BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	
	:	Docket No. R-2020-3017206
v.	:	
	:	
Philadelphia Gas Works	:	

ES Hearing Exhibit 13

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

PHILIP Q. HANSER

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. R- 2017-2586783

Philadelphia Gas Works

RE: Cost of Service
Class Allocation
Customer-Related Costs

February 2017

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PREPARED DIRECT TESTIMONY OF PHILIP Q HANSER

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Philip Q Hanser. My business address is 44 Brattle Street, Cambridge, Massachusetts, 02138.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am a Principal of The Brattle Group, an economic consulting firm with offices in Cambridge, Massachusetts; Washington, D.C.; San Francisco, California; New York, New York; Toronto, Canada; London, England; Madrid, Spain, Rome, Italy; and Sydney, Australia.

Q. PLEASE DESCRIBE YOUR BACKGROUND AND EMPLOYMENT EXPERIENCE.

A. I have been involved in energy related matters for over 35 years and a Principal at The Brattle Group in its Cambridge office for the last 20 years. My practice has included issues such as market economics, transmission pricing, resource planning, environmental issues, forecasting, rate design, demand-side management, distributed resources and financial analysis.

I have appeared as an expert witness before the U.S. Federal Energy Regulatory Commission ("FERC"), and numerous state public utility commissions, environmental agencies, Canadian utility boards, as well as arbitration panels, and in federal and state courts. Since 2009, I have taught industry professionals about the principles and practice of cost of service calculations and rate design on behalf of the Edison Electric Institute in its Advanced Rates Course. I served for six years on the American Statistical Association's Advisory Committee to the Energy Information Administration ("EIA"), and am a member of IEEE ("Institute of Electronics and Electrical Engineers"), and CIGRE ("Conseil

International des Grands Reseaux Electriques") where I served on its Working Group C5-8, Working Group on Renewables and Energy Efficiency in a Deregulated Market.

Prior to joining The Brattle Group, I held teaching positions at the University of the Pacific, University of California at Davis, and Columbia University, and have served as a guest lecturer at the Massachusetts Institute of Technology, Stanford University, and the University of Chicago. I am currently a Senior Associate in the Mossavar-Rahmani Center for Business and Government at the Harvard Kennedy School and lead a seminar in public policy analysis. I am also a lecturer at Boston University in the Questrom School of Business and a senior fellow at Boston University's Institute for Sustainable Energy. I have also served as the manager of the Demand-Side Management Program at the Electric Power Research Institute ("EPRI").

While at EPRI I was the final project manager for the Electric Utility Rate Design Study, the industry-sponsored multi-volume study to support utilities and commissions in implementing the Public Utilities Regulatory Policies Act of 1978. I also supervised EPRI's biennial surveys of innovative rates as well as reports addressing the measurement and evaluation of interruptible and curtailable rates, the impacts of residential time-of-use rates, the design of innovative and traditional rates, and the use of activity-based costing as a supplement to traditional utility accounting. I also served five years with the Sacramento Utility District as an economist where I performed the load research design to support both embedded and marginal cost based rates and performed or assisted in the development of the District's embedded and marginal costs of service studies. My background, publications, and prior testimony are further described in my CV, which is included as Appendix A.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN PROCEEDINGS BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION ON BEHALF OF PGW?

A. No, I have not.

II. PURPOSE OF TESTIMONY

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Philadelphia Gas Works ("PGW" or the "Company") in support of its base rate case filing with the Pennsylvania Public Utility Commission ("Commission").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I am sponsoring the Company's class cost of service study ("CCOSS"). The primary purpose of the present CCOSS is to allocate the Company's costs of providing service to each Rate Class. The purpose of my testimony is to describe the principles, methodology, and data used in the present CCOSS.

I was also asked by PGW for a recommendation regarding the appropriate level of "normal weather" for the purposes of determining pro forma revenues. I discuss my recommendations below.

Q. WHY DOES THE COMPANY PROPOSE TO SUBMIT AN UPDATED CCOSS?

A. The Company last submitted a CCOSS in 2009, and since that filing many of the factors that drive the Company's cost of providing service have changed. This study incorporates updated information since the Company's last filing, and was developed with the aim to support the Commission's goal to move towards cost allocations and rate design that more closely reflect current cost causation.

Q. HOW DOES YOUR TESTIMONY RELATE TO THAT OF OTHER COMPANY WITNESSES?

A. Mr. Dybalski's testimony describes the customer charges that PGW has determined to propose after receiving the results of my CCOSS. It also describes PGW's goals and objectives in allocating the proposed rate increase, which I then used to determine the specific allocations. Mr. Golden's testimony supports the Company's Revenue Requirement. My testimony uses the Company's Revenue Requirement for the Fully Projected Future Test Year ("FPFTY") as a starting point. It also relies on the inputs and assumptions that went into the determination of the Revenue Requirement. The validation of the Revenue Requirement and the inputs and assumptions used to develop it are outside of the scope of my assignment.

Q. PLEASE IDENTIFY THE EXHIBITS THAT YOU ARE SPONSORING.

A. I am sponsoring the following exhibits, which are discussed in more detail in Section IV.

Exhibit PQH-1	Summary of Allocation Results
Exhibit PQH-2	Summary of Allocation Results by Functional Classification
Exhibit PQH-3	Allocation Results
Exhibit PQH-4	Classification Results
Exhibit PQH-5	Functionalization Results
Exhibit PQH-6	Summary of Factors Used
Exhibit PQH-7A	Functionalization Factor Values
Exhibit PQH-7B	Classification Factor Values
Exhibit PQH-7C	Allocation Factor Values
Exhibit PQH-8	Development of Allocation Factors
Exhibit PQH-9	Proposed Delivery Charges
Exhibit PQH-10	Computation of the Gas Procurement Charge
Exhibit PQH-11	Computation of the Merchant Function Charge

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. The remainder of my testimony is divided into five sections. Section III discusses the methodology used in the CCOSS. Section IV describes the results of the CCOSS, while Section V discusses the Company's proposed revenue allocation

and rate design. In Section VI, I discuss the nature of customer-related costs. Finally, in Section VII, I discuss the use of a 10-year weather normal.

III. PGW CLASS COST OF SERVICE STUDY

A. GENERAL CCOSS METHODOLOGY

Q. WHAT WAS THE SOURCE OF THE INFORMATION THAT YOU USED TO PERFORM THE CCOSS?

A. All of the input data used to perform the present CCOSS were provided by PGW, and I relied on the genuineness and completeness of this information. The input data used to perform the CCOSS correspond to the FPFTY (the Fiscal Year ending August 31, 2018), and fall into two broad categories. The first category consists of budgeted costs and other financial data that are discussed in detail in Mr. Golden's testimony. These data were provided by the Company and grouped in a manner consistent with the Federal Energy Regulatory Commission's Uniform System of Accounts. The budget was prepared by PGW. The second consists of certain operational data that includes forecasted sales and transportation volumes as well as forecasted customer counts.

Q. WHAT ARE THE PURPOSE AND GUIDING PRINCIPLES IN PERFORMING A CLASS COST OF SERVICE STUDY?

A. A CCOSS analyzes the components of the utility's total cost of service and aims to determine the portion that can be attributed to each Rate Class on the principle of cost-causation. Once the costs of providing services are allocated among the Rate Classes, the utility can establish rates that ensure that it recovers all of its costs. The fundamental step in a CCOSS is to develop allocators that capture the relationship between the costs of providing service and the drivers of those costs as accurately as possible.

Q. PLEASE EXPLAIN THE TERM TARIFF REVENUE REQUIREMENT.

A. In the present testimony I use the term "Tariff Revenue Requirement" to refer to the revenue that needs to be produced under PGW's Tariff in order to recover its total cost of providing service. Under the proposed rates, PGW would not collect the full Tariff Revenue Requirement because the amounts collected would be reduced by the Customer Responsibility Program Shortfall and Senior Discounts. For this reason the Tariff Revenue Requirement includes the revenue shortfall that occurs as a result of the Customer Responsibility Program and Senior Discounts.

Q. WHAT RATE CLASSES ARE INCLUDED IN THE PGW CCOSS?

A. The CCOSS includes the following Rate Classes:

- Residential Non-heating, Residential Heating
- Commercial Non-heating, Commercial Heating
- Industrial Non-heating, Industrial Heating
- Municipal Non-heating, Municipal Heating
- Philadelphia Housing Authority ("PHA") General Service ("GS")
- PHA Rate 8
- Developmental Natural Gas Vehicle Service ("NGVS")
- Interruptible Sales
- Gas Transportation Service Firm and Interruptible ("GTS/IT")

The Rate Classes in the present CCOSS are the same that were included in PGW's 2009 CCOSS, with two exceptions. First, I separate a class corresponding to Natural Gas Vehicles. Second, I separate the PHA Rate Class into PHA GS and PHA Rate 8 to capture the different service characteristics of single family and multi-family dwellings operated by the Philadelphia Housing Authority.

Q. PLEASE SUMMARIZE THE APPROACH THAT YOU FOLLOWED IN PERFORMING THE PGW CCOSS.

A. In performing the CCOSS I closely followed the principles of cost allocation set forth in Gas Rate Fundamentals published by the American Gas Association.[1] Because the investments and expenses incurred by PGW and recorded in accordance with the FERC's Uniform System of Accounts cannot, for the most part, be directly attributed to specific Rate Classes, there is a need to separate the costs into a series of components in order to appropriately apportion costs to each Rate Class in relation to the class's cost responsibility. Such a process is known as a CCOSS which aims to apportion the Company's plant investments and operating expenses in such a way that customers in each Rate Class pay for the costs that they cause the utility to incur. The CCOSS was performed using an Excel-based spreadsheet model that facilitates computations.

The present study carries out the three steps of the cost of service process, namely functionalization, classification, and allocation, which are described in more detail below. The model outputs provide cost information allocated to the different Rate Classes, and calculates the Tariff Revenue Requirements by functional classification for each Rate Class.

Q. WHY DID YOU USE BUDGETED, WEATHER-NORMALIZED DATA FOR THE TEST YEAR IN THE PGW CCOSS?

A. As discussed in more detail in Mr. Dybalski's and Mr. Golden's testimonies, PGW assumes normal weather when developing its budget and estimates of consumption. The purpose of using weather-normalized data is to remove the effect of weather in the Company's resulting cost allocation and rate design to ensure that they are consistent with average weather predictions.

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[1] American Gas Association Rate Committee, 1987, Gas Rate Fundamentals, Fourth Edition, American Gas Association, Arlington, VA.

Q. ARE THERE NOTEWORTHY DIFFERENCES IN METHODOLOGY OR APPROACH IN THE CURRENT CCOSS FROM THE PREVIOUS CCOSS SUBMITTED BY PGW?

A. The methodology that I used is the same as that used in prior CCOSS submitted by PGW. In a few cases there were changes in the allocators selected for certain accounts, with very small effect on the results of the CCOSS.

Q. PLEASE DESCRIBE THE THREE PRIMARY STEPS OF A CCOSS.

A. Typically a CCOSS study consists of three steps, namely functionalization, classification, and allocation.

In the **functionalization** step, costs are separated by the utility's service functions which include supply, storage, transmission, distribution, and onsite (the latter includes costs related to the customer premises and include metering and customer account costs). In the present study, consistent with the 2009 PGW CCOSS I also functionalized certain costs to the Universal Service and Energy Conservation ("USEC") function. These costs are associated with revenue shortfalls from the Customer Responsibility Program, Senior Discounts, and weatherization programs for low income customers, and are recovered via the USEC surcharge. Assigning these costs to this function facilitates computations.

The second step is called **classification** and consists of dividing the functionalized costs into groups based on what caused them to be incurred. The three typical groups are demand, commodity, and customer. *Demand-related* costs are associated with the maximum gas flow requirements of the utility's customers. These are costs that are related to designing, installing and maintaining facilities operating such that they can accommodate the largest level of demand that customers could place on the system. For this reason they are typically assigned to Rate Classes based on their relative contribution to demand during the peak season or peak day demands. *Commodity-related* costs are those costs that vary with the amount of gas that the customers consume. *Customer-related* costs are

those required to serve a customer with minimal usage within each Rate Class. These costs include the costs of connecting a customer to the system, metering their gas usage, and maintaining the customer's account, and are driven by the number of customers, and not by the amount of gas consumed.

The third step is called **allocation**, and consists of apportioning the previously functionalized, classified costs among the Rate Classes. These costs are allocated in such a way as to capture the relationship between the costs and the drivers that caused the costs to be incurred for each Rate Class. For example, costs that are driven by the volume of gas consumed would be allocated among the Rate Classes based on the relative share of gas consumed or transported by each class.

Q. WHY IS THE CLASS ALLOCATION STEP NECESSARY?

A. In a few cases, certain plant investments and costs are incurred exclusively to serve a specific customer or group of customers. In such cases these costs can be directly assigned to those customers. However, most utility investments and costs are incurred to serve many different groups of customers. For this reason, without the allocation process it is not possible to assign responsibility for common costs to the different Rate Classes. If each cost could be attributed specifically to each customer group, then there would exist no need for the class allocation step of the cost of service study.

Q. HOW WERE ALLOCATORS DEVELOPED?

A. The allocators used in this study were developed using PGW's financial and operational data. The allocators and their derivation are shown in Exhibit PQH-8, and a description of each allocator is included later in my testimony. In some cases, certain accounts are allocated using a combination of allocators rather than a single allocator.

B. ALLOCATION OF THE RATE BASE

Q. WHAT IS THE RATE BASE AND WHAT ROLE DOES IT PLAY IN THE PGW CCOSS?

A. The rate base refers to a utility's investments in plant and other assets to serve customers. This term is commonly used in rate cases for investor-owned utilities, whose rates are set under a rate of return standard, and where the size of the rate base is relevant because the utility's allowed return dollars are a function of the rate base. Although PGW does not operate under rate of return regulation and, thus, PGW's Tariff Revenue Requirement is not a function of the rate base, the items that make up PGW's invested capital are used to develop allocators because such investments are driven by PGW's requirements to serve its customers. As a result, many costs are functionalized, classified or allocated among Rate Classes in proportion to their responsibility for investments in rate base. For example, interest expense on long-term debt is functionalized, classified and allocated among Rate Classes using the rate base, because interest expense is incurred to finance the purchase of the assets that comprise the rate base.

Q. WHAT ARE THE MAJOR COMPONENTS OF THE RATE BASE AND HOW DID YOU FUNCTIONALIZE, CLASSIFY AND ALLOCATE THEM AMONG RATE CLASSES?

A. Consistent with groupings in the FERC's Uniform System of Accounts, I have grouped the accounts that make up the rate base into a number of categories to facilitate discussion. These groupings are the same as those found in PGW's 2009 CCOSS, and include: *production plant, storage plant, distribution plant, general plant, depreciation reserve, working capital,* and a final catch-all category called *other rate base items*. These are discussed in more detail below.

Production plant includes investments used in connection with manufactured gas production. Production plant is sized to meet maximum daily demand and has

been functionalized to supply, classified to demand, and allocated among Rate Classes based on relative demands of each Rate Class on the design day.

Storage plant consists primarily of investments in storage and processing of LNG. Similarly to production plant, storage plant is sized to meet maximum daily demand and has been functionalized to storage, classified to demand, and allocated among Rate Classes based on relative demands of each Rate Class on the design day.

Distribution plant includes a variety of assets that are found downstream of the gas transmission system. It includes such assets as land and structures, mains, compression and regulation stations, services, meters, house regulators, industrial measuring equipment, and other equipment. Land and structures support other distribution assets that are a function of system demand, and have been functionalized to distribution, classified to demand, and allocated based on total distribution plant. Mains are used to connect customers and are sized to meet the maximum level of demand by the customer. Mains have been functionalized to distribution, and classified to both customer and demand, given the dual purpose they serve. I have allocated the demand portion of mains based on the relative use of mains of each Rate Class on the design day, and the customer component of mains based on the average number of customers in each Rate Class. Compression and regulation station equipment is used in connection with distribution system operations and measurement of gas deliveries. Items in this account have been functionalized to distribution, classified to demand, and allocated based on the relative use of mains of each Rate Class on the design day. Services connect individual customers to the system, and have been functionalized to distribution, classified as customer related costs, and allocated among Rate Classes based on the estimated total replacement cost for each Rate Class. Total replacement cost of services for a Rate Class was estimated as the product of the replacement cost of a typical service line for the Rate Class, and the number of customers in the Rate Class. Meters and related installation costs have been functionalized to the onsite function, classified as customer related costs and

allocated among Rate Classes based on the estimated total replacement cost for each Rate Class. Total replacement cost of meters for a Rate Class was estimated as the product of the replacement cost of a meter with typical size for the Rate Class and the number of customers in the Rate Class. By considering the replacement costs of services and meters, the Company presents a recent representation of the costs of acquiring these assets. If the Company were instead to use the costs of services and meters that are currently installed in, irrespective of when they were installed, it would include in its estimate costs that are no longer viable or truly representative of current service and meter costs. House regulators and related installation costs were functionalized to onsite, classified as customer-related and allocated to the Residential and PHA GS Rate Classes based on customer counts. Industrial measuring equipment was functionalized to distribution, classified as demand-related and allocated to the Industrial Rate Class based on customer counts. The account corresponding to other distribution equipment was functionalized to distribution, classified to demand, and allocated based on total distribution plant.

General plant items include structures, office furniture and equipment, as well as transportation, communication, and miscellaneous equipment tools. These assets support more than one function, and were functionalized, classified and allocated among Rate Classes primarily based on direct labor content, reflecting common utility practice.

Depreciation reserve was functionalized, classified and allocated among Rate Classes in the same ratio as the related assets.

Working capital represents cash and inventories that PGW needs in the normal course of business. PGW provided detail for the items that make up the total need for working capital, and each item was functionalized, classified and allocated among Rate Classes in the same way as the activity which caused the item to be incurred.

C. ALLOCATION OF PGW's COST OF SERVICE

Q. WHAT ARE THE MAJOR COMPONENTS OF PGW'S COST OF SERVICE?

A. Similar to my discussion of the rate base in the section above, and consistent with groupings in the FERC's Uniform System of Accounts, I have grouped the accounts that make up PGW's cost of service into a number of categories to facilitate discussion. These groupings are the same as those found in PGW's 2009 CCOSS, and include the following expenses: *production, storage and processing, distribution, customer records and customer service, administrative and general, depreciation expense, payroll tax expense, interest and surplus, and other revenues and expenses.* These are discussed in more detail below.

Q. WHAT COSTS ARE INCLUDED IN PRODUCTION AND HOW WERE THESE COSTS FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. The preset CCOSS includes production expenses related to operations and maintenance of LNG facilities, natural gas operating expenses, and commodity costs for the Interruptible Sales Rate Class. Commodity costs and certain other costs associated with gas production are collected via the Gas Cost Rate ("GCR") clause and thus are excluded in this study. Production plant is sized to meet maximum daily demand and thus the costs of operating PGW's production plant have been functionalized to supply, classified to demand, and allocated among Rate Classes based on relative demands of each Rate Class on the design day. The costs of commodity related to supplying the Interruptible Sales class was functionalized to supply, classified as commodity, and directly assigned to the Interruptible Sales class. Natural gas operating expenses and gas removed from storage support year-long gas supply were functionalized to supply, classified as commodity, and assigned to the Rate Classes based on their relative share of consumption. Other gas supply expenses, including LNG used for other utility

operations was functionalized to supply, classified to commodity, and allocated among Rate Classes based on relative share of firm sales.

Q. WHAT COSTS ARE INCLUDED IN STORAGE AND HOW WERE THESE COSTS FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. Natural gas storage, terminaling, and processing expenses are the costs associated with operating PGW's LNG facilities, which are designed and operated to meet design day demand requirements. Related costs were functionalized to storage, classified as demand, and allocated among Rate Classes based on relative demands of each Rate Class on the design day.

Q. WHAT COSTS ARE INCLUDED IN PGW'S DISTRIBUTION COSTS AND HOW WERE THESE COSTS FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. Distribution costs include a variety of expenses related to operation and maintenance of the distribution system. Operation supervision and engineering expenses as well as distribution rents relate to both the distribution and onsite functions, and thus were costs functionalized to distribution and onsite in proportion to the functionalization of distribution plant, and were classified and allocated among Rate Classes in proportion to the direct labor content of distribution function expenses. Distribution load dispatching expenses were functionalized to distribution, classified as commodity, and assigned to the Rate Classes based on their relative share of consumption. The costs of operating and maintaining mains, services, meters, and house regulators were functionalized, classified and allocated among Rate Classes in proportion to PGW's investments in the respective assets. Costs related to general and city gate measuring and regulating equipment were functionalized to distribution, classified to commodity and customer and allocated among Rate Classes based on design day usage of the assets and throughput. Costs related to industrial measuring and regulating

equipment were functionalized to distribution, classified to commodity and allocated to the industrial Rate Class. Costs of work performed on customer premises were functionalized to onsite and classified to customer. The portion of these costs related to PGW's parts and labor plan were allocated to the residential classes, consistent with the allocation of parts and labor plan revenue; and the remaining costs were allocated among Rate Classes based on PGW's investment in meters for each class. Other distribution costs were functionalized between distribution and onsite in proportion to the functionalization of distribution plant, and classified to customer. The distribution function portion was allocated among Rate Classes in proportion to distribution plant and classified as distribution customer and the onsite function portion was allocated in proportion to plant *functionally classified as onsite customer.*

Q. HOW WERE CUSTOMER ACCOUNTS COSTS FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. Customer accounts costs relate to maintaining customer records and collection, uncollectible accounts, meter reading, and related supervision. Customer records and collection expenses were functionalized to onsite and classified to customer. This account was studied in detail to identify appropriate cost drivers to allocate the costs related to the different activities captured in this account. For additional detail please refer to Exhibit PQH-8. Uncollectible accounts were functionalized to distribution, classified as customer, and allocated among Rate Classes based on the share of write offs for the period between 2014 and 2016. The uncollectible amounts related to Customer Responsibility Program were functionalized to USEC and allocated among the Rate Classes based on the relative share of firm sales. Meter reading expenses and related supervision were functionalized to onsite, classified to customer and allocated among Rate Classes based on investment in meters and in number of meters. For additional detail please refer to Exhibit PQH-8.

Q. HOW WERE CUSTOMER SERVICE AND INFORMATION COSTS FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. Customer assistance expenses include marketing and customer service functions, and were functionalized to onsite and classified to customer. This account was studied in detail to identify appropriate cost drivers to allocate the costs related to the different activities captured in this account. For additional detail please refer to Exhibit PQH-8. Costs related to low income customer weatherization programs, as well as Customer Responsibility Program Shortfall and Senior Discounts were functionalized to USEC and allocated among Rate Classes based on the relative share of firm sales.

Q. HOW WERE ADMINISTRATIVE AND GENERAL EXPENSES FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. Administrative and general expenses include administrative and general salaries, employee healthcare, pensions, and benefits, office supplies and expenses, and miscellaneous general expenses, among others.

For the most part, administrative and general expenses serve more than one function and were thus allocated based on the share of labor costs associated with each functional classification. Some notable exceptions are listed below. Property insurance costs were functionalized, classified, and allocated among Rate Classes using plant in service in each functional classification. Regulatory commission expenses include expenses that are incurred by PGW in connection with formal cases before the Commission. These expenses were functionalized to distribution, classified to customer and allocated among Rate Classes in the same ratios as the rate base. Administrative and general expenses also include certain costs associated with funding PGW's Other Post Employment Benefit liabilities. These

were allocated among the Rate Classes based on the share of labor costs associated with each functional classification.

Q. HOW WAS DEPRECIATION EXPENSE FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. Depreciation expenses include depreciation expense on plant in service, and were allocated among Rate Classes in the same ratios as plant in service.

Q. HOW WAS PAYROLL TAX EXPENSE FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. Payroll taxes were allocated among the Rate Classes based on the share of labor costs associated each functional classification.

Q. HOW WERE INTEREST EXPENSE AND AFUDC CREDIT FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. Debt Service and Interest expense was functionalized, classified and allocated among Rate Classes in proportion to the rate base. The Allowance for Funds Used During Construction Credit was functionalized and classified in proportion to rate base and allocated among Rate Classes in proportion to the rate base.

Q. PLEASE DESCRIBE THE SURPLUS REQUIREMENT AND HOW THIS DIFFERS FROM THAT OF A TYPICAL INVESTOR-OWNED UTILITY.

A. In a typical investor-owned utility, an important component of the revenue requirement is the overall rate of return on rate base the utility is authorized to earn. However, as a municipally-owned utility, PGW's revenue requirement is not established on the basis of a rate of return. Rather, in the case of PGW, the Tariff Revenue Requirement includes a dollar amount in excess of cost to meet certain financial requirements. As discussed in Mr. Golden's testimony, an important consideration for PGW is to earn sufficient revenue to maintain certain debt

coverage levels and levels of cash on hand and liquidity. The surplus requirement is an amount that achieves the desired level of debt coverage and days cash on hand over a period of time. It is an integral component that protects against risk from volatility in volumes. This is a requirement as it plays a role in stabilizing revenue, without which the Company is at risk of being unable to meet its financial obligations. For this reason the cost of service study treats this as a cost that must be recovered from customers.

Q. HOW WAS THE SURPLUS REQUIREMENT FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. In a typical investor-owned utility, the return to equity capital is allocated among Rate Classes in proportion to the rate base. Since PGW's surplus requirement is a function of PGW's capital requirements, it was functionalized to distribution, classified to customer and allocated among Rate Classes in proportion to the rate base.

Q. PLEASE DESCRIBE PGW'S REVENUE SOURCES.

A. The revenues obtained by PGW can be largely grouped in two categories. Operating revenues are those that PGW receives as a result of providing services to its customers, and includes gas tariff revenues as well other miscellaneous service revenues from appliance servicing and customer installations, and service restoration fees. Non-operating income includes rental income, interest income and other miscellaneous non-operating income.

Q. WHAT ROLE DO REVENUES PLAY IN THE PGW CCOSS?

A. Revenues play an important role in the computation of the Tariff Revenue Requirement, and their proper allocation is essential to measuring the extent to which each Rate Class recovers sufficient revenue to cover its respective cost of service. Non-operating revenues play the role of reducing the revenue requirement that needs to be collected under proposed rates.

Q. HOW WERE PGW'S OPERATING REVENUES AT PRESENT RATES COMPUTED AND ALLOCATED TO THE RATE CLASSES?

A. For the purposes of this study, and consistent with the groupings in the 2009 PGW CCOSS I have grouped tariff revenues into categories. Distribution revenue includes revenue from the customer charge, volumetric charge, as well as other surcharges with the exception of the USEC surcharge. It was computed by multiplying the present rates by forecasted billing units for each Rate Class. USEC revenue corresponds to revenues collected via the USEC surcharge and was computed as the product of the USEC surcharge and the volumes corresponding to the Rate Classes to which the USEC surcharge applies. Revenue related to forfeited discounts and finance charges was allocated among the Rate Classes based on the relative proportion of balances over 60 days for each Rate Class. Interruptible Sales revenue as well as GTS/IT gas revenue was computed by PGW and directly assigned to the corresponding classes. Miscellaneous service revenue, as well as other gas revenue and revenue adjustments were computed by PGW and allocated among the Rate Classes in proportion to GCR revenue. Bill paid turn-ons & dig-ups revenue was functionalized to onsite, classified to customer and allocated among Rate Classes based on average number of customers, while customer installation revenue was functionalized to onsite, classified to customer and allocated among Rate Classes based on average number of residential customers.

Q. HOW WERE NON-OPERATING REVENUES FUNCTIONALIZED, CLASSIFIED AND ALLOCATED AMONG RATE CLASSES?

A. Non-operating revenues include interest income and miscellaneous non-operating income. Interest income was functionalized, classified and allocated among Rate Classes in proportion to the rate base, consistent with the allocation of the interest expense. Miscellaneous non-operating income is related to capacity release credits, and was functionalized to supply, classified as demand and allocated

among Rate Classes in proportion to design day supply requirements. This is appropriate because these credits serve the purpose of offsetting capacity costs.

Q. ARE THERE ANY OTHER COMPONENTS TO THE PGW CCOSS THAT WARRANT DISCUSSION?

A. No, the above testimony addresses all significant components of the PGW CCOSS.

IV. RESULTS OF THE PGW CCOSS

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR WORK.

A. In the present CCOSS I have assigned the non-gas Tariff Revenue Requirement among the Rate Classes on a cost causation basis. This assignment was based on data provided by PGW including forecasted costs, physical quantities, and other operating characteristics for the Test Year. Detailed results of my analysis are provided in the exhibits. One of the main results of my work is the increase or decrease in Tariff Revenue for each Rate Class that is needed to produce the full cost of service for each Rate Class. The computation of customer related costs reveals that both the current and proposed customer charges are significantly lower than the customer charges that result from the customer related costs identified by the present CCOSS. The Company's revenue at current rates combined with the proposed allocation of costs would result in under-recoveries of non-gas Tariff Revenue Requirements for most Rate Classes.

Q. PLEASE BRIEFLY DESCRIBE THE INFORMATION IN EXHIBITS PQH-1, PQH-2, AND PQH-3.

A. Exhibit PQH-1 shows the revenue at current rates, the Tariff Revenue Requirement allocated on a cost of service basis, and the allocation of the proposed rate increase for each Rate Class. In Exhibit PQH-2 I summarize the results of allocating the Tariff Revenue Requirement by functional classification.

Exhibit PQH-3 shows the results of the class allocations by FERC account detail. This exhibit shows the allocation of each item of rate base, operating expenses, depreciation expense, as well as operating and non-operating revenues. Lastly, in this exhibit I compare revenue at current rates to the total Tariff Revenue Requirement allocated on a cost of service basis, to show the extent to which each Rate Class would produce its full Tariff Revenue Requirement at current rates. Exhibits PQH-3A through Exhibit PQH-3H provide additional detail of the allocations for each functional classification.

Q. PLEASE DESCRIBE THE INFORMATION IN EXHIBITS PQH-4 and PQH-5.

A. In Exhibit PQH-4 and Exhibit PQH-5 I show the results of performing the functionalization, and classification steps on each item of the revenue requirement grouped by FERC account. Exhibit PQH-4 shows the classification of each item of the Supply function (as demand or commodity), and each item of the Distribution function (as demand, commodity, or customer). Items functionalized to storage were classified entirely to demand, and those functionalized to onsite and USEC we classified entirely to customer, therefore these functions are not shown on the exhibit.

Q. PLEASE DESCRIBE THE INFORMATION IN EXHIBIT PQH-6 AND EXHIBIT PQH-7.

A. Exhibit PQH-6 shows the factors used in the classification, functionalization, and allocation steps of the preset CCOSS for each FERC Account. In Exhibit PQH-7 I show the values of each allocator used.

Q. PLEASE DESCRIBE THE INFORMATION IN EXHIBIT PQH-8.

A. In this exhibit I provide detail related to how I developed each of the main allocators used in the CCOSS.

V. PROPOSED REVENUE ALLOCATION AND RATE DESIGN

Q. WHAT IS THE TOPIC OF THIS SECTION OF YOUR TESTIMONY?

A. In this section I describe the allocation of the Company's proposed rate increase and the computation of the resulting rates, based on certain Company's specifications for revenue allocation and proposed rates.

Q. PLEASE DESCRIBE THE COMPANY'S APPROACH TO REVENUE ALLOCATION.

A. The Company specified the following approach for the allocation of the revenue increase:

i. Make proportional progress towards each class's respective cost of service.

ii. Avoid having any one class bear a disproportionally large portion of the rate increase.

iii. No revenue increase has been allocated to the Interruptible Sales or GTS customers, as the rates that these customers pay are governed by bilateral contracts between the customers and PGW.

iv. For the IT Rate Class, allocate a portion of the revenue increase to reflect the fact that the IT customer demand drives many of the costs associated with building and operating the system.

v. Allocate the revenue increase in such a way that would result in rates that are similar for customers that share similar service requirements but are nonetheless grouped under different Rate Classes.

The specification in (ii) was implemented in part by assigning a portion of the rate increase to the Commercial class, even though the class as a whole would over-collect relative to its cost of service. The specification in (iv) is appropriate because the IT contribution to peak demand is not appropriately captured with the allocators used in the current CCOSS, and thus the results somewhat understate

their cost responsibility. Even though the IT customers are not contributing to demand on the peak day, their needs are still being met by the distribution system. While their interruptiblity could result in avoidance of costs that are strictly related to peak capacity, it does not avoid all capacity costs imposed by these customers on the system. The specification in (v) was implemented by allocating a portion of the revenue increase to the PHA GS class in such a way that the resulting rate would move closer to, but remain below, the Residential GS rate.

Q. PLEASE DESCRIBE YOUR RECOMMENDED ALLOCATION OF THE RATE INCREASE.

A. Distribution rates were developed based on the proposed revenue allocation and the previously described goals set forth by the Company:

i. Increase the monthly fixed customer charges proportionally for each Rate Class, to more closely reflect the fixed nature of certain costs that are driven by the number of customers and that do not vary with the volume of gas consumed. As shown in Exhibit PQH-2, the proposed customer charges are significantly lower than the charges that are supported by the CCOSS. I discuss customer-related costs and customer charges in more detail in Section VI.

ii. Set volumetric delivery charges that are the same within each of the following groups, including in each case heating and non-heating, and firm sales and firm transportation: Residential; Commercial; Industrial. Monthly customer charges are also the same within each such group.

iii. A separate rate was established for Philadelphia Housing Authority General Service.

iv. A combined rate was set for Municipal Heating, Municipal Non-Heating, and Philadelphia Housing Authority Rate 8, to reflect the fact that these Rate Classes have similar service requirements.

v. A separate rate established for Natural Gas Vehicle service.

vi. For the IT class, made no changes to the monthly customer charges, and allocated the same percent increase in the volumetric rate for each of the IT Rate Classes IT-A through IT-E.

Q. DID YOU PREPARE A SCHEDULE THAT SHOWS THE COMPANY'S PROPOSED RATE DESIGN?

A. Yes. I show the results of my rate design computation in Exhibit PQH-9.

Q. WHAT IS THE GPC AND HOW WAS IT COMPUTED?

A. The Gas Procurement Charge ("GPC") is a volumetric charge that is intended to recover certain costs associated with procuring natural gas, and applies to all firm sales customers. The GPC is developed to isolate these costs from the distribution charge.

Gas procurement costs include administrative salaries related to procuring natural gas, storage gas working capital, and cash working capital. These costs are divided by the total firm sales service volumes to develop the GPC, which is the same for all firm sales customers. To ensure revenue neutrality, a separate GPC credit is computed and is applied to the volumetric rates of firm sales as well as firm transportation customers. This credit is computed by dividing the gas procurement costs by firm sales and firm transportation volumes. Details of my computations can be found in Exhibits PQH-10.

Q. WHAT IS THE MFC AND HOW WAS IT COMPUTED?

A. The Merchant Function Charge ("MFC") is a volumetric charge that is intended to recover the cost of uncollectible accounts expenses related to natural gas supply for each Rate Class. It is developed to isolate uncollectible costs from the distribution charge. The MFC applies only to firm sales customers and the charge for each Rate Class is different.

The MFC is a function of the uncollectible accounts for each Rate Class. The first step in the calculation was to compute the average percentage of uncollectible amounts for each Rate Class for Fiscal Years 2014 through 2016. This percentage was applied to the forecasted GCR revenues in the Test Year to determine the total amount of uncollectibles to be recovered via the MFC. The MFC for each Rate Class was calculated by dividing the uncollectible GCR costs for each Rate Class by the corresponding total firm sales volumes. Similarly to the GPC, a credit was computed to apply to all firm sales and firm transportation volumes. Details of my computations can be found in Exhibits PQH-11.

Q. DID YOU COMPARE THE REVENUE UNDER THE CURRENT TARIFF TO THE REVENUE UNDER THE TARIFF RATES THAT THE COMPANY IS PROPOSING?

A. I have not. This computation is presented in the testimony of Mr. Dybalski.

VI. CUSTOMER-RELATED COSTS

Q. WHAT ARE CUSTOMER-RELATED COSTS?

A. Customer-related costs are the costs incurred to connect a customer to the distribution system, the capital costs and expenses associated with metering gas usage, and the costs to maintain the customer's account and provide customer service. Customer costs vary as a function of the number of customers served, and do not depend on the amount of gas consumed by customers.

Q. WHY IS IT APPROPRIATE TO COLLECT CUSTOMER-RELATED COSTS VIA A FIXED CUSTOMER CHARGE?

A. As previously discussed, customer-related costs do not depend on the amount of gas consumed, but rather are a function of the number of customers served. For this reason, a fixed monthly charge is appropriate because it reflects the invariance of these customer costs with respect to consumption that this charge is

intended to recover. It also enhances the Tariff's ability to recover these costs in the face of changes in consumption and, thus, reduces coverage risk for fixed costs.

Q. WHAT COSTS ARE INCLUDED IN PGW'S CUSTOMER-RELATED COSTS AND HOW WERE THESE ALLOCATED AMONG RATE CLASSES?

A. Customer-related costs were allocated in a way consistent with the methodology I use to conduct the present CCOSS. The total customer-related cost is the sum of the amounts that were classified to Customer in the classification step of the PGW CCOSS. Details of the allocation of customer-related expenses can be found in Exhibit PQH-3F, Exhibit PQH-3G, and Exhibit PQH-3H. A summary of the total amount for each functional classification can be found in Exhibit PQH-2.

Q. DID YOU CALCULATE THE CUSTOMER-RELATED COSTS FOR EACH OF THE RATE CLASSES?

A. Yes, I did. In Exhibit PQH-2 I show the total dollar amount assigned to each Rate Class by functional classification, and I also compute the monthly fixed customer charge that would be supported on a cost of service basis. I do this by dividing the total customer related costs by the number of customers in each Rate Class. We relayed this information to PGW for the Company to consider as it made a determination for their proposed customer charges. For additional details please refer to the testimony of Mr. Dybalski.

Q. DID YOU COMPARE THE MONTHLY CUSTOMER CHARGES BEING PROPOSED BY PGW TO THE CUSTOMER RELATED COSTS YOU CALCULATED IN THE PGW CCOSS?

A. Yes. For every Rate Class, the proposed monthly Customer Charge is lower than the customer related costs on a per customer-month basis in the PGW CCOSS for the Fully Projected Future Test Year. In other words, on a cost causation basis, PGW would be justified to propose customer charges that are notably higher than

the ones the Company is proposing. An increase in the customer charge makes progress towards rates that more closely reflect the fixed nature of the costs related to serving individual customers and that do not vary greatly with the amount of gas consumed.

VII. THE USE OF A 10-YEAR WEATHER NORMAL

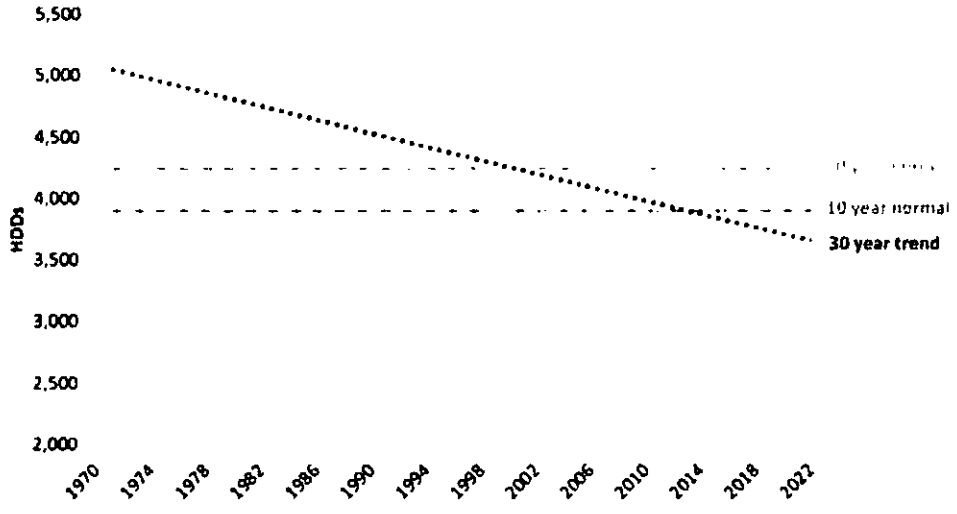
Q. PGW WITNESS DYBALSKI (PGW ST. 6) HAS INDICATED THAT THE COMPANY USED A 10-YEAR AVERAGE TO CALCULATE NORMAL DEGREE DAYS TO DETERMINE PRO FORMA REVENUES BASED ON YOUR RECOMMENDATION. WHY DID YOU RECOMMEND THAT PGW UTILIZE A 10-YEAR WEATHER NORMAL RATHER THAN THE 30-YEAR WEATHER NORMAL USED HISTORICALLY?

A. Utilities and other organizations incorporate overall climatic trends into projections for heating and cooling degree days. In order to remain consistent with changing trends, shorter time horizons (e.g. 10-year normals) and trended normals have also been adopted.[2] Weather normals with shorter time horizons adapt to current conditions but may need to be updated as climatic shifts continue, while trended normals inherently track continued climate trends. As shown below in Figure 1, a 30-year trended normal (1986-2015) based on the Richmond Station data produces a projection of 3,797 Heating Degree Days ("HDDs") in 2017 and 3,661 HDDs in 2022. The 10-year normal (2006-2015) produces 3,905 HDDs, a higher number that corresponds to colder weather, and the "30 year average" normal produces 4,247 HDDs, the coldest projection of the three.

[2] For example, the Department of Energy's 2016 Annual Energy Outlook projects residential heating and cooling degree days informed by a 30-year linear trend.

See: http://www.eia.gov/outlooks/aeo/assumptions/pdf/residential.pdf

Figure 1: Historical and Trended Weather Normals[3]



I recommend that PGW utilize the 10-year average because:

i. the 30-year average is no longer supportable as reflective of "normal" degree days in PGW's service territory;

ii. the 10-year average is a more supportable methodology compared to the current 30-year average approach, although it is likely not as accurate a forecast of HDDs as the one that would result from using a 30-year trend; and

iii. the use of an average rather than a trend is consistent with the past use of degree day averages to determine normal weather.

Q. OTHER THAN THE DATA PRESENTED ABOVE, ARE THERE OTHER REASONS TO USE A 10-YEAR WEATHER NORMAL?

A. Yes, based on its observations and feedback from the energy industry, the National Oceanic and Atmospheric Administration ("NOAA") has developed

[3] The Richmond Station Heating Degree Day data was provided by PGW. The 30-year normal and 30-year trended normal are based on the annual HDDs for 1986-2015. The 10-year normal is based on annual HDDs for 2006-2015. The annual HDDs corresponded PGW's fiscal year of September – August and included all months' HDDs.

"alternative" normals; these normals are specifically designed to better reflect current and future climate conditions than 30-year normals.[4] These alternative normals include shorter time horizons (5-20 years) as well as a trended normal, which uses a statistical approach called a Hinge Fit.[5]

Q. WHAT IS THE EFFECT ON RATES OF MOVING FROM A 30-YEAR TO A 10-YEAR WEATHER FORECAST TEST YEAR?

A. The effect of this change on proposed rates is largest for the Residential and Commercial heating classes. A move to 10-year weather normal results in a lower estimate of sales relative to that which would occur under a 30-year weather assumption (but higher than the 30-year trend). This has a dual impact on rates. On one hand, all else being equal, a higher level of sales would result in a lower volumetric rate for all Rate Classes given that the revenue requirement would be divided over a larger number of units of gas. On the other hand, the move to 10-year weather has a proportionally larger impact on the Residential and Commercial heating classes. As a result of lower volumes, in the CCOSS these classes would be allocated a relatively smaller share of those costs that are allocated based on their consumption. All else being equal this would result in a reduction in rates for these classes. The combined effect of this change on each Rate Class will depend on the difference in projected consumption for each class, and the cost characteristics of the services provided. Quantifying the effect of this change on rates was beyond the scope of my assignment.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

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[4] Anthony Arguez, Russel Vose, and Jenny Dissen, "Alternative Climate Normals: Impacts to the Energy Industry," American Meteorological Society, June 2015: 915-917.

[5] National Oceanic and Atmospheric Administration, "Defining Climate Normals in New Ways." https://www.ncdc.noaa.gov/news/defining-climate-normals-new-ways. Accessed February 15, 2017.

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Philip Q Hanser is a principal of The Brattle Group and has over thirty-five years of consulting and litigation experience in the energy industry. He specializes in regulatory and financial economics, especially for electric and gas utilities, in areas such as retail tariffs, transmission pricing, marginal and avoided costs, and integrated resource planning. He is experienced in environmental issues, forecasting, marketing and demand-side management, and other complex management and financial matters. He also provides assistance in statistical matters including sample design and data analysis.

He has appeared as an expert witness before the U.S. Federal Energy Regulatory Commission (FERC), and numerous state public utility commissions, environmental agencies, Canadian utility boards, as well as arbitration panels, and in federal and state courts. Since 2009, Mr. Hanser has taught industry professionals about the principles and practice of cost of service calculations and rate design on behalf of the Edison Electric Institute in its Advanced Rates Course. He served for six years on the American Statistical Association's Advisory Committee to the Energy Information Administration (EIA). He is a member of IEEE (Institute of Electronics and Electrical Engineers), CIGRE (Conseil International des Grands Reseaux Electriques).

