

**PECO Energy Company**  
**2016 Winter Readiness Overview**  
**October 20, 2016**

PECO Energy Company, through its extensive Winter Readiness Program, is prepared to provide safe, least-cost, reliable electric and natural gas service to its customers during the upcoming winter season.

**I. PECO's Winter Readiness Program**

PECO's Winter Readiness Program ensures system reliability, maintains customer safety, and aims for continuous improvement. The extensive Winter Readiness Program requires the company to review, inspect, maintain and modify items involving safety, corrective maintenance, preventative maintenance, scheduling, procedures, contracts, emergency preparedness, training, transmission, communications, natural gas supply and customer care – all prior to the winter period.

**A. Gas Operations:**

As we prepare for winter, some of PECO's major areas of focus include, but are not limited to, the following:

**i. Employee Safety/Readiness**

PECO reinforces employee safety, year-round, by conducting training and adhering to procedures. Additionally, PECO performs at least one annual natural gas emergency response drill, which prepares personnel to respond to major leaks, blockages, and other significant conditions. These drills familiarize personnel with PECO's safety response procedures. PECO further ensures that it has the personnel available for proper event response by entering into mutual assistance agreements with other utility companies in other states.

**ii. Natural Gas System Readiness**

PECO routinely performs numerous preventative maintenance activities, including regulator station and valve inspections; annual review/update of regulator pressure settings; and installation of temporary regulator stations to address Zero Degree days. Winter-critical projects also are completed to eliminate pressure constraints that could exist during periods of high demand. For the 2016-2017 winter season, PECO identified six main and service projects designed to withstand prolonged zero degree temperatures. At present, five of these projects have been completed and the sixth will be completed by October 27, 2016.

PECO's preparedness activities enhance service reliability to customers during times of inclement weather. These activities include developing contingency plans, conducting leak surveys, monitoring capacity constrained areas, readying snow removal

equipment, and checking compressed natural gas (“CNG”) trailers and portable CNG kits.

PECO also conducts several drills to prepare its natural gas distribution system for severe weather/operating conditions. Specifically, the Company’s Winter Readiness Drill simulates: 1) the effects of a “Zero Degree” day; 2) severe winter weather (including ice, snow, and high winds); 3) facility damage such as a main hit by a contractor (during winter conditions); and 4) electric outage scenarios (during winter conditions). The 2016 Winter Readiness drill was completed on October 17, 2016. PECO also conducts a “Gas Load Reduction Emergency” procedure tabletop drill on an annual basis, in which personnel review all procedures related to a natural gas load reduction crisis. This drill occurred on October 17, 2016. PECO’s Emergency Preparedness organization is also involved in Storm Response, Mutual Assistance, Physical Security, and Cyber Security drills, scheduled throughout the year. Other winter readiness efforts include increasing capacity to meet customer heating demands, entering into contracts to secure adequate supplies of natural gas, preparing vehicles for the winter and utilizing snow removal vendors.

In addition, PECO filled its liquefied natural gas (“LNG”) and propane peak shaving facilities by September 6, 2016, to supplement natural gas supplies during high demand days. PECO also fills its underground storage facilities located off interstate pipelines throughout the year when prices are low to provide customers with the most competitive price available. The company’s hedging activities lock in prices during the course of the year to limit the amount of natural gas purchased during winter months, when natural gas market prices generally peak. As discussed below, PECO has sufficient supplies to meet the needs of its customers this winter. PECO also has tested its system and completed a full check of readiness tasks to ensure that reliable natural gas service will be delivered to customers.

### **iii. Frost Survey**

PECO’s Frost Survey protocols mitigate natural gas leaks by requiring proactive leak surveys of cast iron mains during the frost season (when cast iron mains are more susceptible to breaks). PECO’s Frost Surveys are conducted per procedure from November 1 to April 1. Each year on November 1, PECO begins to monitor low temperatures on a daily basis and only executes Frost Surveys when specific frost temperature conditions exist. Once PECO observes a five-day rolling average low temperature of at least 32 degrees Fahrenheit, the Frost Surveys begin. The surveys are prioritized according to break history. Frost Surveys are discontinued once the five-day rolling average temperature rises above 32 degrees. This process continues through April 1.

PECO also performs accelerated Frost Surveys when conditions warrant additional action. When PECO experiences three cast iron main breaks within a single day, it initiates accelerated surveys. During this time, PECO’s Leak Survey mechanics conduct surveys on double shifts during a 48-hour period. Once the 48-hour period

expires, PECO reverts back to its normal average low temperature-driven Frost Survey protocols.

#### **iv. Emergency Dispatch**

PECO's Emergency Response Organization provides the necessary management and support for emergency incidents, mitigates threats to public and personnel safety, and ensures safe and reliable delivery of service to customers. PECO's Emergency Response Plan incorporates an incident management approach to streamline and coordinate emergency response efforts.

