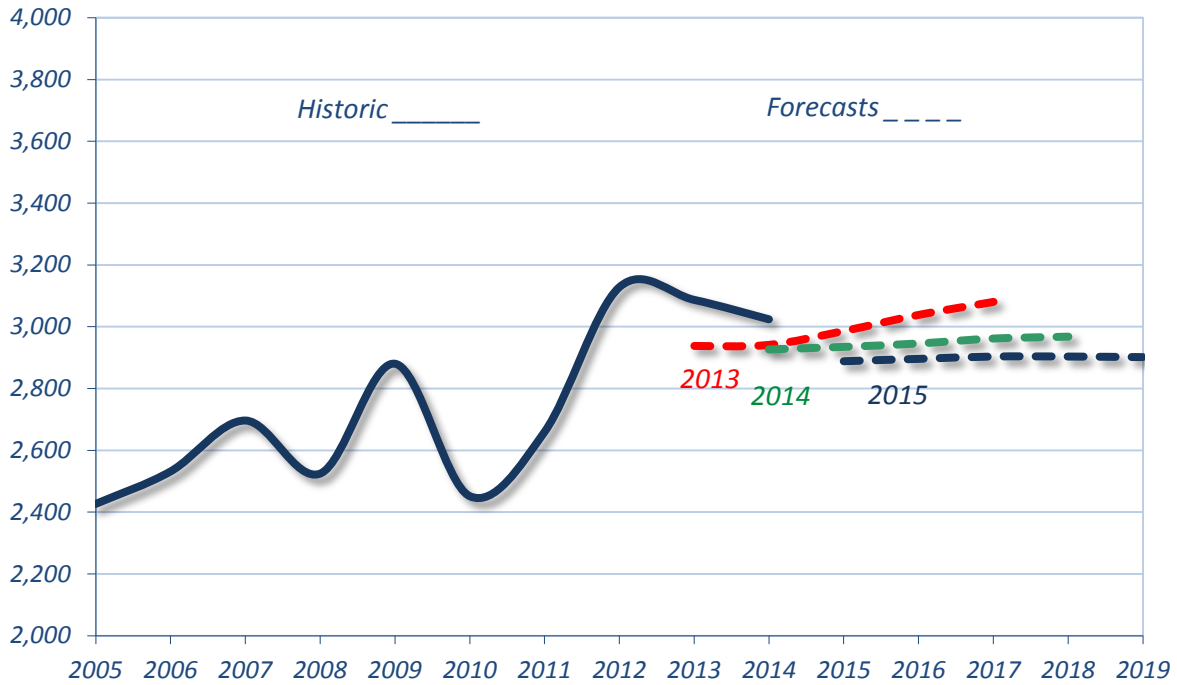
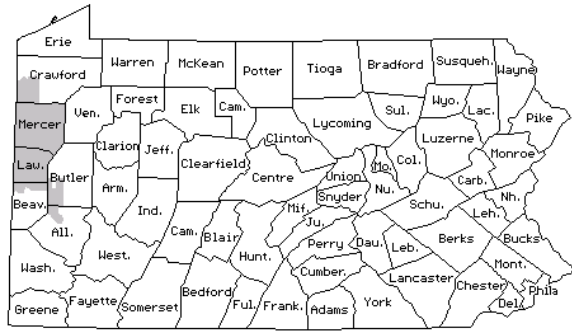


Figure 11 Penelec peak load (MW)



Pennsylvania Power Company (Penn Power)

Penn Power provides service to 162,577 customers in all or portions of six counties in Western Pennsylvania. Penn Power’s 2014 energy usage total was 4,936 GWh, while in 2013 it was 4,760 GWh (an increase of 3.7 percent from the previous year). Penn Power’s total usage mix consisted of residential (35 percent), commercial (28 percent), industrial (32 percent), and sales for resale (4 percent).



Over the next five years, total energy usage is projected to increase at an average annual rate of 1.3 percent. This includes a decrease in average annual residential usage of 0.2 percent, a decrease in average annual commercial usage of 5 percent, and an increase in average annual industrial usage of 6.0 percent. See Figure 12.

Penn Power's highest peak load of 1,018 MW occurred on Feb. 23, 2015. This represents a decrease 3.4 percent from the previous year’s peak of 1,054 MW. Winter peak load is projected to decrease from 1,018 MW in winter 2015 to 949 MW by winter 2019, or by an average annual growth rate decrease of 1.4 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 2005 through 2015.

Figure 12 Penn Power energy usage (GWh)

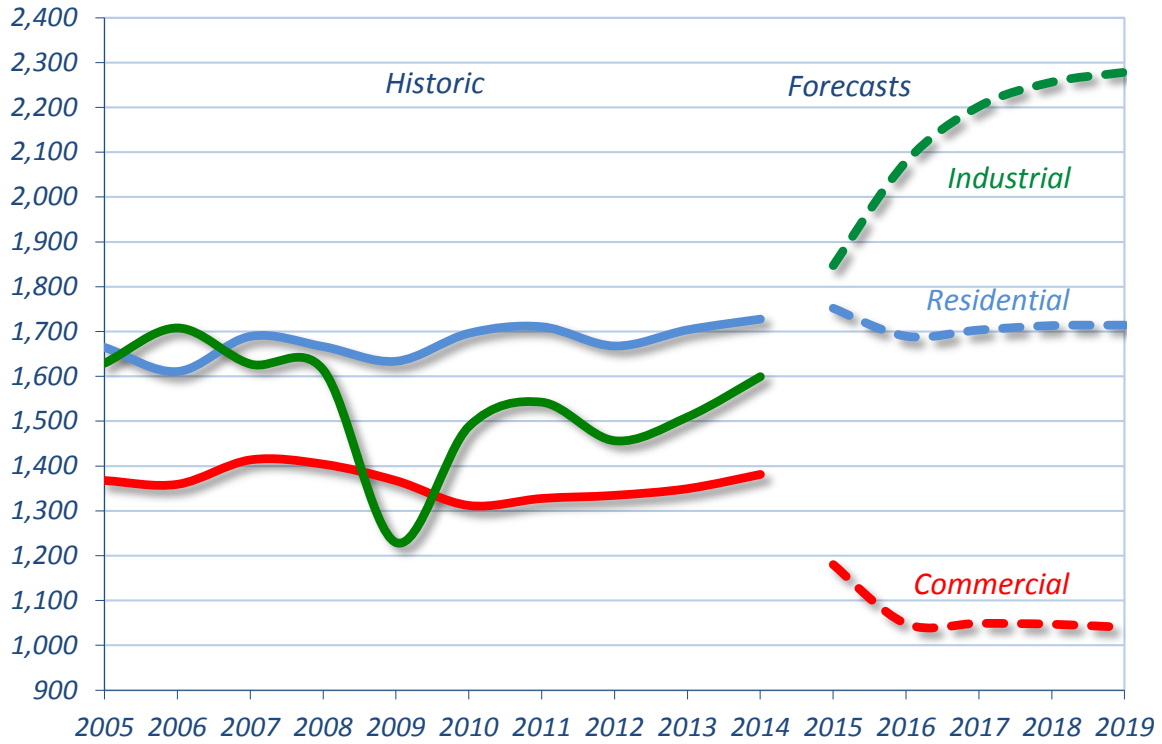


Figure 13 Penn Power peak load (MW)

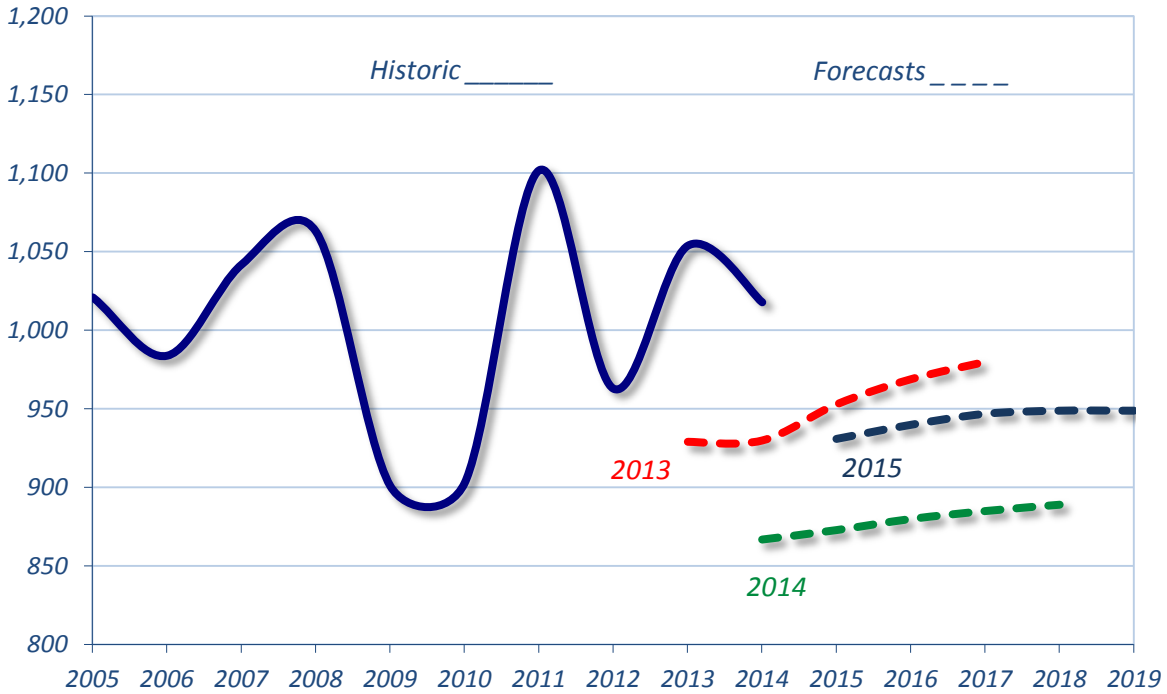


Figure 14 West Penn energy usage (GWh)

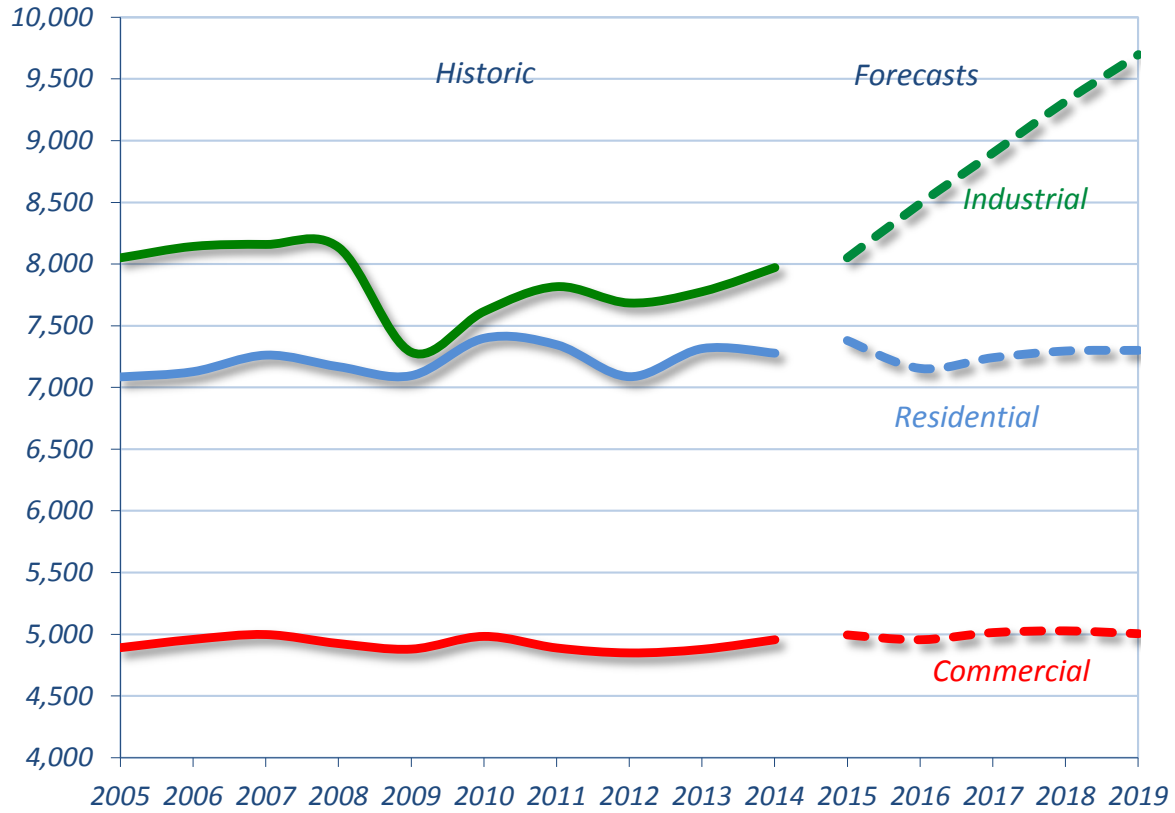
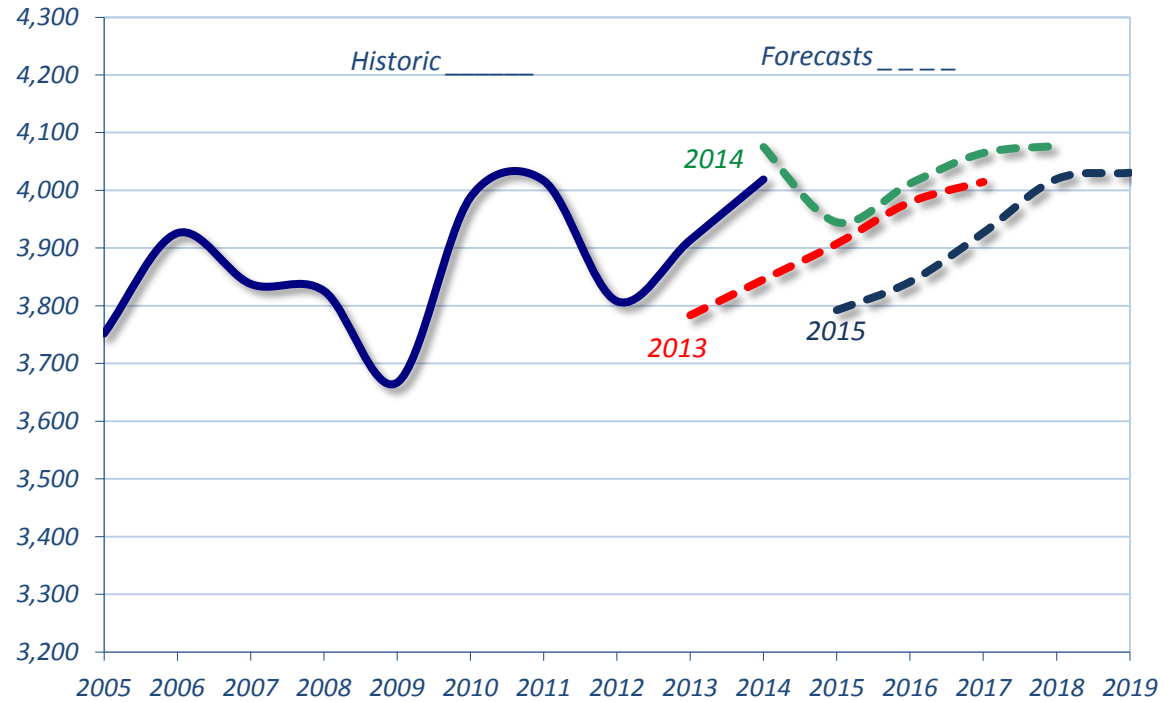
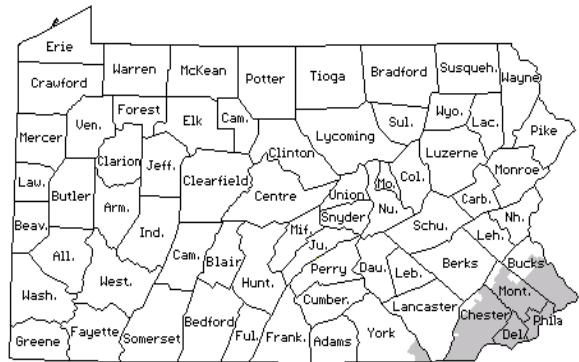