Prior to joining The Brattle Group, Mr. Hanser held teaching positions at the University of the Pacific, University of California at Davis, and Columbia University, and served as a guest lecturer at the Massachusetts Institute of Technology, Stanford University, and the University of Chicago. He currently is a Senior Associate in the Mossavar-Rahmani Center for Business and Government at the Harvard Kennedy School and co-leads a seminar in public policy analysis. He has also served as the manager of the Demand-Side Management Program at the Electric Power Research Institute (EPRI). He has been published widely in leading industry and economic journals.

AREAS OF EXPERTISE

- Analysis of Electricity Generation, Contracts, and Wholesale Markets
- Resource Planning and Procurement
- Environment
- Energy Efficiency, Demand-Side Management, and Renewables
- Analysis of Market Power
- RTO Design and Participation
- Forecasting and Weather Normalization
- Rate Design and Related Issues
- Transmission
- Plant Performance and Strategy
- Utility Financial Issues

EDUCATION

Ph.D. Candidacy Requirements Completed, Columbia University, NY 1975

Phil.M. (Economics and Mathematical Statistics) Columbia University 1975

A.B. (Economics and Mathematics) The Florida State University, FL 1971

University of California at Berkeley Engineering Extension Course
Time Series and Econometric Forecasting September 1979

Data Analysis and Regression, American Statistical Association
Short Course, San Diego, CA August 1978

ACADEMIC POSITIONS

Harvard Kennedy School
Senior Associate in the Mossavar-Rahmani Center for Business and Government
Co-Leader BGP-150Y Business and Government Policy Analysis Concentration Seminar 2012-present

Massachusetts Institute of Technology, Cambridge, MA
Guest Lecturer, Energy Laboratory Short Courses 1997-1998

University of California, Davis; Davis, CA
Visiting Lecturer, Department of Economics 1981-1982

University of the Pacific, Stockton, CA
Assistant Professor, Departments of Economics and Mathematics 1975-1980

EXPERIENCE

Analysis of Electricity Generation, Contracts, and Wholesale Markets

- Provided expert testimony in Massachusetts state court on the impacts of alleged violations of a wholesale power contract on a supplier in ISO-NE.
- For the California Department of Water Resources, provided expert testimony in federal bankruptcy court with regard to the public interest standard to be applied to Calpine

Corporation's rejection of its contracts. This assignment included a valuation of the contract over time through the use of a simulation model of the California market, as well as an assessment of the potential reliability implications for the California market.

- For the California Department of Water Resources and the California Attorney General's Office, provided expert testimony on damages resulting from Sempra Energy Resources breaches of its power purchase agreement in both arbitration hearings and before the California state court. Analyzed two years of hourly data on energy deliveries, market prices, ISO charges, and invoice charges to identify and evaluate performance violations and invoice overcharges. Assisted counsel in developing the theory of the case and provided general litigation support in preparation for and during arbitration.
- For Dominion Electric Marketing, Inc. (DEMI), provided assistance in their response to a complaint by United Illuminating (UI) regarding their wholesale supply contract. The dispute centered on the allocation of reliability must-run costs between UI as a load-serving entity and DEMI as wholesale supplier.
- For the California Department of Water Resources, reviewed the California ISO's proposed implementation of locational marginal pricing (LMP) and analyzed implications for "seller's choice" supply contracts. Developed a framework for quantifying the incremental congestion costs that ratepayers would face if suppliers delivered power to the lowest priced nodes, and estimated potential incremental contract costs using a third party's GE-MAPS market simulations. Made recommendations to the CAISO regarding how to address the issue.
- Provided expert testimony in Massachusetts state court on the damages incurred by a power plant developer as a result of alleged contractual violations by a supplier for a plant constructed in ISO-NE.
- For a Florida utility, provided a confidential expert report evaluating the benefits of the power from a co-generator and its potential rate implications, and assisted in the negotiation of a co-generation contract with a large industrial customer.
- Assisted a U.S. electric utility in the preparation of a bid proposal to an industrial firm for the leasing of a new power plant. The assignment included risk analysis of the proposal, assessment of financial and rate impacts, and market assessment of competitors' potential offerings.
- For a merchant generation company, provided testimony on the fairness of a resource procurement action.

Resource Planning and Procurement

- For the Edison Electric Institute, co-authored a report on the general inapplicability of standard financial portfolio theory to the resource portfolios of utilities.
- For the investor-owned utilities of Wisconsin, provided testimony before the Public Service Commission of Wisconsin on cost of capital issues for use in its statewide resource planning exercise.
- For an international development bank, evaluated generation resource needs for an Eastern European country as well as provided a determination of alternative means to meet those generation needs. This assignment included analysis of the impact of privatization on the country's economy, its import and export sectors, and future development of electricity and gas resources.
- For a western utility, developed an assessment its resource options, with a particular view towards future environmental regulation.
- For a southern utility, performed an assessment of the value of adding a gas-fired generating station.

Environment

- For an eastern U.S. utility with substantial coal-generating facilities, provided advice with regard to maintenance procedures and risk exposure to New Source Review standards under the Clean Air Act Amendments.
- For a western generator with substantial coal-generating facilities, provided assistance with regard to responding to allegations by the Environmental Protection Agency of failure to comply with the New Source Review standards under the Clean Air Act Amendments.
- For Illinois Power Company, provided expert testimony in federal court on the regulatory and rate base implications of the Clean Air Act Amendments, in support of the calculation of noncompliance economic damages arising from New Source Review.
- For a gas utility, assisted in the development of potential manufactured gas liabilities for use in insurance recovery and in estimating potential recovery under a variety of insurance allocation theories and estimated risk distribution.
- For a gas utility, assisted in the assessment of the announcement effect of environmental liabilities on its cost of capital. This assignment included estimation of changes in market betas for pre- and post- environmental liability announcement.

Energy Efficiency, Demand-Side Management, and Renewables

- For a large utility in the southern United States, prepared expert report investigating alternative cost allocation approaches for generation capacity, fuel, and demand-side management (DSM) costs, both through a review of the methods, surveys of practice, as well as the financial impacts on the utility. The cost allocation assessment included cost allocation across jurisdictions as well as within a jurisdiction.
- For Central Vermont Public Service, provided expert testimony on the impact of its DSM programs before the Vermont Public Service Board.
- For Ameren/UE's Illinois subsidiaries, provided expert testimony on the potential for gas DSM and resulting potential rate implications.
- For a northeastern utility, developed an assessment of the potential penetration rate of microturbines. For the utility service territories under consideration, evaluated the back-up generation rates and connection charges likely to be incurred for such systems to determine customer costs and benefits.
- For a utility located in WECC procuring renewable resources, provided a system integration study for a range of renewable project proposals. Used production costing and power flow models to estimate the "deliverability" of various proposals, including estimating the LMP prices and the potential congestion costs. Ranked the proposed renewable power projects by their estimated benefits and costs and delivered a formal presentation to the utility's executives at the completion of the project.
- For a power marketer and developer of independent power projects in Great Britain, assisted in the preparation of comments on proposals by the UK pool regarding the role of demand-side bidding and the pricing of transmission losses.
- For a Texas utility, provided expert testimony regarding breach of contract claims made against it by an industrial participant in an energy efficiency project. Reviewed the energy efficiency impacts of program. Calculated the net present value of the project in relation to various rate options and market prices.
- For Connecticut Light and Power, provided testimony in support of an application for a Certificate of Environmental Compatibility and Public Need for the construction of a 345-kV electric transmission line and reconstruction of an existing 115-kV electric transmission line. At issue was the use of distributed resources to substitute for the proposed lines.

Analysis of Market Power

- For the California Parties, provided litigation support and testimony regarding manipulation of energy and ancillary service market prices and the outage behavior of gas fired power plants during 2000-01. The proceeding, before the Federal Energy Regulatory Commission, involved Enron, Dynegy, Mirant, Reliant, Williams, and other suppliers in the U.S. and Canada. The analyses focused on the use by suppliers of generation outages to affect market prices through physical withholding, as well as the use of pricing to yield economic withholding.
- For the California Parties, provided litigation support and testimony regarding Enron's transmission and ancillary services market manipulation strategies, including 'Death Star' and 'Get Shorty.'
- For Southern California Edison, submitted testimony before the FERC describing the implications of manipulation of gas market prices on the electricity market.
- For Sierra Pacific Resources Company, provided expert testimony before the Public Utilities Commission of Nevada and the FERC regarding the market power implications of generation asset divestiture required for the merger of Sierra Pacific Power and Nevada Power Company. Developed a Cournot market model to assess the market power implications of selling off alternative groupings of generation.
- For the Pennsylvania-New Jersey-Maryland Interconnection, LLC (PJM), co-authored annual report on the state of its markets. The report included an assessment of the market's competitiveness and potential structural deficiencies, and identified potential instances of market abuse.
- For PJM, developed an ensemble of metrics for assessing market power in its markets. The metrics included an early warning system to permit PJM interventions into market abuse at the earliest possible stage.
- For PJM, developed software for unilateral market power assessment and assisted PJM in its preliminary implementation. Its use was demonstrated with an incident involving potential market power abuse by PJM members.

RTO Design and Participation

- For Northeast Utilities, provided testimony before the FERC with regard to the economics of imposing local installed capacity (LICAP) requirements on ISO-NE. Also provided expert testimony before the FERC in support of its applications for market-based rate authority.
- For NSTAR, provided testimony before the FERC on several matters: first, the necessity of imposing bid caps on the New England electricity market; second, replacement energy rates for generators when transfer capability into a transmission-constrained zone was reduced because of system upgrades; and third, the appropriateness of granting market-based rate authority to a generator in a transmission-constrained zone. Developed a Cournot market model to forecast the potential impact on market prices in the transmission-constrained zone in which the majority of NSTAR's service territory is located.
- For Nevada Power Company, provided expert testimony before the FERC for its market-based rate authority application.
- For Otter Tail Power Company, provided an affidavit to the FERC assessing how the Midwest ISO's proposed Transmission and Energy Market Tariff would affect Otter Tail Power, both operationally and financially. Based on the strategies that were pursued by some market participants during the 2001 California electricity market crisis, demonstrated the potential to pursue similar strategies in MISO and harm Otter Tail and its customers.
- For Edison Mission Energy's subsidiary Midwest Gen, provided expert testimony to the FERC for its market-based rate authority application.
- For a Midwest utility, examined the implications of differing configurations of the independent system operator (ISO) on potential market power concerns. The issue particularly examined was the question of seams and how different ISO configurations affected the costs of transactions.
- Co-authored a report for the New York Independent System Operator assessing the reliability implications of modifying its rules regarding installed capacity.
- Submitted testimony to the Public Utilities Commission of Texas (PUCT) regarding a proposed rule to allocate costs of procuring replacement reserves to market participants in ERCOT.
- For the Edison Electric Institute, authored a report on standard market design and its implications for utilities within regional transmission organizations.

Forecasting and Weather Normalization

- For a northeastern utility, developed an assessment of the potential penetration rate of microturbines using a statistical diffusion model. For the utility service territories under consideration, evaluated the back-up generation rates and connection charges likely to be incurred for such systems to determine customer costs and benefits.
- For the Pennsylvania-New Jersey-Maryland Interconnection, LLC (PJM), co-authored an assessment of its forecasting model
- For Florida Power and Light Co., provided testimony before the Florida Public Service Commission with regard to its forecasting methodology.
- For an electric utility in the Southeast, reviewed the existing weather normalization process and diagnosed problems with weather data and regression models. Developed alternative daily and monthly normalization models, improved degree-day specification, selection of weather stations, and regression specification to double prediction accuracy and improve stability of normalization process.
- For PJM, conducted a review of models for forecasting peak demand and re-estimated new models to validate recommendations. Models were developed for 18 individual transmission zones as well as for the entire PJM system.
- For a Southwestern utility, developed models for forecasting monthly sales and loads for residential, commercial and industrial customer classes using primary data on customer loads, weather conditions, and economic activity.
- For the Public Service Company of New Mexico, provided expert testimony before the Public Utilities Commission of New Mexico regarding the forecasted growth of the El Paso, Texas and Juarez, Mexico markets and their electricity requirements.
- For a Southeastern utility, developed a model for forecasting monthly demand that incorporated the impacts of its significantly declining housing market and which served as the basis for its treasurer's revenue forecast.

Rate Design and Related Issues

- For a Midwest utility, provided support for its rate designs, including cost of service development and certification of conformance with state regulations.
- For an industrial customer, provided testimony before a state public utility commission on the appropriate cost allocation and rate design approach for a municipal water utility.
- For a utility in PJM, performed a marginal cost/avoided cost study to be used in evaluating its demand-side management energy efficiency programs, demand responsive rates, and seasonal and time-of-use rates. Included geographic-specific assessment of marginal distribution and transmission costs.
- For intervenors in Toronto Hydro Electric System Limited (THESL), provided testimony on cost allocation issues with regard to THESL's suite metering program.
- For Ameren/UE's Missouri subsidiary provided expert testimony on its rate design before the Missouri Public Utility Commission. Assisted the development of company witnesses' rationale for the choice of cost of service allocation method, developed benchmarks for the rate increase against similarly situated utilities, as well for other commodities' escalations, and evaluated proposed demand-side management programs and rate options.
- For Ameren/UE's Illinois subsidiaries, provided expert testimony on the potential for gas demand-side management. The testimony discussed potential rate implications of such programs on the revenue of the utilities.
- For the Edison Electric Institute, co-authored a series of papers with regard to issues facing utilities. The reports covered the issues of fuel adjustment clauses, mitigating large rate increase impacts, and the Energy Policy Act of 2005.
- For the City of Vernon, California, submitted testimony to the FERC regarding its revenue requirements for transmission.
- For the Edison Electric Institute, served as an instructor in the Advanced Rates School on the topics of cost allocation, rate design, and marginal costs.
- For the ISO-NE, served as instructor on retail cost allocation and ratemaking.
- For Hydro Québec, provided testimony before the Régie d'Énérgie regarding the conformance of its Open Access Transmission Tariff with U.S. FERC regulations.
- Before staff members of the FERC, assisted in the development of a review of the implications of the restructuring in transmission assets' cost of capital and wholesale rates.

- For a power marketer and developer of independent power projects in Great Britain, assisted in the preparation of comments on proposals by the UK pool regarding the pricing of transmission losses and the role of demand-side bidding.
- For a utility in PJM with multiple jurisdictions provided an assessment of alternative demand and energy cost allocation procedures. Included separate assessments for each jurisdiction as well as an assessment for generation and transmission assets commonly shared by all jurisdictions.
- For a European transmission company, provided an analysis of the likely development of the European electricity market. Also assessed market implications for the transmission company of modifications to the transmission grid.
- For Hydro Québec, provided expert testimony before the Régie d'Énérgie regarding whether a set of privately held transmission facilities constituted a looped transmission system and, thus, was subject to requests for transmission service.
- For Omaha Public Power District, provided assistance in the performance of its cost of service study, retail and wholesale rate designs. Also redesigned its cost of service models.
- For Arizona Public Service, provided assistance in the development of a cost of service basis for separating its residential customers with rooftop solar photovoltaic into a separate rate class.
- For Nevada Power, provided assistance in the development of a cost of service basis for separating its residential customers with rooftop solar photovoltaic into a separate rate class.
- For Pacific Gas and Electric, redesigned the marginal cost of service models, as well as their software implementation, for revenue cycle services and distribution system costs.
- For Wolverine Power Cooperative, provided testimony to the FERC supporting its request for formula rates.
- For the Hawaii Electric Company, assessed alternative performance incentive mechanisms in a report which was submitted to the Hawaii Public Utility Commission.
- For FirstEnergy/Jersey Central Power and Light, provided assistance in their development of their costs of service submitted to the New Jersey Board of Public Utilities.
- For National Grid, assessed alternative performance incentive mechanisms in a report which was submitted to the Massachusetts Department of Public Utilities.

Plant Performance and Strategy

- For the Keystone-Conemaugh Project Office, performed a benchmarking analysis to identify the areas in which Keystone and Conemaugh coal units were better performing or under-performing compared to other units with similar characteristics. This involved comparing the historical

operational and cost performance of the Keystone and Conemaugh coal units against their peer groups; identifying the areas where the performance of the Keystone and Conemaugh coal units were above and below the average quartile of their peer groups; and developing metrics and methodologies to combine the results of individual comparisons across the operational and cost performance assessments.

- For a U.S. electric utility, assisted in the development of a legislative and regulatory strategy with regard to restructuring. This assignment included generation asset valuation in a competitive market, development of stand-alone transmission and distribution rates under cost-of-service and performance-based regulation, and estimation of stranded costs.

Utility Financial Issues

- For the Edison Electric Institute, co-authored a report on the general inapplicability of standard financial portfolio theory to the resource portfolios of utilities.
- For a gas utility, assisted in the assessment of the announcement effect of environmental liabilities on its cost of capital. This assignment included estimation of changes in market betas for pre- and post- environmental liability announcement.
- For the investor-owned utilities of Wisconsin, provided testimony before the Public Service Commission of Wisconsin on cost of capital issues for use in its statewide resource planning exercise.
- For the developer of a synthetic natural gas plant in Indiana, provided testimony before the Indiana Utility Regulatory Commission on the appropriate approach to assessing financial risk for the plant.
- For the developer of a synthetic natural gas plant in Illinois provided a series of testimonies before the Illinois Commerce Commission on the appropriate cost of equity for the plant.
- For the developer of a synthetic natural gas plant in Illinois, provided testimony before the Illinois Construction Development Board on the appropriate range of capital costs and operations and maintenance expenses.

Other Energy Experience

- For the Edison Electric Institute, conducted annual workshop for Electric Rate Advanced Course, "Introduction to Efficient Prices." University of Wisconsin, Madison, July 2009 - Present.

- For the Edison Electric Institute, conducted annual workshop for Electric Rate Advanced Course, "Rate Class Cost Allocation," University of Wisconsin, Madison, July 2009 - Present.
- For the Edison Electric Institute, conducted annual workshop for Electric Rate Advanced Course, "Ratemaking by Objective: It Can Be Done," University of Wisconsin, Madison, July 2009 - Present.
- For the Edison Electric Institute, conducted Pre-Course Workshop for Electric Rate Advanced Course, "Traditional Embedded Costing and Pricing Concepts," University of Wisconsin, Madison, July 26, 2009.
- For the Edison Electric Institute, conducted workshop for Electric Rate Advanced Course, "Unbundling Methodologies," University of Wisconsin, Madison, July 26, 2009.
- For the Edison Electric Institute, conducted webinar "Long-Term Energy Forecasts: Challenges and Approaches," June 17, 2009.
- For the Indiana Energy Conference, presented "It Ain't Your Father's IRP, Meeting Today's Challenges," October 2, 2008.
- For the NEPOOL Forecasting Committee Summer Meeting, presented "I'm a Forecaster – And You Can Too!," July 17, 2008.
- For the Electric Power Research Institute (EPRI), developed and directed a research program to provide electric utilities the following capabilities: marketing research, pricing and rate design, integrated resource planning, capital budgeting, environmental impacts of electric utilities and end-use technologies, load research, forecasting, and demand-side management through software tools, database development, and technology development. Assisted in the development of the Load Management Strategy Testing Model (LMSTM) and served as its project manager, served as the project manager for the development of DSManager, a software for assessing efficiency programs for electric, gas, and water utilities, enhancements to the Electric Generation Expansion Analysis Model (EGEAS). Co-wrote reports on the environmental impacts of electric technologies, environmental externalities, cost-benefit analysis of DSM programs, rate design and costing, integrated resource planning, impacts of interruptible and curtailable rates, product differentiation, activity-based costing, DSM program evaluation, efficiency program development for electric, gas, and water utilities and others.
- For EPRI, served as project manager of the Edison Electric Institute (EEI), National Rural Electric Cooperatives Association (NRECA), American Public Power Association (APPA), and National Association of Regulatory Utility Commissioners (NARUC) jointly sponsored Electric Utility

Rate Design Study (*EURDS*). Represented the Institute before various regulatory commissions, federal agencies, and utility executives. Also for EPRI, served on the Environmental Protection Agency's advisory committee for the Clean Air Act Amendments and as the operating agent for Annex IV, Improved Methods for Integrating Demand-Side Options into Utility Resource Planning, of the International Energy Agency Agreement on Demand-Side Management.

- For a California utility, supervised short- and long-term forecasts of sales and peak demand for use in resource and corporate planning. Supervised and helped prepare forecast documentation for public hearings before the California Energy Commission and represented the utility to the Commission on the forecast. Supervised the design and implementation of long-term strategic planning and financial models, and prepared both marginal and embedded cost of service studies for the utility and assisted in their use for the design of customer rates. Evaluated the impact of energy conservation programs and legislation on long-term system resource requirements. Designed and implemented the residential survey of appliance holdings and commercial customer equipment survey.

Statistics and Sampling

- Designed a statistically valid database sampling procedure for assessing the validity of insurance claims arising from mass tort actions. The database contained summary information on the claims and for each claim there was, at times, voluminous information on the individual cases. The sampling procedure was used to determine which records would be chosen and assessed the individual's claim eligibility.
- Assessed the liability risk of an insurance company that provided coverage relevant to a mass tort suit. A Markov chain model was developed to estimate the size of the potential population and then a risk model was developed to calculate potential exposure.
- Developed a time to failure model to test the claims of generators during the California Electricity Crisis that their outage rates were not abnormal.
- Submitted testimony in bankruptcy court regarding the estimation of inventory subject to reclamation by a wholesale pharmaceuticals supplier which was sold to a bankrupt retail drug chain. The retail chain failed to maintain proper inventory records and a statistical approach which used a combination of data on overall inventory and the shipment and replenishment records of the supplier was used to develop the estimate.

TESTIMONY AND REGULATORY FILINGS

Before the United States District Court for The District of Montana Billings Division, Case no: CV 13-32-BLG-DLC-JCL, filed "Expert Report of Philip Q Hanser on Behalf of Defendants," regarding the evaluation of potential impacts of capital maintenance, repair and replacement projects on emissions from four Colstrip Units, November 14, 2014.

Before the Hawai'i Public Utilities Commission, Docket No. 2013-0141, filed "Targeted Performance Incentives: Recommendations to the Hawaiian Electric Companies" by William P. Zarakas and Philip Q Hanser, regarding the analysis of the application of performance incentives to electric utilities, September 15, 2014.

Before the Federal Energy Regulatory Commission, Docket No. ER15-249-000, filed "Prepared Direct Testimony of Philip Q Hanser on behalf of Wolverine Power Supply Cooperative, Inc." regarding a Request for Change in Rates to Distribution Cooperative Member-Owners, October 30, 2014.

Before the Public Utilities Commission of the State of Colorado, Proceeding No. 13F-0145E, "Answer Testimony and Exhibits of Philip Q Hanser on behalf of Tri-State Generation and Transmission Association, Inc.," regarding an Analysis of Complaining Parties' Responses to Tri-State Generation and Transmission Association, Inc., September 10, 2014.

Before the Public Service Commission of Wisconsin, Docket No. 3720-WR-108, filed "Direct Rebuttal and Surrebuttal Testimony of Philip Q Hanser on behalf of MillerCoors L.L.C." regarding the Application of Milwaukee Water Works for Authority to Increase Water Rates, June 2014.

Before the District Court for the Eastern District of Missouri, Civil Action No. 4:11-cv-00077-RWS, filed "Expert Report of Philip Q Hanser on behalf of Ameren Missouri," regarding the New Source Review enforcement case, May 16, 2014.

Before the Illinois Commerce Commission of the State of Illinois, Docket No. 13-0387, filed "Rebuttal Testimony of Philip Q Hanser on behalf of Commonwealth Edison Company," regarding their tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design authorized by subsection 16-108.5(e) of the Public Utilities Act, August 19, 2013.

Before the Public Utilities Commission of the State of South Dakota, EL 11-006, filed "Wind Integration Services - Summary of Industry Practices in North America, on behalf of NorthWestern Energy," in the Matter of the Complaint by Oak Tree Energy LLC against NorthWestern Energy for refusing to enter into a Purchase Power Agreement, July 8, 2013.

Before the Régie de l'énergie, R-3848-2013, filed "Direct Testimony of Philip Q Hanser on Behalf of Hydro-Québec Distribution" regarding their Application for approval of characteristics of Wind Integration Services and acquisition analysis of other wind integration services, June 2013, January 2014.

Before the Federal Energy Regulatory Commission, "Prepared Direct Testimony of Philip Q Hanser on behalf of NV Energy Operating Companies," regarding whether use of a 12-CP cost allocation method is appropriate for the NV Energy transmission system from a cost allocation perspective, May 2013.

Before the Federal Energy Regulatory Committee, Prepared Direct and Rebuttal Testimony and Exhibits of Philip Q Hanser in Support of the Refund Claims of the City of Seattle, Washington, for the Period January 1, 2000 through December 24, 2000, on behalf of the City of Seattle, Washington, EL01-10-085, March 12, 2013, June 3, 2013, July 26, 2013.

Before the Commonwealth of Massachusetts Department of Public Utilities, "Review and Analysis of Service Quality Plan Structure In the Massachusetts Department of Public Utilities Investigation Regarding Service Quality Guidelines for Electric Distribution Companies and Local Gas Distribution Companies," with David E. M. Sappington and William P. Zarakas, as part of the Initial Comments of National Grid, DPU12-120, March 2013.

Before the Bonneville Power Administration, Direct and Rebuttal Testimony of Philip Q Hanser, John D. Martinsen, Felicienne NG, James M. Russell, and Paul Wrigley on Behalf of Benton County Public Utility District No. 1, Iberdrola Renewables, LLC, Tacoma Power, Seattle City Light, and Snohomish County Public Utility District No. 1, Docket No. BP-14-E-JP12-01, January 28, 2013, March 11, 2013.

Before the Illinois Commerce Commission, Report of Philip Q Hanser on Behalf of Chicago Clean Energy, LLC, on the Reasonableness of Chicago Clean Energy's Cost of Equity, October, 2011; Supplemental Report on Behalf of Chicago Clean Energy, LLC, November, 2011; Response Report of Philip Q Hanser on Behalf of Chicago Clean Energy, November, 2011, Certified Affidavit on Behalf of Chicago Clean Energy, LLC, December 2011.

Before the Louisiana Public Service Commission, Direct Testimony of Philip Q Hanser on Behalf of Calpine Corporation, Docket No. U-31971, November 22, 2011. (Testimony withdrawn as part of the settlement between Calpine and Entergy.)

Before the Illinois Construction Development Board, Supplemental Report of Philip Q Hanser on Behalf of Chicago Clean Energy, LLC, on the Reasonableness of Chicago Clean Energy's Estimate of Capital Costs, November, 2011. Supplemental Report of Philip Q Hanser on Behalf of Chicago Clean Energy, LLC, on the Reasonableness of Chicago Clean Energy's Estimate of Operations and Maintenance Expenses, November 2011.

Before the Indiana Utility Regulatory Commission, Rebuttal Testimony of Philip Q Hanser on Behalf of Indiana Gasification, LLC, IURC Cause No. 43976, June 2011.

Before the State of Illinois Commerce Commission, Prepared Direct Testimony of Philip Q Hanser on behalf of Interstate Power and Light Company with regard to their Petition For Approval Of Sale of Utility Assets Pursuant To Sections 7-102 Of The Public Utilities Act; and Approve the Discontinuance of Service Pursuant to 8-508 of the Public Utilities Act, 2011.

Before the Federal Energy Regulatory Commission, Supplemental Comments, Re: Notice of Proposed Rulemaking regarding Demand Response Compensation in Organized Wholesale Energy Markets," Docket Nos. RM10-17-000 and EL09-68-0, October 4, 2010, May 13, 2010.

Before the Régie de l'énergie, Prepared Expert Report of Philip Q Hanser on Behalf of Hydro-Québec TransÉnergie ("HQT"), Regarding HQT's Methodology for ATC Coordination, June 2010.

Before the Commonwealth of Massachusetts Trial Court, testified on behalf of MMWEC regarding the management and ownership of investor-owned utilities ("IOUs"), MMWEC, and municipal light departments ("Municipals") in Massachusetts before and after the passage of the Electric Industry Restructuring Act of 1997, as well as the impact of electric industry restructuring in Massachusetts on IOUs, MMWEC, and Municipals with respect to contract buyouts in the matter of MASSPOWER v. Massachusetts Municipal Wholesale Electric Company (MMWEC), Civil Case No. 07-3243 BLS2, March 2010.

Before the Ontario Energy Board, Prepared Witness Statement on Behalf of the Smart Sub-Metering Working Group in the Matter of Toronto Hydro-Electric System Limited's 2010 Electricity Distribution Rate Application, December 15, 2009.

Before the Superior Court of the State of California for the County of San Diego, Prepared Second Addendum Report to Expert Report of Philip Q Hanser, for the Office of the Attorney General of the State of California on Behalf of California Department of Water Resources, Case No. GIC 789291, September 30, 2009.

Before the Florida Public Service Commission on Behalf of Florida Power and Light Company, Prepared Rebuttal Testimony of Philip Q Hanser, Docket No. 080677-EI, August 6, 2009.

Before the Federal Energy Regulatory Commission on Behalf of the City of Vernon, California, Prepared Petition for Declaratory Order and Request for Waiver of Filing Fee of City of Vernon, California, Docket No. EL09-___-000, July 15, 2009.

Before the Régie de l'énergie, Prepared Supplemental Expert Report of Philip Q Hanser on Behalf of Hydro-Québec TransÉnergie, in Response to Newfoundland and Labrador Hydro's Complaint P-110-1692, June 2009.

Before the Federal Energy Regulatory Commission, on Behalf of The People of the State of California, ex rel. Edmund G. Brown Jr., Direct Testimony of Philip Q Hanser regarding emergency purchases the state authorized the California Energy Resources Scheduling Division of the California Department of Water Resources ("CERS") to make when the California investor-owned utilities (IOUs) could not purchase the power needed to serve their customers, Docket No. EL09- __ ("Brown Complaint"), May 22, 2009.

Before the Florida Public Service Commission on Behalf of Florida Power and Light Company, Prepared Direct Testimony of Philip Q Hanser, Docket No. 080677-EI, April 23, 2009.

Before the Superior Court of the State of California for the County of San Diego, for the Office of the Attorney General of the State of California on Behalf of California Department of Water Resources, Prepared Addendum to Expert Report of Philip Q Hanser, Case No. GIC 789291, March 31, 2009.

Before the Pennsylvania Public Utility Commission on Behalf of Pennsylvania Electric Company, Prepared Rebuttal Testimony of Philip Q Hanser and Metin Celebi Concerning the Causes and Pricing of Transmission Congestion, Docket No. P-2008-2020257, January 16, 2009, March 10, 2009.

Before the Régie de l'énergie, Prepared Expert Report of Philip Q Hanser on Behalf of Hydro-Québec TransÉnergie, in Response to Newfoundland and Labrador Hydro's Complaints P-110-1565, P-110-1566, P-110-1597, P-110-1678, and P-110-1692, December 2008.

Before the Pennsylvania Public Utility Commission, on Behalf of Pennsylvania Electric Company, Prepared Direct Testimony of Philip Q Hanser Concerning the Causes and Pricing of Transmission Congestion, Docket No. P-2008-2020257, July 30, 2008.

Before the Régie de l'énérgie, Prepared Affidavit on Behalf of Hydro-Québec Regarding the Public Availability of SIS Reports Performed by a Transmission Provider, June 19, 2008.

Before the Federal Energy Regulatory Commission, Prepared Direct Testimony on Behalf of the City of Vernon's Revised Transmission Revenue Requirement Filing with the FERC, Docket No. EL08-__-000, April 3, 2008.

Before the Régie de l'énérgie, Prepared Expert Report on Behalf of Hydro-Québec TransÉnérgie to Assess Whether the Transmission Facilities Owned by ELL may be Considered as a "Radial Generator Lead," Case No. R-3636-2007, March 13, 2008.

Before the American Arbitration Association, Prepared Rebuttal Report on Behalf of the California Department of Water Resources to Evaluate the Reports that William Hogan, Jeffrey Tranen, and Ellen Wolfe Provided on Behalf of Sempra Generation, Case No. 74Y1980019606MAVI, June 4, 2007.

Before the American Arbitration Association, Prepared Expert Report on Behalf of the California Department of Water Resources to evaluate certain claims made by the California Department of Water Resources ("DWR") in its Demand for Arbitration regarding the performance of Sempra Energy Resources, now known as Sempra Generation, under the Energy Purchase Agreement between the parties, and to calculate amounts that Sempra would owe to DWR assuming liability is established, Case No. 74Y1980019606MAVI, May 14, 2007.

Before the United States Bankruptcy Court, Northern District of Ohio, Eastern Division, Prepared Expert Report in Regard to McKesson's Inventory Reclamation in the Phar-Mor Bankruptcy, Case Nos. 01-44007 Through 01-44015, March 9, 2007.

Before the Public Utility Commission of Texas, Prepared Rebuttal Testimony on Behalf of Constellation New Energy, Inc.'s Appeal and Complaint of ERCOT Decision to Approve PRR 676, PRR 674 and Request for Expedited Relief, Docket No. 33416, January 11, 2007.

Before the Public Utility Commission of Texas, Prepared Direct Testimony on Behalf of Constellation NewEnergy, Inc. to analyze and discuss the flaws and potential negative impacts of the allocation methods under Protocol Revision Request ("PRR") 676 which relates to procurement costs for

Replacement Reserve Service ("RPRS") and Out of Merit Capacity, Docket No. 33416, November 22, 2006.

Before the American Arbitration Association, Prepared Rebuttal Report on Behalf of California Department of Water Resources vs. Sempra Energy Resources, Case No. GIC 789291, July 11, 2006.

Before the State Office of Administrative Hearings, Prepared Expert Report on Behalf of TXU Energy Solutions, Regarding their Demand-side Management Program and the Difference Between the Actual and Projected Savings in the Energy Bill of University of Texas, July 7, 2006.

Before the Missouri Public Service Commission, Prepared Direct Testimony on Behalf of Union Electric Company with Regard to Ameren UE's Rate Design Proposals, Case No. ER-2007-0002, July 5, 2006.

Before the Superior Court of the State of California for the County of San Diego, for the Office of the Attorney General of the State of California on Behalf of California Department of Water Resources, Prepared Expert Report, Case No. GIC 789291, June 9, 2006.

Before the Superior Court of the State of California, Prepared Declaration in Support of California State Agencies' Opposition to Motion on Shortened Time and Motion in Support of Preliminary Approval of Class Action Settlement, J.C.C.P. Nos. 4221, 4224, 4226 and 4228, June 8, 2006.

Before the Superior Court of the State of California, Prepared Declaration in Support of California State Agencies' Opposition to Proposed Publication Notice, J.C.C.P. Nos. 4221, 4224, 4226 and 4228, January 13, 2006.

Before the United States Bankruptcy Court, Prepared Declaration on Behalf of Calpine Corporation with Regard to the Public Interest Standard for the Rejection of the Contract, Case No. 05-60200 (BRL), December 30, 2005.

Before the FERC, Prepared Direct Testimony on Behalf of Dominion Energy Marketing, Inc. (DEMI), regarding a dispute between DEMI and The United Illuminating Company as to which party is responsible for paying certain costs associated with Reliability Must-Run agreements under a December 28, 2001 Power Supply Agreement between the two parties, Docket No. EL05-76-001, December 5, 2005.

Before the American Arbitration Association, Prepared Expert Report on Behalf of California Department of Water Resources vs. Sempra Energy Resources with Regard to Damages from Multiple Contract Breaches, Case No. 74Y1980019304VSS, May 2005.

Before the Federal Energy Regulatory Commission (FERC), Comment - "A Marginal - Value Approach to Pricing Reactive Power Services in Principles for Efficient and Reliable Reactive Power Supply and Consumption," Docket No. AD05-1-000, April 4, 2005, (with Martin Baughman and Philip Hanser).

Before the FERC, Prepared Supplemental Testimony on Behalf of the California Parties with Regard to Enron's Circular Scheduling and Paper Trading Gaming Practices, Docket No. EL03-180-000, January 31, 2005.

Before the FERC, Prepared Affidavit on Behalf of Northeast Utilities Service Company and Affiliated Companies' Market-based Rate Authorization, Docket No. ER96-496-010, et al., September 27, 2004, Revised December 9, 2004.

Before the Connecticut Siting Board, Prepared Testimony on Behalf of Connecticut Light and Power in support of its application for a Certificate of Environmental Compatibility and Public Need for the construction of a 345-kV electric transmission line and reconstruction of an existing 115-kV electric transmission line between Connecticut Light and Power Company's Plumtree Substation in Bethel, through the Towns of Redding, Weston, and Wilton, and to Norwalk Substation in Norwalk, Connecticut, Docket No. 217, November, 2004.

Before the FERC, Prepared Affidavit on Behalf of Otter Tail Power Company (OTP) Regarding Problems that May Result from the Implementation of MISO's Markets Tariff in OTP's Region, Docket No. ER04-691-000, May 7, 2004.

Before the FERC, Prepared Joint Affidavit with Judy W. Chang on Behalf of Devon Power LLC, et al., Docket No. ER03-563-030, March 24, 2004.

Before the FERC, Prepared Direct Testimony on Behalf of the California Parties with Regard to Enron's Circular Scheduling and Paper Trading Gaming Practices, Docket No. EL03-180-000, February 27, 2004.

Before the Commonwealth of Massachusetts, Prepared Expert Report on Behalf of Alstom Corporation and Black and Veatch vs. Meriden Corporation, LLC, Review of *"Value of the Meriden Power Project,"* Case No. 99-6016, January 9, 2004.

Before the FERC, Prepared Declaration on Behalf of The California Parties, Re: Gaming Activities Of Modesto Irrigation District, Docket No. EL03-159-000, October 2003.

Before the FERC, Prepared Affidavit on Behalf of Otter Tail Power Company For Otter Tail Power Company, Assessing how the Midwest ISO's Proposed Transmission and Energy Market Tariff will Affect Otter Tail Power both Operationally and Financially, Docket No. ER03-118-000, September 15, 2003.

Before the Pennsylvania Environmental Hearing Board, Prepared Expert Report on Behalf of Pennsylvania Power and Light, New Jersey Department of Environmental Protection vs. Pennsylvania Department of Environmental Protection and Lower Mount Bethel Energy, LLC, Docket No. 2001-280-C, May 2, 2003.

Before the FERC, Prepared Rebuttal Testimony on Behalf of Southern California Edison for the California Parties Regarding Manipulation of Energy and Ancillary Service Market Prices and the Outage Behavior of Gas Fired Power Plants, Docket No. EL00-95-069, March 20, 2003.

Before the FERC, Prepared Testimony on Behalf of Southern California Edison for the California Parties Regarding Manipulation of Energy and Ancillary Service Market Prices and the Outage Behavior of Gas Fired Power Plants, Docket No. EL00-95-069, February 24, 2003.

Before Southern District Court of Illinois, Prepared Expert Report for Department of Justice, Environmental Protection Agency vs. Illinois Power Company and Dynegy Midwest Generation Regarding the Likely Rate Treatment of Pollution Control Equipment Expenditures, Docket No.99-833-MBR, July 29, 2002.

Before the FERC, Prepared Direct Testimony on Behalf of Edison Mission Energy and Edison Mission Marketing and Trading, Inc. on Behalf of Midwest Generation's Application for Market-based Rate Authority, Docket No. ER99-3693-000, April 1, 2002.

Before the FERC, Prepared Rebuttal Testimony on Behalf of NSTAR on the Appropriate Rates for Generators During Transmission Upgrades or Enhancements Requiring Substantial and Sustained Reduction in Transfer Capability, Docket No. ER01-890-000, September 21, 2001.

Before the FERC, Prepared Affidavit on Behalf of NSTAR, in its Intervention of the Granting of Market-based Rate Authority to Sithe, Docket No. EL01-79-000, May 2001.

Before the FERC and the Public Utilities Commission of Nevada, Prepared Affidavit on Behalf of Sierra Pacific Resources Company, Regarding the Market Power Implication of Generation Asset Divestiture Required for the Merger of Sierra Pacific Power and Nevada Power Company, Docket No. EC0-173-000, February 23, 2001.

Before the California Energy Commission, Prepared Expert Report on Behalf of Calpine Corporation, Socioeconomic Resources: Economic Benefits of the Metcalf Energy Center, October 27, 2000.

Before the FERC, Prepared Affidavit on Behalf of NSTAR with Regard to the Necessity of Imposing Bid Caps on the New England Electricity Market, Docket No. EL00-83-000, June 23, 2000.

Before the FERC, Prepared Direct Testimony on Behalf of Nevada Power Company in Support of the Divestiture of its Generation Assets, Docket No. ER99-2338-001, June 24, 1999.

Before the FERC, Prepared Direct Testimony on Behalf of Nevada Power Company in Support of the Divestiture of its Generation Assets, Docket No. ER99-2338-001, March 30, 1999.

Before the Vermont Public Service Board, Prepared Rebuttal Testimony on Behalf of Central Vermont Public Service Corporation on the Impact of its Demand-side Management Programs, Docket No. 6018, April 10, 1998.

Before the New Mexico Public Utility Commission, Prepared Direct Testimony on Behalf of the Public Service Company of New Mexico Regarding Forecasted Growth of the El Paso and Juarez, Mexico Markets, Case No. 2769, 1997.

Before the FERC, Prepared Affidavit on Behalf of Southern California Edison Describing the Implications for the Electricity Market of the Manipulation of Gas Market Prices, Docket No. RP95-363-015, 1996.

Before the Public Service Commission of Wisconsin, Prepared Direct Testimony on Behalf of Investor-owned Utilities of Wisconsin on the Utilities Cost of Capital, Docket No. 05-EP-7, May 8, 1995.

PROFESSIONAL AFFILIATIONS

Association of Energy Service Professionals, Board Member	1991-1995
Journal of ADSMP, Editor	1995
American Statistical Association	1974-current
Member of ASA Committee on Energy Statistics	1993-1999
Conseil International des Grands Reseaux Electriques (CIGRE)	2005-current
Working Group C5-8, Working Group on Renewables and Energy Efficiency in a Deregulated Market	2008-2009
Institute of Electrical and Electronics Engineers (IEEE)	

ACADEMIC HONORS AND FELLOWSHIPS

Teaching Incentive Award, University of the Pacific	1979
Teaching Assistantship in Econometrics, Columbia University	1974
National Science Foundation Research Traineeship	1972 – 1974
Undergraduate and Graduate Research Assistantships, Florida State University	1968 – 1972
Omicron Delta Epsilon, Economics Honor Society	1971

PUBLICATIONS

"I Can't Do It On My Own: The Economics of Distributed PV/Battery Systems to Reduce Grid Reliance" (with Roger Lueken, Will Gorman, James Mashal) forthcoming in *Utilities Policy*.

"Chapter 20 - The Repurposed Distribution Utility: Roadmaps to Getting There," (with Kai van Horn) in Future of Utilities: Utilities of the future (Academic Press, 2016)

"Chapter 11 - The Next Evolution of the Distribution Utility," (with Kai Van Horn), in *Distributed Generation and its Implications for the Utility Industry*, Elsevier Inc., 2014.

"Annual Report on Wholesale Market Prices and Trends in the Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company Service Area," (with Mariko Geronimo Aydin), prepared for Met-Ed, Penelec, Penn Power and West Penn Power, November 2015.

"Reducing Utility Rate Shocks," (with Lawrence Kolbe), *Public Utilities Fortnightly*, June 2013.

"Redefining Normal Temperatures," (with Robert E. Livezey), *Public Utilities Fortnightly*, May 2013.

"Rates, Reliability, and Region: Customer satisfaction and electric utilities," (with William P. Zarakas and Kent Diep), *Public Utilities Fortnightly*, January 2013.

"What Price, GHGs?: Calculating the implied value of CO2 abatement in green energy policies," (with Mariko Geronimo), *Public Utilities Fortnightly*, Volume 150, October 2012.

"Rate Design by Objective: A purposeful approach to setting energy prices," *Public Utilities Fortnightly*, September 2012.

"State Regulatory Hurdles to Utility Environmental Compliance," *The Electricity Journal*, Vol. 25, Issue 3, April 2012.

"Riding the Wave: Using Demand Response for Integrating Intermittent Resources" (with Kamen Madjarov, Warren Katzenstein, and Judy Chang in Smart Grid: Integrating Renewable, Distributed and Efficient Energy, F.P. Sioshansi, ed. (New York: Academic Press, 2011).

"Marginal Cost Analysis in Evolving Power Markets: The Foundation of Innovative Pricing, Energy Efficiency Programs, and Net Metering Rates" (with Metin Celebi), *The Brattle Group, Inc. 2010 No. 2 (Energy).*

"Assessing Ontario's Regulated Price Plan: A White Paper," (with Ahmad Faruqui, Ryan Hledik and Jenny Palmer), *The Brattle Group, Inc.*, December 8, 2010.

"On Dynamic Prices: A Clash of Beliefs?," *The Electricity Journal*, Vol. 23, Issue 6, July 2010.

