

**PECO Energy Company**  
**2018 Winter Readiness Overview**  
**October 22, 2018**

PECO Energy Company (“PECO” or the “Company”), through its 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. PECO’s Emergency Preparedness organization manages our Winter Readiness program, which includes over 300 items.

**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; Drills**

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. In 2018, PECO participated and/or held numerous drill and preparation exercises, discussed in more detail below.

In the spring of 2018, PECO participated in a Federal Emergency Management Agency (FEMA) exercise that included a national scope (called Clearpath) and a state level portion with the Pennsylvania Emergency Management Agency (PEMA) and the PUC.

On June 8, 2018, PECO participated in the Operation Blue Flame Tabletop Exercise, which was held at the PEMA headquarters in Harrisburg. Numerous entities were in attendance to address a drill scenario of an event causing a pipeline to be shut down during extreme cold temperatures and there was no gas available to the customers along the pipeline. The participants had a good discussion around the event and the LDC’s reported on their segregation, mutual aid, and communication / outreach

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plans. PECO looks forward to participating in future Operation Blue Flame Tabletop Exercises in the future.

On Friday, September 14, 2018, PECO received a mutual assistance request to support Columbia Gas and the Andover Gas Explosion event. Our mutual assistance procedure was initiated. Exelon Utilities' three gas companies talked through our plan to support. Between all three companies including support of PECO's Operations Control Center, over forty employees were arranged to travel to Andover on Saturday morning at 6am. This included mechanics, foreman, safety, transportation, and a manager. The request was rescinded at 1430 Friday afternoon as the local utilities responded with more employees than original expected. Essentially this activity proved to be a great drill of our procedures.

On October 11, 2018, PECO conducted its annual Gas Load Reduction Emergency procedure tabletop drill. In this drill, personnel review all procedures related to a natural gas load reduction crisis.

On October 27, 2018, PECO held its annual emergency preparedness drill which tested a variety of Gas Operational practices based upon a complex scenario modeled after a real-life incident which had occurred in another operator's territory. The scenario setting was at a local college dormitory where a leak and subsequent explosion were reported to PECO. The drill tested emergency response, investigation, and communication with internal and external entities. Employees from other Exelon companies were also present for the drill to observe and comment on improvements that could be made in the response to the modeled incident.

The 2018 Winter Readiness drill, focusing on Gas response and discussed in more detail below, is scheduled to occur on November 2, 2018. There is also an annual Exelon "Feeder SPOC" exercise, related to transferring Designated Authority responsibilities to a Field Management team to address areas of severe devastation. This is conducted with of the Exelon Operating Companies, to be able to share these resources between companies when needed. Additionally, in August PECO conducted a scenario-specific exercise which included several impacted transmission and distribution lines, several major customer impacts, and potential environmental risks.

## **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 2018-2019 winter season, PECO identified four main and service projects designed to withstand prolonged zero degree temperatures. All four projects have been completed as of October 17, 2018.

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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 can simulate: 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) Gas Mutual Assistance processes. The 2018 Winter Readiness drill will be conducted on November 2, 2018.

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 11, 2018.

PECO's Emergency Preparedness organization also is 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 on October 11, 2018, 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 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.

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.

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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.

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. Inform employees and the public 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's External Affairs department every four hours, with information regarding customer impacts by municipality and restoration strategies. In addition, PECO's External Affairs department coordinates with regional emergency response centers across the service territory to offer PECO representation at each location, if needed. Conference calls 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 2018-2019 in a safe and reliable manner by utilizing various sources of firm transportation capacity, storage, and supply assets to meet design day demands.

#### **i. Best Practices, Including Communications and Coordination, with Natural Gas Suppliers Ahead of Anticipated Peak Usage.**

PECO Gas Transportation utilizes a program, The Large Gas Customer Notification Program, to communicate to interruptible rate customers. Prior to a called interruption, PECO sends messages via this portal, notifying customers to stop burning gas and switch to an alternate fuel. Other notifications are also sent via this portal such as “cold weather coming” alerts. Suppliers and other internal PECO contacts (such as Account Managers) are also notified. In addition, as a courtesy, all Account Managers call their customers prior to any interruption and PECO’s EBB is updated with interruption messaging for those using the EBB.

PECO also participates in quarterly meetings with its affiliated gas utilities to discuss and share “best practices.” The best practice meetings allow PECO to share and/or adopt best practices and continue to improve our operations to provide the least-cost natural gas to firm customers, in a safe and reliable manner.

#### **ii. 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 2018-2019 winter, PECO’s design day is 815,745 Mcf or 854,085 Dth.

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

To ensure PECO meets its firm delivery commitments, the Company applied 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 93,027 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.

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

PECO's annual firm transportation contracts with Texas Eastern and Transcontinental pipelines and its 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.

#### **v. 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 October 12, 2018, 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.

**vi. 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 customer notification system in which a text, e-mail, and/or an audio message is sent to all customers served under PECO's various interruptible natural gas rates. These customers are notified to curtail their use of natural gas. The annual test for winter 2018-2019 is scheduled for November 6, 2018.

**vii. 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 on firm transportation, storage, 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

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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.