Figure 15 West Penn peak load (MW)



PECO Energy Company (PECO)

PECO is the largest electric utility in Pennsylvania, providing service to 1,594,763 customers in the City of Philadelphia and all or portions of six counties in Southeastern Pennsylvania. PECO's 2014 energy usage total was 37,675 GWh, while in 2013 it was 38,044 GWh (a decrease of 1.0 percent from the previous year). PECO's total usage mix consisted of residential (35 percent), commercial (21 percent), industrial (40 percent), other⁵⁴ (2.5 percent), and sales for resale (0.5 percent).



Over the next five years, total energy usage is projected to increase at an average annual rate of 0.1 percent. This includes an increase in average annual residential usage of 0.5 percent, flat commercial growth, and a decrease in average annual industrial usage by 0.1 percent. See Figure 16.

PECO's highest peak load of 8,258 MW occurred on July 2, 2014. This represents a decrease of 4 percent from the previous year's peak of 8,618 MW. Summer peak load is projected to increase from 8,258 MW in summer 2014 to 8,292 MW by summer 2019, 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 2005 through 2015.

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

Figure 16 PECO energy usage (GWh)

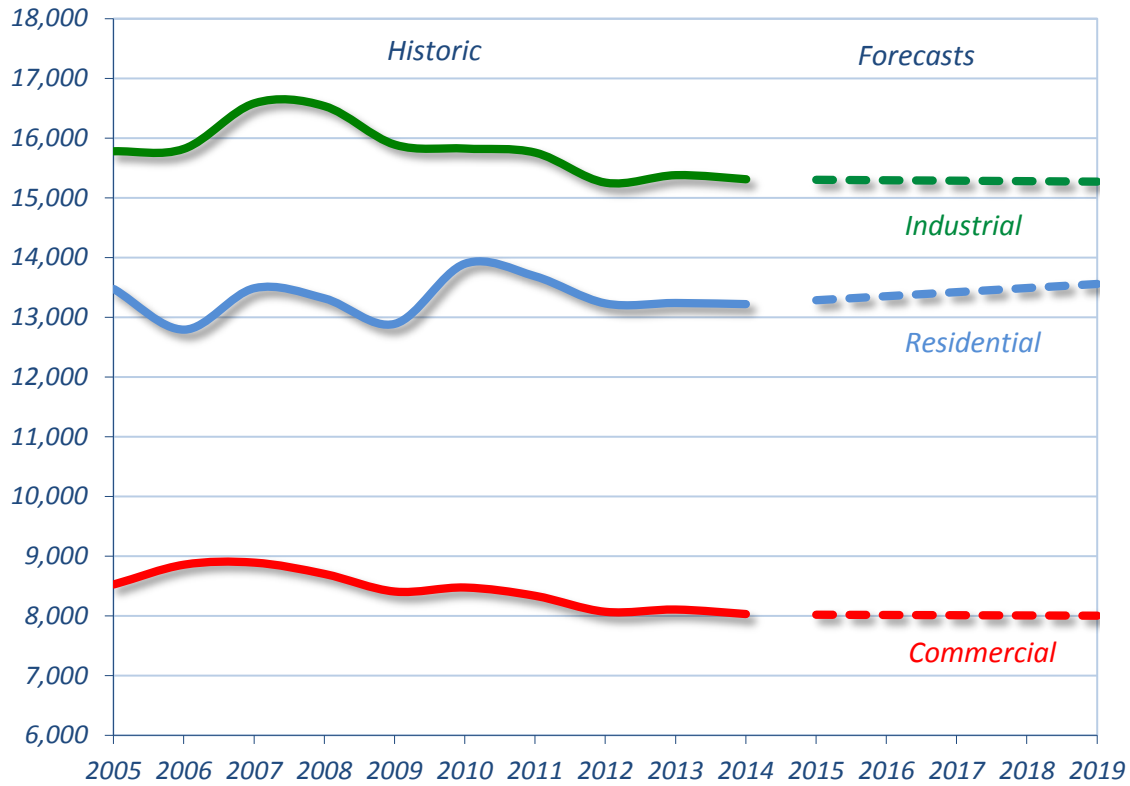
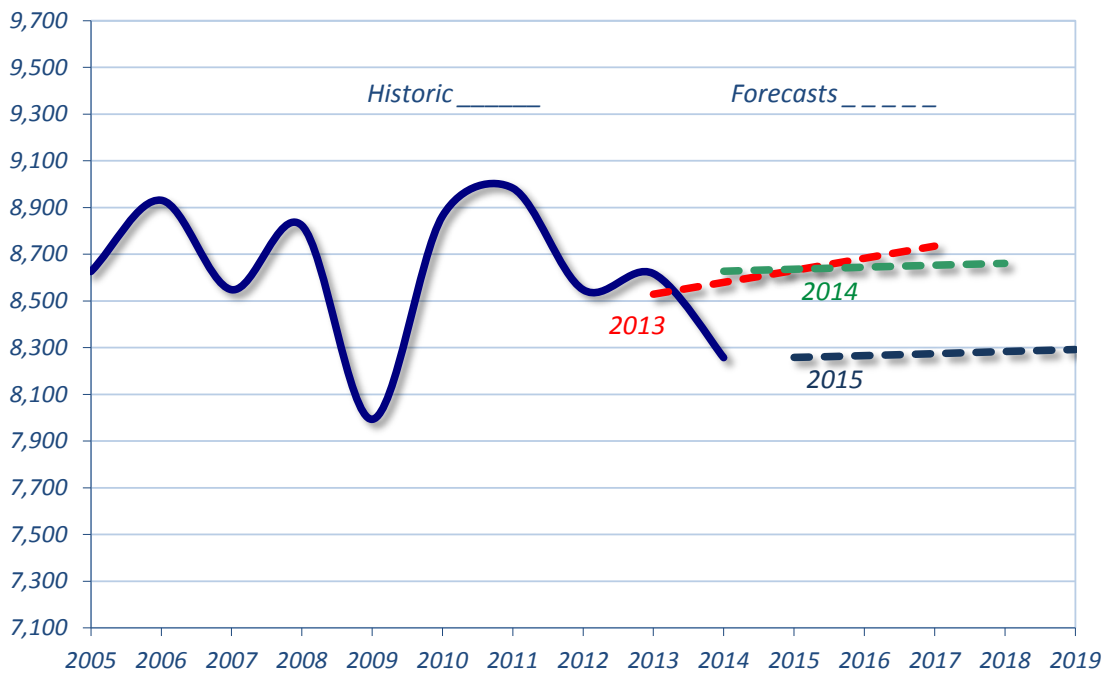
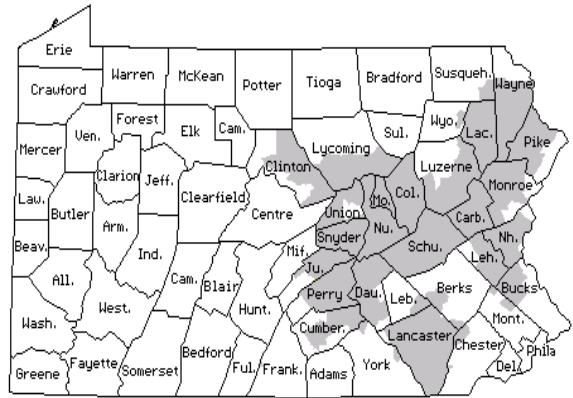


Figure 17 PECO Energy Company peak load (MW)



PPL Electric Utilities Corporation (PPL)

PPL provides service to 1,416,655 customers over a 10,000-square-mile area in all or portions of 29 counties in Central Eastern Pennsylvania. PPL’s 2014 energy usage total was 37,144 GWh, while in 2013 it was 36,691 GWh (an increase of 1.2 percent from the previous year). PPL’s total usage mix consisted of residential (37 percent), commercial (38 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, an increase in average annual commercial usage of 0.5 percent, and a decrease in average annual industrial usage of 0.3 percent. See Figure 18.

PPL’s highest peak load of 7,816 MW occurred on Jan. 7, 2014. This represents an increase of 8.7 percent from the previous year’s peak of 7,190 MW. Winter peak load is projected to decrease from 7,816 MW in 2014 to 7,511 MW by the year 2019, or by an average annual growth rate decrease of 0.8 percent. 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 2005 through 2015.

Figure 18 PPL Electric Utilities Corporation energy usage (GWh)

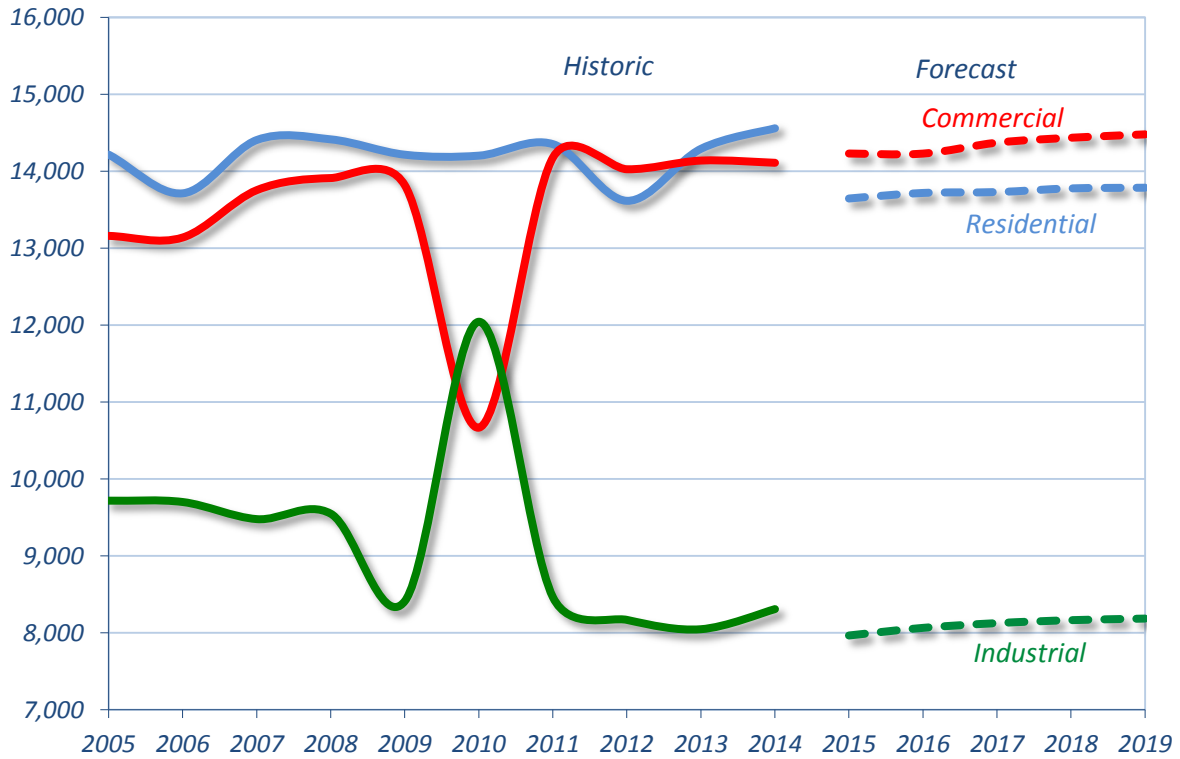
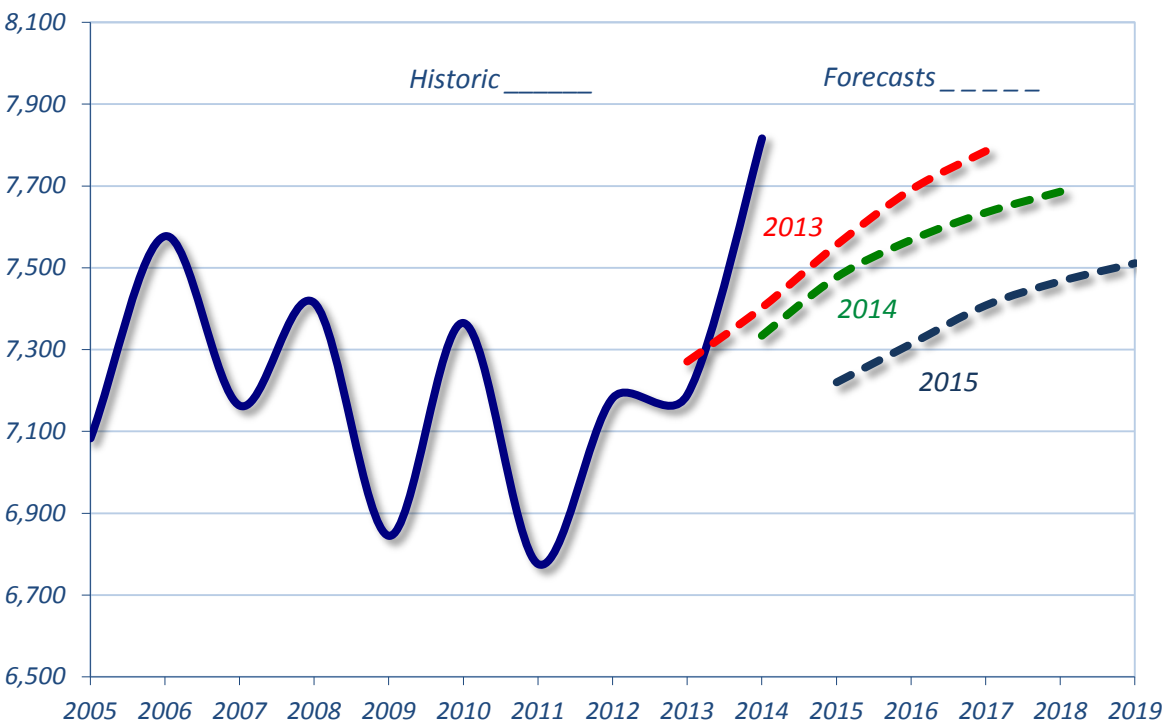