"Virtual Bidding: The Good, the Bad and the Ugly" (with Metin Celebi and Attila Hajos), *The Electricity Journal*, Vol. 23, Issue 5, June 2010.

"Utility Supply Portfolio Diversity Requirements" (with Frank Graves), *The Electricity Journal*, Vol. 20, Issue 5, June 2007.

"Electric Utility Automatic Adjustment Clauses Revisited: Why They Are Needed More Than Ever" (with Frank Graves and Greg Basheda), *The Electricity Journal*, Vol. 20, Issue 5, June 2007.

"Rate Shock Relief" (with Frank Graves and Greg Basheda), *Electric Perspectives*, May/June 2007.

"Rate Shock Mitigation" (with Frank Graves and Greg Basheda), prepared for Edison Electric Institute, May 2007.

"Electric Utility Automatic Adjustment Clauses: Benefits and Design Considerations" (with Frank Graves and Greg Basheda), Edison Electric Institute, August 2006.

"Can Wind Work In An LMP Market?," (with Serena Hesmondhalgh and Dan Harris), *Natural Gas & Electricity*, November 2005.

"The CAISO'S Physical Validation Settlement Service: A Useful Tool for All LMP-Based Markets" (with Jared des Rosiers, Metin Celebi, Joseph Wharton), *The Electricity Journal*, September 2005.

"LMPs/FTRs Alone Will Not Solve Transmission Problems Blackout Showed," *Natural Gas and Electricity*, Volume 20, Number 4, November 2003.

"A Summary of FERC's Standard Market Design NOPR," Edison Electric Institute, August 2002.

"The Design of Tests for Horizontal Market Power in Market-Based Rate Proceedings" (with James Bohn and Metin Celebi), *The Electricity Journal*, May 2002.

"The State of Performance-Based Regulation in the U.S. Electric Industry" (with David Sappington, Johannes Pfeifenberger, and Greg Basheda), *The Electricity Journal*, October 2001.

"Deregulation and Monitoring of Electric Power Markets" (with Robert Earle and James Reitzes), *The Electricity Journal*, October 2000.

"Shortening the NYISO's Installed Capacity Procurement Period: Assessment of Reliability Impacts," NYISO, May 2000.

"PJM Market Competition Evaluation White Paper," (with Frank Graves), prepared for PJM, L.L.C., October 1998.

"Lessons from the First Year of Competition in the California Electricity Market" (with Robert Earle, W.C. Johnson, and James Reitzes), *The Electricity Journal*, October 1999.

Comments to the FERC concerning Regional Transmission Organizations Notice of Proposed Rule Making, RM99-2, (with Peter Fox-Penner), September 17, 1999.

"In What Shape is Your ISO?," (with Johannes Pfeifenberger, Greg Basheda and Peter Fox-Penner), *The Electricity Journal*, Vol. 11, No. 6, July 1998.

"What's in the Cards for Distributed Resources?," (with Johannes Pfeifenberger and Paul Ammann), in Special Issue of *The Energy Journal, Distributed Resources: Towards a New Paradigm of the Electricity Business*, January 1998.

"One-Part Markets for Electric Power: Ensuring the Benefits of Competition" (with Frank Graves, E.G. Read, and Robert Earle), in *Power Systems Restructuring: Engineering and Economics*, ed. M. Ilic, F. Galiana, and L. Fink, Boston, MA: Kluwer Academic Publishers, 1998.

Ten EPRI reports and approximately 20 articles in EPRI Reports and Conference Proceedings including:

Environmental Externalities: An Overview of Theory and Practice

Environmental Impacts of Electric Technologies

Environmental Impacts of Electric Vans (TEVan) in the Los Angeles Air Basin (South Coast Air Quality Management District)

Technical Assessment Guide (TAG), Vol.4: Cost-Benefit Analysis of End-Use Technologies

Impact and Process Assessment of Energy Efficiency Technologies

Innovative Rate Design

Integrated Value-based Resource Planning

"Insurance Recovery for Manufactured Gas Plant Liabilities," (with Gayle Koch and Kenneth Wise), *Public Utilities Fortnightly*, April 1997.

"Real-Time Pricing - Restructuring's Big Bang?," (with Joseph Wharton and Peter Fox-Penner), *Public Utilities Fortnightly*, March 1997.

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"The Midwest ISO Capacity Market: Wither It Goest," Bruder, Gentile & Marcoux's 18th Annual FERC Briefing Midwest Edition, Chicago, Illinois, October 23, 2012.

"ISO Markets, Operations and Settlements," SNL Inside Utility Accounting Program, Charlotte, North Carolina, October 17, 2012.

"Revenue Sources," SNL Inside Utility Accounting Program, Charlotte, North Carolina, October 16, 2012.

"Impact of U.S. LNG on International Gas Prices," EIA International Natural Gas Workshop, Washington, DC, August 23, 2012.

"Framework for Assessing Capex and Opex Forecasts as Part of a "Building Blocks" Approach to Revenue/Price Determinations," (with Paul R. Carpenter, Toby Brown, and Pinar Bagci), Australian Energy Market Commission, June 2012.

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"Standard Market Design in the Electric Market: Some Cautionary Thoughts," SMD Conference, May 10, 2002, Chicago, Illinois.

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Exhibit PHQ-1

To

Exhibit PHQ-11

(See Volume 3)

Philadelphia Gas Works
2017 Base Rate Case

Docket No. R-2017-2586783

INDEX OF
CLASS COST OF SERVICE STUDY

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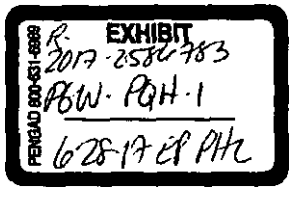
Exhibit PQH-1

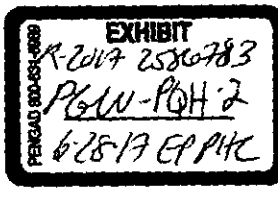


Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-1: Summary of Allocation Results

Dollars in Thousands			Total	Residential	Commercial	Industrial	PHA GS	Municipal/PHA	NGVS	Interruptible	GTS/IT
AT CURRENT RATES											
Total Revenue	[1]		491,318	385,459	77,324	5,899	1,499	8,852	20	18	12,246
Share of Revenue, by Class	[2]		*100.0%*	*78.5%*	*15.7%*	*1.2%*	*0.3%*	*1.8%*	*0.0%*	*0.0%*	*2.5%*
Total Operating Expenses	[3]		435,418	349,403	60,170	4,685	1,343	8,041	17	28	11,732
Share of Operating Expenses, by Class	[4]		*100.0%*	*80.2%*	*13.8%*	*1.1%*	*0.3%*	*1.8%*	*0.0%*	*0.0%*	*2.7%*
Income Before Interest & Surplus	[5]	[1] - [3]	55,899	36,056	17,154	1,213	157	811	4	(10)	514
Interest & Surplus	[6]		125,013	103,774	14,618	987	428	2,084	3	7	3,112
Current Revenue Over (Under) Requirements	[7]	[5] - [6]	(69,114)	(67,718)	2,536	226	(272)	(1,273)	1	(17)	(2,598)
Total Revenue Requirement*	[8]	[1] - [7]	560,431	453,177	74,788	5,673	1,771	10,125	20	34	14,844
Revenue Increase for Full Cost of Service	[9]		14.1%	18%	-3%	-4%	18%	14%	-4%	96%	21%
Rate Base	[10]		1,188,371	986,470	138,958	9,387	4,073	19,814	29	62	29,579
Return on Rate Base Before Interest & Surplus	[11]	[5] / [10]	4.7%	3.7%	12.3%	12.9%	3.9%	4.1%	13.4%	(16.4%)	1.7%
Relative Return	[12]		1.00	0.78	2.62	2.75	0.82	0.87	2.84	(3.50)	0.37
Revenues Relative to COS	[13]	[1] / [8]	**0.88**	**0.85**	**1.03**	**1.04**	**0.85**	**0.87**	**1.04**	**0.51**	**0.82**
Relative to Total for all Classes	[14]		1.00	0.97	1.18	1.19	0.97	1.00	1.19	0.58	0.94
AFTER PROPOSED INCREASE											
Proposed Increase (decrease)	[15]		70,000	59,000	5,000	(400)	400	500	0	0	5,500
Share of Proposed Increase, by Class	[16]		*100.0%*	*84.3%*	*7.1%*	*-0.6%*	*0.6%*	*0.7%*	*0.0%*	*0.0%*	*7.9%*
Total Distribution Revenue with Increase	[17]	[1] + [15]	561,318	444,459	82,324	5,499	1,899	9,352	20	18	17,746
Increase (Decrease) %	[18]	[15] / [1]	14.2%	15.3%	6.5%	-6.8%	26.7%	5.6%	0.0%	0.0%	44.9%
Income Before Interest & Surplus	[19]	[5] + [15]	125,899	95,056	22,154	813	557	1,311	4	(10)	6,014
Return on Rate Base Before Interest & Surplus	[20]	[19] / [10]	10.6%	9.6%	15.9%	8.7%	13.7%	6.6%	13.4%	(16.4%)	20.3%
Relative Return	[21]		1.00	0.91	1.50	0.82	1.29	0.62	1.26	(1.55)	1.92
Revenues Relative to COS	[22]	[17] / [8]	**1.00**	**0.98**	**1.10**	**0.97**	**1.07**	**0.92**	**1.04**	**0.51**	**1.20**
Relative to Total for all Classes	[23]		1.00	0.98	1.10	0.97	1.07	0.92	1.04	0.51	1.19

The Total Revenue Requirement is equal to the Tariff Revenue Requirement plus the revenues that PGW collects from customer installations, interest income, and certain LNG sales.

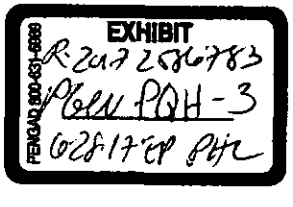
Exhibit PQH-2



Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-2: Summary of Allocation Results by Functional Classification

Dollars in Thousands		Total	Residential	Commercial	Industrial	PHA GS	Municipal/PHA	NGVS	Interruptible	GTS/IT
SUPPLY										
Demand Costs	[1]	26,026	20,199	4,471	325	93	743	1	0	193
Commodity Costs	[2]	(2,484)	(2,023)	(406)	(22)	(10)	(37)	(0)	14	0
Supply Total	[3]	***23,542***	***18,176***	***4,065***	***303***	***83***	***706***	***1***	***15***	***193***
STORAGE										
Demand Costs	[4]	29,490	22,665	5,294	388	106	891	1	0	146
Storage Total	[5]	***29,490***	***22,665***	***5,294***	***388***	***106***	***891***	***1***	***0***	***146***
DISTRIBUTION										
Demand Costs	[6]	83,744	58,088	13,204	1,020	278	2,189	2	5	8,957
Commodity Costs	[7]	6,449	2,941	935	72	15	134	1	1	2,349
Customer Costs	[8]	179,630	158,613	14,813	965	593	2,164	4	11	2,467
Distribution Total	[9]	269,823	219,642	28,952	2,058	886	4,487	7	17	13,773
ONSITE										
Customer Costs	[10]	158,910	130,488	23,169	1,915	468	2,188	4	2	677
Onsite Total	[11]	158,910	130,488	23,169	1,915	468	2,188	4	2	677
USEC										
Customer USEC Costs	[12]	53,460	38,851	11,805	920	188	1,690	7	0	0
USEC Total	[13]	53,460	38,851	11,805	920	188	1,690	7	0	0
TARIFF REVENUE REQUIREMENT										
Demand Costs	[14]	139,260	100,952	22,970	1,733	476	3,823	3	6	9,296
Commodity Costs	[15]	3,965	918	528	50	6	98	0	16	2,349
Customer Costs	[16]	338,540	289,101	37,982	2,880	1,061	4,352	9	12	3,144
Customer USEC Costs	[17]	53,460	38,851	11,805	920	188	1,690	7	0	0
Tariff Revenue Requirement	[18]	**535,225**	**429,822**	**73,286**	**5,584**	**1,731**	**9,962**	**19**	**34**	**14,788**
Customer Months	[19]	6,028,249	5,671,204	300,544	7,596	22,356	21,353	48	48	5,100
Customer-Related Costs, $/month	[20] [16] / [19]		**50.98**	**126.38**	**379.17**	**47.46**	**203.79**	**178.50**	**259.13**	**616.45**

Exhibit PQH-3



Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3: Allocation Results

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	1,453	10	1,085	32	252	6	15	5	28	5	16	0	0	0
5	Structures and improvements	305	20,968	144	15,651	460	3,630	85	218	70	409	76	225	1	0	0
6	Boiler plant equipment	306	2,900	20	2,165	64	502	12	30	10	57	11	31	0	0	0
7	Other power equipment	307	407	3	303	9	70	2	4	1	8	1	4	0	0	0
8	LPG equipment	311	2,270	16	1,694	50	393	9	24	8	44	8	24	0	0	0
9	Purification equipment	317	13	0	10	0	2	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	8	0	6	0	1	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	32,341	221	24,141	705	5,548	131	336	108	630	117	347	1	0	0
13	Subtotal - Production Plant	304-347	60,359	419	45,056	1,319	10,449	244	627	202	1,176	225	648	2	0	0
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	328	2	245	7	57	1	3	1	6	1	4	0	0	0
16	Structures and improvements	361	13,780	94	10,286	302	2,385	56	144	46	269	50	148	0	0	0
17	Gas holders	362	33,779	231	25,214	740	5,847	137	351	113	658	123	363	1	0	0
18	Purification equipment	363	251	2	188	6	44	1	3	1	5	1	3	0	0	0
19	Liquefaction equipment	363.1	31,182	214	23,276	684	5,398	126	324	104	608	113	335	1	0	0
20	Vaporizing equipment	363.2	14,977	103	11,179	328	2,593	61	156	50	292	54	161	0	0	0
21	Compressor equipment	363.3	17,509	120	13,070	384	3,031	71	182	59	341	64	188	0	0	0
22	Measuring and regulating equipment	363.4	6,294	43	4,698	138	1,089	25	65	21	123	23	68	0	0	0
23	Other equipment	363.5	27,013	185	20,164	592	4,676	109	281	90	526	98	290	1	0	0
24	Subtotal - Storage and Processing Plant	360-364	145,112	994	108,320	3,181	25,120	588	1,508	485	2,828	526	1,556	4	0	0
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	Land and land rights	374	101	1	64	2	15	0	1	0	2	0	1	0	0	15
28	Structures and improvements	375	2,707	16	1,718	50	398	10	25	8	45	8	25	0	0	404
29	Mains	376	773,759	17,310	599,203	11,017	73,655	1,494	3,836	1,352	6,972	2,651	4,301	12	27	51,930
30	Mains - Direct Assignment	376Direct	7,574	0	0	0	0	0	0	0	0	0	0	0	0	7,574
31	Compressor station equipment	377	1,255	7	812	24	188	4	11	4	21	4	12	0	0	167
32	Measuring station equipment - General	378	17,886	106	11,570	340	2,683	63	161	52	302	56	166	0	1	2,386
33	Services	380	705,810	26,044	605,303	9,542	40,645	1,102	2,839	601	3,536	2,489	5,674	25	75	7,937
34	Meters	381	75,453	2,384	55,411	2,757	11,723	153	395	173	492	228	790	2	3	945
35	Meter installations	382	94,565	2,988	69,447	3,449	14,692	192	495	217	617	286	990	3	4	1,184
36	House regulators	383	2,202	90	2,103	0	0	0	0	0	0	9	0	0	0	0
37	House regulator installations	384	4,142	170	3,955	0	0	0	0	0	0	16	0	0	0	0
38	Measuring station equipment - Industrial	385	314	0	0	0	0	88	226	0	0	0	0	0	0	0
39	Other equipment	387	5,580	23	2,525	74	586	15	37	11	66	12	35	0	0	594
40	Subtotal - Distribution Plant	374-387	1,689,747	49,340	1,352,310	27,251	144,595	3,121	8,027	2,419	12,053	5,759	11,905	42	111	73,136

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3: Allocation Results

Line	Dollars In Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
41	F. GENERAL PLANT															
42	Land and land rights	389	3,713	91	2,877	77	423	12	31	7	32	12	26	0	0	125
43	Structures and improvements	390	82,900	2,041	64,228	1,719	9,435	275	695	154	708	258	585	2	2	2,797
44	Office furniture and equipment	391	108,966	2,683	84,423	2,260	12,401	362	913	203	931	340	769	3	3	3,676
45	Transportation equipment	392	40,027	985	31,011	830	4,555	133	336	74	342	125	283	1	1	1,350
46	Stores equipment	393	755	19	585	16	86	3	6	1	6	2	5	0	0	25
47	Tools, shop and garage equipment	394	10,723	264	8,308	222	1,220	36	90	20	92	33	76	0	0	362
48	Power operated equipment	396	1,235	30	957	26	141	4	10	2	11	4	9	0	0	42
49	Communication equipment	397	20,815	512	16,126	432	2,369	69	174	39	178	65	147	1	1	702
50	Miscellaneous equipment	398	14,279	352	11,063	296	1,625	47	120	27	122	45	101	0	0	482
51	Subtotal - General Plant	389-399	283,413	6,977	219,579	5,877	32,255	941	2,376	537	2,421	883	2,000	7	8	9,561
52	TOTAL UTILITY PLANT		2,178,632	57,524	1,725,066	37,632	212,408	4,894	12,538	3,633	18,478	7,388	16,202	55	119	82,696
53	II. DEPRECIATION RESERVE															
54	Production plant	108.2	34,623	237	25,845	759	5,993	140	360	116	675	126	372	1	0	0
55	Local storage plant	108.3	95,160	652	71,033	2,086	16,473	385	989	318	1,855	345	1,022	2	0	0
56	Mains	108.52	282,895	6,329	219,075	4,028	26,929	546	1,402	494	2,549	969	1,573	4	10	18,986
57	Mains - Direct Assignment	108.52Direct	7,574	0	0	0	0	0	0	0	0	0	0	0	0	7,574
58	Services	108.54	355,556	13,120	304,925	4,807	20,475	555	1,430	303	1,781	1,254	2,858	13	38	3,998
59	Meters	108.55	39,464	1,247	28,981	1,439	6,131	80	207	91	258	119	413	1	2	494
60	Distribution other	108.58	61,295	357	38,893	1,142	9,019	224	575	174	1,016	189	559	1	4	9,141
61	General Plant	108.8	146,255	3,601	113,313	3,033	16,645	486	1,226	272	1,249	456	1,032	4	4	4,934
62	Total Depreciation Reserve	108	1,022,821	25,541	802,065	17,294	101,666	2,416	6,189	1,768	9,382	3,458	7,829	26	57	45,128
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		1,155,811	31,982	923,000	20,338	110,742	2,477	6,349	1,865	9,096	3,930	8,373	28	62	37,568
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	70,158	1,095	55,975	1,568	9,298	272	554	140	581	221	453	2	0	0
70	Materials and supplies	131.12	9,768	226	7,735	134	822	18	47	14	76	29	59	0	1	606
71	Prepaid accounts, other current assets	131.13	5,342	125	4,229	74	450	10	26	8	41	16	32	0	0	331
72	Gas, LNG in storage	131.14	38,344	313	31,258	638	5,030	84	261	117	451	153	32	1	7	0
73	Accounts payable - Gas	131.15	(12,110)	(68)	(5,551)	(235)	(1,454)	(44)	(88)	(30)	(131)	(27)	(81)	(1)	(3)	(4,398)
74	Accounts payable, other- 50% Labor	131.16	(22,271)	(508)	(16,926)	(334)	(2,106)	(48)	(120)	(38)	(204)	(74)	(150)	(1)	(1)	(1,760)
75	Accounts payable, other- 50% O&MxGas	131.17	(22,271)	(519)	(17,635)	(307)	(1,875)	(42)	(107)	(32)	(172)	(66)	(134)	(0)	(1)	(1,381)
76	Customer deposits	131.18	(2,935)	(46)	(2,342)	(66)	(389)	(11)	(23)	(6)	(24)	(9)	(19)	(0)	0	0
77	Accrued interest	131.19	(15,202)	(407)	(12,212)	(273)	(1,505)	(34)	(86)	(25)	(121)	(52)	(107)	(0)	(1)	(378)
78	Accrued Taxes & Wages	131.2	(16,263)	(379)	(12,877)	(224)	(1,369)	(30)	(78)	(24)	(126)	(48)	(98)	(0)	(1)	(1,009)
79	Total Working Capital	131	32,561	(168)	31,656	976	6,902	175	385	123	370	143	(12)	0	1	(7,989)
80	V. TOTAL RATE BASE		1,188,371	31,814	954,656	21,314	117,644	2,653	6,734	1,988	9,466	4,073	8,361	29	62	29,579

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3: Allocation Results

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
81	I. OPERATION & MAINTENANCE EXPENSE															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	191	1	143	4	33	1	2	1	4	1	2	0	0	0
85	Boiler fuel	702	98	1	73	2	17	0	1	0	2	0	1	0	0	0
86	Miscellaneous steam expenses	703	335	2	250	7	58	1	3	1	7	1	4	0	0	0
87	Maintenance of structures	706	3	0	2	0	1	0	0	0	0	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	212	1	158	5	37	1	2	1	4	1	2	0	0	0
89	Maintenance of other production plant	708	10	0	7	0	2	0	0	0	0	0	0	0	0	0
90	Operation supervision and engineering	710	5	0	4	0	1	0	0	0	0	0	0	0	0	0
91	Other power expenses	712	793	5	592	17	137	3	8	3	15	3	9	0	0	0
92	*Duplicate charges - Credit*	734	(622)	(4)	(464)	(14)	(108)	(3)	(6)	(2)	(12)	(2)	(7)	(0)	0	0
93	Miscellaneous production expenses	735	1,143	8	853	25	198	5	12	4	22	4	12	0	0	0
94	Maintenance supervision and engineering	740	303	2	226	7	52	1	3	1	6	1	3	0	0	0
95	Maintenance of structures	741	102	1	76	2	18	0	1	0	2	0	1	0	0	0
96	Maintenance of production equipment	742	395	3	295	9	68	2	4	1	8	1	4	0	0	0
97	Subtotal - Manufactured Gas Production	701-743	2,968	20	2,215	65	514	12	31	10	58	11	32	0	0	0
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	14	0	0	0	0	0	0	0	0	0	0	0	14	0
100	Purchased gas expenses	807	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	*Gas used for other utility operations*	*812*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
103	LNG used for other utility operations	812LNG	(6,487)	(64)	(5,189)	(147)	(909)	(15)	(42)	(20)	(69)	(25)	(7)	(0)	0	0
104	Other gas supply expenses	813	8,840	87	7,071	200	1,239	21	58	27	95	35	9	0	0	0
105	Subtotal - Production Expenses	701-813	5,335	44	4,098	118	843	18	46	17	83	20	34	0	14	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	1,066	7	796	23	185	4	11	4	21	4	11	0	0	0
108	Operation labor and expenses	841	3,050	21	2,277	67	528	12	32	10	59	11	33	0	0	0
109	Rents	842	421	3	314	9	73	2	4	1	8	2	5	0	0	0
110	Maintenance	843	5,699	39	4,254	125	987	23	59	19	111	21	61	0	0	0
111	Operation supervision and engineering	850	1,278	9	954	28	221	5	13	4	25	5	14	0	0	0
112	Subtotal - Storage Expenses	840-850	11,514	79	8,595	252	1,993	47	120	39	224	42	124	0	0	0
113	C. TRANSMISSION EXPENSES															

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
114	D. DISTRIBUTION EXPENSES															
115	Operation supervision and engineering	870	2,018	59	1,643	30	163	4	10	3	13	7	12	0	0	75
116	Distribution load dispatching	871	1,650	9	756	32	198	6	12	4	18	4	11	0	0	599
117	Mains and services expenses	874	4,617	133	3,705	69	377	10	25	6	37	16	39	0	0	199
118	Measuring station expenses - General	875	2,102	12	1,360	40	315	7	19	6	36	7	20	0	0	280
119	Measuring station expenses - Industrial	876	47	0	0	0	0	13	34	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	550	3	356	10	83	2	5	2	9	2	5	0	0	73
121	Meter and house regulator expenses	878	18,417	595	13,839	656	2,797	37	94	41	117	57	188	1	0	0
122	Customer installation expenses	879	5,642	181	4,196	208	888	12	30	13	37	17	60	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	3,746	155	3,591	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	12,935	471	10,937	204	869	21	53	13	67	45	107	0	1	147
125	Rents	881	7	0	6	0	1	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	300	9	244	4	24	1	1	0	2	1	2	0	0	11
127	Maintenance of mains	887	75,719	575	19,917	366	2,448	50	127	45	297	88	143	0	1	1,726
128	Maintenance of measuring station expenses - General	889	1,184	7	766	22	178	4	11	3	20	4	11	0	0	158
129	Maintenance of measuring station expenses - Industrial	890	6	0	0	0	0	2	4	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	487	3	223	9	58	2	4	1	5	1	3	0	0	177
131	Maintenance of services	892	1,800	66	1,544	24	104	3	7	2	9	6	14	0	0	20
132	Maintenance of meters and house regulators	893	3,810	123	2,863	136	578	8	19	5	24	12	39	0	0	0
133	Subtotal - Distribution Expenses	870-893	81,037	2,402	65,946	1,812	9,076	179	456	148	623	266	654	2	4	3,446
134	TOTAL OPERATION & MAINTENANCE EXPENSES		101,886	2,524	79,638	2,183	11,911	249	622	204	934	428	812	3	18	9,466
135	H. CUSTOMER ACCOUNTS EXPENSES															
136	Supervision	901	1,109	37	926	23	109	2	4	1	4	3	3	0	0	1
137	Meter reading expenses	902	785	22	666	12	64	1	3	1	4	3	3	0	0	7
138	Customer records and collection expenses	903	26,657	776	22,247	550	2,627	43	94	28	101	75	79	1	0	35
139	Uncollectible accounts	904	16,495	287	15,637	81	465	3	21	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	10,461	93	7,509	329	1,988	60	120	41	180	37	110	1	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		55,507	1,210	46,985	995	5,354	109	241	77	289	118	195	2	0	43
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
143	Customer assistance expenses	908	1,617	57	1,321	7	30	55	141	0	1	3	1	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	3,859	94	2,771	119	734	22	44	15	66	14	41	0	0	0
145	CRP Shortfall	480CRP	36,351	322	26,096	1,117	6,910	210	416	142	625	128	382	5	0	0
146	Senior Discounts	480Sen	1,789	25	2,002	86	530	16	32	11	48	10	29	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		44,616	438	32,189	1,329	8,203	303	633	169	740	154	453	6	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		100,123	1,648	79,174	2,317	13,457	412	874	241	1,029	272	648	8	0	43

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	14,442	356	11,189	299	1,644	48	121	27	123	45	102	0	0	487
152	Office supplies and expenses	921	22,663	558	17,559	470	2,579	75	190	42	194	71	160	1	1	765
153	Administrative expenses transferred - Credit	922	(24,565)	(605)	(19,032)	(509)	(2,796)	(82)	(206)	(46)	(210)	(77)	(173)	(1)	(1)	(829)
154	Outside services employed	923	1,660	41	1,286	34	189	6	14	3	14	5	12	0	0	56
155	Injuries and damages	925	6,415	158	4,970	133	730	21	54	12	55	20	45	0	0	216
156	Employee pensions and benefits	926	115,230	2,837	89,276	2,390	13,114	383	966	214	984	359	813	9	3	3,887
157	OPEB funding and expenses	999	26,500	652	20,531	550	3,016	88	222	49	226	83	187	1	1	894
158	Subtotal - Labor Related A&G		162,345	3,997	125,779	3,367	18,476	539	1,361	302	1,387	506	1,146	4	5	5,477
159	B. PLANT RELATED															
160	Property insurance	924	4,853	128	3,811	85	478	11	29	8	45	16	43	0	0	198
161	Subtotal - Plant Related A&G		4,853	128	3,811	85	478	11	29	8	45	16	43	0	0	198
162	C. OTHER A&G															
163	Regulatory commission expenses	928	5,157	138	4,143	92	511	12	29	9	41	18	36	0	0	128
164	Duplicate charges - Credit	929	(913)	(6)	(682)	(20)	(158)	(4)	(9)	(3)	(16)	(3)	(10)	(0)	0	0
165	General advertising expenses, miscellaneous	930	6,020	148	4,664	125	685	20	50	11	51	19	42	0	0	203
166	Rents	931	330	8	256	7	38	1	3	1	3	1	2	0	0	11
167	Subtotal - Other A&G		10,594	288	8,381	204	1,075	29	73	17	78	34	71	0	0	343
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		177,792	4,412	137,972	3,656	20,030	579	1,463	327	1,509	557	1,260	5	6	6,017
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		479,801	8,585	795,784	8,155	45,399	1,295	2,959	772	3,472	1,156	2,720	15	24	9,527
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	47,180	1,240	37,051	829	4,651	110	283	80	437	160	413	1	4	1,921
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		47,180	1,240	37,051	829	4,651	110	283	80	437	160	413	1	4	1,921
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	8,437	209	6,597	175	960	23	71	15	72	24	60	0	0	251
176	TOTAL EXPENSES		435,418	10,032	339,371	9,160	51,010	1,373	3,313	847	3,981	1,343	3,193	17	28	11,732

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	400,217	6,084	317,004	9,202	54,766	1,614	3,272	835	3,493	1,271	2,664	13	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	17	0	0	0	0	0	0	0	0	0	0	0	17	0
181	USEC Revenue	480-483USC	53,687	475	38,541	1,650	10,205	310	614	210	923	188	564	7	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	7,853	141	7,700	2	10	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	1,206	19	962	27	160	5	10	2	10	4	8	0	0	0
185	GTS/IT Revenue	489	12,190	0	0	0	0	0	0	0	0	0	0	0	0	12,190
186	Other gas revenue	495	4,634	46	3,707	104	649	11	30	14	50	18	5	0	0	0
187	Revenue Adjustments	495Adj	217	2	174	5	30	1	1	1	2	1	0	0	0	0
188	Subtotal - Gas Revenues		480,022	6,767	468,089	10,989	65,820	1,940	3,932	1,062	4,477	1,482	3,241	20	17	12,190
189	Bill paid turn ons & dig ups	903Rev	1,883	73	1,698	18	76	1	2	1	2	7	3	0	0	2
190	Customer installation expenses	879Rev	6,382	263	6,119	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		8,265	336	7,817	18	76	1	2	1	2	7	3	0	0	2
192	TOTAL OPERATING REVENUES		488,287	7,104	475,905	11,007	65,896	1,941	3,934	1,063	4,479	1,489	3,245	20	17	12,192
193	Non-operating rental income	418	161	4	133	2	16	0	1	0	1	1	1	0	0	4
194	Interest and dividend income	419	2,010	54	1,615	36	199	4	11	3	16	7	14	0	0	50
195	Miscellaneous non-operating income	421	855	6	638	19	148	3	9	3	17	3	9	0	0	0
196	Total Non-Operating Income		3,031	64	2,386	58	363	8	21	6	34	11	24	0	0	54
197	TOTAL REVENUE		491,318	7,168	478,291	11,065	66,259	1,949	3,950	1,069	4,513	1,499	3,268	20	18	12,246
198	Income Before Interest and Surplus		55,899	(2,864)	38,921	1,905	15,249	576	837	202	533	157	77	4	(10)	514
199	Interest on long-term debt	427	49,160	1,318	39,492	882	4,867	110	279	82	392	168	446	1	3	1,224
200	Amortization of debt discount	428	4,348	116	3,493	78	430	10	25	7	35	15	31	0	0	108
201	Amortization of premium on debt	429	(9,364)	(251)	(7,522)	(168)	(927)	(21)	(53)	(16)	(75)	(32)	(66)	(0)	(0)	(233)
202	Other interest expense	431	3,789	101	3,044	68	375	8	21	6	30	13	27	0	0	94
203	AFUDC	432	(920)	(25)	(739)	(17)	(91)	(2)	(5)	(2)	(7)	(3)	(6)	(0)	(0)	(23)
204	Surplus Requirement	499	60,000	1,609	48,200	1,075	5,940	134	340	100	478	206	422	1	3	1,493
205	Total Interest & Surplus		107,013	2,865	85,967	1,919	10,594	239	606	179	852	367	753	3	6	2,664
206	Appropriations of retained earnings	436	18,000	482	14,460	323	1,782	40	102	30	143	62	127	0	1	448
207	Total Interest & Surplus, Other		125,013	3,347	100,427	2,242	12,376	279	708	209	996	428	880	3	7	3,112
208	Over (Under) Total Requirements		(69,114)	(6,211)	(61,506)	(337)	2,874	297	(71)	(7)	(463)	(272)	(803)	1	(17)	(2,598)
209	Tariff Revenue Requirements		535,225	12,770	417,051	11,189	62,097	1,627	3,957	1,052	4,879	1,731	4,032	19	34	14,788

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Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3A: Allocation Results - Supply-Demand Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	1,453	10	1,085	32	252	6	15	5	28	5	16	0	0	0
5	Structures and Improvements	305	20,968	144	15,651	460	3,630	85	218	70	409	76	225	1	0	0
6	Boiler plant equipment	306	2,900	20	2,165	64	502	12	30	10	57	11	31	0	0	0
7	Other power equipment	307	407	3	303	9	70	2	4	1	8	1	4	0	0	0
8	LPG equipment	311	2,270	16	1,694	50	393	9	24	8	44	8	24	0	0	0
9	Purification equipment	317	13	0	10	0	2	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	8	0	6	0	1	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	32,341	221	24,141	709	5,598	131	336	108	630	117	347	1	0	0
13	Subtotal - Production Plant	304-347	60,359	413	45,056	1,323	10,449	244	627	202	1,176	219	648	2	0	0
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Structures and Improvements	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Gas holders	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Purification equipment	363	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Liquefaction equipment	363.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Vaporizing equipment	363.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Compressor equipment	363.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Measuring and regulating equipment	363.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Other equipment	363.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	Land and land rights	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Structures and Improvements	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Mains	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Mains - Direct Assignment	376Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Compressor station equipment	377	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Measuring station equipment - General	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Services	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Meters	381	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Meter installations	382	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	House regulators	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	House regulator installations	384	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Measuring station equipment - Industrial	385	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Other equipment	387	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Subtotal - Distribution Plant	374-387	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Philadelphia Gas Works
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Exhibit PGH-3A: Allocation Results - Supply-Demand Classification

Line	*Dollars in Thousands* FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
41	F. GENERAL PLANT															
42	Land and land rights	389	304	2	227	7	53	1	3	1	6	1	3	0	0	0
43	Structures and improvements	390	6,795	47	5,072	149	1,176	28	71	23	132	25	73	0	0	0
44	Office furniture and equipment	391	8,932	61	6,667	196	1,546	36	93	30	174	32	96	0	0	0
45	Transportation equipment	392	3,281	22	2,449	72	568	13	34	11	64	12	35	0	0	0
46	Stores equipment	393	62	0	46	1	11	0	1	0	1	0	1	0	0	0
47	Tools, shop and garage equipment	394	879	6	656	19	152	4	9	3	17	3	9	0	0	0
48	Power operated equipment	396	101	1	76	2	18	0	1	0	2	0	1	0	0	0
49	Communication equipment	397	1,706	12	1,274	37	295	7	18	6	33	6	18	0	0	0
50	Miscellaneous equipment	398	1,170	8	874	26	203	5	12	4	23	4	13	0	0	0
51	Subtotal - General Plant	389-399	23,230	159	17,341	509	4,021	94	241	78	453	84	249	1	0	0
52	TOTAL UTILITY PLANT		83,590	572	62,396	1,832	14,470	338	869	280	1,629	303	897	3	0	0
53	II. DEPRECIATION RESERVE															
54	*Production plant*	108.2	34,623	237	25,845	759	5,993	140	360	116	675	126	372	1	0	0
55	Local storage plant	108.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Mains	108.52	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Mains - Direct Assignment	108.52Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Services	108.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	General Plant	108.8	11,988	82	8,949	263	2,075	49	125	40	234	43	129	0	0	0
62	Total Depreciation Reserve	108	46,611	319	34,793	1,022	8,069	189	484	156	908	169	500	1	0	0
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		36,979	253	27,603	811	6,401	150	384	124	721	134	397	1	0	0
68	*IV. WORKING CAPITAL*															
69	Accounts receivable - Gas	131.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	Materials and supplies	131.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	Prepaid accounts, other current assets	131.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Gas, LNG in storage	131.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Accounts payable, other- 50% Labor	131.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	Accounts payable, other- 50% O&MxGas	131.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	Customer deposits	131.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	Accrued interest	131.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	Accrued Taxes & Wages	131.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	Total Working Capital	131	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	V. TOTAL RATE BASE		36,979	253	27,603	811	6,401	150	384	124	721	134	397	1	0	0

Philadelphia Gas Works
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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate R	NGVS Non-Heat	Interruptible Sales	GTS/IT
81	I. OPERATION & MAINTENANCE EXPENSE															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	191	1	143	4	33	1	2	1	4	1	2	0	0	0
85	Boiler fuel	702	98	1	73	2	17	0	1	0	2	0	1	0	0	0
86	Miscellaneous steam expenses	703	335	2	250	7	58	1	3	1	7	1	4	0	0	0
87	Maintenance of structures	706	3	0	2	0	1	0	0	0	0	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	212	1	158	5	37	1	2	1	4	1	2	0	0	0
89	Maintenance of other production plant	708	10	0	7	0	2	0	0	0	0	0	0	0	0	0
90	Operation supervision and engineering	710	5	0	4	0	1	0	0	0	0	0	0	0	0	0
91	Other power expenses	717	793	5	592	17	137	3	8	3	15	3	9	0	0	0
92	Duplicate charges - Credit	734	(622)	(4)	(464)	(14)	(108)	(3)	(6)	(2)	(12)	(2)	(7)	(0)	0	0
93	Miscellaneous production expenses	735	1,143	8	853	25	198	5	12	4	22	4	12	0	0	0
94	Maintenance supervision and engineering	740	303	2	226	7	52	1	3	1	6	1	3	0	0	0
95	Maintenance of structures	741	102	1	76	2	18	0	1	0	2	0	1	0	0	0
96	Maintenance of production equipment	742	395	3	295	9	68	2	4	1	8	1	4	0	0	0
97	Subtotal - Manufactured Gas Production	701-743	2,968	20	2,215	65	514	12	31	10	58	11	32	0	0	0
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	Purchased gas expenses	807	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Gas used for other utility operations	812	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	LNG used for other utility operations	812LNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Other gas supply expenses	813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Subtotal - Production Expenses	701-813	2,968	20	2,215	65	514	12	31	10	58	11	32	0	0	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	Operation labor and expenses	841	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Rents	842	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	Maintenance	843	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	Operation supervision and engineering	850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	Subtotal - Storage Expenses	840-850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	C. TRANSMISSION EXPENSES															

Philadelphia Gas Works
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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
114	D. DISTRIBUTION EXPENSES															
115	Operation supervision and engineering	870	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	Distribution load dispatching	871	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Mains and services expenses	874	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	Measuring station expenses - General	875	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	Measuring station expenses - Industrial	876	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	Meter and house regulator expenses	878	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Customer installation expenses	879	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Customer installation expenses - *Parts and Labor Plan*	*879PLP*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	Rents	881	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	Maintenance of mains	887	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	Maintenance of measuring station expenses - General	889	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	*Maintenance of measuring station expenses - Industrial*	890	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Maintenance of services	892	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Maintenance of meters and house regulators	893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Subtotal - Distribution Expenses	870-893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	TOTAL OPERATION & MAINTENANCE EXPENSES		2,968	20	2,215	65	514	12	51	10	58	11	32	0	0	0
135	II. CUSTOMER ACCOUNTS EXPENSES															
136	Supervision	901	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Meter reading expenses	902	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Customer records and collection expenses	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	Uncollectible accounts	904	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
143	Customer assistance expenses	908	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Customer assistance expenses - EURP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0

Philadelphia Gas Works
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Exhibit PQH-3A: Allocation Results - Supply-Demand Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	1,184	8	884	26	205	5	12	4	23	4	13	0	0	0
152	Office supplies and expenses	921	1,858	13	1,387	41	322	8	19	6	36	7	20	0	0	0
153	Administrative expenses transferred - Credit	922	(2,014)	(14)	(1,505)	(44)	(349)	(8)	(21)	(7)	(39)	(7)	(22)	(0)	0	0
154	Outside services employed	923	136	1	102	3	24	1	1	0	3	0	1	0	0	0
155	Injuries and damages	925	526	4	392	12	91	2	5	2	10	2	6	0	0	0
156	Employee pensions and benefits	926	9,445	65	7,050	207	1,635	38	98	32	184	34	101	0	0	0
157	OPEB funding and expenses	999	2,172	15	1,621	48	376	9	23	7	42	8	23	0	0	0
158	Subtotal - Labor Related A&G		13,307	91	9,933	292	2,303	54	138	45	259	48	143	0	0	0
159	B. PLANT RELATED															
160	Property insurance	924	155	1	115	3	27	1	2	1	3	1	2	0	0	0
161	Subtotal - Plant Related A&G		155	1	115	3	27	1	2	1	3	1	2	0	0	0
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	493	3	368	11	85	2	5	2	10	2	5	0	0	0
166	Rents	931	27	0	20	1	5	0	0	0	1	0	0	0	0	0
167	Subtotal - Other A&G		520	4	389	11	90	2	5	2	10	2	6	0	0	0
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		13,982	96	10,437	307	2,420	57	145	47	273	51	150	0	0	0
169	TOTAL OPERATING EXPENSES (Excluding Dep Tax)		16,950	116	12,652	373	2,934	69	176	57	330	61	182	0	0	0
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	1,503	10	1,122	33	260	6	16	5	29	5	16	0	0	0
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		1,503	10	1,122	33	260	6	16	5	29	5	16	0	0	0
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	692	5	516	15	120	3	7	2	13	3	7	0	0	0
176	TOTAL EXPENSES		19,144	131	14,290	420	3,314	78	199	64	371	69	206	0	0	0

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PGW-3A: Allocation Results - Supply-Demand Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	*Residential* Non-Heat	*Residential* Heat	*Commercial* Non-Heat	*Commercial* Heat	*Industrial* Non-Heat	*Industrial* Heat	*Municipal* Non-Heat	*Municipal* Heat	*PHA* GS	*PHA* Rate 8	*NGVS* Non-Heat	*Interruptible* Sales	*GTS/IT*
177	VII. REVENUES															
178	Distribution Revenue	480-483	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
193	Non-operating rental income	418	10	0	8	0	1	0	0	0	0	0	0	0	0	0
194	Interest and dividend income	419	127	2	102	2	13	0	1	0	1	0	1	0	0	0
195	Miscellaneous non-operating income	421	855	6	638	19	148	3	9	3	17	3	9	0	0	0
196	Total Non-Operating Income		993	10	748	21	162	4	10	3	18	4	10	0	0	0
197	TOTAL REVENUE		993	10	748	21	162	4	10	3	18	4	10	0	0	0
198	Income Before Interest and Surplus		(18,152)	(122)	(13,542)	(398)	(3,152)	(74)	(189)	(61)	(355)	(66)	(195)	(0)	0	0
199	Interest on long-term debt	427	3,096	83	2,487	56	307	7	18	5	25	13	22	0	0	77
200	Amortization of debt discount	428	274	7	220	5	27	1	2	0	2	1	2	0	0	7
201	Amortization of premium on debt	429	(590)	(16)	(474)	(11)	(58)	(1)	(3)	(1)	(5)	(2)	(4)	(0)	(0)	(15)
202	Other interest expense	431	239	6	192	4	24	1	1	0	2	1	2	0	0	6
203	AFUDC	432	(58)	(2)	(47)	(1)	(6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
204	Surplus Requirement	499	3,779	103	3,036	68	374	8	21	6	30	13	27	0	0	94
205	Total Interest & Surplus		6,745	180	5,414	121	667	15	38	11	54	23	47	0	0	168
206	Appropriations of retained earnings	436	1,134	30	911	20	112	3	6	2	9	4	8	0	0	28
207	Total Interest & Surplus, Other		7,879	211	6,325	141	779	18	45	13	63	27	55	0	0	196
208	Over (Under) Total Requirements		(26,026)	(332)	(19,867)	(540)	(3,932)	(91)	(234)	(74)	(418)	(93)	(251)	(1)	(0)	(193)
209	Tariff Revenue Requirements		26,026	332	19,867	540	3,932	91	234	74	418	93	251	1	0	193