PECO has established an expectation that all natural gas emergency odor calls will be fielded within one hour. Additionally, PECO monitors the National Weather Service for winter storm warnings when the average daily temperature is forecasted to be 5 degrees Fahrenheit or below. When such warnings are issued and a storm is likely, PECO will prepare and develop the appropriate response plan. As part of those plans, PECO personnel will be ready to respond to natural gas odor calls within one hour and clear ice and snow from natural gas meters and regulators.

### **B. Communications and Outreach:**

PECO's Communications and Outreach plan consists of distributing information via news release, social media, website, and customer and stakeholder newsletters. Through these channels, PECO highlighted the work that was performed to provide safe and reliable electric and natural gas service during the winter months. PECO also distributed information to help customers prepare their homes for colder weather and natural gas safety tips.

In addition, the company continues to promote a suite of enhanced online and mobile tools to give more control to customers and keep them better informed.

**Alerts:** PECO customers now have greater control and access to important account information through text, email or phone. Customers can choose how they would like to receive information about outages, energy usage, billing, payment and more.

**Enhanced Website:** PECO's website has been redesigned to help customers move seamlessly across their electronic devices and builds on existing tools, such as online outage reporting and the ability to monitor energy use. The site also incorporates enhanced security features to help protect customer information and streamlined navigation.

**Enhanced Outage Map:** This tool provides our customers with more information when service is interrupted, including the number of customers affected. The map also includes the cause of the outage, if a crew has been dispatched and the estimated time when service is expected to be restored.

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Finally, PECO has a communication plan, which clearly establishes the roles, responsibilities and guidelines necessary to maintain and enhance employee and public perceptions during operational emergencies or other situations. Specifically, the company's communications plan is intended to:

1. Keep employees and the public informed about the company's readiness and/or response efforts in an emergency/crisis that impacts operations, customer service or employee/public safety.
2. Demonstrate command and control during an emergency/crisis by defining clear roles and responsibilities and identifying available staffing/resources.
3. Ensure all external communications are coordinated with stakeholders.
4. Provide guidance and direction for communications activities during crisis management, helping to mitigate the crisis and expedite recovery.

This plan commences when a significant event occurs that has the potential to generate extensive news media coverage and/or public scrutiny. For example, a significant system issue could affect the organization's normal operations and also could have a political, legal and financial impact to the business. Similarly, a crisis could be caused by human error, mechanical problems, weather conditions or force majeure events. These types of events, revelations, allegations or circumstances threaten the integrity, reputation or survival of an individual or organization. PECO's crisis communications plan mitigates these threats by providing accurate and timely information to customers, employees and key stakeholders. This aids in event recovery and returning to normal operating conditions.

If a storm or significant event is expected to impact the service territory, PECO will contact external stakeholders with information regarding PECO's preparations and what customers should do to prepare and stay safe. If PECO's Emergency Operations Center is activated, external stakeholders are notified and receive updates from PECO External Affairs every four hours, with information regarding customer impacts by municipality and restoration strategies. In addition, PECO External Affairs coordinates with regional emergency response centers across the service territory to offer PECO representation at each location, if needed. Conference calls also are coordinated with Emergency Response Center Directors, Municipal Managers, and Elected Officials if conditions warrant.

### **C. Gas Supply and Planning:**

PECO will meet its obligation to provide least-cost natural gas to its firm customers for the winter of 2016-2017 in a safe and reliable manner by utilizing various sources of firm transportation capacity, storage, and supply assets to meet design day demands.

### **i. Peak Design Day Evaluation**

PECO uses a design temperature of zero degrees Fahrenheit – an average of hourly temperatures during a 24-hour period. The design temperature of zero degrees is a reasonable compromise between reliability and cost because it provides assurance that firm service customers are not likely to face supply interruptions, while keeping the costs for peak day capacity at an acceptable/reasonable level. For the 2016-2017 winter, PECO's design day is 802,834 Mcf or 848,595 Dth.

### **ii. System Supply Requirement Review – Resource Planning**

To ensure PECO meets its firm delivery commitments, the company applies a multi-tier approach to its capacity and supply utilization plan, including deliveries of supply from: (1) Firm Transportation (FT) contracts; (2) firm contracted storage; and (3) on-system peak facilities or contracted peak deliveries.

PECO's FT contracts with interstate pipelines provide an integral part of its overall gas supply reliability plans. These contracts provide reliable firm delivery rights and geographic diversity of supply (through the firm supply receipt location capacity rights guaranteed in the contracts). This supply diversity has been further enhanced as Marcellus Shale supply has become more readily available.

PECO will supplement the supply from its eleven long-term natural gas supply contracts with supplies withdrawn from its five interstate storage contracts.

PECO also will utilize its two peak shaving facilities to inject firm supplies directly into its distribution system (on an as-needed basis). PECO's LNG facility can provide 161,710 Dth on a peak day, and its propane facility can provide another 25,750 Dth on a peak day.