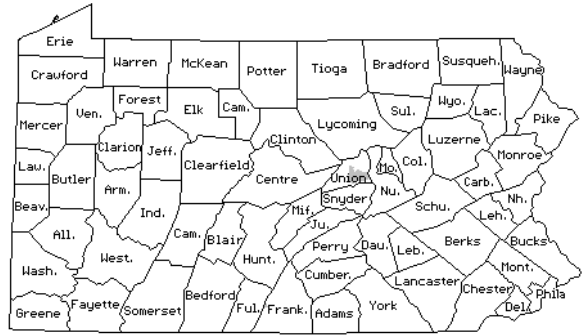
Figure 19 PPL Electric Utilities Corporation peak load (MW)



Summary of Data for the Four Smallest EDCs

Citizens' Electric Company (Citizens')

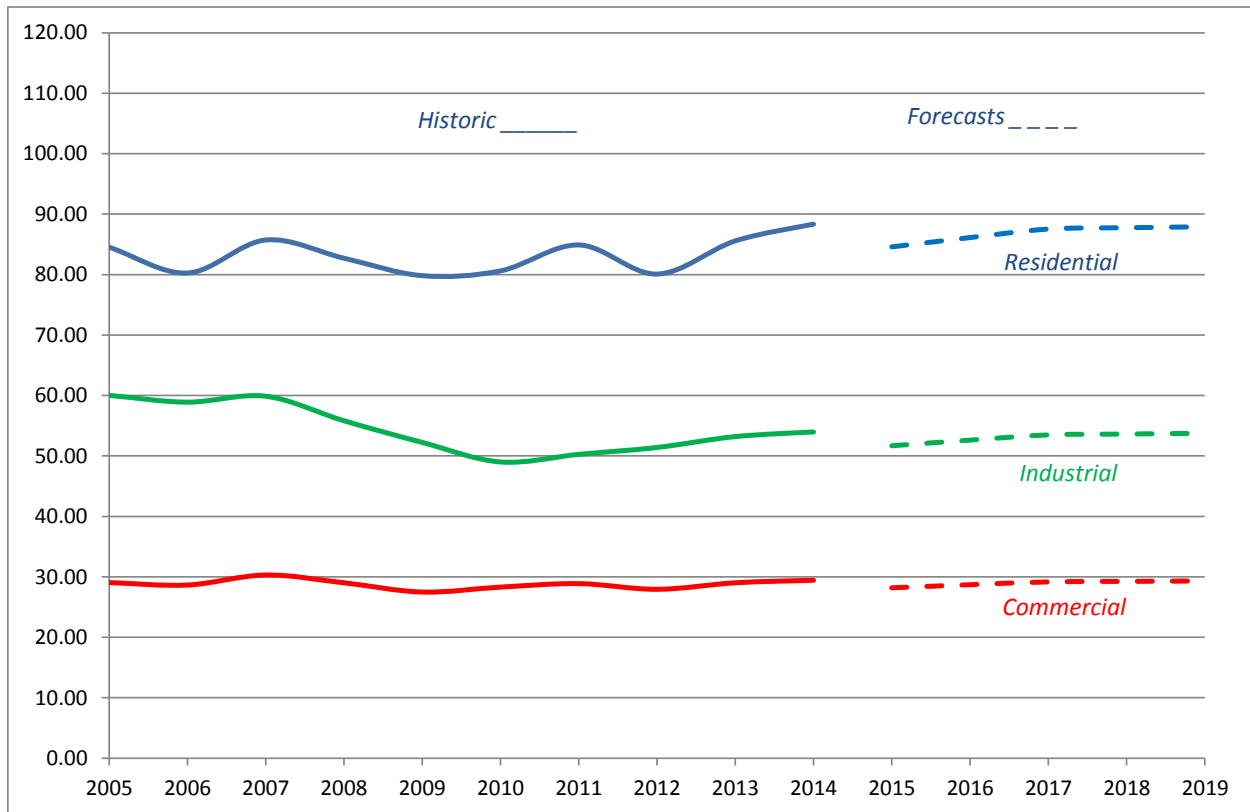
Citizens' provides service to 6,889 customers in Union County, Pennsylvania. Citizens' 2014 energy usage total was 172 GWh, while in 2013 it was 168 GWh (an increase of 2.3 percent from previous year). Citizens' total usage mix consisted of residential (51 percent), commercial (17 percent), industrial (31 percent), and other (< 1 percent).



Over the next five years, total energy usage is projected to increase at an average annual rate of 1.5 percent. This includes a decrease in average annual residential usage of 1.3 percent, an increase in average annual commercial usage of 2.0 percent, and a decrease in average annual industrial usage of 0.5 percent. See Figure 20 below.

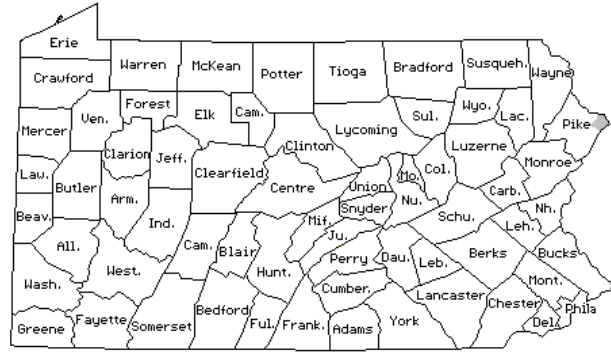
Citizens' highest peak load of 51.9 MW occurred on Feb. 20, 2015. This represents an increase of 3.5 percent from the previous year's peak of 50.1 MW. Winter peak load is projected to grow from 51.9 MW in 2014 to 54.4 MW by the year 2019, or by an average annual growth rate increase of .5 percent.

Figure 20 Citizens' energy usage (GWh)



Pike County Light & Power Company (Pike)

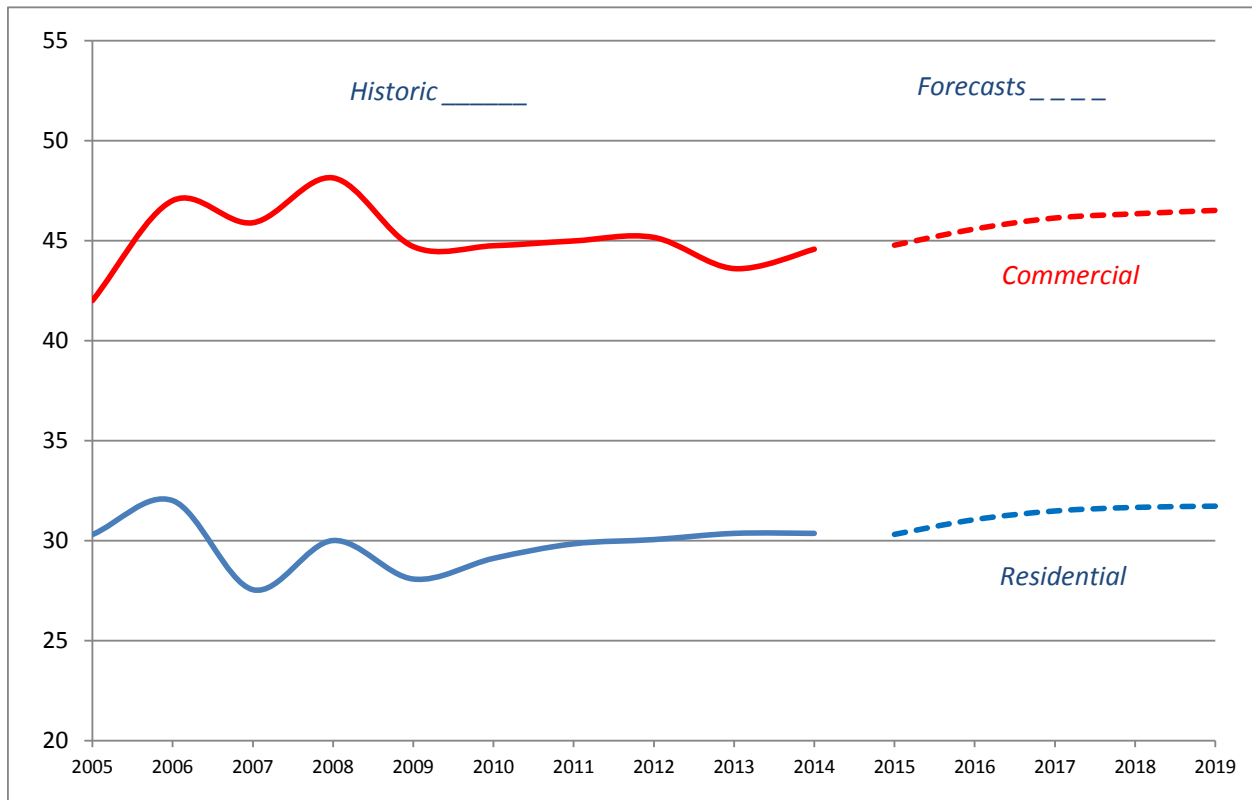
Pike provides service to 4,673 customers in Eastern Pike County, Northeastern Pennsylvania. Pike’s 2014 energy usage total was 75.0 GWh, which was the same as in 2013. Pike’s total usage mix consisted of residential (40 percent) and commercial (59 percent). Pike has no industrial customers or sales for resale.



Over the next five years, total energy usage is projected to increase at an average annual rate of 0.9 percent, which includes an increase in average annual residential growth rate of 0.9 percent and an increase in average annual commercial growth rate of 0.9 percent. See Figure 21.

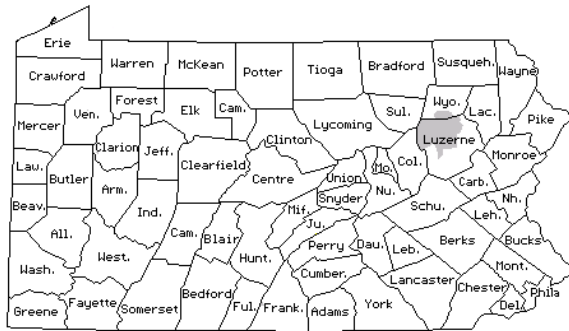
Pike’s highest peak load of 19 MW occurred on July 2, 2014. This represents an increase of 2.7 percent from the previous year’s peak of 18.5 MW. Summer peak load is projected to remain the same from 19 MW in summer 2014 to 19 MW by summer 2019, with zero average annual growth.

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



UGI Utilities Inc.—Electric Division (UGI)

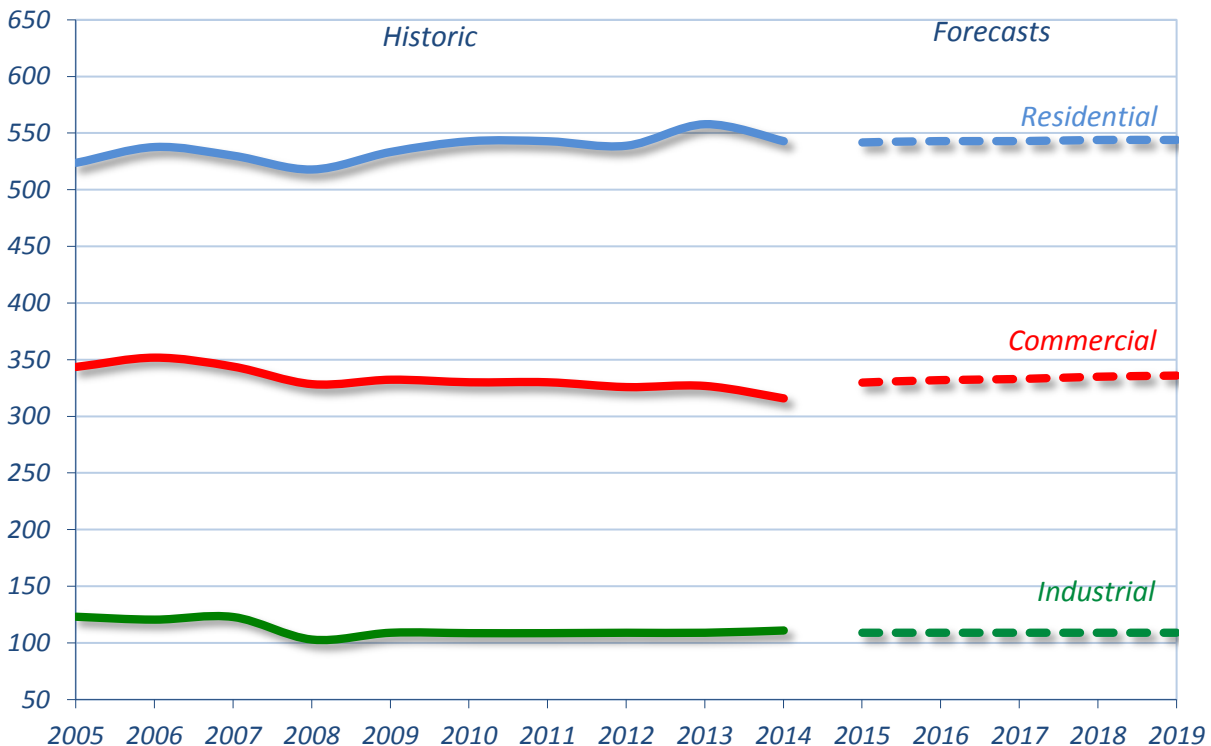
UGI provides electric service to 62,003 customers in Northwestern Luzerne and Southern Wyoming counties in Pennsylvania. UGI’s 2014 energy usage total was 976 GWh, while in 2013 it was 1001 GWh (a decrease of 2.5 percent from the previous year). UGI’s total usage mix consisted of residential (56 percent), commercial (32 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 0.4 percent, which includes a flat average annual residential growth, an increase in average annual commercial growth rate of 1.2, and decrease in industrial annual growth rate of 0.4 percent. See Figure 22.