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Exhibit PGH-3B: Allocation Results - Supply-Commodity Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Structures and Improvements	305	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Boiler plant equipment	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	*Other power equipment*	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	LPG equipment	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Purification equipment	317	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal - Production Plant	304-347	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Structures and Improvements	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Gas holders	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Purification equipment	363	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Liquefaction equipment	363.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Vaporizing equipment	363.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Compressor equipment	363.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Measuring and regulating equipment	363.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Other equipment	363.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	Land and land rights	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Structures and Improvements	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Mains	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Mains - Direct Assignment	376Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Compressor station equipment	377	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Measuring station equipment - General	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Services	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Meters	381	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Meter installations	382	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	House regulators	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	House regulator installations	384	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Measuring station equipment - Industrial	385	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Other equipment	387	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Subtotal - Distribution Plant	374-387	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3B: Allocation Results - Supply-Commodity Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
41	F. GENERAL PLANT															
42	Land and land rights	389	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Structures and improvements	390	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Office furniture and equipment	391	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Transportation equipment	392	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Stores equipment	393	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Tools, shop and garage equipment	394	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Power operated equipment	396	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Communication equipment	397	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	Miscellaneous equipment	398	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	Subtotal - General Plant	389-399	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	TOTAL UTILITY PLANT		0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	II. DEPRECIATION RESERVE															
54	Production plant	108.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Mains	108.52	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Mains - Direct Assignment	108.52Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Services	108.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	General Plant	108.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	Total Depreciation Reserve	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	Materials and supplies	131.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	Prepaid accounts, other current assets	131.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Gas, LNG in storage	131.14	38,344	313	31,258	638	5,030	84	261	117	451	153	32	1	7	0
73	Accounts payable - Gas	131.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Accounts payable, other- 50% Labor	131.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	Accounts payable, other- 50% O&MxGas	131.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	Customer deposits	131.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	Accrued interest	131.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	Accrued Taxes & Wages	131.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	Total Working Capital	131	38,344	313	31,258	638	5,030	84	261	117	451	153	32	1	7	0
80	V. TOTAL RATE BASE		38,344	313	31,258	638	5,030	84	261	117	451	153	32	1	7	0

Philadelphia Gas Works
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Exhibit PQH-3B: Allocation Results - Supply-Commodity Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate R	NGVS Non-Heat	Interruptible Sales	GTI-FT
81	I. OPERATION & MAINTENANCE EXPENSE															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	Boiler fuel	702	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	Miscellaneous steam expenses	703	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	Maintenance of structures	706	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	Maintenance of other production plant	708	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	Operation supervision and engineering	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	Other power expenses	712	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	Duplicate charges - Credit	734	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Miscellaneous production expenses	735	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	Maintenance supervision and engineering	740	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	Maintenance of structures	741	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Maintenance of production equipment	742	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Subtotal - Manufactured Gas Production	701-749	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	14	0	0	0	0	0	0	0	0	0	0	0	14	0
100	Purchased gas expenses	807	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Gas used for other utility operations	812	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	LNG used for other utility operations	812LNG	(6,487)	(64)	(5,189)	(147)	(909)	(15)	(42)	(10)	(69)	(25)	(7)	(0)	0	0
104	Other gas supply expenses	813	8,840	87	7,071	200	1,239	21	58	27	95	35	9	0	0	0
105	Subtotal - Production Expenses	701-813	2,367	23	1,882	53	330	6	15	7	25	9	2	0	14	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	Operation labor and expenses	841	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Rents	842	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	Maintenance	843	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	Operation supervision and engineering	850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	Subtotal - Storage Expenses	840-850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	C. TRANSMISSION EXPENSES															

Philadelphia Gas Works
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Exhibit PGH-3B: Allocation Results - Supply-Commodity Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
114	D. DISTRIBUTION EXPENSES															
115	Operation supervision and engineering	870	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	Distribution load dispatching	871	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Mains and services expenses	874	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	Measuring station expenses - General	875	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	Measuring station expenses - Industrial	876	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	Meter and house regulator expenses	878	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Customer installation expenses	879	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	Rents	881	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	Maintenance of mains	887	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	Maintenance of measuring station expenses - General	889	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Maintenance of services	892	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Maintenance of meters and house regulators	893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Subtotal - Distribution Expenses	870-893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	TOTAL OPERATION & MAINTENANCE EXPENSES		2,367	72	1,882	53	330	6	15	7	25	3	2	0	14	0
135	II. CUSTOMER ACCOUNTS EXPENSES															
136	Supervision	901	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Meter reading expenses	902	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Customer records and collection expenses	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	Uncollectible accounts	904	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
143	Customer assistance expenses	908	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PGH-3B: Allocation Results - Supply-Commodity Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	Office supplies and expenses	921	0	0	0	0	0	0	0	0	0	0	0	0	0	0
153	Administrative expenses transferred - Credit	922	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	Outside services employed	923	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	Injuries and damages	925	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	Employee pensions and benefits	926	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	OPEB funding and expenses	999	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	Subtotal - Labor Related A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	B. PLANT RELATED															
160	Property Insurance	924	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	Subtotal - Plant Related A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Rents	931	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	Subtotal - Other A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	TOTAL OPERATING EXPENSES (Excluding Dep. Tax)		2,567	23	1,882	53	335	6	15	7	25	9	2	0	14	0
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	TOTAL EXPENSES		2,567	23	1,882	53	335	6	15	7	25	9	2	0	14	0

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3B: Allocation Results - Supply-Commodity Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	32,804	499	25,984	754	4,489	132	268	68	286	104	218	1	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	17	0	0	0	0	0	0	0	0	0	0	0	17	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	4,634	46	3,707	104	649	11	30	14	50	18	5	0	0	0
187	Revenue Adjustments	495Adj	217	2	174	5	30	1	1	1	2	1	0	0	0	0
188	Subtotal - Gas Revenues		37,673	547	29,864	863	5,169	144	300	83	338	123	223	1	17	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		37,673	547	29,864	863	5,169	144	300	83	338	123	223	1	17	0
193	Non-operating rental income	418	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Interest and dividend income	419	0	0	0	0	0	0	0	0	0	0	0	0	0	0
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0
197	TOTAL REVENUE		37,673	547	29,864	863	5,169	144	300	83	338	123	223	1	17	0
198	Income Before Interest and Surplus		35,305	523	27,982	810	4,839	138	284	78	313	114	221	1	3	0
199	Interest on long-term debt	427	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	Amortization of debt discount	428	0	0	0	0	0	0	0	0	0	0	0	0	0	0
201	Amortization of premium on debt	429	0	0	0	0	0	0	0	0	0	0	0	0	0	0
202	Other interest expense	431	0	0	0	0	0	0	0	0	0	0	0	0	0	0
203	AFUDC	432	0	0	0	0	0	0	0	0	0	0	0	0	0	0
204	Surplus Requirement	499	0	0	0	0	0	0	0	0	0	0	0	0	0	0
205	Total Interest & Surplus		0	0	0	0	0	0	0	0	0	0	0	0	0	0
206	Appropriations of retained earnings	43e	0	0	0	0	0	0	0	0	0	0	0	0	0	0
207	Total Interest & Surplus, Other		0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	Over (Under) Total Requirements		35,305	523	27,982	810	4,839	138	284	78	313	114	221	1	3	0
209	Tariff Revenue Requirements		(2,464)	(25)	(1,999)	(56)	(350)	(6)	(16)	(7)	(27)	(10)	(3)	(0)	14	0

Philadelphia Gas Works
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Exhibit PQH-3C: Allocation Results - Storage-Demand Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Structures and improvements	305	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Boiler plant equipment	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Other power equipment	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	LPG equipment	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Purification equipment	317	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal - Production Plant	304-347	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	328	2	245	7	57	1	3	1	6	1	4	0	0	0
16	Structures and improvements	361	13,780	94	10,286	302	2,385	56	143	46	269	50	148	0	0	0
17	Gas holders	362	33,779	231	25,214	740	5,847	137	351	113	658	123	363	1	0	0
18	Purification equipment	363	251	2	188	6	44	1	3	1	5	1	3	0	0	0
19	Liquefaction equipment	363.1	31,182	214	23,276	684	5,398	126	324	104	608	113	335	1	0	0
20	Vaporizing equipment	363.2	14,977	103	11,179	328	2,593	61	156	50	292	54	161	0	0	0
21	Compressor equipment	363.3	17,509	120	13,070	384	3,031	71	182	59	341	64	188	0	0	0
22	Measuring and regulating equipment	363.4	6,294	43	4,698	138	1,089	25	65	21	123	23	68	0	0	0
23	Other equipment	363.5	27,013	185	20,164	592	4,676	109	281	90	526	98	290	1	0	0
24	Subtotal - Storage and Processing Plant	360-364	145,112	994	108,320	3,181	25,170	588	1,508	485	2,822	526	1,558	4	0	0
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	Land and land rights	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Structures and improvements	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Mains	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Mains - Direct Assignment	376Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Compressor station equipment	377	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Measuring station equipment - General	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Services	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Meters	381	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Meter installations	382	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	House regulators	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	House regulator installations	384	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Measuring station equipment - Industrial	385	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Other equipment	387	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Subtotal - Distribution Plant	374-387	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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41	F. GENERAL PLANT															
42	Land and land rights	389	190	1	142	4	33	1	2	1	4	1	2	0	0	0
43	Structures and Improvements	390	4,238	29	3,163	93	734	17	44	14	83	15	45	0	0	0
44	Office furniture and equipment	391	5,570	38	4,158	122	964	23	58	19	109	20	60	0	0	0
45	Transportation equipment	392	2,046	14	1,527	45	354	8	21	7	40	7	22	0	0	0
46	Stores equipment	393	39	0	29	1	7	0	0	0	1	0	0	0	0	0
47	Tools, shop and garage equipment	394	548	4	409	12	95	2	6	2	11	2	6	0	0	0
48	Power operated equipment	396	63	0	47	1	11	0	1	0	1	0	1	0	0	0
49	Communication equipment	397	1,064	7	794	23	184	4	11	4	21	4	11	0	0	0
50	Miscellaneous equipment	398	730	5	545	16	126	3	8	2	14	3	8	0	0	0
51	Subtotal - General Plant	389-399	14,487	99	10,814	318	2,508	59	151	48	282	53	156	0	0	0
52	TOTAL UTILITY PLANT		159,800	1,093	119,134	3,499	27,628	646	1,659	534	3,111	579	1,714	4	0	0
53	II. DEPRECIATION RESERVE															
54	Production plant	108.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	95,160	652	71,039	2,086	16,473	385	989	318	1,855	345	1,022	2	0	0
56	Mains	108.52	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Mains - Direct Assignment	108.52Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Services	108.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	General Plant	108.8	7,476	51	5,581	164	1,294	30	78	25	146	27	80	0	0	0
62	Total Depreciation Reserve	108	102,636	703	76,614	2,250	17,767	416	1,067	343	2,000	372	1,102	3	0	0
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		56,964	390	42,521	1,249	9,861	231	592	191	1,110	207	612	1	0	0
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	Materials and supplies	131.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	Prepaid accounts, other current assets	131.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Gas, LNG in storage	131.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Accounts payable, other- 50% Labor	131.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	Accounts payable, other- 50% O&MxGas	131.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	Customer deposits	131.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	Accrued interest	131.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	Accrued Taxes & Wages	131.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	Total Working Capital	131	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	V. TOTAL RATE BASE		56,964	390	42,521	1,249	9,861	231	592	191	1,110	207	612	1	0	0

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81	*I. OPERATION & MAINTENANCE EXPENSE*															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	Boiler fuel	702	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	Miscellaneous steam expenses	703	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	Maintenance of structures	706	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	Maintenance of other production plant	708	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	Operation supervision and engineering	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	Other power expenses	711	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	Duplicate charges - Credit	734	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Miscellaneous production expenses	735	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	Maintenance supervision and engineering	740	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	Maintenance of structures	741	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Maintenance of production equipment	742	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Subtotal - Manufactured Gas Production	701-743	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	Purchased gas expenses	807	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Gas used for other utility operations	812	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	LNG used for other utility operations	812(LNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Other gas supply expenses	813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Subtotal - Production Expenses	701-813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	1,066	7	796	23	185	4	11	4	21	4	11	0	0	0
108	Operation labor and expenses	841	3,050	21	2,277	67	528	12	32	10	59	11	33	0	0	0
109	Rents	842	421	3	314	9	73	2	4	1	8	2	5	0	0	0
110	Maintenance	843	5,699	39	4,254	125	987	23	59	19	111	21	61	0	0	0
111	Operation supervision and engineering	850	1,278	9	954	28	221	5	13	4	25	5	14	0	0	0
112	Subtotal - Storage Expenses	840-850	11,514	79	8,595	252	1,993	47	120	38	224	42	124	0	0	0
113	C. TRANSMISSION EXPENSES															

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114	D. DISTRIBUTION EXPENSES															
115	Operation supervision and engineering	870	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	Distribution load dispatching	871	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Mains and services expenses	874	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	Measuring station expenses - General	875	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	Measuring station expenses - Industrial	876	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	*Meter and house regulator expenses*	878	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Customer installation expenses	879	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	Rents	881	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	Maintenance of mains	887	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	Maintenance of measuring station expenses - General	889	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Maintenance of services	892	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Maintenance of meters and house regulators	893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Subtotal - Distribution Expenses	870-893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	TOTAL OPERATION & MAINTENANCE EXPENSES		11,514	79	8,595	252	1,993	40	120	39	224	42	124	0	0	0
135	II. CUSTOMER ACCOUNTS EXPENSES															
136	Supervision	901	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Meter reading expenses	902	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Customer records and collection expenses	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	Uncollectible accounts	904	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
143	Customer assistance expenses	908	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0

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149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	738	5	551	16	128	3	8	2	14	3	8	0	0	0
152	Office supplies and expenses	921	1,158	8	865	25	201	5	12	4	23	4	12	0	0	0
153	Administrative expenses transferred - Credit	922	(1,256)	(9)	(937)	(28)	(217)	(5)	(13)	(4)	(24)	(5)	(13)	(0)	0	0
154	Outside services employed	923	85	1	63	2	15	0	1	0	2	0	1	0	0	0
155	Injuries and damages	925	328	2	245	7	57	1	3	1	6	1	4	0	0	0
156	Employee pensions and benefits	926	5,890	40	4,397	129	1,020	24	61	20	115	21	63	0	0	0
157	OPEB funding and expenses	999	1,355	9	1,011	30	234	5	14	5	26	5	15	0	0	0
158	Subtotal - Labor Related A&G		8,299	57	6,195	182	1,437	34	86	29	162	30	87	0	0	0
159	B. PLANT RELATED															
160	Property Insurance	924	372	3	277	8	64	2	4	1	7	1	4	0	0	0
161	Subtotal - Plant Related A&G		372	3	277	8	64	2	4	1	7	1	4	0	0	0
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	(913)	(6)	(682)	(20)	(158)	(4)	(9)	(3)	(18)	(3)	(10)	(0)	0	0
165	General advertising expenses, miscellaneous	930	308	2	230	7	53	1	3	1	6	1	3	0	0	0
166	Rents	931	17	0	13	0	3	0	0	0	0	0	0	0	0	0
167	Subtotal - Other A&G		(588)	(4)	(439)	(13)	(102)	(2)	(6)	(2)	(11)	(2)	(6)	(0)	0	0
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		8,082	55	6,033	177	1,399	33	84	27	158	29	87	0	0	0
169	TOTAL OPERATING EXPENSES (Excluding Dep. Tax)		19,596	134	14,627	430	3,392	79	204	66	382	71	210	1	0	0
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	3,612	25	2,697	79	675	15	38	12	70	13	39	0	0	0
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		3,612	25	2,697	79	675	15	38	12	70	13	39	0	0	0
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	431	3	322	9	79	2	4	1	8	2	5	0	0	0
176	TOTAL EXPENSES		23,639	162	17,646	518	4,092	96	246	79	461	86	254	1	0	0

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177	VII. REVENUES															
178	Distribution Revenue	480-483	20,458	311	16,204	470	2,799	82	167	43	179	65	136	1	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		20,458	311	16,204	470	2,799	82	167	43	179	65	136	1	0	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		20,458	311	16,204	470	2,799	82	167	43	179	65	136	1	0	0
193	Non-operating rental income	418	8	0	6	0	1	0	0	0	0	0	0	0	0	0
194	Interest and dividend income	419	96	3	77	2	9	0	1	0	1	0	1	0	0	0
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		104	3	83	2	10	0	1	0	1	0	1	0	0	0
197	TOTAL REVENUE		20,561	314	16,288	472	2,810	83	168	43	179	65	137	1	0	0
198	Income Before Interest and Surplus		(3,078)	152	(1,358)	(46)	(1,282)	(13)	(78)	(36)	(281)	(20)	(117)	0	0	0
199	Interest on long-term debt	427	2,342	69	1,881	42	232	5	13	4	19	8	16	0	0	58
200	Amortization of debt discount	428	207	6	166	4	21	0	1	0	2	1	1	0	0	5
201	Amortization of premium on debt	429	(446)	(12)	(358)	(8)	(44)	(1)	(3)	(1)	(4)	(2)	(3)	(0)	(0)	(11)
202	Other interest expense	431	180	5	145	3	18	0	1	0	1	1	1	0	0	4
203	AFUDC	432	(44)	(1)	(35)	(1)	(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
204	Surplus Requirement	499	2,858	77	2,296	51	283	6	16	5	23	10	20	0	0	71
205	Total Interest & Surplus		5,097	136	4,095	91	505	11	29	9	41	17	36	0	0	127
206	Appropriations of retained earnings	436	857	23	689	15	85	2	5	1	7	3	6	0	0	21
207	Total Interest & Surplus, Other		5,954	159	4,783	107	589	13	34	10	47	20	42	0	0	148
208	Over (Under) Total Requirements		(9,032)	(8)	(6,142)	(153)	(1,872)	(26)	(112)	(46)	(329)	(41)	(159)	(0)	(0)	(146)
209	Tariff Revenue Requirements		29,490	318	22,345	623	4,671	109	279	89	507	106	295	1	0	146

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3D: Allocation Results - Distribution-Demand Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Structures and improvements	305	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Boiler plant equipment	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Other power equipment	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	LPG equipment	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Purification equipment	317	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal - Production Plant	304-347	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Structures and improvements	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Gas holders	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Purification equipment	363	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Liquefaction equipment	363.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Vaporizing equipment	363.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Compressor equipment	363.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Measuring and regulating equipment	363.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Other equipment	363.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	Land and land rights	374	101	1	64	2	15	0	1	0	2	0	1	0	0	15
28	Structures and improvements	375	2,707	16	1,718	50	398	10	25	8	45	8	25	0	0	404
29	Mains	376	386,880	2,295	250,252	7,349	58,034	1,357	3,484	1,121	6,534	1,216	3,600	9	24	51,603
30	Mains - Direct Assignment	376Direct	7,574	0	0	0	0	0	0	0	0	0	0	0	0	7,574
31	Compressor station equipment	377	1,255	7	812	24	188	4	11	4	21	4	12	0	0	167
32	Measuring station equipment - General	378	17,886	106	11,570	340	2,683	63	161	52	302	56	166	0	1	2,386
33	Services	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Meters	381	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Meter installations	382	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	House regulators	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	House regulator installations	384	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Measuring station equipment - Industrial	385	314	0	0	0	0	88	226	0	0	0	0	0	0	0
39	Other equipment	387	3,980	23	2,525	74	586	15	37	11	66	12	36	0	0	594
40	Subtotal - Distribution Plant	374-387	420,696	2,449	266,941	7,839	61,904	1,537	3,946	1,196	6,970	1,297	3,840	9	26	62,742

Philadelphia Gas Works
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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
41	F. GENERAL PLANT															
42	Land and land rights	389	649	4	420	12	97	2	6	2	11	2	6	0	0	87
43	Structures and Improvements	390	14,499	86	9,379	275	2,175	51	131	42	245	46	135	0	1	1,934
44	Office furniture and equipment	391	19,058	113	12,328	362	2,859	67	172	55	322	60	177	0	1	2,542
45	Transportation equipment	392	7,001	42	4,528	133	1,050	25	63	20	118	22	65	0	0	934
46	Stores equipment	393	132	1	85	3	20	0	1	0	2	0	1	0	0	18
47	Tools, shop and garage equipment	394	1,875	11	1,213	36	281	7	17	5	32	6	17	0	0	250
48	Power operated equipment	396	216	1	140	4	32	1	2	1	4	1	2	0	0	29
49	Communication equipment	397	3,640	22	2,355	69	546	13	33	11	61	11	34	0	0	486
50	Miscellaneous equipment	398	2,497	15	1,615	47	375	9	22	7	42	8	23	0	0	333
51	*Subtotal - General Plant*	389-399	49,569	294	32,064	942	7,436	174	446	144	837	156	461	1	3	6,612
52	TOTAL UTILITY PLANT		470,265	2,743	299,004	8,781	69,340	1,711	4,393	1,340	7,807	1,453	4,301	10	29	69 354
53	II. DEPRECIATION RESERVE															
54	*Production plant*	108.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Mains	108.52	141,447	839	91,495	2,687	21,218	496	1,274	410	2,389	445	1,316	3	9	18,867
57	Mains - Direct Assignment	108.52Direct	7,574	0	0	0	0	0	0	0	0	0	0	0	0	7,574
58	Services	108.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	61,295	357	38,893	1,142	9,019	224	575	174	1,016	189	559	1	4	9,141
61	General Plant	108.8	25,580	152	16,546	486	3,837	90	230	74	432	80	238	1	2	3,412
62	Total Depreciation Reserve	108	235,896	1,348	146,934	4,315	34,074	810	2,079	658	3,857	714	2,113	5	14	39,994
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		234,369	1,395	152,070	4,466	35,265	901	2,313	681	3,971	739	2,187	5	15	30,360
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	22,679	354	18,094	507	3,005	88	179	45	188	72	146	1	0	0
70	Materials and supplies	131.12	3,158	19	2,042	60	473	11	28	9	53	10	29	0	0	422
71	Prepaid accounts, other current assets	131.13	1,727	10	1,116	33	259	6	16	5	29	5	16	0	0	231
72	*Gas, LNG in storage*	131.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Accounts payable, other- 50% Labor	131.16	(9,210)	(55)	(5,957)	(175)	(1,382)	(32)	(83)	(27)	(156)	(29)	(86)	(0)	(1)	(1,228)
75	Accounts payable, other- 50% O&MxGas	131.17	(7,199)	(43)	(4,655)	(137)	(1,079)	(25)	(65)	(21)	(122)	(23)	(67)	(0)	(0)	(963)
76	Customer deposits	131.18	(949)	(15)	(757)	(21)	(126)	(4)	(7)	(2)	(8)	(3)	(6)	(0)	0	0
77	Accrued interest	131.19	(4,226)	(113)	(3,395)	(76)	(418)	(9)	(24)	(7)	(34)	(14)	(30)	(0)	(0)	(105)
78	Accrued Taxes & Wages	131.2	(5,257)	(31)	(3,399)	(100)	(788)	(18)	(47)	(15)	(89)	(17)	(49)	(0)	(0)	(703)
79	Total Working Capital	131	723	126	3,089	91	(55)	16	(4)	(12)	(137)	1	(46)	0	(1)	(2,346)
80	V. TOTAL RATE BASE		235,091	1,521	155,159	4,557	35,210	917	2,310	669	3,834	740	2,142	5	13	28,013

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate R	NGVS Non-Heat	Interruptible Sales	GTS/IT
81	I. OPERATION & MAINTENANCE EXPENSE															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	Boiler fuel	702	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	Miscellaneous steam expenses	703	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	Maintenance of structures	706	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	Maintenance of other production plant	708	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	Operation supervision and engineering	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	Other power expenses	712	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	*Duplicate charges - Credit*	734	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Miscellaneous production expenses	735	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	Maintenance supervision and engineering	740	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	Maintenance of structures	741	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Maintenance of production equipment	742	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Subtotal - Manufactured Gas Production	701-749	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	Purchased gas expenses	807	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Gas used for other utility operations	812	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	LNG used for other utility operations	812LNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Other gas supply expenses	813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Subtotal - Production Expenses	701-813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	Operation labor and expenses	841	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Rents	842	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	Maintenance	843	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	Operation supervision and engineering	850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	Subtotal - Storage Expenses	840-850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	C. TRANSMISSION EXPENSES															

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
114	D. DISTRIBUTION EXPENSES															
115	Operation supervision and engineering	870	502	3	325	10	75	2	5	1	8	2	5	0	0	67
116	Distribution load dispatching	871	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Mains and services expenses	874	1,207	7	781	23	181	4	11	3	20	4	11	0	0	161
118	Measuring station expenses - General	875	2,102	12	1,360	40	315	7	19	6	36	7	20	0	0	280
119	Measuring station expenses - Industrial	876	47	0	0	0	0	15	34	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	550	3	356	10	83	2	5	2	9	2	5	0	0	73
121	Meter and house regulator expenses	878	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Customer installation expenses	879	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	Rents	881	2	0	1	0	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	75	0	48	1	11	0	1	0	1	0	1	0	0	10
127	Maintenance of mains	887	12,860	76	8,318	244	1,929	45	116	37	217	40	120	0	1	1,715
128	Maintenance of measuring station expenses - General	889	1,184	7	766	22	178	4	11	3	20	4	11	0	0	158
129	Maintenance of measuring station expenses - Industrial	890	6	0	0	0	0	2	4	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Maintenance of services	892	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Maintenance of meters and house regulators	893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Subtotal - Distribution Expenses	870-893	18,535	110	11,955	351	2,772	80	205	54	312	55	172	0	1	2,465
134	TOTAL OPERATION & MAINTENANCE EXPENSES		18,535	110	11,955	351	2,772	80	205	54	312	55	172	0	1	2,465
135	II. CUSTOMER ACCOUNTS EXPENSES															
136	Supervision	901	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Meter reading expenses	902	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Customer records and collection expenses	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	Uncollectible accounts	904	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
143	Customer assistance expenses	908	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Customer assistance expenses - ELRP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0

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149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	2,526	15	1,634	48	379	9	23	7	43	8	24	0	0	337
152	Office supplies and expenses	921	3,964	24	2,564	75	595	14	36	11	67	12	37	0	0	529
153	Administrative expenses transferred - Credit	922	(4,296)	(25)	(2,779)	(82)	(644)	(15)	(39)	(12)	(73)	(14)	(40)	(0)	(0)	(573)
154	Outside services employed	923	290	2	188	6	44	1	3	1	5	1	3	0	0	39
155	Injuries and damages	925	1,122	7	726	21	168	4	10	3	19	4	10	0	0	150
156	Employee pensions and benefits	926	20,154	120	13,036	383	3,023	71	182	58	340	63	188	0	1	2,688
157	OPEB funding and expenses	959	4,635	27	2,998	88	695	16	42	13	78	15	43	0	0	618
158	Subtotal - Labor Related A&G		28,394	168	18,367	539	4,259	100	256	82	480	89	264	1	2	3,787
159	B. PLANT RELATED															
160	Property insurance	924	1,077	6	684	20	159	4	10	3	18	3	10	0	0	161
161	Subtotal - Plant Related A&G		1,077	6	684	20	159	4	10	3	18	3	10	0	0	161
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	1,053	6	681	20	158	4	9	3	18	3	10	0	0	140
166	Rents	931	58	0	37	1	9	0	1	0	1	0	1	0	0	8
167	Subtotal - Other A&G		1,111	7	718	21	167	4	10	3	19	3	10	0	0	148
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		30,582	181	19,769	581	4,584	108	276	89	516	96	284	1	2	4,096
169	TOTAL OPERATING EXPENSES (Excluding Dep. Tax)		49,117	291	31,729	937	7,357	187	480	142	838	154	456	1	3	6,561
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	10,473	61	6,645	195	1,541	38	98	30	174	32	96	0	1	1,562
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		10,473	61	6,645	195	1,541	38	98	30	174	32	96	0	1	1,562
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	1,476	9	953	28	221	5	13	4	25	5	14	0	0	217
176	TOTAL EXPENSES		61,065	361	39,323	1,155	9,119	231	592	176	1,037	191	566	1	4	8,320

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177	VII. REVENUES															
178	Distribution Revenue	480-483	54,716	832	43,340	1,258	7,487	221	447	114	478	174	364	2	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	*REC Revenue*	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	2,598	46	2,489	1	3	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	390	6	311	9	52	2	9	1	3	1	3	0	0	0
185	GTS/IT Revenue	489	12,190	0	0	0	0	0	0	0	0	0	0	0	0	12,190
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		69,835	884	46,140	1,267	7,542	222	450	115	481	175	367	2	0	12,190
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		69,835	884	46,140	1,267	7,542	222	450	115	481	175	367	2	0	12,190
193	Non-operating rental income	418	35	1	28	1	3	0	0	0	0	0	0	0	0	1
194	Interest and dividend income	419	419	11	337	8	41	1	2	1	3	1	3	0	0	10
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		454	12	364	8	45	1	3	1	4	2	3	0	0	11
197	TOTAL REVENUE		70,289	896	46,504	1,275	7,587	223	453	116	484	177	370	2	0	12,202
198	Income Before Interest and Surplus		9,223	535	7,181	121	(1,532)	(7)	(139)	(61)	(542)	(15)	(196)	0	(4)	3,687
199	Interest on long-term debt	427	10,248	274	8,233	184	1,015	23	58	17	82	35	72	0	1	255
200	Amortization of debt discount	428	906	24	728	16	90	2	5	2	7	3	6	0	0	23
201	Amortization of premium on debt	429	(1,952)	(52)	(1,568)	(35)	(193)	(4)	(11)	(3)	(16)	(7)	(14)	(0)	(0)	(49)
202	Other interest expense	431	790	21	635	14	78	2	4	1	6	3	6	0	0	20
203	AFUDC	432	(192)	(5)	(154)	(3)	(19)	(0)	(1)	(0)	(2)	(1)	(1)	(0)	(0)	(5)
204	Surplus Requirement	499	12,508	335	10,048	224	1,238	28	71	21	100	43	88	0	1	311
205	Total Interest & Surplus		22,308	597	17,921	400	2,708	50	126	37	178	76	157	1	1	555
206	Appropriations of retained earnings	436	3,752	100	3,014	67	371	8	21	6	30	13	26	0	0	93
207	Total Interest & Surplus, Other		26,061	698	20,935	467	2,580	58	148	44	208	89	183	1	1	649
208	Over (Under) Total Requirements		(16,837)	(163)	(13,754)	(347)	(4,212)	(66)	(287)	(104)	(750)	(104)	(379)	(0)	(5)	3,233
209	Tariff Revenue Requirements		83,744	994	57,094	1,605	11,599	286	734	218	1,227	278	743	2	5	8,957

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1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Structures and Improvements	305	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Boiler plant equipment	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Other power equipment	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	LPG equipment	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Purification equipment	317	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	*Subtotal - Production Plant*	304-347	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Structures and improvements	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Gas holders	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Purification equipment	363	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Liquefaction equipment	363.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Vaporizing equipment	363.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Compressor equipment	363.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Measuring and regulating equipment	363.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Other equipment	363.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	*Land and land rights*	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Structures and Improvements	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Mains	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Mains - Direct Assignment	376Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Compressor station equipment	377	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Measuring station equipment - General	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Services	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Meters	381	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Meter installations	382	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	House regulators	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	House regulator installations	384	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Measuring station equipment - Industrial	385	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Other equipment	387	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Subtotal - Distribution Plant	374-387	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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41	F. GENERAL PLANT															
42	Land and land rights	389	90	1	41	2	11	0	1	0	1	0	1	0	0	33
43	Structures and improvements	390	2,015	11	924	39	242	7	15	5	22	4	13	0	0	732
44	Office furniture and equipment	391	2,648	15	1,214	51	318	10	19	7	29	6	18	0	1	962
45	Transportation equipment	392	973	5	446	19	117	4	7	2	11	2	6	0	0	353
46	Stores equipment	393	18	0	8	0	2	0	0	0	0	0	0	0	0	7
47	Tools, shop and garage equipment	394	261	1	119	5	31	1	2	1	3	1	2	0	0	95
48	Power operated equipment	396	30	0	14	1	4	0	0	0	0	0	0	0	0	11
49	Communication equipment	397	506	3	232	10	61	2	4	1	5	1	3	0	0	184
50	Miscellaneous equipment	398	347	2	159	7	42	1	3	1	4	1	2	0	0	126
51	Subtotal - General Plant	389-399	6,888	39	3,157	134	827	25	50	17	75	15	46	1	2	2,501
52	TOTAL UTILITY PLANT		6,888	39	3,157	134	827	25	50	17	75	15	46	1	2	2,501
53	II. DEPRECIATION RESERVE															
54	Production plant	108.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Mains	108.52	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Mains - Direct Assignment	108.52Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Services	108.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	General Plant	108.8	3,555	20	1,629	69	427	13	26	9	39	8	24	0	1	1,291
62	Total Depreciation Reserve	108	3,555	20	1,629	69	427	13	26	9	39	8	24	0	1	1,291
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		3,334	19	1,528	65	400	12	24	8	36	7	22	0	1	1,211
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	2,855	45	2,278	64	378	11	23	6	24	9	18	0	0	0
70	Materials and supplies	131.12	398	2	182	8	48	1	3	1	4	1	3	0	0	144
71	Prepaid accounts, other current assets	131.13	217	1	100	4	26	1	2	1	2	0	1	0	0	79
72	Gas, LNG in storage	131.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131.15	(12,110)	(68)	(5,551)	(235)	(1,454)	(44)	(88)	(30)	(131)	(27)	(81)	(1)	(3)	(4,398)
74	Accounts payable, other- 50% Labor	131.16	(1,280)	(7)	(587)	(25)	(154)	(5)	(9)	(3)	(14)	(3)	(9)	(0)	(0)	(465)
75	Accounts payable, other- 50% O&MxGas	131.17	(906)	(5)	(415)	(18)	(109)	(3)	(7)	(2)	(10)	(2)	(6)	(0)	(0)	(329)
76	Customer deposits	131.18	(119)	(2)	(95)	(3)	(16)	(0)	(1)	(0)	(1)	(0)	(1)	(0)	0	0
77	Accrued interest	131.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	Accrued Taxes & Wages	131.2	(662)	(4)	(303)	(13)	(79)	(2)	(5)	(2)	(7)	(1)	(4)	(0)	(0)	(240)
79	Total Working Capital	131	(11,608)	(38)	(4,392)	(217)	(1,360)	(41)	(82)	(30)	(133)	(23)	(78)	(1)	(3)	(5,208)
80	V. TOTAL RATE BASE		(8,274)	(19)	(2,864)	(153)	(960)	(29)	(58)	(22)	(97)	(16)	(56)	(1)	(2)	(3,998)

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81	I. OPERATION & MAINTENANCE EXPENSE															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	Boiler fuel	702	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	Miscellaneous steam expenses	703	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	Maintenance of structures	706	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	Maintenance of other production plant	708	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	Operation supervision and engineering	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	Other power expenses	712	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	Duplicate charges - Credit	734	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Miscellaneous production expenses	735	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	Maintenance supervision and engineering	740	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	Maintenance of structures	741	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Maintenance of production equipment	742	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Subtotal - Manufactured Gas Production	701-743	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	Purchased gas expenses	807	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Gas used for other utility operations	812	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	LNG used for other utility operations	812LNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Other gas supply expenses	813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Subtotal - Production Expenses	701-813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	Operation labor and expenses	841	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Rents	842	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	Maintenance	843	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	Operation supervision and engineering	850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	Subtotal - Storage Expenses	840-850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	C. TRANSMISSION EXPENSES															

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114	D. DISTRIBUTION EXPENSES															
115	Operation supervision and engineering	870	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	Distribution load dispatching	871	1,650	9	756	32	198	6	12	4	18	4	11	0	0	599
117	Mains and services expenses	874	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	Measuring station expenses - General	875	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	Measuring station expenses - Industrial	876	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	Meter and house regulator expenses	878	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Customer installation expenses	879	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	Rents	881	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	Maintenance of mains	887	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	Maintenance of measuring station expenses - General	889	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	487	3	223	9	58	2	4	1	5	1	3	0	0	177
131	Maintenance of services	892	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Maintenance of meters and house regulators	893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Subtotal - Distribution Expenses	870-893	2,137	12	980	41	257	8	15	5	23	5	14	0	0	776
134	TOTAL OPERATION & MAINTENANCE EXPENSES		2,137	12	980	41	257	8	15	5	23	5	14	0	0	776
135	II. CUSTOMER ACCOUNTS EXPENSES															
136	Supervision	901	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Meter reading expenses	902	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Customer records and collection expenses	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	Uncollectible accounts	904	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
143	Customer assistance expenses	908	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0

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149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	351	2	161	7	42	1	3	1	4	1	2	0	0	127
152	Office supplies and expenses	921	551	3	252	11	66	2	4	1	6	1	4	0	0	200
153	Administrative expenses transferred - Credit	922	(597)	(3)	(274)	(12)	(72)	(2)	(4)	(1)	(6)	(1)	(4)	(0)	(0)	(217)
154	Outside services employed	923	40	0	18	1	5	0	0	0	0	0	0	0	0	15
155	Injuries and damages	925	156	1	71	3	19	1	1	0	2	0	1	0	0	57
156	Employee pensions and benefits	926	2,801	16	1,284	54	336	10	20	7	30	6	19	0	1	1,017
157	OPEB funding and expenses	999	644	4	295	13	77	2	5	2	7	1	4	0	0	234
158	Subtotal - Labor Related A&G		3,946	22	1,809	77	474	14	29	10	43	9	26	0	1	1,433
159	B. PLANT RELATED															
160	Property Insurance	924	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	Subtotal - Plant Related A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	146	1	67	3	18	1	1	0	2	0	1	0	0	53
166	Rents	931	8	0	4	0	1	0	0	0	0	0	0	0	0	3
167	Subtotal - Other A&G		154	1	71	3	19	1	1	0	2	0	1	0	0	56
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		4,100	23	1,879	80	492	15	30	10	44	9	27	0	1	1,489
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		6,237	35	2,859	121	749	23	45	15	66	14	42	1	1	2,265
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	205	1	84	4	25	1	1	1	2	0	1	0	0	74
176	TOTAL EXPENSES		6,442	36	2,953	125	774	23	47	16	70	14	43	1	1	2,339

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3E: Allocation Results - Distribution-Commodity Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	6,888	105	5,456	158	943	28	56	14	60	22	46	0	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	320	6	313	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	49	1	39	1	7	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		7,257	111	5,808	160	949	28	57	14	61	22	46	0	0	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		7,257	111	5,808	160	949	28	57	14	61	22	46	0	0	0
193	Non-operating rental income	418	1	0	0	1	0	0	0	0	0	1	0	0	0	0
194	Interest and dividend income	419	6	0	5	0	1	0	0	0	0	0	0	0	0	0
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		7	0	5	0	1	0	0	0	0	0	0	0	0	0
197	TOTAL REVENUE		7,263	111	5,814	160	950	28	57	14	61	22	46	0	0	0
198	Income Before Interest and Surplus		821	75	2,861	45	176	5	10	(2)	(9)	8	4	(0)	(1)	(2,339)
199	Interest on long-term debt	427	150	4	121	3	15	0	1	0	1	1	1	0	0	4
200	Amortization of debt discount	428	13	0	11	0	1	0	0	0	0	0	0	0	0	0
201	Amortization of premium on debt	429	(29)	(1)	(23)	(1)	(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
202	Other interest expense	431	12	0	9	0	1	0	0	0	0	0	0	0	0	0
203	AFUDC	432	(3)	(0)	(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
204	Surplus Requirement	499	183	5	147	3	38	0	1	0	1	1	1	0	0	5
205	Total Interest & Surplus		327	9	262	6	52	1	2	1	3	1	2	0	0	8
206	Appropriations of retained earnings	436	55	1	44	1	5	0	0	0	0	0	0	0	0	1
207	Total Interest & Surplus, Other		382	10	307	7	58	1	2	1	4	1	3	0	0	10
208	Over (Under) Total Requirements		439	65	2,554	28	139	4	8	(2)	(12)	6	1	(0)	(1)	(2,349)
209	Tariff Revenue Requirements		6,449	40	2,902	131	804	24	48	17	72	15	45	1	1	2,349

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3F: Allocation Results - Distribution-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Structures and Improvements	305	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Boiler plant equipment	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Other power equipment	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	LPG equipment	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Purification equipment	317	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal - Production Plant	304-347	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Structures and Improvements	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Gas holders	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Purification equipment	363	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Liquefaction equipment	363.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Vaporizing equipment	363.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Compressor equipment	363.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Measuring and regulating equipment	363.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Other equipment	363.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	Land and land rights	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Structures and Improvements	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Mains	376	886,880	15,014	348,951	9,667	15,621	136	351	291	437	1,495	702	3	3	327
30	Mains - Direct Assignment	376Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Compressor station equipment	377	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Measuring station equipment - General	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Services	380	705,810	26,044	605,303	9,542	40,645	1,102	2,839	601	3,536	2,489	5,674	25	75	7,937
34	Meters	381	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Meter installations	382	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	House regulators	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	House regulator installations	384	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Measuring station equipment - Industrial	385	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Other equipment	387	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Subtotal - Distribution Plant	374-387	1,092,689	41,058	954,254	19,210	56,266	1,238	3,190	892	3,973	3,984	6,375	28	78	8,264

Philadelphia Gas Works
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Exhibit PGH-3F: Allocation Results - Distribution-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
41	F. GENERAL PLANT															
42	Land and land rights	389	831	31	732	9	40	1	2	1	2	3	4	0	0	5
43	Structures and Improvements	390	18,548	709	16,344	211	898	17	44	13	55	67	88	0	1	106
44	Office furniture and equipment	391	24,380	924	21,483	277	1,181	22	58	17	72	88	115	1	1	139
45	Transportation equipment	392	8,955	340	7,891	102	434	8	21	6	26	32	42	0	0	51
46	Stores equipment	393	169	6	149	2	8	0	0	0	0	1	1	0	0	1
47	Tools, shop and garage equipment	394	2,399	91	2,114	27	116	2	6	2	7	9	11	0	0	14
48	Power operated equipment	396	276	10	243	3	13	0	1	0	1	1	1	0	0	2
49	Communication equipment	397	4,657	177	4,104	53	226	4	11	3	14	17	22	0	0	27
50	Miscellaneous equipment	398	3,195	121	2,815	36	155	3	8	2	9	12	15	0	0	18
51	Subtotal - General Plant	389-399	63,410	2,404	$5,877	721	3,071	58	150	45	187	230	300	1	3	362
52	TOTAL UTILITY PLANT		1,156,099	43,462	1,010,330	13,931	59,337	1,296	3,340	878	4,160	4,153	6,675	29	91	8,626
53	II. DEPRECIATION RESERVE															
54	Production plant	108.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Mains	108.52	141,447	5,489	127,580	1,341	5,711	50	128	84	160	525	257	1	1	120
57	Mains - Direct Assignment	108.52Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Services	108.54	355,556	13,120	304,925	4,807	20,475	555	1,430	303	1,781	1,254	2,858	13	38	3,998
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	General Plant	108.8	32,722	1,241	28,835	392	1,585	30	77	23	96	119	155	1	2	187
62	Total Depreciation Reserve	108	529,726	19,850	461,340	6,539	27,772	635	1,636	411	2,038	1,897	3,269	14	41	4,305
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		626,373	23,613	548,790	7,411	31,566	661	1,704	467	2,123	2,256	3,406	15	41	4,321
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	44,624	696	35,603	997	5,914	173	352	89	970	141	288	1	0	0
70	Materials and supplies	131.12	6,213	207	5,511	67	301	6	16	4	18	18	27	0	0	39
71	Prepaid accounts, other current assets	131.13	3,397	113	3,013	37	165	3	9	2	10	10	15	0	0	21
72	Gas, LNG in storage	131.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Accounts payable, other- 50% Labor	131.16	(11,781)	(447)	(10,382)	(134)	(571)	(11)	(28)	(8)	(35)	(43)	(56)	(0)	(1)	(67)
75	Accounts payable, other- 50% O&MxGas	131.17	(14,166)	(472)	(12,565)	(152)	(687)	(13)	(36)	(9)	(41)	(41)	(61)	(0)	(1)	(89)
76	Customer deposits	131.18	(1,867)	(29)	(1,489)	(42)	(247)	(7)	(15)	(4)	(15)	(6)	(12)	(0)	0	0
77	Accrued interest	131.19	(10,976)	(294)	(8,817)	(197)	(1,087)	(24)	(62)	(18)	(87)	(38)	(77)	(0)	(1)	(275)
78	Accrued Taxes & Wages	131.2	(10,344)	(344)	(9,175)	(111)	(502)	(10)	(26)	(7)	(30)	(30)	(44)	(0)	(1)	(65)
79	Total Working Capital	131	5,102	(569)	1,700	465	3,287	117	210	49	169	11	79	0	(2)	(434)
80	V. TOTAL RATE BASE		631,475	23,043	$50,490	7,875	34,853	778	1,914	516	2,312	2,268	3,485	15	39	3,887

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3F: Allocation Results - Distribution-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
81	I. OPERATION & MAINTENANCE EXPENSE															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	Boiler fuel	702	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	Miscellaneous steam expenses	703	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	Maintenance of structures	706	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	Maintenance of other production plant	708	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	Operation supervision and engineering	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	Other power expenses	712	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	Duplicate charges - Credit	734	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Miscellaneous production expenses	735	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	Maintenance supervision and engineering	740	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	Maintenance of structures	741	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Maintenance of production equipment	742	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Subtotal - Manufactured Gas Production	701-743	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	Purchased gas expenses	807	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Gas used for other utility operations	812	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	LNG used for other utility operations	812LNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Other gas supply expenses	813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Subtotal - Production Expenses	701-813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	Operation labor and expenses	841	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Rents	842	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	Maintenance	843	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	Operation supervison and engineering	850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	Subtotal - Storage Expenses	840-850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	C. TRANSMISSION EXPENSES															