Finally, PECO will supplement these services with other firm winter delivered services totaling 90,000 Dth per day. A very small portion of the winter delivered services will be supplied by PECO's natural gas suppliers (NGSs) pursuant to the Gas Choice Program, as they elect the Delivered Service Option.

### **iii. Interstate Supply and Contract Arrangements**

PECO's annual firm transportation contracts with Texas Eastern and Transcontinental pipelines and firm transportation contract with Eastern Shore Natural Gas pipelines provide daily transportation capacity during the winter months. Under the foregoing contracts, PECO flows natural gas purchased under long-term, seasonal, and spot purchase agreements with its suppliers, which represents about one third of PECO's peak day supply requirements. Under its current supply contracts, PECO can purchase natural gas from numerous, liquid natural gas trading hubs and transport that natural gas on a firm basis from receipt to delivery at PECO's city gates.

#### **iv. Utility and Contract Storage Inventory Delivery Plans**

About one-third of PECO's design day requirements and one-third of PECO's total winter deliveries will be sourced from five interstate pipeline storage contracts. These storage contracts either include transportation or are matched with one of PECO's FT contracts to provide firm delivery. PECO's contract storage utilization plan ensures that the maximum withdrawal capability exists as a source of natural gas from December 1 through February 15. This withdrawal capability is available because PECO's inventory (associated with any of the storage contracts) does not dip below levels that would trigger an automatic reduction of withdraw capability by the pipelines. PECO can inventory a total of 18 Bcf of natural gas under its five storage contracts. PECO's storage inventory was at least 95 percent full by October 31. PECO must leave space in its inventory for injections that may be necessary due to warm days in November.

As stated above, PECO also has on-system propane and LNG storage facilities. The inventory in these facilities is withdrawn in the winter when: (1) system demand projections exceed PECO's firm transportation and storage contract supplies; and (2) intraday changes in forecasted weather increase demand requirements so rapidly, that unscheduled pipeline storage and transportation capacity could not be utilized. By September 6, 2016, the LNG facility, which has an inventory capacity of 1.2 Bcf, was 100 percent full and the propane facility, which holds 1.98 million gallons of liquid propane, was at capacity.

#### **v. Emergency Curtailment Plans**

PECO's emergency curtailment plan has a three-phase approach:

- 1) Natural Gas Load Reduction Crisis Phase I: Request for voluntary load reductions
- 2) Natural Gas Load Reduction Crisis Phase II: Mandatory reduction of industrial and commercial load
- 3) Natural Gas Load Reduction Crisis Phase III: Mandatory reduction of residential load

The curtailment crisis plan addresses a possible inability to meet firm natural gas demand, due to inadequate supply predicated by pipeline company delivery issues, peak shaving facility issues or a distribution system infrastructure event.

In addition, PECO conducts a test of its "Send Word Now" system in which a text and/or an audio message is sent to all customers served under PECO's various interruptible natural gas rates. These customers are notified to stop using natural gas. The annual test for winter 2015-2016 occurred on November 10, 2015. The annual test for winter 2016-2017 is scheduled for November 8, 2016.

#### **vi. Weather and Forecasting**

As PECO's natural gas demand is highly temperature driven, the company relies on a number of weather forecasting services and tools to aid in projecting natural gas system demand. For example, PECO's Gas Supply and Transportation Department, which has the responsibility of ensuring adequate supply, will review forecasts from Meteorlogix. These forecasts are used to make and adjust supply contingency plans, storage management, and purchasing requirements to ensure overall least cost and reliability.

PECO's Gas System Operators ("GSOs") are responsible for forecasting short-term load requirements (one to four days) and rely on Meteorlogix to provide the weather forecast to aid them in this process. GSOs utilize historic data accessing SCADA historic demand information and analyze variables including temperature, time of year, wind speed, and warming and cooling trends when making their short-term forecasts. The forecasted demand information is forwarded to Gas Supply and Transportation who uses it in their daily natural gas demand load balancing process.

#### **D. Natural Gas Demand from Electric Generators:**

PECO does not have concerns about fuel availability during the winter season given the increased demand for natural gas as an electric generation fuel source. As discussed above regarding natural gas supply, PECO relies solely on firm transportation, storage, and supply contracts and on-system assets to meet its winter demand. Under the terms of the company's contracts, the counter-parties are required to deliver as contracted. Due in part to the robust influx of Marcellus and other shale gas, PECO believes that supply will be sufficient to meet winter needs.

There has been no increase to electric generation demand on PECO's distribution system. In addition, PECO's tariff provisions and enforcement of those provisions as they apply to electric generation customers provide sufficient protection for PECO's other natural gas customers. Electric generation deliveries and balancing requirements do not jeopardize PECO's ability to serve its firm customers.