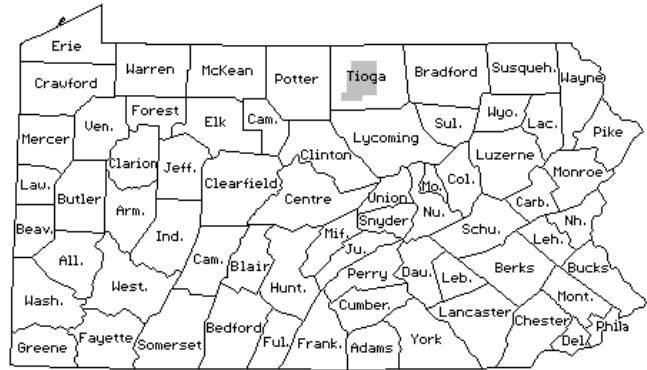
UGI’s highest peak load of 211 MW occurred on Feb. 20, 2015. This represents an increase of 3 percent from the previous year’s peak of 205 MW. Winter peak load is projected to decrease from 211 MW in winter 2015 to 207 MW by the year 2019, or by an average annual growth rate decrease of 0.4 percent.

Figure 22 UGI Utilities Inc. energy usage (GWh)



Wellsboro Electric Company (Wellsboro)

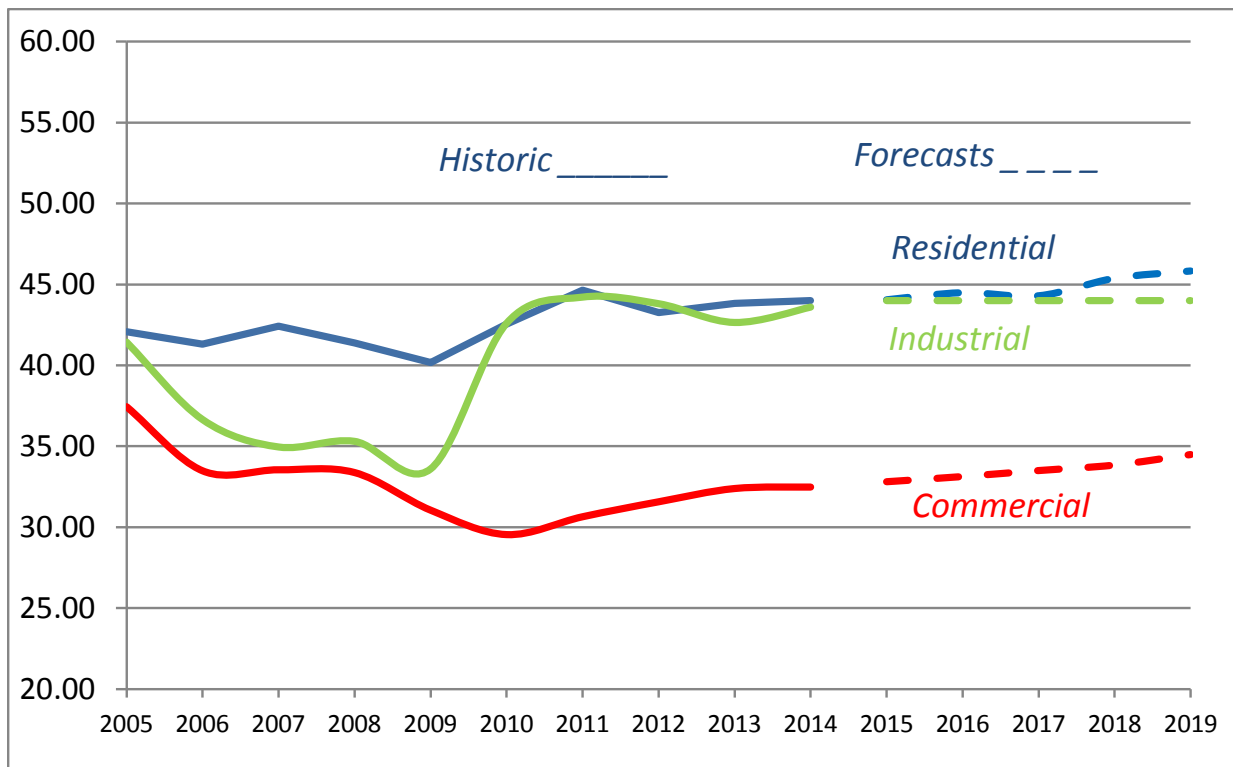
Wellsboro provides electric service to 6,248 customers in Tioga County, North Central Pennsylvania. Wellsboro’s 2014 energy usage total was 120.4 GWh, while in 2013 it was 119.2 GWh (an increase of 1.0 percent from the previous year). Wellsboro’s total usage mix consisted of residential (37 percent), commercial (27 percent), and industrial (36 percent).



Over the next five years, total energy usage is projected to grow at an average annual rate of 0.7 percent. This includes an increase in average annual residential growth rate of 0.8 percent, an increase in average annual commercial growth rate of 1.2 percent, and an increase in average annual industrial growth rate of 0.2 percent. See Figure 23.

Wellsboro’s highest peak load of 26 MW occurred on Dec. 12, 2015. This represents an increase of 13 percent from the previous year’s peak of 23 MW. Winter peak load is projected to grow from 26 MW in 2014 to 27 MW by the year 2019, or by an average annual growth rate of 0.76 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 2005 through 2014. Five-year projections are those filed with the Commission in years 2005 through 2015.

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

Year	Actual	Projected Peak Load Requirements (Year Forecast Was Filed)											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
2005	2884	2722											
2006	3053	2765	2765										
2007	2890	2805	2805	3039									
2008	2822	2835	2835	3086	2948								
2009	2732	2873	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									3125	3102	3083	3056	2969
2016										3132	3135	3094	3005
2017											3167	3118	3026
2018												3143	3042
2019													3056

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

Year	Actual	Projected Commercial Energy Demand (Year Forecast Was Filed)											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
2005	6566	6568											
2006	6474	6711	6693										
2007	6715	6870	6847	6784									
2008	6631	6949	6991	6942	6731								
2009	6537	7076	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									7056	6929	6640	6621	6494
2016										7017	6645	6648	6503
2017											6641	6643	6472
2018												6654	6455
2019													6430

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

Year	Actual	Projected Residential Energy Demand (Year Forecast Was Filed)											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
2005	4134	3941											
2006	3991	4018	3984										
2007	4211	4088	4054	4141									
2008	4060	4125	4118	4214	4216								
2009	3946	4198	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	4436	4246	4246			
2014	4068							4448	4402	4509	4260	4217	
2015									4474	4579	4265	4230	4176
2016										4676	4284	4266	4202
2017											4306	4266	4184
2018												4272	4172
2019													4164

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

Year	Actual	Projected Industrial Energy Demand (Year Forecast Was Filed)											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
2005	3128	3347											
2006	3182	3407	3229										
2007	3145	3458	3299	3271									
2008	3079	3501	3359	3315	3098								
2009	2616	3542	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									2724	3272	3032	2778	2909
2016										3289	3031	2762	2896
2017											3031	2734	2873
2018												2711	2851
2019													2826

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

Year	Actual	Projected Peak Load Requirements (Year Forecast Was Filed)														
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015				
2005	2752	2625														
2006	2884	2689	2689													
2007	2825	2740	2740	2740												
2008	3045	2801	2801	2801	2801											
2009	2739	2857	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								2952	2995	2898	2965	2975				
2016									3028	2910	2974	2979				
2017										2932	2996	2985				
2018											3017	2987				
2019												2986				

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

Year	Actual	Projected Commercial Energy Demand (Year Forecast Was Filed)														
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015				
2005	4491	4310														
2006	4509	4400	4462													
2007	4715	4506	4547	4664												
2008	4777	4616	4668	4818	4818											
2009	4568	4721	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									3158	2997	2937	2931	2983			
2016										2995	2940	2964	2929			
2017											2956	2984	2938			
2018												2989	2938			
2019													2923			

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

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

Year	Actual	Projected Residential Energy Demand (Year Forecast Was Filed)														
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015				
2005	5399	5097														
2006	5287	5176	5325													
2007	5595	5276	5390	5516												
2008	5598	5376	5515	5699	5699											
2009	5448	5472	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									5650	5212	5042	5421	5533			
2016										5210	4979	5438	5378			
2017											4993	5457	5392			
2018												5476	5382			
2019													5351			

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

Year	Actual	Projected Industrial Energy Demand (Year Forecast Was Filed)														
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015				
2005	4083	4077														
2006	4008	4119	4176													
2007	3992	4145	4155	4123												
2008	3831	4175	4177	4156	4156											
2009	3439	4195	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									5625	5851	5561	5381	5413			
2016										5847	5587	5456	5472			
2017											5612	5508	5507			
2018												5524	5523			
2019													5532			

* 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)**

Year	Actual	Projected Peak Load Requirements (Year Forecast Was Filed)										
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
2005	2425	2438										
2006	2531	2481	2511									
2007	2696	2525	2554	2554								
2008	2524	2565	2598	2598	2598							
2009	2880	2604	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									2531	2625	2987	2888
2016										2662	2946	2896
2017											3081	2904
2018												2904
2019												2902

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

Year	Actual	Projected Commercial Energy Demand (Year Forecast Was Filed)										
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
2005	4792	4825										
2006	5010	4912	4928									
2007	4961	4986	4990	5049								
2008	5139	5060	5064	5099	5045							
2009	5186	5136	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								5424	3650	3510	3552	3649
2016									3698	3503	3582	3582
2017										3503	3604	3614
2018											3608	3619
2019												3607

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

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

Year	Actual	Projected Residential Energy Demand (Year Forecast Was Filed)												
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
2005	4249	4135												
2006	4457	4186	4295											
2007	4381	4236	4333	4420										
2008	4497	4287	4385	4438	4469									
2009	4558	4339	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									4486	4539	4145	4513	4491	
2016											4653	4157	4525	4373
2017												4156	4554	4393
2018													4583	4394
2019														4377

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

Year	Actual	Projected Industrial Energy Demand (Year Forecast Was Filed)												
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
2005	4589	4561												
2006	4729	4666	4527											
2007	4678	4737	4612	4807										
2008	4610	4791	4679	4828	4809									
2009	4594	4815	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										4674	6304	6062	5808	5747
2016											6325	6133	5867	5822
2017												6130	5894	5931
2018													5896	6017
2019														5998

* 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)**

Year	Actual	Projected Peak Load Requirements (Year Forecast Was Filed)													
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			
2005	1021	952													
2006	984	921	904												
2007	1042	930	930	921											
2008	1063	938	938	936	936										
2009	901	951	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								1010	1006	953	873	931			
2016									1010	969	880	940			
2017										980	885	947			
2018											889	949			
2019												949			

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

Year	Actual	Projected Commercial Energy Demand (Year Forecast Was Filed)													
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			
2005	1367	1353													
2006	1359	1374	1384												
2007	1414	1400	1422	1394											
2008	1404	1427	1460	1427	1427										
2009	1367	1453	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									1278	1335	1358	1322	1180		
2016										1334	1365	1326	1048		
2017											1374	1332	1049		
2018												1332	1047		
2019													1040		

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

Year	Actual	Projected Residential Energy Demand (Year Forecast Was Filed)													
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			
2005	1664	1612													
2006	1611	1636	1659												
2007	1690	1665	1699	1659											
2008	1667	1695	1744	1693	1693										
2009	1634	1723	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								1684	1589	1619	1685	1752			
2016									1588	1625	1691	1689			
2017										1649	1699	1703			
2018											1705	1713			
2019												1714			

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

Year	Actual	Projected Industrial Energy Demand (Year Forecast Was Filed)													
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			
2005	1629	1582													
2006	1708	1558	1565												
2007	1627	1563	1578	1720											
2008	1614	1568	1594	1727	1727										
2009	1229	1569	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									1738	1490	1519	1743	1847		
2016										1490	1488	1739	2079		
2017											1485	1729	2202		
2018												1731	2256		
2019													2278		

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

Year	Actual	Projected Peak Load Requirements (Year Forecast Was Filed)											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
2005	7083	7200											
2006	7577	7290	7310										
2007	7163	7390	7410	7200									
2008	7414	7490	7510	7270	7410								
2009	6845	7580	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									7282	7622	7556	7477	7220
2016										7731	7691	7568	7314
2017											7785	7635	7408
2018												7686	7467
2019													7511

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

Year	Actual	Projected Commercial Energy Demand (Year Forecast Was Filed)											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
2005	13157	12967											
2006	13140	13436	13188										
2007	13756	13946	13562	13184									
2008	13913	14517	13836	13476	13676								
2009	13818	15068	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									11499	14580	14740	14570	14235
2016										14754	14998	14741	14234
2017											15137	14859	14376
2018												14985	14440
2019													14484

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

Year	Actual	Projected Residential Energy Demand (Year Forecast Was Filed)												
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
2005	14218	13950												
2006	13714	14311	14099											
2007	14411	14675	14392	14180										
2008	14419	15019	14555	14422	14469									
2009	14218	15349	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										14335	13738	13602	13644	13647
2016											13896	13695	13769	13720
2017												13678	13814	13732
2018													13908	13781
2019														13790