Philadelphia Gas Works
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Exhibit PGH-3F: Allocation Results - Distribution-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
114	D. DISTRIBUTION EXPENSES															
115	Operation supervision and engineering	870	1,305	49	1,150	15	63	1	3	1	4	5	6	0	0	7
116	Distribution load dispatching	871	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Mains and services expenses	874	3,410	126	2,924	46	196	5	14	3	17	12	27	0	0	38
118	Measuring station expenses - General	875	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	Measuring station expenses - Industrial	876	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	Meter and house regulator expenses	878	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Customer installation expenses	879	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	11,585	427	9,935	157	667	18	47	10	58	41	93	0	1	130
125	Rents	881	5	0	4	0	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	194	7	171	2	9	0	0	0	1	1	1	0	0	1
127	Maintenance of mains	887	12,860	499	11,599	122	519	5	12	8	15	48	23	0	0	11
128	Maintenance of measuring station expenses - General	889	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Maintenance of services	892	1,800	66	1,544	24	104	3	7	2	9	6	14	0	0	20
132	Maintenance of meters and house regulators	893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Subtotal - Distribution Expenses	870-893	31,158	1,176	27,327	366	1,559	32	83	23	103	112	165	1	2	208
134	TOTAL OPERATION & MAINTENANCE EXPENSES		31,158	1,176	27,327	366	1,559	32	83	23	103	112	165	1	2	208
135	II. CUSTOMER ACCOUNTS EXPENSES															
136	Supervision	901	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Meter reading expenses	902	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Customer records and collection expenses	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	Uncollectible accounts	904	16,495	287	15,637	81	465	3	21	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		16,495	287	15,637	81	465	3	21	0	0	0	0	0	0	0
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
143	Customer assistance expenses	908	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Customer assistance expenses - EURP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		16,495	287	15,637	81	465	3	21	0	0	0	0	0	0	0

Philadelphia Gas Works
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Exhibit PQH-3F: Allocation Results - Distribution-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	3,231	123	2,847	37	156	3	8	2	10	12	15	0	0	18
152	Office supplies and expenses	921	5,071	192	4,468	58	246	5	12	4	15	18	24	0	0	29
153	Administrative expenses transferred - Credit	922	(5,496)	(208)	(4,843)	(62)	(266)	(5)	(13)	(4)	(16)	(20)	(26)	(0)	(0)	(31)
154	Outside services employed	923	371	14	327	4	18	0	1	0	1	1	2	0	0	2
155	Injuries and damages	925	1,435	54	1,265	16	70	1	3	1	4	5	7	0	0	8
156	Employee pensions and benefits	926	25,781	977	22,718	293	1,249	24	61	18	76	93	122	1	1	147
157	OPEB funding and expenses	999	5,929	225	5,225	67	287	5	14	4	17	21	28	0	0	34
158	Subtotal - Labor Related A&G		36,322	1,377	32,007	413	1,759	33	86	26	107	132	172	1	2	208
159	B. PLANT RELATED															
160	Property insurance	924	2,798	103	2,400	38	161	4	11	2	14	10	22	0	0	31
161	Subtotal - Plant Related A&G		2,798	103	2,400	38	161	4	11	2	14	10	22	0	0	31
162	C. OTHER A&G															
163	Regulatory commission expenses	928	5,157	138	4,143	92	531	12	29	9	41	18	36	0	0	128
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	1,347	51	1,187	15	65	1	3	1	4	5	6	0	0	8
166	Rents	931	74	3	65	1	4	0	0	0	0	0	0	0	0	0
167	Subtotal - Other A&G		6,578	192	5,395	109	579	13	33	10	45	23	43	0	0	136
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		45,698	1,672	39,802	559	2,500	51	130	38	166	164	237	1	3	375
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		93,351	3,135	82,766	1,007	4,524	96	233	61	269	277	403	3	5	594
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	27,202	1,004	23,328	368	1,566	42	105	23	136	96	219	2	3	306
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		27,202	1,004	23,328	368	1,566	42	105	23	136	96	219	2	3	306
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	1,888	72	1,663	21	91	2	4	1	6	7	9	0	0	11
176	TOTAL EXPENSES		122,440	4,211	107,757	1,396	6,187	130	347	86	411	379	630	5	8	900

Philadelphia Gas Works
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Exhibit PQH-3F: Allocation Results - Distribution-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
177	VIL REVENUES															
178	Distribution Revenue	480-483	107,664	1,637	85,279	2,475	14,733	434	880	225	940	342	717	6	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	4,995	90	4,898	1	6	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	767	12	612	17	107	3	6	2	6	2	5	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		113,426	1,739	90,788	2,494	14,841	437	886	226	946	344	722	4	0	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		113,426	1,739	90,788	2,494	14,841	437	886	226	946	344	722	4	0	
193	Non-operating rental income	418	85	2	68	2	8	0	0	0	1	0	1	0	0	1
194	Interest and dividend income	419	1,030	28	828	18	102	2	6	2	8	4	7	0	0	26
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		1,115	30	896	20	110	2	6	2	9	4	8	0	0	28
197	TOTAL REVENUE		114,541	1,768	91,684	2,514	14,951	440	893	228	955	348	730	4	0	28
198	Income Before Interest and Surplus		(7,899)	(2,442)	(16,073)	1,118	8,769	310	545	142	544	(31)	99	1	(7)	(873)
199	Interest on long-term debt	427	25,194	674	20,239	452	2,494	56	143	42	201	86	177	1	1	627
200	Amortization of debt discount	428	2,228	60	1,790	40	221	5	13	4	18	8	16	0	0	55
201	Amortization of premium on debt	429	(4,799)	(128)	(3,855)	(86)	(475)	(11)	(27)	(8)	(38)	(16)	(34)	(0)	(0)	(119)
202	Other interest expense	431	1,942	52	1,560	35	192	4	11	3	15	7	14	0	0	48
203	AFUDC	432	(471)	(13)	(379)	(8)	(47)	(1)	(3)	(1)	(4)	(2)	(3)	(0)	(0)	(12)
204	Surplus Requirement	499	30,749	823	24,702	552	3,044	69	174	51	245	105	216	1	2	765
205	Total Interest & Surplus		54,843	1,468	44,057	984	5,429	122	311	92	437	188	386	1	3	1,365
206	Appropriations of retained earnings	436	9,225	247	7,411	165	913	21	52	15	73	32	65	0	0	230
207	Total Interest & Surplus, Other		64,067	1,715	51,467	1,149	6,342	143	363	107	510	220	451	2	3	1,595
208	Over (Under) Total Requirements		(71,966)	(4,157)	(67,540)	(32)	2,427	167	182	35	33	(251)	(351)	(1)	(11)	(2,467)
209	Tariff Revenue Requirements		179,630	5,794	152,819	2,507	12,306	268	698	189	906	593	1,068	4	11	2,467

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Structures and Improvements	305	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Boiler plant equipment	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Other power equipment	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	LPG equipment	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Purification equipment	317	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal - Production Plant	304-347	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Structures and Improvements	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Gas holders	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Purification equipment	363	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Liquefaction equipment	363.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Vaporizing equipment	363.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Compressor equipment	363.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Measuring and regulating equipment	363.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Other equipment	363.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	Land and land rights	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Structures and Improvements	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Mains	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Mains - Direct Assignment	376Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Compressor station equipment	377	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Measuring station equipment - General	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Services	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Meters	381	75,453	2,384	55,411	2,752	11,723	159	395	173	492	228	790	2	3	945
35	Meter installations	382	94,565	2,988	69,447	3,449	14,692	192	495	217	617	286	990	3	4	1,184
36	House regulators	383	2,202	90	2,103	0	0	0	0	0	0	9	0	0	0	0
37	House regulator installations	384	4,142	170	3,955	0	0	0	0	0	0	16	0	0	0	0
38	Measuring station equipment - Industrial	385	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Other equipment	387	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Subtotal - Distribution Plant	374-387	176,362	5,633	130,916	6,202	26,415	346	891	391	1,110	538	1,780	5	7	2,128

Philadelphia Gas Works
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Exhibit PGH-3G: Allocation Results - Onsite-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
41	F. GENERAL PLANT															
42	Land and land rights	389	1,648	52	1,314	43	189	7	18	3	8	5	10	0	0	1
43	Structures and improvements	390	36,806	1,165	29,346	952	4,210	155	391	57	172	101	231	1	0	25
44	Office furniture and equipment	391	48,378	1,531	38,573	1,251	5,533	204	514	75	226	133	303	1	0	33
45	Transportation equipment	392	17,771	562	14,169	460	2,033	75	189	27	83	49	111	0	0	12
46	Stores equipment	393	335	11	267	9	38	1	4	1	2	1	2	0	0	0
47	Tools, shop and garage equipment	394	4,761	151	3,796	123	545	20	51	7	22	13	30	0	0	3
48	Power operated equipment	396	548	17	437	14	63	2	6	1	3	2	3	0	0	0
49	Communication equipment	397	9,241	292	7,368	239	1,057	39	98	14	43	25	58	0	0	6
50	Miscellaneous equipment	398	6,340	201	5,055	164	725	27	67	10	30	17	40	0	0	4
51	Subtotal - General Plant	389-399	125,828	3,982	100,327	3,254	14,392	531	1,338	195	587	346	789	3	0	86
52	TOTAL UTILITY PLANT		302,190	9,615	231,243	9,455	40,807	877	2,228	585	1,696	884	2,569	8	7	2,214
53	II. DEPRECIATION RESERVE															
54	Production plant	108.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Mains	108.52	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Mains - Direct Assignment	108.52Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Services	108.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Meters	108.55	39,464	1,247	28,981	1,439	6,131	80	207	91	258	119	413	1	2	494
60	Distribution other	108.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	General Plant	108.8	64,934	2,055	51,773	1,679	7,427	274	690	100	303	178	407	2	0	44
62	Total Depreciation Reserve	108	104,397	3,302	80,755	3,119	13,558	354	897	191	560	298	820	3	2	538
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl Working Capital)		197,793	6,313	150,488	6,337	27,249	522	1,331	394	1,136	586	1,749	6	6	1,676
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	Materials and supplies	131.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	Prepaid accounts, other current assets	131.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Gas, LNG in storage	131.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Accounts payable, other- 50% Labor	131.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	Accounts payable, other- 50% O&MxGas	131.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	Customer deposits	131.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	Accrued interest	131.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	Accrued Taxes & Wages	131.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	Total Working Capital	151	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	V. TOTAL RATE BASE		197,793	6,313	150,488	6,337	27,249	522	1,331	394	1,136	586	1,749	6	6	1,676

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
81	I. OPERATION & MAINTENANCE EXPENSE															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	Boiler fuel	702	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	Miscellaneous steam expenses	703	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	Maintenance of structures	706	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	Maintenance of other production plant	708	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	Operation supervision and engineering	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	Other power expenses	712	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	Duplicate charges - Credit	734	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Miscellaneous production expenses	735	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	Maintenance supervision and engineering	740	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	Maintenance of structures	741	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Maintenance of production equipment	742	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Subtotal - Manufactured Gas Production	701-743	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	Purchased gas expenses	807	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Gas used for other utility operations	812	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	LNG used for other utility operations	812LNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Other gas supply expenses	813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Subtotal - Production Expenses	701-813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	Operation labor and expenses	841	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Rents	842	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	Maintenance	843	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	Operation supervision and engineering	850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	Subtotal - Storage Expenses	840-850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	C. TRANSMISSION EXPENSES															

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
114	D. DISTRIBUTION EXPENSES															
115	Operation supervision and engineering	870	211	7	168	5	24	1	2	0	1	1	1	0	0	0
116	Distribution load dispatching	871	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Mains and services expenses	874	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	Measuring station expenses - General	875	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	Measuring station expenses - Industrial	876	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	Meter and house regulator expenses	878	18,417	595	13,839	656	2,797	37	94	41	117	57	188	1	0	0
122	Customer installation expenses	879	5,642	181	4,196	208	888	12	30	13	37	17	60	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	3,746	155	3,591	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	1,350	43	1,002	47	202	3	7	3	8	4	14	0	0	18
125	Rents	881	1	0	1	0	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	31	1	25	1	4	0	0	0	0	0	0	0	0	0
127	Maintenance of mains	887	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	Maintenance of measuring station expenses - General	889	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Maintenance of services	892	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Maintenance of meters and house regulators	893	3,610	123	2,663	136	578	8	19	9	24	12	39	0	0	0
133	Subtotal - Distribution Expenses	870-893	33,208	1,104	25,685	1,053	4,488	59	153	66	188	91	303	1	0	16
134	TOTAL OPERATION & MAINTENANCE EXPENSES		33,208	1,104	25,685	1,053	4,488	59	153	66	188	91	303	1	0	16
135	II. CUSTOMER ACCOUNTS EXPENSES															
136	Supervision	901	1,109	32	926	23	109	2	4	1	4	3	3	0	0	1
137	Meter reading expenses	902	785	22	666	12	64	1	3	1	4	3	3	0	0	7
138	Customer records and collection expenses	903	26,657	776	22,247	550	2,627	43	94	28	101	75	79	1	0	35
139	Uncollectible accounts	904	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		28,551	830	23,839	584	2,800	46	101	31	109	81	85	1	0	43
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
143	Customer assistance expenses	908	1,617	57	1,321	7	50	55	141	0	1	3	1	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		1,617	57	1,321	7	50	55	141	0	1	3	1	0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		30,168	887	25,159	592	2,850	101	242	31	110	84	87	1	0	43

Philadelphia Gas Works
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Exhibit PQH-3G: Allocation Results - Onsite-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	6,412	203	5,112	166	733	27	68	10	30	18	40	0	0	4
152	Office supplies and expenses	921	10,062	318	8,023	260	1,151	42	107	16	47	28	63	0	0	7
153	Administrative expenses transferred - Credit	922	(10,906)	(345)	(8,696)	(282)	(1,247)	(46)	(116)	(17)	(51)	(30)	(68)	(0)	(0)	(7)
154	Outside services employed	923	737	23	588	19	84	3	8	1	3	2	5	0	0	1
155	Injuries and damages	925	2,848	90	2,271	74	326	12	30	4	13	8	18	0	0	2
156	Employee pensions and benefits	926	51,159	1,619	40,791	1,323	5,851	216	544	79	239	141	321	1	0	35
157	OPEB funding and expenses	999	11,765	372	9,381	304	1,346	50	125	18	55	32	74	0	0	8
158	Subtotal - Labor Related A&G		72,077	2,281	57,469	1,864	8,244	304	766	111	336	198	452	2	0	49
159	B. PLANT RELATED															
160	Property Insurance	924	452	14	335	16	68	1	2	1	3	1	5	0	0	5
161	Subtotal - Plant Related A&G		452	14	335	16	68	1	2	1	3	1	5	0	0	5
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	2,673	85	2,131	69	306	11	28	4	12	7	17	0	0	2
166	Rents	931	147	5	117	4	17	1	2	0	1	0	1	0	0	0
167	Subtotal - Other A&G		2,819	89	2,248	73	322	12	30	4	13	8	18	0	0	2
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		75,348	2,385	60,052	1,953	8,634	317	798	117	352	207	474	2	0	57
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		138,723	4,376	110,897	3,598	15,952	477	1,193	214	650	382	863	4	0	117
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	4,390	140	3,259	154	658	9	22	10	28	13	44	0	0	53
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		4,390	140	3,259	154	658	9	22	10	28	13	44	0	0	53
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	3,746	119	2,987	97	428	16	40	6	17	10	23	0	0	3
176	TOTAL EXPENSES		146,860	4,635	117,142	3,849	17,038	502	1,255	230	695	406	930	4	1	172

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Exhibit PGH-3G: Allocation Results - Onsite-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	177,687	2,701	140,742	4,085	24,315	717	1,453	371	1,551	564	1,183	6	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		177,687	2,701	140,742	4,085	24,315	717	1,453	371	1,551	564	1,183	6	0	0
189	Bill paid turn ons & dig ups	903Rev	1,883	73	1,698	18	76	1	2	1	2	7	3	0	0	2
190	Customer installation expenses	879Rev	6,382	263	6,119	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		8,265	336	7,817	18	76	1	2	1	2	7	3	0	0	2
192	TOTAL OPERATING REVENUES		185,952	3,037	148,559	4,103	24,391	717	1,454	372	1,553	571	1,186	6	0	2
193	Non-operating rental income	418	27	1	22	0	3	0	0	0	0	0	0	0	0	0
194	Interest and dividend income	419	332	9	267	6	33	1	2	1	3	1	2	0	0	6
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		360	10	289	6	36	1	2	1	3	1	3	0	0	9
197	TOTAL REVENUE		186,312	3,047	148,848	4,110	24,427	718	1,456	372	1,556	572	1,189	6	0	11
198	Income Before Interest and Surplus		99,452	(1,588)	31,706	261	7,388	217	201	143	860	167	258	2	(1)	(162)
199	Interest on long-term debt	427	8,130	238	6,591	146	805	18	46	14	65	28	57	0	0	202
200	Amortization of debt discount	428	719	19	578	13	71	2	4	1	6	2	5	0	0	18
201	Amortization of premium on debt	429	(1,545)	(41)	(1,244)	(28)	(153)	(3)	(9)	(3)	(12)	(5)	(11)	(0)	(0)	(39)
202	Other interest expense	431	627	17	503	11	62	1	4	1	5	2	4	0	0	16
203	AFUDC	432	(152)	(4)	(122)	(3)	(15)	(0)	(1)	(0)	(1)	(1)	(1)	(0)	(0)	(4)
204	Surplus Requirement	499	9,923	266	7,972	178	982	22	56	17	79	34	70	0	1	247
205	Total Interest & Surplus		17,698	474	14,218	317	1,752	40	100	30	141	61	125	0	1	441
206	Appropriations of retained earnings	436	2,977	80	2,391	53	295	7	17	5	24	10	21	0	0	74
207	Total Interest & Surplus, Other		20,675	554	16,609	371	2,047	46	117	35	165	71	145	0	1	515
208	Over (Under) Total Requirements		18,777	(2,142)	15,097	(110)	5,341	170	84	108	696	96	113	1	(2)	(677)
209	Tariff Revenue Requirements		156,910	4,843	125,645	4,195	18,979	546	1,369	263	855	468	1,070	4	2	677

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Structures and Improvements	305	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Boiler plant equipment	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Other power equipment	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	LPG equipment	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Purification equipment	317	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal - Production Plant	304-347	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Structures and Improvements	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Gas holders	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Purification equipment	363	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Liquefaction equipment	363.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Vaporizing equipment	363.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Compressor equipment	363.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Measuring and regulating equipment	363.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Other equipment	363.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	Land and land rights	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Structures and Improvements	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Mains	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Mains - Direct Assignment	376Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Compressor station equipment	377	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Measuring station equipment - General	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Services	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Meters	381	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Meter installations	382	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	House regulators	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	House regulator installations	384	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Measuring station equipment - Industrial	385	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Other equipment	387	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Subtotal - Distribution Plant	374-387	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
41	F. GENERAL PLANT															
42	Land and land rights	389	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Structures and improvements	390	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Office furniture and equipment	391	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Transportation equipment	392	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Stores equipment	393	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Tools, shop and garage equipment	394	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Power operated equipment	396	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Communication equipment	397	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	Miscellaneous equipment	398	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	Subtotal - General Plant	389-399	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	TOTAL UTILITY PLANT		0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	II. DEPRECIATION RESERVE															
54	Production plant	108.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Mains	108.57	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Mains - Direct Assignment	108.52Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Services	108.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	General Plant	108.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	Total Depreciation Reserve	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	Materials and supplies	131.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	Prepaid accounts, other current assets	131.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Gas, LNG in storage	131.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Accounts payable, other- 50% Labor	131.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	Accounts payable, other- 50% O&MxGas	131.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	Customer deposits	131.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	Accrued interest	131.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	Accrued Taxes & Wages	131.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	Total Working Capital	131	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	V. TOTAL RATE BASE		0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
81	I. OPERATION & MAINTENANCE EXPENSE															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	Boiler fuel	702	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	Miscellaneous steam expenses	703	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	Maintenance of structures	706	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	Maintenance of other production plant	708	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	Operation supervision and engineering	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	Other power expenses	712	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	Duplicate charges - Credit	734	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Miscellaneous production expenses	735	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	Maintenance supervision and engineering	740	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	Maintenance of structures	741	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Maintenance of production equipment	742	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Subtotal - Manufactured Gas Production	701-743	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	Purchased gas expenses	807	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Gas used for other utility operations	812	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	LNG used for other utility operations	812LNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Other gas supply expenses	813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Subtotal - Production Expenses	701-813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	Operation labor and expenses	841	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Rents	842	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	Maintenance	843	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	Operation supervison and engineering	850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	Subtotal - Storage Expenses	840-850	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	C. TRANSMISSION EXPENSES															

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3H: Allocation Results - CSEC-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate R	NGVS Non-Heat	Interruptible Sales	GTS/IT
114	D. DISTRIBUTION EXPENSES															
115	Operation supervision and engineering	870	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	Distribution load dispatching	871	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Mains and services expenses	874	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	Measuring station expenses - General	875	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	Measuring station expenses - Industrial	876	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	*Meter and house regulator expenses*	*878*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Customer installation expenses	879	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	Rents	881	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	Maintenance of mains	887	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	Maintenance of measuring station expenses - General	889	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Maintenance of services	892	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Maintenance of meters and house regulators	893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Subtotal - Distribution Expenses	870-893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	TOTAL OPERATION & MAINTENANCE EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	II. CUSTOMER ACCOUNTS EXPENSES															
136	Supervision	901	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Meter reading expenses	902	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Customer records and collection expenses	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	Uncollectible accounts	904	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	10,461	93	7,509	323	1,988	60	120	41	180	37	110	1	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		10,461	93	7,509	323	1,988	60	120	41	180	37	110	1	0	0
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
143	Customer assistance expenses	908	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	3,859	34	2,771	119	734	22	44	15	66	14	41	0	0	0
145	CRP Shortfall	480CRP	36,351	322	26,096	1,117	6,910	210	416	142	625	128	382	5	0	0
146	Senior Discounts	480Sen	2,789	25	2,002	86	530	16	32	11	48	10	29	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		42,999	381	30,868	1,321	8,173	248	492	168	739	151	452	6	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		53,460	473	38,377	1,644	10,161	309	612	209	919	188	562	7	0	0

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
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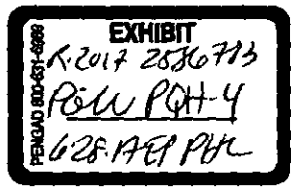
Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	Office supplies and expenses	921	0	0	0	0	0	0	0	0	0	0	0	0	0	0
153	Administrative expenses transferred - Credit	922	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	Outside services employed	923	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	Injuries and damages	925	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	Employee pensions and benefits	926	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	OPEB funding and expenses	999	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	Subtotal - Labor Related A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	B. PLANT RELATED															
160	Property Insurance	924	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	Subtotal - Plant Related A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Rents	931	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	Subtotal - Other A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	TOTAL OPERATING EXPENSES (Excluding Dep. Tax)		53,460	473	38,377	1,644	10,161	108	612	309	919	188	562	7	0	0
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	TOTAL EXPENSES		53,460	473	38,377	1,644	10,161	108	612	309	919	188	562	7	0	0

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-3H: Allocation Results - USEC-Customer Classification

Line	Dollars in Thousands FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate G	NGVS Non-Heat	Interruptible Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	53,687	475	38,541	1,650	10,205	310	614	210	923	188	564	7	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		53,687	475	38,541	1,650	10,205	310	614	210	923	188	564	7	0	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		53,687	475	38,541	1,650	10,205	310	614	210	923	188	564	7	0	0
193	Non-operating rental income	418	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Interest and dividend income	419	0	0	0	0	0	0	0	0	0	0	0	0	0	0
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0
197	TOTAL REVENUE		53,687	475	38,541	1,650	10,205	310	614	210	923	188	564	7	0	0
198	Income Before Interest and Surplus		226	2	163	6	43	1	3	1	4	1	2	0	0	0
199	Interest on long-term debt	427	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	Amortization of debt discount	428	0	0	0	0	0	0	0	0	0	0	0	0	0	0
201	Amortization of premium on debt	429	0	0	0	0	0	0	0	0	0	0	0	0	0	0
202	Other interest expense	431	0	0	0	0	0	0	0	0	0	0	0	0	0	0
203	AFUDC	432	0	0	0	0	0	0	0	0	0	0	0	0	0	0
204	Surplus Requirement	499	0	0	0	0	0	0	0	0	0	0	0	0	0	0
205	Total Interest & Surplus		0	0	0	0	0	0	0	0	0	0	0	0	0	0
206	Appropriations of retained earnings	436	0	0	0	0	0	0	0	0	0	0	0	0	0	0
207	Total Interest & Surplus, Other		0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	Over (Under) Total Requirements		226	2	163	6	43	1	3	1	4	1	2	0	0	0
209	Tariff Revenue Requirements		53,460	473	38,377	1,644	10,161	309	611	209	919	188	562	7	0	0

Exhibit PQH-4



Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-4: Classification Results

	Dollars in Thousands		Supply				Distribution				
Line	FERC Account Description	Account Code	Total	Factor	Demand	Energy	Total	Factor	Demand	Energy	Customer
1	I. GAS PLANT IN SERVICE										
2	A. INTANGIBLE PLANT	301-303									
3	B. PRODUCTION PLANT										
4	Land and land rights	304	1,453	DEMAND	1,453	0	0	None	0	0	0
5	Structures and improvements	305	20,968	DEMAND	20,968	0	0	None	0	0	0
6	Boiler plant equipment	306	2,900	DEMAND	2,900	0	0	None	0	0	0
7	Other power equipment	307	407	DEMAND	407	0	0	None	0	0	0
8	LPG equipment	311	2,270	DEMAND	2,270	0	0	None	0	0	0
9	Purification equipment	317	13	DEMAND	13	0	0	None	0	0	0
10	Residual refining equipment	318	8	DEMAND	8	0	0	None	0	0	0
11	Gas mixing equipment	319	0	DEMAND	0	0	0	None	0	0	0
12	Other equipment	320	32,341	DEMAND	32,341	0	0	None	0	0	0
13	Subtotal - Production Plant	304-347	60,359		60,359	0	0		0	0	0
14	C. STORAGE AND PROCESSING PLANT										
15	Land and land rights	360	0	None	0	0	0	None	0	0	0
16	Structures and improvements	361	0	None	0	0	0	None	0	0	0
17	Gas holders	362	0	None	0	0	0	None	0	0	0
18	Purification equipment	363	0	None	0	0	0	None	0	0	0
19	Liquefaction equipment	363.1	0	None	0	0	0	None	0	0	0
20	Vaporizing equipment	363.2	0	None	0	0	0	None	0	0	0
21	Compressor equipment	363.3	0	None	0	0	0	None	0	0	0
22	Measuring and regulating equipment	363.4	0	None	0	0	0	None	0	0	0
23	Other equipment	363.5	0	None	0	0	0	None	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	0		0	0	0		0	0	0
25	D. TRANSMISSION PLANT	365-371									
26	E. DISTRIBUTION PLANT										
27	Land and land rights	374	0	None	0	0	101	DEMAND	101	0	0
28	Structures and improvements	375	0	None	0	0	2,707	DEMAND	2,707	0	0
29	Mains	376	0	None	0	0	773,759	MAINS	386,880	0	386,880
30	Mains - Direct Assignment	376Direct	0	None	0	0	7,574	DEMAND	7,574	0	0
31	Compressor station equipment	377	0	None	0	0	1,255	DEMAND	1,255	0	0
32	Measuring station equipment - General	378	0	None	0	0	17,886	DEMAND	17,886	0	0
33	Services	380	0	None	0	0	705,810	CUST	0	0	705,810
34	Meters	381	0	None	0	0	0	None	0	0	0
35	Meter installations	382	0	None	0	0	0	None	0	0	0
36	House regulators	383	0	None	0	0	0	None	0	0	0
37	House regulator installations	384	0	None	0	0	0	None	0	0	0
38	Measuring station equipment - Industrial	385	0	None	0	0	314	DEMAND	314	0	0
39	Other equipment	387	0	None	0	0	3,980	DEMAND	3,980	0	0
40	Subtotal - Distribution Plant	374-387	0		0	0	1,513,385		420,696	0	1,092,689

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2016
Exhibit PQH-4: Classification Results

Line	Dollars in Thousands FERC Account Description	Account Code	Supply Total	Factor	Demand	Energy	Distribution Total	Factor	Demand	Energy	Customer
41	F. GENERAL PLANT										
42	Land and land rights	389	304	SUPPLABOR	304	0	1,570	DISTLABOR	649	90	831
43	Structures and improvements	390	6,795	SUPPLABOR	6,795	0	35,062	DISTLABOR	14,499	2,015	18,548
44	Office furniture and equipment	391	8,932	SUPPLABOR	8,932	0	46,086	DISTLABOR	19,058	2,648	24,380
45	Transportation equipment	392	3,281	SUPPLABOR	3,281	0	16,929	DISTLABOR	7,001	973	8,955
46	Stores equipment	393	62	SUPPLABOR	62	0	319	DISTLABOR	132	18	169
47	Tools, shop and garage equipment	394	879	SUPPLABOR	879	0	4,535	DISTLABOR	1,875	261	2,399
48	Power operated equipment	396	101	SUPPLABOR	101	0	522	DISTLABOR	216	30	276
49	Communication equipment	397	1,706	SUPPLABOR	1,706	0	8,803	DISTLABOR	3,640	506	4,657
50	Miscellaneous equipment	398	1,170	SUPPLABOR	1,170	0	6,039	DISTLABOR	2,497	347	3,195
51	Subtotal - General Plant	389-399	23,230		23,230	0	119,867		49,569	6,888	63,410
52	TOTAL UTILITY PLANT		83,590		83,590	0	1,633,252		470,265	6,888	1,156,099
53	II. DEPRECIATION RESERVE										
54	Production plant	108.2	34,623	SUPPP1	34,623	0	0	None	0	0	0
55	Local storage plant	108.3	0	None	0	0	0	None	0	0	0
56	Mains	108.52	0	None	0	0	282,895	MAINS	141,447	0	141,447
57	Mains - Direct Assignment	108.52Direct	0	None	0	0	7,574	DEMAND	7,574	0	0
58	Services	108.54	0	None	0	0	355,556	CUST	0	0	355,556
59	Meters	108.55	0	None	0	0	0	None	0	0	0
60	Distribution other	108.56	0	None	0	0	61,295	DEMAND	61,295	0	0
61	General Plant	108.8	11,988	SUPPLABOR	11,988	0	61,857	DISTLABOR	25,580	3,555	32,722
62	Total Depreciation Reserve	108	46,611		46,611	0	769,177		235,896	3,555	529,726
63	III. OTHER RATE BASE ITEMS										
64	Completed construction - Unclassified	106	0	None	0	0	0	None	0	0	0
65	Construction work in progress (CWIP)	107	0	None	0	0	0	None	0	0	0
66	Total Other Rate Base Items		0		0	0	0		0	0	0
67	TOTAL RATE BASE (Excl Working Capital)		36,979		36,979	0	864,075		234,369	3,334	626,373
68	IV. WORKING CAPITAL										
69	Accounts receivable - Gas	131.11	0	None	0	0	70,158	DIST_REV	22,679	7,855	44,624
70	Materials and supplies	131.12	0	None	0	0	9,768	DISTO&MXG	3,158	398	6,213
71	Prepaid accounts, other current assets	131.13	0	None	0	0	5,342	DISTO&MXG	1,727	217	3,397
72	Gas, LNG in storage	131.14	38,344	COMMODITY	0	38,344	0	None	0	0	0
73	Accounts payable - Gas	131.15	0	None	0	0	(12,110)	COMMODITY	0	(12,110)	0
74	Accounts payable, other- 50% Labor	131.16	0	None	0	0	(22,271)	DISTLABOR	(9,210)	(1,280)	(11,781)
75	Accounts payable, other- 50% O&MxGas	131.17	0	None	0	0	(22,271)	DISTO&MXG	(7,199)	(906)	(14,166)
76	Customer deposits	131.18	0	None	0	0	(2,935)	DIST_REV	(949)	(119)	(1,867)
77	Accrued interest	131.19	0	None	0	0	(15,202)	DISTPT	(4,226)	0	(10,976)
78	Accrued Taxes & Wages	131.2	0	None	0	0	(16,263)	DISTO&MXG	(5,257)	(662)	(10,344)
79	Total Working Capital	131	38,344		0	38,344	(5,783)		723	(11,608)	5,102
80	V. TOTAL RATE BASE		75,323		36,979	38,344	858,292		235,091	(8,274)	631,475

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-4: Classification Results

Line	Dollars in Thousands FERC Account Description	Account Code	Supply Total	Factor	Demand	Energy	Distribution Total	Factor	Demand	Energy	Customer
81	I. OPERATION & MAINTENANCE EXPENSE										
82	A. PRODUCTION EXPENSES										
83	1. Manufactured Gas Production Expenses										
84	Operation labor and expenses	701	191	DEMAND	191	0	0	None	0	0	0
85	Boiler fuel	702	98	DEMAND	98	0	0	None	0	0	0
86	Miscellaneous steam expenses	703	335	DEMAND	335	0	0	None	0	0	0
87	Maintenance of structures	706	3	DEMAND	3	0	0	None	0	0	0
88	Maintenance of boiler plant equipment	707	212	DEMAND	212	0	0	None	0	0	0
89	Maintenance of other production plant	708	10	DEMAND	10	0	0	None	0	0	0
90	Operation supervision and engineering	710	5	DEMAND	5	0	0	None	0	0	0
91	Other power expenses	712	793	DEMAND	793	0	0	None	0	0	0
92	Duplicate charges - Credit	734	(622)	DEMAND	(622)	0	0	None	0	0	0
93	Miscellaneous production expenses	735	1,143	DEMAND	1,143	0	0	None	0	0	0
94	Maintenance supervision and engineering	740	303	DEMAND	303	0	0	None	0	0	0
95	Maintenance of structures	741	102	DEMAND	102	0	0	None	0	0	0
96	Maintenance of production equipment	742	395	DEMAND	395	0	0	None	0	0	0
97	Subtotal - Manufactured Gas Production	701-743	2,968		2,968	0	0		0	0	0
98	2. Other Gas Supply Expenses										
99	Natural gas city gate purchases	804	14	COMMODITY	0	14	0	None	0	0	0
100	Purchased gas expenses	807	0	COMMODITY	0	0	0	None	0	0	0
101	Gas withdrawn from storage	808	0	COMMODITY	0	0	0	None	0	0	0
102	Gas used for other utility operations	812	0	COMMODITY	0	0	0	None	0	0	0
103	LNG used for other utility operations	812LNG	(6,487)	COMMODITY	0	(6,487)	0	None	0	0	0
104	Other gas supply expenses	813	8,840	COMMODITY	0	8,840	0	None	0	0	0
105	Subtotal - Production Expenses	701-813	5,335		2,968	2,367	0		0	0	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES										
107	Operation supervision and engineering	840	0	None	0	0	0	None	0	0	0
108	Operation labor and expenses	841	0	None	0	0	0	None	0	0	0
109	Rents	842	0	None	0	0	0	None	0	0	0
110	Maintenance	843	0	None	0	0	0	None	0	0	0
111	Operation supervision and engineering	850	0	None	0	0	0	None	0	0	0
112	Subtotal - Storage Expenses	840-850	0		0	0	0		0	0	0
113	C. TRANSMISSION EXPENSES										

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-4: Classification Results

Line	Dollars in Thousands FERC Account Description	Account Code	Supply Total	Factor	Demand	Energy	Distribution Total	Factor	Demand	Energy	Customer
114	D. DISTRIBUTION EXPENSES										
115	Operation supervision and engineering	870	0	None	0	0	1,807	DISTPT	502	0	1,305
116	Distribution load dispatching	871	0	None	0	0	1,650	COMMODITY	0	1,650	0
117	Mains and services expenses	874	0	None	0	0	4,617	MAIN&SERVI	1,207	0	3,410
118	Measuring station expenses - General	875	0	None	0	0	2,102	DEMAND	2,102	0	0
119	Measuring station expenses - Industrial	876	0	None	0	0	47	DEMAND	47	0	0
120	Measuring station expenses - City gate	877	0	None	0	0	550	DEMAND	550	0	0
121	Meter and house regulator expenses	878	0	None	0	0	0	None	0	0	0
122	Customer installation expenses	879	0	None	0	0	0	None	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	None	0	0	0	None	0	0	0
124	Other expenses	880	0	None	0	0	11,585	CUST	0	0	11,585
125	Rents	881	0	None	0	0	6	DISTPT	2	0	5
126	Maintenance supervision and engineering	885	0	None	0	0	269	DISTPT	75	0	194
127	Maintenance of mains	887	0	None	0	0	25,719	MAINS	12,860	0	12,860
128	Maintenance of measuring station expenses - General	889	0	None	0	0	1,184	DEMAND	1,184	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	None	0	0	6	DEMAND	6	0	0
130	Maintenance of measuring station expenses - City gate	891	0	None	0	0	487	COMMODITY	0	487	0
131	Maintenance of services	892	0	None	0	0	1,800	CUST	0	0	1,800
132	Maintenance of meters and house regulators	893	0	None	0	0	0	None	0	0	0
133	Subtotal - Distribution Expenses	870-893	0		0	0	51,829		18,535	2,137	31,158
134	TOTAL OPERATION & MAINTENANCE EXPENSES		5,335		2,968	2,367	51,829		18,535	2,137	31,158
135	II. CUSTOMER ACCOUNTS EXPENSES										
136	Supervision	901	0	None	0	0	0	None	0	0	0
137	Meter reading expenses	902	0	None	0	0	0	None	0	0	0
138	Customer records and collection expenses	903	0	None	0	0	0	None	0	0	0
139	Uncollectible accounts	904	0	None	0	0	16,495	CUST	0	0	16,495
140	Uncollectible accounts in CRP	904CRP	0	None	0	0	0	None	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		0		0	0	16,495		0	0	16,495
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES										
143	Customer assistance expenses	908	0	None	0	0	0	None	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	0	None	0	0	0	None	0	0	0
145	CRP Shortfall	480CRP	0	None	0	0	0	None	0	0	0
146	Senior Discounts	480Sen	0	None	0	0	0	None	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0		0	0	0		0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		0		0	0	16,495		0	0	16,495

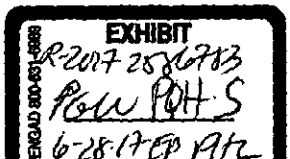
Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-4: Classification Results

Line	Dollars in Thousands FERC Account Description	Account Code	Supply Total	Factor	Demand	Energy	Distribution Total	Factor	Demand	Energy	Customer
149	IV. ADMINISTRATIVE & GENERAL EXPENSES										
150	A. LABOR RELATED										
151	Administrative and general salaries	920	1,184	SUPPLABOR	1,184	0	6,108	DISTLABOR	2,526	351	3,231
152	Office supplies and expenses	921	1,858	SUPPLABOR	1,858	0	9,585	DISTLABOR	3,964	551	5,071
153	Administrative expenses transferred - Credit	922	(2,014)	SUPPLABOR	(2,014)	0	(10,390)	DISTLABOR	(4,296)	(597)	(5,496)
154	Outside services employed	923	136	SUPPLABOR	136	0	702	DISTLABOR	290	40	371
155	Injuries and damages	925	526	SUPPLABOR	526	0	2,713	DISTLABOR	1,122	156	1,435
156	Employee pensions and benefits	926	9,445	SUPPLABOR	9,445	0	48,736	DISTLABOR	20,154	2,801	25,781
157	OPEB funding and expenses	999	2,172	SUPPLABOR	2,172	0	11,208	DISTLABOR	4,635	644	5,929
158	Subtotal - Labor Related A&G		13,307		13,307	0	68,662		28,394	3,946	36,322
159	B. PLANT RELATED										
160	Property insurance	924	155	SUPPPT	155	0	3,875	DISTPT	1,077	0	2,798
161	Subtotal - Plant Related A&G		155		155	0	3,875		1,077	0	2,798
162	C. OTHER A&G										
163	Regulatory commission expenses	928	0	None	0	0	5,157	CUST	0	0	5,157
164	Duplicate charges - Credit	929	0	None	0	0	0	None	0	0	0
165	General advertising expenses, miscellaneous	930	493	SUPPLABOR	493	0	2,546	DISTLABOR	1,053	146	1,347
166	Rents	931	27	SUPPLABOR	27	0	140	DISTLABOR	58	8	74
167	Subtotal - Other A&G		520		520	0	7,843		1,111	154	6,578
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		13,982		13,982	0	80,380		30,582	4,100	45,698
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		19,317		16,950	2,367	148,705		49,117	6,237	93,351
170	V. DEPRECIATION EXPENSE										
171	Depreciation expense	403	1,503	SUPPPT	1,503	0	37,675	DISTPT	10,473	0	27,202
172	Depreciation expense- Direct Assignment	403Direct	0	None	0	0	0	DEMAND	0	0	0
173	TOTAL DEPRECIATION EXPENSE		1,503		1,503	0	37,675		10,473	0	27,202
174	VI. TAXES OTHER THAN INCOME TAXES										
175	Taxes other than income taxes	408	692	SUPPLABOR	692	0	3,568	DISTLABOR	1,476	205	1,888
176	TOTAL EXPENSES		21,511		19,144	2,367	189,947		61,065	6,442	122,440

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-4: Classification Results

Line	Dollars in Thousands FERC Account Description	Account Code	Supply Total	Factor	Demand	Energy	Distribution Total	Factor	Demand	Energy	Customer
177	VII. REVENUES										
178	Distribution Revenue	480-483	32,804	COMMODITY	0	32,804	169,268	DISTO&MXG.	54,715	6,888	107,664
179	GCR Revenue	480-483GCR	0	COMMODITY	0	0	0	None	0	0	0
180	Interruptible Gas Revenue	480-483Int	17	COMMODITY	0	17	0	None	0	0	0
181	USEC Revenue	480-483USC	0	None	0	0	0	None	0	0	0
182	REC Revenue	480-483REC	0	None	0	0	0	DISTBASE	0	0	0
183	Forfeited discounts	487	0	None	0	0	7,853	DIST_REV	2,538	320	4,995
184	Miscellaneous service revenue	488	0	None	0	0	1,206	DIST_REV	390	49	767
185	GTS/IT Revenue	489	0	None	0	0	12,190	DEMAND	12,190	0	0
186	Other gas revenue	495	4,634	COMMODITY	0	4,634	0	None	0	0	0
187	Revenue Adjustments	495Adj	217	COMMODITY	0	217	0	None	0	0	0
188	Subtotal - Gas Revenues		37,673		0	37,673	190,518		69,835	7,257	113,426
189	Bill paid turn ons & dig ups	903Rev	0	None	0	0	0	None	0	0	0
190	Customer installation expenses	879Rev	0	None	0	0	0	None	0	0	0
191	Subtotal - Other operating revenues		0		0	0	0		0	0	0
192	TOTAL OPERATING REVENUES		37,673		0	37,673	190,518		69,835	7,257	113,426
193	Non-operating rental income	418	10	SUPPBASE	10	0	120	DISTBASE	35	1	85
194	Interest and dividend income	419	127	SUPPBASE	127	0	1,455	DISTBASE	419	6	1,030
195	Miscellaneous non-operating income	421	855	DEMAND	855	0	0	None	0	0	0
196	Total Non-Operating Income		992		992	0	1,575		454	7	1,115
197	TOTAL REVENUE		38,665		992	37,673	192,093		70,289	7,263	114,541
198	Income Before Interest and Surplus		17,153		(18,152)	35,305	2,146		9,223	821	(7,899)
199	Interest on long-term debt	427	3,096	SUPPBASE	3,096	0	35,592	DISTBASE	10,248	150	25,194
200	Amortization of debt discount	428	274	SUPPBASE	274	0	3,148	DISTBASE	906	13	2,228
201	Amortization of premium on debt	429	(590)	SUPPBASE	(590)	0	(6,780)	DISTBASE	(1,952)	(29)	(4,799)
202	Other interest expense	431	239	SUPPBASE	239	0	2,743	DISTBASE	790	12	1,942
203	AFUDC	432	(58)	SUPPBASE	(58)	0	(666)	DISTBASE	(192)	(3)	(471)
204	Surplus Requirement	499	3,779	SUPPBASE	3,779	0	43,440	DISTBASE	12,508	183	30,749
205	Total Interest & Surplus		6,740		6,740	0	77,478		22,308	327	54,843
206	Appropriations of retained earnings	436	1,134	SUPPBASE	1,134	0	13,032	DISTBASE	3,752	55	9,225
207	Total Interest & Surplus, Other		7,874		7,874	0	90,510		26,061	382	64,067
208	Over (Under) Total Requirements		9,280		(26,026)	35,305	(88,364)		(16,837)	439	(71,966)

Exhibit PQH-5



Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-5: Functionalization Results