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

Year	Actual	Projected Industrial Energy Demand (Year Forecast Was Filed)												
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
2005	9720	9750												
2006	9704	9926	9968											
2007	9482	10136	10048	9965										
2008	9551	10349	10084	9999	9625									
2009	8418	10577	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									12686	8550	8281	8171	7966	
2016										8603	8407	8260	8066	
2017											8459	8324	8129	
2018												8365	8168	
2019														8189

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

Year	Actual	Projected Peak Load Requirements (Year Forecast Was Filed)													
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			
2005	8626	8320													
2006	8932	8445	8755												
2007	8549	8571	8887	9066											
2008	8824	8700	9020	9202	8677										
2009	7994	8831	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								8991	9018	8631	8635	8259			
2016									9049	8683	8644	8267			
2017										8735	8653	8275			
2018											8661	8284			
2019												8292			

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

Year	Actual	Projected Commercial Energy Demand (Year Forecast Was Filed)													
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			
2005	8520	8349													
2006	8857	8550	8691												
2007	8892	8755	8864	9034											
2008	8700	8965	9042	9215	9069										
2009	8404	9144	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								9238	8613	7868	7936	8021			
2016									8699	7947	8015	8017			
2017										8026	8096	8013			
2018											8177	8009			
2019												8005			

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

Year	Actual	Projected Residential Energy Demand (Year Forecast Was Filed)													
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			
2005	13469	12385													
2006	12797	12592	13738												
2007	13487	12839	14013	13053											
2008	13317	13179	14293	13314	13757										
2009	12893	13443	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								14896	14083	14608	13346	13288			
2016									14224	14754	13349	13355			
2017										14902	13351	13422			
2018											13354	13489			
2019												13556			

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

Year	Actual	Projected Industrial Energy Demand (Year Forecast Was Filed)													
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			
2005	15774	15449													
2006	15821	15448	16089												
2007	16582	15448	16411	16137											
2008	16534	15448	16739	16460	16914										
2009	15889	15757	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									17142	16232	15949	15844	15302		
2016										16394	16188	16081	15294		
2017											16431	16322	15287		
2018												16567	15279		
2019													15271		

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

Year	Actual	Projected Peak Load Requirements (Year Forecast Was Filed)										
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
2005	3752	3702										
2006	3926	3763	3723									
2007	3838	3812	3782	3813								
2008	3826	3845	3824	3882	3871							
2009	3667	3866	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								3928	3903	3908	3945	3793
2016									3964	3980	4012	3842
2017										4015	4065	3927
2018											4077	4020
2019												4031

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

Year	Actual	Projected Commercial Energy Demand (Year Forecast Was Filed)										
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
2005	4892	4791										
2006	4959	4907	4996									
2007	4998	5006	5092	5083								
2008	4925	5098	5179	5179	5115							
2009	4880	5135	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								5229	5229	4946	4897	4996
2016									5343	4979	4932	4957
2017										5047	4962	5015
2018											4962	5029
2019												5006

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

Year	Actual	Projected Residential Energy Demand (Year Forecast Was Filed)											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
2005	7088	6923											
2006	7133	7047	7164										
2007	7266	7136	7289	7319									
2008	7172	7194	7387	7484	7481								
2009	7101	7189	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									7148	7231	7369	7383	
2016										7281	7431	7303	7157
2017											7493	7319	7244
2018												7335	7298
2019													7303

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

Year	Actual	Projected Industrial Energy Demand (Year Forecast Was Filed)												
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
2005	8051	8027												
2006	8144	8137	8283											
2007	8160	8220	8429	8282										
2008	8135	8311	8543	8411	8311									
2009	7286	8313	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										8346	8487	8542	8161	8053
2016											8608	8786	8331	8492
2017												8878	8466	8903
2018													8495	9321
2019														9700

Appendix B – Plant Additions and Upgrades

The following charts and maps represent PJM interconnection requests for new generating resources located in Pennsylvania⁵⁵. The charts are segregated by renewable and non-renewable fuel sources. Since 1999 through Dec. 31, 2014 PJM has received 737 interconnection requests totaling 131,202 MW for new generating resources or incremental additions to existing resources. This is an increase of an additional 58 interconnection project requests totaling 10,344 MW since 2013. Currently Pennsylvania has 4,629 MW under construction versus 2,134 MW in 2013.

Below the requests for new generating resources is a chart showing the generation deactivations for Pennsylvania from Jan. 1, through Dec. 31, 2014.

⁵⁵ See PJM 2014 RTEP, Book 5, available at <http://www.pjm.com/documents/reports/rtep-documents/2014-rtep.aspx>

PJM Generation Queue for Pennsylvania – Renewable Fuels (December 31, 2014)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
R43	Frackville - Hauto #3	20	4	Under Construction	6/1/2015	PPL	Wind
T121	Potter-Gold 115 kV	75	15	Active	12/31/2016	PENELEC	Wind
U2-015	Harwood-E. Palmerton 230 kV	100	13	Under Construction	4/30/2015	PPL	Wind
U2-073	Frostburg 138 kV II	200	26	Suspended	12/15/2014	APS	Wind
U2-076	Falls	10	10	Suspended	3/1/2011	PECO	Methane
V3-040	Siegfried-Hauto 69 kV	10	3.8	Suspended	4/1/2014	PPL	Solar
V3-041	Daleville	4	3.2	Under Construction	11/1/2011	PECO	Methane
W1-045	Roxbury 23 kV	13.5	5.13	Under Construction	9/1/2016	PENELEC	Solar
W1-114	Port Carbon	3	1.14	Under Construction	12/31/2013	PPL	Solar
W1-115	Tamanend	3	1.14	Under Construction	6/30/2014	PPL	Solar
W2-094	Straban 13.2 kV	3	1.1	Active	6/30/2012	ME	Solar
W3-022	Frackville-Eldred No. 1 230 kV	150	19.5	Suspended	12/31/2016	PPL	Wind
W3-099	Erie East-Erie South 230 kV	100	13	Under Construction	8/31/2017	PENELEC	Wind
X2-031	Krayn 115 kV	50	6.5	Suspended	12/31/2015	PENELEC	Wind
Y1-033	Penn Mar-Rock Wood 115 kV	38.3	4.98	Suspended	12/31/2015	PENELEC	Wind
Y1-027	Belmon 12.5 kV	4	1.52	Suspended	12/31/2016	APS	Methane
Y2-098	Freemansburg No. 1 12 kV	5	5	Under Construction	11/1/2012	PPL	Methane
Y3-041	Peckville-Jackson 69 kV	62	8	Active	12/31/2017	PPL	Wind
Z1-087	Glade 230 kV	508	40	Active	12/31/2015	PENELEC	Hydro
Z1-088	Allegheny Dam 5	8	5	Active	10/31/2013	APS	Hydro
Z1-089	Allegheny Dam 6 138 kV	9	5	Active	10/31/2013	APS	Hydro
Z1-069	Gold-Sabinsville 115 kV	70	13.3	Active	12/30/2017	PENELEC	Wind
Z2-009	East Hazelton-Harwood 69 kV	67.5	8.48	Active	12/31/2016	PPL	Wind
Z2-013	Frostburg 138 kV	200	7	Active	12/31/2014	APS	Wind
Z2-014	St. Benedict-Patton	30	5.25	Active	12/31/2015	PENELEC	Wind
Z2-101	Frackville-Fishbach 69 kV	67.5	8.78	Active	12/31/2016	PPL	Wind
AA1-037	Piney Hydro 34.5 kV	33.26	5.26	Active	6/1/2015	PENELEC	Hydro
AA1-046	Somerset-Allegheny 115 kV	80	10.4	Active	12/1/2017	PENELEC	Wind
AA1-057	Sunbury-Milton 69 kV	16	16	Active	6/1/2015	PPL	Wood
AA1-077	Lackawanna 230 kV	1483	44	Active	6/1/2017	PPL	Solar
AA1-085	Moshannon-Milesburg 230 kV	90	11.7	Active	10/1/2017	APS	Wind
AA1-113	Frackville-Hauto 69 kV	68	8.8	Active	12/30/2017	PPL	Wind
AA1-114	East Hazelton-Harwood 69 kV	68	8.8	Active	12/30/2017	PPL	Wind
AA1-103	East Palmerton-Harwood 230 kV	212.5	27	Active	6/1/2016	PPL	Wind
AA1-112	Westmoreland 25 kV	7.2	4	Active	8/7/2015	APS	Methane
AA2-017	East Palmerton-Wagner	99	12.9	Active	12/31/2018	PPL	Wind

Active: project is being studied for feasibility, impact, or facilities phase

MW: existing generation, plus new generation

MWC: new generation

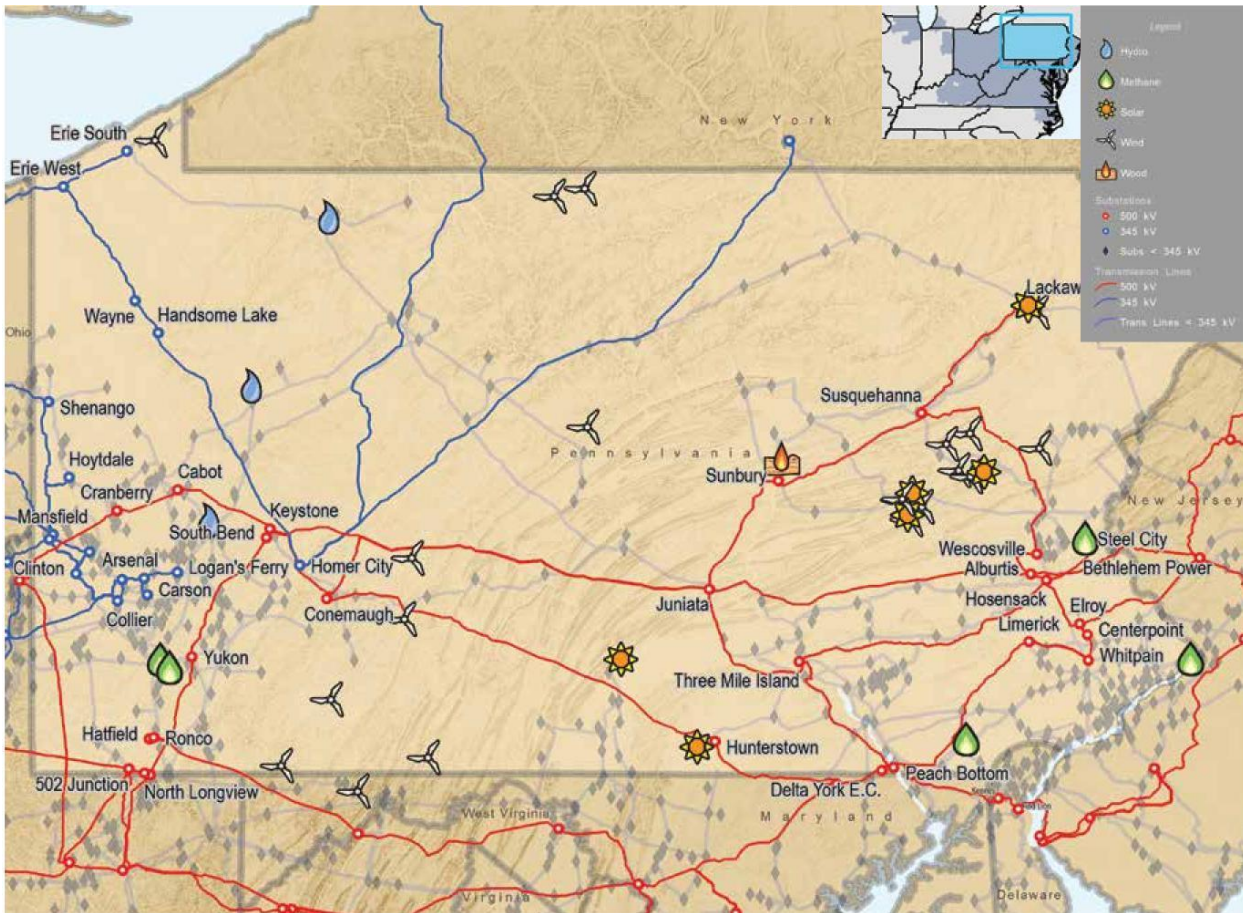
UC: under construction

ISP: partially in service

IS-NC: in service, no capacity

PJM Generation Queue for Pennsylvania – Renewable Fuels (cont'd)

Location of renewable fuel queued generation interconnection requests in Pennsylvania