Dollars in Thousands

Line	FERC Account Description	Account Code	Total	Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
1	I. GAS PLANT IN SERVICE									
2	A. INTANGIBLE PLANT	301-303								
3	B. PRODUCTION PLANT									
4	Land and land rights	304	1,453	SUPP	1,453	0	0	0	0	0
5	Structures and improvements	305	20,968	SUPP	20,968	0	0	0	0	0
6	Boiler plant equipment	306	2,900	SUPP	2,900	0	0	0	0	0
7	Other power equipment	307	407	SUPP	407	0	0	0	0	0
8	LPG equipment	311	2,270	SUPP	2,270	0	0	0	0	0
9	Purification equipment	317	13	SUPP	13	0	0	0	0	0
10	Residual refining equipment	318	8	SUPP	8	0	0	0	0	0
11	Gas mixing equipment	319	0	SUPP	0	0	0	0	0	0
12	Other equipment	320	32,341	SUPP	32,341	0	0	0	0	0
13	Subtotal - Production Plant	304-347	60,359		60,359	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT									
15	Land and land rights	360	328	STOR	0	328	0	0	0	0
16	Structures and improvements	361	13,780	STOR	0	13,780	0	0	0	0
17	Gas holders	362	33,779	STOR	0	33,779	0	0	0	0
18	Purification equipment	363	251	STOR	0	251	0	0	0	0
19	Liquefaction equipment	363.1	31,182	STOR	0	31,182	0	0	0	0
20	Vaporizing equipment	363.2	14,977	STOR	0	14,977	0	0	0	0
21	Compressor equipment	363.3	17,509	STOR	0	17,509	0	0	0	0
22	Measuring and regulating equipment	363.4	6,294	STOR	0	6,294	0	0	0	0
23	Other equipment	363.5	27,013	STOR	0	27,013	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	145,112		0	145,112	0	0	0	0
25	D. TRANSMISSION PLANT	365-371								
26	E. DISTRIBUTION PLANT									
27	Land and land rights	374	101	DIST	0	0	0	101	0	0
28	Structures and improvements	375	2,707	DIST	0	0	0	2,707	0	0
29	Mains	376	773,759	DIST	0	0	0	773,759	0	0
30	Mains - Direct Assignment	376Direct	7,574	DIST	0	0	0	7,574	0	0
31	Compressor station equipment	377	1,255	DIST	0	0	0	1,255	0	0
32	Measuring station equipment - General	378	17,886	DIST	0	0	0	17,886	0	0
33	Services	380	705,810	DIST	0	0	0	705,810	0	0
34	Meters	381	75,453	ONSITE	0	0	0	0	75,453	0
35	Meter installations	382	94,565	ONSITE	0	0	0	0	94,565	0
36	House regulators	383	2,202	ONSITE	0	0	0	0	2,202	0
37	House regulator installations	384	4,142	ONSITE	0	0	0	0	4,142	0
38	Measuring station equipment - Industrial	385	314	DIST	0	0	0	314	0	0
39	Other equipment	387	3,980	DIST	0	0	0	3,980	0	0
40	Subtotal - Distribution Plant	374-387	1,689,747		0	0	0	1,513,385	176,362	0

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-5: Functionalization Results

Dollars in Thousands

Line	FERC Account Description	Account Code	Total	Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
41	F. GENERAL PLANT									
42	Land and land rights	389	3,713	O&M	304	190	0	1,570	1,648	0
43	Structures and improvements	390	82,900	O&M	6,795	4,238	0	35,062	36,806	0
44	Office furniture and equipment	391	108,966	O&M	8,932	5,570	0	46,086	48,378	0
45	Transportation equipment	392	40,027	O&M	3,281	2,046	0	16,929	17,771	0
46	Stores equipment	393	755	O&M	62	39	0	319	335	0
47	Tools, shop and garage equipment	394	10,723	O&M	879	548	0	4,535	4,761	0
48	Power operated equipment	396	1,235	O&M	101	63	0	522	548	0
49	Communication equipment	397	20,815	O&M	1,706	1,064	0	8,803	9,241	0
50	Miscellaneous equipment	398	14,279	O&M	1,170	730	0	6,039	6,340	0
51	Subtotal - General Plant	389-399	283,413		23,230	14,487	0	119,867	125,828	0
52	TOTAL UTILITY PLANT		2,178,632		83,590	259,600	0	1,633,252	302,190	0
53	II. DEPRECIATION RESERVE									
54	Production plant	108.2	34,623	SUPP_PT	34,623	0	0	0	0	0
55	Local storage plant	108.3	95,160	STOR_PT	0	95,160	0	0	0	0
56	Mains	108.52	282,895	DIST	0	0	0	282,895	0	0
57	Mains - Direct Assignment	108.52Direct	7,574	DIST	0	0	0	7,574	0	0
58	Services	108.54	355,556	DIST	0	0	0	355,556	0	0
59	Meters	108.55	39,464	ONSITE	0	0	0	0	39,464	0
60	Distribution other	108.58	61,295	DIST	0	0	0	61,295	0	0
61	General Plant	108.8	146,255	O&M	11,988	7,476	0	61,857	64,934	0
62	Total Depreciation Reserve	108	1,022,821		46,611	102,636	0	769,177	104,397	0
63	III. OTHER RATE BASE ITEMS									
64	Completed construction - Unclassified	106	0	None	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	None	0	0	0	0	0	0
66	Total Other Rate Base Items		0		0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		1,155,811		36,979	56,964	0	864,075	197,793	0
68	IV. WORKING CAPITAL									
69	Accounts receivable - Gas	131.11	70,158	DIST	0	0	0	70,158	0	0
70	Materials and supplies	131.12	9,768	DIST	0	0	0	9,768	0	0
71	Prepaid accounts, other current assets	131.13	5,342	DIST	0	0	0	5,342	0	0
72	Gas, LNG in storage	131.14	38,344	SUPP	38,344	0	0	0	0	0
73	Accounts payable - Gas	131.15	(12,110)	DIST	0	0	0	(12,110)	0	0
74	Accounts payable, other- 50% Labor	131.16	(22,271)	DIST	0	0	0	(22,271)	0	0
75	Accounts payable, other- 50% O&MxGas	131.17	(22,271)	DIST	0	0	0	(22,271)	0	0
76	Customer deposits	131.18	(2,935)	DIST	0	0	0	(2,935)	0	0
77	Accrued interest	131.19	(15,202)	DIST	0	0	0	(15,202)	0	0
78	Accrued Taxes & Wages	131.2	(16,263)	DIST	0	0	0	(16,263)	0	0
79	Total Working Capital	131	32,561		38,344	0	0	(5,783)	0	0
80	V. TOTAL RATE BASE		1,188,371		75,323	56,964	0	858,292	197,793	0

Philadelphia Gas Works
Allocated Class COS Study -- Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-5: Functionalization Results

Dollars in Thousands

Line	FERC Account Description	Account Code	Total	Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
81	I. OPERATION & MAINTENANCE EXPENSE									
82	A. PRODUCTION EXPENSES									
83	1. Manufactured Gas Production Expenses									
84	Operation labor and expenses	701	191	SUPP	191	0	0	0	0	0
85	Boiler fuel	702	98	SUPP	98	0	0	0	0	0
86	Miscellaneous steam expenses	703	335	SUPP	335	0	0	0	0	0
87	Maintenance of structures	706	3	SUPP	3	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	212	SUPP	212	0	0	0	0	0
89	Maintenance of other production plant	708	10	SUPP	10	0	0	0	0	0
90	Operation supervision and engineering	710	5	SUPP	5	0	0	0	0	0
91	Other power expenses	712	793	SUPP	793	0	0	0	0	0
92	Duplicate charges - Credit	734	(622)	SUPP	(622)	0	0	0	0	0
93	Miscellaneous production expenses	735	1,143	SUPP	1,143	0	0	0	0	0
94	Maintenance supervision and engineering	740	303	SUPP	303	0	0	0	0	0
95	Maintenance of structures	741	102	SUPP	102	0	0	0	0	0
96	Maintenance of production equipment	742	395	SUPP	395	0	0	0	0	0
97	Subtotal - Manufactured Gas Production	701-743	2,968		2,968	0	0	0	0	0
98	2. Other Gas Supply Expenses									
99	Natural gas city gate purchases	804	14	SUPP	14	0	0	0	0	0
100	Purchased gas expenses	807	0	SUPP	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	SUPP	0	0	0	0	0	0
102	Gas used for other utility operations	812	0	SUPP	0	0	0	0	0	0
103	LNG used for other utility operations	812LNG	(6,487)	SUPP	(6,487)	0	0	0	0	0
104	Other gas supply expenses	813	8,840	SUPP	8,840	0	0	0	0	0
105	Subtotal - Production Expenses	701-813	5,335		5,335	0	0	0	0	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES									
107	Operation supervision and engineering	840	1,066	STOR	0	1,066	0	0	0	0
108	Operation labor and expenses	841	3,050	STOR	0	3,050	0	0	0	0
109	Rents	842	421	STOR	0	421	0	0	0	0
110	Maintenance	843	5,699	STOR	0	5,699	0	0	0	0
111	Operation supervision and engineering	850	1,278	STOR	0	1,278	0	0	0	0
112	Subtotal - Storage Expenses	840-850	11,514		0	11,514	0	0	0	0
113	C. TRANSMISSION EXPENSES									

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-5: Functionalization Results

Dollars in Thousands

Line	FERC Account Description	Account Code	Total	Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
114	D. DISTRIBUTION EXPENSES									
115	Operation supervision and engineering	870	2,018	DIST_PT	0	0	0	1,807	211	0
115	Distribution load dispatching	871	1,650	DIST	0	0	0	1,650	0	0
117	Mains and services expenses	874	4,617	MAIN_SERV	0	0	0	4,617	0	0
118	Measuring station expenses - General	875	2,102	DIST	0	0	0	2,102	0	0
119	Measuring station expenses - Industrial	876	47	DIST	0	0	0	47	0	0
120	Measuring station expenses - City gate	877	550	DIST	0	0	0	550	0	0
121	Meter and house regulator expenses	878	18,417	ONSITE	0	0	0	0	18,417	0
122	Customer installation expenses	879	5,642	ONSITE	0	0	0	0	5,642	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	3,746	ONSITE	0	0	0	0	3,746	0
124	Other expenses	880	12,935	DIST_PT	0	0	0	11,585	1,350	0
125	Rents	881	7	DIST_PT	0	0	0	6	1	0
126	Maintenance supervision and engineering	885	300	DIST_PT	0	0	0	269	31	0
127	Maintenance of mains	887	25,719	DIST	0	0	0	25,719	0	0
128	Maintenance of measuring station expenses - General	889	1,184	DIST	0	0	0	1,184	0	0
129	Maintenance of measuring station expenses - Industrial	890	6	DIST	0	0	0	6	0	0
130	Maintenance of measuring station expenses - City gate	891	467	DIST	0	0	0	467	0	0
131	Maintenance of services	892	1,800	DIST	0	0	0	1,800	0	0
132	Maintenance of meters and house regulators	893	3,810	ONSITE	0	0	0	0	3,810	0
133	Subtotal - Distribution Expenses	870-893	85,037		0	0	0	51,829	33,208	0
134	TOTAL OPERATION & MAINTENANCE EXPENSES		101,886		5,335	11,514	0	51,829	33,208	0
135	II. CUSTOMER ACCOUNTS EXPENSES									
136	Supervision	901	1,109	ONSITE	0	0	0	0	1,109	0
137	Meter reading expenses	902	785	ONSITE	0	0	0	0	785	0
138	Customer records and collection expenses	903	26,657	ONSITE	0	0	0	0	26,657	0
139	Uncollectible accounts	904	16,495	DIST	0	0	0	16,495	0	0
140	Uncollectible accounts in CRP	904CRP	10,461	USEC	0	0	0	0	0	10,461
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		55,507		0	0	0	16,495	29,551	10,461
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES									
143	Customer assistance expenses	908	1,617	ONSITE	0	0	0	0	1,617	0
144	Customer assistance expenses - ELIRP	908CAP	3,859	USEC	0	0	0	0	0	3,859
145	CRP Shortfall	480CRP	36,351	USEC	0	0	0	0	0	36,351
146	Senior Discounts	480Sen	2,789	USEC	0	0	0	0	0	2,789
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		44,616		0	0	0	0	1,617	42,999
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		100,123		0	0	0	16,495	30,168	53,460

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-5: Functionalization Results

Dollars in Thousands

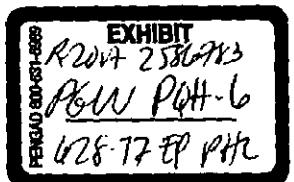
Line	FERC Account Description	Account Code	Total	Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
149	IV. ADMINISTRATIVE & GENERAL EXPENSES									
150	A. LABOR RELATED									
151	Administrative and general salaries	920	14,442	O&M	1,184	738	0	6,108	6,412	0
152	Office supplies and expenses	921	22,663	O&M	1,858	1,158	0	9,585	10,062	0
153	Administrative expenses transferred - Credit	922	(24,565)	O&M	(2,014)	(1,256)	0	(10,390)	(10,906)	0
154	Outside services employed	923	1,660	O&M	136	85	0	702	737	0
155	Injuries and damages	925	6,415	O&M	526	328	0	2,713	2,848	0
156	Employee pensions and benefits	926	115,230	O&M	9,445	5,890	0	48,735	51,159	0
157	OPEB funding and expenses	999	26,500	O&M	2,172	1,355	0	11,208	11,765	0
158	Subtotal - Labor Related A&G		162,345		13,307	8,299	0	68,662	72,077	0
159	B. PLANT RELATED									
160	Property insurance	924	4,853	PSD_PT	155	372	0	3,875	452	0
161	Subtotal - Plant Related A&G		4,853		155	372	0	3,875	452	0
162	C. OTHER A&G									
163	Regulatory commission expenses	928	5,157	DIST	0	0	0	5,157	0	0
164	Duplicate charges - Credit	929	(913)	STOR	0	(913)	0	0	0	0
165	General advertising expenses, miscellaneous	930	6,020	O&M	493	308	0	2,546	2,673	0
166	Rents	931	330	O&M	27	17	0	140	147	0
167	Subtotal - Other A&G		10,594		520	(588)	0	7,843	2,819	0
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		177,792		13,982	8,082	0	80,380	75,348	0
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		379,801		19,317	19,596	0	148,705	138,723	53,460
170	V. DEPRECIATION EXPENSE									
171	Depreciation expense	403	47,180	PSD_PT	1,503	3,612	0	37,675	4,390	0
172	Depreciation expense- Direct Assignment	403Direct	0	DIST	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		47,180		1,503	3,612	0	37,675	4,390	0
174	VI. TAXES OTHER THAN INCOME TAXES									
175	Taxes other than income taxes	408	8,437	O&M	692	431	0	3,568	3,746	0
176	TOTAL EXPENSES		435,418		21,511	23,639	0	189,947	146,860	53,460

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-5: Functionalization Results

Dollars in Thousands

Line	FERC Account Description	Account Code	Total	Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
177	VII. REVENUES									
178	Distribution Revenue	480-483	400,217	D&M	32,804	20,458	0	169,268	177,687	0
179	GCR Revenue	480-483GCR	0	GCR_REV	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	17	SUPP	17	0	0	0	0	0
181	USEC Revenue	480-483USC	53,687	USEC	0	0	0	0	0	53,687
182	REC Revenue	480-483REC	0	DIST	0	0	0	0	0	0
183	Forfeited discounts	487	7,853	DIST	0	0	0	7,853	0	0
184	Miscellaneous service revenue	488	1,206	DIST	0	0	0	1,206	0	0
185	GTS/IT Revenue	489	12,190	DIST	0	0	0	12,190	0	0
186	Other gas revenue	495	4,634	SUPP	4,634	0	0	0	0	0
187	Revenue Adjustments	495Adj	217	SUPP	217	0	0	0	0	0
188	Subtotal - Gas Revenues		480,022		37,673	20,458	0	190,518	177,687	53,687
189	Bill paid turn ons & dig ups	903Rev	1,883	ONSITE	0	0	0	0	1,883	0
190	Customer installation expenses	879Rev	6,382	ONSITE	0	0	0	0	6,382	0
191	Subtotal - Other operating revenues		8,265		0	0	0	0	8,265	0
192	TOTAL OPERATING REVENUES		488,287		37,673	20,458	0	190,518	185,952	53,687
193	Non-operating rental income	418	166	RATEBASE	10	8	0	120	27	0
194	Interest and dividend income	419	2,010	RATEBASE	127	96	0	1,455	332	0
195	Miscellaneous non-operating income	421	855	SUPP	855	0	0	0	0	0
196	Total Non-Operating Income		3,031		992	104	0	1,575	360	0
197	TOTAL REVENUE		491,318		38,665	20,561	0	192,093	186,312	53,687
198	Income Before Interest and Surplus		55,899		17,153	(3,078)	0	2,146	39,452	226
199	Interest on long-term debt	427	49,160	RATEBASE	3,096	2,342	0	35,592	8,130	0
200	Amortization of debt discount	428	4,348	RATEBASE	274	207	0	3,148	719	0
201	Amortization of premium on debt	429	(9,364)	RATEBASE	(590)	(446)	0	(6,780)	(1,549)	0
202	Other interest expense	431	3,789	RATEBASE	239	180	0	2,743	627	0
203	AFUDC	432	(920)	RATEBASE	(58)	(44)	0	(666)	(152)	0
204	Surplus Requirement	499	60,000	RATEBASE	3,779	2,858	0	43,440	9,923	0
205	Total Interest & Surplus		107,013		6,740	5,097	0	77,478	17,698	0
206	Appropriations of retained earnings	436	18,000	RATEBASE	1,134	857	0	13,032	2,977	0
207	Total Interest & Surplus, Other		125,013		7,874	5,954	0	90,510	20,675	0
208	Over (Under) Total Requirements		(69,114)		9,280	(9,032)	0	(88,364)	18,777	226
209	Tariff Revenue Requirements		535,225		23,542	29,490	0	269,823	158,911	53,460

Exhibit PQH-6



Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-6: Summary of Factors Used

Line	FERC Account Description	Account Code	Functionalization Factor	Classification Factor					Allocation Factor							
				Supply	Storage	Distribution	Onsite	USEC	Supply Demand	Supply Commodity	Storage Demand	Distribution Demand	Distribution Commodity	Distribution Customer	Onsite Customer	USEC Customer
1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	SUPP	DEMAND					DesDay-Supp							
5	Structures and improvements	305	SUPP	DEMAND					DesDay-Supp							
6	Boiler plant equipment	306	SUPP	DEMAND					DesDay-Supp							
7	Other power equipment	307	SUPP	DEMAND					DesDay-Supp							
8	LPG equipment	311	SUPP	DEMAND					DesDay-Supp							
9	Purification equipment	317	SUPP	DEMAND					DesDay-Supp							
10	Residual refining equipment	318	SUPP	DEMAND					DesDay-Supp							
11	Gas mixing equipment	319	SUPP	DEMAND					DesDay-Supp							
12	Other equipment	320	SUPP	DEMAND					DesDay-Supp							
13	Subtotal - Production Plant	304-347														
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	STOR		DEMAND						DesDay-Supp					
16	Structures and improvements	361	STOR		DEMAND						DesDay-Supp					
17	Gas holders	362	STOR		DEMAND						DesDay-Supp					
18	Purification equipment	363	STOR		DEMAND						DesDay-Supp					
19	Liquefaction equipment	363.1	STOR		DEMAND						DesDay-Supp					
20	Vaporizing equipment	363.2	STOR		DEMAND						DesDay-Supp					
21	Compressor equipment	363.3	STOR		DEMAND						DesDay-Supp					
22	Measuring and regulating equipment	363.4	STOR		DEMAND						DesDay-Supp					
23	Other equipment	363.5	STOR		DEMAND						DesDay-Supp					
24	Subtotal - Storage and Processing Plant	360-364														
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	Land and land rights	374	DIST			DEMAND						DistPt-D				
28	Structures and improvements	375	DIST			DEMAND						DistPt-D				
29	Mains	376	DIST			MAINS						DesDay-Mains		Cust_Avg		
30	Mains - Direct Assignment	376Direct	DIST			DEMAND						GTS				
31	Compressor station equipment	377	DIST			DEMAND						DesDay-Mains				
32	Measuring station equipment - General	378	DIST			DEMAND						DesDay-Mains				
33	Services	380	DIST			CUST								Service_Invest		
34	Meters	381	ONSITE				CUST								Meter_Invest	
35	Meter installations	382	ONSITE				CUST								Meter_Invest	
36	House regulators	383	ONSITE				CUST								Cust_Small	
37	House regulator installations	384	ONSITE				CUST								Cust_Small	
38	Measuring station equipment - Industrial	385	DIST			DEMAND						Cust_Ind				
39	Other equipment	387	DIST			DEMAND						DistPt-D				
40	Subtotal - Distribution Plant	374-387														

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2019
Exhibit PQH-6: Summary of Factors Used

Line	FERC Account Description	Account Code	Functionalization Factor	Classification Factor					Allocation Factor							
				Supply	Storage	Distribution	Onsite	USEC	Supply Demand	Supply Commodity	Storage Demand	Distribution Demand	Distribution Commodity	Distribution Customer	Onsite Customer	USEC Customer
41	F. GENERAL PLANT															
42	Land and land rights	389	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
43	Structures and improvements	390	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
44	Office furniture and equipment	391	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
45	Transportation equipment	392	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
46	Stores equipment	393	O&M	SUPPLABOR	STORLABOR	D STLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab C	
47	Tools shop and garage equipment	394	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
48	Power operated equipment	396	O&M	SUPPLABOR	STORLABOR	D'STLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
49	Communication equipment	397	O&M	SUPPLABOR	STORLABOR	D'STLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab C	
50	Miscellaneous equipment	398	O&M	SUPPLABOR	STORLABOR	D.STLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
51	Subtotal - General Plant	389-399														
52	TOTAL UTILITY PLANT															
53	II. DEPRECIATION RESERVE															
54	Production plant	108.2	SUPP_PT	SUPPPT					SuppPt-D							
55	Total storage plant	108.3	STOR_PT		STORPT						StorPt-D					
56	Mains	108.51	DIST			MAINS						DistDay-Mains		Cust_Avg		
57	Mains - Direct Assignment	108.52Direct	DIST			DEMAND						GTS				
58	Services	108.54	DIST			CUST								Service_Invest		
59	Meters	108.55	ONSITE				CUST								Meter_Invest	
60	Distribution other	108.58	DIST			DEMAND						DistPt-D				
61	General Plant	108.8	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab C	
62	Total Depreciation Reserve	108														
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	None													
65	Construction work in progress (CWIP)	107	None													
66	Total Other Rate Base Items															
67	TOTAL RATE BASE (Excl. Working Capital)															
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	DIST			DIST_REV						BaseRate_Rev	BaseRate_Rev	BaseRate_Rev		
70	Materials and supplies	131.12	DIST			DISTO&MXGAS						DistOMxG-D	DistOMxG-E	DistOMxG-C		
71	Prepaid accounts, other current assets	131.13	DIST			DISTO&MXGAS						DistOMxG-D	DistOMxG-E	DistOMxG-C		
72	Gas, LNG in storage	131.14	SUPP	COMMODITY						Winter1						
73	Accounts payable - Gas	131.15	DIST			COMMODITY							Throuput			
74	Accounts payable, other- 50% Labor	131.16	DIST			DISTLABOR						DistLab-D	DistLab-E	DistLab-C		
75	Accounts payable, other- 50% O&MxGas	131.17	DIST			DISTO&MXGAS						DistOMxG-D	DistOMxG-E	DistOMxG-C		
76	Customer deposits	131.18	DIST			DIST_REV						BaseRate_Rev	BaseRate_Rev	BaseRate_Rev		
77	Accrued Interest	131.19	DIST			DISTPT						Ratebase	Ratebase	Ratebase		
78	Accrued Taxes & Wages	131.2	DIST			DISTO&MXGAS						DistOMxG-D	DistOMxG-E	DistOMxG-C		
79	Total Working Capital	131														
80	V. TOTAL RATE BASE															

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-6: Summary of Factors Used

Line	FERC Account Description	Account Code	Functionalization Factor	Classification Factor					Allocation Factor							
				Supply	Storage	Distribution	Onsite	USEC	Supply Demand	Supply Commodity	Storage Demand	Distribution Demand	Distribution Commodity	Distribution Customer	Onsite Customer	USEC Customer
81	I. OPERATION & MAINTENANCE EXPENSE															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	SUPP	DEMAND					DesDay-Supp							
85	Boiler fuel	702	SUPP	DEMAND					DesDay-Supp							
86	Miscellaneous steam expenses	703	SUPP	DEMAND					DesDay-Supp							
87	Maintenance of structures	706	SUPP	DEMAND					DesDay-Supp							
88	Maintenance of boiler plant equipment	707	SUPP	DEMAND					DesDay-Supp							
89	Maintenance of other production plant	708	SUPP	DEMAND					DesDay-Supp							
90	Operation supervision and engineering	710	SUPP	DEMAND					DesDay-Supp							
91	Other power expenses	712	SUPP	DEMAND					DesDay-Supp							
92	Duplicate charges - Credit	734	SUPP	DEMAND					DesDay-Supp							
93	Miscellaneous production expenses	735	SUPP	DEMAND					DesDay-Supp							
94	Maintenance supervision and engineering	740	SUPP	DEMAND					DesDay-Supp							
95	Maintenance of structures	741	SUPP	DEMAND					DesDay-Supp							
96	Maintenance of production equipment	742	SUPP	DEMAND					DesDay-Supp							
97	Subtotal - Manufactured Gas Production	701-743														
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	SUPP	COMMODITY						Gas_Sales_Interr						
100	Purchased gas expenses	807	SUPP	COMMODITY						Gas_Sales_Firm						
101	Gas withdrawn from storage	808	SUPP	COMMODITY						Gas_Sales_Firm						
102	Gas used for other utility operations	812	SUPP	COMMODITY						Gas_Sales_Firm						
103	LNG used for other utility operations	812LNG	SUPP	COMMODITY						Gas_Sales_Firm						
104	Other gas supply expenses	813	SUPP	COMMODITY						Gas_Sales_Firm						
105	Subtotal - Production Expenses	701-813														
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	STOR		DEMAND						DesDay Supp					
108	Operation labor and expenses	841	STOR		DEMAND						DesDay-Supp					
109	Rents	842	STOR		DEMAND						DesDay-Supp					
110	Maintenance	843	STOR		DEMAND						DesDay-Supp					
111	Operation supervision and engineering	850	STOR		DEMAND						DesDay-Supp					
112	Subtotal - Storage Expenses	840-850														
113	C. TRANSMISSION EXPENSES															
114	D. DISTRIBUTION EXPENSES															
115	Operation supervision and engineering	870	DIST_PT			DISTPT	CUST					DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
116	Distribution load dispatching	871	DIST			COMMODITY							Thruput			
117	Mains and services expenses	874	MAIN_SERVICE			MAIN&SERVICE						DistMS-D		DistMS-C		
118	Measuring station expenses - General	875	DIST			DEMAND						DesDay-Mains				
119	Measuring station expenses - Industrial	876	DIST			DEMAND						Cust_Ind				
120	Measuring station expenses - City gate	877	DIST			DEMAND						DesDay-Mains				
121	Meter and house regulator expenses	878	ONSITE				CUST								OnSi-MR-C	
122	Customer installation expenses	879	ONSITE				CUST								Cust_Premises	
123	Customer installation expenses - Parts and Labor Plan	879PLP	ONSITE				CUST								Cust_Res	
124	Other expenses	880	DIST_PT			CUST	CUST							DistPt-C	OnSiPt-C	
125	Rents	881	DIST_PT			DISTPT	CUST					DistLab-D	DistPt-E	DistLab-C	OnSiLab-C	
126	Maintenance supervision and engineering	885	DIST_PT			DISTPT	CUST					DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
127	Maintenance of mains	887	DIST			MAINS						DesDay-Mains		Cust_Avg		
128	Maintenance of measuring station expenses - General	889	DIST			DEMAND						DesDay-Mains				
129	Maintenance of measuring station expenses - Industrial	890	DIST			DEMAND						Cust_Ind				
130	Maintenance of measuring station expenses - City gate	891	DIST			COMMODITY							Thruput			
131	Maintenance of services	892	DIST			CUST								Service_Invest		
132	Maintenance of meters and house regulators	893	ONSITE				CUST								OnSi-MR-C	
133	Subtotal - Distribution Expenses	870-893														
134	TOTAL OPERATION & MAINTENANCE EXPENSES															

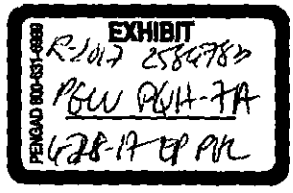
Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-6: Summary of Factors Used

Line	FERC Account Description	Account Code	Functionalization Factor	Classification Factor					Allocation Factor							
				Supply	Storage	Distribution	Onsite	USEC	Supply Demand	Supply Commodity	Storage Demand	Distribution Demand	Distribution Commodity	Distribution Customer	Onsite Customer	USEC Customer
135	II. CUSTOMER ACCOUNTS EXPENSES															
136	Supervision	901	ONSITE				CUST								Account903	
137	Meter reading expenses	902	ONSITE				CUST								MeterRead	
138	Customer records and collection expenses	903	ONSITE				CUST								Account903	
139	Uncollectible accounts	904	DIST			CUST								WriteOff-Dol		
140	Uncollectible accounts in CRP	904CRP	USEC					CUST								Deliveries_Firm
141	TOTAL CUSTOMER ACCOUNTS EXPENSES															
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
143	Customer assistance expenses	908	ONSITE				CUST								Account908	
144	Customer assistance expenses - ELRP	908CAP	USEC					CUST								USEC_Rev
145	CRP Shortfall	480CRP	USEC					CUST								USEC_Rev
146	Senior Discounts	480Sen	USEC					CUST								USEC_Rev
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES															
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
152	Office supplies and expenses	921	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
153	Administrative expenses transferred - Credit	922	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
154	Outside services employed	923	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
155	Injuries and damages	925	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
156	Employee pensions and benefits	926	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
157	OPEB funding and expenses	999	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
158	Subtotal - Labor Related A&G															
159	B. PLANT RELATED															
160	Property insurance	924	PSD_PT	SUPPPT	STORPT	DISTPT	CUST		SuppPt-D		StorPt-D	DistPt-D	DistPt-E	DistPt-C	OnSiPt-C	
161	Subtotal - Plant Related A&G															
162	C. OTHER A&G															
163	Regulatory commission expenses	928	DIST			CUST								Ratebase		
164	Duplicate charges - Credit	929	STOR		DEMAND						DesDay-Supp					
165	General advertising expenses, miscellaneous	930	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
166	Rents	931	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		SuppLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
167	Subtotal - Other A&G															
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES															
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)															
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	PSD_PT	SUPPPT	STORPT	DISTPT	CUST		SuppPt-D		StorPt-D	DistPt-D	DistPt-E	DistPt-C	OnSiPt-C	
172	Depreciation expense- Direct Assignment	403Direct	DIST			DEMAND						GTS				
173	TOTAL DEPRECIATION EXPENSE															

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-6: Summary of Factors Used

Line	FERC Account Description	Account Code	Functionalization Factor	Classification Factor					Allocation Factor								
				Supply	Storage	Distribution	Onsite	USEC	Supply Demand	Supply Commodity	Storage Demand	Distribution Demand	Distribution Commodity	Distribution Customer	Onsite Customer	USEC Customer
174	VI TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST		Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiLab-C	
176	TOTAL EXPENSES															
177	VII. REVENUES															
178	Distribution Revenue	480-483	O&M	COMMODITY	DEMAND	DISTO&MXGAS	CUST	CUST		Dist_Rev	Dist_Rev	Dist_Rev	Dist_Rev	Dist_Rev	Dist_Rev	
179	GCR Revenue	480-483GCR	GCR_REV	COMMODITY						GCR_Revenue						
180	Interruptible Gas Revenue	480-483Int	SUPP	COMMODITY						InterGas_Rev						
181	USEC Revenue	480-483USC	USEC					CUST								USEC_Rev
182	REC Revenue	480-483REC	DIST			DISTBASE						REC_Rev	REC_Rev	REC_Rev		
183	Forfeited discounts	487	DIST			DIST_REV						Over60-Dol	Over60-Dol	Over60-Do		
184	Miscellaneous service revenue	488	DIST			DIST_REV						BaseRate_Rev	BaseRate_Rev	BaseRate_Rev		
185	GTS/IT Revenue	489	DIST			DEMAND						GTS				
186	Other gas revenue	495	SUPP	COMMODITY						GCR_Revenue						
187	Revenue Adjustments	495Adj	SUPP	COMMODITY						GCR_Revenue						
188	Subtotal - Gas Revenues															
189	Bill paid turn ons & dig ups	903Rev	ONSITE				CUST								Cust_Avg	
190	Customer installation expenses	879Rev	ONSITE				CUST								Cust_Res	
191	Subtotal - Other operating revenues															
192	TOTAL OPERATING REVENUES															
193	Non-operating rental income	418	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST		Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
194	Interest and dividend income	419	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST		Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
195	Miscellaneous non operating income	421	SUPP	DEMAND					DesDay Supp							
196	Total Non-Operating Income															
197	TOTAL REVENUE															
198	Income Before Interest and Surplus															
199	Interest on long-term debt	427	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST		Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
200	Amortization of debt discount	428	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST		Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
201	Amortization of premium on debt	429	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST		Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
202	Other interest expense	431	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST		Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
203	AFUDC	432	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST		Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
204	Surplus Requirement	499	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST		Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
205	Total Interest & Surplus															
206	Appropriations of retained earnings	436	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST		Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
207	Total Interest & Surplus, Other															

Exhibit PQH-7A



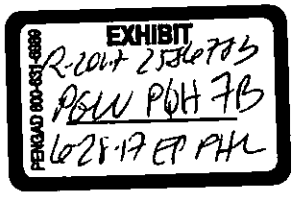
Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018

Exhibit PQH-7A: Functionalization Factor Values

Functionalization Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
External Factors						
SUPP	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
STOR	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
TRANS	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
DIST	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
ONSITE	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
USEC	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Plant-Related Factors						
SUPP_PT	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
STOR_PT	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
DIST_PT	0.0%	0.0%	0.0%	89.6%	10.4%	0.0%
MAIN_SERVICE	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
PSD_PT	3.2%	7.7%	0.0%	79.9%	9.3%	0.0%
Operations & Maintenance Factor						
O&M	8.2%	5.1%	0.0%	42.3%	44.4%	0.0%
Depreciation Expense Factor						
DEP	4.6%	10.1%	0.0%	75.0%	10.3%	0.0%
Working Capital Factor						
WC	117.8%	0.0%	0.0%	-17.8%	0.0%	0.0%
Revenue-Related Factors						
GCR_REV	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rate Base Factor						
RATEBASE	6.3%	4.8%	0.0%	72.4%	16.5%	0.0%

Exhibit PQH-7B



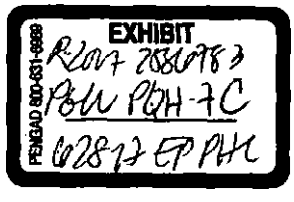
Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018

Exhibit PQH-7B: Classification Factor Values

Allocator Name	Demand	Commodity	Customer
External Factors			
DEMAND	100.0%	0.0%	0.0%
COMMODITY	0.0%	100.0%	0.0%
CUST	0.0%	0.0%	100.0%
MAINS	50.0%	0.0%	50.0%
Distribution Plant-Related Factors			
DISTPT	27.8%	0.0%	72.2%
MAIN&SERVICE	26.1%	0.0%	73.9%
Distribution Labor and Expense-Related Factors			
DISTLABOR	41.4%	5.7%	52.9%
DISTO&MXGAS	32.3%	4.1%	63.6%
Distribution Revenue Factor			
DIST_REV	32.3%	4.1%	63.6%
Distribution Rate Base Factor			
DISTBASE	28.8%	0.4%	70.8%
Supply Labor and Expense-Related Factors			
SUPPLABOR	100.0%	0.0%	0.0%
SUPPO&M	85.6%	14.4%	0.0%
SUPPO&MXGAS	100.0%	0.0%	0.0%
Supply Plant-Related Factors			
SUPPPT	100.0%	0.0%	0.0%
SUPPBASE	100.0%	0.0%	0.0%
Storage-Related Factors			
STORLABOR	100.0%	0.0%	0.0%
STORPT	100.0%	0.0%	0.0%
STORBASE	100.0%	0.0%	0.0%

Exhibit PQH-7C



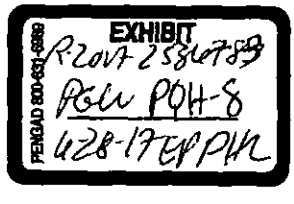
Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018

Exhibit PQH-7C: Allocation Factor Values

Allocator Name	Residential Non-Heat	Residential Heat	Commercial Non Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
DesDay-Supp	0.68%	74.65%	2.19%	17.31%	0.40%	1.04%	0.33%	1.95%	0.36%	1.07%	0.00%	0.00%	0.00%
Gas_Sales_Interr	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%
Gas_Sales_Firm	0.99%	79.98%	2.26%	14.01%	0.24%	0.65%	0.30%	1.07%	0.39%	0.10%	0.00%	0.00%	0.00%
BasePate_Rev	1.56%	79.78%	2.23%	13.25%	0.39%	0.79%	0.20%	0.83%	0.32%	0.65%	0.00%	0.00%	0.00%
GCR_Revenue	0.99%	80.00%	2.25%	14.01%	0.24%	0.65%	0.30%	1.07%	0.39%	0.10%	0.00%	0.00%	0.00%
InterGas_Rev	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%
GTS	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
DesDay-Mains	0.59%	64.68%	1.90%	15.00%	0.35%	0.90%	0.29%	1.69%	0.31%	0.93%	0.00%	0.01%	13.34%
Cust_Ind	0.00%	0.00%	0.00%	0.00%	77.96%	22.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Over60-Dol	1.80%	98.05%	0.02%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Thruput	0.56%	45.84%	1.94%	12.01%	0.36%	0.72%	0.25%	1.08%	0.22%	0.67%	0.01%	0.02%	36.31%
Gas_Sales	0.99%	79.95%	2.26%	14.01%	0.24%	0.65%	0.30%	1.07%	0.39%	0.10%	0.00%	0.04%	0.00%
Winter3	0.82%	81.52%	1.66%	13.12%	0.22%	0.68%	0.30%	1.17%	0.40%	0.08%	0.00%	0.02%	0.00%
Cust_Avg	3.88%	90.20%	0.95%	4.04%	0.04%	0.09%	0.06%	0.11%	0.37%	0.18%	0.00%	0.00%	0.08%
Service_Invest	3.69%	85.76%	1.35%	5.76%	0.16%	0.40%	0.09%	0.50%	0.35%	0.80%	0.00%	0.01%	1.12%
WriteOff-Dol	1.74%	94.80%	0.49%	2.82%	0.02%	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Meter_Invest	3.16%	73.44%	3.65%	15.54%	0.20%	0.57%	0.23%	0.65%	0.30%	1.05%	0.00%	0.00%	1.25%
Cust_Small	4.11%	95.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.39%	0.00%	0.00%	0.00%	0.00%
Cust_Premises	3.20%	74.37%	3.69%	15.73%	0.21%	0.53%	0.23%	0.66%	0.31%	1.06%	0.00%	0.00%	0.00%
Cust_Res	4.13%	95.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Account903	2.91%	83.46%	2.06%	9.86%	0.16%	0.35%	0.11%	0.38%	0.28%	0.30%	0.00%	0.00%	0.13%
MeterRead	2.81%	84.86%	1.51%	8.15%	0.17%	0.38%	0.14%	0.47%	0.36%	0.33%	0.00%	0.00%	0.84%
Account908	3.51%	81.69%	0.44%	1.88%	3.39%	8.74%	0.03%	0.05%	0.17%	0.08%	0.00%	0.00%	0.02%
Deliveries_Firm	0.89%	71.78%	3.08%	19.00%	0.58%	1.14%	0.39%	1.72%	0.35%	1.05%	0.01%	0.00%	0.00%
USEC_Rev	0.89%	71.79%	3.07%	19.01%	0.58%	1.14%	0.39%	1.72%	0.35%	1.05%	0.01%	0.00%	0.00%
CustChg_Rev	3.77%	87.58%	1.38%	5.88%	0.14%	0.37%	0.09%	0.16%	0.36%	0.26%	0.00%	0.00%	0.00%
Dist_Rev	1.52%	79.21%	2.30%	13.68%	0.40%	0.82%	0.21%	0.87%	0.32%	0.67%	0.00%	0.00%	0.00%
DeliveryChg_Rev	0.95%	77.13%	2.53%	15.63%	0.47%	0.93%	0.24%	1.03%	0.31%	0.77%	0.00%	0.00%	0.00%
SuppLab-D	0.68%	74.65%	2.19%	17.31%	0.40%	1.04%	0.33%	1.95%	0.36%	1.07%	0.00%	0.00%	0.00%
SuppPt-D	0.68%	74.65%	2.19%	17.31%	0.40%	1.04%	0.33%	1.95%	0.36%	1.07%	0.00%	0.00%	0.00%
Ratebase	2.68%	80.33%	1.79%	9.90%	0.22%	0.57%	0.17%	0.80%	0.34%	0.70%	0.00%	0.01%	2.49%
StorLab-D	0.68%	74.65%	2.19%	17.31%	0.40%	1.04%	0.33%	1.95%	0.36%	1.07%	0.00%	0.00%	0.00%
StorPt-D	0.68%	74.65%	2.19%	17.31%	0.40%	1.04%	0.33%	1.95%	0.36%	1.07%	0.00%	0.00%	0.00%
DistPt-D	0.58%	63.45%	1.86%	14.71%	0.37%	0.94%	0.28%	1.66%	0.31%	0.91%	0.00%	0.01%	14.91%
DistLab-D	0.59%	64.68%	1.90%	15.00%	0.35%	0.90%	0.29%	1.69%	0.31%	0.93%	0.00%	0.01%	13.34%
DistLab-E	0.56%	45.84%	1.94%	12.01%	0.36%	0.72%	0.25%	1.08%	0.22%	0.67%	0.01%	0.02%	36.31%
DistLab-C	3.79%	88.12%	1.14%	4.84%	0.09%	0.24%	0.07%	0.29%	0.36%	0.47%	0.00%	0.01%	0.57%
OnSiLab-C	3.16%	79.73%	2.59%	11.44%	0.42%	1.06%	0.15%	0.47%	0.27%	0.63%	0.00%	0.00%	0.07%
LABOR	2.62%	77.84%	2.18%	11.31%	0.35%	0.88%	0.18%	0.76%	0.30%	0.68%	0.00%	0.00%	2.89%
DistMS-D	0.59%	64.68%	1.90%	15.00%	0.35%	0.90%	0.29%	1.69%	0.31%	0.93%	0.00%	0.01%	13.34%
DistOMxG-D	0.59%	64.65%	1.90%	14.99%	0.35%	0.90%	0.29%	1.69%	0.31%	0.93%	0.00%	0.01%	13.38%
DistOMxG-E	0.56%	45.84%	1.94%	12.01%	0.36%	0.72%	0.25%	1.08%	0.22%	0.67%	0.01%	0.02%	36.31%
DistOMxG-C	3.33%	88.70%	1.07%	4.85%	0.09%	0.25%	0.07%	0.29%	0.29%	0.43%	0.00%	0.00%	0.63%
DistPt-E	0.56%	45.84%	1.94%	12.01%	0.36%	0.72%	0.25%	1.08%	0.22%	0.67%	0.01%	0.02%	36.31%
DistPt-C	3.69%	85.76%	1.35%	5.76%	0.16%	0.40%	0.09%	0.50%	0.35%	0.80%	0.00%	0.01%	1.12%
DistMS-C	3.69%	85.76%	1.35%	5.76%	0.16%	0.40%	0.09%	0.50%	0.35%	0.80%	0.00%	0.01%	1.12%
OnSiPt-C	3.19%	74.23%	3.52%	14.98%	0.20%	0.51%	0.22%	0.63%	0.31%	1.01%	0.00%	0.00%	1.21%
OnSi-MR-C	3.23%	75.14%	3.56%	15.16%	0.20%	0.51%	0.22%	0.64%	0.31%	1.02%	0.00%	0.00%	0.00%

Exhibit PQH-8



Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August
Table of Contents for Exhibit PQH-8

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Number of Customers by Rate Class and Month