PJM Generation Queue for Pennsylvania – Non-Renewable Fuels (December 31, 2014)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
T174	Yukon Hatfield	930	900	Under Construction	6/1/2018	APS	Natural Gas
T182	TMI 230 kV	845	24	Active	1/31/2008	ME	Nuclear
V4-045	Peach Bottom	2,722	320	Active	10/3/2015	PECO	Nuclear
W2-028	Limerick No. 1	1,218	5	Active	12/31/2014	PECO	Nuclear
W2-029	Limerick No. 2	1,218	5	Active	12/31/2014	PECO	Nuclear
X1-109	E. Towanda 230 kV	850	765	Under Construction	2/29/2016	PENELEC	Natural Gas
X2-012	Clinton 230 kV	850	765	Under Construction	7/30/2016	PPL	Natural Gas
X2-025	Sunbury 500 kV	416	416	Under Construction	9/1/2017	PPL	Natural Gas
X3-081	Upper Darby 13 kV	0.5	0	Under Construction	12/30/2012	PECO	Natural Gas
X4-019	Sunbury 500 kV	643	227	Under Construction	9/1/2017	PPL	Natural Gas
X4-027	Linwood 230 kV	852	35	Under Construction	6/1/2016	PECO	Natural Gas
X4-048	Lackawanna 230 kV	1,000	1,000	Under Construction	12/31/2017	PPL	Natural Gas
Y1-071	Burma 25 kV	6	6	Suspended	6/1/2015	APS	Natural Gas
Y1-047	North Meshoppen 34.5 kV	15.4	15.4	Under Construction	4/1/2015	PENELEC	Natural Gas
Y2-015	Eldred-Frackville No. 1 230 kV	344	337	Active	7/4/2015	PPL	Natural Gas
Y2-042	Oxbow 25 kV	18.3	18.3	Under Construction	6/1/2015	PENELEC	Natural Gas
Y2-055	Elm Street 34.5 kV	29	29	Active	7/1/2015	PENELEC	Natural Gas
Y2-060	North Meshoppen 34.5 kV II	18.9	3.5	Under Construction	4/1/2015	PENELEC	Natural Gas
Y2-064	Printz	606.5	19	Active	9/30/2014	PECO	Natural Gas
Y2-063	Eldred-Frackville #2 230 kV	344	337	Active	12/31/2015	PPL	Natural Gas
Y2-088	Garards Fort 25 kV	19.9	19.9	Suspended	6/30/2015	APS	Natural Gas
Y2-089	Lackawanna 230 kV	1,370	370	Active	6/1/2015	PPL	Natural Gas
Y2-080	Rhodes Lane 500 kV	1,065	1,065	Active	6/1/2017	APS	Natural Gas
Y3-043	Peach Bottom 500 kV	760	760	Active	6/1/2017	PECO	Natural Gas
Y3-103	Valley-Raccoon 138 kV	205	97	Active	5/1/2018	DL	Natural Gas
Y3-109	Nyswaner 25 kV	19.9	19.9	Under Construction	12/31/2016	APS	Natural Gas
Y3-104	Sullivan Trail-Stanton 69 kV	20	0	Active	1/1/2015	PPL	Storage
Z1-015	Springdale 3, 4, 5	590	26	Active	6/1/2015	APS	Natural Gas
Z1-038	Florey Knob 34.5 kV	19.9	19.9	Active	1/1/2015	PENELEC	Natural Gas
Z1-055	South Bend 500 kV	714	10	Active	6/1/2016	APS	Natural Gas
Z1-056	South Bend 500 kV	720	6	Active	6/1/2016	APS	Natural Gas
Z1-066	Arnold 34.5 kV	19.9	0	Active	12/31/2015	PENELEC	Storage
Z1-090	Sunbury 500 kV	381	381	Active	1/27/2017	PPL	Natural Gas
Z1-098	Peckville-Jackson 69 kV	20	0	Suspended	1/1/2015	PPL	Storage
Z1-091	Lenox 34 kV	19.9	19.9	Active	7/1/2015	PENELEC	Natural Gas
Z1-092	Milan 34 kV	19.9	19.9	Active	7/1/2015	PENELEC	Natural Gas
Z1-105	Emlenton 34.5 kV	19.9	19.9	Active	7/1/2015	PENELEC	Natural Gas
Z1-110	Grover 34 kV	19.9	19.9	Active	7/1/2015	PENELEC	Natural Gas
Z2-011	Canton 34.5 kV	19.9	19.9	Active	1/1/2016	PENELEC	Natural Gas
Z2-026	North Temple 230 kV	800	800	Active	6/1/2018	ME	Natural Gas
Z2-046	Susquehanna-Lackawanna 500 kV	1,050	900	Active	6/30/2018	PPL	Natural Gas
Z2-064	Smith-N. Fayette 138 kV	651	600	Active	6/1/2018	APS	Natural Gas
Z2-103	North Meshoppen 34.5 kV III	19.9	1	Active	4/1/2015	PENELEC	Natural Gas

PJM Generation Queue for Pennsylvania – Non-Renewable Fuels (cont'd)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
Z2-104	Oxbow 25 kV II	19.9	1.6	Active	6/1/2015	PENELEC	Natural Gas
Z2-105	Bell-Mariana 25 kV	19.9	19.9	Under Construction	7/1/2016	APS	Natural Gas
Z2-106	Washington-Bell 25 kV	19.9	19.9	Under Construction	7/1/2016	APS	Natural Gas
Z2-108	Meyersdale North 115 kV	48	0	Active	12/30/2015	PENELEC	Storage
Z2-107	East Carbondale-Lackawanna 24 kV	84.5	0	Active	12/30/2015	PPL	Storage
AA1-015	Fayette II	625	5	Active	6/1/2015	APS	Natural Gas
AA1-016	Portland 1	158	158	Active	6/1/2016	ME	Oil
AA1-034	Peach Bottom 500 kV	880	120	Active	6/1/2017	PECO	Natural Gas
AA1-017	Portland 2	243	243	Active	6/1/2016	ME	Oil
AA1-036	Mountain 230 kV	180	180	Active	6/1/2017	UGI	Natural Gas
AA1-041	Tioga 34.5 kV	19.9	19.9	Active	6/1/2016	PENELEC	Natural Gas
AA1-042	Ontelaunee	574	52.5	Active	11/4/2016	ME	Natural Gas
AA1-043	Ontelaunee	613	39	Active	11/4/2016	ME	Natural Gas
AA1-044	Shenango-Hoytdale 345 kV	1,000	870	Active	6/1/2018	ATSI	Natural Gas
AA1-045	McConnellsburg-Guilford 138 kV	400	400	Active	12/18/2015	APS	Natural Gas
AA1-066	Susquehanna-Lackawanna 500 kV	1,050	80	Active	6/30/2018	PPL	Natural Gas
AA1-070	Hatfield 500 kV	1,710	1,590	Active	10/1/2016	APS	Coal
AA1-076	Hunterstown-Conemaugh 500 kV	1,050	1,000	Active	10/1/2019	PENELEC	Natural Gas
AA1-079	Emilie 230 kV	1,342	74	Active	6/1/2015	PECO	Natural Gas
AA1-082	E. Towanda 230 kV	925	75	Active	12/1/2015	PENELEC	Natural Gas
AA1-131	N. Towanda 34.5 kV	8	5	Active	3/1/2016	PENELEC	Natural Gas
AA1-106	Grover II 34.5 kV	19.9	19.9	Active	12/31/2016	PENELEC	Natural Gas
AA2-008	Sagers 230 kV	925	0	Active	7/1/2015	PPL	Natural Gas
AA1-111	Moshannon-East Towanda 230 kV	926	926	Active	10/31/2019	PENELEC	Natural Gas
AA1-115	Summit-WestFall 115 kV	20	0	Active	6/1/2016	PENELEC	Storage
AA1-144	East Towanda-Grover 230 kV	163	163	Active	12/29/2017	PENELEC	Natural Gas

Active: project is being studied for feasibility, impact, or facilities phase

MW: existing generation, plus new generation

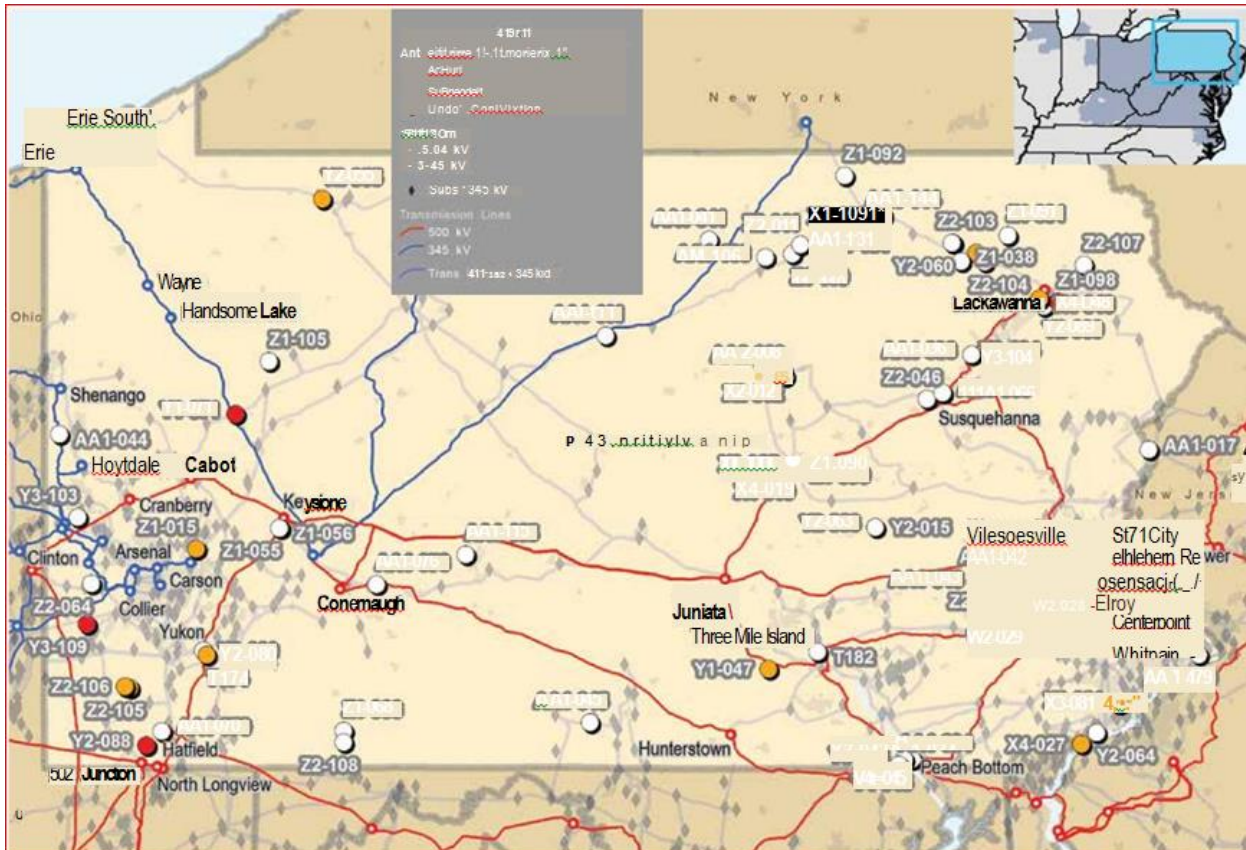
MWC: new generation

UC: under construction

ISP: partially in service

IS-NC: in service, no capacity

PJM Generation Queue for Pennsylvania – Non-Renewable Fuels (cont'd)
Location of non-renewable fuel queued generation interconnection requests in Pennsylvania



2014 Generation Deactivations in Pennsylvania

Unit	Capacity	TO Zone	Age (Years)	Official Owner Request	Stated Deactivation Date	Actual / Projected Deactivation Date
Sunbury 3	94	PPL	62	4/14/2014*	7/18/2014	7/18/2014 Actual
Sunbury 1	80	PPL	64	4/14/2014*	7/18/2014	7/18/2014 Actual
Sunbury 2	80	PPL	64	4/14/2014*	7/18/2014	7/18/2014 Actual
Sunbury 4	128	PPL	60	4/14/2014*	7/18/2014	7/18/2014 Actual
Modern Power Landfill NUG	0	MetEd	15	1/7/2014	4/8/2014	2/3/2014 Actual

Note: * Indicates updated deactivation notice submitted in 2014. Original deactivation notice had previously been submitted.

Appendix C – Existing Generating Facilities

Table C-1 shows the PJM electricity supply mix summary of generating capacity by fuel type for 2014.⁵⁶ The available Capacity Mix shows and the distribution of actual generation capacity utilized for 2013 and 2014.

Table C-2 shows the most recently available data on existing generating facilities located in Pennsylvania.⁵⁷

Table C-1 Electrical Power Supply Mix

Electricity Supply Mix PJM Region Supply Mix for 2013 & 2014 (percent)				
Energy Source	2014 Capacity	2013 Capacity	2014 Generation	2013 Generation
Coal	39.7	41.3	43.5	44.3
Nuclear	17.9	18.1	34.3	34.8
Natural Gas	30.7	29.2	17.3	16.3
Hydro, Wind, & Other	5.7	5.3	4.4	4.3
Oil	6	6.2	0.4	0.2

⁵⁶ See State of the Market Report, Monitoring Analytics, available at http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2014.shtml

⁵⁷ Data reported to SNL and received by PUC staff on Aug. 7, 2015.