Class	Use	09/2017	10/2017	11/2017	12/2017	01/2018	02/2018	03/2018	04/2018	05/2018	06/2018	07/2018	08/2018	Annual Total	Annual Average
Residential	Non-Heat	20,077	19,972	19,866	19,760	19,654	19,549	19,443	19,337	19,231	19,125	19,019	18,913	233,946	19,496
Residential	Heat	446,725	447,638	450,251	453,564	456,177	457,290	457,403	456,916	455,829	454,142	451,855	449,468	5,437,258	453,105
Commercial	Non-Heat	4,747	4,750	4,752	4,755	4,758	4,761	4,764	4,767	4,769	4,772	4,773	4,776	57,144	4,762
Commercial	Heat	20,077	20,113	20,151	20,187	20,226	20,264	20,301	20,339	20,379	20,416	20,455	20,492	243,400	20,283
Industrial	Non-Heat	177	177	177	177	177	177	177	177	177	177	177	177	2,124	177
Industrial	Heat	456	456	456	456	456	456	456	456	456	456	456	456	5,472	456
Municipal	Non-Heat	300	300	300	300	300	300	300	300	300	300	300	300	3,600	300
Municipal	Heat	568	568	568	568	568	568	568	568	568	568	568	568	6,816	568
PHA	GS	1,863	1,863	1,863	1,863	1,863	1,863	1,863	1,863	1,863	1,863	1,863	1,863	22,356	1,863
PHA	Rate 8	913	913	913	912	912	912	911	911	911	910	910	909	10,937	911
NGVS	Non-Heat	4	4	4	4	4	4	4	4	4	4	4	4	48	4
Interruptible	Sales	4	4	4	4	4	4	4	4	4	4	4	4	48	4
GTS/IT		425	425	425	425	425	425	425	425	425	425	425	425	5,100	425

Notes:
The Average Customers allocator is a simple average of the monthly number of customers in each rate class.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Development of Customer-Related Allocators

			Annual Average of Select Customer Groups						
Class	Use	Annual Average	All Excluding AC Customers	All Excluding Interruptible and GTS/IT	Residential and PHA GS (small customers)	Residential	Industrial	Commercial and Industrial	GTS/IT
Residential	Non-Heat	19,496	19,496	19,496	19,496	19,496			
Residential	Heat	453,105	453,105	453,105	453,105	453,105			
Commercial	Non-Heat	4,762	4,761	4,762				4,762	
Commercial	Heat	20,283	20,283	20,283				20,283	
Industrial	Non-Heat	177	177	177			177	177	
Industrial	Heat	456	456	456			456	456	
Municipal	Non-Heat	300	298	300					
Municipal	Heat	568	568	568					
PHA	GS	1,863	1,863	1,863	1,863				
PHA	Rate 8	911	911	911					
NGVS	Non-Heat	4	4	4					
Interruptible	Sales	4	4						
GTS/IT		425	425					425	425

Notes:
Each allocator is the annual average number of customers in select Rate Classes.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Sendout by Rate Class and Month, mcf

Class	Use	09/2017	10/2017	11/2017	12/2017	01/2018	02/2018	03/2018	04/2018	05/2018	06/2018	07/2018	08/2018	Annual Sendout
Residential	Non-Heat	18,481	26,406	41,692	57,010	70,784	61,973	49,628	30,174	20,691	17,267	17,744	17,645	429,494
Residential	Heat	712,817	1,636,094	3,585,024	5,482,495	7,271,558	6,375,686	4,698,808	2,302,476	1,056,510	680,364	699,639	696,086	35,197,557
Commercial	Non-Heat	78,871	99,254	138,308	179,658	216,163	190,534	161,193	109,023	84,945	75,835	78,586	78,673	1,491,044
Commercial	Heat	284,584	490,438	908,653	1,320,826	1,704,090	1,498,209	1,152,218	631,361	366,539	281,306	291,385	292,121	9,221,729
Industrial	Non-Heat	13,931	18,175	25,935	34,096	41,386	36,530	30,692	20,439	15,660	13,747	14,206	14,206	279,003
Industrial	Heat	16,230	29,132	55,491	81,202	105,045	92,097	70,071	37,517	20,909	15,630	16,151	16,152	555,627
Municipal	Non-Heat	5,642	9,820	18,985	28,009	36,394	31,894	24,095	12,664	6,811	5,166	5,500	5,736	190,716
Municipal	Heat	11,688	35,895	87,334	136,220	182,159	159,171	114,774	52,702	20,051	10,533	10,884	10,884	832,296
PHA	GS	3,432	8,001	17,580	26,765	35,357	30,933	22,753	11,103	5,037	3,216	3,323	3,323	170,821
PHA	Rate B	11,979	25,006	52,084	78,155	102,500	89,740	66,754	33,681	16,576	11,330	11,707	11,694	511,206
NGVS	Non-Heat	511	529	511	529	529	477	529	511	529	511	529	529	6,223
Interruptible	Sales	1,418	1,465	1,418	1,465	1,465	1,323	1,465	1,418	1,465	1,418	1,465	1,465	17,248
GTS/IT		1,946,773	2,183,886	2,432,056	2,763,749	3,006,953	2,711,090	2,629,761	2,222,630	2,057,779	1,937,765	1,995,852	1,995,852	27,884,147

Notes:
The term "sales" refers to the amount of gas that arrives at the customer premises, while the term "sendout" is equal to sales plus system losses.
The Sendout allocator is annual throughput volumes for each rate class, which represents volumes on mains.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Sales by Rate Class and Month, mcf

Class	Use	09/2017	10/2017	11/2017	12/2017	01/2018	02/2018	03/2018	04/2018	05/2018	06/2018	07/2018	08/2018	Annual Sales
Residential	Non-Heat	17,158	19,688	30,411	46,070	71,279	65,930	52,813	37,806	22,978	19,813	18,878	16,671	419,497
Residential	Heat	628,181	862,121	2,230,628	4,139,689	7,318,716	6,859,014	5,106,893	3,292,257	1,385,056	789,832	737,489	651,532	34,001,408
Commercial	Non-Heat	74,138	86,307	117,296	158,725	213,971	194,488	164,123	120,033	87,235	86,363	83,486	74,367	1,460,532
Commercial	Heat	263,925	377,355	713,572	1,125,493	1,696,866	1,552,137	1,197,744	760,232	406,291	323,024	310,023	275,989	9,002,651
Industrial	Non-Heat	13,142	16,747	23,661	31,682	40,503	36,276	30,450	21,099	15,619	15,654	15,114	13,421	273,370
Industrial	Heat	15,169	24,639	47,662	73,047	103,450	92,893	70,847	41,729	22,108	17,885	17,185	15,260	541,872
Municipal	Non-Heat	5,152	5,967	13,322	22,558	39,921	34,650	24,751	16,045	7,367	5,839	5,817	5,434	186,821
Municipal	Heat	9,972	15,336	56,825	106,888	202,017	174,753	118,905	71,742	23,629	11,972	11,580	10,283	813,902
PHA	GS	3,112	5,334	12,919	22,136	35,380	32,433	24,035	14,381	6,126	3,735	3,535	3,139	166,265
PHA	Rate 8	11,354	24,230	50,469	75,732	99,323	86,959	64,685	32,637	16,062	12,878	12,456	11,048	497,833
NGVS	Non-Heat	488	512	496	512	512	463	512	496	512	556	548	503	6,109
Interruptible	Sales	1,374	1,420	1,374	1,420	1,420	1,282	1,420	1,374	1,420	1,374	1,420	1,420	16,714
GTS/IT		1,917,144	2,147,930	2,387,384	2,709,817	2,945,483	2,655,719	2,579,983	2,184,450	2,025,733	1,908,416	1,965,726	1,965,726	27,393,512

Notes:
The term "sales" refers to the amount of gas that arrives at the customer premises, while the term "sendout" is equal to sales plus system losses.
The Sales allocator is annual deliveries for each rate class.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Sales-Related Allocators, mcf

			Sales to Select Customer Groups					
Class	Use	Total Annual Sales	All Firm Customers	All Firm Customers Excluding AC	All Interruptible Customers	Bundled Firm Customers	Bundled Interruptible Customers	All Bundled Customers
Residential	Non-Heat	419,497	419,497	419,497		419,497		419,497
Residential	Heat	34,001,408	34,001,408	34,001,408		34,001,408		34,001,408
Commercial	Non-Heat	1,460,532	1,460,532	1,455,568		961,243		961,243
Commercial	Heat	9,002,651	9,002,651	9,002,651		5,956,419		5,956,419
Industrial	Non-Heat	273,370	273,370	273,370		100,773		100,773
Industrial	Heat	541,872	541,872	541,872		276,702		276,702
Municipal	Non-Heat	186,821	186,821	185,117		127,984		127,984
Municipal	Heat	813,902	813,902	813,902		454,537		454,537
PHA	GS	166,265	166,265	166,265		166,265		166,265
PHA	Rate 8	497,833	497,833	497,833		43,384		43,384
NGVS	Non-Heat	6,109	6,109	6,109		1,766		1,766
Interruptible	Sales	16,714			16,714		16,714	16,714
GTS/IT		27,393,512			27,393,512			

Notes:
The term "sales" refers to the amount of gas that arrives at the customer premises, while the term "sendout" is equal to sales plus system losses.
Each allocator is the annual delivery volumes in select rate classes.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Winter Sales Allocator, mcf

Class	Use	12/2017	01/2018	02/2018	Winter Sales
Residential	Non-Heat	46,070	71,279	65,930	183,280
Residential	Heat	4,139,689	7,318,716	6,859,014	18,317,420
Commercial	Non-Heat	103,490	141,624	128,887	374,001
Commercial	Heat	740,139	1,150,123	1,057,374	2,947,636
Industrial	Non-Heat	13,230	18,819	16,952	49,001
Industrial	Heat	39,143	59,585	53,943	152,671
Municipal	Non-Heat	15,671	28,206	24,460	68,337
Municipal	Heat	58,861	109,959	95,175	263,995
PHA	GS	22,136	35,380	32,433	89,950
PHA	Rate 8	5,647	7,041	6,197	18,885
NGVS	Non-Heat	150	150	135	435
Interruptible	Sales	1,420	1,420	1,282	4,121
GTS/IT		0	0	0	0

Notes:
The Winter Sales allocator is bundled delivery volumes during December-February.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Design Day Sales, mcf

Class	Use	Design Day Sales
Residential	Non-Heat	4,510
Residential	Heat	491,656
Commercial	Non-Heat	14,439
Commercial	Heat	114,016
Industrial	Non-Heat	2,667
Industrial	Heat	6,846
Municipal	Non-Heat	2,203
Municipal	Heat	12,837
PHA	GS	2,389
PHA	Rate 8	7,072
NGVS	Non-Heat	17
Interruptible	Sales	
GTS/IT		

Notes:
The Design Day Sales allocator includes both bundled and transport only, firm deliveries for the design day.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Design Day Usage of Mains Allocator, mcf

Class	Use	Design Day Usage of Mains [A]
Residential	Non-Heat	4,510
Residential	Heat	491,656
Commercial	Non-Heat	14,439
Commercial	Heat	114,016
Industrial	Non-Heat	2,667
Industrial	Heat	6,846
Municipal	Non-Heat	2,203
Municipal	Heat	12,837
PHA	GS	2,389
PHA	Rate 8	7,072
NGVS	Non-Heat	17
Interruptible	Sales	47
GTS/IT		101,381

Notes:
[A]: Design Day Supply allocator + Interruptible

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Write-Offs Allocator

Classes	Use	Percentage of Revenue within Class [A]	Write-Off FY 2016 by Base Class ($) [B]	Write-Off FY 2016, $ [C] [A] x [B]	FY 2016 % Write-Off [D]	Write-Off FY 2015 by Base Class ($) [E]	Write-Off FY 2015, $ [F] [A] x [E]	FY 2015 % Write-Off [G]	Write-Off FY 2014 by Base Class ($) [H]	Write-Off FY 2014, $ [I] [A] x [H]	FY 2014 % Write-Off [J]	Average Write-Offs, $ [K]	Average Write-Offs, % [L]
Residential	Non-Heat	1.8%	49,754,556	897,441	1.7%	37,907,283	683,748	1.7%	35,109,050	633,275	1.8%	738,155	1.7%
Residential	Heat	98.2%	49,754,556	48,857,114	94.1%	37,907,283	37,223,535	94.8%	35,109,050	34,475,775	95.7%	40,185,475	94.8%
Commercial	Non-Heat	14.9%	2,035,986	302,704	0.6%	1,271,144	188,990	0.5%	907,061	134,859	0.4%	208,851	0.5%
Commercial	Heat	85.1%	2,035,986	1,733,282	3.3%	1,271,144	1,082,154	2.8%	907,061	772,202	2.1%	1,195,879	2.8%
Industrial	Non-Heat	13.3%	110,478	14,737	0.0%	66,603	8,885	0.0%	7,211	962	0.0%	8,195	0.0%
Industrial	Heat	86.7%	110,478	95,740	0.2%	66,603	57,719	0.1%	7,211	6,249	0.0%	53,236	0.1%
Municipal	Non-Heat												
Municipal	Heat												
PHA	GS												
PHA	Rate B												
NGVS	Non-Heat												
Interruptible	Sales												
GTS/IT													
Total				51,901,020	100.0%	78,490,059	39,245,029	100.0%	72,046,643	36,023,322	100.0%	42,389,790	100.0%

Notes:
The Write-Offs allocator is the average of write-off amounts for fiscal years 2014-2016.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Account Aging Allocator

Classes	Use	Write-Off Allocator [A]	Current Accounts Aging by Base Class, $ [B]	30 Days Accounts Aging by Base Class, $ [C]	60 Days Accounts Aging by Base Class, $ [D]	90 Days and Over Accounts Aging by Base Class, $ [E]	Current Accounts Aging, $ [F] [A] x [B]	30 Days Accounts Aging, $ [G] [A] x [C]	60 Days Accounts Aging, $ [H] [A] x [D]	90 Days and Over Accounts Aging, $ [I] [A] x [E]	Total Accounts Aging Over 60 Days Allocator, $ [J] [H] + [I]
Residential	Non-Heat	1.74%	12,552,000	37,595,000	35,366,000	355,034,000	218,574	654,661	615,846	6,182,384	6,798,230
Residential	Heat	94.80%	12,552,000	37,595,000	35,366,000	355,034,000	11,899,282	35,640,019	33,526,929	336,571,842	370,098,772
Commercial	Non-Heat	0.49%	6,660,000	2,657,000	998,000	15,382,000	32,813	13,091	4,917	75,786	80,703
Commercial	Heat	2.82%	6,660,000	2,657,000	998,000	15,382,000	187,889	74,958	28,155	433,949	462,104
Industrial	Non-Heat	0.02%	1,762,000	434,000	103,000	1,299,000	341	84	20	251	271
Industrial	Heat	0.13%	1,762,000	434,000	103,000	1,299,000	2,213	545	129	1,631	1,761
Municipal	Non-Heat										
Municipal	Heat										
PHA	GS										
PHA	Rate 8										
NGVS	Non-Heat										
Interruptible	Sales										
GTS/IT											
Total		100.00%	41,948,000	81,372,000	72,934,000	743,430,000	12,341,112	36,383,357	34,175,996	343,265,844	377,441,841

Notes:
The Accounts Over 60 days allocator is the total accounts receivable over 60 days for fiscal years 2014-2016

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Service Costs Allocator

Class	Use	Service Type	Average Base Cost, $ [A]	Factor [B]	Average Cost, $ [C] [A] x [B]	Average Number of Customers [D]	Total, $ [E] [C] x [D]
Residential	Non-Heat	1	1,806	1.0	1,806	19,496	35,202,676
Residential	Heat	1	1,806	1.0	1,806	453,105	818,163,292
Commercial	Non-Heat	1	1,806	1.5	2,709	4,762	12,897,987
Commercial	Heat	1	1,806	1.5	2,709	20,283	54,937,878
Industrial	Non-Heat	2	8,414	1.0	8,414	177	1,489,288
Industrial	Heat	2	8,414	1.0	8,414	456	3,836,809
Municipal	Non-Heat	1	1,806	1.5	2,709	300	812,557
Municipal	Heat	2	8,414	1.0	8,414	568	4,779,184
PHA	GS	1	1,806	1.0	1,806	1,863	3,363,986
PHA	Rate 8	2	8,414	1.0	8,414	911	7,668,710
NGVS	Non-Heat	2	8,414	1.0	8,414	4	33,656
Interruptible	Sales	2	8,414	3.0	25,242	4	100,969
GTS/IT		2	8,414	3.0	25,242	425	10,727,921

Notes:
The Services investment allocator is computed as the share of current service line replacement cost for each Rate Class.

Service Costs for 2015-2016

Line Size	Service Type	Total Cost	Quantity	Average Cost
1.25" and smaller-Replace	1	15,120,782	8,374	$1,806
2 " and larger-Replace	2	757,265	90	$8,414

Source: PGW

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Meter Installation Costs Allocator

Class	Use	Meter Type	Base Meter Cost, $	Factor	Meter Cost, $	Customers	Total Cost, $	Total Cost Excluding Interruptible & GTS/IT Customers, $
		[A]	[B]	[C]	[D] [B] x [C]	[E]	[F] [D] x [E]	[G]
Residential	Non-Heat	1	257	1.0	257	19,496	5,008,671	5,008,671
Residential	Heat	1	257	1.0	257	453,105	116,409,076	116,409,076
Commercial	Non-Heat	2	1,214	1.0	1,214	4,762	5,781,925	5,781,925
Commercial	Heat	2	1,214	1.0	1,214	20,283	24,627,618	24,627,618
Industrial	Non-Heat	2	1,214	1.5	1,821	177	322,365	322,365
Industrial	Heat	2	1,214	1.5	1,821	456	830,499	830,499
Municipal	Non-Heat	2	1,214	1.0	1,214	300	364,254	364,254
Municipal	Heat	2	1,214	1.5	1,821	568	1,034,481	1,034,481
PHA	GS	1	257	1.0	257	1,863	478,631	478,631
PHA	Rate 8	2	1,214	1.5	1,821	911	1,659,936	1,659,936
NGVS	Non-Heat	2	1,214	1.0	1,214	4	4,857	4,857
Interruptible	Sales	3	1,668	1.0	1,668	4	6,671	
GTS/IT		4	4,669	1.0	4,669	425	1,984,321	

Notes:
The Meters Investment allocator is calculated based in the replacement cost share for each Rate Class.

Installed Meters: FY 2016 Actual Costs

Meter Size	Meter Type	Design	Typical Rate Class	Number	Cost Per Meter, $ Material	Cost Per Meter, $ Labor	Total Cost per Meter, $	Total Cost, $
L250	1		Residential	26,372	64	189	253	6,667,369
L425	1		Residential	324	171	189	360	116,582
L630	1	Diaphragm	Residential	169	479	220	699	118,050
L800	2		Comm / Industrial	16	923	291	1,214	19,427
1M	3	Rotary	LBS / BPS	0			0	0
1.5M	3	Rotary	LBS / BPS	143	1,167	344	1,511	216,010
2M	3	Rotary	LBS / BPS	35	1,229	395	1,624	56,831
3M	3	Rotary	LBS / BPS	29	1,246	395	1,641	47,581
5M	3	Rotary	LBS / BPS	29	1,430	496	1,926	55,851
7M	3	Rotary	LBS / BPS	26	1,445	496	1,941	50,463
11M	3	Rotary	LBS / BPS	18	1,644	590	2,234	40,205
16M	4	Rotary	GTS	21	2,080	590	2,670	56,062
4" Turbo	4	Turbo	GTS	6	4,406	590	4,996	29,974
6" Turbo	4	Turbo	GTS	16	5,229	905	6,134	98,149
8" Turbo	4	Turbo	GTS	4	7,909	905	8,814	35,257
12" Turbo	4	Turbo	GTS	0			0	0

Source: PGW

FY 2016 Average Meter Cost by Meter Type

Meter Type	Total Cost, $	Total Number	Average Cost, $
1	6,902,001	26,865	257
2	19,427	16	1,214
3	466,942	280	1,668
4	219,443	47	4,669

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Meter Reading Costs Allocator

Class	Use	Tariff Revenue Allocator [A]	Customer Average Allocator [B]	Scrap/Special Distributed by Tariff Revenue, $ [C]	AMR Distributed by Customer Average Allocator, $ [D]	Allocated Meter Reading Costs, $ [E]
Residential	Non-Heat	1.29%	3.88%	4,192	17,852	22,043
Residential	Heat	77.30%	90.20%	251,210	414,903	666,113
Commercial	Non-Heat	2.31%	0.95%	7,496	4,361	11,857
Commercial	Heat	13.96%	4.04%	45,374	18,573	63,947
Industrial	Non-Heat	0.36%	0.04%	1,183	162	1,345
Industrial	Heat	0.78%	0.09%	2,545	418	2,962
Municipal	Non-Heat	0.24%	0.06%	795	275	1,069
Municipal	Heat	0.98%	0.11%	3,190	520	3,710
PHA	GS	0.33%	0.37%	1,088	1,706	2,794
PHA	Rate 8	0.53%	0.18%	1,718	835	2,553
NGVS	Non-Heat	0.004%	0.001%	14	4	18
Interruptible	Sales	0.003%	0.001%	9	4	12
GTS/IT		1.90%	0.08%	6,186	389	6,575
Total		$640,431,475	502,354	325,000	460,000	785,000

Sources:
[A]: Tariff Revenue Allocator
[B]: Average Customers Allocator
[C]: Meter Reading Scrap/Special x [A]
[D]: Meter Reading AMR x [B]
[E]: [C] + [D]

Notes:
The Meter Reading allocator represents the allocation of FERC Account 902 meter reading costs to each Rate Class.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Account 903 Allocator

Account Description	Total, $ Sub Allocator	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
Account Management	1,509,000 Cust_Res	62,249	1,446,751											
Account Management - Bill Preparation Office	4,270,000 Cust_Avg	165,711	3,851,382	40,477	172,408	1,504	3,876	2,550	4,828	15,835	7,747	34	34	3,612
Account Management - Mail Receipts	1,409,000 Cust_Avg	54,681	1,270,866	13,356	56,891	496	1,279	841	1,593	5,225	2,556	11	11	1,192
Commercial Resource Center	1,276,000 Cust_Comm_Ind			232,779	991,503	8,652	22,290							20,775
Collection - Revenue - Bill Paid Turn Ons & Dig Ups	-1,883,000 Over60-Del	-33,915	-1,846,367	-403	-2,305	-1	-8							
Collection - Field	155,000 Over60-Del	2,792	151,985	33	190	0	1							
Collection - Office	4,265,000 Over60-Del	76,818	4,182,025	912	5,222	9	20							
Customer Service - CRP Other Expenses	4,457,000 Deliveries_Firm	39,470	3,199,144	137,419	847,047	25,721	50,934	17,578	76,579	15,644	46,840	575		
Customer Service - District Offices - Labor	1,767,000 Cust_id	68,633	1,595,131	16,764	71,406	623	1,605	1,056	2,000	6,559	3,209	14		
Customer Service - Indirect Field Expenses	9,000 Cust_Avg	349	8,118	85	363	3	8	5	10	33	16	0	0	8
Customer Service - Telephone Service	5,649,000 Cust_Avg	219,228	5,095,169	53,549	228,057	1,990	5,128	3,374	6,387	20,950	10,249	45	45	4,779
Field Services - Collections	312,000 Over60-Del	5,620	305,930	67	382	0	1							
Field Services - Meter Investigating Unit (MIU)	161,000 MeterRead	4,521	136,617	2,432	13,115	276	608	219	761	573	524	4	3	1,349
VP Regulatory Compliance & Customer Programs - DRU	1,418,000 Cust_Avg	55,030	1,278,984	13,442	57,254	500	1,287	847	1,603	5,259	2,573	11	11	1,200
Allocator	Account903	721,186	20,675,755	510,919	2,441,562	39,768	87,079	26,470	93,761	70,078	73,714	694	104	32,915

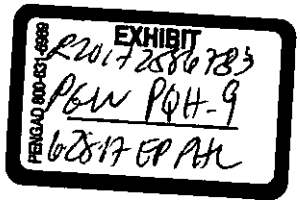
Notes:
The Account903 allocator uses allocators from the COOSS to assign expenses to each Rate Class.
This allocator includes all accounts that are a part of FERC Account 903.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Account 908 Allocator

Description	Total, $ Sub Allocator	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
Marketing - Industrial/Major Accounts	574,000 Cust_Ind					160,502	413,498							
Marketing - Industrial/Major Accounts Commercial Services Center	87,000 Cust_Ind					24,327	62,673							
Marketing - Marketing Services	1,510,000 Cust_xl	58,651	1,363,128	14,326	61,021	532	1,372	903	1,709	5,605	2,742	12		
Marketing - Research	19,000 Cust_Avg	737	17,137	180	767	7	17	11	21	70	34	0	0	16
Marketing - Residential Sales	1,236,000 Cust_Res	50,987	1,185,013											
Marketing - Strategic Initiatives	382,000 Cust_Avg	14,825	344,550	3,621	15,424	135	347	228	432	1,417	693	3	3	323
Marketing - Strategic Planning & Analysis	624,000 Cust_Avg	24,216	562,825	5,915	25,195	220	566	373	706	2,314	1,132	5	5	528
Marketing - Technical Support	7,000 Cust_Avg	272	6,314	66	283	2	6	4	8	26	13	0	0	6
VP Regulatory Compliance & Customer Programs - LIHEAP Program	1,037,000 Cust_Res	42,778	994,222											
Allocator	Account908	192,466	4,473,189	24,109	102,689	185,725	478,479	1,519	2,876	9,432	4,614	20	8	873

Notes:
The Account908 allocator uses allocators from the CCOSS to assign expenses to each Rate Class
This allocator includes all accounts that are a part of FERC Account 908.

Exhibit PQH-9



Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-9: Proposed Delivery Charges

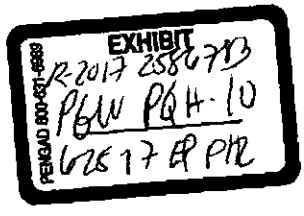
			Residential	Commercial	Industrial	PHA GS	Municipal/PHA	NGVS
COMPUTATION OF PROPOSED DELIVERY CHARGES								
Base Revenue at Current Rates	[1]		282,885,637	53,857,345	4,095,274	1,096,955	5,817,833	9,590
Proposed Increase	[2]		59,000,000	5,000,000	-400,000	400,000	500,000	0
Share of Increase	[3]		*84%*	*7%*	*-1%*	*1%*	*1%*	*0%*
Base Revenue with Proposed Increase	[4]	[1] + [2]	341,885,637	58,857,345	3,695,274	1,496,955	6,317,833	9,590
Number of Customers per Month	[5]		472,600	25,044	633	1,863	1,777	4
Customer-Months	[6]		5,671,204	300,532	7,596	22,356	21,329	48
Proposed Monthly Customer Charge, $/month	[7]		18	27	75	18	27	35
Customer-Related Revenue	[8]	[6] x [7]	102,081,672	8,114,364	569,700	402,408	575,883	1,680
Current GPC Revenue	[9]		1,376,836	276,508	15,099	6,651	24,968	71
Current MFC Revenue	[10]		6,698,308	80,187	4,718	0	0	0
Current MFC and GPC Revenue	[11]	[9] + [10]	8,075,144	356,695	19,817	6,651	24,968	71
Left to Recover Via Delivery Charge	[12]	[4] - [8] - [11]	231,728,820	50,386,286	3,105,756	1,087,896	5,716,982	7,840
Firm Deliveries	[13]		34,420,905	10,458,219	815,242	166,265	1,496,852	6,109
Delivery Charge, $/mcf	[14]	[12] / [13]	6.7322	4.8179	3.8096	6.5431	3.8193	1.2833
Change in GPC, $/mcf	[15]		*-0.0172*	*-0.0172*	*-0.0172*	*-0.0172*	*-0.0172*	*-0.0172*
Change in MFC, $/mcf	[16]		*0.0219*	*0.0243*	*0.0098*	*0.0000*	*0.0000*	*0.0000*
Net Change in GPC and MFC, $/mcf	[17]	[15] + [16]	0.0047	0.0071	-0.0074	-0.0172	-0.0172	-0.0172
Delivery Charge Adjusted for Change in GPC and MFC, $/mcf	[18]	[14] - [17]	**6.7275**	**4.8108**	**3.8170**	**6.5603**	**3.8365**	**1.3005**

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-9A: Proposed Delivery Charges for Interruptible Transportation

		Total	ITA	ITB	ITC	ITD	ITE	GTS	Supplier
COMPUTATION OF PROPOSED DELIVERY CHARGES									
Revenue at Current Rates									
GTS Revenue	[1]	1,249,147						1,249,147	12,600
Interruptible Transport Revenue	[2]	10,928,669	991,699	1,156,780	1,466,634	2,343,002	4,970,553		
Total GTS/IT Revenue	[3]	12,190,416	991,699	1,156,780	1,466,634	2,343,002	4,970,553	1,249,147	12,600
Revenue with Proposed Increase									
Proposed Increase by Subclass	[4]	5,500,000	439,898	416,737	624,021	1,187,316	2,832,028		
Total GTS/IT Revenue with Proposed Increase	[5]	17,690,416	1,431,598	1,573,518	2,090,655	3,530,318	7,802,581	1,249,147	12,600
Proposed Rate Design									
Current Customer Charge	[6]		125	225	225	225	350		
Customer Months	[7]		1,260	1,284	1,164	936	300		
Customer Charge Revenue	[8]	1,023,900	157,500	288,900	261,900	210,600	105,000		
Left to Recover via Delivery Charge	[9]	15,404,769	1,274,098	1,284,618	1,828,755	3,319,718	7,697,581		
Deliveries, mcf	[10]		426,654	888,733	1,626,025	3,294,748	7,980,513		
Proposed Delivery Charge, $/mcf	[11]		2.9863	1.4454	1.1247	1.0076	0.9645		
Current Delivery Charge, $/mcf	[12]		1.88	0.91	0.71	0.63	0.61		
Percent Change	[13]		59%	59%	59%	59%	59%		

Sources and Notes:
Projected delivery volumes and customer counts provided by PGW.
Total ITA-ITE customer revenues are allocated to each subclass by the share of current revenue for each subclass.
[11]: [9] / [10]

Exhibit PQH-10

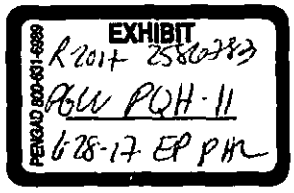


Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-10: Computation of the Gas Procurement Charge

		Amount
Natural gas supply service, acquisition and management, and benefits, $	[1]	503,587
Storage Gas Working Capital plus Cash Working Capital, $	[2]	464,618
Total GPC Costs, $	[3]	968,205
Annual firm sales service volumes, mcf	[4]	42,509,977
Gas Procurement Charge, $/mcf	[5]	0.0228

Sources:
[1]: PGW
[2]: PGW
[3]: [1] + [2]
[4]: PGW
[5]: [3]/[4]

Exhibit PQH-11



Philadelphia Gas Works
Allocated Class COS Study – Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-11: Computation of the Merchant Function Charge

		Total	Residential	Commercial	Industrial	Municipal	PHA	Interruptible Sales and GTS/IT
Non-gas revenue, $	[1]	462,464,067	359,181,531	75,234,758	5,764,802	5,420,282	4,654,902	12,207,792
GCR revenue, $	[2]	177,992,215	144,151,307	28,949,685	1,580,828	2,432,406	877,989	0
Total revenue, $	[3]	640,456,282	503,332,838	104,184,443	7,345,629	7,852,687	5,532,891	12,207,792
Uncollectible Account 904, $	[4]	16,494,951	15,924,430	546,617	23,904			
Uncollectible Account 904 Share of Revenue, %	[5]		3.16%	0.52%	0.33%			
CRP Uncollectibles, $	[6]	10,461,049						
Total Uncollectible, $	[7]	26,956,000						
Adjustment Percent, %	[8]	163.42%						
Total Uncollectible Share of Revenue, %	[9]		5.17%	0.86%	0.53%			
Uncollectible GCR Expense, $	[10]		7,453,009	248,215	8,407			
Annual firm sales service volumes, mcf	[11]	41,716,041	34,420,905	6,917,661	377,475			
Merchant Function Charge, $/mcf	[12]		0.2165	0.0359	0.0223			

Sources:
[1]: [3] - [2]
[2]-[3]: PGW
[4]: PGW CCOSS
[5]: [4] / [3]
[7]: [4] + [6]
[8]: [7] / [4]
[9]: [5] x [8]
[10]: [9] x [2]
[11]: FY 2018 Deliveries
[12]: [10] / [11]

PGW St. No. 5-R

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

REBUTTAL TESTIMONY OF

PHILIP Q. HANSER

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

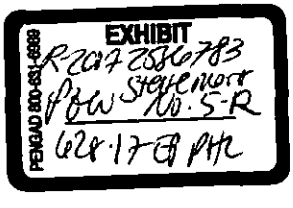
Philadelphia Gas Works

General Rate Increase Request

Topics Addressed:

Cost of Service/Class Allocation

June 9, 2017



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I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME.

A. My name is Philip Q. Hanser.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN THIS PROCEEDING?

A. Yes, I submitted direct testimony sponsoring Philadelphia Gas Works' ("PGW" or the "Company") class cost of service study ("CCOSS"). The primary purpose of my direct testimony was to describe the principles, methodology, and data used in the company's CCOSS (the "Original CCOSS"). In my direct testimony I also provided a recommendation regarding the appropriate level of "normal weather" for the purposes of determining *pro forma* revenues.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. In my rebuttal testimony I respond to the direct testimony of intervener witnesses, in the following areas:

- Customer-related costs and the appropriate customer charge.
- The appropriate method for the allocation of mains-related costs.
- The cost to serve and the corresponding revenue allocation for the GTS/IT class.
- The computation of the Merchant Function Charge ("MFC") and Gas Procurement Charge ("GPC").
- Weather normalization method.

Q. PLEASE DESCRIBE THE EXHIBITS THAT YOU ARE PRESENTING AS PART OF YOUR REBUTTAL TESTIMONY.

A. In my rebuttal testimony I present the following exhibits, which incorporate changes to the MFC and GPC identified in the discovery process in this proceeding.

Exhibit PQH-9 (Revised)	Proposed Delivery Charges
Exhibit PQH-10 (Revised)	Computation of the Gas Procurement Charge
Exhibit PQH-11 (Revised)	Computation of the Merchant Function Charge

Q. ARE YOU PRESENTING A NEW COST OF SERVICE STUDY AS PART OF YOUR REBUTTAL TESTIMONY?

A. No, I am not. The effect of the change in the MFC and GPC computation is relatively minor and is shown in Exhibit PQH-9 (Revised). If required, I will present a revised CCOSS based on the Commission's Order in this proceeding.

II. CUSTOMER-RELATED COSTS AND THE APPROPRIATE CUSTOMER CHARGE FOR EACH RATE CLASS

Q. PLEASE SUMMARIZE THE OVERALL COMMENTS ON THE COMPUTATION OF CUSTOMER-RELATED COSTS AND THE PROPOSED CUSTOMER CHARGES.

A. The Commission's Bureau of Investigation and Enforcement's ("I&E") witness Mr. Apetoh (I&E St. 3) conducted what he described as a customer cost analysis that only included what he defined as direct customer costs and indirect customer costs previously approved by the Commission. While the results of Mr. Apetoh's analysis show customer-related costs that are somewhat lower than those computed in my Original CCOSS, the customer charges proposed by the Company are lower than the customer-related costs computed by Mr. Apetoh on a per customer-month basis. That is to say that, on a cost causation basis, PGW would be justified to propose customer charges that are notably higher than the ones the Company is proposing.

Pennsylvania Office of Consumer Advocate ("OCA") witness Mr. Mierzwa (OCA St. 3) argues that the Company's proposed increase in residential customer charges goes against the rate design principle of gradualism. OCA witness Mr. Colton (OCA St. 4) contends that the proposed increase in the residential customer charge places a disproportionate burden on low-income, disabled, and senior customers.

Philadelphia Industrial and Commercial Gas Users Group ("PICGUG") witness Mr. Baudino (PICGUG St. 1) supports the notion that more revenues should be collected via fixed charges.

Q. DO YOU AGREE WITH MR. APETOH'S APPROACH FOR THE *COMPUTATION OF CUSTOMER-RELATED COSTS?*

A. Not entirely. Mr. Apetoh excludes a number of costs on the basis that they have not previously been included by the Commission in the computation of customer-related costs. I note that even if the Commission were to accept Mr. Apetoh's computation of customer-related costs, the customer charges that would result are still higher than those proposed by the Company.

While I do not wish to individually address each account that was excluded by Mr. Apetoh, in my opinion this is an overly restrictive view. As cited by Mr. Apetoh, the *Pennsylvania Utility Commission v. Aqua Pennsylvania*[1] order states that portions of indirect customer costs may be considered for inclusion in the computation of the customer charge but that they should be evaluated on a case by case basis. I believe that on an account by account basis the Commission's evaluation of the merits of including additional indirect customer costs in the computation of customer charges would support the CCOSS I submitted. In some cases, and after evaluation, the Commission may find that it is appropriate to include certain indirect costs that have not previously been included in the computation of the customer charge.

Q. WHAT IS THE IMPACT OF MR. APETOH'S APPROACH TO THE COMPUTATION OF CUSTOMER-RELATED COSTS ON CUSTOMER CHARGES?

---

[1] *Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc.*, Docket No. R-00038805, Order entered August 5, 2004, p. 72.

A. Mr. Apetoh's customer cost analysis shows customer-related costs that are somewhat lower than those computed in my Original CCOSS. However, the customer charges that result from Mr. Apetoh's analysis are still higher than the customer charges proposed by the Company for each Rate Class. I show this in Table 1 below.

Table 1: Comparison of I&E customer-related costs to Company proposed customer charges[2]

	I&E Customer-Related Costs	Company Proposed Customer Charge
Residential	30.87	18.00
Commercial	100.18	27.00
Industrial	317.67	75.00
PHA GS	30.33	18.00
Municipal / PHA (Rate 8)	162.37	27.00
NGVS	125.00	35.00
GTS/IT	393.53	125.00-350.00

Q. DO YOU AGREE WITH MR. APETOH'S PROPOSED CUSTOMER CHARGES FOR THE RESIDENTIAL CLASS?

A. I believe that Mr. Apetoh's proposal to increase the residential customer charge to $15 per month is a step in the right direction. However, I would like to comment on a number of statements made by Mr. Apetoh with which I do not fully agree.

First, Mr. Apetoh states that if the Company's recommendation were to be adopted, it would result in a higher customer charge for the residential class "than appropriate." I take issue with this statement because the "appropriate" level of customer charges from a purely cost causation perspective equals the customer-related costs allocated on a per customer-month basis. Even if the Commission considered it appropriate to exclude certain accounts as suggested by Mr. Apetoh, the

[2] I&E witness Apetoh does not report customer related costs for the Interruptible Sales Rate Class.

customer charges that are being proposed by the Company are notably lower than the customer-related costs on a per customer-month basis.

Second, Mr. Apetoh invokes the principle of gradualism as one of the reasons for rejecting PGW's proposed increase in the residential customer charge. While I support the notion of modifying rates on a gradual basis to avoid rate shock, I would like to point out that PGW's customer charges have been fixed at the same, nominal, level for many years. In the case of the residential class, for example, the customer charge of $12 per month has been in place since 2001[3]. An increase of $6 to be implemented in 2018, as is requested by the Company, would imply an increase of less than 2.6% per year. Had this increase been implemented on an annual basis it would almost certainly conform to the principle of gradualism.

Third, Mr. Apetoh deems the proposed increases in residential customer charges unreasonable on the basis that it is proportionately larger than the increase in the usage rate. Increasing the customer charge by an amount that is proportionately larger than the increase in the usage charge is appropriate if it helps to move towards a rate structure that more accurately reflects cost causation.

Q. DO YOU AGREE WITH MR. MIERZWA ON THE DETERMINATION OF THE RESIDENTIAL CUSTOMER CHARGE?

A. I do not. Similarly to Mr. Apetoh, Mr. Mierzwa invokes the principle of gradualism to reject PGW's proposed increase in the residential customer charge. As noted, PGW's residential customer charge has been fixed at $12 per month since 2001. An increase of $6 to be implemented in 2018, as is requested by the Company, would

[3] *Pennsylvania Public Utility Commission v. Philadelphia Gas Works*, Docket Nos. R-00006042; R-00006042C0001 et al, Order entered October 4, 2001, Ordering par. 8.

imply an increase of less than 2.6%. Had this increase been implemented on an annual basis it would almost certainly conform to the principle of gradualism. I will again note that the customer charges that are being proposed by the Company are notably lower than the customer-related costs on a per customer-month basis. Mr. Mierzwa contends that a high fixed monthly customer charge is inconsistent with the Commission's general goal of fostering energy conservation. Mr. Mierzwa claims that as more revenue is collected through the fixed monthly charge, the less incentive there is to conserve energy. However, Mr. Mierzwa provides no evidence to support his contention that a higher fixed monthly charge will have a material impact on customer's conservation efforts. Moreover, his claim does not evaluate the impact of the $6 increase in the charge proposed by PGW in this proceeding.

Q. DO YOU AGREE WITH MR. COLTON ON THE IMPACT THAT AN INCREASE IN THE CUSTOMER CHARGE WOULD HAVE ON CERTAIN CUSTOMER GROUPS?

A. I do not. Mr. Colton's statement that the proposed increase in the residential customer charge places a disproportionate burden on low-income, disabled, and senior customers is not accurate. Mr. Colton equates low-income with low consumption, which is a notion that is not true in the case of PGW and has also found to be in error in other jurisdictions. This is discussed in greater detail by Company witness Peach in PGW St. No. 11 at 23-24.

Q. DO YOU AGREE WITH MR. BAUDINO THAT MORE COSTS SHOULD BE COLLECTED VIA THE FIXED MONTHLY CUSTOMER CHARGE?

A. I do. In his discussion of rate design for IT customers, Mr. Baudino agrees that more revenues should be collected via fixed charges, given that a large portion of the costs of PGW's system are fixed. I agree with this view because it signifies a step towards

a rate structure that more accurately reflects cost causation. Accordingly, I would support increasing the IT customer charge by the same percentage as the customer charge increase approved for the Commercial and Industrial Rate Classes.

III. METHOD FOR THE ALLOCATION OF MAINS-RELATED COSTS

Q. PLEASE SUMMARIZE THE OVERALL COMMENTS ON THE ALLOCATION OF MAINS-RELATED COSTS.

A. I&E witness Mr. Apetoh and OCA witness Mr. Mierzwa disagree with the Company's proposed classification of mains-related costs as 50 percent demand and 50 percent customer, often referred to as the demand/customer method. Instead, they propose that distribution mains should be allocated 50 percent to the demand classification and 50 percent to commodity, also known as the demand/commodity method. As a result of their proposal, the amounts classified as demand would be allocated based on a measure of peak demand, and the amounts classified as commodity would be allocated on a volumetric basis.

PICGUG witness Mr. Baudino, however, agrees with the company's proposal to classify mains-related costs using the demand/customer method.

Pennsylvania Office of Small Business Advocate ("OSBA") Mr. Knecht (OSBA St. 1) recognizes the difficulty associated with determining cost causality related to distribution mains, and that experts disagree when it comes to the method used to allocate mains-related costs among different Rate Classes. However, Mr. Knecht recognizes that the number of customers is a driver of mains-related investment.

Q. DO YOU AGREE WITH MR. APETOH AND MR. MIERZWA'S PROPOSED ALLOCATION OF MAINS-RELATED COSTS?

A. I do not. As discussed in my direct testimony, mains are used to connect customers and are sized to meet the maximum level of demand by the customer. In their direct testimony, both Mr. Apetoh and Mr. Mierzwa assert that distribution mains are sized based on the loads placed upon them. These loads are captured in the portion that is classified as demand. Because PGW has an obligation to reliably meet the demands of customers at all times, the appropriate driver for deciding the size of mains required to serve customers is the total demand placed at times of system peaks.

Q. WHY IS IT NOT APPROPRIATE TO CLASSIFY MAINS-RELATED COSTS AS COMMODITY RELATED?

A. Classifying mains as commodity related would necessitate that they are allocated based on the volumes sold to, or delivered for, customers. Using volumes as a measure to allocate mains-related costs shifts cost responsibility towards larger users, but does not appropriately capture the variability in demand that PGW must consider when planning and operating its system. The volume of gas transported in the system is not what drives PGW's need for investment in distribution mains. Mr. Apetoh and Mr. Mierzwa's statements that mains are sized to meet expected demand levels support the notion that mains-related costs should be classified in such a way that they are allocated based on a measure of peak demand, and not, as they propose, on a volumetric basis.

Q. WHY IS IT APPROPRIATE TO CLASSIFY MAINS-RELATED COSTS AS BOTH CUSTOMER AND DEMAND RELATED?

A. Underlying the classification of costs into customer and demand components is the notion that there is a minimally-sized system that must be built to meet the minimum needs of a customer in a particular Rate Class. The amount classified as customer-related is the portion of costs that would be incurred in order to serve that customer at

that minimal level and any costs above that are considered to be driven by the need to modify the connection or equipment in response to demand that exceeds the customer's minimum requirements. As discussed in page nine of my direct testimony, mains serve a dual purpose: (i) to connect customers and enable the customer to receive a minimal level of service; and (ii) to provide adequate capacity for the maximum demand level by the customer. It is appropriate to classify main-related costs to both customer and demand, given the dual purpose they serve. Classifying a portion of the cost of mains to demand allows for the use of a peak demand method in the allocation step. Peak demand methods view cost responsibility as based on the sizing of plant to reliably meet customer's needs. Since the utility is essentially the sole supplier of distribution services, it must size its plant to be capable of reliably meeting all of its customers' demands at all times.

Q. DO YOU AGREE THAT THE NUMBER OF CUSTOMERS IN THE SYSTEM DOES NOT DRIVE THE REQUIRED INVESTMENT IN DISTRIBUTION MAINS?

A. No. Just like the case in which if winter peak demand were to increase, the Company may need to invest in expanding distribution mains capacity in order to meet this load, if the number of customers increases, it is possible that the Company may need to expand distribution mains' capacities in order to serve additional customers.

Q. WHAT IS MR. KNECHT'S POSITION ON THE ALLOCATION OF MAINS-RELATED COSTS?

A. Mr. Knecht recognizes the difficulty associated with determining cost causality related to distribution mains, and that experts disagree when it comes to the methods used to allocate mains-related costs among different Rate Classes. However, Mr. Knecht states that he "generally subscribes" to the notion that more footage of mains

needs to be installed to connect many small customers than to connect fewer large customers.

IV. COST TO SERVE THE GTS/IT CLASS AND THE RESULTING REVENUE ALLOCATION FOR THE GTS/IT CLASS

Q. PLEASE SUMMARIZE THE OVERALL COMMENTS ON THE COST TO SERVE THE GTS/IT CLASS AND THE CORRESPONDING ALLOCATION OF THE REVENUE INCREASE.

A. In this section I address primarily the testimony of PICGUG witness Mr. Baudino, in which he asserts that treating the GTS/IT Rate Class as a single class in my Original CCOSS does not accurately reflect the cost responsibility of the GTS/IT class. His claim that IT customers are subsidizing the GTS Rate Class by virtue of their treatment as a combined class is simply not true, as explained below.

Q. DO YOU AGREE WITH MR. BAUDINO'S ASSESSMENT THAT THE COMBINED CLASS RATE OF RETURN IS DUE TO THE INCLUSION OF GTS CUSTOMERS?

A. I do not. The rates paid by GTS customers (of which there were just three in the COSS) are governed by bilateral contracts that reflect the characteristics of the GTS customers, and their treatment as a combined class does not distort the results of the CCOSS. Even if these Rate Classes were to be treated separately, the results of the CCOSS would still reveal a significant revenue undercollection from the IT Rate Class.

First, as noted, the GTS class is comprised of three customers for whom the Company keeps separate accounts. One of these customers ceased operations in April 2017 and is, at the time of this writing, not expected to return. The GTS customers that remain are not embedded inside PGW's distribution system in the same way as

other Rate IT distribution customers. As explained by Company witness Mr. Dybalski in his rebuttal testimony, these GTS customers are served on a separate individual gas main that was financed by those customers upon installation, and that is not part of PGW's distribution system. Because these GTS customers are served on a separate self-financed individual gas main, their distribution mains and supply costs are directly assignable and, thus, they should not be assigned responsibility for distribution system costs in the same way as other customers that receive service via PGW's interconnected distribution system.

I currently lack the detailed data required to quantify the results of a CCOSS that treats the GTS Rate Class separately from the IT Rate Class. I believe that such a study would show that GTS customers impose limited mains-related costs on the distribution system. The result would be quite similar to that presented in my Original CCOSS and would demonstrate that Rate IT customers are not appropriately contributing their share of system costs.

Q. DO YOU AGREE WITH MR. BAUDINO'S DEVELOPMENT OF A HYPOTHETICAL SCENARIO IN WHICH GTS CUSTOMERS ARE CHARGED SIMILAR RATES TO THOSE PAID BY IT CUSTOMERS?

A. I do not, as this analysis is misguided. The rates of the GTS customers that remain in PGW's system are governed by contracts and reflect the fact that these customers do not receive service via PGW's interconnected distribution system, but rather are served on a separate individual gas main that is not part of PGW's distribution system. Thus, a hypothetical scenario that estimates the revenues and corresponding rate of return that would result from the GTS class paying higher rates is not relevant.

A more appropriate measure is to consider the ratio of revenues obtained from each Rate Class and the costs that PGW incurs to serve each Rate Class. This simple

equation (Revenues to COS = revenues / costs) provides a good measure of the extent to which each class contributes to its cost responsibility. If we were to treat the IT class separately from the GTS class, we would see that the numerator for the IT class in the computation mentioned above would decrease by about 10%, which is the contribution to revenue by the GTS class. The denominator, however, would remain relatively unchanged for the IT Rate Class. This is because, as discussed above, the GTS customers that will remain in PGW's system impose limited mains-related costs on the distribution system. The result will be that the numerator decreases by about 10%, but the denominator stays relatively constant, continuing to exhibit a significant level of undercollection for the IT Rate Class. The statement by Mr. Baudino that the prices paid by GTS customers are responsible for the low rate of return of the combined GTS/IT class is simply not correct.

Q. DOES MR. BAUDINO ADDRESS THE ISSUE OF COST RESPONSIBILITY FOR IT CUSTOMERS WHO ARE EFFECTIVELY RECEIVING FIRM SERVICE?

A. He does not. Mr. Baudino bases his entire argument on the notion that the treatment of the GTS and IT as a combined class is responsible for the low rate of return metric of the combined class. He does not, however, address the real issue, which is that many large customers are receiving firm service at a steep discount and avoid a set of other charges that apply to firm service customers. It would be more appropriate for the rate paid by IT customers to better reflect the firm nature of the services that they have received.

V. ALLOCATION OF THE PROPOSED REVENUE INCREASE

Q. PLEASE SUMMARIZE THE REVENUE ALLOCATION PROPOSALS PRESENTED BY OTHER WITNESSES.

A. In Table 2 below I show the revenue allocation proposals of Mr. Apetoh, Mr. Baudino, Mr. Knecht, and Mr. Mierzwa, at the Company's requested increase of $70 million.

Table 2: Summary of Revenue Allocation Proposals

	PGW	BI&E	OCA	OSBA	PICGUG
Residential	59,000,000	53,562,000	53,175,000	59,000,000	63,000,000
Commercial	5,000,000	10,154,000	10,000,000	2,366,000	5,000,000
Industrial	(400,000)	926,000	910,000	170,000	(400,000)
PHA GS	400,000	263,000	265,000	270,000	400,000
Municipal / PHA (Rate 8)	500,000	2,520,000	2,200,000	1,610,000	500,000
NGVS	0	5,000	0	0	0
Interruptible Sales	0	0	0	0	0
GTS/IT	5,500,000	2,570,000	3,450,000	5,696,000	1,500,000
Total	70,000,000	70,000,000	70,000,000	69,112,000	70,000,000

VI. OTHER COMMENTS RELATED TO THE CCOSS

Q. DO YOU AGREE WITH THE ASSUMPTIONS AND METHODOLOGIES USED BY MR. KNECHT IN HIS COST OF SERVICE STUDY?

A. I do not agree with all the assumptions and methodologies that Mr. Knecht uses in his cost of service study, nor do I agree with what he describes as cost allocation issues listed in section 4.6 of his rebuttal testimony. I do not wish to individually contest them at this time, although I reserve the right to do so at a later time if one or more of them were to become important in this proceeding.

Q. DO YOU AGREE WITH MR. KNECHT'S COMMENTS RELATED TO THE COMPUTATION OF THE MFC AND THE GPC?

A. I do. During the discovery process of the current proceeding, Mr. Knecht identified one computational issue in my calculation of the Merchant Function Charge and one in the computation of the Gas Procurement Charge. I include with this testimony Exhibit PQH-10 (Revised) and Exhibit PQH-11 (Revised) with revised computations. I note that these issues do not affect the results of the Original CCOSS, and have only a small impact on the computation of rates as shows in Exhibit PQH-9 (Revised).

VII. WEATHER NORMALIZATION

Q. PLEASE EXPLAIN WHY OCA WITNESS EVERETTE DISAGREES WITH A 10-YEAR WEATHER NORMAL.

A. OCA witness Everette (OCA St. 1) states that variations ("volatility") in the weather over the past 10 years indicate that a 10-year normal may not be representative of weather in the future. In support, witness Everette cites text from the Minnesota Commission's approval of a 10-year weather normal, noting that an average based on a fewer number of data points may be more susceptible to volatility (Everette direct testimony page 9). She instead recommends the use of a 20-year weather normal.

Q. DO YOU AGREE WITH THE RECOMMENDATION TO USE A 20-YEAR WEATHER NORMAL?

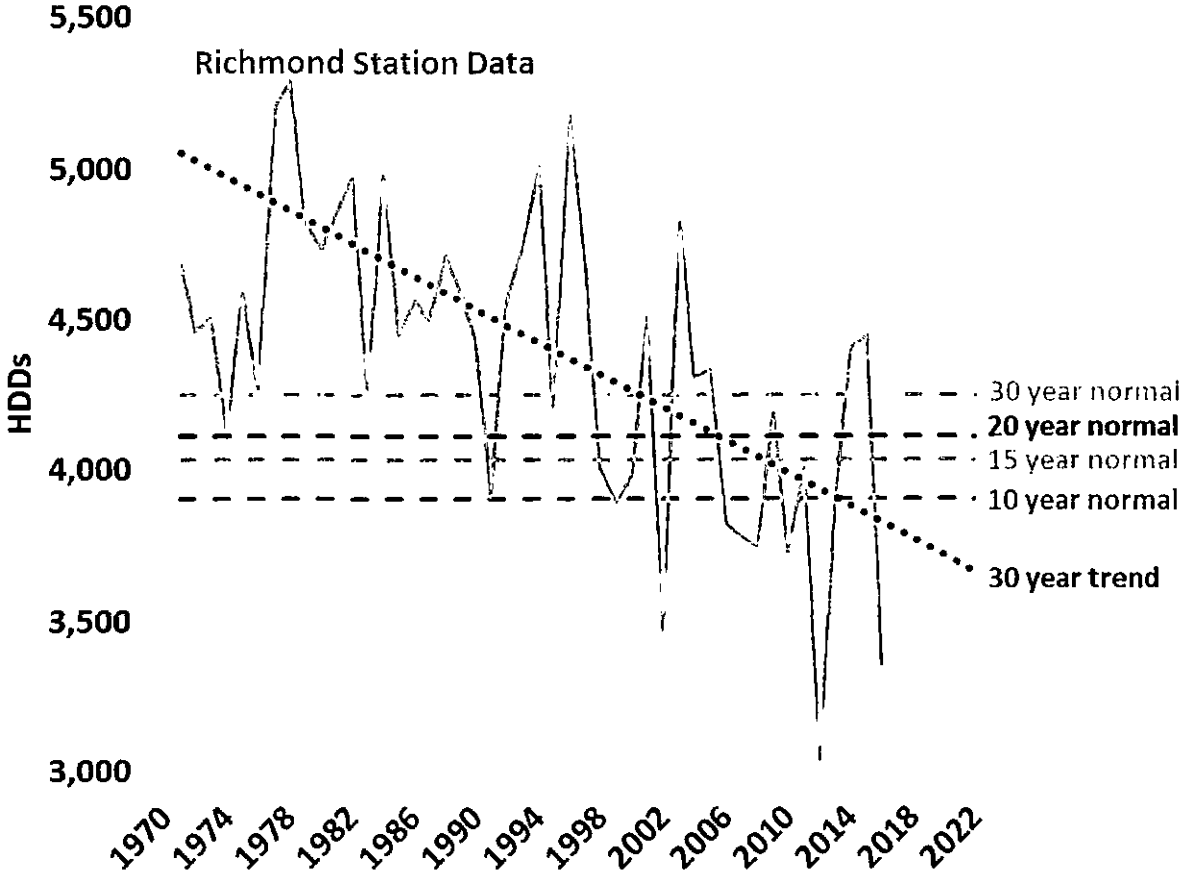
A. No, the ideal weather normal is one that more accurately represents the current and future heating degree days ("HDDs") in order to allow the company to plan and set rates for the most likely conditions.[4] As shown in Figure 1 (page 28) in my direct testimony, and modified below to include 15-year and 20-year normals, the use of a 30-year trended normal best approximates the recent climatic trends. Accordingly, the

[4] This is also noted in the Minnesota Commission's decision and cited by Witness Everette in her testimony on page 9, lines 19-25.

10-year normal is a reasonable second choice. The use of a 20-year normal would be a less accurate representation of recent heating seasons and, if the trend from the past 30 years continues, would likely require PGW to over-forecast heating usage.[5] For the most recent heating season, October 2016 through April 2017, 3,445 HDDs were measured at Richmond Station. This is both below the 30-year trend prediction for 2016-17 and below the 10-year normal.

[5] Systematic over forecasting of consumption would lead to artificially low volumetric-based rates, and customers would not receive the most direct economic signal with respect to usage and expected monthly billing.

Figure 1: Historical and Trended Weather Normals[6]



Q. DO YOU AGREE THAT YEAR-TO-YEAR FLUCTUATIONS IN HDDS OVER THE PAST 10 YEARS INDICATE THAT A 10-YEAR WEATHER NORMAL WOULD NOT CREATE A REPRESENTATIVE PREDICTION OF FUTURE WEATHER?

A. No. The 10-year average most closely mirrors the decreasing HDDs seen in the trend over the past 30 years, and the natural variation over the past 10-years does not make it a less valid representation. As shown in the figure above, year-to-year weather fluctuations historically occurred frequently across the previous 44 years; for example, within the 20-year period proposed by witness Everette, the 2002 (3,412

[6] The Richmond Station Heating Degree Day data was provided by PGW. The 30-year normal and 30-year trended normal are based on the annual HDDs for 1986-2015. The 10-year normal is based on annual HDDs for 2006-2015. The annual HDDs corresponded PGW's fiscal year of September – August and included all months' HDDs.

HDDs) heating season had more than 1,000 HDDs fewer than either the 2001 (4,448 HDDs) or 2003 (4,789 HDDs) heating season.

Q. HAVE YOU COMPILED A LIST OF OTHER UTILITIES THAT USE 10-YEAR WEATHER NORMALS?

A. Yes, in response to I&E set III, RS-28-D, I compiled lists of utilities which use 10-year or 15-year weather normal for weather normalization. This group includes 12 utilities that use a 10-year average weather normal as well as 8 utilities that use trended or rolling average weather normal. I have included my response to the above referenced interrogatory as Exhibit PQH-12.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

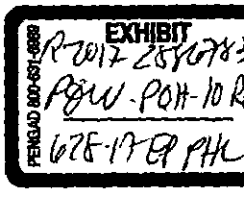
A. Yes.

Exhibit PQH-9
(Revised)

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-9: Proposed Delivery Charges

			Residential	Commercial	Industrial	PHA GS	Municipal/PHA	NGVS
COMPUTATION OF PROPOSED DELIVERY CHARGES								
Base Revenue at Current Rates	[1]		282,885,637	53,857,345	4,095,274	1,096,955	5,817,833	9,590
Proposed Increase	[2]		59,000,000	5,000,000	-400,000	400,000	500,000	0
Share of Increase	[3]		*84%*	*7%*	*-1%*	*1%*	*1%*	*0%*
Base Revenue with Proposed Increase	[4]	[1] + [2]	341,885,637	58,857,345	3,695,274	1,496,955	6,317,833	9,590
Number of Customers per Month	[5]		472,600	25,044	633	1,863	1,777	4
Customer-Months	[6]		5,671,204	300,532	7,596	22,356	21,329	48
Proposed Monthly Customer Charge, $/month	[7]		18	27	75	18	27	35
Customer-Related Revenue	[8]	[6] x [7]	102,081,672	8,114,364	569,700	402,408	575,883	1,680
Current GPC Revenue	[9]		1,376,836	276,508	15,099	6,651	24,968	71
Current MFC Revenue	[10]		6,698,308	80,187	4,718	0	0	0
Current MFC and GPC Revenue	[11]	[9] + [10]	8,075,144	356,695	19,817	6,651	24,968	71
Left to Recover Via Delivery Charge	[12]	[4] - [8] - [11]	231,728,820	50,386,286	3,105,756	1,087,896	5,716,982	7,840
Firm Deliveries	[13]		34,420,905	10,458,219	815,242	166,265	1,496,852	6,109
Delivery Charge, $/mcf	[14]	[12] / [13]	6.7322	4.8179	3.8096	6.5431	3.8193	1.2833
Change in GPC, $/mcf	[15]		*-0.0214*	*-0.0214*	*-0.0214*	*-0.0214*	*-0.0214*	*-0.0214*
Change in MFC, $/mcf	[16]		*-0.0371*	*0.0145*	*0.0037*	*0.0000*	*0.0000*	*0.0000*
Net Change in GPC and MFC, $/mcf	[17]	[15] + [16]	-0.0585	-0.0069	-0.0177	-0.0214	-0.0214	-0.0214
Delivery Charge Adjusted for Change in GPC and MFC, $/mcf	[18]	[14] - [17]	**6.7907**	**4.8248**	**3.8273**	**6.5646**	**3.8408**	**1.3047**

Exhibit PQH-10
(Revised)

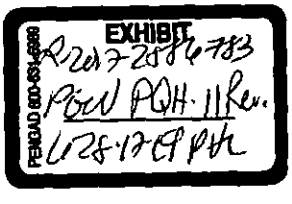


Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-10: Computation of the Gas Procurement Charge

		Amount
Natural gas supply service, acquisition and management, and benefits, $	[1]	324,602
Storage Gas Working Capital plus Cash Working Capital, $	[2]	464,618
Total GPC Costs, $	[3]	789,219
Annual firm sales service volumes, mcf	[4]	42,509,977
Gas Procurement Charge, $/mcf	[5]	0.0186

Sources:
[1]: PGW
[2]: PGW
[3]: [1] + [2]
[4]: PGW
[5]: [3]/[4]

Exhibit PQH-11
(Revised)

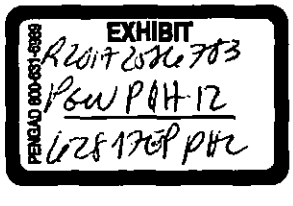


Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018
Exhibit PQH-11: Computation of the Merchant Function Charge

		Total	Residential	Commercial	Industrial	Municipal	PHA	Interruptible Sales and GTS/IT
Non-gas revenue, $	[1]	462,464,067	359,181,531	75,234,758	5,764,802	5,420,282	4,654,902	12,207,792
GCR revenue, $	[2]	177,992,215	144,151,307	28,949,685	1,580,828	2,432,406	877,989	0
Total revenue, $	[3]	640,456,282	503,332,838	104,184,443	7,345,629	7,852,687	5,532,891	12,207,792
Uncollectible Account 904 at Current Rates, $	[4]	16,494,951	15,924,430	546,617	23,904			
Uncollectible Account 904 Share of Revenue, %	[5]		3.16%	0.52%	0.33%			
Increase in Uncollectibles at Proposed Rates, $	[6]	3,117,000						
Total Uncollectible, $	[7]	19,611,951						
Adjustment Percent, %	[8]	118.90%						
Total Uncollectible Share of Revenue, %	[9]		3.76%	0.62%	0.39%			
Uncollectible GCR Expense, $	[10]		5,422,468	180,590	6,116			
Annual firm sales service volumes, mcf	[11]	41,716,041	34,420,905	6,917,661	377,475			
Merchant Function Charge, $/mcf	[12]		0.1575	0.0261	0.0162			

Sources:
[1]: [3] - [2]
[2]-[3]: PGW
[4]: PGW CCOSS
[5]: [4] / [3]
[7]: [4] + [6]
[8]: [7] / [4]
[9]: [5] x [8]
[10]: [9] x [2]
[11]: FY 2018 Deliveries
[12]: [10] / [11]

Exhibit PQH-12



Response of Philadelphia Gas Works ("PGW")
to the Interrogatories of the Bureau of Investigation & Enforcement ("I&E") Set III in
Docket No. R-2017-2586783

Request: I&E RS-28-D Reference PGW Volume II – Testimony & Exhibit. Reference the use of 10-year weather normal to calculate normal degree days to project proforma revenues discussed on PGW Statement No. 5, pages 27-29. Please provide the following:

A. Is the City aware of any instances where the use of the 10-year weather normal average has been approved?

B. If the response in part A above is affirmative, please provide the name of said utilities.

Response:

A. Yes, and I have provided the information in part B of this question.

B. Pike County Light and Power (Gas), in its last base rate case (R-2013-2397353), defined normal weather as the 10-year monthly average of heating degree days. In its prehearing memo, OCA generally noted that it would review the "sales forecast utilized by the Company in order to project future test year sales and revenues, including the proposed normalization of future year sales." But, it did not specifically mention the use of the 10-year monthly average. The original opposition to the 10-year average was not discussed in the Settlement Agreement, Recommended Decision or PUC Opinion and Order, and – importantly - those documents did not modify Pike County's original proposal.

I have identified an additional 12 utilities with commission approved use of ten-year weather normals shown in Figure 1 below; this set includes 9 natural gas or combined utilities and 3 electric utilities. I have also provided examples of seven additional utilities that endogenously incorporate weather trends. The first group uses rolling averages to compute normal weather; rolling averages incorporate trends in the weather by updating on an annual basis to include the most recent conditions. I have identified three utilities that have used commission approved 10-year rolling average weather normals, one utility that with a 12-year rolling average weather normal and two utilities with a 15-year rolling average weather normal. The second group uses trended normal through the use of Hinge Fits. Hinge Fits are a statistical regression approach, which by their construction incorporate weather trends, and I have identified two utilities with commissions approved use of Hinge Fits.

In Figure 1, I identified PPL Electric utility as using commission approved 10-year weather normal because the PA PUC accepted PPL's use of a 10-year rolling weather normal as reasonable and accurate for Act 129 purposes. Among other things, Act 129 of 2008 (Act 129) requires an EDC with at least 100,000 customers to adopt an energy efficiency and conservation plan (EE&C plan), approved by the Commission, to reduce electric consumption by a specified

percentage of its expected consumption, adjusted for weather and extraordinary loads.[1] Failure to achieve the required reductions in consumption may result in a penalty.[2]

Figure 1: Weather Normalization Approaches for a Select Set of Utilities

Entity	Weather Normal Horizon	Industry
[1] CenterPoint (Minnesota)	10 year	Gas
[2] CenterPoint (Louisiana)	10 Year	Gas
[3] CenterPoint (Oklahoma)	10 Year	Gas
[4] CenterPoint (Mississippi)	10 Year	Gas
[5] Central Illinois Light Company (Illinois)	10 Year	Electric
[6] Chesapeake Utilities Corporation (Delaware)	10 Year	Gas
[7] Consolidated Edison Company (New York)	10 Year	Electric
[8] Northern Illinois Company (Illinois)	10 Year	Gas
[9] PPL Electric Utilities Corporation (Pennsylvania)	10 year	Electric
[10] Duke Energy (Ohio)	10 Year	Gas
[11] Vermont Gas (Vermont)	10 Year	Gas
[12] Orange and Rockland Utilities (New York)	10 Year	Gas
[13] Central Hudson Gas & Electric (New York)	10 Year rolling	Gas
[14] Entergy Gulf States (Louisiana)	10 Year rolling	Gas
[15] Black Hills/Nebraska Gas Utility Company (Nebraska)	10 Year rolling	Gas
[16] SourceGas (Nebraska, merged with Black Hills 2/12/2016)	12 Year rolling	Gas
[17] Michigan Consolidated (Michigan)	15 Year rolling	Gas
[18] SEMCO Energy (Michigan)	15 Year rolling	Gas
[19] Consumers Energy (Michigan)	Hinge Fit	Gas
[20] MidAmerican (Illinois)	Hinge Fit	Gas

Sources and Notes:

1. Direct Testimony of Mr. Craig Brown January 15, 2016, supported by Final Order November 9, 2016, Docket Number G-008/GR-15-424
2. CenterPoint Energy Louisiana Weather Normalization Adjustment Rider, Effective January 1, 2007
3. CenterPoint Energy Oklahoma Weather Normalization Adjustment Rider, Effective November 4, 2015
4. CenterPoint Energy Mississippi Weather Normalization Adjustment Rider, Effective 2012
5. Central Illinois Light Company d/b/a Ameren CILCO Proposed general increase in electric delivery service rates, November 2, 2007, Docket Number: 07-0585
6. Delaware Public Service Commission Docket No. 09-398F; Order No. 7837 (September 7, 2010); 2010 Del. PSC LEXIS 85
7. State of New York Public Service Commission, Order Approving Electric, Gas, and Steam Rate Plans in Accord with Joint Proposal, February 21, 2014, Docket Number: 12-E-0030 et. Al.
8. Northern Illinois Gas Company d/b/a Nicor Gas Company Proposed general increase in natural gas rates. (Tariffs filed on November 4, 2004), Docket Number: 04-0779
9. PPL Electric Utilities Corporation, Commission approved electricity consumption forecast for the period of June 1, 2019 - May 31, 2010
10. Direct Testimony of Jose Merino on Behalf of Duke Energy Ohio, July 20, 2012, supported by Final Order November 13, 2013, Docket Number: 12-1685-GA-AIR
11. State of Vermont Public Service Board Final Order, August 21, 2012, Docket Number: 7843

[1] See 66 Pa.C.S. § 2806.1(c), (d).
[2] See 66 Pa.C.S. § 2806.1(f)(2).

PGW St. No. 5-SR

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

SURREBUTTAL TESTIMONY OF

PHILIP Q. HANSER

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Philadelphia Gas Works

General Rate Increase Request

Topics Addressed:

Cost of Service/Class Allocation

June 22, 2017

Q. PLEASE STATE YOUR NAME.

A. My name is Philip Q Hanser.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN THIS PROCEEDING?

A. Yes, I submitted direct testimony sponsoring Philadelphia Gas Works' ("PGW" or the "Company") class cost of service study ("CCOSS"). I have also submitted rebuttal testimony to address a number of issues raised in the direct testimony of non-Company witnesses in this proceeding.

Q. DO YOU HAVE ANY CONCERNS ABOUT THE REBUTTAL TESTIMONY SUBMITTED BY THE OTHER PARTIES IN THIS PROCEEDING?

A. Yes, I will respond to Messrs. Mierzwa, Knecht, and Baudino on some specific issues. In particular, I will respond to Messrs. Mierzwa and Knecht on a cost allocation issue, namely their opposition to the demand/customer split that we have used. I will also respond to Mr. Knecht regarding an issue about the inclusion of certain GTS customer volumes in my response to the OCA request OCA-VII-7. I will respond to Mr. Baudino about the proposed allocation of costs to the IT customers. Finally, I will respond to Mr. Mierzwa's computation of the rate of return.

Q. ARE YOU PRESENTING A NEW COST OF SERVICE STUDY AS PART OF YOUR SURREBUTTAL TESTIMONY?

A. No, I am not.

Q. WHAT IS YOUR CONCERN ABOUT MESSRS. MIERZWA AND KNECHT?

A. My concern is their advocacy for Peak and Average in the case of Mr. Mierzwa, and Average and Excess in the case of Mr. Knecht for the allocation of mains accounts. Specifically, neither the Peak and Average advocated by Mr. Mierzwa, nor the

Average and Excess Method advocated by Mr. Knecht provide the best representation of cost causation for these accounts.

Q. PLEASE EXPLAIN.

A. I chose to use the Demand and Customer approach to allocating mains because these two elements, demands and customers, best represent the cost drivers for mains investments. PGW's mains investments are determined by the requirement to reliably provide service to its customers. Clearly, then, mains investments are related to the maximum levels of demands of customers and a proportion of those costs should be allocated on the basis of customer demands. However, some portion of those mains investments would occur merely if a customer wishes to connect to PGW's system and have the option of obtaining some minimal level of gas to be delivered to her. These investments are a function of the number of customers on the system and do not vary with their demand. This serves as the rationale for using Demand and Customers as an allocator.

Q. PLEASE COMMENT ON THE PEAK AND AVERAGE ALLOCATOR AS PROPOSED BY MR. MIERZWA.

A. The Peak and Average allocator is a maximum demand and volume allocator. It is based on the rationale that the system is planned not only on reliably meeting the system's maximum demands, but also on the average level of demand. That, however, creates an unnecessary redundancy. Any investment to meet maximum demands must also meet the requirements for average demands since the average is always less than or equal to the maximum. Peak and Average's sole justification is that the cost allocation should account for the class's intensity of use and thus is rooted in a fairness of apportionment argument, not cost causation. That will

inevitably translate into higher rates for the higher intensity of use classes, usually the largest commercial and industrial customers. However, customers whose use is more intense than others provide a benefit to lower intensity users through their relatively larger contribution to fixed costs on a per unit basis. Using Peak and Average as an allocator merely increases the transfer of costs between rate classes without a clear cost causation basis.

Q. MR. MIERZWA ASSERTS THAT THE PGW'S OWN LINE EXTENSION POLICY UNDERMINES THE LOGIC OF USING DEMAND AND CUSTOMERS AS AN ALLOCATOR.[1] DO YOU AGREE?

A. No. Mr. Mierzwa misinterprets PGW's mains extension policy arguing it differs from that of electric distribution companies (EDCs). PGW's line extension policy is similar to that of other gas utilities, which are also similar to that of EDCs. Both PGW's and other gas utilities' mains extension policies, as well as those of the EDCs, have been put into place to protect customers. The aim is to avoid PGW incurring extraordinary costs for a portion of its customer costs which are then subsidized by other customers. In particular, PGW seeks to avoid extraordinary costs for that portion of customer costs arising merely from connecting a customer to its system. If a customer wishes service and it exceeds what PGW customarily incurs for connecting a customer, then it will go to the customer and ask for a payment for the difference between its customary connection costs and what is required to serve the customer. This avoids the problem of cross-subsidization. The vast majority of the time this occurs for customers wishing service at some distance from the system. The point of this is that

[1] OCA Statement No. 3-R at 4.

PGW recognizes in its mains' costs that some portion of those costs is strictly a function of the number of customers and not demand-related per se.

Q. WHAT ABOUT THE AVERAGE AND EXCESS ALLOCATOR SUGGESTED BY MR. KNECHT?

A. The Average and Excess Demand allocator suffers from similar difficulties. The Average and Excess Demand allocator begins with the premise that if every customer class had the same average demand, then capacity costs would be uniformly spread across the classes. Those customer classes that consume in excess of the average, then, should be charged with the incremental costs of meeting their excess demands, thus the name Average and Excess Demand. What matters for reliability purposes is a class's contribution to maximum demands at the time the system is at or near a maximum. However, if one follows the procedure of the AGA Handbook in computing the Average and Excess Demand one will find that it suggests using not the excess demands computed at the times of system peaks, but rather the class peaks that do not coincide with the system's peaks. That is because if one applies the formula using the class annual load factors as AGA suggests and bases the excess demand on the class's peaks coincident with the system, one ends up with the class's maximum demand as the allocator. [2] Thus, the logic that drove the Average and Excess Demand allocator leads back to the Demand allocator I used. It is only by using demands that do not serve as a basis for driving costs that the Average and Excess Demand allocator can be applied. As a result, this allocator does not have a cost causation basis because non-coincident peak demands do not drive system costs.

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[2] This issue has also been pointed out in the National Association of Regulatory Utility Commissioner's Electric Utility Cost Allocation Handbook at p50.

Q. DOES MR. KNECHT'S SUGGESTION OF USING A 50/50 SPLIT RESOLVE THE PROBLEM?

A. No, it does not. First, as I understand what he is suggesting, Mr. Knecht would follow the AGA manual and use non-coincident peak demands, thus, continuing the logical difficulty above, namely the lack of cost causation. Second, his use of the 50/50 split instead of the annual system load factor is purely arbitrary, as he admits himself.[3] The logic of using the annual load factor comes about because the load factor measures the relationship between the average level of demand and the system's peak. Even empirically the 50/50 split bears no relationship to PGW's load factor which over the heating season is about 36% and only 27% over the entire year, a much smaller number than Mr. Knecht's 50%.

Q. WOULD YOU LIKE TO RESPOND TO MR. KNECHT'S COMMENTS ON THE PEAK AND AVERAGE SIMULATIONS PERFORMED IN RESPONSE TO OCA AND I&E REQUESTS?

A. Yes. Mr. Knecht correctly identified an inconsistency related to the inclusion of volumes that correspond to certain GTS customers for which mains costs are directly assigned. This has been addressed since the submission of Mr. Knecht's rebuttal testimony. In response to the Office of Consumer Advocate Request OCA-XVII-2 I conducted a run of the COS study in which the costs associated with mains are classified 50% to demand and 50% to commodity. See a summary of the results in Exhibit PQH-13. The portion classified to demand is allocated based on design-day mains and the portion classified to commodity is allocated based on throughput, exclusive of the throughput of GTS customers B and C (per PGW St. No. 6-R, page 2, lines 11-14). In that response, I also updated Exhibits PQH-9, PQH-10, and PQH-

[3] OSBA Statement No. 1-R at 2.

11 to address one computational issue in my calculation of the Merchant Function Charge and one in the computation of the Gas Procurement Charge, both identified during discovery. No other changes were made relative to the original COS study. I do note that a classification of mains as 50% demand and 50% commodity is not appropriate, and that I submitted studies with such classification in response to discovery requests. Such a classification implies that the costs in these accounts vary with the amount of natural gas sold to, or transported for, customers.

Q. DO YOU HAVE CONCERNS ABOUT MR. BAUDINO'S TESTIMONY?

A. Yes. Mr. Baudino asserts that the suggested increase in rates proposed by PGW lacks a basis in cost causation and, therefore, is inappropriate.

Q. PLEASE EXPLAIN.

A. Mr. Baudino argues that assigning mains related costs to interruptible customers on a demand basis is not appropriate because they would likely be interrupted on the design day. This is simply not correct because interruptibility does not affect allocation of costs on the design day, as IT customers do make use of mains on the design day as well as on other high use days. PGW avoids certain supply and storage costs due to the fact that certain customers take service under Rate IT. This is reflected in my Original CCOSS by the fact that the accounts that reflect the above referenced cost savings are allocated using the Design Day Supply allocator. This allocator is zero for the IT Rate class.

Furthermore, a reasonable argument can be made that in fact some portion of supply and storage costs should be allocated to Rate IT customers. PGW's Tariff provides that PGW has the right to interrupt Rate IT customers at the Company's sole

discretion.[4] While IT customers plan for some minimum level of interruptibility, the level of interruption to which PGW is entitled based on its tariff far exceeds the IT customer's capability to manage their business beyond a certain level of interruption frequency and duration. This means that there are bounds to the ability that PGW has to actually interrupt customers, and for this reason, PGW includes Rate IT customers in its supply and distribution system planning. This is further discussed by Company witness Moser in his rebuttal testimony.[5]

Q. HAVE YOU DONE A COMPUTATION OF THE EXTENT TO WHICH THE COMPANY RECOVERS THE COSTS ASSOCIATED WITH SERVING THE IT RATE CLASS?

A. I have. Exhibit PQH-1 submitted with my Original CCOSS shows the revenue at current rates, the Tariff Revenue Requirement allocated on a cost of service basis, and the relative return for each Rate Class. Line [7] shows a significant level of under-collection from the GTS/IT class, while line [3] shows a return on rate base below 1.00. These metrics reveal that the GTS/IT Rate class is costing the system more than they are contributing in revenue. Mr. Baudino argues that the treatment of the GTS and IT as a combined class is responsible for the low rate of return metric of the combined class. I refute this notion in my rebuttal testimony, where I also discuss that Mr. Baudino does not address the fact that many large IT customers are receiving virtually firm service at a steep discount, and thus do not contribute their appropriate share of costs.

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[4] See Philadelphia Gas Works Supplement No. 104 to Gas Service Tariff – Pa P.U.C. No. 2, Original Pg. No. 112. "The Company may curtail (reduce) or interrupt deliveries to the Customer whenever, at the Company's sole discretion, it determines that the available capacity in all or a portion of its system is projected to be insufficient to meet the requirements of all Customers or in the event a NGS fails to meet delivery obligations."

[5] PGW Statement No. 7-R at 8-9.

Q. DO YOU HAVE CONCERNS ABOUT MR. MIERZWA'S RATE OF RETURN COMPUTATIONS?

A. Yes. Mr. Mierzwa's Rate of Return calculation[6] is incorrect, both because it is based upon an incorrect method of allocation of mains, and because it does not take risk into account. Removing write offs from revenue by customer class in the rate of return calculation develops a risk-reflective rate of return. In the following table, I show the rate of return I calculated in my original filing based on the 50% customer/50% demand mains allocation method, as well as the rate of return that results when write offs are deducted from revenue.

Table 1: Comparing Rates of Return

Class	Rate of Return	Rate of Return, reduced by Write Offs
Residential	3.7%	2.0%
Commercial	12.3%	12.0%
Industrial	12.9%	12.7%
PHA GS	3.9%	3.9%
Municipal/PHA	4.1%	4.1%
NGVS	13.4%	13.4%
Interruptible	-16.4%	-16.4%
GTS/IT	1.7%	1.7%
Total	4.7%	3.3%

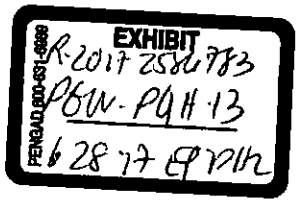
A. The result is a rate of return that is significantly lower for the Residential class, and only marginally lower for the Commercial and Industrial classes. This is explained by the fact that the residential class accounts for the majority of uncollectible amounts.

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes.

[6] OCA Statement No. 3-R at 2.

Exhibit PQH-13



Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - OCA-XVII-2
Exhibit PQH-1: Summary of Allocation Results

Dollars in Thousands			Total	Residential	Commercial	Industrial	PHA GS	Municipal/PHA	NGVS	Interruptible	GTS/IT
AT CURRENT RATES											
Total Revenue	[1]		491,318	385,283	77,377	5,904	1,499	8,861	20	18	12,356
Share of Revenue, by Class	[2]		*100.0%*	*78.4%*	*15.7%*	*1.2%*	*0.3%*	*1.8%*	*0.0%*	*0.0%*	*2.5%*
Total Operating Expenses	[3]		435,418	333,351	66,363	5,261	1,305	9,007	21	35	20,075
Share of Operating Expenses, by Class	[4]		*100.0%*	*76.6%*	*15.2%*	*1.2%*	*0.3%*	*2.1%*	*0.0%*	*0.0%*	*4.6%*
Income Before Interest & Surplus	[5]	[1] - [3]	55,899	51,932	11,014	643	194	(146)	(1)	(18)	(7,719)
Interest & Surplus	[6]		125,013	93,631	17,628	1,290	401	2,609	5	13	9,436
Current Revenue Over (Under) Requirements	[7]	[5] - [6]	(69,114)	(41,699)	(6,614)	(647)	(207)	(2,755)	(6)	(31)	(17,155)
Total Revenue Requirement*	[8]	[1] - [7]	560,431	426,982	83,991	6,551	1,706	11,616	26	49	29,511
Revenue Increase for Full Cost of Service	[9]		14.1%	11%	9%	11%	14%	31%	29%	175%	139%
Rate Base	[10]		1,188,371	890,055	167,567	12,264	3,809	24,800	50	126	89,699
Return on Rate Base Before Interest & Surplus	[11]	[5] / [10]	4.7%	5.8%	6.6%	5.2%	5.1%	(0.6%)	(1.1%)	(14.0%)	(8.6%)
Relative Return	[12]		1.00	1.24	1.40	1.11	1.08	(0.13)	(0.24)	(2.98)	(1.83)
Revenues Relative to COS	[13]	[1] / [8]	**0.88**	**0.90**	**0.92**	**0.90**	**0.88**	**0.76**	**0.78**	**0.36**	**0.42**
Relative to Total for all Classes	[14]		1.00	1.03	1.05	1.03	1.00	0.87	0.89	0.41	0.48
AFTER PROPOSED INCREASE											
Proposed Increase (decrease)	[15]		70,000	59,000	5,000	(400)	400	500	0	0	5,500
Share of Proposed Increase, by Class	[16]		*100.0%*	*84.3%*	*7.1%*	*-0.6%*	*0.6%*	*0.7%*	*0.0%*	*0.0%*	*7.9%*
Total Distribution Revenue with Increase	[17]	[1] + [15]	561,318	444,283	82,377	5,504	1,899	9,361	20	18	17,856
Increase (Decrease) %	[18]	[15] / [1]	14.2%	15.3%	6.5%	-6.8%	26.7%	5.6%	0.0%	0.0%	44.5%
Income Before Interest & Surplus	[19]	[5] + [15]	125,899	110,932	16,014	243	594	354	(1)	(18)	(2,219)
Return on Rate Base Before Interest & Surplus	[20]	[19] / [10]	10.6%	12.5%	9.6%	2.0%	15.6%	1.4%	(1.1%)	(14.0%)	(2.5%)
Relative Return	[21]		1.00	1.18	0.90	0.19	1.47	0.13	(0.11)	(1.32)	(0.23)
Revenues Relative to COS	[22]	[17] / [8]	**1.00**	**1.04**	**0.98**	**0.84**	**1.11**	**0.81**	**0.78**	**0.36**	**0.61**
Relative to Total for all Classes	[23]		1.00	1.04	0.98	0.84	1.11	0.80	0.78	0.36	0.60

The Total Revenue Requirement is equal to the Tariff Revenue Requirement plus the revenues that PGW collects from customer installations, interest income, and certain LNG sales.

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - OCA-XVII-2
Exhibit PQH-2: Summary of Allocation Results by Functional Classification

Dollars in Thousands		Total	Residential	Commercial	Industrial	PHA GS	Municipal/PHA	NGVS	Interruptible	GTS/IT
SUPPLY										
Demand Costs	[1]	26,026	19,572	4,658	344	91	775	1	1	584
Commodity Costs	[2]	(2,484)	(2,023)	(406)	(22)	(10)	(37)	(0)	14	0
Supply Total	[3]	***23,542***	***17,548***	***4,252***	***322***	***81***	***739***	***1***	***15***	***584***
STORAGE										
Demand Costs	[4]	29,490	22,190	5,435	402	105	916	1	1	442
Storage Total	[5]	***29,490***	***22,190***	***5,435***	***402***	***105***	***916***	***1***	***1***	***442***
DISTRIBUTION										
Demand Costs	[6]	83,744	56,011	13,821	1,082	272	2,296	2	6	10,253
Commodity Costs	[7]	75,353	46,986	12,896	989	228	1,865	7	13	12,369
Customer Costs	[8]	110,725	93,377	10,570	778	329	1,665	4	10	3,993
Distribution Total	[9]	269,823	196,375	37,286	2,849	828	5,826	13	30	26,615
ONSITE										
Customer Costs	[10]	158,910	128,840	23,658	1,964	464	2,273	5	3	1,704
Onsite Total	[11]	158,910	128,840	23,658	1,964	464	2,273	5	3	1,704
USEC										
Customer USEC Costs	[12]	53,460	38,851	11,805	920	188	1,690	7	0	0
USEC Total	[13]	53,460	38,851	11,805	920	188	1,690	7	0	0
TARIFF REVENUE REQUIREMENT										
Demand Costs	[14]	139,260	97,772	23,914	1,828	468	3,988	4	8	11,278
Commodity Costs	[15]	72,870	44,963	12,490	967	218	1,828	6	27	12,369
Customer Costs	[16]	269,636	222,217	34,227	2,742	793	3,938	8	13	5,697
Customer USEC Costs	[17]	53,460	38,851	11,805	920	188	1,690	7	0	0
Tariff Revenue Requirement	[18]	**535,225**	**403,803**	**82,436**	**6,457**	**1,666**	**11,444**	**26**	**48**	**29,345**
Customer Months	[19]	6,028,249	5,671,204	300,544	7,596	22,356	21,353	48	48	5,100
Customer-Related Costs, $/month	[20] [16]/[19]		**39.18**	**113.88**	**360.92**	**35.45**	**184.41**	**176.51**	**271.83**	**1,117.15**

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	R-2017-2586783
Office of Consumer Advocate	:	C-2017-2592092
Office of Small Business Advocate	:	C-2017-2593497
Philadelphia Industrial & Commercial	:	
Gas Users Group	:	C-2017-2595147
William Dingfelder	:	C-2017-2593903
	:	
v.	:	
	:	
Philadelphia Gas Works	:	

VERIFIED STATEMENT

I, Philip Q. Hanser, hereby state that the facts set forth below are true and correct to the best of my knowledge, information and belief and I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

1. I have submitted testimony in this proceeding on behalf of Philadelphia Gas Works and am authorized to make this statement on its behalf.

2. I prepared PGW St. No. 5 which includes Appendix A and Exhibits PQH-1, PQH-2, PQH-3, PQH-4, PQH-5, PQH-6, PQH-7A, PQH-7B, PQH-7C, PQH-8, PQH-9, PQH-10 and PQH-11 and was served on the parties in this proceeding on February 27, 2017.

3. I prepared PGW St. No. 5-R which includes Exhibits PQH-9 (Revised), PQH-10 (Revised), PQH-11 (Revised), and PQH-12 and was served on the parties in this proceeding on June 9, 2017.

4. I prepared PGW St. No. 5-SR which includes Exhibit PQH-13 and was served on the parties in this proceeding on June 22, 2017.

5. I do not have any corrections to any of this testimony.

6. If I were asked the same questions set forth in each of these statements today, my answers would be the same.

Date: June 26, 2017

Philip Q. Hanser