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	3.25	2013	2	Biomass	
	Hamilton	NRG REMA LLC	NRG Energy, Inc.	100	24	1971	44	Oil	
	Hunterstown	NRG REMA LLC	NRG Energy, Inc.	100	75	1971	44	Oil	
	Hunterstown CC	GenOn Energy Wholesale Generation, LLC	NRG Energy, Inc.	100	810	2003	12	Gas	
	Orrtanna	NRG REMA LLC	NRG Energy, Inc.	100	26	1971	44	Oil	
Allegheny	Allegheny Energy 3, 4 and 5	Allegheny Energy Supply Company, LLC	FirstEnergy Corp.	100	550	2003	12	Gas	
	Allegheny Energy Units 1 and 2	Allegheny Energy Supply Company, LLC	FirstEnergy Corp.	100	88	1999	16	Gas	
	Brunot Island	Orion Power Holdings, Inc.	NRG Energy, Inc.	100	15	1972	43	Oil	
	Brunot Island CC	NRG Power Midwest LP.	NRG Energy, Inc.	100	235	1973	42	Gas	
	Cheswick	NRG Power Midwest LP.	NRG Energy, Inc.	100	563	1970	45	Coal	
	Clairton Works	United States Steel Corporation	United States Steel Corporation	100	27.4	1955	60	Nonrenewable	
	Green Mountain Solar	Sun Power Electric	Conservation Services Group	100	0.03	2001	14	Solar	
	Mon Valley Works	United States Steel Corporation	United States Steel Corporation	100	61.9	1943	72	Nonrenewable	
	PPG Monroeville Chemicals Center	PPG Monroeville Chemicals Center	PPG Industries, Incorporated	100	1.1	1998	17	Oil	
	PPG Place	PPG Industries, Incorporated	PPG Industries, Incorporated	100	2.3	1990	25	Oil	
Armstrong	Allegheny 5	Enduring Hydro LLC	Enduring Hydro LLC	1	10	1988	27	Water	
		I Squared Capital	I Squared Capital	99					
	Allegheny 6	Enduring Hydro LLC	Enduring Hydro LLC	1	12	1988	27	Water	
		I Squared Capital	I Squared Capital	99					
	Allegheny 8	EIF United States Power Fund IV, L.P.	Northbrook Energy, LLC	Ares Owners Holdings, L.P.	94	13.6	1990	25	Water
			NEO Corporation	NEO Corporation	3				
			Northbrook Energy, LLC	NEO Corporation	3				
	Allegheny 9	EIF United States Power Fund IV, L.P.	Northbrook Energy, LLC	Ares Owners Holdings, L.P.	94	17.8	1990	25	Water
			NEO Corporation	NEO Corporation	3				
			Northbrook Energy, LLC	NEO Corporation	3				
	Armstrong County Keystone	International Power America, Inc.	ArcLight Capital Partners, LLC	ArcLight Capital Holdings, LLC	44.45	676	2002	13	Gas
			NRG Northeast Generating LLC	NRG Energy, Inc.	3.7				
			NRG REMA LLC	NRG Energy, Inc.	16.67				
			PSEG Fossil LLC	Public Service Enterprise Group Incorporated	22.84				
			Talen Energy Corporation	Talen Energy Corporation	12.34				
Keystone IC		Constellation Power Source Generation LLC	Exelon Corporation	41.98	1700	1967	48	Coal	
		Duquesne Light Holdings, Inc.	Duquesne Light Holdings, Inc.	2.47					
		NRG Northeast Generating LLC	NRG Energy, Inc.	3.7					
		NRG REMA LLC	NRG Energy, Inc.	16.67					
		PSEG Fossil LLC	Public Service Enterprise Group Incorporated	22.84					
Mahoning Creek	Talen Energy Corporation	Talen Energy Corporation	12.34	11.2	1968	47	Oil		
	Enduring Hydro LLC	Enduring Hydro LLC	51						
	I Squared Capital	I Squared Capital	49						
Beaver	Beaver Valley	FirstEnergy Nuclear Generation Corp.	FirstEnergy Corp.	86.58	1872	1976	39	Nuclear	
		Ohio Edison Company	FirstEnergy Corp.	4.32					
	Beaver Valley Patterson Dam	Toledo Edison Company	FirstEnergy Corp.	9.1	1.2	1982	33	Water	
		Enel Green Power North America, Inc.	Enel Green Power S.p.A	31.7					
	Bruce Mansfield Townsend Hydro	FirstEnergy Generation, LLC	FirstEnergy Corp.	100	2510	1976	39	Coal	
	Beaver Falls Municipal Authority	Beaver Falls Municipal Authority	100	4.2	1987	28	Water		
Berks	Altairano PJM Li-ion Battery Storage Project	AES Energy Storage, LLC	AES Corporation	100	1	2009	6	Nonrenewable	
	Evergreen Community Power Plant	Evergreen Community Power LLC	Interstate Resources, Inc.	100	25	2009	6	Biomass	
	Morgantown Solar Park	Hankin Group	Hankin Group	100	1.6	2011	4	Solar	
	Ontelaunee Energy Center	Dynegy Power, LLC	Dynegy Inc.	100	599	2002	13	Gas	
	Pioneer Crossing Landfill	Green Gas Americas, Inc.	Green Gas International B.V.	100	8	2008	7	Biomass	
	Titus CT	NRG REMA LLC	NRG Energy, Inc.	100	35	1967	48	Oil	
Blair	Allegheny Ridge Wind Farm	Infigen Energy Limited	Infigen Energy Limited	100	80	2007	8	Wind	
	American Eagle Paper Mills	Team Ten LLC	Team Ten LLC	100	17.1	1929	86	Coal	
	Chestnut Flats Windfarm	EDF Renewable Energy, Inc.	EDF Group	100	38	2011	4	Wind	
	Juniata Locomotive Shop	Norfolk Southern Corporation	Norfolk Southern Corporation	100	1.2	1955	60	Coal	
	North Allegheny Wind	Duke Energy Renewables, Inc.	Duke Energy Corporation	100	70	2009	6	Wind	
	Sandy Ridge Wind Farm	Algonquin Power Fund (America) Inc.	Algonquin Power & Utilities Corp.	100	48.2	2012	3	Wind	
Bradford	Armenia Mountain Wind	ALLETE Clean Energy	ALLETE, Inc.	100	100.5	2009	6	Wind	
	Northern Tier Landfill	Talen Renewable Energy	Talen Energy Corporation	100	1.6	2009	6	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
Bucks	Croydon	Exelon Generation Company, LLC	Exelon Corporation	100	512	1974	41	Oil
	Exelon-Conergy Solar Energy Center	MF Mesa Lane, LLC	Conergy AG	100	1.5	2008	7	Solar
	Fairless Hills Steam Generating Station	Exelon Generation Company, LLC	Exelon Corporation	100	60	1996	19	Biomass
	Fairless Works Energy Center	Dominion Energy, Inc.	Dominion Resources, Inc.	100	1276.4	2004	11	Gas
	Falls	Exelon Generation Company, LLC	Exelon Corporation	100	60	1970	45	Oil
	Pennsbury Generating Station	Exelon Generation Company, LLC	Exelon Corporation	100	5.4	1996	19	Biomass
	Tullytown Landfill Gas Facility	WM Renewable Energy, LLC	Waste Management, Inc.	100	1.6	2013	2	Biomass
Cambria	Cambria Cogeneration	Gulf Pacific Power LLC	Harbert Management Corporation	37.5	87.5	1991	24	Coal
		Harbert Power Fund V, LLC	Harbert Management Corporation	12.5				
		UBS Global Asset Management	UBS AG	1.27				
	Colver Power Project	Constellation Power, Inc.	Exelon Corporation	48.73	110	1995	20	Coal
		Gulf Pacific Power LLC	Harbert Management Corporation	25				
		Harbert Power Fund V, LLC	Harbert Management Corporation	28.12				
		UBS Global Asset Management	UBS AG	9.38				
	Ebensburg Power Company	Babcock & Wilcox Equity Investments, LLC	Babcock & Wilcox Company	0.95	50	1991	24	Coal
	Highland North Wind Farm	Everpower Wind Holdings, Inc.	Terra Firma Capital Partners Ltd.	36.55				
	Highland Wind Project	Everpower Wind Holdings, Inc.	Terra Firma Capital Partners Ltd.	100	75	2012	3	Wind
Patton Wind Farm	Everpower Wind Holdings, Inc.	Terra Firma Capital Partners Ltd.	100	62.5	2009	6	Wind	
Carbon	PA Solar Park Project	Consolidated Edison Development, Inc.	Consolidated Edison, Inc.	100	30	2012	3	Wind
	Panther Creek	ArcLight Energy Partners Fund IV, L. P.	ArcLight Capital Holdings, LLC	100	10	2012	3	Solar
		Olympus Power, LLC	Olympus Holdings, LLC	75	83	1992	23	Coal
Centre	East Campus Plant	Pennsylvania State University	Pennsylvania State University	25	8.4	2011	4	Gas
Chester	Aqua Ingrams Mill Solar	Aqua Pennsylvania Inc.	Aqua America Inc.	100	0.4	2009	6	Solar
	Longwood Gardens Solar Plant	Ecogy Pennsylvania Systems, LLC	Ecogy Pennsylvania Systems, LLC	100	1.3	2010	5	Solar
	Marlboro Mushrooms Solar Field	Marlborough Mushrooms	Marlborough Mushrooms	100	1	2011	4	Solar
	Pickering Solar	Aqua America Inc.	Aqua America Inc.	100	1.4	2012	3	Solar
	SECCRA Community Landfill	Southeastern Chester County Refuse Authority	Southeastern Chester County Refuse Authority	100	2.5	2007	8	Biomass
Clarion	Piney	Brookfield Renewable Energy Partners L.P.	Brookfield Asset Management Inc.	62	28	1924	91	Water
			Brookfield Renewable Energy Partners L.P.	38				
Clearfield	Shawville	NRG REMA LLC	NRG Energy, Inc.	100	588	1954	61	Coal
	Shawville IC	NRG REMA LLC	NRG Energy, Inc.	100	6	1960	55	Oil
Clinton	Lock Haven	Talen Energy Supply, LLC	Talen Energy Corporation	100	14	1969	46	Oil
Cumberland	Carlisle Area School District	Carlisle Area School District	Carlisle Area School District	100	1.3	2010	5	Solar
	Knouse Foods Solar Plant	Knouse Foods Cooperative Inc	Knouse Foods Cooperative Inc	100	3	2010	5	Solar
	Mountain	NRG REMA LLC	NRG Energy, Inc.	100	50	1972	43	Oil
	PPG Industries Works 6 IC Facility	PPG Industries, Incorporated	PPG Industries, Incorporated	100	5	1972	43	Oil
	Shippensburg (Cumberland County) Landfill	Talen Renewable Energy	Talen Energy Corporation	100	6.4	2009	6	Biomass
	West Shore	Talen Energy Supply, LLC	Talen Energy Corporation	100	28	1969	46	Oil
Dauphin	Harrisburg	Talen Energy Supply, LLC	Talen Energy Corporation	100	56	1967	48	Oil
	Paxton Creek Cogeneration	NRG Yield, Inc.	NRG Energy, Inc.	55.3	12	1986	29	Gas
			NRG Yield, Inc.	44.7				
Susquehanna Resource Management Complex (Harrisburg Facility Cogen)	Three Mile Island	Lancaster County Solid Waste Management Authority	Lancaster County Solid Waste Management Authority	100	21.8	1986	29	Biomass
		Exelon Generation Company, LLC	Exelon Corporation	100	829	1974	41	Nuclear
Delaware	Chester	Exelon Generation Company, LLC	Exelon Corporation	100	54	1969	46	Oil
	Chester Operations	Kimberly-Clark Corporation	Kimberly-Clark Corporation	100	67	1986	29	Coal
	Delaware County Resource Recovery Facility	Covanta Energy Corporation	Covanta Holding Corporation	100	80	1991	24	Biomass
	Eddystone 3-4	Exelon Generation Company, LLC	Exelon Corporation	100	760	1974	41	Oil
	Eddystone CT	Exelon Generation Company, LLC	Exelon Corporation	100	76	1967	48	Oil
	Liberty Electric Power	Equipower Resources Corp.	Dynegy Inc.	100	541	2002	13	Gas
	Marcus Hook	NextEra Energy Resources LLC	NextEra Energy, Inc.	100	821.9	2004	11	Gas
	Marcus Hook Cogeneration	NextEra Energy Resources LLC	NextEra Energy, Inc.	100	50	1987	28	Gas
Elk	Johnsonburg Mill	Domtar Paper Company, LLC	Domtar Corp.	100	49	1993	22	Biomass
Erie	Erie Coke Corporation	Erie Coke Corporation	Erie Coke Corporation	100	1.3	1953	62	Nonrenewable
	Lakeview Gas Recovery	WM Renewable Energy, LLC	Waste Management, Inc.	100	6	1997	18	Biomass
Fayette	Allegheny Energy Units 8 and 9	Allegheny Energy Supply Company, LLC	FirstEnergy Corp.	100	88	2000	15	Gas
	Fayette Energy Facility	Dynegy Inc.	Dynegy Inc.	100	649	2003	12	Gas
	Mill Run Wind Farm	NextEra Energy Resources LLC	NextEra Energy, Inc.	100	15	2001	14	Wind
	South Chestnut Wind Project	Iberdrola Renewables, LLC	Iberdrola, S.A.	100	50.4	2012	3	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
Franklin	Chambersburg Unit 12, 13	Allegheny Energy Supply Company, LLC	FirstEnergy Corp.	100	88	2001	14	Gas
	Falling Spring	Chambersburg Borough of	Chambersburg Borough of	100	7.1	1967	48	Gas
	IESI Blue Ridge Landfill	Talen Renewable Energy	Talen Energy Corporation	100	6.4	2013	2	Biomass
	Mountain View Landfill	CCI Power Holdings LLC	Castleton Commodities International, LLC	12.31				
				Energy Trading Innovations LLC	87.69	14.4	2003	12
	Orchard Park	Chambersburg Borough of	Chambersburg Borough of	100	23.2	2003	12	Gas
Huntingdon	Warrior Ridge Hydroelectric	American Hydro Power Co.	American Hydro Power Co.	100	2.8	1985	30	Water
Indiana	Conemaugh	ArcLight Capital Partners, LLC	ArcLight Capital Holdings, LLC	35.11	1700	1970	45	Coal
		NRG Northeast Generating LLC	NRG Energy, Inc.	3.72				
		NRG REMA LLC	NRG Energy, Inc.	16.45				
		PSEG Fossil LLC	Public Service Enterprise Group Incorporated	22.5				
	Conemaugh IC	Talen Energy Corporation	Talen Energy Corporation	16.25				
		UGI Development Company	UGI Corporation	5.97				
		Constellation Power Source Generation LLC	Exelon Corporation	31.28				
		Duquesne Light Holdings, Inc.	Duquesne Light Holdings, Inc.	3.83				
	Homer City	NRG Northeast Generating LLC	NRG Energy, Inc.	3.72				
		NRG REMA LLC	NRG Energy, Inc.	16.45				
PSEG Fossil LLC		Public Service Enterprise Group Incorporated	22.5					
Talen Energy Corporation		Talen Energy Corporation	16.25					
UGI Development Company		UGI Corporation	5.97					
General Electric Capital Corporation		General Electric Company	90					
Indiana University of Pennsylvania	Metropolitan Life Insurance Company	MetLife, Inc.	10	1901.7	1969	46	Coal	
	Indiana University of Pennsylvania	Indiana University of Pennsylvania	100	24	1988	27	Gas	
Seward Waste Coal	GenOn Energy Wholesale Generation, LLC	NRG Energy, Inc.	100	521	2004	11	Coal	
Lackawanna	Archbald Cogeneration	PEI Power Corporation	Energy Transfer Partners, L.P.	100	20	1988	27	Biomass
	Archbald Power Station	PEI Power Corporation	Energy Transfer Partners, L.P.	100	59.2	2001	14	Gas
	Keystone Landfill	Keystone Recovery Inc	Keystone Recovery Inc	100	4.9	1995	20	Biomass
Lancaster	Dart Container Corp Cogen	Dart Container Corp.	Dart Container Corp.	100	10.4	2012	3	Biomass
	Frey Farm Landfill	Talen Renewable Energy	Talen Energy Corporation	100	3.2	2006	9	Biomass
	Holtwood Hydroelectric Plant	Talen Energy Corporation	Talen Energy Corporation	100	248.7	1910	105	Water
	Honey Brook Generating Station (Granger)	Granger Energy of Honey Brook, L.L.C.	Granger Electric Co	100	3.2	2006	9	Biomass
	Keystone Solar Project	Bright Plain Renewable Energy, LLC	Bright Plain Renewable Energy, LLC	50				
		D. E. Shaw Renewable Investments, LLC	D. E. Shaw & Co., L.P.	50	5	2012	3	Solar
	Lancaster County Resource Recovery	Lancaster County Solid Waste Management Authority	Lancaster County Solid Waste Management Authority	100	32.4	1990	25	Biomass
	Martin Limestone Solar Array Plant	Sunstream Energy LLC	Sunstream Energy LLC	100	1	2012	3	Solar
	Muddy Run Pumped Storage Facility	Exelon Generation Company, LLC	Exelon Corporation	100	1070	1967	48	Water
	Safe Harbor	Brookfield Renewable Energy Partners L.P.	Brookfield Asset Management Inc.	62				
		Brookfield Renewable Energy Partners L.P.	38	417.5	1931	84	Water	
	Turkey Point Wind Project (Frey Farm Wind)	Talen Renewable Energy	Talen Energy Corporation	100	3.2	2011	4	Wind
Lawrence	New Castle	NRG Power Midwest LP.	NRG Energy, Inc.	100	320	1939	76	Coal
	New Castle IC	Orion Power Holdings, Inc.	NRG Energy, Inc.	100	2.5	1968	47	Oil
Lebanon	Greater Lebanon Refuse Authority Landfill	Talen Renewable Energy	Talen Energy Corporation	100	3.2	2007	8	Biomass
	PPL Ironwood	Talen Energy Supply, LLC	Talen Energy Corporation	100	660.1	2001	14	Gas
Lehigh	Air Products Solar (Trexlerstown Solar)	Air Products Energy Enterprises, L.P.	Air Products and Chemicals, Inc.	100	1.9	2011	4	Solar
	Allentown	Talen Energy Supply, LLC	Talen Energy Corporation	100	56	1967	48	Oil
Luzerne	AE Hunlock 4	Allegheny Energy Supply Company, LLC	FirstEnergy Corp.	100	45	2000	15	Gas
	Bear Creek Wind Project	Central Hudson Enterprises Corporation	Fortis Inc.	8.85				
		Community Energy, Inc.	Community Energy, Inc.	8.85				
		Infigen Energy Limited	Infigen Energy Limited	26.3				
		JPMorgan Chase & Co.	JPMorgan Chase & Co.	56	24	2006	9	Wind
	Harwood	Talen Energy Supply, LLC	Talen Energy Corporation	100	27	1967	48	Oil
	Hazle Township Flywheel Energy Storage	Beacon Power LLC	Rockland Capital, LLC	100	20	2013	2	Nonrenewable
	Hazleton Cogeneration	Starwood Energy Group Global, LLC	Starwood Energy Group Global, LLC	100	152.2	1989	26	Gas
	Hunlock Repowering	UGI Development Company	UGI Corporation	100	128.1	2011	4	Gas
	Jenkins	Talen Energy Supply, LLC	Talen Energy Corporation	100	27.6	1969	46	Oil
	MATS Wind	Electric City Wind Power Corporation	Electric City Wind Power Corporation	100	0.55	2008	7	Wind
	Romark PA Solar	Romark Logistics of PA Inc	Romark Logistics of PA Inc	100	1.8	2011	4	Solar
	Susquehanna Nuclear	Allegheny Electric Cooperative Inc.	Allegheny Electric Cooperative Inc.	10				
	Talen Energy Corporation	Talen Energy Corporation	90	2620	1983	32	Nuclear	
Lycoming	Allenwood (PPLRE Lycoming County Landfill Project)	Talen Renewable Energy	Talen Energy Corporation	100	3.2	2012	3	Biomass
	Laurel Hill	Duke Energy Renewables, Inc.	Duke Energy Corporation	100	69	2012	3	Wind
	Lycoming County Landfill Project (PPL Renewable)	Talen Renewable Energy	Talen Energy Corporation	100	3	2012	3	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
Mercer	General Electric Company	General Electric Company	General Electric Company	100	4.3	1984	31	Oil
Monroe	Pocono Raceway Solar Project	Pocono International Raceway, Inc.	Pocono International Raceway, Inc.	100	3	2010	5	Solar
	Shawnee CT	NRG REMA LLC	NRG Energy, Inc.	100	24	1972	43	Oil
Montgomery	500 Virginia Solar	500 Virginia Solar, LP	500 Virginia Solar, LP	100	1	2011	4	Solar
	Conshohocken -Solar	Sun Power Electric	Conservation Services Group	100	0.06	1999	16	Solar
	Covanta Plymouth (Montenay Montgomery)	Covanta Plymouth Renewable Energy L.P.	Covanta Holding Corporation	100	28	1991	24	Biomass
	Hill at Whitmarsh	Talen Renewable Energy	Talen Energy Corporation	100	1.6	2007	8	Gas
	Limerick	Exelon Generation Company, LLC	Exelon Corporation	100	2386	1986	29	Nuclear
	Moser	Exelon Generation Company, LLC	Exelon Corporation	100	60	1970	45	Oil
	Spring House IC Plant	Janssen Pharmaceuticals, Inc.	Johnson & Johnson	100	3.8	2013	2	Gas
	Stowe	Waste Management, Inc.	Waste Management, Inc.	100	3	1989	26	Biomass
	West Point Facility	Merck & Company, Inc.	Merck & Company, Inc.	100	66	1989	26	Gas
	West Point Facility IC	Merck & Company, Inc.	Merck & Company, Inc.	100	11	1972	43	Oil
Montour	Montour	Talen Energy Corporation	Talen Energy Corporation	100	1516	1971	44	Coal
Northampton	Bethlehem CC	Conectiv Bethlehem LLC	Calpine Corporation	100	1130	2002	13	Gas
	Bethlehem Landfill	Commonwealth Landfill Gas	Commonwealth Landfill Gas	20				
		Pepco Energy Services, Inc.	Pepco Holdings, Inc.	80	5.4	2008	7	Biomass
	Crayola Solar Park	Talen Renewable Energy	Talen Energy Corporation	50				
		UGI Development Company	UGI Corporation	50	2.8	2010	5	Solar
	Glendon Plant	Talen Renewable Energy	Talen Energy Corporation	100	3.2	2011	4	Biomass
	Green Knight Energy Center	Waste Management, Inc.	Waste Management, Inc.	100	8.7	2001	14	Biomass
	Lower Mount Bethel	Talen Energy Corporation	Talen Energy Corporation	100	537.5	2004	11	Gas
	Martins Creek 3 and 4	Talen Energy Corporation	Talen Energy Corporation	100	1700	1975	40	Gas
	Martins Creek CT	Talen Energy Corporation	Talen Energy Corporation	100	72	1971	44	Gas
Northampton	EIF Northampton LLC	Ares Owners Holdings, L.P.	91.18					
		EIF Northampton LLC	8.82	112	1995	20	Coal	
Portland CT	NRG REMA LLC	NRG Energy, Inc.	100	191	1967	48	Oil	
Northumberland	Mount Carmel Cogeneration	Mt Carmel Co-Gen, Inc.	Private investors-Kenneth M. Pollock & Connie J. Pollock Radd	100	43	1990	25	Coal
Philadelphia	Delaware CT	Exelon Generation Company, LLC	Exelon Corporation	100	74	1969	46	Oil
	Grays Ferry Cogeneration	Grays Ferry Cogeneration Partners	Veolia Environnement SA	100	150	1997	18	Gas
	Lincoln Financial Field Solar Plant	NRG Renew LLC	NRG Energy, Inc.	100	2.9	2013	2	Solar
	Newman & Company Inc.	Newman & Co Inc	Newman & Co Inc	100	1.8	1964	51	Gas
	Philadelphia Refinery	Sunoco, Inc.	Energy Transfer Partners, L.P.	100	20.6	1952	63	Nonrenewable
	PWD Northeast WPCP Biogas Cogen	Philadelphia Water Department	Philadelphia Water Department	100	5.6	2013	2	Biomass
	Richmond CT	Exelon Generation Company, LLC	Exelon Corporation	100	132	1973	42	Oil
	Schuylkill CT	Exelon Generation Company, LLC	Exelon Corporation	100	38	1969	46	Oil
	Southwark	Exelon Generation Company, LLC	Exelon Corporation	100	72	1967	48	Oil
	Temple SEGF Cogen Plant	Temple University	Temple University	100	16	1993	22	Gas
Pike	Wallenpaupack	Talen Energy Corporation	Talen Energy Corporation	100	44	1926	89	Water
Schuylkill	Broad Mountain Landfill Facility	UGI Development Company	UGI Corporation	100	11	2009	6	Biomass
	Fishbach	Talen Energy Supply, LLC	Talen Energy Corporation	100	28	1969	46	Oil
	John B Rich Memorial Power Station	Cogentrix Energy Power Management LLC	Carlyle Group L.P.	19.55				
		NextEra Energy Resources LLC	NextEra Energy, Inc.	5.45				
		Ontario Teachers' Pension Plan Board	Ontario Teachers' Pension Plan Board	12.5				
		RI-CORP Development Inc.	RI-CORP Development Inc.	50				
		UBS Global Asset Management	UBS AG	0.32				
			UBS Group AG	12.18	80	1988	27	Coal
	Locust Ridge II	Iberdrola Renewables, LLC	Iberdrola, S.A.	100	102	2009	6	Wind
	Locust Ridge Wind Farm	Iberdrola Renewables, LLC	Iberdrola, S.A.	100	26	2007	8	Wind
	Masser Farms Realty Solar	Masser Farms Realty Ltd	Masser Farms Realty Ltd	100	1	2011	4	Solar
	Northeastern Power Cogeneration Facility	Northeastern Power Company	Engie	100	52	1989	26	Coal
	Pine Grove Landfill	CCI Power Holdings LLC	Castleton Commodities International, LLC	12.31				
			Energy Trading Innovations LLC	87.69	5.4	2008	7	Biomass
	St. Nicholas Cogeneration	Schuylkill Energy Resource Inc	Schuylkill Energy Resource Inc	100	86	1990	25	Coal
Westwood Generating Station	Olympus Westwood Funding, LLC	Olympus Holdings, LLC	75					
	Treemont Funding, LLC	ArcLight Capital Holdings, LLC	25	30	1987	28	Coal	
Snyder	Sunbury CT	Corona Power, LLC	Corona Power, LLC	100	47.2	1971	44	Oil
	Sunbury IC	Corona Power, LLC	Corona Power, LLC	100	5	1967	48	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
Somerset	Casselman Wind	Iberdrola Renewables, LLC	Iberdrola, S.A.	100	34.5	2007	8	Wind
	Forward WindPower LLC	NRG Energy Holdings Inc	NRG Energy, Inc.	100	29.4	2008	7	Wind
	Green Mountain Wind Farm	NextEra Energy Resources LLC	NextEra Energy, Inc.	100	10.4	2000	15	Wind
	Lookout WindPower LLC	NRG Energy Holdings Inc	NRG Energy, Inc.	100	37.8	2008	7	Wind
	Meyersdale Wind Project	NextEra Energy Resources LLC	NextEra Energy, Inc.	100	30	2003	12	Wind
	Somerset Wind Project	NextEra Energy Resources LLC	NextEra Energy, Inc.	100	9	2001	14	Wind
	Stony Creek Wind Farm	EC&R Investco Mgmt, LLC	E.ON SE	50				
		PD Alternative Investments US Inc	PensionDanmark Holding AS	50	52.5	2009	6	Wind
	Twin Ridges Wind Farm	Everpower Wind Holdings, Inc.	Terra Firma Capital Partners Ltd.	100	139.4	2012	3	Wind
Tioga	Blossburg	NRG REMA LLC	NRG Energy, Inc.	100	24	1971	44	Gas
Union	Bucknell University	Bucknell University	Bucknell University	100	6.7	1991	24	Gas
Venango	Handsome Lake Energy	Constellation Power, Inc.	Exelon Corporation	100	267.5	2001	14	Gas
	Scrubgrass	EIF United States Power Fund IV, L.P.	Ares Owners Holdings, L.P.	20				
		Olympus Power, LLC	Olympus Holdings, LLC	30				Coal
		United States Power Fund III, L.P.	Ares Owners Holdings, L.P.	50	84.8	1993	22	
Warren	Kinzua Pumped Storage Project (Seneca)	Harbor Hydro Holdings, LLC	LS Power Group	100	451	1970	45	Water
	Warren CT	NRG REMA LLC	NRG Energy, Inc.	100	57	1972	43	Oil
Washington	Arden Landfill	WM Renewable Energy, LLC	Waste Management, Inc.	100	4.8	2009	6	Biomass
Wayne	Waymart Wind Farm	NextEra Energy Resources LLC	NextEra Energy, Inc.	100	64.5	2003	12	Wind
Westmoreland	Conemaugh Hydroelectric	Pennsylvania Renewable Resources	Pennsylvania Renewable Resources	50				Water
		PSEG Global L.L.C.	Public Service Enterprise Group Incorporated	50	15	1989	26	
Wyoming	Mehoopany	Procter & Gamble Co.	Procter & Gamble Co.	100	1.6	1984	31	Gas
	Mehoopany CT	Procter & Gamble Co.	Procter & Gamble Co.	100	126	1985	30	Gas
	Mehoopany Wind	BP Wind Energy North America Inc.	BP plc	50				
		Sempra U.S. Gas & Power, LLC	Sempra Energy	50	142.6	2012	3	Wind
York	Brunner Island	Talen Energy Corporation	Talen Energy Corporation	100	1428	1961	54	Coal
	Brunner Island IC	Talen Energy Corporation	Talen Energy Corporation	100	7.4	1967	48	Oil
	P.H. Glatfelter Company - Pennsylvania	P H Glatfelter Co	P H Glatfelter Co	100	89.3	1948	67	Coal
	Peach Bottom	Exelon Generation Company, LLC	Exelon Corporation	50				
		PSEG Nuclear LLC	Public Service Enterprise Group Incorporated	50	2436	1974	41	Nuclear
	Tolna	NRG REMA LLC	NRG Energy, Inc.	100	50	1972	43	Oil
	Turnkey Project - GlaxoSmith	GlaxoSmithKline	GlaxoSmithKline	100	1.5	2010	5	Solar

